Herefordshire Council

**Corporate Support Centre**
Alistair Neill – Chief Executive Officer

**To: All members of the Council**

our ref: Council - 2 February 2021
contact: Matthew Evans, Democratic Services
telephone: 01432 383690
email: matthew.evans@herefordshire.gov.uk

25 January 2021

Dear Councillor,

**You are hereby summoned** to attend the online meeting of the Herefordshire Council to be held on **Tuesday 2 February 2021** at **2.00 pm** at which the business set out in the attached agenda is proposed to be transacted.

Yours sincerely

C Ward

**Claire Ward**

**Solicitor to the council**

Herefordshire Council

# AGENDA

## Council

| | |
|---|---|
| Date: | **Tuesday 2 February 2021** |
| Time: | **2.00 pm** |
| Place: | **Virtual Meeting** |
| Notes: | Watch this meeting live by accessing the link below: https://youtu.be/fSQC1TOK0VU,<br><br>For any further information please contact:<br><br>**Matthew Evans, Democratic Services**<br>Tel: 01432 383690<br>Email: matthew.evans@herefordshire.gov.uk |

If you would like help to understand this document, or would like it in another format or language, please call Matthew Evans, Democratic Services on 01432 383690 or e-mail matthew.evans@herefordshire.gov.uk in advance of the meeting.

# Agenda for the Meeting of the Council

**Membership**

| | |
|---|---|
| **Chairman** | **Councillor Sebastian Bowen** |
| **Vice-Chairman** | **Councillor Kema Guthrie** |

| | |
|---|---|
| Councillor Graham Andrews | Councillor Paul Andrews |
| Councillor Polly Andrews | Councillor Jenny Bartlett |
| Councillor Chris Bartrum | Councillor Christy Bolderson |
| Councillor Dave Boulter | Councillor Tracy Bowes |
| Councillor Ellie Chowns | Councillor Pauline Crockett |
| Councillor Gemma Davies | Councillor Barry Durkin |
| Councillor Toni Fagan | Councillor Elizabeth Foxton |
| Councillor Carole Gandy | Councillor John Hardwick |
| Councillor John Harrington | Councillor Liz Harvey |
| Councillor Jennie Hewitt | Councillor Kath Hey |
| Councillor David Hitchiner | Councillor Phillip Howells |
| Councillor Helen I'Anson | Councillor Terry James |
| Councillor Peter Jinman | Councillor Tony Johnson |
| Councillor Graham Jones | Councillor Mike Jones |
| Councillor Jim Kenyon | Councillor Jonathan Lester |
| Councillor Trish Marsh | Councillor Bob Matthews |
| Councillor Mark Millmore | Councillor Jeremy Milln |
| Councillor Felicity Norman | Councillor Roger Phillips |
| Councillor Tim Price | Councillor Paul Rone |
| Councillor Alan Seldon | Councillor Nigel Shaw |
| Councillor Louis Stark | Councillor John Stone |
| Councillor David Summers | Councillor Elissa Swinglehurst |
| Councillor Paul Symonds | Councillor Kevin Tillett |
| Councillor Diana Toynbee | Councillor Ange Tyler |
| Councillor Yolande Watson | Councillor William Wilding |

# Agenda

**Pages**

*(The meeting will be preceded by thought for the day.)*

**1. APOLOGIES FOR ABSENCE**

To receive apologies for absence.

**2. DECLARATIONS OF INTEREST**

To receive declarations of interest in respect of Schedule 1, Schedule 2 or Other Interests from members of the Council in respect of items on the agenda.

**3. QUESTIONS FROM MEMBERS OF THE PUBLIC**

To receive questions from members of the public.
*Deadline for receipt of questions is 5:00pm on Wednesday 27 January 2021.*
*At extraordinary meetings of the Council questions must relate to reports on the agenda.*
*Accepted questions and answers will be published as a supplement prior to the meeting. Submit questions to councillorservices@herefordshire.gov.uk.*

**4. QUESTIONS FROM MEMBERS OF THE COUNCIL**

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**5. HEREFORD TRANSPORT STRATEGY** 9 - 282

To consider cabinet's recommendation to stop progress on the western bypass and southern link road schemes which are included in the adopted core strategy and local transport plan and to approve the removal of the Hereford Transport Package and South Wye Transport Package from the capital programme.

# The Seven Principles of Public Life

## (Nolan Principles)

### 1. Selflessness

Holders of public office should act solely in terms of the public interest.

### 2. Integrity

Holders of public office must avoid placing themselves under any obligation to people or organisations that might try inappropriately to influence them in their work. They should not act or take decisions in order to gain financial or other material benefits for themselves, their family, or their friends. They must declare and resolve any interests and relationships.

### 3. Objectivity

Holders of public office must act and take decisions impartially, fairly and on merit, using the best evidence and without discrimination or bias.

### 4. Accountability

Holders of public office are accountable to the public for their decisions and actions and must submit themselves to the scrutiny necessary to ensure this.

### 5. Openness

Holders of public office should act and take decisions in an open and transparent manner. Information should not be withheld from the public unless there are clear and lawful reasons for so doing.

### 6. Honesty

Holders of public office should be truthful.

### 7. Leadership

Holders of public office should exhibit these principles in their own behaviour. They should actively promote and robustly support the principles and be willing to challenge poor behaviour wherever it occurs.

# The Public's Rights to Information and Attendance at Meetings

## YOU HAVE A RIGHT TO: -

- Attend all Council, Cabinet, Committee and Sub-Committee meetings unless the business to be transacted would disclose 'confidential' or 'exempt' information. For online meetings you will be able to view the meeting live via the Council's YouTube site; https://www.youtube.com/HerefordshireCouncil
- Inspect agenda and public reports at least five clear days before the date of the meeting.
- Inspect minutes of the Council and all Committees and Sub-Committees and written statements of decisions taken by the Cabinet or individual Cabinet Members for up to six years following a meeting.
- Inspect background papers used in the preparation of public reports for a period of up to four years from the date of the meeting. (A list of the background papers to a report is given at the end of each report). A background paper is a document on which the officer has relied in writing the report and which otherwise is not available to the public.
- Access to a public register stating the names, addresses and wards of all Councillors with details of the membership of Cabinet and of all Committees and Sub-Committees.
- Have a reasonable number of copies of agenda and reports (relating to items to be considered in public) made available to the public attending meetings of the Council, Cabinet, Committees and Sub-Committees.
- Have access to a list specifying those powers on which the Council have delegated decision making to their officers identifying the officers concerned by title.
- Copy any of the documents mentioned above to which you have a right of access, subject to a reasonable charge (20p per sheet subject to a maximum of £5.00 per agenda plus a nominal fee of £1.50 for postage).
- Access to this summary of your rights as members of the public to attend meetings of the Council, Cabinet, Committees and Sub-Committees and to inspect and copy documents.

Herefordshire Council

| | |
|---|---|
| **Meeting:** | **Council** |
| **Meeting date:** | **2 February 2021** |
| **Title of report:** | **Hereford Transport Strategy** |
| **Report by:** | **Cabinet member infrastructure and transport** |

## Classification

Open

## Decision type

Budget and policy framework

## Wards affected

(All Wards);

## Purpose

To consider cabinet's recommendation to stop progress on the western bypass and southern link road schemes which are included in the adopted core strategy and local transport plan and to approve the removal of the Hereford Transport Package and South Wye Transport Package from the capital programme.

## Recommendation(s)

**That council determines to:**

**(a) Stop the progress of the southern link road and western bypass schemes which are included in the adopted policy; and**
**(b) Make amendments to the capital programme such that the Hereford Transport Package and South Wye Transport Package projects are removed from the programme.**

## Alternative options

1. To continue delivery of the western bypass and southern link road schemes. This is not recommended as cabinet confirmed its intention to pause and review these schemes in the context of the declared climate emergency in October 2019 and subsequently agreed the scope for a review which has now been completed. The review, which was informed

by public consultation, stakeholder and member engagement considered the western bypass and southern link road alongside alternative options. The results were considered by the general scrutiny committee which recommended that cabinet abandon the western bypass. Cabinet considered the review at its meeting of 3 December 2020 and confirmed its preferred transport strategy for Hereford and its intention to stop progressing the western bypass and southern link road schemes. Confirming this decision will provide greater certainty to those directly affected by the two road schemes and will enable the executive to make progress on its preferred strategy.

