Balfour Beatty Herefordshire Council
Working for Herefordshire

Herefordshire Council

HEREFORD TRANSPORT PACKAGE: HEREFORD BYPASS

Route Selection Report

Herefordshire Council

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Route Selection Report

PROJECT NO. 70024065
OUR REF. NO. 70024065-WSP-XX-XX-RP-HE-0004_V2

DATE: JULY 2018

Alternative Format:

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QUALITY CONTROL

Issue/revision	V0	V1	V2
Remarks	[redacted]		
Date			
Prepared by			
Signature			
Checked by			
Signature			
WSP Authorised by			
Signature			
BBLP Authorised by			
Signature			
Report number			

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1 EXECUTIVE SUMMARY

1.1.1. This Route Selection Report (RSR) describes how and why the seven route corridor options were assessed and concludes with a recommendation for the best technical performing route for the Hereford Bypass.

1.1.2. The Hereford Bypass forms part of the Hereford Transport Package (HTP), which combines a bypass with walking, cycling, bus and public realm improvements. The objectives of the HTP are to:

- Facilitate economic growth.
- Encourage sustainable development.
- Improve regional connectivity.
- Provide network resilience.
- Encourage healthier lifestyles.
- Improve air quality and reduce noise.
- Improve safety.

1.1.3. Seven route corridor options for the bypass were shortlisted from an initial long-list of 24 route corridor options, within the Core Strategy Corridor. The latter was identified and then adopted by the Council in 2015. These seven shortlisted route corridor options were then compared using a structured assessment process to determine the best performing route corridor option.

1.1.4. The comparative process was informed by relevant national and local policies, plans and guidance, relevant legislation, environmental and engineering assessment, and by methodology set out in DMRB Advice Note 'Choice between Options for Trunk Road Schemes' (TA 30/82).

1.1.5. Section 2 describes the relevant policy, legislation and guidance which was used to assess the route corridor options for compliance to these national and local governance aspects. Section 3 describes the structured comparison assessment process used to decide on the best performing route corridor option within the core strategy corridor, taking account of the assessments set out in the Stage 2 Scheme Assessment Report (SAR) and Stage 2 Environmental Assessment Report (EAR).

1.1.6. In addition to the structured assessment process used to decide on the best performing route, the results of the Stage 2 Public Consultation were also used to establish the overall best performing route within the corridor,

1.1.7. The conclusion of the structured assessment process of the seven route corridor options, combined with the information and results received from the Stage 2 public consultation was that the **Red Route** should be recommended as the Preferred Route for the Hereford Bypass.

1.2 SUMMARY OF ASSESSMENT FINDINGS

1.2.1. The results of the assessment process are provided in Table 1 below.

1.2.2. Detailed comparisons of the route options within elements/sub-elements are included in Sections 4 to 12 of this Route Selection Report.

Table 1 - Results of Route Selection Comparative Assessment Process.

Element	Sub-element	Best performing route-options	Conclusion
Element 1 Existing A465 to Hill Road (Upper Breinton Road – U73022)	**1.1** Existing A465 to Ruckhall Lane	**Red / Olive / Black 1 / Black 2**	**Red and Black2** are common to sub-elements and Best Performing Routes for each. **Result – Red / Black2**
	1.2 Ruckhall Lane and Wye Crossing to Warham Lane (U73023)	**Red / Black 2**	
	1.3 Warham Lane (U73023) to Hill Road (Upper Breinton Road – U73022)	**Red / Black 2**	

Element 2 Hill Road (Upper Breinton Road – U73022) to Canon Pyon Road	**2.1** Hill Road (Upper Breinton Road – U73022) to Kings Acre Road	**Red / Olive**	Red and Olive are common to sub-elements and Best Performing Routes for each. **Result: Red and Olive**
	2.2 Kings Acre Road to Roman Road	**Red / Olive**	
	2.3 Roman Road to Canon Pyon Road	**Red / Olive**	
Element 3 Canon Pyon Road to existing A49		**All**	All route options common throughout. **Result: All**

1.2.3. Based on this assessment the **Red Route** has been identified as the only route that performs best through the whole core strategy corridor.

1.2.4. Accordingly, the structured assessment process recommends that the **Red Route** is taken forward as the best performing route corridor option for the Hereford Bypass

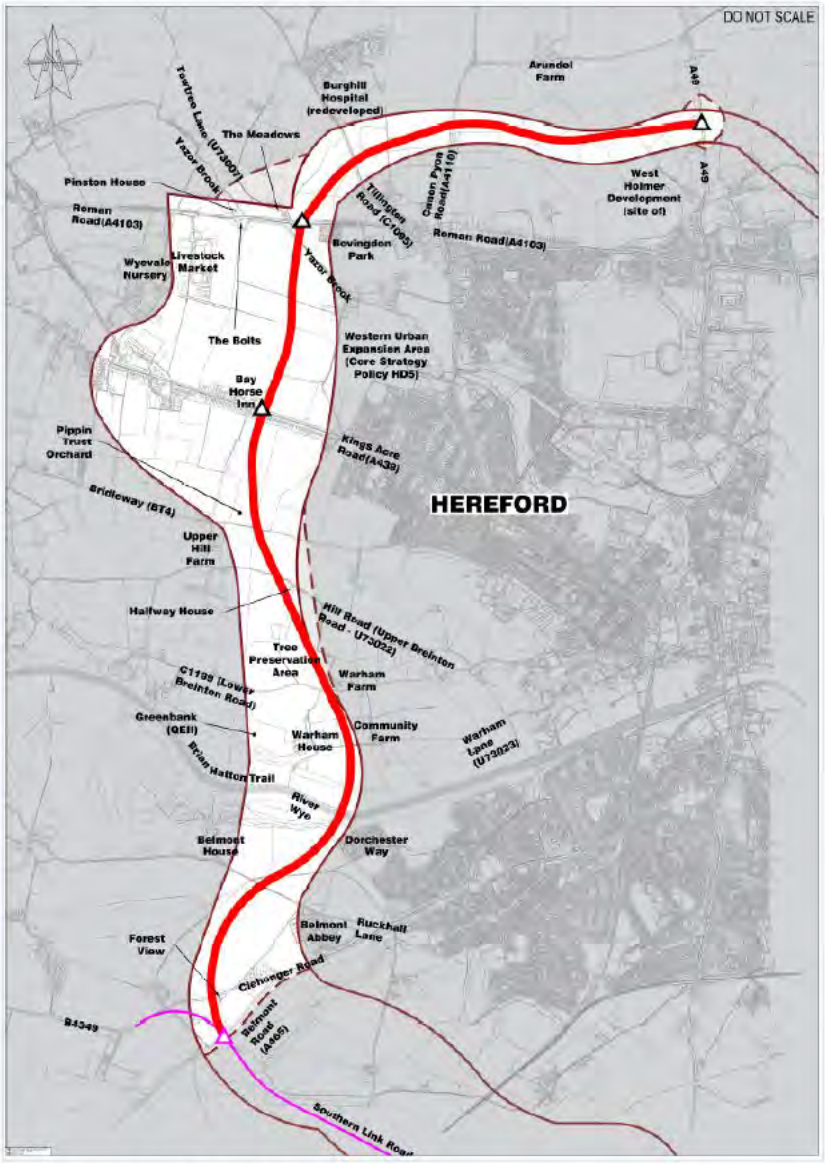


Figure 1 – Red Route

2 BACKGROUND

2.1 INTRODUCTION TO THE HEREFORD TRANSPORT PACKAGE

2.1.1. The proposed Hereford Transport Package (HTP) combines a bypass to the west of Hereford city, with walking, cycling, bus and public space improvements to encourage people to travel more sustainably for short distance journeys within the city. The bypass will provide a new road linking the A49 south of Hereford, via the A4194 (also known as the 'Southern Link Road'), with the A49 north of the city, as well as junctions with the A465 Abergavenny Road, the A438 Kings Acre Road and the A4103 Roman Road. The proposed scheme will also include a viaduct to cross the River Wye, to provide a second road river crossing, the current single crossing being heavily trafficked and vulnerable to disruption.

2.1.2. The proposed bypass will provide an alternative and more convenient route than the A49 through Hereford for freight and other long-distance traffic and will improve journey time reliability on the A49 and other major roads (such as the A438 and A465). Removing long distance road freight across the city centre through the proposed bypass will enable the A49, through Hereford, to better accommodate local traffic and provide opportunities to implement transport improvements that facilitate walking and cycling, improved bus journey times, and will improve air quality and reduce congestion in Hereford.

2.1.3. In Hereford, this will also provide essential infrastructure to support 6500 new homes, 6000 jobs, a new university and the expansion of the Hereford Enterprise Zone – all key initiatives in the Herefordshire Local Plan Core Strategy 2011-2031.These benefits are required by Policy HD3 (Movement) of Herefordshire's Core Strategy.

2.1.4. Full benefits of the HTP are summarised in the Preferred Route Report (PRR), and will be set out in a future planning statement to be prepared in support of an application for planning consent.

2.2 AIM AND STRUCTURE OF THE ROUTE SELECTION REPORT

2.2.1. The purposes of this Route Selection Report (RSR) is to document and provide an understanding of, the technical assessment process and methodology used in determining the best performing route corridor option of the seven under consideration. The RSR is part of the suite of documents for assessing the HTP and should be read in conjunction with the Stage 2 Environmental Assessment Report (EAR) and the Scheme Assessment Report (SAR), followed by the Preferred Route Report (PRR) as shown in Figure 2.

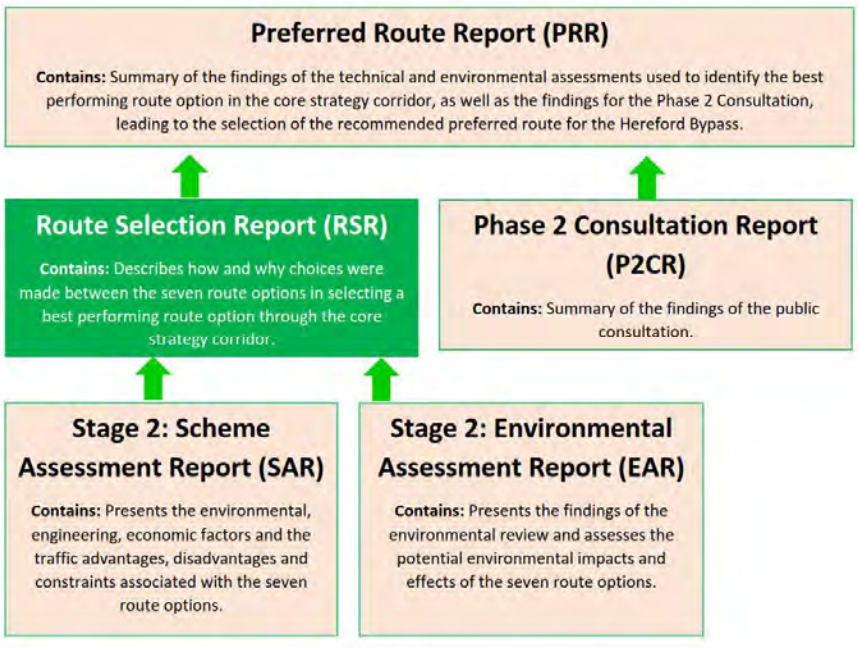


Figure 2 – Preferred Route Documents

2.2.2. A high-level summary of the findings of the report and selection outcomes is provided in Section 1 of this document with each of the following sections providing the detail that supports these findings.

- Section 2 - background on the previous options assessment, legislation, policy and guidance relevant to informing the route choice, explanatory text for how this informed the assessment.
- Section 3 –the overall methodology and approach used to arrive at a best performing route.

2.2.3. Route corridor options have been compared to establish the best performing route corridor option through dividing each route corridor option into three "elements" and undertaking pair-wise comparisons within each of the three elements.

2.2.4. Initially four route corridor options were selected, and which had alignments wholly within the Core Strategy Corridor. Each of the four options had to meet key design parameters, including a 60mph design speed, the provision of junctions at each of the main arterial routes, and avoiding, where possible, major environmental features such as ancient woodland and residential areas.

2.2.5. However, further analysis indicated that the route alignments could offer enhanced operational performance to traffic if the alignments were able to be marginally adjusted and, in some cases, include design features that extended the alignment slightly beyond the Core Strategy Corridor. Herefordshire Council gave the design team permission to explore these variations, resulting in three additional route corridor options being added to the existing four options. All seven options were then subjected to outline design engineering in accordance with parameters laid out in the SAR1 and SAR2 reports. This was followed by design optimisation including earthworks balancing and feature-impact reduction, culminating in the production of route engineering layout drawings for each of the seven route corridor options

2.2.6. This report is not intended to provide a full planning case for the best performing route. It will inform a planning statement which will be prepared and submitted in support of a future application to the relevant authority for the resulting scheme, either for development consent or for planning permission. The planning statement will set out the case in support of the scheme. This will include how the benefits of providing the scheme outweigh any identified harm in the overall planning balance, and demonstrate compliance with relevant policy, accounting for any material considerations.

2.2.7. This background section to the report includes details of the prior activity that has taken place to reach the current position, key considerations for the assessment process that take account of the SAR and EAR, as well as the national and local policy, plans and guidance documents as detailed in Sections 1.4 and 1.5. The requirements and hierarchies of these documents inform and underpin the assessment of the route corridor options.

2.3 PREVIOUS CORRIDOR ASSESSMENT

2.3.1. Inner and outer corridors to the east and west of Hereford were assessed in 2010 (Study of Options, Amey 2010). It was concluded that routes east of Hereford should not be taken forward. For more detail of this assessment process and results please refer to the Study of Options, (Amey 2010)

2.3.2. Of the inner and outer western routes, the inner corridor was then included in Herefordshire's Local Plan Core Strategy. This is because routes closer to Hereford were assessed as being more likely to be able to accommodate a bypass with a less significant environmental impact than routes further west.

2.3.3. The Core Strategy took the strategic decision of promoting the inner western route corridor as part of a wider transport package for Hereford.

2.3.4. The inner western corridor is shown in the Key Diagram in the Herefordshire's Local Plan Core Strategy. Throughout this report it is referred to as the 'core strategy corridor'.

2.3.5. Seven potential routes through the core strategy corridor were subsequently identified in a process involving transport, highways engineering, environmental, and planning professionals, to ensure a range of issues were considered. These included transport performance, engineering constraints, and environmental impact, taking account of planning policy, including the local development plan.

2.3.6. The process for arriving at these seven short-listed routes is reported in a Corridor Assessment Framework Report (CAF).

2.3.7. The seven route corridor options were then presented for public consultation through the Phase 2 consultation process conducted in early 2018. The results of the consultation are set out in the Phase Two Consultation Report (P2CR).

2.4 OVERVIEW OF CORE STRATEGY CORRIDOR

2.4.1. The core strategy corridor is predominantly rural land immediately to the west of Hereford. A full description of the core strategy corridor is within Section 2.3 of the Stage 2 EAR and sections of the corridor are described in more detail in Section 3 of this report.

2.4.2. The corridor and its surrounds contain agricultural land bounded by hedgerow, ancient woodland, veteran trees, scheduled monuments, Grade II* and Grade II listed structures, the River Wye Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), Yazor Brook and associated flood zones.

2.4.3. There are also a number of residential areas, businesses, footpaths and bridleways, unregistered parks and gardens, and sites of importance for nature conservation, in and around the corridor.

2.4.4. The location identified for a strategic urban expansion in Policy HD5 of the local development plan lies partly within the core strategy corridor to the north west of Hereford.

2.4.5. An environmental constraints plan, which also shows the short-listed routes, can be found within the Stage 2 EAR and is also appended to this report (Appendix A).

2.5 LEGISLATIVE CONTEXT

2.5.1. The following is a non-exhaustive list of legislation that forms the legislative context to route selection:

- Planning Act 2008 as amended;
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017;
- Infrastructure Act 2015;
- Planning (Listed Buildings and Conservation Area) Act 1990;
- Climate Change Act 2008;
- The Natural Environment and Rural Communities Act 2006;
- Conservation of Habitats and Species Regulations 2010;
- Protection of Badgers Act (1992);
- Environmental Protection Act 1990;
- Environment Act 1995;
- Environmental Noise (England) Regulations 2006
- Countryside and Rights of Way Act 2000;
- The National Parks and Access to the Countryside Act 1949;
- Water Framework Directive (Council Directive 2000/60/EC) (as amended);
- Air Quality Directives (Council Directive 2008/50/EC);
- The Wildlife and Countryside Act 1981 (as amended);
- Equality Act 2010;
- Water Resources Act 1991 (SI 57) (as amended by the Water Act 2003);
- Flood and Water Management Act 2010.
- Highways Act 1980;
- The Control of Pollution (Amendment) Act 1989;
- Waste Minimisation Act 1998;
- The Waste and Emissions Trading Act 2003;
- The Clean Neighbourhoods and Environment Act 2005;
- The UK Biodiversity Action Plan (UK BAP) 1994 (as amended);
- The UK Post-2010 Biodiversity Framework (2012);
- Air Quality Standards Regulations 2010; and
- The Noise Insulation Regulations 1988 (as amended).

2.6 POLICY RELEVANT TO ROUTE SELECTION

2.6.1. The list below includes relevant national planning policy taken into account in this report.

- National Planning Policy Framework (NPPF)
- National Policy Statement For National Networks (NNNPS).
- Herefordshire Local Plan - Core Strategy Infrastructure Delivery Plan
- Herefordshire Council Local Transport Plan 2016 – 2031

HEREFORDSHIRE LOCAL PLAN, CORE STRATEGY (2015):

2.6.2. The list below includes relevant local planning policy:

- POLICY SS1 - Presumption in favour of sustainable development
- POLICY SS2 - Delivering new homes
- POLICY SS3 – Ensuring sufficient housing land delivery
- POLICY SS4 - Movement and transportation
- POLICY SS5 – Employment provision
- POLICY SS6 – Environmental quality and local distinctiveness
- POLICY SC1 - Social and community facilities
- POLICY OS3 - Loss of open space, sports or recreation facilities
- POLICY MT1 - Tra□c management, highway safety and promoting active travel
- POLICY LD1 - Landscape and townscape
- POLICY LD2 - Biodiversity and geodiversity
- POLICY LD3 - Green infrastructure
- POLICY LD4 - Historic environment and heritage assets
- POLICY SD1 - Sustainable design and energy e□ciency
- POLICY SD3 - Sustainable water management and water resources
- POLICY SD4 - Wastewater treatment and river water quality
- POLICY ID1 - Infrastructure Delivery
- POLICY HD1 - Hereford
- POLICY HD3 – Hereford Movement
- POLICY HD4 – Northern Urban Expansion (Holmer West)
- POLICY HD5 - Western Urban Expansion (Three Elms)

NEIGHBOURHOOD DEVELOPMENT PLANS

Clehonger Neighbourhood Development Plan

2.6.3. The area for this Neighbourhood Plan was designated on 25 Sept 2014. However, no draft plan has been produced to date.

Belmont Rural Neighbourhood Development Plan 2017

2.6.4. This Neighbourhood Development Plan was adopted on 16 October 2017 and so forms part of the statutory development plan. The following policies are relevant to the assessment:

- **OBJECTIVE 2: to protect Home Farm**
  - POLICY 2: Protecting Home Farm and the Land Adjacent to Ruckhall Lane
- **OBJECTIVE 3: to support long term development proposals for the former Belmont Golf Club**
  - POLICY 3: Belmont Golf Course
- **OBJECTIVE 6: to improve access to the area, taking advantage of the Western Relief Road**

Breinton Neighbourhood Development Plan (2016):

2.6.5. This Neighbourhood Development Plan was adopted on 1 December 2016 and forms part of the statutory development plan. The following policies are relevant to the assessment:

- POLICY B7 - Protecting the best and most versatile agricultural land, soils and promoting agricultural
- POLICY B8 - Protecting and developing existing community assets and infrastructure
- POLICY B9 - Protecting designated local green space
- POLICY B10 - Moving Around Breinton
- POLICY B11 - Green Infrastructure
- POLICY B14 - Protecting the Landscape

- POLICY B15 - Local Distinctiveness
- POLICY B16 - Protecting Important Public Views

Burghill Neighbourhood Development Plan

2.6.6. For this Neighbourhood Development Plan, a Regulation 16 has been submitted and following the 6-week consultation the policies will have material weight. The policies are still, however, subject to change.

2.6.7. Policies which would be relevant are:

- POLICY B7 - Traffic management and transport improvements POLICY B8 - Design of Development in Burghill Parish.
- POLICY B9 - Protecting and where possible enhancing local landscape character.
- POLICY B10 - Protection of local green spaces

Holmer and Shelwick Draft Neighbourhood Development Plan

2.6.8. The area for this Neighbourhood Plan was designated on 20 January 2017. Work is ongoing on the draft plan and it is expected to go out for public consultation in the summer 2018, after which its policies may carry weight.

Stretton Sugwas Draft Neighbourhood Plan

2.6.9. It appears that no progress has been made on this Plan since 2015. Policies which would be relevant are:

- POLICY SS1 – Protecting sensitive landscapes
- POLICY SS3 – Landscape design principles

3 ASSESSMENT METHODOLOGY

3.1 OVERVIEW

3.1.1. WebTAG (web-based Transport Analysis Guidance) is an appraisal tool used to inform transport investment decisions. The methodology is not designed for choosing between route corridor options when recommending a best performing route.

3.1.2. Any recommended route corridor option within the core strategy corridor must take account of local conditions and constraints, the national and local planning policy context, and legislation.

3.1.3. The policy context forms the framework within which to help understand which impact is the more acceptable when choosing between route corridor options within the core strategy corridor. For example, preserving ancient woodland may be prioritised over the loss of Grade 3 agricultural land, since the former has a greater level of policy protection.

3.1.4. There are also place-based policies that must be considered, for example the requirements of Policy HD5 in the Core Strategy, which identifies a location for a strategic urban expansion, partially within the core strategy corridor through which the bypass would also pass.

3.1.5. Since there are seven route corridor options, the selection methodology has been informed by 'Choice Between Options for Trunk Road Schemes (TA 30/82)', including the 'pairwise' comparison method. This method is used regularly by Highways England and highway authorities.

3.1.6. Selecting a best performing route was an iterative process involving multi-disciplinary collaboration.

3.2 DEFINITIONS

3.2.1. Table 2 below provides definitions for some of the terms used in this report.

Table 2 – Definitions

Term	Definition
Core strategy corridor	The inner western corridor identified in the Herefordshire Local Plan Core Strategy 2011 – 2031. It is the area within which a single best performing route will be recommended to Herefordshire Council for consideration as the preferred route. Herein this will be referred to as the 'Core Strategy Corridor'. This corridor is shown in diagrammatic form in the Hereford Key Diagram taken from the adopted Herefordshire Local Plan Core Strategy, as reproduced in Appendix B.
Element	Used to describe a defined location within or 'section' of the core strategy corridor in which there are similar relevant issues that allow a choice to be made on a single route through that location. There are three elements, shown in Figure 3.
Sub-element	Used where it was decided that a choice was better made within a smaller section of one of the three elements.
Route corridor option	A choice of route for the bypass to be made within an element or sub-element of the core strategy corridor.
Combined route options	Occur when route corridor options converge and share a common alignment at certain points in the core strategy corridor, and so must be considered as a single alignment when comparing route corridor options.
Relevant issue	The issues identified as being most relevant to the choice being made, which can include the generic impacts identified in Section 5 of the NNNPS, as well as other material considerations, such as the viability of the route, and safety. These are normally (though not always) issues in which there was a significant difference between the options for the issue.

Term	Definition
Pairwise comparison	An established method of managing comparisons where there are many alternative options. This is normally achieved by comparing two route corridor options at a time then keeping the best performing one to be compared with another. It is described further in 2.3.5. of this report.
Summary matrix	Incorporates information on the individual routes broken down by discipline, (for example highways, geotechnical, structures, ecology, historic environment, landscape, visual impact, noise, water, geology, people and communities and commercial viability). Results from concept design are shared to identify the better performing route for each discipline within each element (see Appendix C).

3.3 BREAKDOWN OF CORE STRATEGY CORRIDOR INTO ELEMENTS

3.3.1. As previously stated, the methodology for considering the Preferred Route has been informed by 'Choice Between Options for Trunk Road Schemes (TA 30/82)'.

3.3.2. TA30/82 recommends cutting the determination of the Preferred Route into more manageable sections where real choices can be made.

3.3.3. The core strategy corridor has been split into three 'elements' (or sections) sharing common constraints and features, which allow for location specific choices to be made between the route options for a linear scheme (Figure 3).

3.3.4. The core strategy corridor has been split into three elements:

Element 1

All routes commence at the A465, then cross the important impact areas of the heritage parkland, River Wye and impact on the ancient woodland on the north bank of the Wye and ending at Hill Road (Upper Breinton Road – U73022) which is just north of where the routes split going north.

Element 2

All routes commence at Hill Road (Upper Breinton Road – U73022) and end at Canon Pyon Road where all routes come together in one alignment. Constraints and issues for this section include the crossing of King's Acre Road and Roman Road, the Yazor Brook crossing and potential flooding issues, and how a bypass would integrate with the western expansion of Hereford.

Element 3

All routes commence at the A4110 Canon Pyon Road in the west and terminate at the A49 in the east.

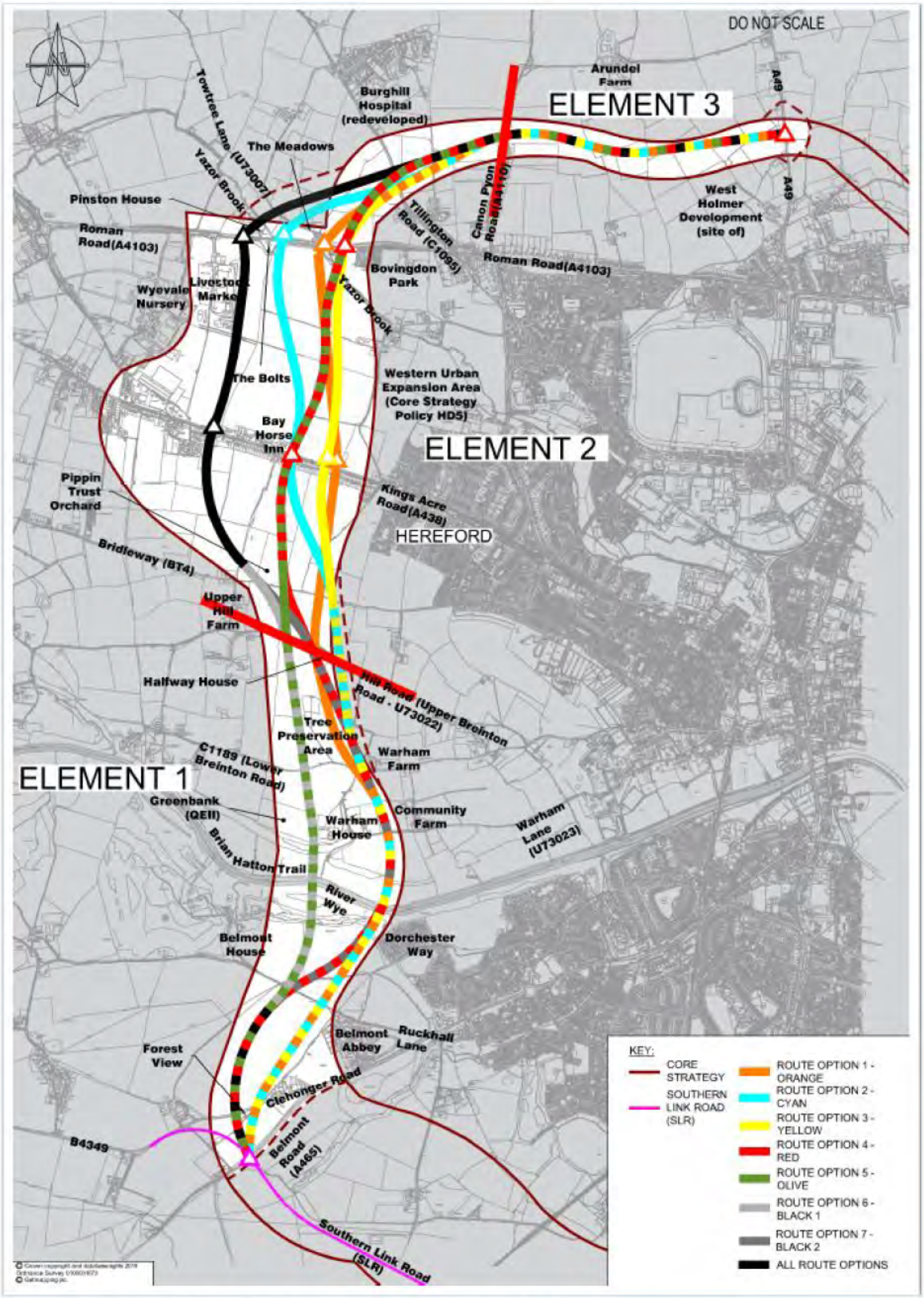


Figure 3 - Route Corridor Options and element breakdown

3.4 PROCESS

3.4.1. The relevant issues were identified for the particular choice to be made within that sub-element.

Relevant policy considerations, including from the NNNPS, the NPPF and the local development plan were identified to inform how impacts should be considered and prioritised when making the choice.

3.4.2. If there were a large number of options within the sub-element, where appropriate, a pairwise comparison process was used. This method of comparing options is used in many comparative contexts and is described in Paragraph 4.5 of TA 30/82 DMRB Volume 5:

'Where there is a large number of options, one method of cutting the problem down to a more manageable size is to compare the options, two at a time, eliminating the least favoured in turn.

The advantage of this method is that the problem is sub-divided into a discrete number of smaller problems. This approach is particularly helpful in presenting a recommendation and it enables the reasons behind past decisions to be traced without ambiguity.

It is particularly suitable where options fall into recognisable groups with a key feature in common.

*For example, it may help to identify both the best route north of a town and the best route south of a town before comparing those best routes one with another. Similarly, alternative routes with substantial sections in common might be looked at first'. (*TA 30/82, Paragraph 4.5*)*

3.4.3. Identification of the route corridor options to be taken forward was an iterative process, and included workshops.

3.4.4. Comparisons were informed by the policy context, available information, assessment and data, professional judgement based on knowledge of similar schemes, and took account of the viability of the route option and other material considerations.

3.4.5. Whilst the route corridor options have been developed as individual routes independent of each other, the best performing route corridor option could be a mixture of routes based on best solution within that element or sub- element, taking account of all relevant environmental and technical constraints, including the ability of the route sections to align with one another and the route as a whole to be able to meet the objectives of the scheme.

3.4.6. For the purposes of the comparisons made at route selection, environmental constraints were more determinative than engineering constraints. This is due to all shortlisted route corridor options being safe, viable, and able to meet the transport objectives of the scheme.

3.4.7. The best performing route corridor options is the combination of all best performing route- option for each discrete element.

3.4.8. To ensure best legal and policy compliance (including with the legislation, policy and guidance listed in Section 2.4), the resulting best performing route may still be refined to optimise the design and further minimise or avoid adverse impacts.

3.4.9. Comparisons must sometimes be made using information that may change or improve with further assessment. As more information becomes available, including during the next stage of consultation, the decision will be checked to ensure that the preferred route corridor option remains the most appropriate choice.

3.4.10. For the purposes of comparison, it is assumed that all route corridor options would be able to meet the objectives of the scheme and therefore provide similar benefits.

4 ROUTE SELECTION - ELEMENT 1: A465 TO HILL ROAD (UPPER BREINTON ROAD – U73022)

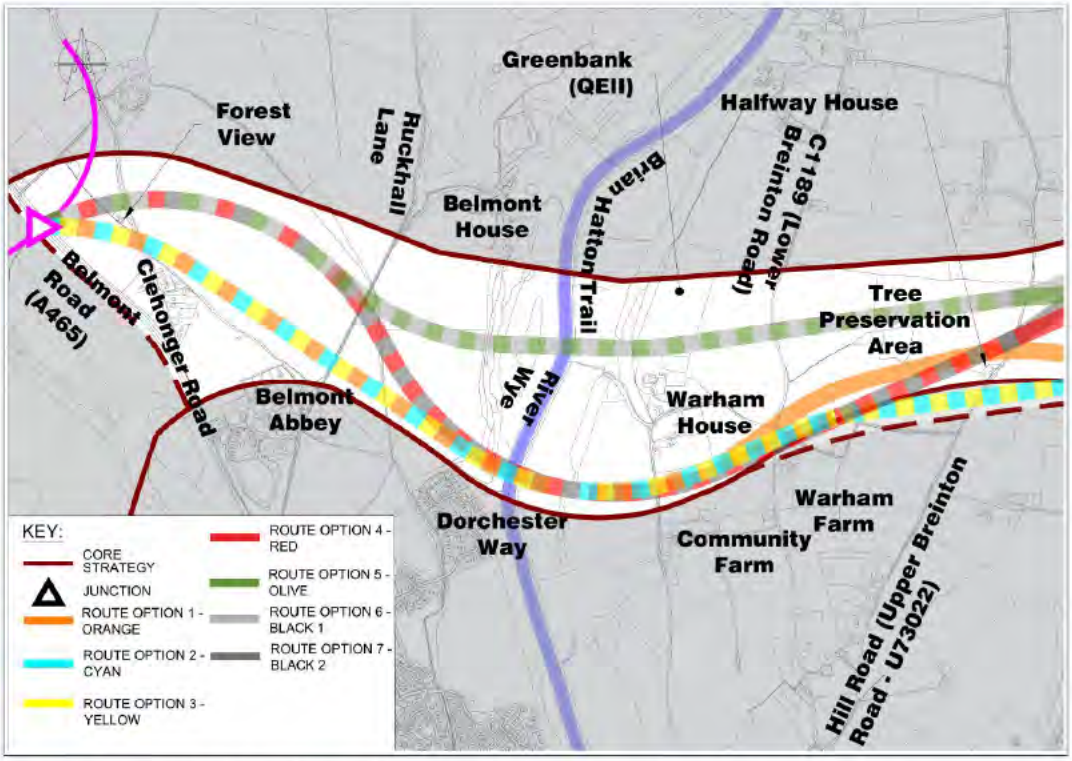


Figure 4 - Element 1: A465 to Hill Road (Upper Breinton Road – U73022)

4.1 DESCRIPTION OF LOCATION OF ELEMENT 1

4.1.1. Element 1 is the southern portion of the core strategy corridor. The element extends from the A465 and A4194 (also known as the 'Southern Link Road') northwards to Hill Road (Upper Breinton Road – U73022) and Element 2. The area contains agricultural fields generally divided by hedgerows with small clusters of trees generally located on field boundaries. B4349 splits from the A465 and crosses the element heading towards the south west. There is a small area of housing, north and south of the B4349, west of the junction with A465.

4.1.2. Belmont Abbey lies east of this element. The Abbey Church is a Grade II* Listed Building, and there are a number of other Grade II Listed Buildings within the grounds of the abbey. Ruckhall Lane passes the northern boundary of Belmont Abbey and crosses the element towards Belmont House (Grade II* listed) in a north westerly direction. Just east of the element, and south of the river, there is an area of residential housing at Dorchester Way (including Tintern Close and Canterbury Close) which was developed in the early 2000s.

4.1.3. The River Wye passes through the centre of this element, running from west to east towards Hereford City Centre. The river valley north and south of the main channel is designated as Flood Zone 3 where there is a high probability of flooding. The River Wye is designated as a SAC and a SSSI. North of the river, the bands of woodland which lead down into river valley are designated ancient woodland.

4.1.4. There are three watercourses in Element 1: Belmont Stream, River Wye and Warham House Tributary

4.1.5. Warham House is located approximately 270m north of the River Wye. Warham Lane (U73023) leads from the city centre in the east towards Warham, passing Hereford Community Farm. Warham Lane (U73023) curves round east of Warham House and joins C1189 (Lower Breinton Road), south west of Warham Farm. Between the C1189 (Lower Breinton Road) and Hill Road (Upper Breinton Road – U73022) there are agricultural fields and an area of woodland at the centre. On the western edge of the element in this area, an orchard extends between the two roads at Little Breinton.

4.1.6. Element 1 begins on the southern boundary of Clehonger Parish Council, and passes into Belmont Rural Parish as the routes cross Ruckhall Lane. North of the river, the element falls within Breinton Parish. The element then turns towards the north east and crosses into the western extent of Hereford City limits, as it crosses Hill Road (Upper Breinton Road – U73022).

4.2 DESCRIPTION OF ROUTE OPTIONS THROUGH ELEMENT 1

4.2.1. Element 1 includes the following route corridor options:

- Orange/Cyan/Yellow
- Red/Black 2
- Black 1/Olive

4.2.2. A junction on the A465, south of the B4349, will be the starting point for the proposed bypass, connecting the proposed new route to the existing network and the proposed A4194 Southern Link Road. The Cyan, Orange, and Yellow alignments travel in a north-eastern direction towards the River Wye, where they then begin to curve around to the north. North west of Hereford Community Farm the orange alignment splits from Cyan and Yellow, and curves further to the north west on its own. Cyan and Yellow continue northwards west of Warham Farm and cross Hill Road (Upper Breinton Road – U73022) to the start of Element 2.

4.2.3. The remaining route corridor options, Black 1, Black 2, Olive and Red head north immediately after the new junction on the A465 before curving round to the north east towards Ruckhall Lane. At this point, Black 2 and Red split to the east and curve towards the alignments and meet at the River Wye crossing. Black 2 and Red continue to follow these alignments until the split in a north-north-west trajectory at Warham Farm/C1189 (Lower Breinton Road). At the split at Ruckhall Lane, Black 1 and Olive make up the western most alignment options, and pass across the river valley on a northern trajectory, heading towards Hill Road (Upper Breinton Road – U73022) and the start of Element 2.

4.3 ISSUES WITHIN ELEMENT 1

4.3.1. The issues to consider when choosing between route corridor options through this element were:

- Designated heritage assets and their setting: including Grade II listed Merryhill Farmhouse; Grade II* Abbey Church of St Michael and All Angels and its associated listed features; Grade II* Belmont House; Scheduled Monument and Grade II structures within and around Breinton, and the historic landscape, including Belmont House & Warham House Unregistered Park and Garden, and the cultural (including artistic) value of its ancient, veteran and notable trees.
- Landscape character, including the historic and cultural (including artistic) value of the landscape, which has associations with the artist Brian Hatton.
- Views from publicly accessible places, such as public rights of ways (PROW) both north and south of the Wye, and from Drovers Wood.
- Living conditions experienced by occupiers of residential dwellings at Dorchester Way, as well as isolated and smaller groups of dwellings within the rural fringe of Hereford, which may be affected by changes in noise, air quality and by views onto the scheme.
- Hydro-morphological quality and flood risk associated with Belmont Stream, the River Wye and the Warham House Tributary.
- Hereford Community Farm, including effects from noise, and the viability of maintaining its use.
- Potential loss of agricultural buildings at Warham Farm.
- The open space legally protected from compulsory acquisition by Fields in Trust and designated as local green space in the Breinton Neighbourhood Plan (known locally ‘Greenbank Meadow’).
- The convenience and amenity of local PROW network, including Breinton footpaths 1,8,2 and 10, Breinton bridleways 4,9,2,10,4,9,25,3 north of the Wye, and Clehonger footpaths 7 and 7a, south of the Wye, as well as permissive routes
- Aesthetics and viability of the bridge crossing, including associated engineering works.
- Loss and deterioration of important trees (ancient, veteran trees and notable)
- Road function, especially how journey times would be affected by length of the route, and likelihood of drivers choosing the route in preference to the existing A49 through Hereford.
- Overall cost and implications for the viability of being able to fund the bypass.

4.3.2. If there was no or marginal difference between these issues then they were not always relevant to route choice. The relevant and non-relevant issues are identified for each sub-element.

4.3.3. Whilst a significant choice between routes was where it should cross the River Wye, both crossings would have similar implications for the River Wye SAC and SSSI and effective mitigation could be provided at both locations. The effects on this sensitive ecological site were therefore not a determining factor for route choice through Element 1.

4.4 THE POLICY FRAMEWORK RELEVANT TO ELEMENT 1

4.4.1. Taking account of the above, the most relevant planning policy to inform route selection through this element includes policies related to: ancient woodland and veteran trees; living conditions (noise and air quality); historic environment including designated heritage assets and their setting; Landscape character, including the historic and cultural landscape, and views; designated heritage; community uses and open space; agricultural viability (which may be affected by severance of agricultural land and loss of buildings); design (especially of the viaduct crossing and road function).

4.4.2. Where the route choices within Element 1 are likely to involve weighing up unrelated issues with different policy considerations, for example, the requirement to avoid ancient woodland set against the need to minimise noise at residential areas, it is indicated how these issues may be considered relative to one another within the policy framework.

4.4.3. Occasionally policy discussion is included for areas less relevant to route choice within Element 1, due to there not being a substantial difference between the route corridor options. For example, if a similar (though not equal) amount of hedgerow might hypothetically need to be lost and then replaced for two route options. This is because, although there may be no significant difference between them, all else being equal, the route that would require less hedgerow loss would be most compliant with the NNNPS and local development plan.

POLICY, ELEMENT 1: ANCIENT WOODLAND, AND AGED AND VETERAN TREES

4.4.4. Routes which passed directly through ancient woodland were rejected at an earlier stage of the options appraisal, as described in the CAF

4.4.5. Due to their prevalence in Element 1 all routes are likely to require the removal of some important trees (ancient, veteran and notable trees) or lead to indirect effects on ancient woodland e.g. from nitrogen deposition. It is not possible, therefore, to avoid all loss or deterioration from any route.

4.4.6. Routes that did not minimise the loss or deterioration of ancient woodland were not shortlisted. This is described in the CAF.

4.4.7. To justify loss or deterioration for any of these routes it would be necessary to demonstrate a need for, and benefits of, the scheme. The benefits would need to clearly outweigh that loss as follows:

*'Development consent is unlikely to be granted for a bypass route that would result in the loss or deterioration ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless 'the national need for and benefits of the development, in that location, clearly outweigh the loss' (*NNNPS Paragraph 5.32*)'.*

4.4.8. This is similar to the policy test in the NPPF set out at Paragraph 118.

'When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

*planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss' (*NPPF Paragraph 118*)'*

4.4.9. The arboricultural survey has recorded high and medium value arboricultural features in the area including ancient, veteran and notable trees, ancient woodland and those covered by a Tree Preservation Orders. The features described in NNNPS and NPPF above are features and qualities of ancient woodland, ancient and veteran trees. Whilst of high value notable trees lack the special qualities associated with veteran/ancient

trees. In terms of the impact assessment they have been assign a lower quality category (Medium value) to be able to clearly quantify the impact associated with each route option.

4.4.10. These trees (ancient woodland, ancient and veteran trees) therefore have very strong policy protection due to being irreplaceable. Route options that minimise their loss or deterioration, taking account of the quality of the tree, are therefore more likely to be chosen.

4.4.11. The benefits of the scheme, for example in the improvements to quality of the centre of Hereford that would be enabled by reducing through traffic and heavy freight, would help justify the necessary loss or indirect impacts on ancient or veteran trees from all of the routes.

4.4.12. This case will be set out in a planning statement to support a future application for planning permission or development consent.

4.4.13. The SoS (Secretary of State) and Examining Authority may also give weight to other benefits from choosing a route that would, as a result, cause more harm to these trees.

4.4.14. For example, if a route would better maintain residential amenity, but require slightly more loss or deterioration of veteran or ancient trees, than another route-option. The benefits to living conditions from choosing this route would likely need to be substantial to sufficiently justify the greater loss or deterioration of these trees.

4.4.15. Two notable trees, planted to enhance the views from Warham House around 200 years ago, were painted by the artist Brian Hatton and therefore have cultural and artistic associations.

4.4.16. It is likely that this would be considered as a material consideration by the Examining Authority and weight would be given towards conserving them in any planning decision.

POLICY, ELEMENT 1: LIVING CONDITIONS (NOISE AT AND VIEWS FROM RESIDENTIAL DWELLINGS)

4.4.17. Within Element 1, living conditions at dwellings close to the routes being considered, have the potential be affected in several different ways.

4.4.18. In our assessment the most relevant impacts are noise, air quality and effects on views from private residential areas. Air quality is discussed under a separate heading.

4.4.19. The core strategy corridor within Element 1 is within the rural fringe of Hereford. Isolated farm houses and other dwellings sit within the surrounding countryside. The most significant existing residential area is the residential estate to the east of the core strategy corridor, with dwellings along Dorchester Way (including Tintern Close and Canterbury Close) being close to several potential route options. There are also dwellings both north and south of the B4349.

4.4.20. The NNNPS recognises that for national infrastructure, some impact on amenity for local communities is likely to be unavoidable. It also states that impacts should be kept to a minimum and be at a level that is acceptable (NNNPS Paragraph 5.83).

4.4.21. When making planning decisions it is not the opinion of the current occupants that is the determining factor, but rather how living conditions may be affected for anyone that might happen to be living there, either now or in the future.

4.4.22. Reflecting this, one of the core land-use planning principles given at Paragraph 17 of the NPPF is that the planning system should:

'Always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings'

4.4.23. Furthermore, Policy HD3 (Movement) of the Core Strategy requires that the bypass be designed and developed in such as a way as to avoid and mitigate adverse impacts on residential amenity.

Noise

4.4.24. The noise section of the NNNPS reflects guidance within the Noise Policy Statement for England (NPSE), the NPPF and online Planning Practice Guidance on noise.

4.4.25. Paragraph 5.195 of the NNNPS states:

'The SoS should not grant development consent unless satisfied that the proposals will meet, the following aims, within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life from noise as a result of the new development;*
- *mitigate and minimise other adverse impacts on health and quality of life from noise from the new development; and*
- *contribute to improvements to health and quality of life through the effective management and control of noise, where possible.'*

4.4.26. The NPSE defines 'health' as physical and mental well-being, and 'quality of life', as a person's emotional, social and physical well-being.

4.4.27. The acceptability of noise effects on health and quality of life arising from major infrastructure is considered within the context of Government policy on sustainable development.

4.4.28. Government policy, as expressed in the NPPF, is that there are three, mutually dependent dimensions to sustainable development that should be sought jointly and simultaneously through the planning system: economic, social and environmental NPPF Paragraphs 7 and 8). For national infrastructure, where particular considerations apply, the policies taken as a whole within the NNNPS have been chosen by Government as it strikes the best balance between the Government's economic, environment and social objectives (NNNPS Paragraph 1.11).

4.4.29. In this way noise effects are not considered in isolation, separately from the economic, social and other environmental dimensions of proposed development (PPG Noise, Paragraph 002). In other words, determining the acceptability of harm to a residential area and/or single or groups of dwellings from transport noise may take account of the necessity of the scheme having to be in a location that would cause that harm, to provide the social and economic benefits of the scheme, as well as the need to manage other environmental effects.

4.4.30. The PPG and the NPSE both classify observed noise levels into four categories: no observed effect level (NOEL); lowest observed adverse effect level (LOAEL), significant observed adverse effect level (SOAEL); and unacceptable adverse effect level (UAEL).

4.4.31. It is also recognised that it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations. To inform route selection the number of dwellings exceeding SOAEL 68 dB (day) and subject to Noise Insulation Regulations (NIR) have been identified. Also, the number of dwellings exceeding UAEL 76 dB was also identified. These levels were set using professional judgement and based on previous national road infrastructure schemes and European guidance.

*'At the highest extreme, exposure at any dwelling to the UAEL would cause extensive and sustained changes in behaviour without an ability to mitigate the effect of noise. In such cases social, economic or other environmental benefits, including those that arise from nationally significant road infrastructure, cannot be used to justify the unacceptable level of noise at the dwelling, which must simply be 'prevented' (*PPG Noise. Paragraph: 005 Reference ID: 30-005-20140306*)*

4.4.32. So that the benefits may still be realised, in these 'extreme' cases, Paragraph 5.119 of the NNNPS states that the applicant consider compulsory acquisition as mitigation. In other words, if a dwelling is exposed to a level of unacceptable noise that cannot be mitigated (i.e. UAEL), the dwelling may be compulsorily acquired to allow the scheme to proceed. It remains there must be a compelling public benefit case, to outweigh the private loss to the owner. Part of this would be demonstrating that alternative locations for the route within the core strategy corridor could not provide the same benefits, or could only do so by causing other unacceptable harm.

4.4.33. PPG advises that if these external amenity spaces (such as gardens) are an intrinsic part of the overall design of a dwelling, then the acoustic environment of those spaces should also be considered so that they can be enjoyed as intended.

4.4.34. SOAEL is the level of noise exposure above which significant adverse effects on health and quality of life can occur and cause a material change in behaviour and/or attitude, for example:

'Avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in

getting to sleep, premature awakening and difficulty in getting back to sleep'. (PPG Noise. Paragraph: 005 Reference ID: 30-005-20140306)

4.4.35. The PPG, the NPSE and NNNPS (Paragraph 5.195) state this level of effect should be 'avoided'. This must be assessed in the context of sustainable development i.e. by balancing any social, economic and environmental impacts and benefits against the harm. In this way any SOAEL (unlike UAEL) may potentially be justified by recourse to delivering the benefits of the scheme, or by avoiding other environmental harm, at a limited number of dwellings. However, this is less likely to be successfully justified if the impact can be avoided whilst still delivering benefits. For example, by choosing an alternative route (see Table 3).

Table 3 - PPG Noise. Reference ID: 30-005-20140306

Perception	Examples of outcomes	Increasing effect level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

4.4.36. Policy HD3 (Hereford Movement) of the Core Strategy identities that that the relief road (now the bypass) will be:

4.4.37. *'Designed and developed is such a way that avoids or minimises … noise pollution'* (Policy HD3, Herefordshire Core Strategy)'.

4.4.38. Policy SD1 of the Core Strategy states that:

4.4.39. '*Development proposals should…ensure new development does not contribute to, or suffer from, adverse impacts arising from noise …*'

4.4.40. There is standard mitigation that can be applied to roads (such as low noise surfacing and noise bunding) to minimise noise effects at sensitive receptors and the ability to do so in order to reduce noise effects has been considered in route selection.

4.4.41. There is the opportunity to avoid or minimise noise effects through selecting a route that avoids or minimises noise effect, for example by selecting a route that would be further from sensitive receptors, such as dwellings. To do this would be in accordance with Policies HD3 and SD1 of the Core Strategy as well as the NPPF/NNNPS and NPSE.

4.4.42. All routes are likely to lead to a worsening of noise effects at some dwellings, which may put any of the route options in conflict with specific policies relating to noise. Occasionally, a worse noise effect at a receptor may be justified to secure a better environmental or transport outcome, which would have a social and/or economic benefit. In this case, the noise effect could not be avoided, but would be minimised as much as possible, whilst allowing for appropriate environmental effects elsewhere. Minimising or avoiding adverse noise effects where possible is therefore relevant to route selection.

4.4.43. So long as any harm is minimised so far as possible and/or justified by the avoidance of harm in other areas and the benefits of the scheme overall (which has been assumed for route selection), then accordance with the local development plan and the NPPF/NNNPS overall is still possible.

4.4.44. The Noise Insulation Regulations (NIR) 1975, amended 1988, provides the framework to determine the entitlement to noise insulation treatment at eligible buildings (i.e. dwellings and other building used for residential purposes within 300m from the nearest point on the new or altered highway).

4.4.45. The Stage 2 EAR identifies dwellings exposed to SOAEL for each route option as a whole. It also identifies the number of dwellings exceeding SOAEL 68 dB (day) and eligible for mitigation under the Noise Insulation Regulations for each element.

4.4.46. The summary matrices (Appendix C) identify how many dwellings are exposed to SOAEL and eligible for noise insulation for each element and UAEL by each sub-elements. A separate technical note regarding UAEL has been included in Appendix D.

4.4.47. Noise can also impact on the tranquillity of an area and how this is dealt with in route selection is discussed with under the 'landscape character' heading.

Views from private residential dwellings

4.4.48. Paragraph 5.158 of the NNNPS states:

'The SoS will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development.'

4.4.49. Harm to living conditions caused by views onto development generally must reach a level of making a dwelling an unacceptable place to live for that visual impact to weigh against consenting the scheme. This is because it is not in the public interest to create unacceptable living conditions where they did not exist before.

4.4.50. In Element 1, this is not likely to be the case for any of the route choices; due to topography and due to the distance of dwellings from the route choices.

4.4.51. However, all else being equal, it would be in line with the criteria for good design in the (NNNPS Paragraphs 4.29 and 4.33), and with the requirements of Policy HD3 (Movement) of the Core Strategy to choose a route less visible from residential dwellings.

POLICY, ELEMENT 1: AIR QUALITY

4.4.52. Current UK legislation sets out health-based ambient air quality objectives. In addition, the European Union has established common, health-based and eco-system based ambient concentration limit values (LVs) for the main pollutants in the Ambient Air Quality Directive (2008/50/EU) "the Air Quality Directive", which Member States are required to meet by various dates (NNNPS, Paragraph 5.4).

4.4.53. Air quality effects associated with the scheme should not: interfere with or prevent actions by Herefordshire Council to improve air quality; exceed a UK air quality objective; cause a new Air Quality Management Area to be declared; significantly increase emissions, degrade air quality, or increase in exposure to pollutants. This is not likely to be the case for any of the route choices within Element 1.

4.4.54. Nitrogen deposition resulting from emissions may also affect ecological receptors, such as ancient woodland.

4.4.55. However, it would be in line with the criteria for good design in the NNNPS (Paragraphs 4.29 and 4.33), to not worsen air quality at residential areas through a route selection without good reason, for example to avoid or minimise other adverse environmental effects. All else being equal, a route choice that maintains or improves air quality at the residential areas should be chosen.

POLICY, ELEMENT 1: HISTORIC ENVIRONMENT

4.4.56. The NNNPS recognises that 'the construction and operation of national networks infrastructure has the potential to result in adverse impacts on the historic environment' (NNNPS, Paragraph 5.120). It provides a broad definition of the historic environment to include: 'all aspects of the environment resulting from the interaction between people and places through time' (NNNPS, Paragraph 5.121).

4.4.57. Regarding effects on specific heritage assets, the NNNPS provides a framework for making decisions clearly based on balancing harm against the public benefit of the scheme, making it clear that any harm created must be explicitly and convincingly justified:

*'Any harmful impact on the significance of a designated heritage asset will be weighed against the public benefit of the development, recognising that he greater the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss' (*NNNPS Paragraph 5.132*).*

4.4.58. The NNNPS also states at Paragraph 131 that great weight will be given by the SoS to the conservation of heritage assets, which are irreplaceable. If a proposed development will lead to substantial harm or total loss of significance then consent will be refused unless it is necessary to deliver substantial public benefits that outweigh that loss or harm (NNNPS 5.132).

4.4.59. An asset's significance can also be harmed or lost thorough development within its setting (see NNNPS Paragraph 5.131).

4.4.60. Substantial harm to, or complete loss of, significance to high value assets including as a result of harm to their setting, should be 'wholly exceptional' (NNNPS, Paragraph 5.131 and 5.132). Such assets include Grade II* Listed Building Abbey Church of St Michael and All Angels and its associated listed features; Grade II* Belmont House and the historic landscape, including the surrounding parkland.

4.4.61. There are similar policy tests within the NPPF:

'Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss' …

'Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal …' (NPPF Paragraphs 133 and 134).

4.4.62. Regarding listed assets the decision-maker for the final scheme would also have regard to a statutory test in Section 66 of the Listed Building Act 1990: 'to pay special regard to the desirability of preserving or enhancing the setting if a listed building', taking account of relevant development plan policies and the NPPF. A view would be taken as to whether any harm would be substantial or less than substantial.

4.4.63. Therefore, to minimise any risk of refusal, when choosing a preferred route, harm to the historic environment, especially harm likely to be considered by the Examining Authority and SoS as substantial and that cannot be clearly justified, should be minimised or avoided.

4.4.64. To minimise any risk of refusal, when choosing a preferred route, care should be taken to avoid harm to the historic environment, especially harm likely to be considered by the Examining Authority and SoS as substantial and that cannot be clearly justified.

4.4.65. Harm to the setting of heritage assets can be justified in the context of the scheme's public benefit:

'*Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss'* (NNNPS, Paragraph 5.132).

4.4.66. To decide if substantial harm can be justified, account will be taken of the purpose and operational requirements the design must satisfy (NNNPS, Paragraph 4.35) and of the necessity of providing this road infrastructure in this particular area.

4.4.67. Policy SS6 of the Herefordshire Core Strategy seeks to preserve environmental quality and local distinctiveness including for the historic environment, and Paragraph 4.2.45 of the text supporting Policy HD3 (Movement) states that the alignment of the bypass will consider:

4.4.68. 'impacts on the historic environment' … 'with particular regard being paid to designated heritage assets, including their significance and setting, archaeological interest, and the historic character of the wider landscape'.

4.4.69. Policy LD4 of the Herefordshire Core Strategy also seeks to protect, preserve and where possible preserve and enhance heritage assets and the wider historic environment.

4.4.70. In accordance with these policies harm to the historic environment will be minimised and avoided if possible through route selection, taking account of the need to achieve the transport objectives of the scheme, and also minimise other types of potential environmental harm.

4.4.71. Occasionally, it may be necessary to choose a route that would lead to a greater level of harm to the historic environment in order to avoid or better protect harm to other aspects of the environment, for example ancient woodland, or to provide a better functioning road, for example to improve road safety or prevent an unacceptable departure from standards.

4.4.72. When deciding between routes, account would be taken of the fact that the benefits by causing this harm would need to be able to justify the harm, taking account of alternative route options that may avoid this harm, and the historic environment policies of both local development plan and the NNNPS.

4.4.73. Noise can also affect the tranquillity of the qualities of the historic landscape. For route selection this is not a relevant consideration as all routes would similarly affect tranquillity.

POLICY, ELEMENT 1: LANDSCAPE CHARACTER, INCLUDING THE HISTORIC AND CULTURAL LANDSCAPE; AND VIEWS

4.4.74. Landscape and visual impacts are related but assessed separately and this is reflected in the NNNPS.

Landscape

4.4.75. The core strategy corridor does not pass through or near a nationally designated landscape, such as a National Park or Area of Outstanding Natural Beauty. Paragraphs 5.150 to 5.155 of the NNNPS therefore do not apply.

4.4.76. Due to its historic and cultural value, including its associations with the artist Brian Hatton, who painted the group of trees outside Warham House, and the relationship between the historic buildings and their parkland setting of the two Grade II* listed buildings (Abbey Church of St Michael and All Angels and its associated listed features and Belmont House) with the unlisted Warham House, the landscape may be considered by the Examining Authority as 'a valued landscape'. The NPPF, which would likely be relevant in this instance, states that valued landscaped should be protected and enhanced (NPPF Paragraph 109).

4.4.77. Paragraphs 5.149 and 5.156-5.157 of the NNNPS guide decision-making in undesignated areas and reiterate the need for schemes to be designed carefully, taking account of the potential impact on the landscape. The aim is to avoid or minimise harm and provide reasonable mitigation where possible and appropriate, taking account of operational and other relevant constraints.

4.4.78. This reflects the criteria for good design given in Paragraphs 4.28-4.35 of the NNNPS, which says that infrastructure should be sensitive to place and demonstrate good aesthetics (NNNPS Paragraph 4.29), whilst acknowledging that they may only be limited choice in the physical appearance of infrastructure. Good design can be achieved through siting and design measures relative to existing landscape and historical character and function (NNNPS, Paragraph 4.34).

4.4.79. For Element 1, this is most relevant in choosing the location of the Wye Crossing, and how the structure that crosses the Wye sits relative to the landscape, taking opportunities to respect the historic landscape with appropriate route choice.

4.4.80. Paragraph 4.32 says that when decision-making: '*The SoS needs to be satisfied that national networks infrastructure projects are sustainable and as aesthetically sensitive … as they can reasonably be'* and at Paragraph 4.33; *'the applicant should take into account, as far as possible, aesthetics, including the schemes' contribution to the area in which it would be located'.*

4.4.81. Policy LD1 (Landscape and townscape) of the Core Strategy requires development proposals to conserve and enhance the natural, historic and scenic beauty of important landscapes and features.

4.4.82. As recognised in the NNNPS, it would be difficult to conserve and enhance the landscape as a result of new road infrastructure and so this inevitable harm may put the scheme in conflict with this specific local plan policy. However, harm can be minimised through selecting a route that fits best with the landscape (including the historic landscape), for example by taking account of local topography.

4.4.83. Home Farm is also within the Element 1. The Belmont Neighbourhood Development Plan seeks to protect the character and appearance of this land in Policy 2: Protecting Home Farm and the Land Adjacent to Ruckhall Lane.

4.4.84. However, the policy makes clear that it is not intended that the policy will prejudice the implementation of the bypass. Since all route options would pass through this area of land it would be a matter for the further design of the preferred route to ensure that the character of this land could be in some way retained as far as is possible. It is therefore not a significant issue in route selection.

4.4.85. Since the need for the bypass is set out in Policy HD3, so long as the route selected minimises this harm to landscape so far as is possible, it is likely that the bypass would be able to accord with the local development plan, as well as with national policy.

Views

4.4.86. The SoS will judge whether the visual effects outweigh the benefits of the development (NNNPS Paragraph 5.158). Only views from publicly accessible places are generally material to planning decisions. How views from residential dwellings are likely to be considered by the Examining Authority and SoS is described above under 'living conditions'.

4.4.87. There are well-used PROWs within Element 1, especially north of the Wye, (the Breinton footpaths) from which all route options are likely to be seen.

4.4.88. The Breinton Neighbourhood Plan identifies important public views and seeks to protect them with Policy B16 (protecting important public views). Account would be taken of these important viewpoints when undertaking the environmental impact assessment for the preferred route.

POLICY: ELEMENT 1: BIODIVERSITY

Habitats of Principal Importance

4.4.89. Belmont Unregistered Park and Garden is a Habitat of Principal Importance (HPI) and all of the route options in Element 1 would pass through it, resulting in some loss to this habitat.

4.4.90. Paragraph 5.35 of the NNNPS states that:

'The SoS should ensure that applicants have taken measures to ensure these species and habitats are protected from the adverse effects of development. Where appropriate, requirements or planning obligations may be used in order to deliver this protection. The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits of the development (including need) clearly outweigh that harm.'

4.4.91. Since all route options would involve some loss to this habitat, the need and benefit of the bypass, as set out in the local development plan and the other documents, such as the business case for the scheme, will be used to justify this loss.

4.4.92. However, for the purposes of route selection it would be appropriate to select a route that would minimise this loss, or to demonstrate that a route that would result more loss to this habitat can be justified by an environmental benefit in another area, or by other economic or social advantages of choosing another route.

4.4.93. Any justified loss of this habitat will need to be compensated for elsewhere close to the scheme, or as a last resort, off site.

4.4.94. For any future application, this would be included within the application boundary. The land would be secured either through agreement, or compulsorily acquired.

Protected Species

4.4.95. All bat species, great crested newts and otters are protected under the Habitats Directive and Schedule 2 of the Conservation (Natural Habitats and Species) Regulations 1994. A licence from Natural England is required for works that affect bat roosts, foraging and commuting habitats, or great crested newt and otter habitats.

4.4.96. Paragraph 5.25 of the NNNPS states *"As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives.*" This includes protected species.

4.4.97. Paragraph 115 of the NPPF further states that when determining planning applications, *"if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused."*

4.4.98. Policy LD2 of the Herefordshire Local Plan Core Strategy states *"Development that would be liable to harm Sites of Special Scientific Interest or nationally protected species will only be permitted if the conservation status of their habitat or important physical features can be protected by conditions or other material considerations are sufficient to outweigh nature conservation considerations."*

4.4.99. In selecting a route, the aim should be to avoid habitats that are potentially used by protected species. However, it is possible to mitigate such effects and therefore these habitats are not necessarily irreplaceable provided suitable mitigation measures can be implemented. However, impacts should still be avoided where possible and mitigation should be the last resort.

POLICY, ELEMENT 1: COMMUNITY USES AND OPEN SPACE

4.4.100. Promoters of Nationally Significant Infrastructure Projects are expected to provide appropriate mitigation measures to address adverse effects on PROWs and open access land. Where appropriate, opportunities should also be taken to improve access to the PROW network and other areas of open space. Reference is also made in the NNNPS to a Planning Act 2008 power to extinguish PROWs if the SoS is satisfied that an alternative has been or will be provided or is not required (NNNPS, Paragraph 5.1855, 5.180 and 5.184).

4.4.101. All route options will affect several PROWs to a greater or lesser extent within Element 1 and consideration needs to be made to the character, attractiveness and convenience of any required diversions for affected PROWs to ensure accordance with NNNPS Paragraph 5.184.

4.4.102. North of the Wye is an area of land adjacent to Breinton Footpaths 1, 2 and 8, which is used by the public and known locally as Greenbank Meadow (Figure 5).

Figure 5 - Location of Greenbank Meadow (Source: Breinton Neighbourhood Development Plan, September 2016). Not to scale.

4.4.103. The open space designation was not made by HC but privately by the owners of the land in 2012. It is therefore not accounted for in the HC's open space assessment (last updated in 2006).

4.4.104. The land is held in trust by Fields in Trust, and as such is protected from compulsory acquisition.

4.4.105. The adopted Breinton Neighbourhood Development Plan 2016 describes Greenbank Meadow as "Queen Elizabeth II Diamond Jubilee Field in Trust, the Green Bank Meadow in Warham" (2013).

4.4.106. Whilst it this is not public open space designated by the local authority, legal advisors have suggested that Greenbank Meadows is likely to still be considered by the Examining Authority as open space within the definition provided by the NPPF:

'All open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity' (NPPF p.54).

4.4.107. NNNPS Paragraph 5.174 will therefore apply to the route options that pass through this land. This states that the SoS:

'…should not grant consent for development on existing open space, sports and recreational buildings and land, including playing fields, unless an assessment has been undertaken either by the local authority or independently, which has shown the open space or the buildings and land to be surplus to requirements, or the Secretary of State determines that the benefits of the project (including need) outweigh the potential loss of such facilities, taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities'.

4.4.108. NNNPS Paragraph 5.181 then states that the SoS:

'…should also consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of any planning obligations, for example, to provide exchange land and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness, quality and accessibility. Alternatively, where Sections 131 and 132 of the Planning Act 2008 apply, any replacement land provided under those sections will need to conform to the requirements of those sections'

4.4.109. Since this would be the case for Greenbank Meadow, separate to this policy test are certain legal requirements that must be met to purchase the legally protected land, and a Special Parliamentary Procedure may be required if the acquisition is challenged. Whilst this would present implementation issues, for the

purposes of choosing a route, meeting the underlying policy tests has been the focus and it has been assumed that the legal requirements can be met, recognising this as a risk.

4.4.110. North of the Wye, within Element 1 is a community farm (Hereford Community Farm), located at Warham Court Farm (Breinton, Hereford). The community farm is run as a private business offering support to people with additional needs.

4.4.111. Planning permission was obtained for a change of use from agriculture to a therapeutic activities and skills training facility (LPA Ref: 161280/F) and listed building consent for the conversion of the barns for the facility (LPA Ref: P163943/L) in October 2016 and February 2017 respectively. It falls within Use Class D1 of the Town and Country Planning (Use Classes) Order 1987 as amended (Non-Residential Institutions, including education and training centres). The change of use did not extend to the associated agricultural fields.

4.4.112. It is likely that this would be treated as a community asset by the Examining Authority and the SoS, and how it is affected by the bypass would likely be considered as an important and relevant matter, material to the decision.

4.4.113. If the scheme is a Nationally Significant Infrastructure Project (NSIP), the Local Planning Authority's Local Impact Report will potentially provide a view and the Examining Authority and the SoS would likely take account of how local development plan policies deal with the loss of these types of social facilities. Policy SC1 of the Herefordshire Local Plan Core Strategy requires that existing community and social facilities will be retained, unless it can be demonstrated that they can be replaced, in terms of size, quality and accessibility.

POLICY, ELEMENT 1: DESIGN (INCLUDING IN RELATION TO THE VIADUCT CROSSING)

4.4.114. The NNNPS sets out the criteria for good design for national network infrastructure in paragraphs 4.28 to 4.35.

4.4.115. It states that design is to be dealt with as an integral consideration from the outset of a proposal; aesthetics, visual appearance and the scheme's contribution to the quality of an area being be a key factor in considering the design of new infrastructure, as well as functionality, fitness for purpose, sustainability and cost (NNNPS Paragraphs 4.29 and 4.33).

4.4.116. Good design in the choice of route and the aesthetics of the bridge crossing can be *'demonstrated in terms of the siting and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation'* (NNNPS Paragraph 4.34).

4.4.117. It is recognised at Paragraphs 4.30 and 4.34 that there may be a limited choice in the physical appearance of some national networks infrastructure. Given its nature, there may also be a limit to the extent to which it can enhance of the quality of the area.

4.4.118. The aesthetics of the viaduct crossing need will be carefully considered, for example the form of the structure, its location, and the materials, with all relating well to its context. An architect has been appointed to provide input into the design.