2. To retain the Hereford Transport Package and South Wye Transport Package projects in the capital programme. If council is minded to support recommendation (a), then this option is not recommended, as retaining these packages within the capital programme would no longer be supported by a policy commitment to progress the road schemes forming the focus of the packages.

## Key considerations

**Pausing the western bypass and southern link road and reviewing transport strategy**

3. The Council declared a climate emergency at its meeting of 8 March 2019 (details of the decision here) and the executive committed to an accelerated reduction of its own carbon emissions, with the aspirations to be carbon neutral by 2030 at the cabinet meeting of 26 Sept 2019 (details here). The cabinet member for infrastructure and transport (the cabinet member) determined to pause and review the new road elements of Hereford and South Wye Transport packages in the decision of 22 October 2019 (details here) and in the subsequent decision of 24 January 2020 (details here) confirmed that the purpose of the review was to:
    - ensure that the council's decision making is fully informed by the latest information and best practice;
    - ensure any major scheme has a positive impact on the county to address travel issues, such as congestion and air quality, as these schemes have a permanent impact upon the environment which last for generations to come; and
    - understand how alternative options [to the southern link road and western bypass] address emerging local and national policy such as those resulting from the declared climate emergency, considering new solutions and approaches which have developed over the last twenty years and which are now being implemented in other urban areas.

4. In the decision of 24 January 2020 the cabinet member confirmed the scope of the review and that it would have two principal elements:

    - A peer assessment of the evidence base for the Hereford Transport Package (HTP) and South Wye Transport Package (SWTP) and consideration of the road schemes in the context of emerging policy and guidance on climate emergency; and
    - A review of the transport strategy for Hereford City (the Hereford Transport Strategy Review) including assessment of alternative options to the southern link road and western bypass. This review work would need to include public consultation and stakeholder engagement.

5. Both pieces of work were to be carried out at pace and the cabinet member decision confirmed how they would be procured to secure expert consultancy support. The Peer Assessment for the HTP and SWTP schemes was undertaken following open market tendering process by Mott MacDonald (commissioning decision here). Mott MacDonald

(Motts) went on to provide critical friend oversight of the final strategy review findings prepared by WSP. The Hereford Transport Strategy Review was undertaken by WSP procured through the Balfour Beatty Living Places public realm contract (commissioning decision here).

**Peer Assessment Process and Findings**

6. The peer assessment considered 4 technical aspects of the work done previously on the Hereford Transport Package (HTP) and the South Wye Transport Package (SWTP):
    - Have they been developed in accordance with Department for Transport (DfT) guidance in relation to major transport schemes?
    - Is the evidence base sound?
    - Have the decisions to progress the package been sound and justified?
    - How might changing national policy in relation to climate emergency impact the further development of these packages?

7. The peer assessment reports produced by Motts are included at Appendix A and B to this report for reference. They set out Motts' findings in full and provide details of the process which was followed in reviewing the technical evidence and historic council decision reports for both packages.

8. In summary, the peer assessment findings reported by Motts indicated that both packages had been developed with a sound evidence base which followed DfT guidance and decisions taken by the council were considered to be justified in terms of technical recommendations. Motts identified technical issues which they consider would need to be addressed if either package is progressed which relate to the need for more up to date technical work to be undertaken in relation to carbon and environmental impacts. In relation to the HTP, Motts considered that alternative options to the western bypass had been discarded too early in the appraisal process and advise that alternative options (to the road scheme element) which could fulfil strategy objectives are reconsidered in the next stage of the HTP development if the council wish to progress the HTP and pursue DfT funding through its major transport scheme business case process. As a more advanced project, Motts noted that the SWTP had already progressed through specific checks undertaken by DfT and this had confirmed compliance up to the point at which the major scheme proposal had been developed.

9. In their broader conclusion relating to the possible impacts of national policy changes relating to greenhouse gasses and biodiversity Motts noted that the DfT's technical guidance had not fully developed in relation to the national policy (at the time of their assessment) but considered that this would be likely to be updated and impact the progression of both packages. On this basis Motts have advised that it is likely that both packages would need to be refreshed to more fully consider these important aspects in the event that the council wished to progress either.

10. These findings were reported to and discussed at both the General Scrutiny Committee 9 November 2020 and the cabinet meeting of 3 December 2020.

**Hereford Transport Strategy Review Process and Findings**

11. It was agreed that the review should start from first principles and follow established process for strategy development and that a key component of this approach was to incorporate new public and stakeholder engagement and consultation so that the problem identification, objectives, option development and identification of preferred options could be tested in respect of public acceptability. The process (summarised below) is in line with

government guidance and best practice in relation to reviewing and future proofing transport strategy and has comprised:

- Defining the transport challenges
- Establishing a baseline of current conditions
- Setting objectives
- Identifying options
- Assessing options both in isolation and combined as packages
- Public consultation and stakeholder engagement

12. The cabinet was keen to take into account the views of the public and stakeholders and an engagement programme was progressed alongside the technical work for this purpose. The key elements of the engagement programme included:

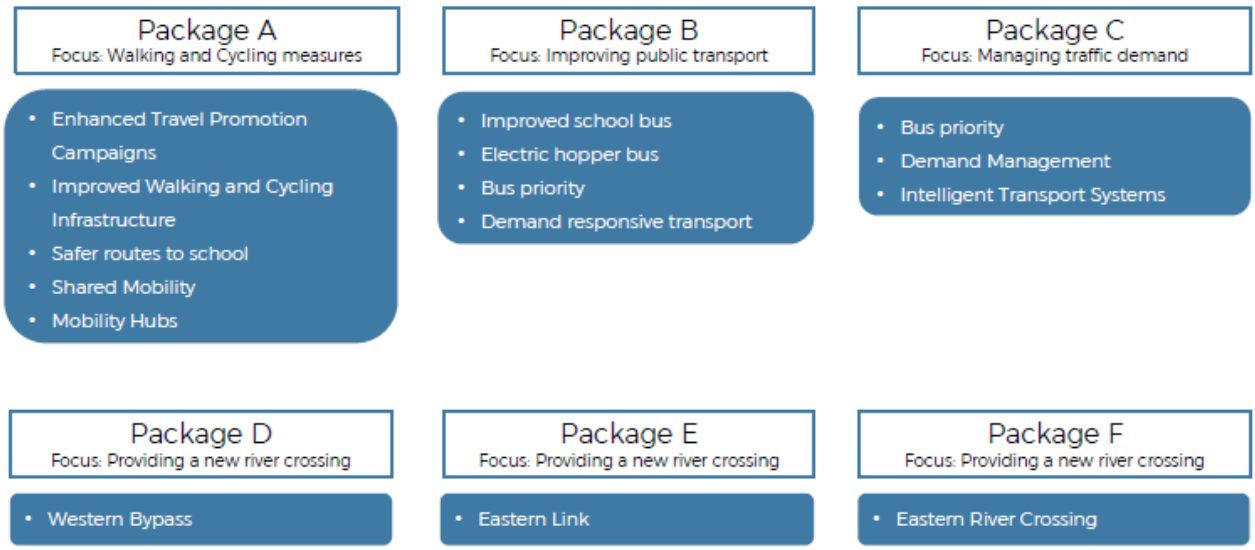
    - Public consultation on transport issues in Hereford (February to April)
    - Engagement and consultation with council members and stakeholders for feedback at the following stages:
        i. Evidence base/challenges/objectives/options and appraisal framework (April)
        ii. Option Assessment and approach to packaging (June-July)
    - Transport seminar for all councillors to explore best practice transport solutions and innovations (August)

13. In addition to the consultation progressed within the review process, consultation has also fed into the governance process and was reported to cabinet for it to consider alongside the technical review reporting. This included:

    - Consultation with general scrutiny committee
    - Political groups consultation

14. Copies of the Hereford Transport Strategy Review (WSP) and the Hereford Transport Strategy Review - Critical Friend Summary of Findings (Mott MacDonald) are included at Appendix C and D to this report for reference. The review identified 18 individual transport options ranging from active travel measures (walking and cycling) to public transport proposals, demand management and new road links. These were assessed using an option appraisal framework developed following stakeholder and member engagement and 4 options were discarded with 14 being taken forward into packaging proposals. These are identified in their themed packages below:

**Figure 1: Extract from the Hereford Transport Strategy Review, November 2020 (Appendix C, page 72) indicating the selection of transport options and groupings which went forward for packaging and assessment**




15. The review then sought to develop combinations of these grouped interventions into strategic transport packages which could be assessed using the package assessment framework and help indicate the relative merits of different approaches to addressing the city's transport challenges:

    - Package A: **Active travel** (focus on cycling and walking)
    - Package A+B: Active travel **+ investment in bus**
    - Package A+B+C: Active travel + bus + **demand management**
    - Package A+C+D: Active travel + demand management + **western bypass** (including southern link road);
    - Package A+C+E: Active travel + demand management + **eastern link** (Rotherwas to Ledbury Road link); and
    - Package A+C+F: Active travel + demand management + **eastern river crossing** (Rotherwas to Hampton Park Road link).

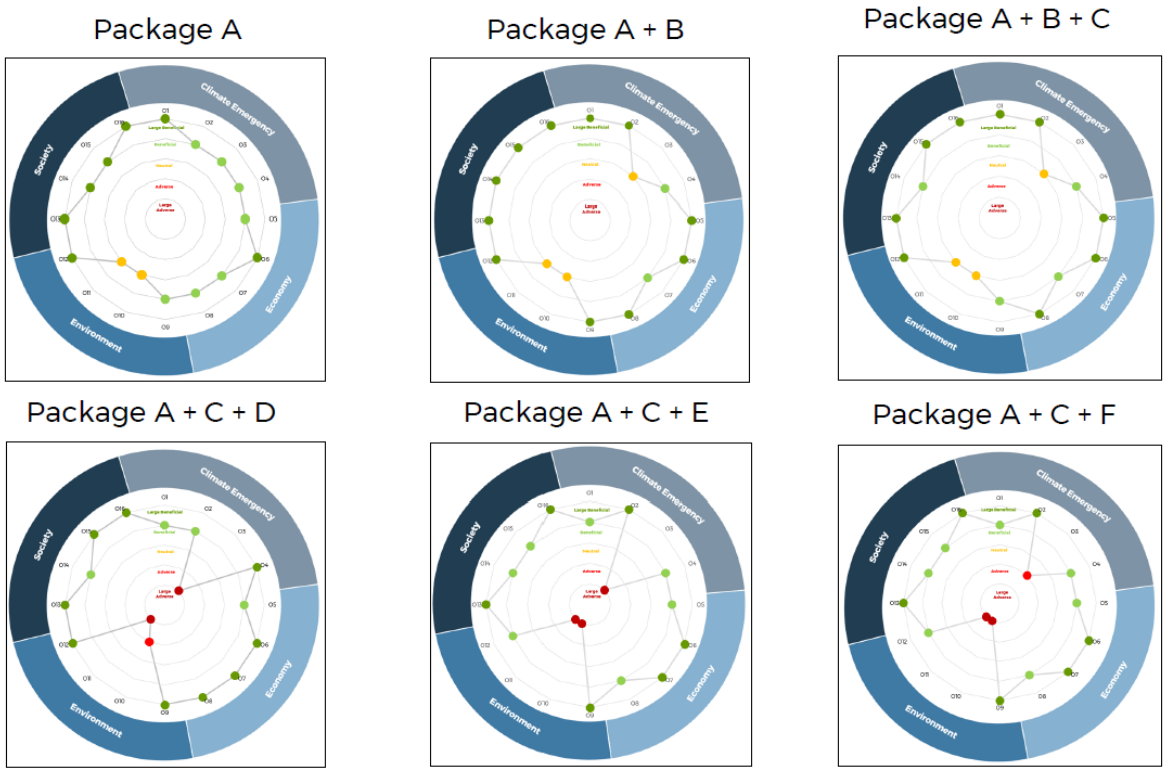
16. A key element of the review was to establish clear objectives which would help guide the assessment of options and packages of options. :
    - **Climate Emergency**: Reducing carbon emissions from the transport sector to meet 2030 local target for net zero emissions.
    - **Economy**: Creating a resilient transport system which allows reliable and efficient movement of people and goods and which supports more sustainable development and a thriving local economy.
    - **Environment**: Reducing air pollutants to create attractive and high quality places to live, work and visit whilst also protecting, conserving and enhancing the natural environment and Herefordshire's built environment.

- **Society**: Providing an affordable, safe and secure transport system for all sectors of society which facilitates improved public health and has limited adverse impacts on communities.

These objectives were developed following consultation and engagement and each is expressed through 4 outcome based indicators (hence 16 outcomes in total). These were assessed on a 5 point scale from large beneficial to large adverse. Supporting text and tables in the review report explain how these outcomes had been assessed (using both qualitative and quantitative information).

17. The review's findings were set out graphically using radar diagrams which illustrated performance of each package combination against 4 key objectives/16 outcomes. The figure below illustrates how the relative performance of the package combinations was presented and helped inform discussion with the general scrutiny committee and subsequently cabinet when it met to consider the review and set out its preferred strategy:

**Figure 2: Extract from the Hereford Transport Strategy Review, November 2020 (Appendix C, page 91) illustrating the assessment of performance of the strategic transport package combinations**




18. The review also provided commentary on the deliverability considerations of the packages which identified issues including public acceptability, legal and process considerations and affordability based on the estimated revenue and capital costs of full scheme implementation.

## Consideration by cabinet

19. The Peer Assessment of the Hereford Transport Package and South Wye Transport Package (completed by Mott MacDonald), the Hereford Transport Strategy Review (completed by WSP) and the recommendations made by the General Scrutiny Committee were presented to the cabinet to consider at its meeting of 3 December 2020 (agenda

papers and minutes here). Cabinet was asked to consider the technical work and the recommendations put forward by the committee and confirm:

- **its preferred strategic transport package or combination of packages for Hereford which it would like to take forward; and**
- **determine how it wished to proceed with the regard to the southern link road and western bypass including:**
    - **i. stopping either or both schemes;**
    - **ii. continuing to pause either or both schemes;**
    - **iii. undertaking further review of either or both schemes; and**
    - **iv. progressing either or both schemes.**

20. The joint presentation and reporting of the two technical studies enabled cabinet to consider how it wished to proceed with the two paused road schemes in the context of the Peer Assessment, which examined the evidence base for the schemes, but also as part of a refreshed transport strategy guided by updated transport objectives (see paragraph 16 above).

21. The western bypass and southern link road were shortlisted during the strategy review (identified as package D in the review) alongside other transport options ranging from active travel measures, passenger transport improvements, demand management and alternative road schemes (as outlined in paragraphs 14-17). Hence, cabinet had the opportunity to consider the paused schemes as part of the strategy review findings and in the context of updated objectives which incorporated the council's declaration of the climate emergency and aspirations for carbon reduction as well as objectives relating to economy, society and the environment. In addition, these and the other transport schemes included in the review package assessment were also assessed in terms of deliverability and affordability enabling a fresh comparison with alternatives.

22. Cabinet took into account all of the technical work, recommendation made by the committee and consultation responses provided by political groups in confirming its preferred transport strategy for Hereford and how it wished to proceed with regard to the paused road schemes at its meeting 3 December 2020.

    Cabinet confirmed that its preferred strategy would comprise:

    - Package A – active travel measures
    - Package B – investment in passenger transport
    - Package C – parking management
    - Package E – eastern road link (from B4399 at Rotherwas to the A438 Ledbury Road)

    Cabinet also confirmed its intention to stop progress on the western bypass and southern link road schemes.

23. A summary of all of the specific elements of the preferred package combination is set out in the table below:

**Table 1: Summary of the preferred transport strategy selected by Cabinet**

| |
|---|
| **Package A – Active Travel** |
| Option 1: Behavioural change programme |
| Option 2: Walking and cycling infrastructure |
| Option 3: Safer routes to school |
| Option 9: Shared mobility |
| Option10: Mobility hubs |
| **Package B – Passenger Transport** |
| Option 4: Improved school bus service |
| Option 5: Electric hopper bus |
| Option 6: Bus priority |
| Option 8: Demand responsive transport |
| **Package C – Demand Management** |
| Options 11: Parking management (pricing and rationalisation) |
| **Package E – new road link** |
| Option 15c: Eastern link – connecting the B4399 to the A438 to the east of Hereford |

24. Cabinet confirmed that its preferred strategy would support its important priorities and provided a clearer focus to progress these priorities:

- Package A - investment in active travel measures including walking, cycling and mobility hubs to provide attractive alternatives for short distance journeys in the city. This would help reduce carbon emissions, provide congestion relief reducing the impacts of traffic and enable healthier modes of travel. Cabinet noted that this package performed consistently strongly across all of the objectives as assessed in the review, presented the highest value for money, was consistent with local and national policy.