4.4.119. It is likely that it is not so much the size of the visual envelope of the bridge crossing that would be critical in choosing route crossing, but more how it sits in relation to landscape features, including topography, and how well it maintains the landscape's historic character.

4.4.120. Location aside, with appropriate attention to aesthetics the viaduct need not be an adverse new feature in the landscape. Whilst this is borne in mind during route selection, the aesthetics of the bridge structure is not a determinative factor in coming to a best performing route.

POLICY, ELEMENT 1: ROAD FUNCTION, INCLUDING: HOW JOURNEY TIMES WOULD BE AFFECTED BY LENGTH OF THE ROUTE; THE DEPARTURES; JUNCTIONS

4.4.121. The NNNPS states that good design also relates to functionality, fitness for purpose, sustainability and cost (NNNPS Paragraphs 4.29 and 4.33).

4.4.122. Paragraph 4.31 says that a good design should:

- *'meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse impacts;*

- *mitigate any existing adverse impacts wherever possible, for example, in relation to safety or the environment; and*
- *sustain the improvements to operational efficiency for as many years as is practicable, taking into account capital cost, economics and environmental impacts'*

4.4.123. The route choice therefore needs to meet the transport objectives of the scheme. These objectives are set out in the PRR and the Stage 2 SAR.

POLICY, ELEMENT 1: COST AND VIABILITY

4.4.124. Cost is only a material consideration in planning decisions if it affects the viability of the scheme. The overall cost must allow the scheme to be able to be funded and therefore go ahead.

4.4.125. However, if a less expensive scheme can be developed by choosing a route that is cheaper to build yet still be able to achieve the objectives of the scheme, and achieve good or better compliance accordance with policy (such as in the NNNPS, NPPF and the local development plan), then this route would be chosen.

4.5 STRATEGY FOR COMPARISON WITHIN ELEMENT 1

4.5.1. Element 1 was split into three sub-elements as follows:

- **Sub-element 1.1:** A465 to Ruckhall Lane.
- **Sub-element 1.2:** Ruckhall Lane and Wye Bridge crossing to Warham Lane (U73023) / Warham House
- **Sub-element 1.3:** Warham Lane (U73023) / Warham House to Hill Road (Upper Breinton Road – U73022)

4.5.2. Where there are more than two route options to compare, only where appropriate, and to make comparisons more manageable, route options are compared in either pairs or small groups. The best performing route option of the pair or group is then compared with another route option.

4.5.3. How comparisons are made within each sub-element is described under the 'strategy for comparison' heading for that sub-element.

5 COMPARISON OF SUB-ELEMENT 1.1: A465 TO RUCKHALL LANE

5.1 DESCRIPTION OF LOCATION OF SUB-ELEMENT 1.1

5.1.1. **Sub-element 1.1** (see Figure 6). The route options head north from the A465 to B4349 and Forest View, and then begins to curve round to the north east towards Ruckhall Lane, where it passes through the fields the field west of and adjacent to Belmont Abbey.

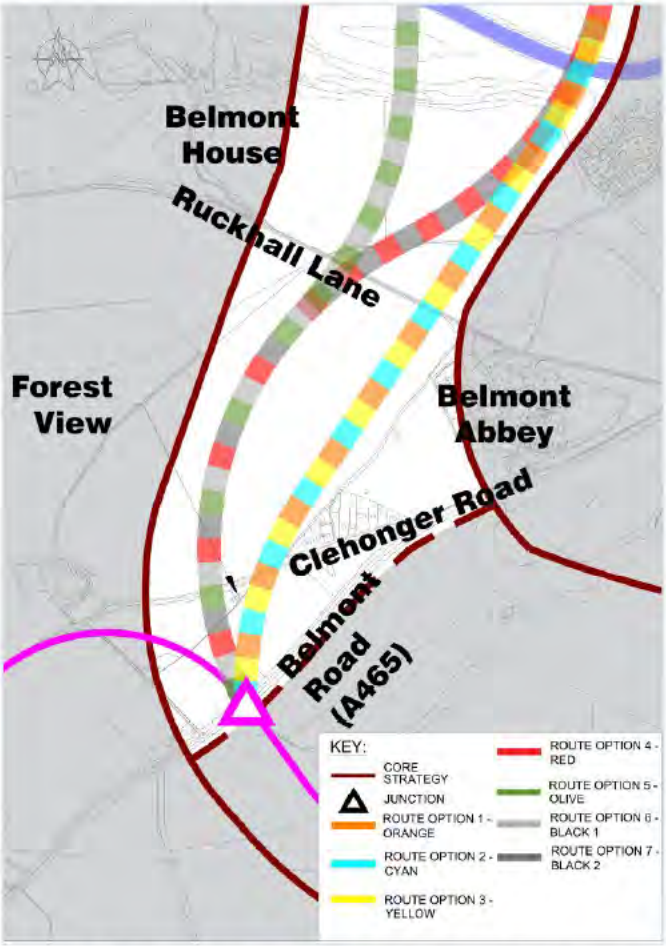


Figure 6 - Sub-element 1.1, A465 to Ruckhall Lane

5.2 DESCRIPTION OF ROUTE OPTIONS THROUGH SUB-ELEMENT 1.1

5.2.1. The route options are split into two combined route options within this sub-element:

- Western: **Red/Olive/Black 1&2**
- Eastern: **Orange/Cyan/Yellow**

5.2.2. **Red/Olive/Black 1&2** follows a wider curved alignment, whereas **Orange/Cyan/Yellow** follows a more direct north-eastern trajectory from the A465 junction, west adjacent to Abbey Cottages on the B4349, running almost parallel with the field boundary of Grade II* listed Belmont Abbey.

5.2.3. Both combined-route-options would originate at the approved junction on the A465 with the, yet to be constructed, A4194 Southern Link Road

5.3 METHOD OF COMPARISON WITHIN SUB-ELEMENT 1.1

5.3.1. **Stage 1** (only required) Compare **Red/Olive/Black 1&2** with **Orange/Cyan/Yellow.**

5.4 NON-RELEVANT ISSUES WITHIN SUB-ELEMENT 1.1

5.4.1. Both combined route options in **Sub-element 1.1** would cause one dwelling to be exposed to an unacceptable adverse effect level (UAEL) of noise.

5.4.2. Exposure to UAEL needs to be 'prevented' (PPG noise) and can only be mitigated through compulsory acquisition of the dwelling, 'in order to gain consent for what might otherwise be unacceptable development' (NNNPS Paragraph 5.199, PPG 'noise, Paragraph 005).

5.4.3. Since this would be the case for all route options, this is not a factor that would influence the choice of route in this sub-element.

5.4.4. All routes options in this area would cause similar harm to Grade II listed Clehonger Court.

5.4.5. All route options may require overbridges at Clehonger and Ruckhall Lane, since there would be different locations to these overbridges there may be different visual impacts. However, the cost of constructing them would be similar and any additional cost required to avoid a worse visual impact as a result of one of the overbridge locations would not affect the viability of the scheme. The need for structures is therefore not relevant to route choice.

5.4.6. These issues are therefore not relevant to route choice through **Sub-element 1.1** (no or marginal difference):

- Designated habitats and protected species.
- Landscape character.
- Exposure of dwellings to noise above the UAEL.
- Structures
- Views from PROWs.
- The setting of Grade II listed Clehonger Court.

5.5 RELEVANT ISSUES TO WEIGH UP WITHIN SUB-ELEMENT 1.1

5.5.1. These issues are not critical to, but are still considered in route choice though Sub-element 1.1 (some difference):

- The setting of Grade II listed Merryhill Farmhouse and associated buildings.
- Views from public vantage points especially close by PROWS, such as Clehonger Footpaths 7 and 7A, Haywood Footpath 3.

5.5.2. The most relevant issues to weigh up in route choice through Sub-element 1.1 are (significant difference):

- Cost of, and need to divert/culvert Belmont Stream.
- Loss of one notable tree.
- Living conditions at dwellings adjacent to the B4349, many of which would be exposed to noise above the SOAEL and subject to Noise Insulation Regulations (NIR).
- The setting of Grade II* Belmont Abbey and its associated listed buildings.

5.6 COMPARISON OF SUB-ELEMENT 1.1

5.6.1. Both combined route options meet objectives of the scheme, and would have no impact on designated habitats and all would have a similar impact on landscape character.

5.6.2. There are some minor differences in length of route, and the amount of surplus material, although this is not likely to prevent cut and fill being balanced across the whole scheme. Services could be adequately accommodated with both routes, although **Orange/Cyan/Yellow** is closest to the residential dwellings on B4349, and so may impact on more services than **Red/Olive/Black 1&2**.

5.6.3. No ancient or veteran trees would be affected, although **Red/Olive/Black 1&2** would likely require the removal of one notable tree and may lead to the deterioration of others.

5.6.4. Both combined route options would cross Belmont Stream, and would require diverting or culverting. However, **Red/Olive/Black 1&2** would require a significant realignment and/or culverting of this watercourse which is substantially greater than that required for **Orange/Cyan/Yellow. Red/Olive/Black 1&2** would cost more to construct than **Orange/Cyan/Yellow**, and all else being equal the route option that costs less to construct would be chosen.

5.6.5. In this sub-element, all route options would be seen most prominently from local PROWs and residences, and other public viewpoints close to the scheme, in particular from Clehonger Footpaths 7 an 7A, which connect the village of Clehonger and its surrounds with Grade II* listed Belmont Abbey and residential areas in west Hereford.

5.6.6. Both combined route options would also be could be seen from if walking Haywood Footpath 3, to the south of the scheme. **Red/Olive/Black 1&2** is closer to, and would therefore be slightly more prominent in views from, most publicly accessible viewpoints than **Orange/Cyan/Yellow**. Generally, all views from public viewpoints close to the scheme would be very adversely affected by all route choices through this sub-element.

5.6.7. **Orange/Cyan/Yellow** will expose significantly more dwellings to noise levels above the SOAEL than **Red/Olive/Black 1&2** (refer to Summary Matrix in Appendix C). Creating conditions at dwellings above the SOAEL should be 'avoided', but can be considered alongside the economic, social and other environmental dimensions of providing the bypass in this location (PPG noise, Paragraph 002).

5.6.8. The **Red/Olive/Black 1&2** routes will have a lower impact on the setting of Grade II structures at Merryhill Farmhouse, to the south east of the route-option, compared with than **Orange/Cyan/Yellow**.

5.7 CONCLUSION OF SUB ELEMENT 1.1

5.7.1. Both combined route options have potential to be viewed by the Examining Authority and SoS as causing substantial harm to the setting of Grade II* listed Belmont Abbey, which should be 'wholly exceptional' (NNNPS Paragraph 5.131). This is because both routes pass through fields in the immediate setting of the Abbey. **Orange/Cyan/Yellow** would be more harmful as it would pass being closer to the Abbey and therefore be slightly less intrusive that **Red/Olive/Black 1&2**, which would be located further west.

5.7.2. Due to the policy requirements of the NNNPS and the NPPF, the overriding issues dictating route choice in this area is considered to be the requirement to minimise substantial harm to the Grade II*listed Belmont Abbey and it's setting, and limiting the number of dwellings that would be exposed to noise above the SOAEL.

5.7.3. It is considered that these requirements would outweigh the need to protect a single notable tree, and the potential for the deterioration of others.

5.7.4. Whilst it would be better to not have to divert or culvert Belmont Stream and this would add cost to the project, avoiding this additional cost is not sufficient justification for providing a route that would more substantively harm the setting of Belmont Abbey and significantly adversely affect the living conditions at more dwellings than a viable alternative.

5.7.5. **Orange/Cyan/Yellow** will also expose significantly more dwellings to noise levels above the SOAEL than **Red/Olive/Black 1&2.**

5.7.6. Accordance with the requirements of the NNNPS would be therefore more likely to be achieved with combined route option **Red/Olive/Black 1&2** than combined route option **Orange/Cyan/Yellow** in **Sub-Element 1.1**.

5.8 RESULT OF SUB ELEMENT 1.1

5.8.1. The following route options perform best through **Sub-Element 1.1**:

- **Red**
- **Olive**
- **Black 1**
- **Black 2**

5.8.2. A summary matrix in support of the above is attached at Appendix C.

6 SUB-ELEMENT 1.2: RUCKHALL LANE AND WYE BRIDGE CROSSING TO WARHAM LANE (U73023)

6.1 DESCRIPTION OF LOCATION OF SUB-ELEMENT 1.2

6.1.1. **Sub-element 1.2** comprises the area between Ruckhall Lane across the disused Golf Course associated with Belmont House (this is also an unregistered park and garden and habitat of principal importance), across the River Wye, continuing north to Warham Lane (U73023) and Warham House. The River Wye is designated as a SAC and a SSSI. There are areas of designated ancient woodland approximately 100m north of the river channel (refer to the Environmental Constraints Plan in Appendix A).

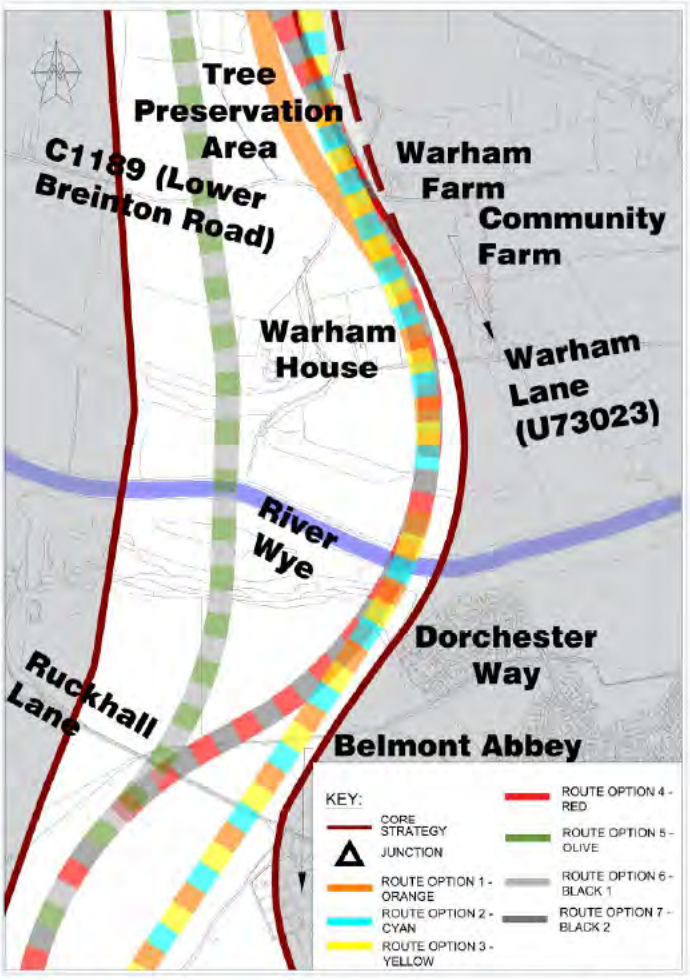


Figure 7 - Sub-element 1.2, Ruckhall Lane and Wye Bridge Crossing to Warham Lane (U73023)

6.2 DESCRIPTION OF ROUTE OPTIONS THROUGH SUB-ELEMENT 1.2

6.2.1. The route options are split into three combined route options within this sub-element:

- Western: **Olive/Black 1**
- Eastern: **Red/Black 2**
- Eastern: **Orange/Cyan Yellow**

6.2.2. The western combined route option follows a northern alignment, leading almost straight from Ruckhall Lane to the western side of Warham House, after crossing the river channel. The eastern group of alignments travel north east, before curving northwards as they cross over the river.

6.3 METHOD OF COMPARISON WITHIN SUB-ELEMENT 1.2

6.3.1. **STAGE 1:** Understand if there are any benefits to **Orange/Cyan/Yellow** in **Sub-element 1.2** that may outweigh the harm it would cause in **Sub-element 1.1**.

6.3.2. **STAGE 2:** Compare Orange/Cyan/Yellow with **Red/Black 2**

6.3.3. **STAGE 3:** Compare the winner of Stage 2 with **Olive/Black 1**

6.4 NON-RELEVANT ISSUES WITHIN SUB-ELEMENT 1.2

6.4.1. There are no issues non-relevant to choosing between routes within this sub-element as there are differences between them in every case.

6.5 RELEVANT ISSUES TO WEIGH UP WITHIN SUB-ELEMENT 1.2

- Bat routes, in particular where they cross north of the Wye on an east/west alignment following woodland features.
- Ancient woodland and important trees, in particular within Belmont Parkland and how close the routes come to the recommended 15m buffer for ancient woodland ('Ancient Woodland and Veteran Trees: Protecting them from Development, Natural England/Forestry Commission, January 2018), to avoid its deterioration.
- The setting of Grade II* Belmont Abbey and Grade II* Belmont House and associated listed buildings.
- The tranquillity of the landscape.
- Effects on the PROW network, including that which forms part of the Hatton trail.
- The number of dwellings exposed to noise above the SOAEL and subject to NIR.
- Journey times, and how likely drivers are to choose the route over one going through Hereford. This is primarily affected by the length and alignment of the route.
- Viability (whether the route is able to be funded). This is primarily affected by the cost of the Wye crossing and length of route through this sub-element.
- Maintaining the historic landscape, including with the location of the Wye crossing.
- Impact and land take within Belmont Parkland Habitat of Principal Importance (HPI)

6.6 COMPARISON OF SUB-ELEMENT 1.2

General

6.6.1. **Olive/Black 1** would have a straighter alignment, result in better journey times, and the viaduct crossing would be cheaper to construct than **Red/Black 2** or **Orange/Cyan/Yellow.**

6.6.2. **Orange/Cyan/Yellow** would result in 1 ha less loss of the Belmont Parkland HPI than **Red/Black 2** and 2 ha less loss of this habitat than **Olive/Black 1** (refer to Summary Matrix in Appendix C).

6.6.3. All routes in this sub-element would avoid the 15m buffer around Hunderton Wood ancient woodland, which is recommended by Natural England and Forestry Commission standing advice to avoid its deterioration.

6.6.4. All routes would involve the loss of ancient, veteran and notable trees. However, **Olive/Black 1** would result in the loss of significantly more veteran and notable trees compared with **Red/Black 2** or **Orange/Cyan/Yellow** (refer to Summary Matrix in Appendix C).

6.6.5. All combined route options would adversely affect the setting of the Grade II* listed Belmont Abbey and Grade II* Belmont House. This harm has potential to be considered as substantial by the Examining Authority and SoS, who will take into account the expert opinion of Historic England.

6.6.6. Historic England has commented that **Olive/Black 1** would be more harmful that other route options through this sub-element, mainly due to its greater severance of the historic parkland landscape setting of Grade II* Belmont House, in which views to the west over this parkland were intrinsic to the design of the house.

6.6.7. **Orange/Cyan/Yellow** and **Red/Black 2** both pass close to dwellings around Dorchester Way on a similar alignment. However, due to the alignment of **Orange/Cyan/Yellow** in Element 1.1 which is closer to residential areas and the way in which sound from **Orange/Cyan/Yellow** would carry towards the north east,

this combined route option would cause almost twice as many dwellings to be exposed to noise above the SOAEL and subject to NIR as **Red/Black 2**.

STAGE 1: SUB-ELEMENT 1.2

Understand if there are any benefits to Orange/Cyan/Yellow in Sub-element 1.2 that may outweigh the harm it would cause in Sub-Element 1.1.

6.6.8. **Orange/Cyan/Yellow** would cause a conflict with the NNNPS in **Sub-Element 1.1** due to more substantively harming the setting of Grade II* listed Belmont Abbey than the alternative combined routes (**Red/Olive/Black 1&2**). It would also significantly affect the living conditions at more dwellings than this alternative.

6.6.9. **Olive/Black 1** would inevitably result in the loss of significantly more veteran and notable trees. **Orange/Cyan/Yellow** and **Red/Black 2** routes would result in a similar number of ancient, veteran and notable trees lost and there may be potential for irreplaceable trees to be avoided with further a refinement of these route options.

6.6.10. **Orange/Cyan/Yellow** would cause almost twice as many dwellings to be exposed to noise above the SOAEL and subject to NIR as **Olive/Black 1** & **Red/Black 2**.

6.6.11. On balance **Orange/Cyan/Yellow** is likely to lead to greater harm to a high value heritage asset, and would result in a substantially greater number of dwellings exposed to noise above the SOAEL and subject to NIR, both in **Sub-element 1.1** (dwellings adjacent to the B4349 and **Sub-element 1.2** (dwellings around Dorchester Way), when compared to the other routes.

6.6.12. **Orange/Cyan/Yellow** can therefore potentially be eliminated in both **Sub-element 1.1** and **Sub-element 1.2**, subject to further comparison with **Red/Black 2**, the other eastern combined route option.

STAGE 2, SUB-ELEMENT 1.2

Compare Red/Black 2 with Orange/Cyan/Yellow

6.6.13. **Orange/Cyan/Yellow** would require 1ha less of the Parkland HPI than **Red/Black 2.**

6.6.14. To pass through this sub-element, **Orange/Cyan/Yellow** would need to continue its alignment through **Sub-Element 1.1**. This combined route option would likely conflict with the NNNPS in Sub-Element 1.1 due to causing more substantial harm to the setting of Grade II* listed Belmont Abbey than the alternative combined route option (**Red/Olive/Black 1&2**). It would also more adversely affect the living conditions at more dwellings than alternatives in both sub-elements.

6.6.15. On balance, avoiding significant adverse impacts on living conditions at a substantially greater number of dwellings from noise, along with minimising the harm to the setting of Grade II* Belmont Abbey, could justify the additional loss of parkland habitat from not choosing **Orange/Cyan/Yellow**. This would therefore keep the route choice in accordance with Paragraph 5.35 of the NNNPS, subject to appropriate compensation, potentially off-site.

6.6.16. As the better performing of the eastern routes, **Red/Black 2** is taken forward to the next stage of comparison, to be compared with **Olive/Black 1**.

6.6.17. This position would be strengthened if **Red/Black 2** were refined to avoid or minimise loss or harm to important trees and land take minimised within Sub-element 1.2.

STAGE 3, SUB-ELEMENT 1.2

Compare Olive/Black 1 with Red/Black 2

6.6.18. This choice primarily concerns the location of the crossing across the Wye, which is likely to be a viaduct.

6.6.19. **Olive/Black 1** would contribute to a straighter and more direct route overall than **Red/Black 2** and so would result in quicker journey times, meaning drivers are more likely to choose the new road over travelling through the centre of Hereford.

6.6.20. Due to the need for a curved structure **Red/Black 2**, would likely cost more to construct than **Olive/Black 1** Although the difference in cost is not likely to be critical on any decisions on whether the scheme would be

viable, it is valid to consider whether the benefits of building **Red/Black 2** would justify the additional cost, if **Olive/Black 1** could also be constructed in accordance with policy.

6.6.21. Both combined route options would adversely affect the setting of the Grade II* listed Belmont Abbey. Harm from either option is likely to be considered as substantial by the Examining Authority and SoS and so should be *'wholly exceptional'* (NNNPS Paragraph 5.153).

6.6.22. Historic England has commented, that they would prefer **Red & Black 2** '*Our informed opinion, at this stage, is that the Black/ Red Route 2 will have the least impact for the historic environment, in the southern area of the bypass, within this historic landscape of the Belmont heritage assets*'.

6.6.23. It is likely then that the availability of a potentially viable alternative to **Olive/Black 1**, (such as **Red/Black 2**) which may provide similar benefits, but less harm to the historic environment, will be considered by the Examining Authority and SoS when deciding if the harm caused by a crossing at **Olive/Black 1** would be 'wholly exceptional'. This would also take account of other environmental harm from an alternative (such as from noise at nearby residential dwellings), which may outweigh any additional harm to the historic environment as a result of choosing a crossing at **Olive/Black 1**.

6.6.24. North of the Wye, to the west, **Olive/Black 1** would traverse Greenbank Meadow, which recognised as open space used by the public in the Breinton Neighbourhood Plan and which is legally protected from acquisition by the Fields in Trust.

6.6.25. The land is also part of 'the Hatton Trail', which is a locally advertised walking route using the PROW network, which emphasises the landscape's cultural links with the artist Brian Hatton. This includes a painting by the artist featuring non-native trees planted to enhance views from Warham House across the Belmont parkland setting in this part of the Wye Valley. These trees have been assessed as being notable as part of Arboricultural Survey commissioned for the project.

6.6.26. The NPPF also recognises that the cultural value of ancient and veteran trees. It is also recognised that artistic associations of the landscape may contribute to this area being a 'locally valued landscape' to be protected and enhanced (NPPF Paragraph 109).

6.6.27. Furthermore, since the open space at Greenbank Meadow, in part, derives its value from its very specific location, next to the Wye and as part of this cultural landscape, it is likely to be difficult to find replacement land that would satisfy the requirements of NNNPS Paragraph 5.181. It states that exchange land should be at least as good in terms of 'size, usefulness, attractiveness, quality and accessibility', than for open space that depends less, for its attractiveness ad quality on being located in a specific place.

6.6.28. North of the Wye to the east, **Red/Black 2** would traverse land currently in use as a community farm (Hereford Community Farm). Located at Warham Court Farm (Breinton, Hereford), the Hereford Community Farm is run as a private business offering support to people with additional needs through a programme of 'animal assisted interventions', 'therapeutic horticulture' and 'equine assisted learning'.

6.6.29. **Olive/Black 1** would not directly cross land being used by the farm, but noise from the road may still affect tranquillity for users of the community facility. **Red/Black 2** would create more noise on the community farm than **Olive/Black 1** and would also directly traverse land in agricultural use as part of the community farm.

6.6.30. Due to the therapeutic purposes of the community farm it is conceivable that the reduction in tranquillity, in particular as a result of the implementing **Red/Black 2**, would somewhat undermine its current use. Whether the use would be undermined to the extent that it would no longer be viable to continue in its current use has not yet been established.

6.6.31. In the event that the use was not able to continue it is likely to be the case that the use could be accommodated elsewhere, in accordance with both NNNPS Paragraphs 5.174 and 5.181, and with Policy SC1 of the Core Strategy. It is possible that the alternative site may be secured by a planning obligation.

6.6.32. **Red/Black 2** would also impact on Warham Farm (shown in **Sub-Element 1.3**), and would likely require the removal of agricultural buildings and the loss of one ancient and three veteran trees.

6.6.33. The extent of the agricultural holding of this working farm and how the viability of the farming business would be affected by **Red/Black 2** has not yet been established.

6.6.34. Neither combined route options would cause any element to be exposed to UAEL in Sub-element 1.2. **Olive/Black 1** would, however, cause fewer dwellings (12 dwellings) to be exposed to noise above the SOAEL and subject to NIR than **Red/Black 2** (13 dwellings), throughout Element 1.

6.6.35. Both combined route options would likely impinge upon the 15m buffer that is recommended to protect ancient woodland from deteriorating. To demonstrate the accordance of either route with NNNPS Paragraph 5.32, the Examining Authority and the SoS would need to be provided with a justification for this potential deterioration of this woodland, based on the national need for and benefits of the development, in that location, clearly outweighing the potential deterioration.

6.6.36. **Red/Black 2** would be within the 15m buffer of Rough Coppice ancient woodland to the west of the route, whilst **Olive/Black 2** would be within the 15m buffer of Wye Coppice ancient woodland to the west of the route and could result in habitat fragmentation between Wye Coppice and Rough Coppice ancient woodlands. **Olive/Black 1** would also result in the loss of significantly more important trees (one ancient, eight veteran & seven notable trees) compared with **Red/Black 2** (one ancient, one veteran & three notable trees).

6.6.37. Justification will be needed for the potential greater deterioration of ancient woodland and greater loss of important trees caused by **Olive/Black 1**, should that combined route option be chosen as the location for the Wye Crossing, than would be caused by providing the crossing in a viable alternative location.

6.6.38. **Red/Black 2**, would have a less adverse effect on the historic environment than **Olive/Black 2**, and would avoid the need to traverse open space at Greenbank Meadow. This would be difficult to replace due to its the value of the open space being derived from being in a culturally and geographic location (adjacent to the Wye and as part of the Hatton Trail). Due to its legal protection is also likely to offer a more permanent and long-term community use than the community farm.

6.6.39. **Red/Black 2** would also likely lead to the deterioration of less ancient woodland and important trees than a crossing at **Olive/Black 1**.

6.6.40. **Red/Black 2** would have a greater impact on the tranquillity of the community farm, and potentially require the removal of some agricultural buildings at Warham Farm. The extent to which the loss of buildings at Warham Farm, which could potentially be provided elsewhere on the farm, would affect the viability of the agricultural business is not yet established.

6.6.41. It is possible that with further refinement of one of these eastern route options may reduce or avoid impacts on Warham Farm, and the important trees.

6.7 CONCLUSION OF SUB-ELEMENT 1.2

6.7.1. On balance, the significantly less harm to the historic environment, the greater ability for the community farm to be relocated or replaced than Greenbank Meadow, the potential deterioration of less ancient woodland and important trees than at the only other viable alternative all suggest that the crossing be provided at **Red/Black 2**, rather than at **Olive/Black 1**.

6.7.2. This is due to the fact that the avoidance of noise above the SOAEL and subject to NIR at a number of dwellings is not likely to be sufficient to provide the 'wholly exceptional' justification required by the NNNPS for the greater harm to the historic environment that would likely be caused by providing the Wye crossing at **Olive/Black 1**, rather than at **Red/Black 2**. In addition, the strict policy requirement provided by NNNPS Paragraph 5.32 may not sufficiently justify the (additional) loss or deterioration of ancient woodland and ancient and veteran trees.

6.7.3. It is notable that the NNNPS, at Paragraph 5.131 recognises that heritage assets have cultural, social and economic value and are therefore important to people:

'Once lost, heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting.'

6.7.4. The significant social, economic, and environmental benefits of maintaining the historic environment in this part of the Wye (as much as is possible whilst also providing a bypass within the area identified in the core strategy) is expected to be considered by the SoS and the Examining Authority to outweigh the more limited benefit of avoiding SOAEL at a number of dwellings. Neither the NPPF nor the NPSE 'expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of proposed development' (PPG (noise) Paragraph 002). In addition, the noise modelling undertaken in the Stage 2 EAR has not included any mitigation such as low noise surfacing or noise barriers / bunding which can be very

effective in lowering noise levels. This will be included in the more detailed design undertaken on the preferred route.

6.7.5. Taking the above into account the **Red/Black 2** performs better through **Sub-element 1.2** than **Olive/Black1.**

6.7.6. Some account has already been taken of the relative impacts of an eastern crossing at **Red/Black 2** in areas north of Warham Lane (U73023), which are in **Sub-element 1.3**. The differences between routes that cross at **Olive/Black 1** and at **Red/Black 2** to is considered further below.

6.8 RESULT OF SUB-ELEMENT 1.2

6.8.1. The following route-options perform best through **Sub-element 1.2**:

- **Red**
- **Black 2**

6.8.2. A summary matrix in support of the above is attached at Appendix C.

7 COMPARISON OF SUB-ELEMENT 1.3: WARHAM LANE (U73023) TO HILL ROAD (UPPER BREINTON ROAD – U73022)

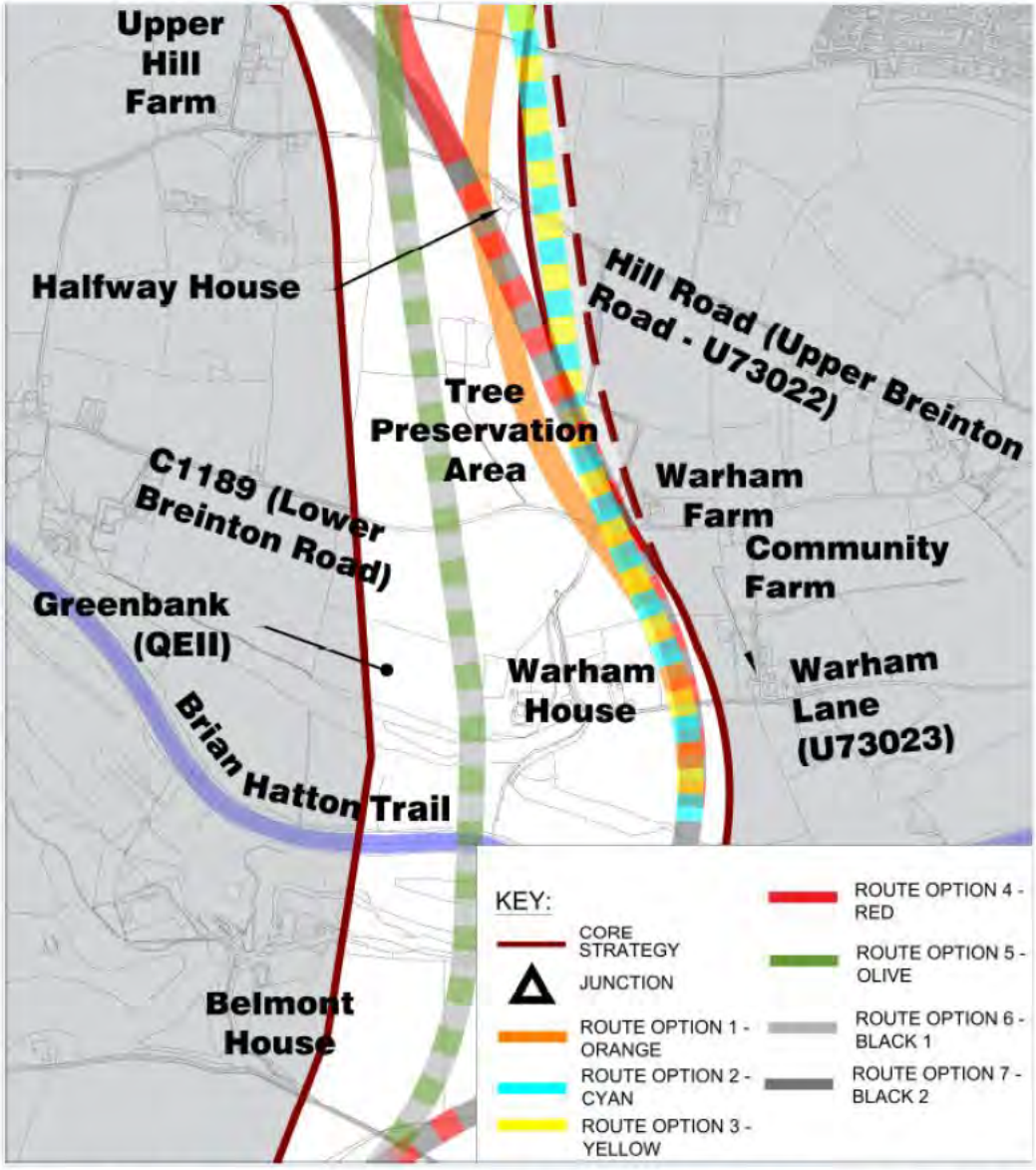


Figure 8 - Sub-element 1.3. Warham Lane (U73023) to Hill Road (Upper Breinton Road – U73022)

7.1 DESCRIPTION OF LOCATION OF SUB-ELEMENT 1.3

7.1.1. **Sub-element 1.3** begins from Warham Lane (U73023), with the route alignments passing Warham House and Hereford Community Farm. From here the route corridors travel in a north-north-westerly direction towards Hill Road (Upper Breinton Road – U73022), passing Halfway House. This sub-element lies in the eastern extents of Breinton Parish, with the eastern most alignment options lying just on the border with Hereford City.