- Package B – Increased investment in buses and school transport would provide an attractive alternative for car users who may be less likely or able to transfer to active modes supported by Package A. It was also considered that increasing options for access to school would integrate well with behavioural change measures and safer routes to school elements of Package A providing a comprehensive set of alternatives to reduce travel to school by car.

- Package C – noting that this package shared bus priority with the Package B option, cabinet specifically wished to include parking management elements from this package recognising that this would provide an opportunity to help manage some car based travel such that drivers might be encouraged to transfer to walking, cycling or bus and could also provide a recurring revenue stream to support the increased revenue required to subsidise increased bus services (Package B) and behavioural change programme (Package A).

- Package E – cabinet noted the importance of increasing resilience in the city's transport network and considered that another bridge crossing was essential to provide an alternative route for vehicular traffic and would address resilience risk associated with the single A49 river crossing in the city. This was important in terms of supporting local economic activity and also to provide congestion relief within the city which would help support active travel measures. Cabinet considered this scheme in relation to other road schemes including the western bypass (including the southern link road) and an eastern river crossing (from the B4399 to the B4224 Hampton Park Road). In relation to the western bypass (including the southern link

road) cabinet felt that the eastern river crossing provided significantly better value for money (estimated cost of delivery being £55m compared with £190m) and would have lower requirements in terms of embodied carbon. In relation to the more limited eastern river crossing, cabinet considered that this scheme, whilst lower cost than the eastern link, would not provide sufficient traffic relief and would have potentially significant impacts on communities accessed from the Hampton Park Road in the east of the urban area and also to the east of this link towards Mordiford. It was also noted that full eastern bypass options (from the B4399 Rotherwas to the A49 north with and without the southern link road) were also included in the review and rejected at the shortlisting stage as the schemes were not considered deliverable due to the environmental constraints of the River Lugg SSSI to the north of the Ledbury Road.

25. In reaching its decision at the meeting of 3 December 2020 cabinet was advised by the monitoring officer that the decision to stop the western bypass and southern link road schemes would need to be referred to council for consideration as a change to the council's adopted policy framework. A further report was considered by cabinet at its meeting of 21 January 2021 to confirm that it wished to refer this item to council and also seek council's approval to remove these projects from the capital programme (report here). This report also confirmed that cabinet would instruct the chief finance officer to allocate ear marked reserves to cover the costs associated with the decapitalisation of the two schemes in the event that council is minded to agree to stopping the two schemes.

## Community impact

26. The review has been undertaken in the context of the County Plan 2020-24, adopted by council February 2020 which sets out that:

    "We know that in the future transport systems must, and will, change, so we need to rethink our investment now in transport infrastructure to tackle the 21st century challenges of climate emergency and to support the wellbeing of our population. This will be central to the review of the Hereford bypass and southern link road schemes and the urgent update of our Core Strategy and planning policies."

27. The County Plan's Delivery Plan 2020-22 was agreed by cabinet November 2020 and this includes specific reference to completing the Hereford Transport Strategy Review and beginning the implementation of preferred options (EN2.1). The Delivery Plan also sets out other related key projects and initiatives which will be supported by progressing the development of transport strategy and delivery of preferred options including:
    a. EN0.1 – developing evidence base to inform update of the core strategy

    b. EN2.2 – continue to deliver and extend Choose How You Move sustainable and active travel programme to increase levels of walking and cycling

    c. EN2.3 – significantly increase electric vehicle charging infrastructure

    d. EN2.4 – explore the feasibility for the development of a cycle super highway

    e. EC2.1 – development of £25m Town Investment Plan for Hereford

    f. EC2.4 – continue to support development of the Hereford Enterprise Zone

## Environmental Impact

28. There are no specific environmental impacts as a result of this report relating to the stopping of the two road schemes. As set out in the report to cabinet 3 December 2020, the Hereford Transport Strategy Review identified key objectives in respect of environmental impacts and climate emergency, expressed by 8 outcomes. The outcomes were used to help assess package contributions to carbon reduction (operational and embodied carbon), reducing the need to travel by private motor vehicle, impacts on air quality, and impacts on natural and built environment. These outcomes were set out in the review report to enable cabinet to determine its preferred combination of package elements.

## Equality duty

29. Under section 149 of the Equality Act 2010, the 'general duty' on public authorities is set out as follows:
    A public authority must, in the exercise of its functions, have due regard to the need to –

    (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act;

    (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;

    (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

30. There are no specific equality duty implications as a result of this report relating to the stopping of the two road schemes. In terms of the wider review work which has assisted cabinet in determining a preferred strategy and as was reported to cabinet 3 December 2020, the assessment of options and packages of options took into account a range of outcome indicators which provide an assessment of impacts on society and this includes the following outcome O14 and indicator 14.1 which considers those with protected characteristics.

| | |
|---|---|
| O14: All sectors of society have easy and affordable access to the services and facilities they need | 14.1 What impact does the option have on meeting the accessibility needs of all sectors of society, including those with protected characteristics or those without access to a car? |

31. Whilst at this stage most options have not been subject to detailed design, the infrastructure measures which would change the physical characteristics of the transport network will be subject to the appropriate design standards and will follow the principles set out in the governments 'Inclusive Transport Strategy' 2018 if they are to be taken forward.

## Resource implications

32. In considering this report and the recommendation to stop the western bypass and southern link road council is also requested to confirm an amendment to the capital programme. The capital programme currently includes two capital projects: Hereford Transport Package and South Wye Transport Package which have funded development

of the western bypass and southern link road schemes respectively. Whilst there is no funding for the SWTP following the Marches LEP's decision to remove the local growth deal grant which had been secured for the SWTP, the Hereford Transport Package has £3.75m remaining for capital expenditure on the western bypass, after all final costs have been settled as detailed below.

33. Subject to confirmation of council's decision in relation to this report, cabinet will exercise its authority to allocate ear marked reserves required to fund the decapitalisation of these schemes. Details of these costs are provided below for reference.

34. As reported to cabinet 3 December 2020 stopping the two road schemes requires that they both be decapitalised and capital costs incurred in their development need to be funded from revenue. Decapitalisation of costs for the transport packages involves reversing capital costs incurred to date, less any eligible capital costs that can remain (for example for the purchases of premises). The funding of the decapitalised costs also requires reversing meaning that the cost requires funding from revenue resources. The table below sets out total spend to date (capital and revenue) including estimated outstanding costs and identifies the amount of funds, £11.833m, which will be required to de-capitalise both packages.

**Table 2: Summary of the HTP and SWTP costs and revenue required for decapitalisation**

| Package | | Spend up to March 2020 | Spend in 2020/21 | Estimated outstanding costs | Totals package Costs | Capital costs subject to de-capitalisation |
|---|---|---|---|---|---|---|
| | | **£000s** | | | | |
| HTP | Rev | 5,110 | 0 | 0 | 5,110 | |
| | Cap | 3,970 | 100 | 350 | 4,420 | 4,420 |
| | | | | | 9,530 | |
| | | | | | | |
| SWTP | Rev | 0 | 0 | 0 | 0 | |
| | Cap | 7,334 | 29 | 50 | 7,413 | 7,413 |
| | Assets * | 821 | 0 | 0 | 821 | |
| | | | | | | |
| Totals | | 17,235 | 129 | 400 | 17,764 | 11,833 |
| **Total required from ear marked reserves to fund decapitalisation of the HTP and SWTP** | | | | | | **11,833** |

*Retained assets to a value of £821k are costs of purchasing properties. These do not need to be decapitalised as they will remain as an asset to the council.

35. The outstanding costs estimated for each package included in the figures provided above comprise:

v. HTP – estimate remaining project costs - £350k
- Gain share contractual payment associated with works completed during 2018/19 and 2019/20 prior to decision to pause scheme £200k (see details at paragraph 15)
- Removal of boreholes £140k
- Final payment on Peer Assessment commission £10k

vi. SWTP – estimated remaining project costs - £50k
- Gain share contractual payment associated with works completed financial year 2018/19 £40k (see details at paragraph 15)
- Outstanding compensation payments to landowners £10k

36. It is important to note that gain share contractual payments are not penalty payments for early termination of contracted works and that no penalty payments have either been claimed or payed as a result of stopping work on the HTP or SWTP. A target cost value was agreed for the HTP programme of works during the 2018/19 financial year following selection of the red route for the western bypass. These works extended into the 2019/20 financial year and the original target cost continued into this financial year up to the point where works were stopped. During the delivery of the works changes were captured in compensation events which provided the revised target cost. When the decision was taken to stop work on the HTP project a compensation event was prepared which removed from the target cost the value of activities which would not to be completed. This provided the final target cost. In line with the terms of the contract the defined (actual) cost up to the point where works were stopped was compared to the final target cost and this is the basis for the calculation of the gain share element for the project. The SWTP gain share calculation followed the same process as set out above. In both cases the gain share payments represent costs for works completed prior to the decision to pause the projects. In commissioning this work through the public realm contract a robust process for commissioning and managing the work has taken place. The scope of work and target cost for each commission were scrutinised in detail prior to being agreed and all changes were managed using a change control process to ensure the final target reflects correctly any changes to scope of work. Calculation of the gain share against actual cost (which can be accessed and validated) ensures costs are controlled, transparent and ensures value for money for this work

## Legal implications

37. Recommendation (a) of this decision is contrary to the council's existing policy framework namely the Local Transport Plan and Core Strategy. As a result cabinet on 3 December made the recommendation to full council.

38. Recommendation (b) is a change to the capital programme so reserved to full council for a decision.

Other legal implications
Southern link Road

39. The SLR was being progressed as the first stage of the Hereford Relief Road which is included in the Core Strategy. The Hereford Relief Road will continue to be included in the core strategy until it is reviewed and removed or replaced.

40. The compulsory purchase order (CPO) for the South Wye Transport Package (SWTP) was confirmed in March 2019 pursuant to the Acquisition of Land Act 1981 for the SLR along with the side roads order (SRO) being made pursuant to the Highways Act 1980.

41. The CPO provides the council with the authority to progress with the purchase of land required for the SWTP. The CPO in place allows the council to compulsorily purchase all land that falls within the CPO corridor of the SLR for the purposes of building the road if the general vesting declaration is executed. The general vesting declaration has to be executed within three years of the date of confirmation of the CPO (March 2022) otherwise the CPO lapses.

42. The council have negotiated land option agreements with 4 of the landowners but these have not been completed. If completed, they will allow the council to purchase the land but

only if the general vesting declaration is executed. 2 further option agreements have been completed but again will only allow the council to purchase the land if the general vesting declaration is executed. As a result of the Cabinet recommendation the vesting declaration will not be executed.

43. The council have completed acquisition of one parcel of land prior to the confirmation of the CPO which contractually requires the council to offer the landowner the first opportunity to re-acquire the land at the originating purchase price if the SLR does not proceed.

44. Planning permission for the SLR has been granted and implemented in accordance with the Town and Country Planning Act 1990. If the SLR were to be progressed further planning applications may be required to implement the scheme.

45. Where there is planning blight, the property/landowner can serve a blight notice which requires the authority to purchase the affected land at the market value ignoring the effect of the proposed highway project on the value of the land. Once planning blight occurs, the affected landowner can bring forward the acquisition of their interest in the blighted land within a timeframe that suits the landowner rather than the project programme of the council.

46. Blight notices could be served by claimant landowners whose land falls within the confines of the CPO corridor, if blight notices are received the council assesses them and either accepts or rejects them. There are currently no live blight notices on the SLR scheme.

Other legal implications: Western bypass

47. The Hereford Transport Package (HTP) has not been designated as a specific type of road scheme, requiring either a CPO and planning permission for its construction, or a development consent order but it has undergone a number of public non statutory consultations involving statutory bodies and public representations. Planning has not been secured for the HTP.

48. The HTP is included in the Core Strategy as the Relief Road Corridor (shown in Figure 4.2 of the Core Strategy) and referred to as the Red Route on previous decisions made. This will continue to be the case until the core strategy is reviewed and replaced. Blight notices can be served by claimant landowners whose land falls within the Relief Road Corridor, and or the Red Route. If blight notices are received the council assesses them and either accepts or reject them. There are no current blight notices being considered by the council.

49. Legal advice has previously been sought with regard to the ability of the 3 strategic housing sites in Hereford, Holmer West, Three Elms and Lower Bullingham, in the core strategy to come forward if the HTP did not proceed. The advice was that they could if they accorded with transportation and traffic management policies; and complied with the site specific housing policies in the core strategy.

50. Only one of the strategic housing sites, Holmer west (Northern Urban Expansion) has been granted planning permission which has been commenced, and is subject to a section 106 agreement to provide amongst other obligations, a financial transport contributions toward the Western Relief Road and a package of sustainable transport infrastructure to serve the development. As the other two schemes are at application stage, they will require planning obligations secured by way of a section 106 agreement to make them acceptable in planning terms to comply with policy and for planning permission to be granted. This could include obligations toward transport and traffic management.

51. The transport contribution referred to in the Holmer West section 106 agreement is in the total sum of £1,934,765.00 for sustainable transport measures, and the Western Relief Road. The sums due are payable in 4 tranches and payment is linked to the amount of open market housing built out. The first tranche of 25% of the total transport contribution index-linked, which covers the Western Relief Road and sustainable transport measures has been paid to the council.

52. If the decision taken is to stop progressing the Western Relief Road, then the proportion of index-linked contributions paid to date toward the Western Relief Road may need to be paid back to the developer. The sustainable transport measures payment and successive payments will still need to be made by the developer, as they form part of the agreement and heads of terms for the development and are required to make the development acceptable in planning terms; however the split is not specific in the agreement and will need re-negotiating by way of variation to the section 106 agreement.

53. With regard the remaining two strategic housing sites at Lower Bullingham and Three Elms, there are two planning applications with the council and tentative discussions have been ongoing before and in light of the pause and review of the Hereford Transport Package. The requirement to comply with the site specific policies and those of the transport and traffic management policies may not enable the predicted numbers of housing on the strategic sites in the applications (1300 and 1200 respectively), due to the current road capacity, to come forward. The developers will need to remodel their transport impacts without the Western Relief Road to ascertain the housing numbers that each development can provide.

54. This will also be the case for other housing sites within Hereford in relation to compliance of the transport and traffic management policies. This may leave the council with a potential loss in housing development affecting the ability to provide the requisite numbers within the Core Strategy period upto 2031. However, the council has commenced an update of the core strategy and this will cover the period to 2041 and it is anticipated will enable a full review of housing sites across the county to ensure that sufficient sites are identified to satisfy revised targets over the longer term.

55. Prior to adopting an updated core strategy if the housing land supply is reduced at strategic sites this will affect the 5 year land supply. If the housing land supply figure drops below 3 years, it will have ramifications in policy terms for the neighbourhood development plans. Discussions are ongoing with developers for the strategic sites which will help ascertain potential housing capacity with a change to the policy. This indicates that some housing development could be feasible at these sites which helps maintain the supply of housing.

56. The core strategy is now the subject of a statutory review under the Planning and Compulsory Purchase Act 2004, the Town and Country Planning (Local Planning) (England) Regulations 2012 (as amended) and paragraph 33 of the National Planning Policy Framework following a cabinet decision on 9 November 2020 to commence the review process. If a resolution is made as per recommendation (a) then that decision will be taken into account in the core strategy review.

57. The council are looking to produce a western bypass specific discretionary purchase policy pursuant to Section 246(2A) of the Highways Act 1980, following various enquiries into discretionary purchase of properties near the Red Route and or the Relief Road Corridor. If the full council decision is to stop the western bypass the specific discretionary purchase policy will not continue to adoption.