7.2 DESCRIPTION OF ROUTE OPTIONS THROUGH SUB-ELEMENT 1.3

In this sub-element there is one western combined route option to the west (**Olive/Black 1**). To the east, there are two combined route options (**Red/Black 2** and **Cyan/Yellow**), and a single route option (**Orange**):

- Western: **Olive/Black 1**
- Eastern: **Red/Black 2**

- Eastern: **Cyan/Yellow**
- Eastern: **Orange**

7.2.1. **Olive/Black 1** passes west of Warham House in a north-north-westerly alignment, passing west adjacent to a copse of trees, before crossing over Hill Road (Upper Breinton Road – U73022), just east of the orchards at Little Breinton.

7.2.2. **Red/Black 2**, **Orange**, and **Cyan/Yellow** pass between Warham House to the west and Hereford Community Farm to the east, and then lead north-west, past Warham Farm.

7.2.3. Heading towards the Hill Road (Upper Breinton Road – U73022), **Orange** and **Red/Black 2** cross the Hill Road (Upper Breinton Road – U73022) west of Halfway House, and **Cyan/Yellow** cross east of Halfway House.

7.3 METHOD OF COMPARISON

7.3.1. **STAGE 1**: Compare the eastern single and combined-route-options; **Orange**, **Red/Black 2**, and **Cyan/Yellow**

7.3.2. **STAGE 2**: Understand if there are any benefits to **Olive/Black** 1 in Sub-element 1.3 that may outweigh the greater harm it would cause relative to **Red/Black 2** in Sub-Element 1.2. If there are no benefits that would outweigh the harm then eliminate **Olive/Black 1**.

7.3.3. **STAGE 3**: If required, compare the winner of Stage 1 with **Olive/Black 1**.

7.4 NON-RELEVANT ISSUES WITHIN SUB-ELEMENT 1.3

7.4.1. This length of route through this sub-element, and implications for cost, viability and journey times will not be a determining factor in the comparison of routes.

7.5 RELEVANT ISSUES TO WEIGH UP WITHIN SUB-ELEMENT 1.3

- The potential for fragmentation of habitats, in particular between two sections of ancient woodland.
- The loss of important trees (ancient, veteran and notable).
- Severance of and effects on views from, the PROW network, including that which forms part of the Hatton trail.
- The number of dwellings exposed to noise above the SOAEL and subject to NIR.
- Journey times, and how likely drivers are to choose the route over one going through Hereford. This is primarily affected by the length and alignment of the route.
- A departure from DMRB standards as a result of the Orange route.
- The potential loss of agricultural buildings at Warham Farm (a working farm) and how this may affect the viability of the agricultural business.
- A confirmed potential bat roost within a tree.

7.6 COMPARISONS OF SUB-ELEMENT 1.3

STAGE 1 OF COMPARISON WITHIN SUB-ELEMENT 1.3

Compare the eastern combined route options; Orange, Red/Black 2, and Cyan/Yellow

7.6.1. All options would involve similar earthworks, with the **Orange** route being slightly longer than the two combined route options, amounting to slightly longer journey times. The additional costs of the other route would not, however, make the scheme unviable. The slightly shorter journey times enabled by the **Orange** route are therefore not a significant factor in route choice for this stage of the comparison.

7.6.2. Due to similarities in the alignments of all route options, all eastern routes would similarly affect fields associated with the community farm, landscape character and views onto the scheme from public vantage points. Likewise, all options would have similar impacts on hedgerows, with similar effects on landscape character and bat habitat. These issues are not therefore critical to route choice at this stage of the comparison.

7.6.3. The **Orange** route would be worse than the two combined route options as it would come within 10m of an area of woodland classified as an HPI, which may lead to it deteriorating.

7.6.4. More significantly, all route options in this area would lead to the loss of important trees. In accordance with Paragraph 5.32 of the NNNPS, any loss or deterioration of ancient and veteran trees would need to be justified by the national need for and the benefits of the scheme in that location. This would apply to all routes options through this sub-element.

7.6.5. Of the route options in this area, **Cyan/Yellow** would result in lowest loss of important trees (one veteran tree) compared with **Red** (one ancient, three veteran & one notable), **Black 2** (one ancient, four veteran & one notable) and **Orange** (two ancient & three veteran).

7.6.6. Neither combined route options would cause any element to be exposed to UAEL in Sub-element 1.3. **Red/Black 2** would have significantly less dwellings (13 dwellings) to be exposed to noise above the SOAEL and subject to NIR than **Cyan/Yellow** and **Orange** (24 dwellings), throughout Element 1.

7.6.7. If the River Wye crossing was located at **Red/Black2** and not at **Olive/Black 1**, then the **Cyan/Yellow** route would remove fewer important trees than the other eastern route options through this sub-element. It remains possible, however, that any of these eastern options may be able to be further refined to avoid these trees.

7.6.8. Based only on impacts on important trees, the **Cyan/Yellow** combined route option is therefore the best performing combined-route option of the eastern group in **Sub-element 1.3**. However, due to a potential conflict with Policy H5 in the Core Strategy as a result of these route options through **Element 2** (described below), the **Cyan/Yellow** route options cannot be taken forward.

7.6.9. **Red/Black 2** is therefore the best performing combined route option of the eastern group in **Sub-element 1.3**.

STAGE 2 OF COMPARISON WITHIN SUB-ELEMENT 1.3

Understand if there are any benefits to Olive/Black 1 in Sub-element 1.3 that may outweigh the greater harm it would cause relative to Red/Black 2 in Sub-Element 1.2. If there are no benefits that would outweigh the harm eliminate Olive/Black 1.

7.6.10. The most significant benefits to **Olive/Black 1** are that it would be cheaper to construct and would make shorter journey times for drivers choosing the route than the eastern route options.

7.6.11. Within the geographic scope of **Sub-element 1.3** it would remove one ancient and five veteran trees. This combined with the overall loss of important trees in **Element 1** and the greater potential for the deterioration of ancient woodland than the eastern alignments, would result in **Olive/Black 1** having a much greater adverse impact on ancient woodland and important trees.

7.6.12. **Olive/Black 1** would require the acquisition of Greenbank Meadow, which is land legally protected from compulsory acquisition by Fields in Trust.

7.6.13. On balance, the benefits within **Sub-element 1.3** are not likely to be seen as 'wholly exceptional' reasons that may outweigh the substantial harm identified to the historic environment and cultural heritage as a result of locating the crossing at **Olive/Black 1.**

7.6.14. **STAGE 3** of the comparison is therefore not required.

7.7 RESULT OF SUB-ELEMENT 1.3

7.7.1. The following route options perform best through Sub-Element 1.3:

- **Red**
- **Black 2**

7.7.2. A summary matrix in support of the above is attached at Appendix C.

8 ROUTE SELECTION - ELEMENT 2: HILL ROAD (UPPER BREINTON ROAD – U73022) TO CANON PYON ROAD

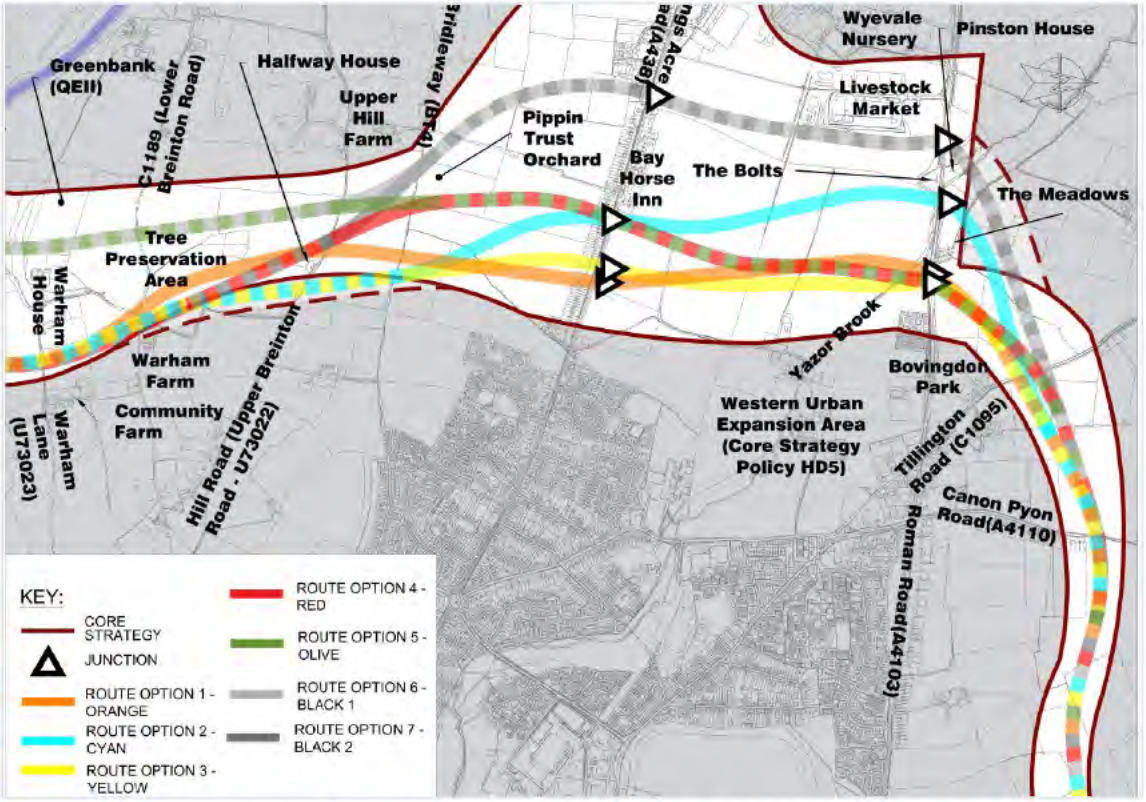


Figure 9 – Element 2: Hill Road (Upper Breinton Road – U73022) to Canon Pyon Road

8.1 DESCRIPTION OF LOCATION OF ELEMENT 2

8.1.1. **Element 2** extends from the Hill Road (Upper Breinton Road – U73022) in the south of the element to the A4103 Roman Road in the north, before curving around the city limits of Hereford towards the east, and Element 3.

8.1.2. The A438 King's Acre Road is as radial route into the city centre on an east west axis passing through **Element 2**.

8.1.3. In this area, the eastern section of King's Acre Road is generally a tree-lined residential street, with most of the houses lying on the southern side of the carriageway. As the road travels further west away from the city residential and business properties are found on both sides of the road

8.1.4. The A4103 Roman Road extends from east to west across the northern extent of this element.

8.1.5. Much of the **Element 2** crosses over agricultural fields bounded by established hedgerows within the north-eastern extent of Brenton Parish limits. Bridleway (BT4) is a Bridleway which travels west across **Element 2** towards Upper Breinton and the Wyevale Wood Nature Reserve, and lies approximately 250m north of Hill Road (Upper Breinton Road – U73022).

8.1.6. Hereford's planned Western Urban Expansion, also known as 'Three Elms', lies between King's Acre Road and the Roman Road. This is a strategic allocation identified within HC's Core Strategy (Policy HD5). An outline planning application (LPA Ref: P162922/F), supported by a masterplan, was submitted to the council in September 2016. The development would include 1,200 homes, employment uses and community facilities.

8.1.7. Yazor Brook, a tributary of the River Wye, is a watercourse leading south east from Roman Road towards the small village of Huntington, which is designated as a Conservation Area along with a number of Grade II structures within and around Huntington. All of the routes would need to cross Yazor Brook.

8.2 DESCRIPTION OF ROUTE OPTIONS THROUGH ELEMENT 2

8.2.1. This element covers a wide area and the route options are distributed more widely in this element.

8.2.2. Where the route options cross Kings Acre Road and Roman Road there will be new junctions established to connect the bypass with the existing transport network.

- Western: **Black 1/Black 2 & Cyan**
- Eastern: **Red/Olive, Yellow & Orange**

8.2.3. **Black 1/Black 2** passes in a north-westerly direction from Hill Road (Upper Breinton Road – U73022), running adjacent to the north-eastern edge of Upper Hill Farm, which, along with the attached barns, is a Grade II Listed Building. The route option curves around a northern trajectory as it crosses the Kings Acre Road, continuing north, passing along the eastern boundary of the Livestock Market, up to the proposed new junction on the A4103 Roman Road. Leading out of the junction on the Roman Road, **Black 1/Black 2** crosses over Yazor Brook and Towtree Lane on a north-eastern alignment towards Canon Pyon Road and **Element 3.**

8.2.4. **Red/Olive** travels northwards from Hill Road (Upper Breinton Road – U73022), joining together at Bridleway (BT4) to follow the same alignment across this element. This route crosses the Kings Acre Road immediately east of the Bay Horse Inn and associated car park, travelling north of the new roundabout junction, following the line of the field boundary hedgerow. The route crosses Yazor Brook before meeting the A4103 Roman Road, approximately 120m west of the Bovingdon Park, and east of the junction with Towtree Lane, which heads off to the north west. The route continues north east crossing Tillington Road north of Lower Burlton.

8.2.5. **Cyan** travels northwards from Hill Road (Upper Breinton Road – U73022) along the same route as **Yellow** route, before splitting and heading north-north-west where it crosses Kings Acre Road at the same point as the **Red/Olive** route, east of Bay Horse Inn. The route heads north where the proposed junction on the Roman Road is located east of the Bolts and Pinston House. The **Cyan** route then continues north east towards Tillington Road, crossing just south of the **Red/Olive** route option.

8.2.6. **Yellow** splits from the **Cyan** route at the Bridleway (BT4), and then continues north to the A4103 Roman Road, at the same proposed junction as the **Red/Olive** and **Orange** alignments. As the route continues north east from the Roman Road it is aligned with the **Orange** route, and crosses the Tillington Road. Between the A4103 and Tillington Road, the route runs south east parallel with Burghill Footpath 11.

8.2.7. **Orange** travels from the same point on the Hill Road (Upper Breinton Road – U73022) as the **Red** option, but then continues in a north direction towards the Kings Acre Road. The proposed junction is located just east of the proposed **Yellow** route crossing. The route then passes over the agricultural fields heading north, crossing Yazor Brook before meeting the proposed junction point at the Towtree Lane, where there are a number of dwellings on the north side of the A4103 carriageway. After this junction, the **Orange** route merges with the **Yellow** route, heading north east across the Tillington Road.

8.3 THE POLICY FRAMEWORK RELEVANT TO ELEMENT 2

8.3.1. Many of the policy considerations informing decisions are similar to those already described for **Element 1**. Most relevant is policy related to: ancient woodland and veteran trees; living conditions (noise and air quality); historic environment including designated heritage assets and their setting; Landscape character, including the historic and cultural landscape, and views; designated heritage; community uses and open space; agricultural viability (which may be affected by severance of agricultural land and loss of buildings); design (especially of the viaduct crossing); and road function. **Element 1** can be referred to for a discussion of these issues.

8.3.2. Notably **Element 2** of the bypass includes the area planned for an urban expansion to Hereford in the Core Strategy, the requirements for which are set out in Policy HD5 of that document.

POLICY ELEMENT 2. CORE STRATEGY POLICY HD5 (WESTERN URBAN EXPANSION)

8.3.3. The Core Strategy identifies broad strategic directions for growth to provide the housing and employment land, and supporting infrastructure required for Herefordshire during the plan period.

8.3.4. One of these locations is the Western Urban Expansion area, also known as ‘Three Elms’. All route options pass through or near to the area of land in which this expansion would take place.

8.3.5. The requirements for the urban expansion are set out in policies HD1 (Hereford) and HD5 (Western Urban Expansion) of the Core Strategy.

8.3.6. The West Urban Expansion area expected to provide a minimum of 1,000 dwellings at an average density of 35 per hectare and 10 ha of employment land.

8.3.7. Policy HD5 also specifies that the urban expansion should provide:

- land and infrastructure for Park & Choose facilities;
- a new linear park along the Yazor Brook;
- cycle and pedestrian paths, including use of the disused railway line for this purpose;
- sports and play facilities, formal and informal open space, community orchards, woodland planting and allotments (in accordance with Core Strategy Policies OS1 and OS2);
- a new primary school;
- a neighbourhood community hub to meet any identified need for small scale convenience retail, community meeting space, health provision, indoor sports and other community infrastructure/facilities where appropriate; and
- sustainable urban drainage and flood mitigation.

8.3.8. It also specifies that the employment area should located near to the new livestock market with access to the 'Hereford Relief Road' and Roman Road and states that:

'The area will be planned in a comprehensive manner to show the layout of the development and the required infrastructure'.

8.3.9. The urban expansion (like the bypass) must also conform to other relevant polices of the local development plan, unless there are material reasons why it should not.

8.3.10. Whilst the exact land area for this expansion is not set out in the Core Strategy a masterplan has been submitted by the Church Commissioners, who own much of the land located for where the urban expansion is planned.

8.3.11. The masterplan was developed with the community and forms part of a currently undetermined Outline planning application (P162920/F).

8.3.12. The limits of the land are not set out in the Core Strategy but there is a finite amount of land able to accommodate all the elements required by the policy, whilst maintaining an appropriate relationship to the rest of Hereford. This land is largely contained by the Wyevale Garden Centre and the livestock market to the west, the A4103 to the north, the A438 (Kings Acre Road) to the south, and the existing built up area of Hereford to the east.

8.3.13. The masterplan has been developed to demonstrate that the landholding can meet the requirements of Policy HD5, as well as other relevant policies contained in the Core Strategy. It is subject to change and compliance of the masterplan with Policy HD5 has not been formally determined by Herefordshire Council, as planning authority. It has though been developed in consultation with the community with a view to making appropriate provision for policy requirements.

8.3.14. The planning statement provided in support of the application states:

'The proposals incorporate the reservation of a corridor of land, approximately 30m in width, adjacent to the western boundary of the site to allow for the future delivery of the Hereford Relief Road (HRR). The final route of the road will be determined by Herefordshire Council in due course and as such the exact route may be subject to change.

It is proposed that Phase 1 will be delivered prior to/alongside the delivery of the HRR, whilst Phase 2 is intended to be delivered following the delivery and opening of the HRR'

8.3.15. Whilst the masterplan indicates how the bypass is likely to be accommodated within the development, the possibility remains that the bypass could follow an alternative alignment to that shown in the submitted masterplan.

This does not, however, negate the need for the route of the bypass to take account of the requirements of Policy HD5.

8.3.16. All options in this element that prevent delivery of HD5 can therefore be disregarded.

8.3.17. Since Kings Acre Road passes the length of the core strategy corridor it is not possible to provide a bypass without directly affecting residential property.

8.3.18. The junction of A438 King's Acre Road will necessarily require the acquisition of private property. This is true for all route options. The cyan route option, within Element 2, would also directly affect a residential property north of Roman Road, requiring its acquisition.

8.3.19. It is possible these dwellings would need to be compulsorily acquired. Any compulsory purchase of land or property would need to be justified with a public interest case sufficient to outweigh the interference with the private rights of those with an interest in the land or property.

8.3.20. This public interest case will primarily be based on the planning case for the bypass being in that particular location, supported by planning policy in the Core Strategy, Local Transport Plan, the NPPF and NNNPS.

8.3.21. The consideration of alternative locations for the bypass that would avoid the need for the acquisition of land, would be especially relevant if objections are made to the compulsory acquisition of land or property as part of the DCO or Compulsory Purchase Order (CPO).

8.3.22. Compulsory acquisition can be justified not only to make way for the bypass but also to mitigate what would otherwise be an unacceptable environmental impact.

8.3.23. In particular, the NNNPS at Paragraph 5.199 says that compulsory acquisition is able to be justified in order to mitigate unacceptable noise effects.

' In extreme cases, the applicant may consider it appropriate to provide noise mitigation through the compulsory acquisition of affected properties in order to gain consent for what might otherwise be unacceptable development. Where mitigation is proposed to be dealt with through compulsory acquisition, such properties would have to be included within the development consent order land in relation to which compulsory acquisition powers are being sought'.

8.3.24. When making and confirming an order, Herefordshire Council will need to be sure that the purposes for which the compulsory purchase order is made justify interfering with the human rights of those with an interest in the land affected. Human rights have the most potential to be affected where the acquisition of entire residential properties is required.

8.3.25. The justification for this would be based in the benefits of and need for the scheme. This case would be similar for all route-options.

8.3.26. Reducing the need to acquire residential property is a relevant factor in route selection, but only where there is a difference between the route-options in number of residential properties needing to be acquired.

STRATEGY FOR COMPARISON WITHIN ELEMENT 2.

8.3.27. **Element 2** was split into 3 sub-elements:

- **Sub-element 2.1**: Hill Road (Upper Breinton Road – U73022) to Kings Acre Road which includes the proposed junction at Kings Acre Road.
- **Sub-element 2.2**: Kings Acre Road to Roman Road which includes the proposed junction at Roman Road.
- **Sub-element 2.3**: Roman Road to Canon Pyon Road (including crossing).

8.3.28. A staged comparison within each sub-element was then undertaken:

9 COMPARISON OF SUB-ELEMENT 2.1: HILL ROAD (UPPER BREINTON ROAD – U73022) TO KINGS ACRE ROAD

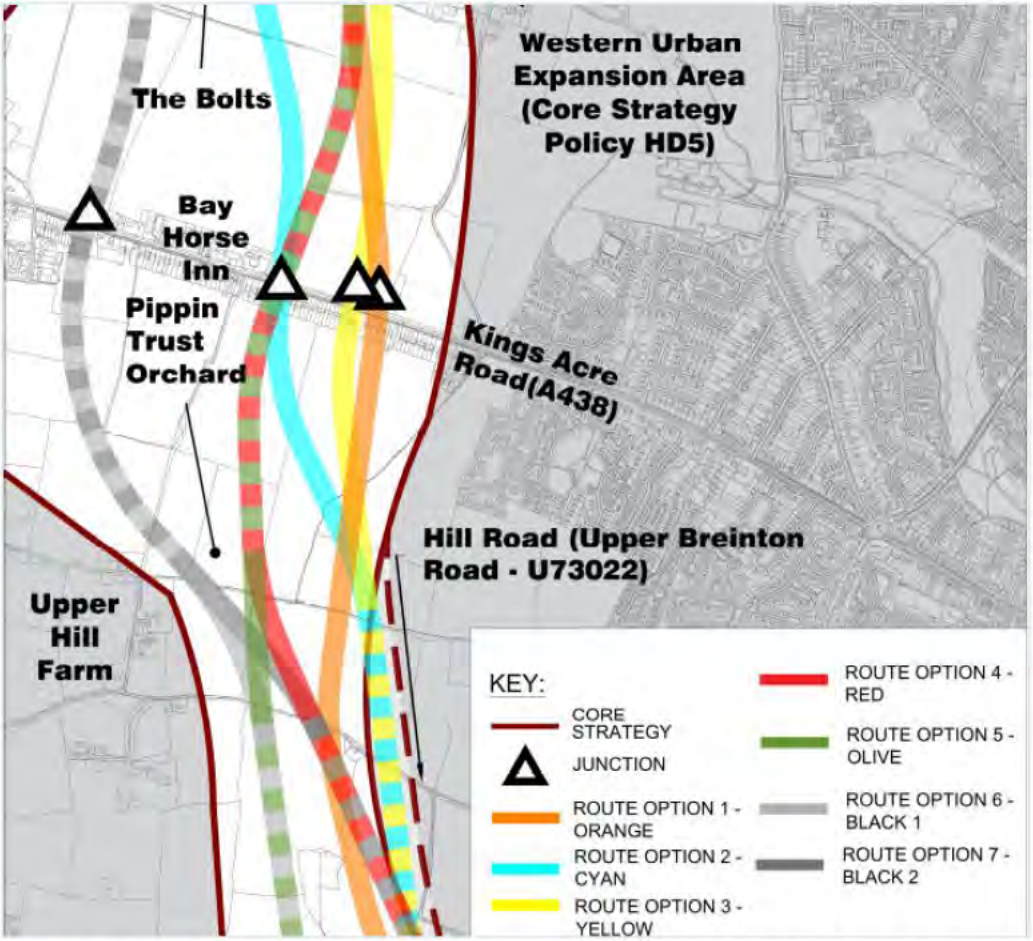


Figure 10 - Element 2.1. Hill Road (Upper Breinton Road – U73022) to Kings Acre Road

9.1 DESCRIPTION OF LOCATION OF SUB-ELEMENT 2.1

9.1.1. **Sub-element 2.1** begins from Hill Road (Upper Breinton Road – U73022) in the south, covering the rural area up to the A438 Kings Acre Road. The Bridleway (BT4) crosses the area from east to west, where the sub-element expands westwards, covering a wider corridor. Upper Hill Farm is a Grade II Listed Building which lies south and west of the sub-element.

9.1.2. Hereford Listed Traditional Orchard, Pippin Trust Orchard and Drovers Wood (Woodland Trust) community woodland is located to the east of this sub-element. Kings Acre Road is a residential street which is lined with mature trees along this stretch subject to an application for a Tree Preservation Order.

9.1.3. The Bay Horse Inn public house is located on Kings Acre Road and lies at the centre of the corridor, in the context of this sub-element area. The Mormon Church of Jesus Chris of Latter-day Saints is also located on the northern side of the road, approximately 230m west of the pub.

9.1.4. The site of the proposed strategic residential allocation at Three Elms extends north of the Kings Acre Road continuing into **Sub-element 2.2**.

9.2 DESCRIPTION OF ROUTE OPTIONS THROUGH SUB-ELEMENT 2.1

9.2.1. **Black 1** and **Black 2** travel north west away from the Hill Road (Upper Breinton Road – U73022), before beginning to curve around to the north after crossing the Bridleway (BT4). As the route aligns north it passes the eastern (rear) of housing at Conifer Walk, south of the Kings Acre Road.

9.2.2. The remaining routes all meet the Kings Acre Road east of the Bay Horse Inn. The **Red/Olive** and **Cyan** route cross at a new junction east adjacent to the public house. The **Orange** and **Yellow** routes cross further east along the A438 towards the city centre direction.

9.2.3. The **Red/Olive** routes run in a northern trajectory towards the crossing at the pub from Hill Road (Upper Breinton Road – U73022), and the **Orange** and **Yellow** alignments pass in a northern trajectory east of that.

9.2.4. The **Cyan** route begins on the eastern side of the sub-element and then curves northwest before then curving around to the north at the same crossing point on the A438 with the **Red/Olive** routes.

9.3 METHOD OF COMPARISONS WITHIN SUB-ELEMENT 2.1

- **STAGE 1**: Compare **Orange**, **Cyan** and **Yellow**.
- **STAGE 2**: Compare winner of **STAGE 1** with **Red/Olive.**
- **STAGE 3**: Compare winner of **STAGE 1** with **Black 1& 2.**

9.4 NON-RELEVANT ISSUES WITHIN SUB-ELEMENT 2.1

9.4.1. All of the issues identified below are relevant to the assessment.

9.5 RELEVANT ISSUES TO WEIGH UP WITHIN SUB-ELEMENT 2.1

- Residential properties at Kings Acre Road.
- Noise at Kings Acre Road.
- Bat movements.
- Impacts on areas which have been put forward by landowners to provide Herefordshire's housing requirement, as part of the Hereford Area Plan process.
- Impact on setting of Grade II listed Upper Hill Farm.
- Impact on trees, including the avenue of Lime trees along Kings Acre.
- Hereford Listed Traditional Orchard and Pippin Trust Orchard
- Drovers Wood (Woodland Trust) community woodland, which is designated as green space in the Breinton Neighbourhood Plan

9.6 COMPARISON OF SUB-ELEMENT 2.1

STAGE 1: SUB-ELEMENT 2.1

Compare Orange, Cyan and Yellow.

9.6.1. **Orange** and **Yellow** would result in nine dwellings along Kings Acre Road (five of these may be demolished as they are under the footprint of the route) to be exposed to UAEL in Sub-element 2.1. **Cyan** would result in four dwellings along Kings Acre Road (three of these may be demolished as they are under the footprint of the route) to be exposed to UAEL in **Sub-element 2.1**.

9.6.2. **Cyan** would have less dwellings (121 dwellings) exposed to noise above the SOAEL and subject to NIR than **Orange** (143 dwellings) and **Yellow** (142 dwellings) throughout **Element 2**.

9.6.3. **Orange**, **Yellow** and **Cyan** has no impact on the setting of the Grade II listed Upper Hill Farm.

9.6.4. **Orange, Yellow** and **Cyan** has no impact on the Hereford Listed Traditional Orchards, the Pippin Trust Orchards and Drovers Wood.

9.6.5. **Yellow** and **Cyan** would result in one veteran tree and **Orange** one notable tree removed in **Sub-element 2.1**. **Cyan** would result in 15 notable trees, **Yellow** 24 notable trees and **Orange** 25 notable trees being removed from Kings Acre Road.

9.6.6. **Orange, Cyan** and **Yellow** would all result in five residential properties being directly affected and would affect the access to a further six properties. Therefore, it is not a determining factor in **Sub-element 2.1**.

9.6.7. **Orange** and **Yellow** are not possible alignments due to the likely conflicts they would present with Policy HD5 in **Sub-element 2.2.**

9.6.8. **Cyan** is therefore taken forward to be compared with **Black 1&2**.

STAGE 2: SUB-ELEMENT 2.1

Compare Cyan with Red/Olive

9.6.9. All route options (**Cyan, Red** and **Olive**), would require the same junction location on Kings Acre Road.

9.6.10. **Cyan** would result in four dwellings along Kings Acre Road (three of these may be demolished as they are under the footprint of the route) to be exposed to UAEL in **Sub-element 2.1**. **Red/Olive** would result in four dwellings along Kings Acre Road (all of these may be demolished as they are under the footprint of the route) to be exposed to UAEL in **Sub-element 2.1**.

9.6.11. **Red** (114 dwellings) and **Olive** (116 dwellings) would have less dwellings exposed to noise above the SOAEL and subject to NIR than **Cyan** (121 dwellings) throughout **Element 2**.

9.6.12. **Cyan** and **Red** has no impact on the setting of the Grade II listed Upper Hill Farm. **Olive** route would result in harm to the setting of Grade II Upper Hill Farm.

9.6.13. **Cyan** has no impact on the Hereford Listed Traditional Orchards, the Pippin Trust Orchards and Drovers Wood. **Red/Olive** has no impact on Drovers Wood, but due to the re-grading of a lane to form an overbridge would result in the loss of a section of Hereford Listed Traditional Orchard, which is also designated as a Habitat of Principal Importance.

9.6.14. **Red/Olive** would also result in habitat losses within newly planted (less than 10 years) Pippin Trust heritage orchards (created by the Pippin Trust). However, it is considered that the newly planted orchards would, as a last resort, be able to be compensated for on other land.

9.6.15. **Cyan** would result in one veteran tree removed in **Sub-element 2.1. Cyan** would result in 15 notable trees and **Red/Olive** 13 notable trees being removed from Kings Acre Road.

9.6.16. **Red/Olive** would better enable the objectives of Policy HD5 of the Core Strategy than **Cyan** in **Sub-element 2.2**. This is because a route that followed **Cyan** would make it less likely that the area could accommodate all of the employment planned for the area without rethinking the balance and location of land uses in the currently submitted masterplan, which may (though not necessarily) lead to a worse quality development.

9.6.17. However, **Red/Olive** may present more difficulties in accessing land that would need to provide the requirements of Policy HD5, particularly the access to areas set out in the submitted masterplan as residential.

9.6.18. **Cyan** and **Red/Olive** would both result in the five residential properties being directly affected and would affect the access to a further six properties. Therefore, it is not a determining factor at this Stage 2 of the comparison within **Sub-element 2.1**.

9.6.19. Subject to there being no reason in **Sub-element 1.3** as to why the **Cyan** route should be followed rather than **Red/Olive**, **Red/Olive** performs better than **Cyan** through this sub-element.

STAGE 3: SUB-ELEMENT 2.1

Compare winner Red/Olive with Black 1& 2.

9.6.20. **Black 1&2** and **Red/Olive** would both present the least conflict with Policy HD5 in **Sub-element 2.2** than other route options. However, **Black 1&2** would enable the residential element of Policy HD5 to not be severed from the proposed employment land required by the same policy, which would be more in line with the sustainable transport policies of the Core Strategy, and with the local transport plan.

9.6.21. **Black 1&2** would result in the loss of a section of Drovers Wood. Both **Black 1&2** and **Red/Olive** would result in the loss of a section of Hereford Listed Traditional Orchards and the Pippin Trust Orchards, though **Black 1&2** would have a much greater impact (land take) on the Pippin Trust Orchards.

9.6.22. **Red/Olive** would result in 13 notable trees that form a notable avenue being removed from Kings Acre Road. **Black 1&2** would result in one veteran and four notable trees removed in **Sub-Element 2.1** include one notable tree on Kings Acre Road.

9.6.23. **Red** and **Black 1** (114 dwellings) would have less dwellings exposed to noise above the SOAEL and subject to NIR than **Olive** and **Black 2** (116 dwellings) throughout **Element 2**.

9.6.24. **Black 1&2** would less likely to be able to adequately achieve the objectives for Hereford City Centre, as it is a longer route meaning that drivers would be less likely to choose it over the existing road through Hereford.

9.6.25. **Black 1&2** would also cost more to construct than **Red/Olive**, due to it being a longer route overall and it requiring a structure over the Yazor Brook (an issue that straddles **Sub-elements 2.2** and **2.3**). This would cost more, and may or may not make the scheme unviable overall.

9.6.26. These disadvantages of **Black 1&2** indicate that **Red/Olive** should be chosen over **Black 1&2**.

9.6.27. **Black 1&2** and **Red/Olive** would both result in five properties being demolished. **Red/Olive** would affect access to one more property than **Black 1&2** and it is possible that this could be mitigated through design.

9.7 RESULT OF SUB-ELEMENT 2.1

9.7.1. The following route-options perform best through **Sub-element 2.1**:

- **Red**
- **Olive**

9.7.2. A summary matrix in support of the above is attached at Appendix C.

10 COMPARISON OF SUB-ELEMENT 2.2: KINGS ACRE ROAD TO ROMAN ROAD

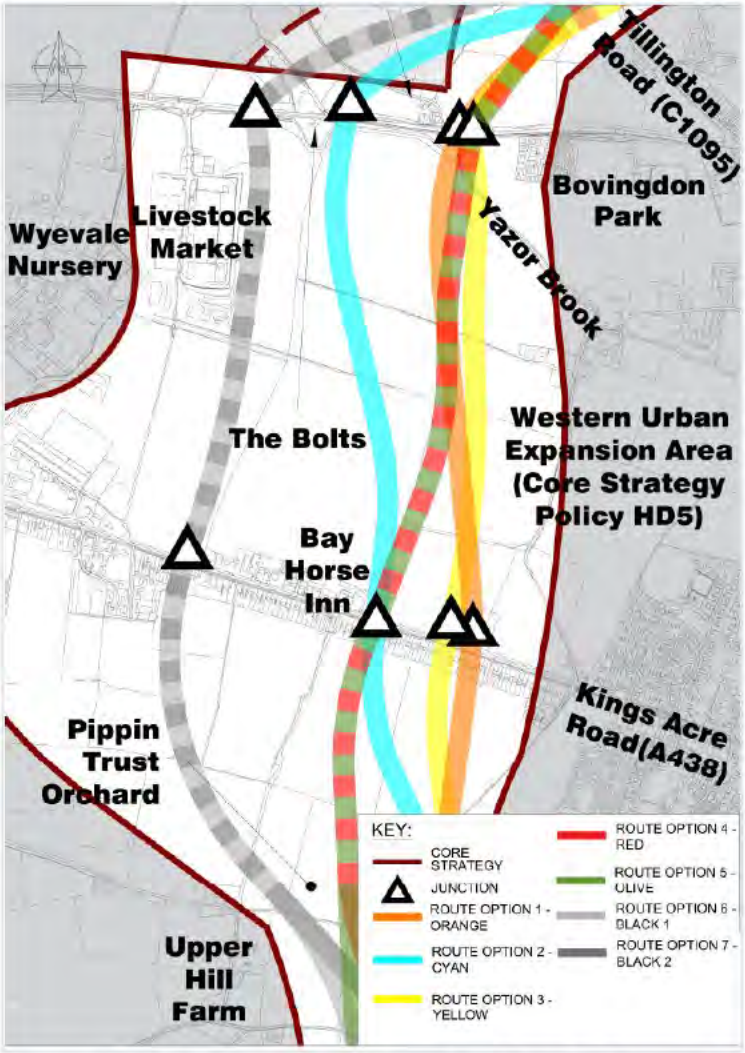


Figure 11 - Sub-element 2.2. Kings Acre Road to Roman Road

10.1 DESCRIPTION OF LOCATION OF SUB-ELEMENT 2.2

10.1.1. **Sub-element 2.2** covers a wide corridor of land bounded by the Kings Acre Road to the south and the A4103 Roman Road in the north.

10.1.2. The area of land to be used for Hereford's Western Urban Expansion (Policy HD5), is to the east of the sub-element.

10.1.3. The north-western corner of this sub-element comprises the Livestock Market and the Wyevale Garden Centre. Wyevale Nurseries lie adjacent to the livestock market to the west, outside of the sub-element.

10.1.4. Yazor Brook is a tributary of the River Wye which crosses the northern section of this sub-element. Huntington is a Conservation Area, which includes Grade II structures within and around the hamlet. Bovingdon Park lies north of the brook, and is a mobile home park with a permanent residential use, which is accessed off the A4103 Roman Road.

10.1.5. The Bolts and Pinston House are residential dwellings which lie south and north of Roman Road respectively.

10.2 DESCRIPTION OF ROUTE OPTIONS THROUGH SUB-ELEMENT 2.2

10.2.1. There are three route options and two combined route options within this sub-element:

- Western: **Cyan**
- Western: **Black 1&2**
- Eastern: **Orange**
- Eastern: **Yellow**
- Eastern: **Red/Olive**

10.2.2. **Black 1&2** are the western most routes and travel north from Kings Acre Road, past the eastern edge of the Livestock Market, to the Roman Road, meeting the junction west of The Bolts.

10.2.3. **Cyan** continues across at Roman Road, from what would be a new junction to the east of the Bay Horse Inn, and would cross what is currently open fields, some of which are shown on the submitted masterplan as for employment uses.

10.2.4. **Red/Olive** broadly coincides with the line for the bypass that set out in the submitted masterplan, with employment uses suggested for the west and mainly residential uses suggested for the east. The land is currently open fields.

10.2.5. The **Yellow** and **Orange** routes travel from potential junction locations further east on Kings Acre Road, through what is currently open fields to Roman Road, across land intended within the masterplan to provide the strategic housing elements of Policy HD5.

10.3 METHOD OF COMPARISON WITHIN SUB-ELEMENT 2.2

- **STAGE 1**: Compare **Orange**, **Yellow** and **Red/Olive.**
- **STAGE 2**: Compare **Cyan** and **Black 1&2**.
- **STAGE 3**: Compare the winner of **STAGE 1**, with the winner of **STAGE 2**.

10.4 NON-RELEVANT ISSUES TO WEIGHT UP WITHIN SUB-ELEMENT 2.2

10.4.1. All of the issues identified below are relevant to the assessment.

10.5 RELEVANT ISSUES TO WEIGH UP WITHIN SUB-ELEMENT 2.2

- Meeting requirements of Policy HD5 of the Core Strategy (taking account of the submitted masterplan, which is part of an undetermined application, but has been developed to take account of the requirements of Policy HD5, in consultation with the community).
- Yazor Brook (also see Sub-element 2.3). Potential for additional structure due to crossing tributary adding cost to the scheme.
- Important trees
- City centre congestion objective (journey times).
- Noise, both at existing dwellings and impact on residential areas required by Policy HD5.
- Ponds stocked with coarse fish where otters feed (Otters are a European Protected Species) - just north of Roman Road. The River Wye is designated otter habitat requiring compensation for its loss.
- Drainage and flood risk, (taking account of likely drainage required to support both the bypass and the requirements of Policy HD5).

10.6 COMPARISON OF SUB-ELEMENT 2.2

STAGE 1: SUB-ELEMENT 2.2

Compare Orange, Yellow and Red/Olive

10.6.1. **Orange**, **Yellow** and **Red/Olive** route all pass through a (Groundwater) Source Protection Zone 2 (SPZ) with **Red/Olive** passing through in a cutting. **Yellow** and **Orange** routes are the better performing options as they are not in cutting within an SPZ 2.

10.6.2. **Red/Olive** would result in one veteran tree being removed. No important trees are affected by **Orange** and **Yellow** in **Sub-Element 2.**

10.6.3. **Orange**, **Yellow** and **Red/Olive** routes all result in harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington.

10.6.4. Yazor Brook would need be culverted beneath route and would require diverting for **Orange**, **Yellow** and **Red/Olive** routes resulting in habitat loss and impacts on species using Yazor Brook corridor. Yellow route is the best to accommodate this that would minimise impacts followed by **Red/Olive** and then **Orange.** The **Orange**, **Yellow** and **Red/Olive** routes have the same impact on flood risk.

10.6.5. **Red** (114 dwellings) and **Olive** (116 dwellings) would have less dwellings exposed to noise above the SOAEL and subject to NIR than **Yellow** (140 dwellings) and **Orange** (143 dwellings) throughout **Element 2**. The **Yellow** and **Orange** routes are located within a residential area in the proposed Three Elms masterplan therefore affected proposed residential areas on both sides of the routes. **Red/Olive** route is generally further away from proposed residential areas located in the Three Elms masterplan.

10.6.6. Due to their alignment being closer to the existing residential areas these alignments have a greater severance effect on land available to provide for the requirements of Policy HD5 of the Core Strategy. Both **Yellow** and **Orange** route options are therefore likely to compromise the ability of the land to provide for the housing as part of a high quality residential-led development as envisaged by the Core Strategy.

10.6.7. Whilst still potentially severing future employment and residential areas, which may lead to further dependence on the car, and/or the need to carefully design in pedestrian and cycle migration, the **Red/Olive** combine route option would be more compliant with the requirements of this policy. The masterplan demonstrates how the requirements of the policy (and other relevant policies on the Core Strategy) are likely to be able to be met in this area.

STAGE 2: SUB-ELEMENT 2.2

Compare Cyan and Black 1/&2

10.6.8. **Black 1&2** route pass through a (Groundwater) Source Protection Zone 3 (SPZ) with only a slight encroachment into SPZ 2. **Cyan** pass within SPZ 2 and includes a cutting within the SPZ. **Black 1&2** routes are the better performing options as they are not in cutting within an SPZ 2.

10.6.9. **Black 1&2** would result in one veteran tree being removed. No important trees are affected by **Cyan** in Sub-Element 2.

10.6.10. **Black 1&2** and **Cyan** routes all result in minor harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington.

10.6.11. The **Black 1&2** routes traverse habitats within Hereford Cattle Market and is within 50 m of a Site of Importance for Nature Conservation. A relatively high level of bat activity was recorded in this area. No bat risk was record along the **Cyan** route in **Sub-Element 2.2**.

10.6.12. Yazor Brook would be culverted beneath **Cyan** route and would require diverting. **Black 1&2** crosses Yazor Brook and the adjacent fishing pond with a bridge structure. **Black 1&2** and **Cyan** routes would result in habitat loss and impacts on species using Yazor Brook corridor. The Cyan route is slightly better as the section of Yazor Brook affected was recently reinstated. Both **Black 1&2** and **Cyan** routes have a large impact on flood risk.

10.6.13. **Cyan** would also reduce the land available for compensatory water storage. It would however be a shorter route than **Black 1&2** and therefore lead to shorter journey times that would help achieve the city centre congestion objective.

10.6.14. **Black 1** (114 dwellings) and **Black 2** (116 dwellings) would have less dwellings exposed to noise above the SOAEL and subject to NIR than **Cyan** (121 dwellings) throughout **Element 2**.

10.6.15. **Black 1 & 2** would also be further from residential areas forming part of the planned Western Urban Expansion. These areas would therefore be subject to less traffic noise as a result of the bypass, which would be more in accordance with creating the high-quality development required by Policy HD5 of the Core Strategy

10.6.16. **Black 1&2** would be more expensive to construct than **Cyan**, due to it being longer and also requiring more structures to accommodate Yazor Brook in **Sub-element 2.3** (see below). This may or may not affect the viability of the scheme.

10.6.17. **Cyan** would result in one dwelling (The Meadows) north of Roman Road being directly affected in **Sub-Element 2.3** and would pass through a proposed Three Elms masterplan employment area in **Sub-Element 2.2**. This may result in less than 10 ha of employment land being provided as required by Policy HD5, unless it can be provided elsewhere on the site.

10.6.18. **Black 1& 2** would better achieve the intention of Policy HD5 than **Cyan** and other relevant policies on the local transport plan and Core Strategy, as it would lead to less severance between future employment and residential areas, meaning that people would be more likely to travel to work by sustainable modes.

10.6.19. On balance, whilst for the reasons given above **Black 1&2** is considered preferable over **Cyan** strictly within **Sub-element 2.2,** these benefits are not considered to outweigh the greater harm caused by **Black 1 & 2** within **Sub-element 2.1** (for example to Drovers Wood and the orchards in **Sub-Element 2.1**).

10.6.20. This, along with the additional cost to construct and worse journey times from **Black 1& 2**, tips the balance towards **Cyan** being the better performing route for the purposes of being carried forward to the next stage of comparison.

STAGE 3: SUB-ELEMENT 2.2

Compare STAGE 1 and STAGE 2.

10.6.21. The best performing route in of Stage 1 was **Red/Olive**. The best performing route in Stage 2, was **Cyan.** These route-options are therefore compared.

10.6.22. Due to the need for a substantive drainage solution and structure over Yazor Brook and a much longer length overall **Cyan** would be more significantly more expensive than **Red/Olive** to construct. This may affect the ability for the scheme to be funded, therefore affecting the viability of the scheme.

10.6.23. **Red/Olive** is therefore better performing than **Cyan** within this **Sub-Element 2.2.**

10.7 RESULT OF SUB-ELEMENT 2.2

10.7.1. The following route-options perform best through **Sub-Element 2.2**:

- **Red**
- **Olive**

10.7.2. A summary matrix in support of the above is attached at Appendix C.

11 COMPARISON OF SUB-ELEMENT 2.3: ROMAN ROAD TO CANON PYON ROAD (INCLUDING CROSSING)

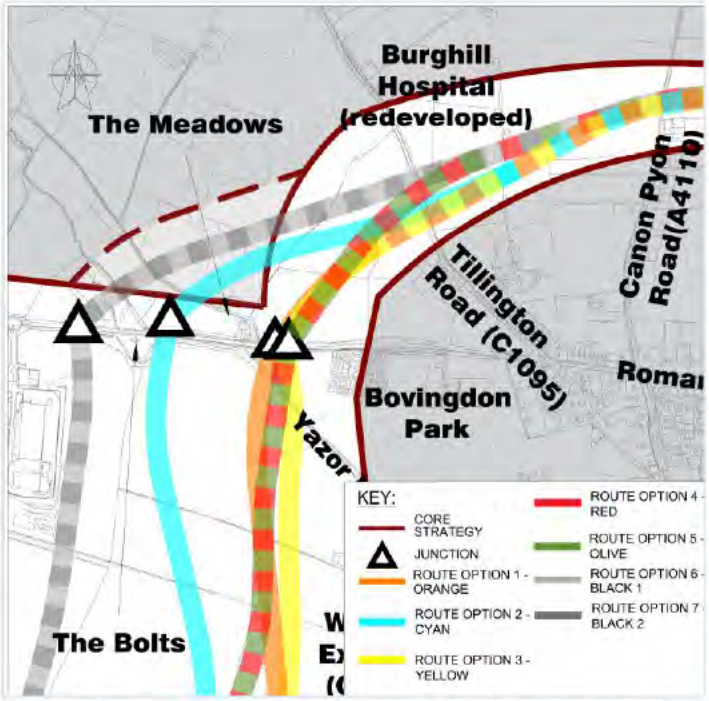


Figure 12- Roman Road to Canon Pyon Road (including crossing)

11.1 DESCRIPTION OF LOCATION OF SUB-ELEMENT 2.3

11.1.1. This element is an area of land between Roman Road and Canon Pyon Road that must accommodate the northern section of the bypass, which would end by crossing Canon Pyon Road in **Element 3**. The element is entirely within Burghill Parish.

11.1.2. Tillington Road traverses the area in a south-east to north-west alignment approximately at the centre of the sub-element.

11.1.3. The area contains agricultural fields generally divided by hedgerows with small clusters of trees generally located on field boundaries.

11.1.4. The area is generally flat, with a slight shallow valley where the routes near Tillington Road.

11.1.5. Yazor Brook to the south, close to Roman Road; a feature which straddles both **Sub-elements 2.2** and **2.3**. It would cross under the bypass running parallel with Towtree Lane to the north east.

11.1.6. The area lies wholly within the Herefordshire Lowlands national character area and contains traditional orchards recorded on the Priority Habitat Inventory between Canon Pyon Road and Tillington Road.

11.1.7. A wood pasture and parkland Biodiversity Action Plan (BAP) priority habitat exists adjacent to the Burghill Hospital residential development. The area lies within a SSSI impact risk zone. However, the proposed development of a new road does not fall within the development categories determined by Natural England that could have a potential impact on the related SSSI designation.

11.1.8. This sub-element area also contains the unregistered park and garden at Burghill Hospital. Burghill Hospital is a former hospital located to the north of this Sub-element area, which has now been converted into residential development which includes modern dwellings, accessed from Tillington Road.

11.1.9. There will also be a need to develop a cul-de-sac access parallel to the realigned Canon Pyon Road close to where it will cross the bypass to provide access to existing residential properties.

11.2 DESCRIPTION OF ROUTE OPTIONS THROUGH SUB-ELEMENT 2.3

11.2.1. The route options are split into two combined route options and two non-combined options within this sub-element as follows:

- **Orange/Yellow**
- **Red/Olive**
- **Cyan**
- **Black 1&2**

11.2.2. The south-western end of this sub-element is the proposed junction with Roman Road. The location of this junction ranges from west of Pinstone House (Black 1&2), east of Pinstone House (Cyan), to approximately 50m to the west of Bovingdon Park (**Red/Olive** and **Orange/Yellow**), a residential mobile home park located on the southern side of Roman Road.

11.2.3. Two of the proposed junctions with Roman Road (routes **Black 1&2** and **Cyan**) are located significantly further west than the other routes. The **Cyan** route's junction with Roman Road will be located west of the cluster of residential properties located at the junction of Towtree Lane and Roman Road, resulting in one of these properties (The Meadows) being directly affected and an additional spur from the proposed roundabout with Roman Road for access to Towtree Lane. The **Black 1&2** route's junction with Roman Road will be located further west again crossing a pond located to the north of Roman Road. The **Red/Olive** route will cross a pond located to the south of Roman Road.

11.2.4. At the route's junction with Roman Road there will be a need to re-route Towtree Lane at its junction with Roman Road due to the proposed location of the roundabout junction for the bypass, slightly to the north of the existing road.

11.2.5. At the crossing of Tillington Road the different route options are proposed to be in a cutting under this existing highway or on an embankment and overbridge crossing this highway. All the routes lie north of Lower Burlton and Hospital Farm on Tillington Road.

11.2.6. All of the routes converge into one route location at the crossing of Canon Pyon Road. Where the routes cross Canon Pyon Road they will all be in a cutting and Canon Pyon Road will be rerouted on an overbridge at a location to the north of the linear row of residential dwellings fronting this highway.

11.3 METHOD OF COMPARISON WITHIN SUB-ELEMENT 2.3

- **STAGE 1:** Compare **Orange/Yellow** with **Red/Olive**.
- **STAGE 2:** Understand reasons **Cyan** and **Black 1&2** have been eliminated in **Sub-element 2.1** and consider benefits of retaining **Cyan** and **Black 1&2** in this sub-element

11.4 NON-RELEVANT ISSUES WITHIN SUB-ELEMENT 2.3

11.4.1. These issues are not relevant to route choice through **Sub-element 2.3** (no or marginal difference):

- Landscape character.
- Structures.
- Impacts on PROW.
- The impact of cuttings and embankments as design detail can be further reviewed following the selection of the route.

11.5 RELEVANT ISSUES TO WEIGH UP WITHIN SUB-ELEMENT 2.3

11.5.1. The key issues in **Sub-element 2.3** are the impacts of the route options on existing residential properties, biodiversity, trees, flood-risk, landscape (including historic and cultural landscape), road function and cost.

11.5.2. The key difference between the routes in this sub-element is the impact on residential dwellings in the sub-element area. The **Cyan** route in this sub-element area will result in one existing residential dwelling at Towtree Lane being directly affected. All routes will have an indirect impact on existing dwellings located at Canon Pyon Road and at Roman Road/Towtree Lane, and to a lesser extent at Tillington Road, due to the

greater distance between residential dwellings and the proposed routes. The **Orange/Yellow** route comes closest to the existing properties on Tillington Road.

11.5.3. In respect of noise impacts, the **Orange/Yellow** route affects 143 dwellings and **Cyan** route affects 121 dwellings that exceed the SOAEL and subject to NIR. The **Black 1&2** and **Red/Olive** routes affect the least number of properties at 116 properties each.

11.5.4. Creating conditions at dwellings above the SOAEL should be 'avoided', but can be considered alongside the economic, social and other environmental dimensions of providing the bypass in this location (PPG noise, Paragraph 002). This issue is very relevant to route choice in this sub-element. However, the **Black 1&2** and **Cyan** routes affects one dwelling where the UAEL is exceeded. UAEL needs to be 'prevented' and can only be mitigated through compulsory acquisition of the dwelling, 'in order to gain consent for what might otherwise be unacceptable development' (NNNPS Paragraph 5.199, PPG 'noise, Paragraph 005). Since this is not the case for all route options, the number of properties affected by noise will influence the choice of route in this sub-element.

11.5.5. The key issue in relation to impacts on biodiversity are the ponds located to the east of Burghill Hospital Unregistered Park and Garden. The **Black 1&2** and **Red/Olive** routes will directly impact these ponds and result in the loss of a likely great crested newt breeding area. Great crested newts are a protected species under European law and any impacts that affect their habitats and population will require a licence from Natural England. As part of the licencing requirements it is expected that the development will have sought to minimise impacts by considering alternative locations where possible before seeking to create compensatory habitat and translocate great crested newts to that habitat.

11.5.6. In respect of impacts on other species such as bats, the **Black 1&2** and **Red/Olive** routes are considered to likely result in the fragmentation of a wildlife corridor for bats. Similarly, bats are protected under European law and full consideration of impacts is required to enable the grant of a licence by Natural England to undertake works that affect bat habitats. The **Cyan** route, due to the requirement to demolish an existing residential property where there is moderate bat roosting potential will also have an impact on bats. The **Yellow/Orange** route has been considered to have no impact in respect of bats.

11.5.7. All routes except for the **Red/Olive** route will require the removal of veteran trees. Justification for loss/deterioration of any trees at these routes would therefore need to be weighed against the national need for and benefits of the scheme.

11.5.8. Within **Sub-element 2.3** no impact on flood risk has been identified on any of the routes. However, the western part of the routes through **Sub-element 2.3** will likely be determined by the routes' impact on flood risk within **Sub-element 2.2**. The **Black 1&2** and **Cyan** routes would have a large adverse effect to flood risk associated with the proposed crossing at Yazor Brook in **Sub-element 2.2**. This is primarily due to the level of mitigation required to adequately deal with flooding issues at this location. It is considered that mitigation impacts at this location would lead to the need for large attenuation ponds upstream with potential impacts on landscape character and biodiversity, as well as impacting on the cost of the scheme and its overall viability.

11.5.9. Impact on the Yazor Brook Tributary has also been considered within **Sub-element 2.3**. **Black1&2**, **Red/Olive** and **Yellow/Orange** have all been assessed as having a slight adverse pollution risk during construction whereas **Cyan** route has been assessed as being neutral.

11.5.10. The routes will, by their very nature, have an impact on landscape character. Assessment of the impacts on landscape character have resulted in a range of neutral to moderate adverse impacts on a landscape character types. The **Orange/Yellow** route has the lowest impact on landscape character identified as 'slight adverse'.

11.5.11. In respect of the historic and cultural landscape both the **Red/Olive** and **Black 1&2** routes have greater impacts in relation to Burghill Hospital Unregistered Park and Garden. However, within the route corridors, the non-publicly accessible unregistered park and garden is a collection of agricultural fields rather than the more formal semi-publicly accessible grounds, which are located closer to the former hospital, further north.

11.5.12. Both the **Black 1&2** and **Cyan** routes cross existing PROWs, whereas **Red/Olive** and **Orange/Yellow** do not have any impact on existing PROW. Where routes cross existing PROW design options are available to ensure that the PROW can continue to be safely used during construction and operational phases.

The most relevant issues to weigh up in route choice through Sub-element 2.3 are:

- The setting of the unregistered Burghill Hospital Park and Garden.

- Directly affecting existing dwellings.
- Exposure of dwellings to noise above the UAEL and SOAEL.
- Impact of routes on veteran and notable trees.
- Impact of routes on biodiversity (great crested newts and bats).

11.6 COMPARISON OF SUB-ELEMENT 2.3

11.6.1. The overriding issue dictating route choice in this area is the requirement to minimise harm to existing residents and limiting the number of dwellings that would be exposed to noise above the UAEL and SOAEL. The **Red/Olive** route performs better than the other routes in this sub-element area in this respect as it affects the fewest number of properties.

11.6.2. It is considered that the number of properties affected by noise outweighs the impact on biodiversity, particularly the impact on ponds and great crested newt habitats, and the impact on bats. This is because these impacts are capable of being mitigated by potentially refining the **Red/Olive** route to avoid such impacts. If refinement was not possible other mitigation or compensation measures could be utilised, such as translocating great crested newts to nearby sites that could be created as mitigation of the scheme and providing structures that mitigate the impact of the loss of wildlife corridors.

11.6.3. The **Red/Olive** route is the only route in this sub-element area that requires no loss of veteran trees. In policy terms, the loss of veteran trees should be avoided where there are viable alternatives otherwise there is a risk of refusal of permission.

11.6.4. In respect of impacts on the historic landscape, it is considered that the weight given to impacts on the unregistered Burghill Park and Garden should be low. At the location of both the **Black 1&2** and **Red/Olive** routes the land directly affected appears to be an agricultural field with no public access, and does not appear to have any characteristics of a park or garden for the general public. Furthermore, refinement of these two routes to locate them slightly further to the south to further reduce impacts as long as no additional impacts are created in respect of trees, biodiversity or on residential properties.

11.6.5. **Cyan** is the only route option that would result in a residential property (The Meadows) being directly affected. This therefore supports ruling out **Cyan** at this stage.

11.7 RESULT OF SUB-ELEMENT 2.3

11.7.1. The following route-options perform best through Sub-Element 2.3:

- **Red**
- **Olive**

11.7.2. A summary matrix in support of the above is attached at Appendix C.

12 ROUTE SELECTION - ELEMENT 3: CANON PYON ROAD TO A49

12.1 DESCRIPTION OF LOCATION OF ELEMENT 3

12.1.1. **Element 3** is the final portion of the proposed bypass route, covering the area from the A4110 Canon Pyon Road in the west, to the A49 in the east. A row of houses lies on the eastern side of the A4110, with a dwelling known as 'Wyncroft' being the most northerly property. There is a veteran tree to the rear of Wyncroft, south of the bypass alignment, as well as another tree isolated tree to the north of the alignment within a field further to the east, which will be avoided.

12.1.2. The land between the two roads which this element covers is made up of predominantly agricultural fields, primarily arable, bounded by established hedgerows. Arundel Farm lies approximately 465 metres north of the element. There is a small population of great crested newts in the pond to the south of the farm. A PROW lies on a northwest-southeast alignment approximately parallel with the A49 and running to the west of Arundel Farm linking properties on Roman Road with Elton's Marsh on Canon Pyon Road. Once, built it will traverse the Holmer West development (LPA Ref: P150478/O).

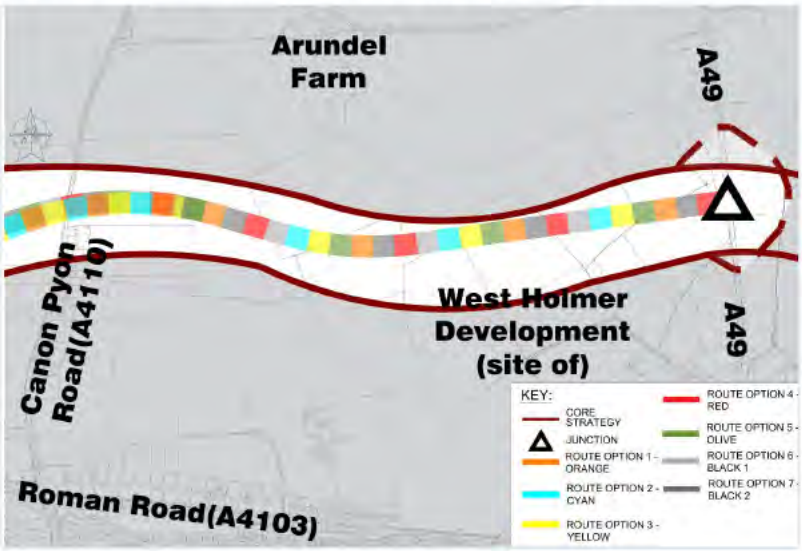


Figure 13 - Canon Pyon Road to A49

12.1.3. The easternmost extent of this element ends at the A49, which travels on a north-south alignment from Hereford City Centre. On the A49, the element covers the area between two dwellings which lie alone, The Orchard and Oldfield House. Other isolated properties front on to the road to the north of The Orchard up to the access to Arundel Farm.

12.2 DESCRIPTION OF ROUTE OPTIONS THROUGH ELEMENT 3

12.2.1. The route crosses the A4110 Canon Pyon Road north of dwelling known as Wyncroft, and travels in an eastern trajectory, across the agricultural fields, where it meets a new junction on the A49, north of The Orchard and south of Oldfield House.

12.3 RESULT OF ELEMENT 3

12.3.1. Within this element, the route options are all aligned along the same route and so there is no comparison to make and no choice between alternatives.

12.3.2. Therefore, the selected route-options perform best through Element 3:

- **ALL**

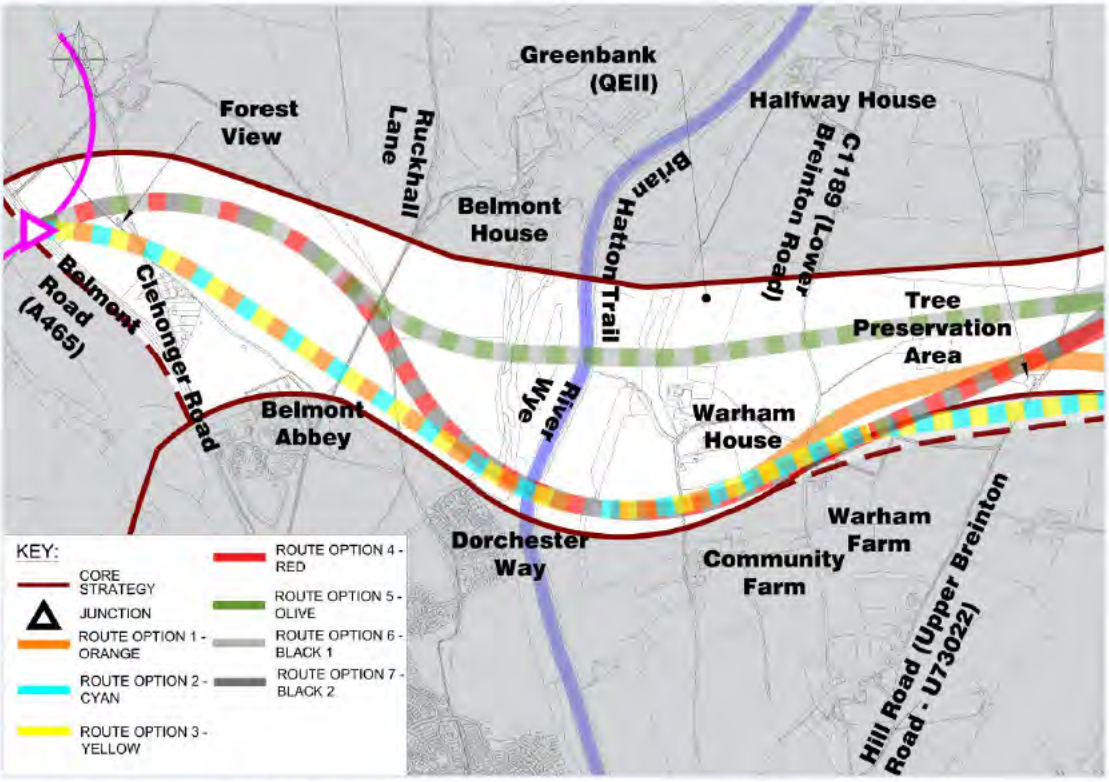
12.3.3. A summary matrix in support of the above is attached at Appendix C.

13 RESULT OF ROUTE SELECTION PROCESS

13.1 RESULTS OF ELEMENTS

13.1.1. This Route Selection Report describes the structured comparison assessment process undertaken to select the best technical performing route. The staged process involved identifying the best performing route-option through each element 1, 2, 3. For this each route is divided into sub-elements and the results for each element were as follows:

13.1.2. **Element 1: Existing A465 to Hill Road (Upper Breinton Road – U73022)**



Sub Element 1.1: Existing A465 to Ruckhall Lane- – Red / Olive / Black1 / Black2

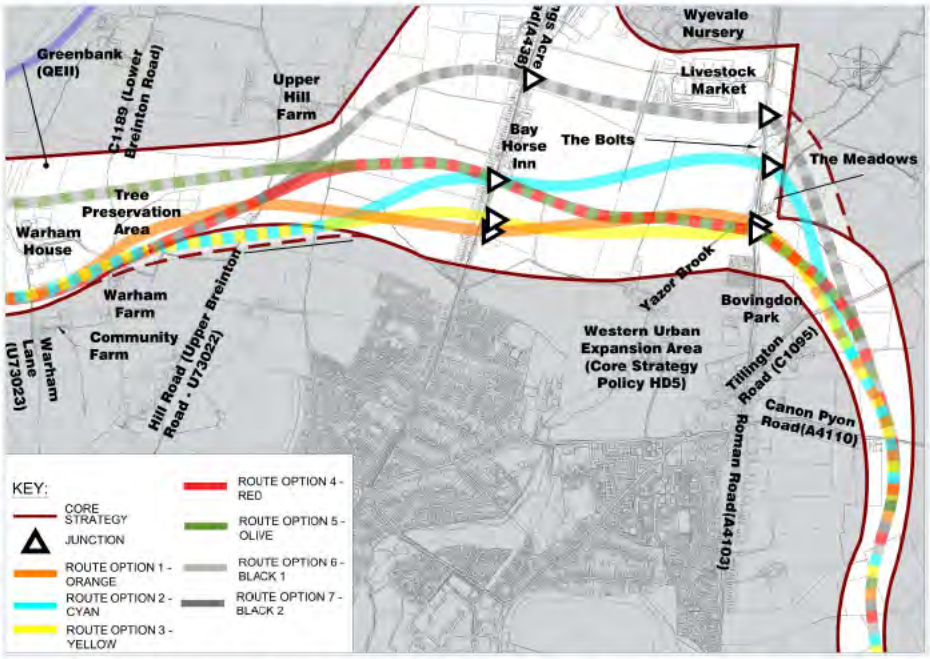
Sub Element 1.2: Ruckhall Lane and Wye Bridge Crossing to Warham Lane (U73023) / Warham House– Red / Black2

Sub Element 1.3: Warham Lane (U73023) / Warham House to Hill Road (Upper Breinton Road – U73022) – Red / Black 2

Element 1 Conclusion: Red and Black 2 are common to all sub-elements throughout as Best Performing Routes for each.