## Risk management

58.

| Risk | Mitigation |
|---|---|
| **Financial** | |
| Financial implications in relation to not progressing the western bypass or southern link schemes are set out in the resource implications section. | The risk that the incurred capital costs of either scheme would be decapitalised if either was stopped has been identified in governance reports on this item since the decision was taken to pause the schemes October 2019. As such cabinet has been able to consider this impact over a period of time and in its decision of 21 January 2021 confirmed its intention to allocate ear marked reserves for this purpose. The statutory officers have confirmed that funds are available and that cabinet has authority to make this allocation. |
| The core strategy sets out a link between strategic housing site development and contributions to the bypass scheme. Contributions could be impacted by a decision to stop the scheme. | Financial contributions may need to be repaid where agreements have already been completed but future agreements would be subject to negotiation and this would enable contributions to be secured in line with the preferred transport strategy.<br><br>In terms of maintaining housing land supply it is envisaged that this will be resolved with the update of the core strategy to identify longer term provision and discussions with developers will assist with delivery of additional housing in the shorter term. |
| **Policy and strategy** | |
| This decision would confirm the council's intention to change policy included in core strategy and local transport plan and hence the adopted policies would need to be updated. | Both the core strategy (local plan) and local transport plan are subject to periodic review and these can be progressed so that adopted policy reflects a change made by this council decision. |
| This decision would confirm the council's intention to change policy included in the core strategy and could impact strategic development proposals in Hereford. | Counsel advice has confirmed that inclusion of the western bypass in the core strategy does not constitute a binding commitment for the scheme to be delivered for the strategic sites to be progressed. Counsel has advised that developments would be able to progressed on their own merits and with sufficient supporting evidence provided by the developer to confirm that the development's transport impacts can be appropriately mitigated. |
| This decision would impact regional policy commitments included in the Midlands | Strategic regional partners have been engaged in the review and have been able |

| | |
|---|---|
| Connect Transport Strategy Marches LEP Strategic Economic Plan which include support for the western bypass. | to provide comments on the options and packages considered in the review.<br>The Midlands Connect Transport Strategy is currently in the process of being refreshed and this is being guided by an increased interest in carbon impacts. It is considered that the preferred strategy identified by cabinet and the process by which the review has been undertaken locally will be supportive of the Midlands Connect refresh and as a local partner the council will continue to engage with Midlands Connect to assist with and update its strategy. |

## Consultees

Hereford Transport Strategy Review

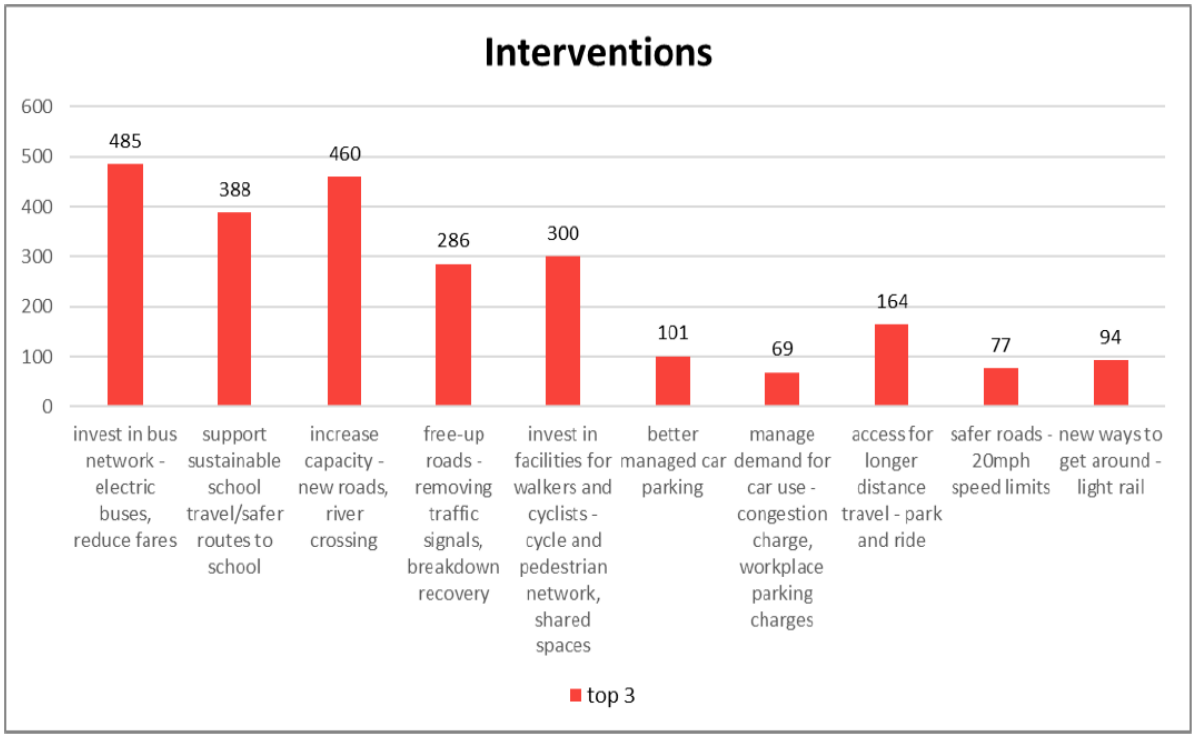
59. People directly affected by the southern link road and western bypass and other individuals and organisations which have taken part in previous transport consultations and expressed an interest in strategy development have received direct communications to explain the purpose of the review and ability to feedback comments through online consultation.

60. Consultation and engagement has been integrated within the process of undertaking the Hereford transport strategy review and this has helped inform cabinet's determination of its preferred strategy and its related consideration of whether or not it wished to progress the western bypass and southern link road. In summary, this consultation has comprised:

    - Public consultation on transport issues in Hereford (February to April 2020)
    - Engagement and consultation with council members and stakeholders for feedback at the following stages:
        i. Evidence base/challenges/objectives/options and appraisal framework (April 2020)
        ii. Option Assessment and approach to packaging (June-July 2020)
    - Transport seminar for all councillors to explore best practice transport solutions and innovations (August 2020)

61. The public online consultation ran from February to April and resulted in 2163 responses from 1044 respondents. The outputs from the consultation were taken into account during the review and have informed assessing the key challenges, setting objectives and consideration of transport options. Figure 3 below provides a summary of the consultation feedback on its priorities for transport interventions confirming high levels of support for investment in buses, sustainable travel and new roads/river crossings. Further details on consultation and engagement are included in the technical report at Appendix C.

**Figure 3: Extract from the Hereford Transport Strategy Review, November 2020 (Appendix C, page 18) illustrating the public consultation response to priorities for transport interventions**




General Scrutiny Committee, 9 November 2020

62. The general scrutiny committee was consulted on the strategy review and peer assessment. Committee was also informed of the draft recommendations for cabinet so that it would be able to make specific recommendations to cabinet as to how it determined how to proceed with regard to the two paused road schemes included in the HTP and SWTP. This included the options cabinet was likely to consider in respect of these two projects and this was set out for committee as follows:

***[cabinet] determine how it wishes to proceed with the regard to the two road schemes (the southern link road and western bypass) including:***

***i. stopping either or both schemes***
***ii. continuing to pause either or both schemes***
***iii. undertaking further review of either or both schemes***
***iv. progressing either or both schemes***

63. Committee made a range of recommendations to cabinet and of specific relevance to this item for consideration by council was committee's recommendation K which recommended that the executive:
***"abandon the Western Bypass and reject other major road infrastructure schemes, barring only the eastern river crossing option"***

64. It is considered that this recommendation supports the subsequent decision taken by cabinet to stop the western bypass and southern link road schemes.

Political Groups Consultation (reported to cabinet 3 December 2020)

65. Political groups were consulted in advance of the cabinet meeting of 3 December 2020 and responses were received from Cllr Kenyon (non aligned) in support of Package A+C+E and from Cllr Hardwicke (Group Leader Herefordshire Independents) in support of Package A+C+E.

66. No political groups or non-aligned members responded in support of progressing the western bypass/southern link road Package D either on its own or in combination with any other package.

## Appendices

Appendix A: Peer Review South Wye Transport Package Technical Report

Appendix B: Peer Review Hereford Transport Package Technical Report

Appendix C: Hereford Transport Strategy Review – Technical Report

Appendix D: Hereford Transport Strategy Review - Critical Friend Summary of Findings

## Background papers

None

## Please include a glossary of terms, abbreviations and acronyms used in this report.

HTP – Hereford Transport Package (which includes the western bypass)

SWTP – South Wye Transport Package (which includes the southern link road)

SLR – Southern Link Road

MOTT MACDONALD

# Peer Assessment of South Wye Transport Package Findings Report

July 2020

Mott MacDonald
35 Newhall Street
Birmingham B3 3PU
United Kingdom

T +44 (0)121 234 1500
mottmac.com

Herefordshire Council
Economy & Place
Thorn Business Park
Rotherwas
Hereford
HR2 6JT

# Peer Assessment of South Wye Transport Package Findings Report

July 2020

# Issue and Revision Record

| Revision | Date | Originator | Checker | Approver | Description |
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| B | 10/07/20 | ECW / ED | ED | DW | Final Draft |
| C | 31/07/20 | ED | OH | DW | Final |
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# Contents

## Tables



## Figures

# Executive summary

Mott MacDonald (MM) was appointed by Herefordshire Council (HC) to undertake a peer review of the Hereford Transport Package (HTP) and South Wye Transport Package (SWTP). This report concludes the findings of the review of the SWTP.

## Summary of the brief

The approach to the peer review is based on the major transport scheme process as established by the Department for Transport (DfT) and set out in its Transport Analysis Guidance (TAG), particularly Stages 1 and 2 of the Transport Appraisal Process (TAP). The aim of the peer assessment is to:

1. Establish whether each package has been developed in accordance with the major transport scheme process as laid out in TAG
2. Establish whether the packages including their major road scheme components (the western bypass in the HTP and the southern link road in the SWTP) are based on a sound evidence base
3. Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

In addition, the review was also asked to consider how more recent/emerging national policy, such as the climate emergency, might change the preferred package options if applied retrospectively.

It also considers whether the public and stakeholders have contributed appropriately to the processes involved in developing the two packages.

## Peer review

The format of the review provides a concise commentary on the documents provided, notes any issues identified by the review team and concludes with a summary of each document. The summary classifies whether the points made are:

- Looking backwards - issues identified which should be clarified or resolved. Categorised red where the point made is deemed to be a significant issue, green if the premise is sound; however, things could have been covered differently (i.e. a technical recommendation which could be reconsidered).
- Looking to the future - generally technical issues which could be revisited if the packages are progressed further, as well as environmental, climate change and net zero issues which could lead to a different vision for the package. These points are all categorised as amber, on the premise that they would be considered in the future before the package was progressed further.

The review had the following conclusions:

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| SWTP Preferred Option Report | Conclusion: The level of information provided does not meet the requirements of Stage 1 of TAP. The preferred option report considers alternative link road alignments but this does not constitute an appropriate study of alternative interventions or the impact of doing nothing. Sustainable transport proposals are considered in an Appraisal Summary Table (AST) in Appendix B but are not really covered in the main body of the report. This document has in effect been superseded by the 2018 Options Assessment Report (OAR), which has been developed in line with Stage 1 of TAP. Hence whilst it may have had deficiencies in the context of TAP, the significance is minor given the OAR looks at options. |
| SWTP Southern Link Road planning statement | Given this is a planning rather than a transport document, this has purely been considered and included within the reviewed suite of documents to provide context for the package. |
| Hereford Transport Model Local Model Validation Report (LMVR) | Although the LMVR is a comprehensive document, with the information providing a clear understanding of the model and its validation results, a number of queries were raised in the rapid peer review of the document. It is important to note that the LMVR was in the process of being reviewed with the DfT as part of the submission of the SWTP Full Business Case.<br>The direction from HC was that a detailed technical validation of modelling was not being sought from the peer review. The assessment of the modelling was in the context of it being in general appropriate for the stage of the project and supporting the conclusions reached.<br>The work is considered to be appropriate for the work to date and the technical queries raised are points which may need to be considered again if the packages are progressed in the future. |
| SWTP Options Assessment Report (OAR) | A number of areas within the OAR could have been done differently to more robustly meet the steps of Stage 1 of TAP. However, in light of the DfT email of 16/04/19 confirming no further comments on version 11 the report, it can be concluded that Herefordshire Council have developed the package in an agreed manner and the peer review team's concern should be classed as something which could have been done differently rather than a fundamental issue. Although developed in accordance with guidance at the time environmental topics would now fall short of current Net Gain, Net Zero requirements and the Climate Emergency context and would need revisiting as part of any future updates. |
| SWTP Options Refinement Report (ORR) | The ORR provides a proportionate assessment of the active modes options and a robust assessment of the SLR. The DfT email of 16/04/19 confirming no further comments on version 6 the report provides further weight to the conclusion that Herefordshire Council have developed the package in an agreed manner. |
| SWTP Economic Appraisal Report (EAR) | A series of comments have been made in respect of the EAR and draft Economic Case. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |
| SWTP Economic Case | |
| SWTP Traffic Forecasting Report (TFR) | A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |

## Future requirements

Environmental issues, climate emergency and net zero policy has been considered separately to the individual documents, that formed a part of the appraisal review.

Assessment approaches and guidance are still catching up with policy. It remains possible for schemes to fully meet current assessment criteria and yet fall short of the high standards set by policy. WebTAG Unit A3 (Environmental Impacts) predominantly dates back to 2015 (Air Quality sections were updated in 2019) and is not explicitly aligned with the 100% reduction in GHG emissions by 2050, although there is a “strong preference” for Net Gain in regard to biodiversity. The latest DMRB guidance on climate change (LA 114) is from October 2019 and references the Net Zero target and take account of current climate change scenarios (UKCP18).

Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all the SWTP documents would now fall short of current ambition in these areas. Whilst issues around air quality and noise are rightly identified, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). These points are not intending to indicate that there was any deficiency in the work undertaken at the time, merely that more recent policy and guidance would mean that these issues should be considered again if the existing work is taken forward.

## Conclusions

**Aim 1 of the review is considered to be met.** Whilst there remain points of technical detail which may need to be addressed in the future if the package is taken forward, it is clear that the technical work undertaken since 2018 has been prepared in accordance with the DfT Transport Appraisal Process.

**Aim 2 of the review, which is to establish whether the packages including their major road scheme components (the southern link road in the SWTP) have been developed with a sound evidence base is deemed to be met.** The history of the package revolves around the infrastructure needs to meet the plans of the Core Strategy. It is evident that the infrastructure is required to support the development policies contained within this document. As an example, the Hereford Enterprise Zone cannot be expanded without the bypass being delivered in full. The proposals in the form of the HTP and the SWTP have been tested and challenged in an appropriate way through technical studies, modelling and Examination in Public, to enable them to be adopted within the Local Plan.

To further support the conclusion that the first two aims have been met, Herefordshire Council has also provided evidence that DfT have reviewed the OAR and ORR, which are two of the more critical documents to inform the case for the package and describe how its appraisal has been progressed.

Aim 3 of the review is to clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work. It appears that all decisions have been made in accordance with the recommendations of the technical evidence provided to support the Council papers at the time, i.e. the action taken was appropriate in the context of the advice and recommendations provided and the technical information available. There is a logical flow of decisions which recommend the continuation of the package, including where decisions have been called in for further scrutiny and additional information has been provided to justify the associated course of action. **As such Aim 3 of the review is considered to be met.**

# 1 Introduction

Mott MacDonald (MM) has been appointed by Herefordshire Council (HC) to undertake a peer review of the Hereford Transport Package (HTP) and South Wye Transport Package (SWTP). This report concludes the findings of the review of the South Wye Transport Package.

## 1.1 Summary of the brief

The approach to the peer review is based on the major transport scheme process as established by the Department for Transport (DfT) and set out in its Transport Analysis Guidance (TAG). Hence, the peer assessment of each package reports against the following elements:

- Option development and analysis
- Analysis of impacts
- Evidence informing the business case
- Decision making

The aim of the peer assessment of the South Wye Transport Package is to:

- Establish whether each package has been developed in accordance with the major transport scheme process as laid out in TAG
- Establish whether the package it's major road scheme component, the southern link road, is based on a sound evidence base
- Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work

In addition to the assessment approach as outlined above, the commission also requires a consideration of how more recent/ emerging national policy, such as the climate emergency, might change the preferred package options if applied retrospectively.