Element 1 Result – Red / Black2

13.1.3. Element 2 – Hill Road (Upper Breinton Road – U73022) to Canon Pyon Road



Sub Element 2.1: Hill Road (Upper Breinton Road – U73022) to Kings Acre Road – Red / Olive

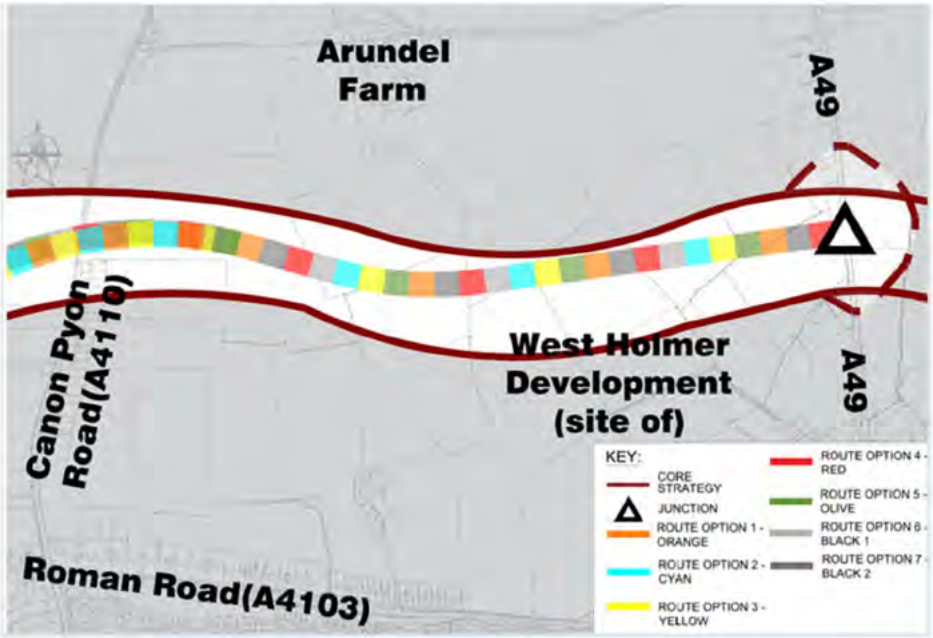
Sub Element 2.2 :Kings Acre Road to Roman Road – Red / Olive

Sub Element 2.3 :Roman Road to Canon Pyon Road – Red / Olive

Element 2 Conclusion - Red and Olive are common to all sub-elements throughout as Best Performing Routes for each.

Element 2 Result – Red / Olive

13.1.4. Element 3 – Canon Pyon Road to existing A49



Element 3 Conclusion – All routes common throughout.

Element 3 Result – All

13.2 ROUTE SELECTION: RECOMMENDED BEST PERFORMING ROUTE

13.2.1. The seven route corridor options have been compared in accordance with DMRB guidance. The core strategy area was divided into three elements where robust comparisons could be made.

13.2.2. The best performing combined route option within each of the three elements was:

Element 1 Result: Red / Black 2

Element 2 Result: Red / Olive

Element 3 Result: All

Based on this assessment the **Red Route** has been identified as the only route, through each element, that has commonality in being best performing route corridor option within the core strategy corridor. Accordingly, the RSR recommends that the **Red Route** is taken forward as the best performing route option for the Hereford Bypass.

13.2.3. The Preferred Route Report (PRR) draws together all findings and provides the overall route recommendation based on the technical assessment and Phase 2 consultation results.

13.3 REASONS WHY THE RED ROUTE OPTION IS RECOMMENDED AS BEST PERFORMING ROUTE

13.3.1. When considering the engineering aspects of the route the following were reasons for recommendation:-

13.3.2. Highways considerations:

- Of the seven route corridor options, 2 routes have alignments that are in the west of the core strategy corridor and five are within the east of the corridor. Those located with a more easterly alignment indicate quicker journey times. The Red Route is one of the five easterly route corridor options.
- The Red Route was second cheapest route corridor option, and only £1million more expensive than the cheapest
- The Red Route is best performing for alignment, junction and departures of the five options found in the east of the Core Strategy Corridor.

13.3.3. **Structures**: All routes are similar for in terms of the number of structures. The main differentiator between all routes was the River Wye crossing where the route corridor options with a more easterly alignment would be shorter and curved but the Western crossing longer and straight.

13.3.4. **Geotechnical.** The seven routes all had common geology and no route had any issues that presented challenges or opportunities over another.

13.3.5. **Environmental** considerations as follows:

- Lowest impact on the historic environment in Belmont Park, in particular due to less severance of the historic landscape, including the setting of the Grade II* Listed Belmont House.
- South of the Wye noise effects at residential areas to the east have potential to be mitigated to levels below the SOAEL
- Less habitat loss within Belmont Park HPI and less habitat loss of mixed semi-natural woodland (Special Wildlife Site)
- Potential to mitigate adverse impacts on Hereford Community Farm
- The crossing of the Wye to the east would avoid Greenbank Meadow
- Lower impact on ancient woodland and important trees, especially south of Kings Acre Road
- Lower impact on Yazor Brook flood zone and therefore less mitigation required
- Lowest impact on demolition of dwellings as it avoids demolition of an additional dwelling north of Roman Road.

13.3.6. **Effects on residential property:** Common with only one other route, the Red Route affects the least number of residential buildings requiring acquisition either directly affected by the footprint of the route options or residential properties that may be acquired under the Unacceptable Adverse Effects (UAE) from Noise.

13.3.7. **Land Use and Development:** It would still allow for a western urban expansion of Hereford that meets the requirements of Policy HD5 (Western Urban Expansion) of the Hereford

13.3.8. The above highlights that when reviewing all technical aspects together, the red route was one of the better performing routes for engineering considerations. The Red Route clearly leads when considering the environmental and human rights options due to it being the least impactful on environmentally sensitive and protected environmental receptors throughout the study area, and minimising human rights considerations.

13.3.9. In conclusion, a bypass for Hereford that follows the **Red Route** would be able to minimise engineering, environmental and human rights harm better than the alternatives, whilst still be able to provide the transport objectives of the scheme.

Appendix A

ENVIRONMENTAL CONSTRAINTS

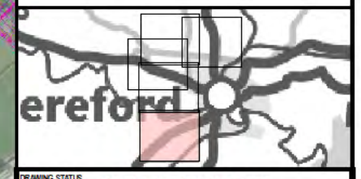
PLAN

Proposed Scheme - Orange Option
Proposed Scheme - Cyan Option
Proposed Scheme - Yellow Option
Proposed Scheme - Red Option
Proposed Scheme - Olive Option
Proposed Scheme - Black 1 Option
Proposed Scheme - Black 2 Option

Arboricultural Survey Results
- Ancient tree
- Notable tree
- Veteran tree
- Ancient Woodland
- Category A Tree Groups
- Traditional Orchard
- Hereford Listed Traditional Orchard
- Noise Action Planning
- National Trust Ownership boundary
- Ancient Woodland Inventory (AWI)
- Unregistered Parks and Gardens
- Local Nature Reserve (Eng)
- Site of Special Scientific Interest (Eng)
- Special Area of Conservation (Eng)
- Ponds

GCN Presence/absence
- PSCA - small population
- Scoped in - presence assumed
- Scoped out - absence assumed
- Greenbank Meadow
- Site of Importance for Nature Conservation

Listed Buildings
- Grade II
- Grade II*
- Bridleway
- Byway
- Footpath
- Watercourse
- Floodzone 3
- Floodzone 2



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Kings Orchard, 1 Queen St, Bristol, BS2 0HQ
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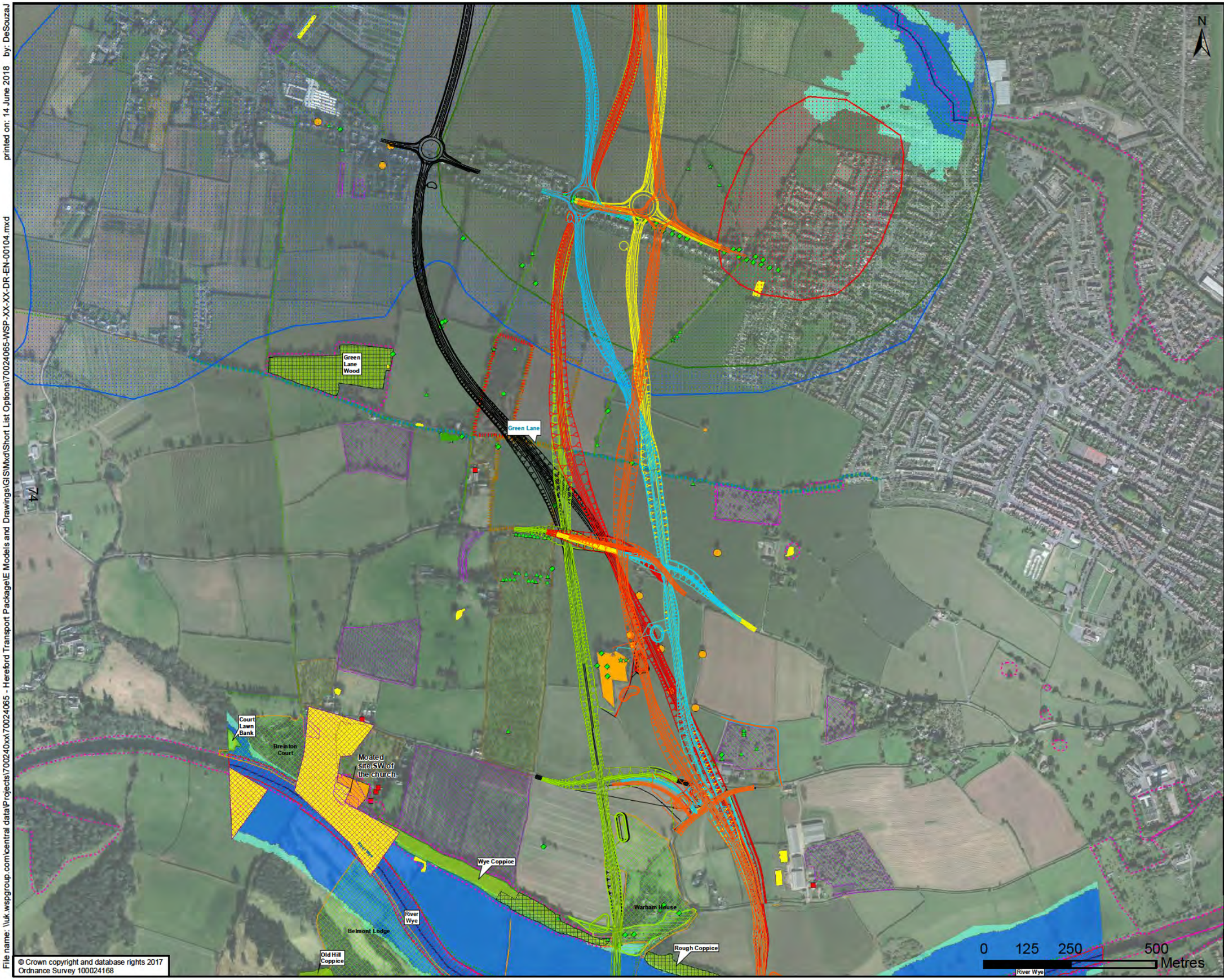

Proposed Scheme - Orange Option
Proposed Scheme - Cyan Option
Proposed Scheme - Yellow Option
Proposed Scheme - Red Option
Proposed Scheme - Olive Option
Proposed Scheme - Black 1 Option
Proposed Scheme - Black 2 Option

Arboricultural Survey Results
- Category A tree
- Ancient tree
- Notable tree
- Veteran tree
- Tree with preservation order

- Ancient Woodland
- Group of Trees with TPO
- Traditional Orchard
- Pippin Trust Orchard
- Drovers Wood (Woodland Trust)
- Hereford Listed Traditional Orchard
- Noise Action Planning
- National Trust Ownership boundary
- Ancient Woodland Inventory (AWI)
- Unregistered Parks and Gardens
- Site of Special Scientific Interest (Eng)
- Special Area of Conservation (Eng)
- Ponds

GCN Presence/absence
- PSCA - medium population
- PSCA - small population
- Scoped in - presence assumed
- Scoped out - absence assumed
- Greenbank Meadow
- Site of Importance for Nature Conservation

Listed Buildings
- Grade II
- Scheduled Monument
- Local Green Space
- Bridleway
- Footpath
- Watercourse
- Floodzone 3
- Floodzone 2

Source Protection Zone
- Zone I - Inner Protection Zone
- Zone II - Outer Protection Zone
- Zone III - Total Catchment

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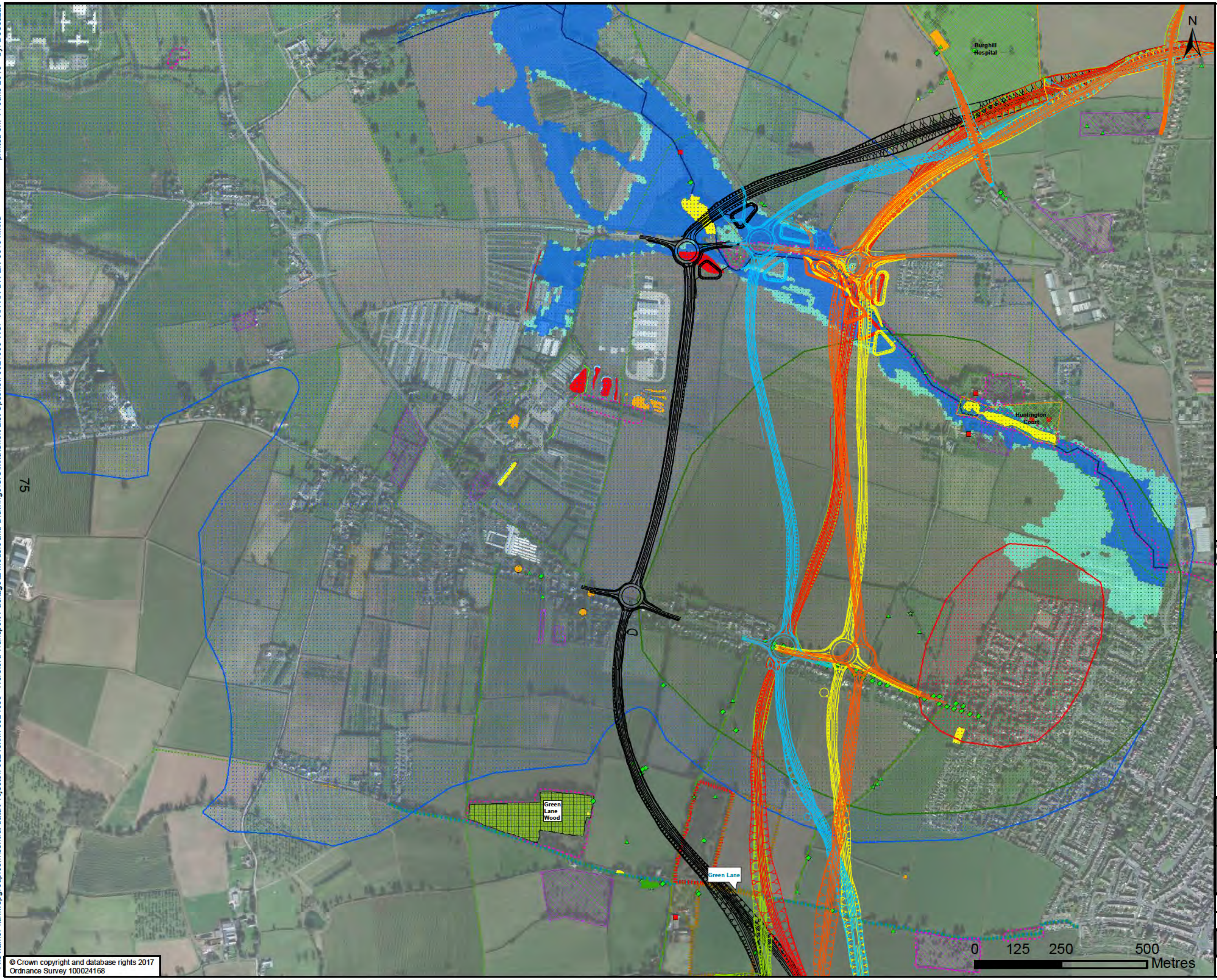

- Proposed Scheme - Orange Option
- Proposed Scheme - Cyan Option
- Proposed Scheme - Yellow Option
- Proposed Scheme - Red Option
- Proposed Scheme - Olive Option
- Proposed Scheme - Black 1 Option
- Proposed Scheme - Black 2 Option

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- Ancient Woodland
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- Hereford Listed Traditional Orchard
- Ancient Woodland Inventory (AWI)
- Unregistered Parks and Gardens
- Ponds

GCN Presence/absence
- PA - absent
- PSCA - medium population
- PSCA - small population
- Scoped in - presence assumed
- Scoped out - absence assumed
- Site of Importance for Nature Conservation

Listed Buildings
- Grade II
- Local Green Space
- Bridleway
- Footpath
- Watercourse
- Floodzone 3
- Floodzone 2

Source Protection Zone
- Zone I - Inner Protection Zone
- Zone II - Outer Protection Zone
- Zone III - Total Catchment

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Proposed Scheme - Orange Option
Proposed Scheme - Cyan Option
Proposed Scheme - Yellow Option
Proposed Scheme - Red Option
Proposed Scheme - Olive Option
Proposed Scheme - Black 1 Option
Proposed Scheme - Black 2 Option

Arboricultural Survey Results
- Category A tree
- Notable tree
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- Group of Trees with TPO
- Traditional Orchard
- Unregistered Parks and Gardens
- Ponds

GCN Presence/absence
- PA - absent
- PSCA - medium population
- PSCA - small population
- Scoped in - presence assumed
- Scoped out - absence assumed
- Site of Importance for Nature Conservation

Listed Buildings
- Grade II
- Scheduled Monument
- Bridleway
- Footpath
- Watercourse
- Floodzone 3
- Floodzone 2

Source Protection Zone
- Zone II - Outer Protection Zone
- Zone III - Total Catchment

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- Proposed Scheme - Orange Option
- Proposed Scheme - Cyan Option
- Proposed Scheme - Yellow Option
- Proposed Scheme - Red Option
- Proposed Scheme - Olive Option
- Proposed Scheme - Black 1 Option
- Proposed Scheme - Black 2 Option

Arboricultural Survey Results
- Notable tree
- Veteran tree
- Traditional Orchard
- Noise Action Planning Areas
- Unregistered Parks and Gardens
- Ponds

GCN Presence/absence
- PA - absent
- PSCA - medium population
- PSCA - small population
- Scoped in - presence assumed
- Scoped out - absence assumed
- Site of Importance for Nature Conservation

Listed Buildings
- Grade I
- Grade II
- Scheduled Monument
- Byway
- Footpath
- Watercourse
- Floodzone 3
- Floodzone 2

Source Protection Zone
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- Zone III - Total Catchment

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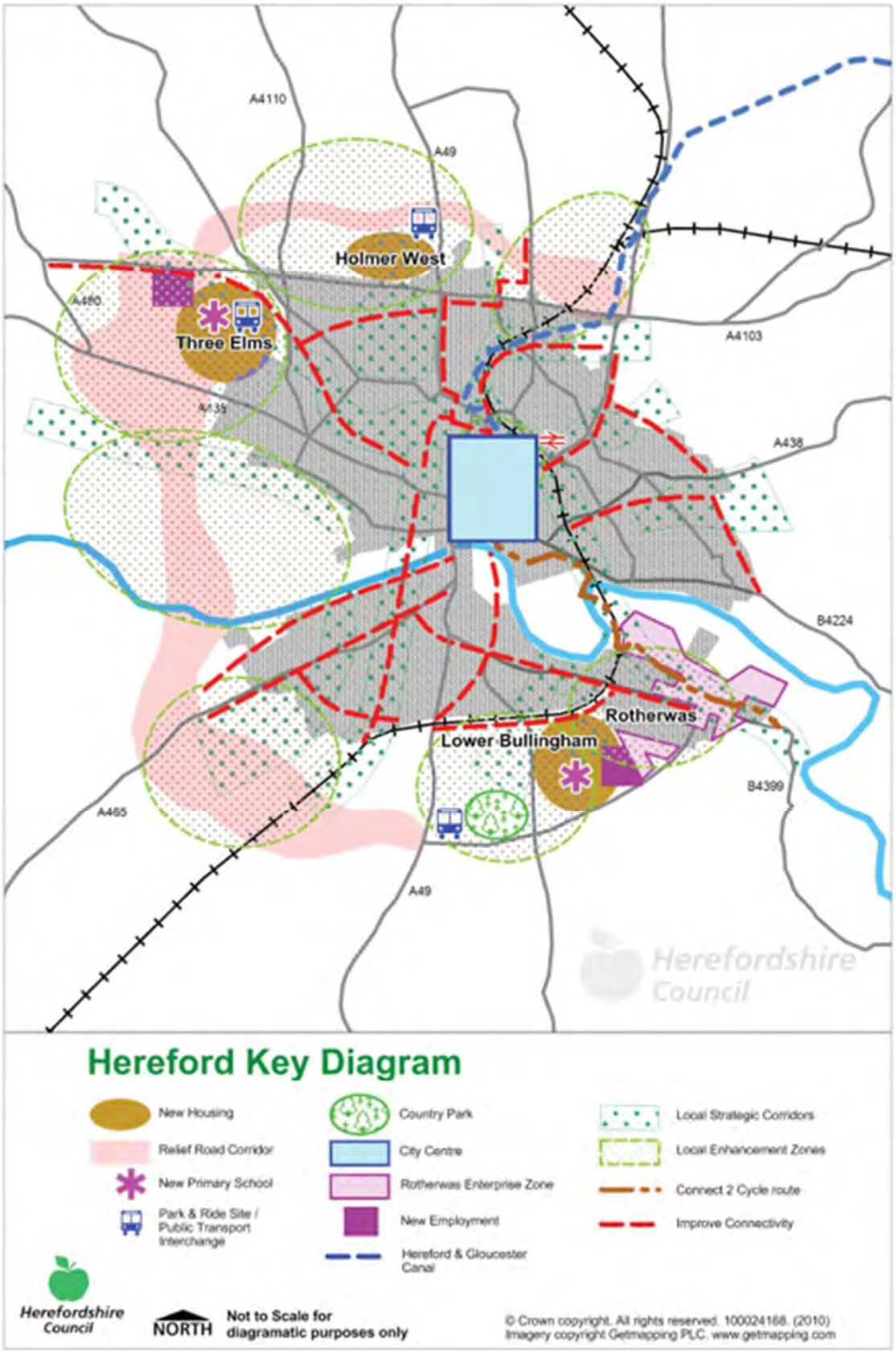
Appendix B

HEREFORDSHIRE LOCAL PLAN

CORE STRATEGY KEY DIAGRAM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A49
Herefordshire Council
Hereford Key Diagram
New Housing
Relief Road Corridor
New Primary School
Park & Ride Site / Public Transport Interchange
Country Park
City Centre
Rotherwas Enterprise Zone
New Employment
Hereford & Gloucester Canal
Local Strategic Corridors
Local Enhancement Zones
Connect 2 Cycle route
Improve Connectivity
Herefordshire Council
NORTH
Not to Scale for diagramatic purposes only
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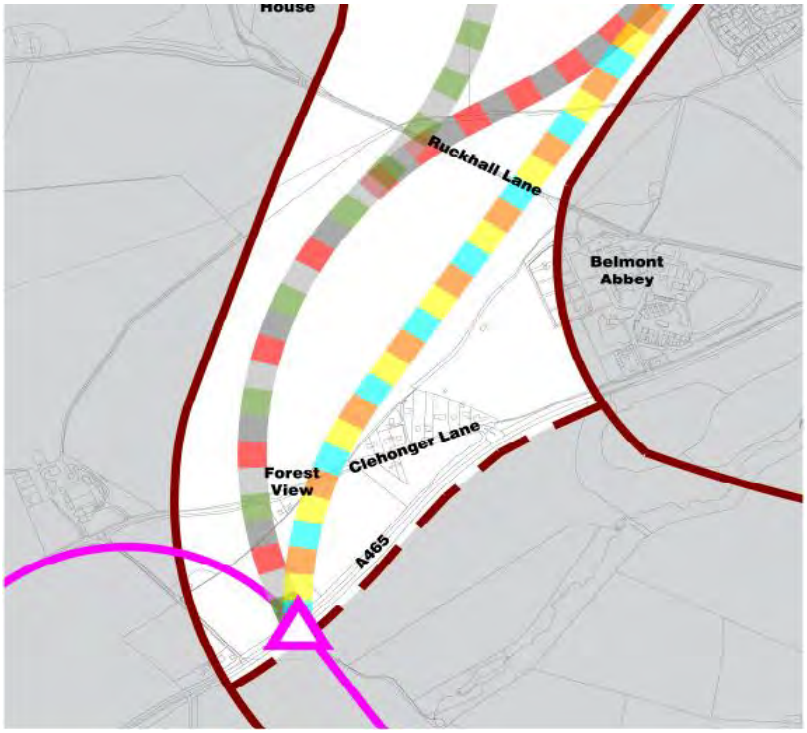
Appendix C

SUMMARY MATRIX

Element 1.1 A465 to Ruckhall Lane



	Western 1a (Black 1 / Olive)	Eastern 1a (Red / Black 2)	Eastern 2a (Orange / Cyan / Yellow)	Comments / Decisions
Highways (journey time)	≈0.1km longer (skewed crossing, overall 1.8km to Wye N)	≈0.1km longer (skewed crossing, overall 1.9km to Wye N)	Shortest (skewed crossing, overall 1.7km to Wye N)	Orange/Cyan/Yellow preferred
Highways (accessibility)	Equal	Equal	Equal	No preference
Highways (alignment)	No issues	No issues	Acute approach to A645 roundabout	NOT Orange/Cyan/Yellow preference
Highways (earthworks)	Medium surplus max 5m cut	Largest surplus max 6m cut	Least surplus max 6m cut	Orange/Cyan/Yellow preferred
Highways (stats)	As Red/Black2/Red modified	As Black1/Olive	Nearer B4349 housing (within margin)	NOT Orange/Cyan/Yellow
Highways (departures)	None identified	None identified	SSD s/b approach A465 r/b	NOT Orange/Cyan/Yellow preference
Highways (junctions)	As Red/Black2/Red modified	As Black1/Olive/Olive modified/Red modified	Acute entry & more rotation A465 r/b	NOT Orange/Cyan/Yellow preference
Highways (cost)	Medium cost (length) ≈+£1m	Highest cost (length & cut) ≈+£3m	Lowest cost	Orange/Cyan/Yellow preferred
Structures (aesthetics and cost)	None	None	None	
Ecology (Habitat of Principal Importance) & General	No HPI in this section	No HPI in this section	No HPI in this section	No preference
Ecology (Ancient Woodland and Important Trees)	1 Notable tree removed.	1 Notable tree removed.	No Ancient, Veteran or Notable trees affected	Orange / Cyan / Yellow preferred based on no Ancient, Veteran or Notable trees affected
Ecology (Bats)	No bat issues recorded	No bat issues recorded	No bat issues recorded	No preference
Historic Environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Minor Harm to the setting of Grade II structures at Merryhill Farmhouse resulting in Slight adverse effect.	Minor Harm to the setting of Grade II structures at Merryhill Farmhouse resulting in Slight adverse effect.	Harm to the setting of Grade II structures at Merryhill Farmhouse resulting in Moderate adverse effect.	Black 1, Olive, Red, Black 2 are preferred as they have a lower impact on the setting of Grade II structures at Merryhill Farmhouse
Landscape character	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	No preference

Visual impact	Viewpoint 2: Large adverse Viewpoint 3: Large adverse Viewpoint 4: Moderate adverse	Viewpoint 2: Moderate adverse Viewpoint 3: Large adverse Viewpoint 4: Large adverse	Viewpoint 2: Moderate adverse Viewpoint 3: Moderate adverse Viewpoint 4: Large adverse	Orange, Cyan and Yellow are preferred as they have a lower impact on viewpoints
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations. (Note: figures relate to the entirety of Element 1 rather than the sub-element)	12	13	24	Black 1, Olive, Red and Black 2 are preferred in E1 based on least no. of dwellings subject to SOAEL & NIR
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	1	1	1	No preference
Water - Belmont Stream (Ordinary Watercourse)	A very large adverse effect to flood risk and large adverse effect to the hydromorphological quality associated with the crossing of Belmont Stream requiring significant realignment and/or culverting of this watercourse.	A very large adverse effect to flood risk and large adverse effect to the hydromorphological quality associated with the crossing of Belmont Stream requiring significant realignment and/or culverting of this watercourse.	A slight adverse effect to the hydromorphological quality and neutral impact to the floodplain of Belmont Stream associated with the crossing of the watercourse.	Orange, Cyan and Yellow are preferred as they have the lowest impact on Belmont Stream
Geology & Soils (water abstraction)	Similar impact to Eastern 1a, however another well (No. 24) is located approximately 450m from an area of cut.	Potential loss to Well No. 32, and potential impact to Well No, 31 and No 35 approximately 500m from an area of cut.	Potential loss to Well No. 32, and potential impact to Well No, 31 and No 35 approximately 250m from an area of cut.	Red / Black 2 are preferred as they are likely to impact on the least number of recorded, licenced abstraction wells.

Element 1.2 Ruckhall Lane and Wye Bridge Crossing

	Western 1b (Olive / Black 1)	Eastern 1b (Red / Black 2)	Eastern 2b (Orange / Cyan / Yellow)	Comments / Decisions
Highways (journey time)	As Orange/Cyan/Yellow (skewed crossing)	≈0.1km longer (skewed crossing)	As Black1/Olive	NOT Red/Black2/ preference
Highways (accessibility)	Equal	Equal	Equal	No preference
Highways (alignment)	Straighter alignment	Close to Dorchester Way	Closest to Dorchester Way	Black1/Olive preferred
Highways (earthworks)	Deep cutting (up to 13 metres) - larger surplus to cross River Wye	6 metre cutting, slightly more surplus (length)	6 metre cutting	Orange/Cyan/Yellow preferred
Highways (stats)	None known	None known	None known	No preference
Highways (departures)	None identified	None identified	None identified	No preference
Highways (junctions)	None	None	None	No preference
Highways (cost)	Highest cost (cutting & viaduct) ≈+£7m	Medium cost (length & cut) ≈+£3m	Lowest cost	Orange/Cyan/Yellow preferred
Structures (aesthetics and cost)	Longer than Eastern and straighter crossing, better future proofing (i.e. for dualling)	Shorter than Western and curved - more costly for future proofing	Shorter than Western and curved - more costly for future proofing	
Ecology (Habitat of Principal Importance) & General	4 Ha of Habitat loss within Belmont Park Habitat of Principal Importance Results in more habitat loss of mixed semi-natural woodland south of the River Wye as the viaduct abutment would be located within the woodland. This woodland is locally designated a Special Wildlife Site. Impacts to badgers and otters may be greater as a result.	3 Ha of Habitat loss within Belmont Park Habitat of Principal Importance	2 Ha of Habitat loss within Belmont Park Habitat of Principal Importance	Orange / Cyan / Yellow is preferred based on least amount of habitat loss

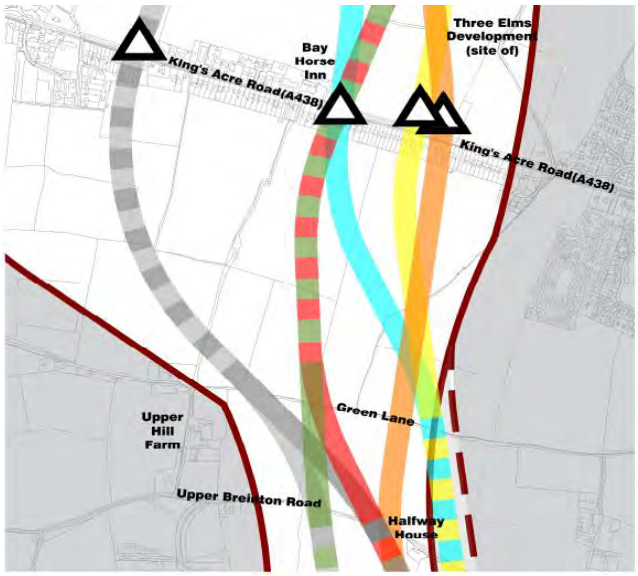
Ecology (Ancient Woodland and Important Trees)	Route comes within 15 metres of Ancient Woodland and could result in habitat fragmentation between two areas of Ancient Woodland north of River Wye. Olive would result in 1 Ancient, 8 Veteran & 7 Notable trees removed. Black 1 would result in 1 Ancient, 7 Veteran & 7 Notable trees removed.	Route comes within 15 metres of Ancient Woodland. 1 Ancient, 1 Veteran & 3 Notable trees removed.	Route comes within 15 metres of Ancient Woodland. Orange and Cyan would result in 2 Veteran & 2 Notable trees removed. Yellow would result in 1 Veteran & 2 Notable trees removed.	Ancient Woodland: Eastern alignments are preferred as they have a lower impact. Ancient & Veteran trees: Orange, Cyan, Yellow, Red & Black 2 are preferred as the least amount of Ancient & Veteran trees are removed.
Ecology (Bats)	Large number of bats recorded crossing between two areas of Ancient Woodland north of River Wye.	Possible that bats are crossing at this location	Possible that bats are crossing at this location	Red, Black 2, Orange, Cyan, Yellow are preferred
Historic Environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Substantial Harm the setting of Grade II* listed Belmont House resulting in Large adverse effect. Substantial Harm to the setting of Grade II* listed Belmont Abbey and Grade II curtilage is listed structure resulting in Large adverse effect. Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Moderate adverse effect.	Harm to the setting of Grade II* listed Belmont House resulting in Moderate adverse effect. Substantial Harm the setting of Grade II* listed Belmont Abbey and Grade II curtilage is listed structure resulting in Large adverse effect. Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Moderate adverse effect.	Harm to the setting of Grade II* listed Belmont House resulting in Moderate adverse effect. Substantial Harm to the setting of Grade II* listed Belmont Abbey and Grade II curtilage is listed structure resulting in Large adverse effect. Minor Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Slight adverse effect.	Red & Black 2 preferred for the reasons set out below. Red, Black 2, Orange, Cyan, Yellow will have a lower impact on the setting of Grade II* listed Belmont House. Orange, Cyan, Yellow will have a lower impact on the setting of a Scheduled Monument and Grade II structures within and around Breinton. Historic England would prefer Red & Black 2 'Our informed opinion, at this stage, is that the Black/ Red Route 2 will have the least impact for the historic environment, in the southern area of the bypass, within this historic landscape of the Belmont heritage assets'.
Landscape character	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	No preference
Visual impact	Viewpoint 1: Moderate adverse Viewpoint 5: Moderate adverse Viewpoint 6a: Large adverse Viewpoint 6b: Neutral Viewpoint 6c: Large adverse	Viewpoint 1: Large adverse Viewpoint 5: Moderate adverse Viewpoint 6a: Moderate adverse Viewpoint 6b: Moderate adverse Viewpoint 6c: Neutral	Viewpoint 1: Large adverse Viewpoint 5: Moderate adverse Viewpoint 6a: Moderate adverse Viewpoint 6b: Moderate adverse Viewpoint 6c: Neutral	Red, Black 2, Orange, Cyan and Yellow are preferred as they have a lower impact on viewpoints
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations. (Note: figures relate to the entirety of Element 1 rather than the sub-element)	12	13	24	Black 1, Olive, Red and Black 2 are preferred in E1 based on least no. of dwellings subject to SOAEL.
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	0	0	0	No preference
Geology & Soils (water abstraction)	As per E1a	As per E1a	As per E1a	As per E1a

Element 1.3 Wye Bridge Crossing to Upper Breinton Road

	Western 1c (Olive / Black 1	Eastern 1c (Red / Black 2)	Eastern 2c (Cyan / Yellow)	Eastern 3c (Orange)	Comments / |Decisions
Highways (journey time)	Shortest	≈0.1km longer (skewed crossing)	≈0.1km longer (skewed crossing)	≈0.2km longer (skewed crossing)	Olive/Black1
Highways (accessibility)	Broomy Hill & Warham Farm Link not affected	As Orange/Cyan/ Yellow/Red modified	As Orange/Red/ Black2/Red modified	As Cyan/Yellow/Red/ Black2/Red modified	Olive/Black1
Highways (alignment)	Most direct/straightest	Most curved/indirect	Marginally less curved than Red/Black2/Orange	Marginally less straight than Olive/Black 1/Olive modified	Olive/Black1
Highways (earthworks)	Medium deficit, max 4m fill (length, contour hugging)	Large deficit, max 7m fill	Large deficit, max 7m fill	Largeest deficit, max 7m fill (length)	Olive/Black1
Highways (stats)	Least	Medium as Orange/ Cyan/Yellow/Red modified	Medium as Orange/ Red/Black2/Red modified	Medium as Cyan/Yellow/ Red/Black2/Red modified	Olive/Black1/Olive modified preferred
Highways (departures)	None identified	None identified	None identified	Conflict change min rad	NOT Orange preference
Highways (junctions)	None	None	None	None	No preference
Highways (cost)	Lowest cost (fewer structures)	Medium cost (length) ≈+£2m	Medium cost (length) ≈+£2m	Highest cost (length) ≈+£3m	Olive/Black1
Structures (aesthetics and cost)	Similar	Similar	Similar	Similar	
Ecology (Habitat of Principal Importance) & General	Located within 10 m of woodland habitat to the north east of Warham Farm. This is not an ancient woodland but is a Habitat of Principal Importance, and damage to the woodland during construction and operation is possible.	No HPI in this section	No HPI in this section	Located within 10 m of woodland habitat to the north east of Warham Farm. This is not an ancient woodland but is a Habitat of Principal Importance, and damage to the woodland during construction and operation is possible. Fragmentation of badger pathways is also possible near this location.	Red, Black 2, Cyan, Yellow are preferred.
Ecology (Ancient Woodland and Important Trees)	Route comes within 15 metres of Ancient Woodland and could result in habitat fragmentation between two areas of Ancient Woodland north or River Wye. Olive would result in 1 Ancient and 5 Veteran trees removed. Black 1 would result in 1 Ancient and 6 Veteran trees removed.	Route comes within 15 metres of Ancient Woodland north of River Wye. Red would result in 1 Ancient, 3 Veteran & 1 Notable trees removed. Black 2 would result in 1 Ancient, 4 Veteran & 1 Notable trees removed.	Route comes within 15 metres of Ancient Woodland. 1 Veteran tree removed.	Route comes within 15 metres of Ancient Woodland. 2 Ancient & 3 Veteran trees removed.	Ancient Woodland: Eastern alignments are preferred as they have a lower impact. Ancient & Veteran trees: Cyan & Yellow routes are preferred as only 1 Veteran tree removed.

Ecology (Bats)	Double hedgerows along lanes near to Warham Farm are bisected. Several of the residential buildings in these areas are confirmed bat roosts and roost-roost, roost-foraging habitat fragmentation is possible. A confirmed bat roost (currently uncharacterised) has been identified within a tree at this location and disturbance to roosting bats is possible.	Double hedgerows along lanes near to Warham House and Warham Farm are bisected. Several of the residential buildings in these areas are confirmed bat roosts and fragmentation between roosts and foraging habitat is possible. A mature / veteran tree with high bat roosting potential within an arable field to the north east of Warham Farm would be lost. Farm buildings may be directly affected at Warham Farm, some of which have moderate bat roosting potential.	Double hedgerows along lanes near to Warham House and Warham Farm are bisected with some of the hedgerows containing mature/veteran trees with high bat roosting potential. Several residential buildings in this area are confirmed bat roosts and fragmentation of habitat linking roosts and foraging habitat is possible. Farm buildings may be directly affected at Warham Farm, some of which have moderate bat roosting potential.	Double hedgerows along lanes near to Warham House and Warham Farm are bisected with some of the hedgerows containing mature/veteran trees. Several of the residential buildings in these areas are confirmed bat roosts and fragmentation of habitat linking roosts and foraging habitat is possible. A confirmed bat roost (currently uncharacterised) has been found within a tree at this location and disturbance to roosting bats is possible.	No preference
Historic Environment (Note: Not all Heritage assests are included in this matrix only those which show variation between the route options)	Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Moderate adverse effect.	Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Moderate adverse effect.	Minor Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Slight adverse effect.	Minor Harm to the setting of a Scheduled Monument and Grade II structures within and around Breinton resulting in Slight adverse effect.	Cyan, Yellow & Orange preferred as they will have a lower impact on the setting of a Scheduled Monument and Grade II structures within and around Breinton
Landscape character	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	LCT7.10: Large adverse LCT7.14: Moderate / Large adverse LCT7.18: Moderate adverse	No preference
Visual impact	Viewpoint 7: Slight adverse	Viewpoint 7: Slight adverse	Viewpoint 7: Slight adverse	Viewpoint 7: Slight adverse	No preference
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations. (Note: figures relate to the entirety of Element 1 rather than the sub-element)	12	13	24	24	Black 1, Olive, Red and Black 2 are preferred in E1 based on least no. of dwellings subject to SOAEL and subject to NIR.
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	0	0	0	0	No preference
Geology & Soils (water abstraction)	As per E1a	As per E1a	As per E1a	As per E1a	As per E1a
People & Communities (Community Farm)	The route may have indirect impacts on Hereford Community Farm through changes to tranquillity to this sensitive receptor (noise, visual)	The route passes through fields associated with the Hereford Community Farm and may have a major impact during both the construction and operation phase of the scheme on the users	The route passes through fields associated with the Hereford Community Farm and may have a major impact during both the construction and operation phase of the scheme on the users	The route passes through fields associated with the Hereford Community Farm and may have a major impact during both the construction and operation phase of the scheme on the users	Olive, Black 1 is preferred.
People & Communities (Greenbank Meadow)	The route passes through Greenbank Meadow which is considered to be open space. Therefore need to consider if open space can be avoided, if not, replacement land to the same quality would need to be found to mitigate the loss of open space.	The route may have indirect impacts on Greenbank Meadow through changes to tranquillity to this sensitive receptor (noise, visual)	The route may have indirect impacts on Greenbank Meadow through changes to tranquillity to this sensitive receptor (noise, visual)	The route may have indirect impacts on Greenbank Meadow through changes to tranquillity to this sensitive receptor (noise, visual)	Red, Black 2, Cyan, Yellow, Orange are better performers.
Effects on property	No direct impact on Warham Farm	Agricultural buildings directly affected at Warham Farm	Agricultural buildings directly affected at Warham Farm	Agricultural buildings directly affected at Warham Farm	Olive / Black 1 is preferred.

Element 2.1 Upper Breinton Road to Kings Acre Road

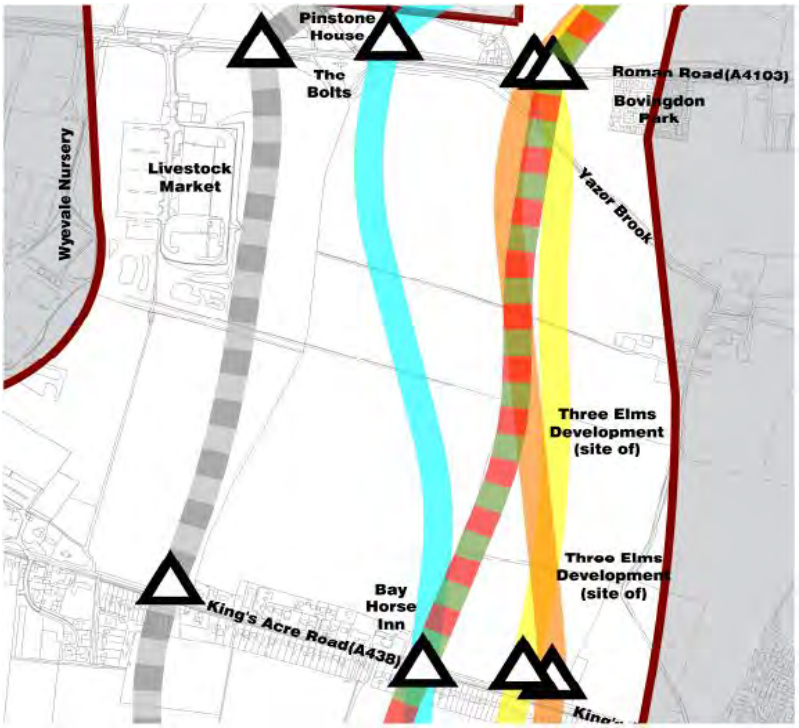


	Western (Black 1 / Black 2)	Eastern (Red / Olive)	Eastern 2c (Cyan / Yellow)	Eastern (Orange)	Comments/Decisions
Land Use/development	Better enable all Hereford Action Plan (HAP) options west of Hereford, as the route would be further from the existing built up area of Hereford.	Slightly less enable	Least enable.		The eastern routes go put forward by landowners as options to accomodate the housing need identified in local plan Policy SS2 (Delivering new homes). The land is currently being considered in the HAP process. It is likely that this land s will not be allocated for housing as local transport infrastructure is unlikley to be able to support additional housing in this area.
Highways (journey time)	≈0.3km longer max transit time	Shortest, least transit time	≈0.1km longer, medium transit time		Red/Olive preferred
Highways (accessibility)	Bad for Transport Planning - Part of overall longer route may risk city centre congestion objective	Best performer	Part of slightly longer overall route, potential development access conflict		Red/Olive preferred
Highways (alignment)	Longest (≈+0.3km) & most curved	Shortest & least curved	≈0.1km longer & curved		Red/Olive preferred
Highways (earthworks)	Medium surplus max 6m cut (long, contour hugging)	Large surplus max 8m cut (as Red modified with green bridge)	Least surplus max 7m cut (short, contour hugging)		Cyan / yellow preferred
Highways (stats)	Marginally more complex/extensive	Less complex/extensive than Black 1	Less complex/extensive than Black 1		NOT Black 1 preference
Highways (departures)	None identified	None identified	s/b lay-by min radius		No preference
Highways (junctions)	Curved r/b approach	Straightest r/b approach	Curved acute r/b approach		Red/Olive preferred
Highways (cost)	Highest cost (length) ≈+£2m	Least cost (with Red modified)	Medium cost (length) ≈+£1m		Red/Olive preferred
Geotechnical (abstractions)	All options comparable	All options comparable	All options comparable	All options comparable	
Structures		Olive crossing south of Green Lane best			
SPZ	When considering the SPZ in isolation, Black 1 and Black 2 pass through SPZ 3 with only a slight encroachment into SPZ 2.	When considering the SPZ in isolation, Red, Olive & Olive modified pass within SPZ 2 and includes a cutting within the SPZ.	When considering the SPZ in isolation, Cyan pass within SPZ 2 and includes a cutting within the SPZ. Yellow pass within SPZ 2.	When considering the SPZ in isolation, Orange pass within SPZ 2.	Black 1 and Black 2 are the best performing corridors
WCHAR	Crosses extra PROW over other options				
Biodiversity (Important Trees)	1 Veteran and 4 Notable trees removed.	6 Notable trees removed from the southern side of Kings Acre Road.	Cyan would result in 1 Veteran tree removed. 7 Notable trees would be removed from the southern side of Kings Acre Road. Yellow would result in 1 Veteran tree removed. 6 Notable trees would be removed from the southern side of Kings Acre Road.	9 Notable trees removed (including 8 on southern side of Kings Acre Road).	Red, Yellow and Orange will result in a large number of Notable and important streetscape trees being removed along Kings Acre Road. Cyan would have a similar loss of Notable trees but would also remove a 1 Veteran tree. Black 1 & Black 2 would result in the loss of a Veteran tree.

Biodiversity (orchards)	Will result in the loss of a section of Hereford Listed Traditional Orchard which is also designated as a Habitat of Principal Importance, due to the re-grading of a lane to form an overbridge. Will also result in habitat losses within newly planted (<c.10yo) Pippin Trust heritage orchards (created by the Pippin Trust).	Will result in the loss of a section of Hereford Listed Traditional Orchard which is also designated as a Habitat of Principal Importance, due to the re-grading of a lane to form an overbridge. Will also result in habitat losses within newly planted (<c.10yo) Pippin Trust heritage orchards (created by the Pippin Trust).	No direct impact on Orchards or HPI	No direct impact on Orchards or HPI	Cyan, Yellow & Orange routes preferred as they avoid direct impacts on Orchards and land designated as HPI.
Biodiversity, (bats)	Greater Horseshoe bat has been recorded on the static detector located on the green lane to the south east of Drovers Wood. Bat crossing will be required along the alignment of Green Lane (Green Bridge). Will bisect several hedgerows, some containing mature / veteran trees with high bat roosting potential. Crosses Kings Acre Road in an area containing residential buildings with low, moderate and high bat roosting potential. more higher potential on black route	Greater Horseshoe bat has been recorded on the static detector located on the green lane to the south east of Drovers Wood. Bat crossing will be required along the alignment of Green Lane (Green Bridge). Crosses Kings Acre Road in an area where the residential buildings have been assessed as having relatively low suitability for roosting bats.	Greater Horseshoe bat has been recorded on the static detector located on the green lane to the south east of Drovers Wood. Bat crossing will be required along the alignment of Green Lane (Green Bridge). Moving north towards Kings Acre Road, the Cyan & Yellow route bisects several hedgerows. Some of these hedgerows are used by commuting and foraging bats and habitat fragmentation is possible. The Cyan route crosses Kings Acre Road in an area containing residential properties with low bat roosting potential. The Yellow route crosses Kings Acre Road in an area containing residential properties with low bat roosting potential and would result in the loss of a single tree with moderate bat roosting potential.	Greater Horseshoe bat has been recorded on the static detector located on the green lane to the south east of Drovers Wood. Bat crossing will be required along the alignment of Green Lane (Green Bridge). Moving north towards Kings Acre Road, the Orange route bisects several hedgerows some of which contain mature / veteran trees. Some of these hedgerows are used by commuting and foraging bats and habitat fragmentation is possible. The Orange route crosses Kings Acre Road in an area containing residential properties with low bat roosting potential.	All route cross over Green Lane and will require a bat crossing most likely in the form of a Green Bridge. Red, Olive are considered best performers as they bisect less hedgerows with bat potential compared with other routes. Also the routes cross Kings Acre Road in an area where the residential buildings have been assessed as having relatively low suitability for roosting bats.
Biodiversity (ponds)	N/A	N/A	N/A	N/A	Not applicable to this sub element
Biodiversity, People & Communities (Drovers Wood)	Will traverse Drovers Wood, a Woodland Trust community woodland purchased in the 1980s.	Avoids Drovers Wood	Avoids Drovers Wood	Avoids Drovers Wood	Red, Olive, Cyan, Yellow Orange routes are preferred as they avoid Drover's Wood (Woodland Trust Community Woodland).
Historic environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Harm to the setting of Grade II Upper Hill Farm resulting in Moderate adverse effect.	Olive route would result in harm to the setting of Grade II Upper Hill Farm resulting in Moderate adverse effect. Red and Olive routes will cause harm to the House (site of), Kings Acre, Hereford (19151) resulting in Moderate adverse effect.	Harm to the Non designated Site of Boundary Stones resulting in Moderate adverse effect. Cyan route will cause harm to the House (site of), Kings Acre, Hereford (19151) & Non designated Site of Boundary Stones (23186), resulting in Moderate adverse effect. Yellow route will cause harm to Non designated Site of Boundary Stones (23186), resulting in Moderate adverse effect.	No impact reported.	The Orange route is preferred as no impact is reported on the historic environment.
Landscape character	LCT7.10: Moderate adverse LCT7.15: Slight adverse LCT2.21: Moderate adverse	LCT7.10: Moderate adverse LCT7.15: Neutral LCT2.21: Moderate adverse	LCT7.10: Moderate adverse Yellow LCT7.15: Neutral Cyan LCT7.15: Slight adverse LCT2.21: Slight adverse	LCT7.10: Slight adverse LCT7.15: Slight adverse LCT2.21: Slight adverse	Orange route is preferred as it has a lower impact on landscape character
Visual impact	Viewpoint 8: Slight adverse Viewpoint 9: Neutral Viewpoint 10a: Slight adverse Viewpoint 10b: Neutral Viewpoint 11: Neutral Viewpoint 12: Slight adverse	Viewpoint 8: Slight adverse Viewpoint 9: Neutral Viewpoint 10a: Neutral Viewpoint 10b: Large adverse Viewpoint 11: Moderate adverse Viewpoint 12: Moderate adverse Viewpoint 12: Slight adverse	Viewpoint 8: Neutral Viewpoint 9: Neutral Viewpoint 10a: Neutral Yellow Viewpoint 10b: Moderate adverse Cyan Viewpoint 10b: Large adverse Viewpoint 11: Large adverse Viewpoint 12: Moderate adverse	Viewpoint 8: Neutral Viewpoint 9: Neutral Viewpoint 10a: Neutral Viewpoint 10b: Moderate adverse Viewpoint 11: Large adverse Viewpoint 12: Moderate adverse	Black 1 and Black 2 are preferred as they have a lower impact on viewpoints
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations in E2	Black 1 = 114 Black 2 = 116	Red = 114 Olive = 116	Cyan = 121 Yellow = 140	143	Black 1, Black 2, Red and Olive are preferred based on least no. of dwellings subject to SOAEL and subject to NIR in E2.

Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	9 dwellings all located on Kings Acre Road. 5 of these may be directly affected by the route as they are under its footprint.	4 dwellings all located on Kings Acre Road and these may be directly affected as they are under its footprint,	Cyan: 4 dwellings. 3 of these dwellings are located on Kings Acre Road and may be directly affected as they are under its footprint. Yellow: 9 dwellings all located on Kings Acre Road. 5 of these may be directly affected as they are under its footprint.	9 dwellings located on Kings Acre Road. 5 of these may be directly affected as they are under its footprint.	Red, Olive and Cyan preferred as based on least no. of dwellings subject to UAEL but these may be directly affected, except for 1 dwelling for Cyan, as they are located under the footprint of the routes.
People & Communities (PROW)	The route also crosses several PRoWs and bridleways which connect the local communities . These PRoWs will also require closure or diverting during both the construction and operational phase of the scheme.	The route also crosses several PRoWs and bridleways which connect the local communities . These PRoWs will also require closure or diverting during both the construction and operational phase of the scheme.	The route also crosses several PRoWs and bridleways which connect the local communities . These PRoWs will also require closure or diverting during both the construction and operational phase of the scheme.	The route also crosses several PRoWs and bridleways which connect the local communities . These PRoWs will also require closure or diverting during both the construction and operational phase of the scheme.	No preference
Effects on property	5 properties directly affected & 5 properties access affected	Red - 5 properties directly affected with 6 properties with access affected & part of Bay Horse car park Olive - 5 properties directly affected with 6 properties with access affected & part of Bay Horse car park	5 properties directly affected & 6 properties with access affected & part of Bay Horse car park		No preference

Element 2.2 North of Kings Acre Road to Roman Road



	Element 2.2 North of Kings Acre Road to Roman Road - Eastern Routes			
	Eastern (Olive / Red)	Eastern (Yellow)	Eastern (Orange)	Comments / Decisions
Land Use/development	Best for aligning to Masterplan			
Highways (journey time)	Both corridors shortest, least transit time	Marginally longer	≈0.1km longer, increased transit time	Red/Olive preferred
Highways (accessibility)	Similar both corridors			No preference
Highways (alignment)	Both corridors shorter, more direct, follows hedgelines	Marginally longer than Red/Olive	≈0.1km longer	Red/Olive preferred
Highways (earthworks)	Least deficit max 3m fill	Marginally more deficit max 3m fill	Largest deficit max 3m fill	Red/Olive preferred
Highways (stats)				No preference
Highways (departures)	Both corridors 1 No. Lay- by but not a problem	None	None	Yellow/Orange preferred
Highways (junctions)	Both corridors improved approach 4-arm RR r/b	Best approach 4-arm RR r/b	Acute s/b approach to 4-arm RR r/b	Yellow preferred
Highways (cost)	Both corridors marginally least cost (U/B)	Marginally higher cost (length & O/B) ≈+£1m	Highest cost (length & O/B) ≈+£2m	Red/Olive preferred
Geotechnical (abstractions)	No difference between options	No difference between options	No difference between options	
Structures	Currently culvert, easier conversion to overbridge	Currently culvert, easier conversion to overbridge	Currently culvert, more problematic conversion to overbridge (Yazor brook diversion)	NOT Orange preferred
SPZ	When considering the SPZ in isolation, Red and Olive pass within SPZ 2 and includes a cutting within the SPZ.	When considering the SPZ in isolation, Yellow pass within SPZ 2.	When considering the SPZ in isolation, Orange pass within SPZ 2.	Yellow and Orange routes are the better performing options as they are not in cutting within an SPZ 2.
WCHAR	No severance within housing development	Severance within housing development	Severance within housing development	
Biodiversity, (trees)	1 Veteran tree removed. 7 Notable trees removed from the northern side of Kings Acre Road.	18 Notable trees removed from the northern side of Kings Acre Road.	17 Notable trees removed from the northern side of Kings Acre Road.	

Biodiversity (Yazor Brook)	Yazor Brook would be culverted beneath route. This could lead to fragmentation of the aquatic habitats and of the wildlife corridor currently provided by the stream. The junction with Roman Road takes the form of a roundabout which would result in the loss of an area of scrub containing a pond with potential to support great crested newts. The fungus Hebeloma nigellum was recorded in this area. Habitat loss, damage, impacts on species using corridor - Yazor Brook will need to be diverted - would need to raise vertical alignment to achieve crossing - Second Option	Yazor Brook would be culverted beneath route. This could lead to fragmentation of the aquatic habitats and of the wildlife corridor currently provided by the stream. The junction with Roman Road takes the form of a roundabout which would result in the loss of an area of scrub containing a pond with potential to support great crested newts. The fungus Hebeloma nigellum was recorded in this area. Easier to develop although some realignment of Yazor Brook required - Best Option	Yazor Brook would be culverted beneath route. This could lead to fragmentation of the aquatic habitats and of the wildlife corridor currently provided by the stream. The junction with Roman Road takes the form of a roundabout which would result in the loss of an area of scrub containing a pond with potential to support great crested newts. The fungus Hebeloma nigellum was recorded in this area. Culvert too close to alignment, compensation substantial -Third Option	Ecological impact the same across all Eastern corridor. Will need to consider the corridor that can be best mitigated. Need to consider which route can best accommodate a bridge option which is a request from both the Environment Agency and Natural England.
Biodiversity (orchards)	N/A	N/A	N/A	N/A
Biodiversity, (bats)	No bat risk reported in this area.	No bat risk reported in this area.	No bat risk reported in this area.	No preferred corridor
Biodiversity (ponds)	Would result in the loss of an area of scrub containing a pond with potential to support great crested newts.	Would result in the loss of an area of scrub containing a pond with potential to support great crested newts.	Would result in the loss of an area of scrub containing a pond with potential to support great crested newts.	Impact the same across all Eastern corridor. Will need to consider the corridor that can be best mitigated.
Biodiversity, People & Communities (Drovers Wood)	N/A	N/A	N/A	N/A
Historic environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Moderate adverse effect. Harm to Non-designated Ridge and Furrow (23210), Linear Feature (42839) & Cottage (site), NW of Bovingdon, Hereford (19145 & 19149) resulting in a moderate adverse effect.	Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Moderate adverse effect. Harm to Linear Feature (42839) & Cottage (site), NW of Bovingdon, Hereford (19145 & 19149) resulting in a moderate adverse effect.	Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Moderate adverse effect. Harm to Non-designated Ridge and Furrow (23210), Linear Feature (42839) & Cottage (site), NW of Bovingdon, Hereford (19145 & 19149) resulting in a moderate adverse effect.	No preferrence through Yellow would have less impactt on known archaeology. Request from Historic England and County Archaeologist that roundabout is located on Roman Road with no offline diversions of Roman Road as it an important historical feature (straight), therefore need to consider which route can best accomodate this.
Landscape character	LCT7.10: Moderate adverse LCT7.15: Neutral LCT2 21: Moderate adverse	LCT7.10: Moderate adverse LCT7.15: Neutral LCT2.21: Slight adverse	LCT7.10: Slight adverse LCT7.15: Slight adverse LCT2.21: Slight adverse	Orange is preferred as it has a lower impact on landscape character
Visual impact	Viewpoint 13: Neutral Viewpoint 14: Moderate adverse Viewpoint 16: Slight adverse	Viewpoint 13: Neutral Viewpoint 14: Moderate adverse Viewpoint 16: Slight adverse	Viewpoint 13: Neutral Viewpoint 14: Neutral Viewpoint 16: Slight adverse	Orange is preferred as it has a lower impact on viewpoints

Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations in E2	Red = 114 Olive = 116 Red modified & Olive modified not individually assessed but assume similar number of dwellings subject to SOAEL as Red & Olive. Close to Bovington Park residential caravan park (mostly elderly residents) Generally further away from 3 Elms	140 Close to Bovington Park residential caravan park (mostly elderly residents) Close / within 3 Elms therefore both sides affected	143 Slightly further away from Bovington Park residential caravan park (mostly elderly residents) therefore potentially less noise Close / within 3 Elms therefore both sides affected	Olive, Red is preferred as least amount of dwellings exceeding SOAEL and subject to NIR in E2.
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	0	0	0	No preference
Water Quality (Yazor Brook)	Red route: Impacts to hydromorphology – culvert option: Very large to moderate adverse / bridge option: Very large to slight adverse Olive route: Impacts to hydromorphology – culvert option: Moderate adverse / bridge option: Moderate to slight adverse Red and Olive routes: Pollution risks to Groundwater resources during operation: Slight adverse	Impacts to hydromorphology – culvert option: Moderate adverse / bridge option: Moderate to slight adverse Pollution risks to Groundwater resources during operation: Slight adverse	Impacts to hydromorphology – culvert option: Very large to moderate adverse / bridge option: Very large to slight adverse Pollution risks to Groundwater resources during operation: Slight adverse	Need to consider which route can best accommodate a bridge option which is a request from both the Environment Agency and Natural England. Olive and Yellow routes are preferred as they have a lower impact on hyromorphology for a culvert option.
Flood Risk (Yazor Brook)	Moderate adverse effect to flood risk associated with the proposed crossing of Yazor Brook	Moderate adverse effect to flood risk associated with the proposed crossing of Yazor Brook	Moderate adverse effect to flood risk associated with the proposed crossing of Yazor Brook	No preference Allowance in 3 Elms for 1,700 m3 of Relief Road drainage - compensation for all options within employment area
People & Communities (PROW)	PROW alongside Yazor Brook will require local diversion	PROW alongside Yazor Brook will require local diversion	PROW alongside Yazor Brook will require local diversion	No preference

	Element 2.2 North of Kings Acre Road to Roman Road - Western Routes		
	Western (Black 1 / Black 2)	Western Cyan	Comments / Decisions
Land Use/development	Addresses Town Planning issues, severance etc. residential amenity better	Goes through properties	Scheme to mitigate severance within the city -
Highways (journey time)	Both corridors marginally longer, acute s/b approach to 4-arm RR r/b, increased transit time	Acute s/b approach to 5-arm RR r/b, increased jn. delay	Locally within KA to RR Black better but overall Cyan better
Highways (accessibility)	Bad for Transport Planning - Part of overall longer route may risk city centre congestion objective (tipping point is Cyan)	Better in Transport Planning terms.	Cyan preferred
Highways (alignment)	Both Corridors marginally longer	More curvature	No preference
Highways (earthworks)	Equal fill deficit, max 2m fill, (longer)	Equal fill deficit, max 3m fill	No preference
Highways (stats)			No preference
Highways (departures)	Both Corridors 2 No. slightly more problematic	2 No.	Cyan preferred
Highways (junctions)	Both corridors better 4-arm RR r/b layout/performance but with worse s/b approach	Worse 5-arm RR r/b layout/performance but better s/b approach, operationally more complex	Black preferred

Highways (cost)	Both corridors higher cost (length & bridge) ≈+£3m	Least cost	Cyan preferred
Geotechnical (abstractions)	Similar		
Structures	Both corridors pond crossing issues, currently 15m overbridge may need increase to ≈30m.	Currently culvert, problematic conversion to overbridge (junction proximity)	(as current) Black preferred
SPZ	When considering the SPZ in isolation, Black 1 and Black 2 pass through SPZ 3 with only a slight encroachment into SPZ 2.	When considering the SPZ in isolation, Cyan pass within SPZ 2 and includes a cutting within the SPZ.	Black 1 and Black 2 are the best performing corridors
WCHAR		Cyan option more accessible	
Biodiversity, (trees)	1 Veteran tree removed.	8 Notable trees removed from the northern side of Kings Acre Road.	
Biodiversity (Yazor Brook)	Crosses Yazor Brook and the adjacent fishing pond with a bridge structure. This may lead to the retention of stream bed habitats however the probable low clearance above these waterbodies is likely to result in shading impacts. The pond at this location is stocked with coarse fish. Several otter spraints were found at this location and the pond may be a foraging resource (albeit fencing is in place which may be some deterrent to foraging otter).	The current design shows the Yazor Brook being culverted underneath the Cyan route. This could lead to fragmentation of the aquatic habitats and of the wildlife corridor currently provided by the stream.	Black slightly worse, Cyan slightly better as this section of Yazor Brook was recently reinstated therefore the habiatat is not so well established.
Biodiversity, (bats)	Traverses habitats within Hereford Cattle Market and is within 50 m of SINC_01. A relatively high level of Myotis and lesser horseshoe bat activity was recorded in this area; this is a hotspot of activity for both species relative to the other 14 static sampling sites.	No bat risk in this area.	Cyan preferred out of the Western routes
Biodiversity (ponds)	See above - Biodiversity (Yazor Brook) Stocked with coarse fish and otters feed (international importance) - just north of Roman Road considered a problem -otters designated on River Wye 15 metre span (can be changed) - require compensation for loss of pond - also GCN pond close to Canon Pyon	See above - Biodiversity (Yazor Brook) Requires diversion but in locality which has recent diversion and so habitat not really established - diverts otter movements but not really a problem - cyan therefore better option	Mitigation for black ponds would extend to 40 metres - would produce shaded section which would not be acceptable
Historic environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Minor Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Slight adverse effect. No known archaeology affected.	Minor Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Slight adverse effect. Harm to Linear Feature (42839) & Sluice Gates, The Bolts, Huntington (31960) resulting in a moderate adverse effect.	Black 1 and Black 2 preferred as less harm on known archaeology.
Landscape character	LCT7.10: Moderate adverse LCT7.15: Slight adverse LCT2 21: Moderate adverse	LCT7.10: Moderate adverse LCT7.15: Slight adverse LCT2.21: Slight adverse	Cyan is preferred as it has a lower impact on landscape character

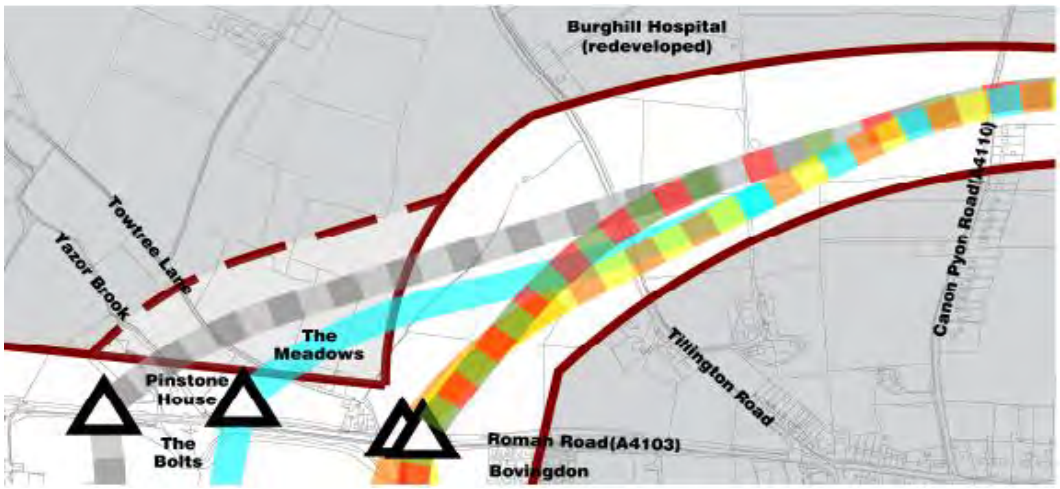
Visual impact	Viewpoint 13: Neutral Viewpoint 14: Neutral Viewpoint 16: Large adverse	Viewpoint 13: Neutral Viewpoint 14: Neutral Viewpoint 16: Moderate adverse	Cyan is preferred as it has a lower impact on viewpoints
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations in E2	Black 1 = 114 Black 2 = 116	121 Cluster on Kings Acre and Roman Road affected but slightly less	Black 1 and Black 2 route is best performing as least amount of dwellings exceeding SOAEL and subject to NIR in E2.
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	0	0	No preference
Water Quality (Yazor Brook)	Impacts to hydromorphology – bridge option: Moderate adverse Pollution risks to Groundwater resources during operation: Neutral	Impacts to hydromorphology – culvert option: Moderate adverse / bridge option: Very large to slight adverse Pollution risks to Groundwater resources during operation: Slight adverse	Black performs slightly better as it has a potentially lower impact on hydromorphology and neutral impact on pollution risks to Groundwater resource
Flood Risk (Yazor Brook)	Large adverse effect to flood risk associated with the proposed crossing of Yazor Brook	Large adverse effect to flood risk associated with the proposed crossing of Yazor Brook Local flood levels higher than road levels - watercourse diversions not good Additional culverts required to ensure Yazor Brook diversion - also needs around 2 metres of cut for flood or raise road level for clearance.	Flooding similar across both but much more additional realignment of watercourse on Cyan. Also stream/brook crossing (Yazor Brook tributary) both routes but longer on black
People & Communities (PROW)	No PROWs affected	No PROWs affected	No preference
Effects on property	0 properties but affects the Meadows?	1 property directly affected	Alternative is to move the alignment but that would directly affect 2 properties at the Bolts

	Element 2.2 North of Kings Acre Road to Roman - Eastern v Western		
	Western (Cyan)	Eastern (Olive / Red)	Comments / Decisions
Land Use/development	Goes through properties	Best for aligning to Masterplan	
Highways (journey time)	Acute s/b approach to 5-arm RR r/b, increased jn. delay	Both Corridors marginally longer, increased transit time	Cyan preferred
Highways (accessibility)	Better in Transport Planning terms.	Similar both corridors.	Red/Olive preferred
Highways (alignment)	More curvature	Both Corridors marginally longer, straight.	Cyan preferred
Highways (earthworks)	Equal fill deficit, max 3m fill	Equal fill deficit, max 3m fill, (allows Yazor bridge)	No preference
Highways (stats)			Red/Olive preferred
Highways (departures)	2 No.	Both Corridors 1No.	Red/Olive preferred
Highways (junctions)	Worse 5-arm RR r/b layout/performance but better s/b approach, operationally more complex		No preference
Highways (cost)	Least cost	Both corridors equal cost	No preference
Geotechnical (abstractions)		No difference between options	
Structures	Currently culvert, problematic conversion to overbridge (junction proximity)		

SPZ	When considering the SPZ in isolation, Cyan pass within SPZ 2 and includes a cutting within the SPZ.	When considering the SPZ in isolation, Red and Olive pass within SPZ 2 and includes a cutting within the SPZ.	Cyan is preferred
WCHAR	Cyan option more accessible	No severance within housing development	
Biodiversity (Important Trees)	8 Notable trees removed from the northern side of Kings Acre Road.	1 Veteran tree removed. 7 Notable trees removed from the northern side of Kings Acre Road.	Cyan is preferred as they have least impact on important trees.
Biodiversity (Yazor Brook)	The current design shows the Yazor Brook being culverted underneath the Cyan route. This could lead to fragmentation of the aquatic habitats and of the wildlife corridor currently provided by the stream.	Yazor Brook would be culverted beneath route. This could lead to fragmentation of the aquatic habitats and of the wildlife corridor currently provided by the stream. The junction with Roman Road takes the form of a roundabout which would result in the loss of an area of scrub containing a pond with potential to support great crested newts. The fungus Hebeloma nigellum was recorded in this area. Habitat loss, damage, impacts on species using corridor - Yazor Brook will need to be diverted - would need to raise vertical alignment to achieve crossing - Second Option	Olive, Red slightly better performer.
Biodiversity, (bats)	No bat risk in this area.	No bat risk reported in this area.	Olive / Red preferred
Biodiversity (ponds)	See above - Biodiversity (Yazor Brook) Requires diversion but in locality which has recent diversion and so habitat not really established - diverts otter movements but not really a problem - cyan therefore better option	See above - Biodiversity (Yazor Brook)	Impact on pond (crossing and shading impact) with evidence of being used by otter v pond removed with potential to contain GCN.
Historic environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Minor Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Slight adverse effect. Harm to Linear Feature (42839) & Sluice Gates, The Bolts, Huntington (31960) resulting in a moderate adverse effect.	Harm to the setting of Huntington Conservation Area and Grade II structures within and around Huntington resulting in Moderate adverse effect. Harm to Non-designated Ridge and Furrow (23210), Linear Feature (42839) & Cottage (site), NW of Bovingdon, Hereford (19145 & 19149) resulting in a moderate adverse effect.	Cyan is preferred as it has a lower impact on the setting of Huntington Conservation Area and Grade II structures and less harm on known archaeology.

Landscape character	LCT7.10: Moderate adverse LCT7.15: Slight adverse LCT2.21: Slight adverse	LCT7.10: Moderate adverse LCT7.15: Neutral LCT2.21: Moderate adverse	Olive, Red preferred as it has a lower impact on landscape character
Visual impact	Viewpoint 13: Neutral Viewpoint 14: Neutral Viewpoint 16: Moderate adverse	Viewpoint 13: Neutral Viewpoint 14: Moderate adverse Viewpoint 16: Slight adverse	Olive, Red is preferred as it has a lower impact on viewpoints
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations in E2	121 Cluster on Kings Acre and Roman Road affected but slightly less	Red = 114 Olive = 116 Close to Bovington Park residential caravan park (mostly elderly residents) Generally further away from 3 Elms	No preference
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	0	0	No preference
Water Quality (Yazor Brook)	Impacts to hydromorphology – culvert option: Moderate adverse / bridge option: Very large to slight adverse Pollution risks to Groundwater resources during operation: Slight adverse	Red route: Impacts to hydromorphology – culvert option: Very large to moderate adverse / bridge option: Very large to slight adverse Olive route: Impacts to hydromorphology – culvert option: Moderate adverse / bridge option: Moderate to slight adverse Red and Olive routes: Pollution risks to Groundwater resources during operation: Slight adverse	Need to consider which route can best accommodate a bridge option which is a request from both the Environment Agency and Natural England. Olive has a lower impact on hyromorphology for a bridge option. Cyan has a lower impact for Pollution risks to Groundwater resources during operation.
Flood Risk (Yazor Brook)	Large adverse effect to flood risk associated with the proposed crossing of Yazor Brook Local flood levels higher than road levels - watercourse diversions not good Additional culverts required to ensure Yazor Brook diversion - also needs around 2 metres of cut for flood or raise road level for clearance.	Moderate adverse effect to flood risk associated with the proposed crossing of Yazor Brook	Olive / Red preferred as lower flood risk
People & Communities (PROW)	No PROWs affected	PROW alongside Yazor Brook will require local diversion	Cyan preferred
Effects on property	1 property directly affected	Both the same at Tillington Rd	

Element 2.3 Roman Road to Canon Pyon



	Black	North (Red / Olive)	South (Orange)	South (Cyan)	Comments / Decisions
Highways (journey time)		3rd shortest (marginal)	Shortest but poor approach to Roman Rd r/b	Longest ≈0.2km & poor approach to 5-arm Roman Rd r/b, transit & junction delay	Red modified/Olive modified preferred
Highways (accessibility)		Re-directed Towtree Ln, cul-de-sac Towtree Ln & Canon Pyon	Re-directed Towtree Ln, cul-de-sac Towtree Ln & Canon Pyon	Severed Towtree Ln, cul-de-sac Towtree Ln & Canon Pyon	NOT Cyan preference
Highways (alignment)		Most curved	Least curved	Least curved & relaxed gradient (length)	Cyan preferred
Highways (earthworks)		Embankment over Tillington Rd, medium fill deficit (good for balance)	Cut at Tillington Rd, medium cut surplus	Cut at Tillington Rd, most cut surplus	Red/Olive preferred
Highways (stats)				Slightly more complex/extensive (severed Towtree Ln)	NOT Cyan preferred
Highways (departures)			1 No. (SSD Roman Rd. s/b approach)	1 No. (SSD Roman Rd. s/b approach)	Red/Olive preferred
Highways (junctions)		Acute but straight approach Roman Rd r/b	Acute & curved approach Roman Rd r/b	Acute & curved approach 5-arm Roman Rd r/b	Red/Olive preferred
Highways (cost)		Marginally cheaper (e/wks balance & Tillington Rd U/B)	Medium cost ≈+£½m	Marginally more expensive (fill surplus & length) ≈+£1m	Red/Olive preferred
Structures		Tillington Rd U/B	Tillington Rd O/B, slope chasing approach e/wks	Tillington Rd O/B, slope chasing approach e/wks	Red/Olive preferred
SPZ	When considering the SPZ in isolation, Black pass within SPZ 3 and is on embankment within the SPZ.	When considering the SPZ in isolation, Red / Olive pass within SPZ 3 and includes a cutting within the SPZ.	When considering the SPZ in isolation, Orange pass within SPZ 3 and includes a cutting within the SPZ.	When considering the SPZ in isolation, Black pass within SPZ 3 and is on embankment within the SPZ.	Black and Cyan preferred as they are not in cutting within the SPZ 3.
Biodiversity (Important Trees)	2 Veteran and 1 Notable tree removed.	1 Notable tree removed.	3 Veteran & 1 Notable tree removed.	2 Veteran & 1 Notable tree removed.	Red / Olive preferred as no Ancient or Veteran trees removed.
Biodiversity, (bats)	Likely result in the fragmentation of a wildlife corridor for bats and great crested newts north of Hospital Farm.	Likely result in the fragmentation of a wildlife corridor for bats and great crested newts north of Hospital Farm.	No impact on bats reported in this sub-section	Cyan route may directly affect a house with moderate bat roosting potential.	Orange preferred as no impact on bats reported
Biodiversity (ponds)	Likely result in the loss of a great crested newt breeding pond.	Likely result in the loss of a great crested newt breeding pond.	No impact on ponds reported in this sub-section	No impact on ponds reported in this sub-section	Orange & Cyan preferred
Historic environment (Note: Not all Heritage assests are included in this matrix only which show variation between the route options)	Goes through Burghill Hospital Unregisted Park and Garden.	Goes through Burghill Hospital Unregisted Park and Garden.	Avoids Burghill Hospital Unregisted Park and Garden.	Avoids Burghill Hospital Unregisted Park and Garden.	Orange and Cyan preferred
Landscape character	LCT7.10: Moderate adverse LCT7.15: Slight adverse LCT2.21: Moderate adverse	LCT7.10: Moderate adverse LCT7.15: Neutral LCT2.21: Moderate adverse	LCT7.10: Slight adverse LCT7.15: Slight adverse LCT2.21: Slight adverse	LCT7.10: Moderate adverse LCT7.15: Slight adverse LCT2.21: Slight adverse	Orange route is preferred as it has a lower impact on landscape character

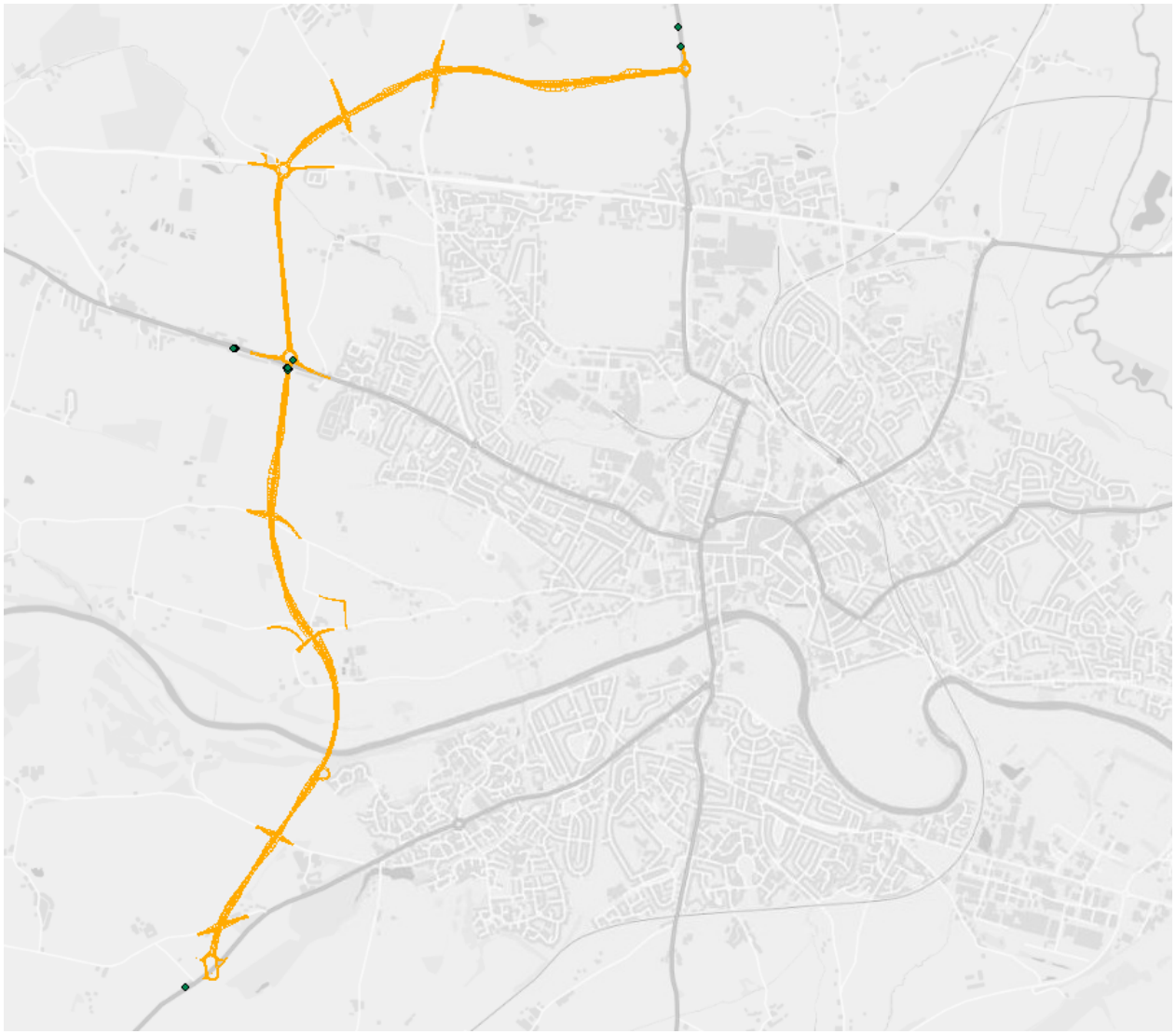
Visual impact	Viewpoint 15: Slight adverse Viewpoint 17: Large adverse Viewpoint 18: Large adverse Viewpoint 19: Neutral Viewpoint 20: Slight adverse Viewpoint 21: Neutral Viewpoint 23: Neutral	Viewpoint 15: Neutral Viewpoint 17: Moderate adverse Viewpoint 18: Large adverse Viewpoint 19: Neutral Viewpoint 20: Neutral Viewpoint 21: Neutral Viewpoint 23: Neutral	Viewpoint 15: Neutral Viewpoint 17: Moderate adverse Viewpoint 18: Large adverse Viewpoint 19: Neutral Viewpoint 20: Neutral Viewpoint 21: Neutral Viewpoint 23: Neutral	Viewpoint 15: Slight adverse Viewpoint 17: Large adverse Viewpoint 18: Large adverse Viewpoint 19: Neutral Viewpoint 20: Neutral Viewpoint 21: Neutral Viewpoint 23: Neutral	Orange route is preferred as it has a lower impact on viewpoints
Noise (No. of dwellings exceeding the Significant Observed Adverse Effect Level (SOAEL)) and subject to Noise Insultation Regulations in E2	Black 1 = 114 Black 2 = 116	Red = 114 Olive = 116	143	121	Black 1, Black 2, Red and Olive are preferred based on least no. of dwellings subject to SOAEL and subject to NIR in E2.
Noise (No. of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL))	1	0	0	1	Red,Olive and Orange are preferred based on least no. of dwellings subject to UAEL.
Water Quality (Yazor Brook)	Yazor Brook Tributary Pollution risks during construction: Slight adverse Impacts to hydromorphology: Neutral	Yazor Brook Tributary Pollution risks during construction: Slight adverse Impacts to hydromorphology: Slight adverse	Yazor Brook Tributary Pollution risks during construction: Slight adverse Impacts to hydromorphology: Slight adverse	Yazor Brook Tributary Pollution risks during construction: Neutral Impacts to hydromorphology: Neutral	Cyan preferred as it has a neutral impact on Yazor Brook Tributary
Flood Risk (Yazor Brook)	N/A	N/A	N/A	N/A	N/A
People & Communities (PROW)	Crosses PROW between Towtree Lane and Tillington Road	Avoids PROW	Avoids PROW	Crosses PROW between Towtree Lane and Tillington Road	Red, Olive and Orange preferred
Effects on property		None	None	1 property (The Meadows) directly affected, cul-de-sac Towtree Ln & Canon Pyon, landtake Pinstone Ho & Hive Ho	NOT Cyan preference

Appendix D

NUMBER OF DWELLINGS

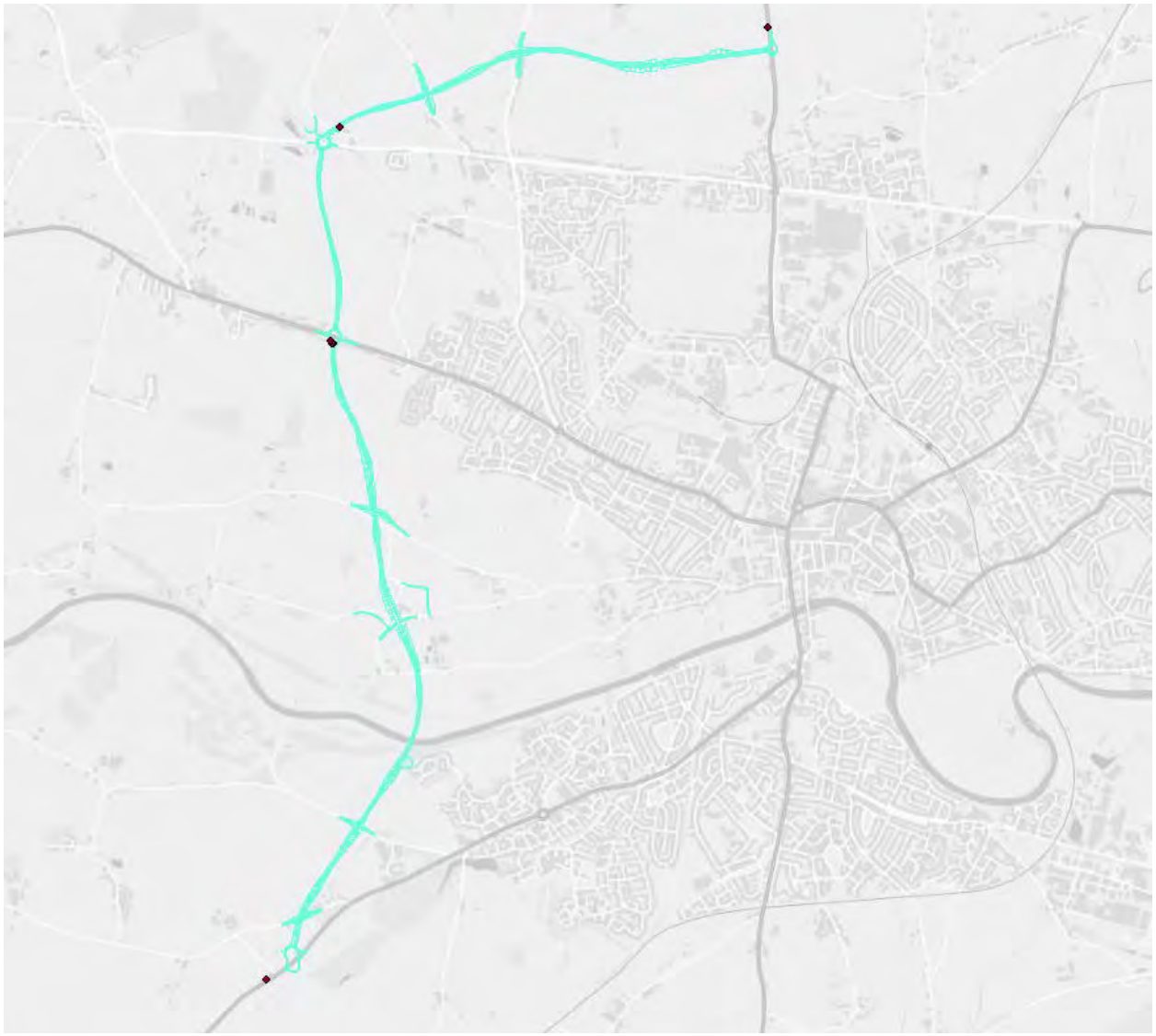
EXCEEDING UAEL

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)



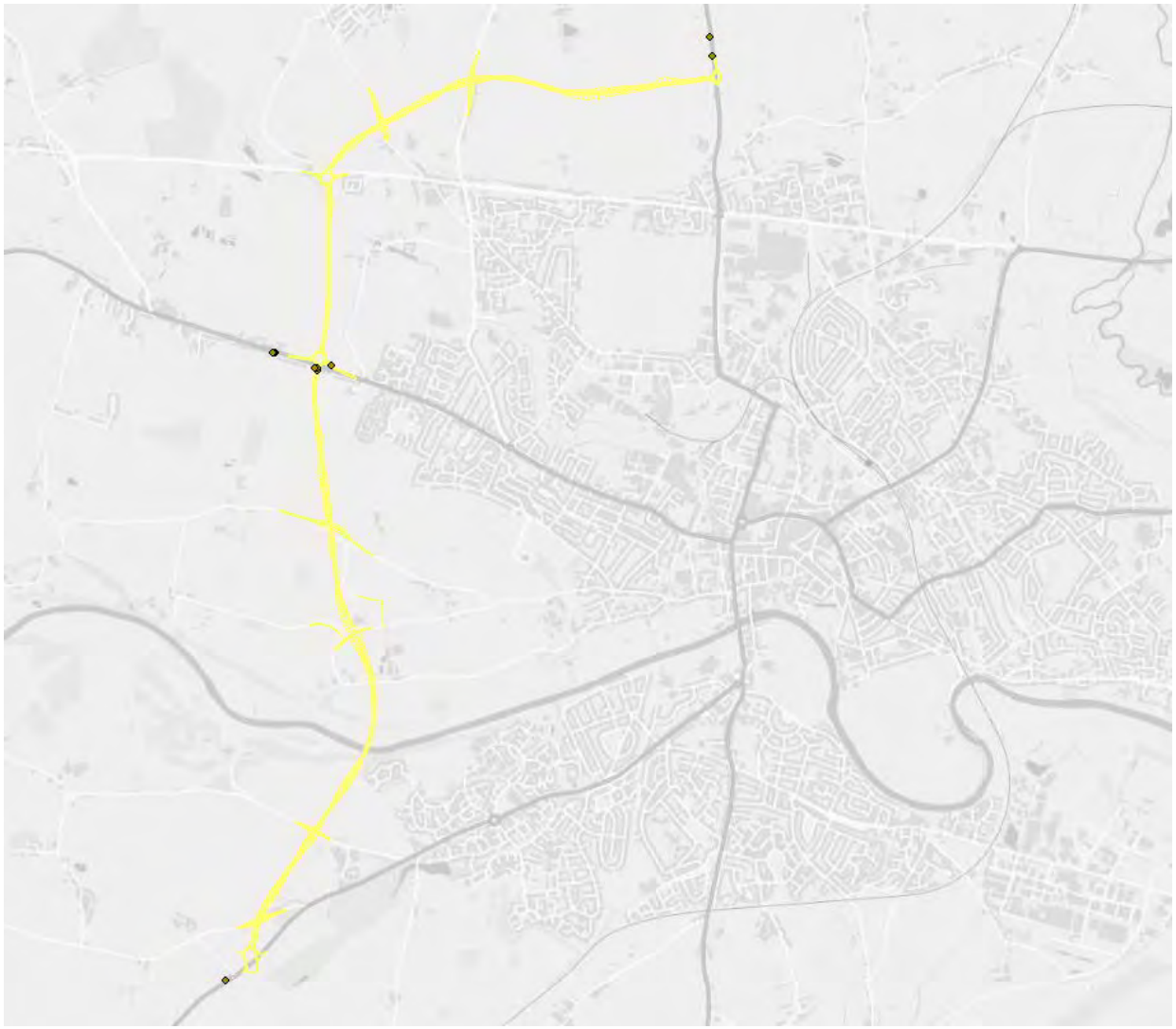
Orange: 12 Properties (5 of these may be demolished as they are under the footprint of the route)

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)



Cyan: 6 Properties (3 of these may be demolished as they are under the footprint of the route)

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)

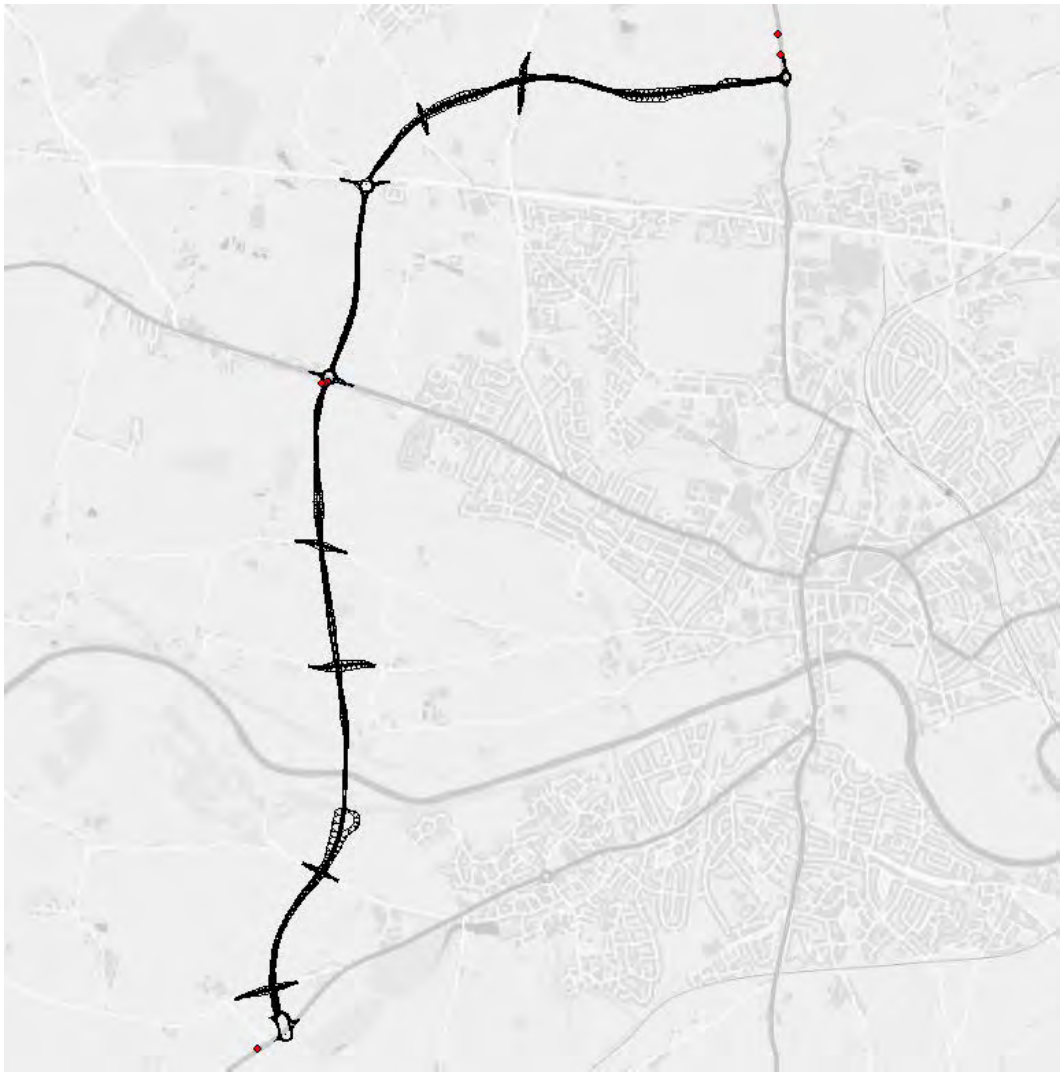


Yellow: 12 Properties (5 of these may be demolished as they are under the footprint of the route)

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)

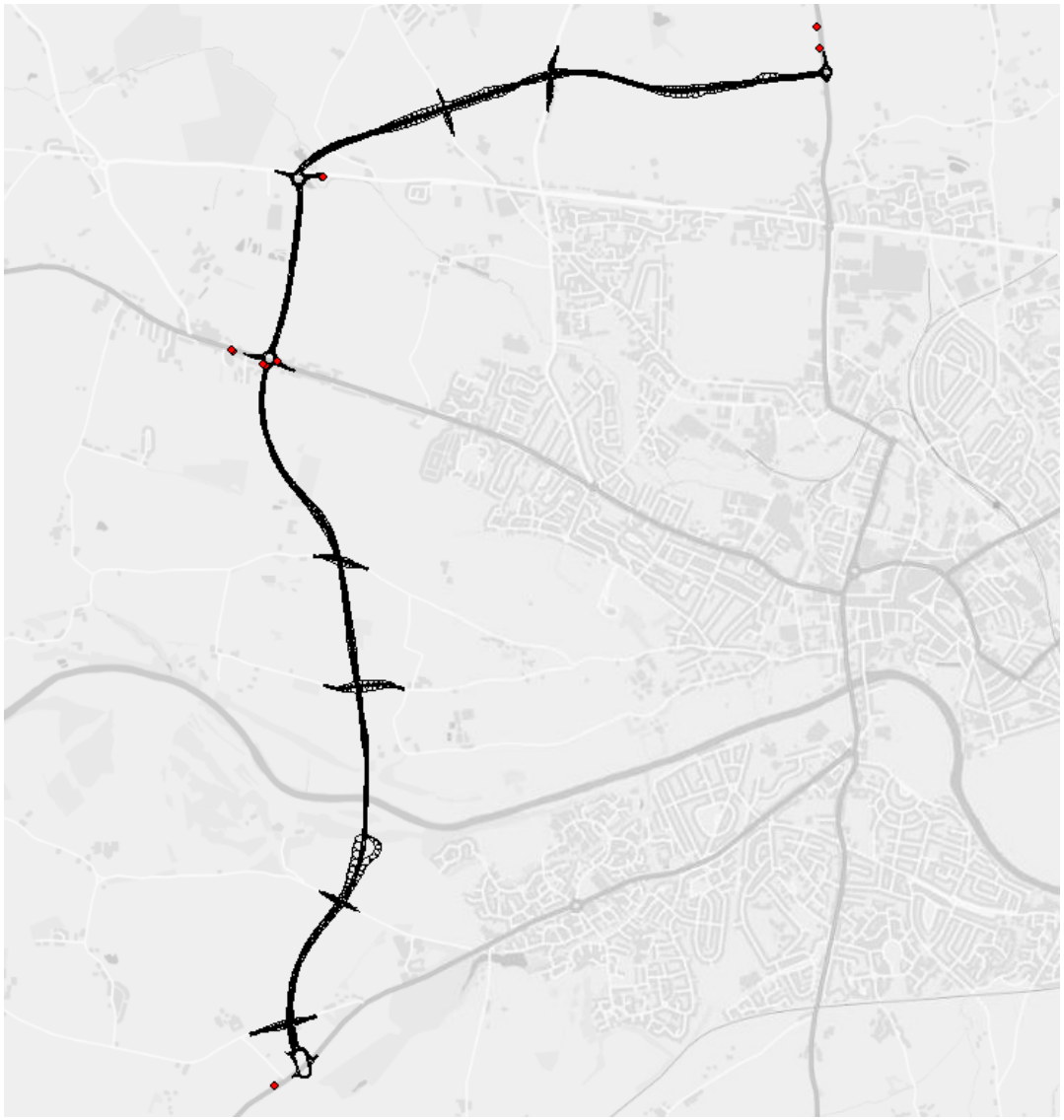
Red: 7 Properties (4 of these may be demolished as they are under the footprint of the route)

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)



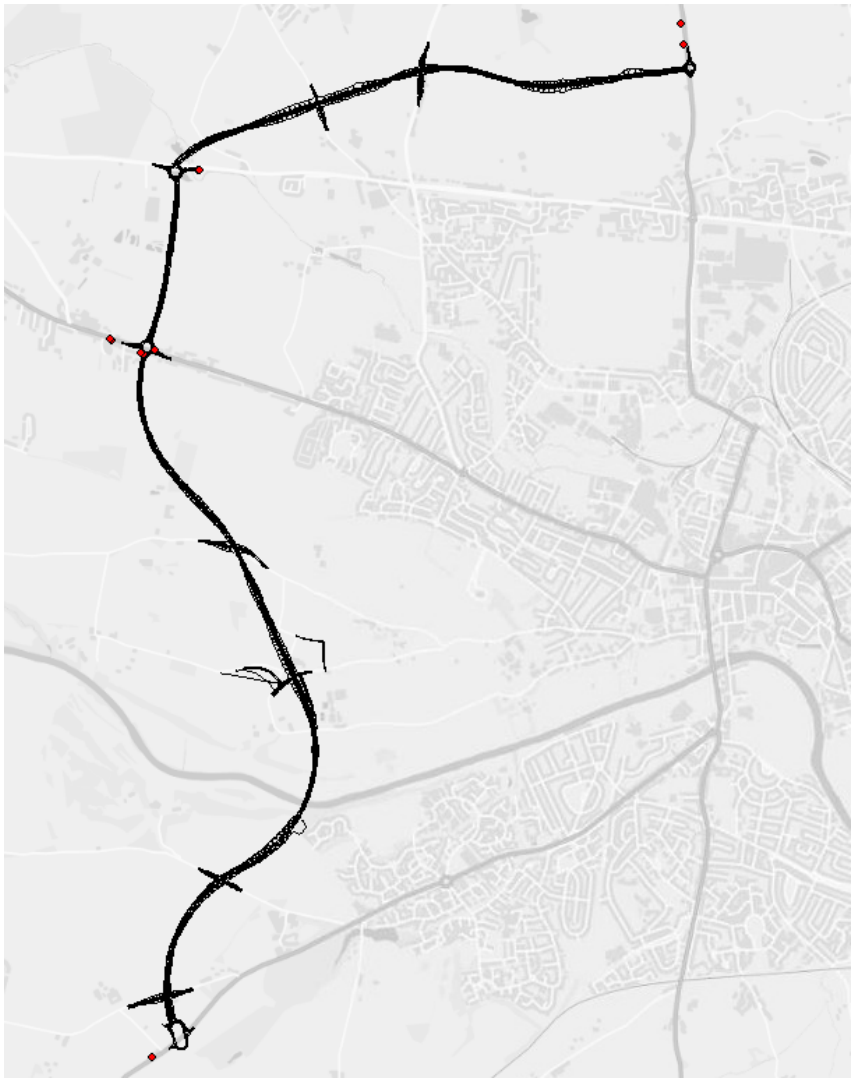
Olive: 7 Properties (4 of these may be demolished as they are under the footprint of the route)

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)



Black 1: 12 Properties (5 of these may be demolished as they are under the footprint of the route)

Number of dwellings exceeding the Unacceptable Adverse Effect Level (UAEL)



Black 2: 12 Properties (5 of these may be demolished as they are under the footprint of the route)

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