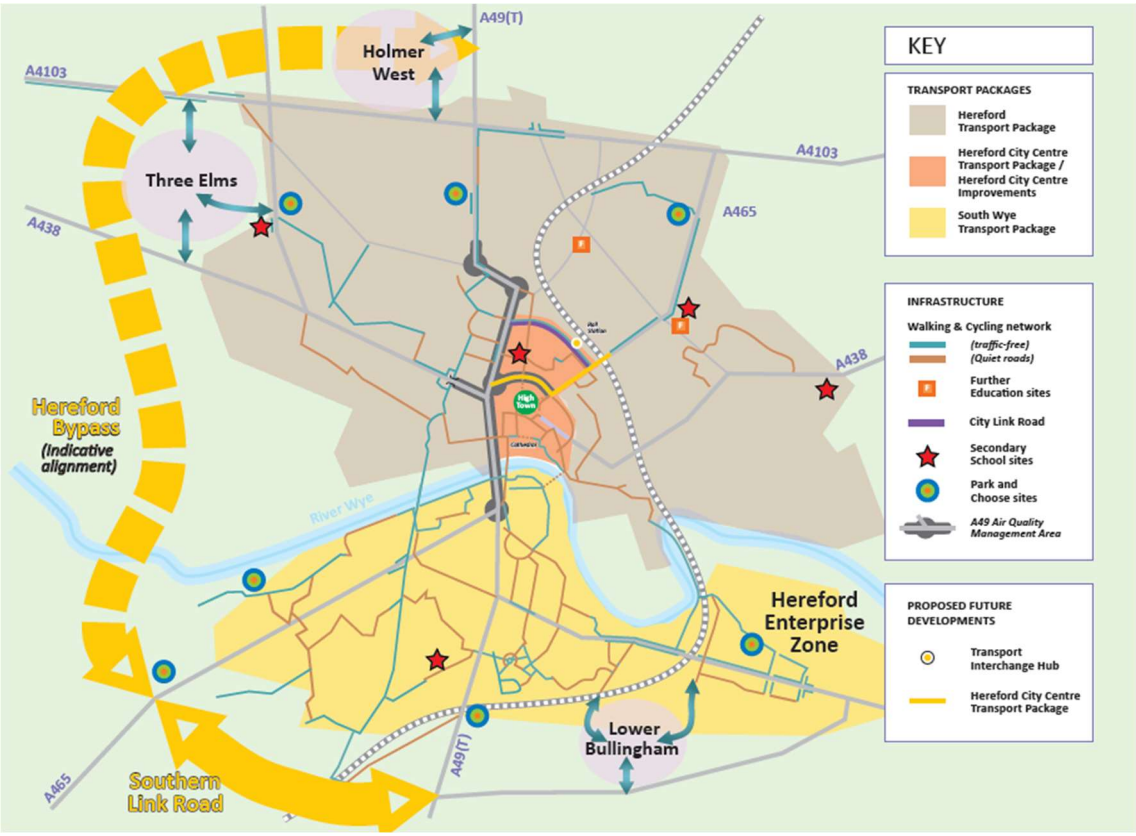
## 1.2 Drivers for the review

On 22 October 2019 Herefordshire Council's Cabinet Member for Infrastructure and Transport recommended a pause on all work on the Southern Link Road, and the instigation of a review of the South Wye Transport Package be undertaken to determine next steps whilst design work on the active travel measures within the package continued.

The South Wye Transport Package is being reviewed in parallel with the Hereford Transport Package. It is incumbent on the council to ensure that projects are consistent with the council's declaration of a climate emergency and will contribute to reducing the carbon output of the county whilst also addressing the transport problems of the city and supporting economic growth. Whilst the review is being carried out the council will continue to develop agreed improvements to encourage a shift of travel mode and reduce congestion.

Figure 1.1 provides a diagrammatic layout of the two transport packages.

**Figure 1.1: Transport packages in Hereford**




Source: Hereford Transport Package Draft SOBC (WSP, May 2019)

## 1.3 Project deliverables

The Peer Assessment commission covers the following stages and deliverables:

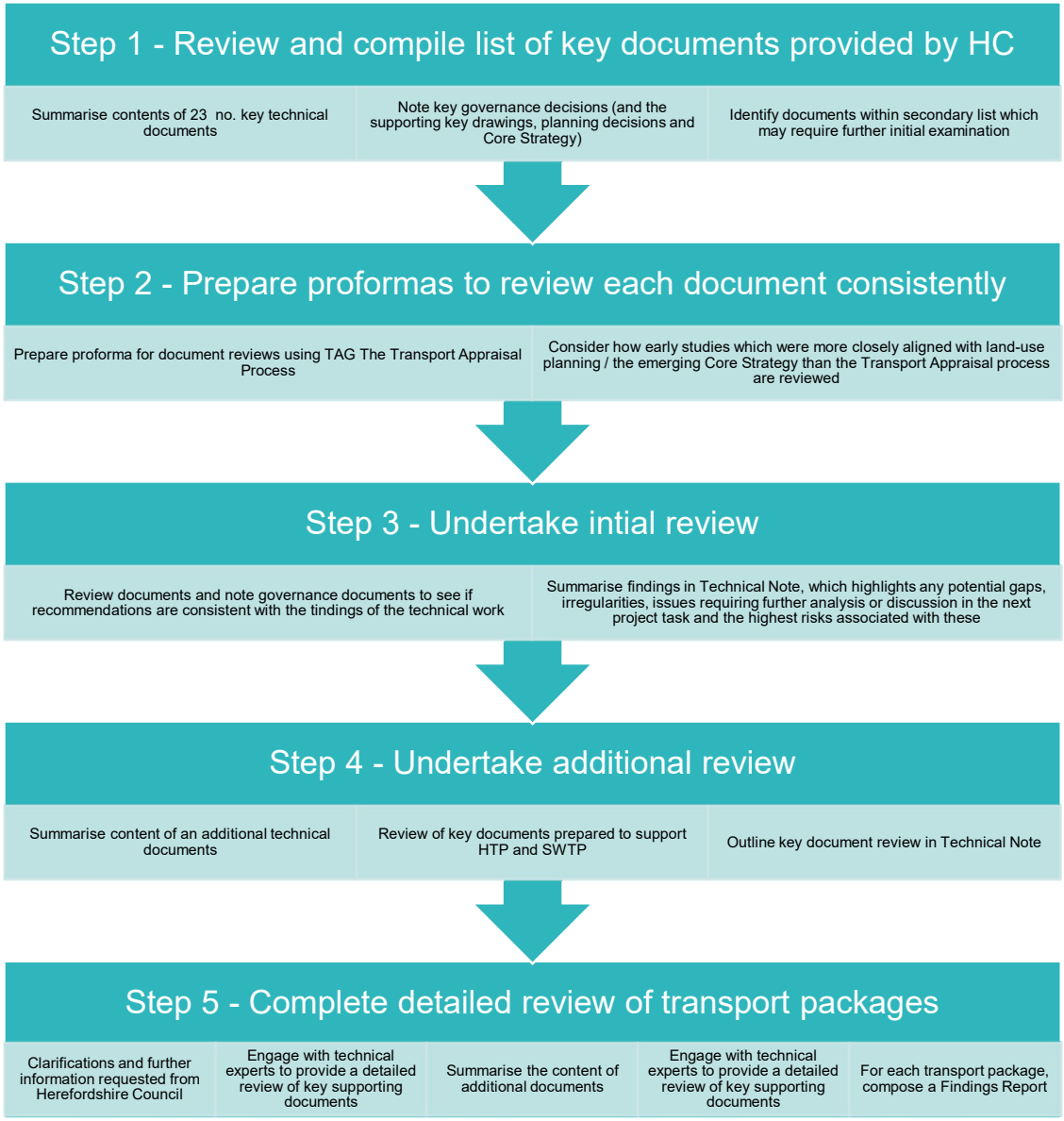
- **Task A – Project management:** The outputs from Task A are a monthly progress note and updated risk register.
- **Task B – Evidence Gathering, Initial Sift and Initial Report:** An initial evidence gathering, sifting and reporting back to the client team. To review the previous work, the constraints which have influenced optioneering were considered, rather than trying to point out small technical discrepancies. The key question is whether the preferred scheme options are correct:
  - The output from Task B has been two Technical Notes summarising the findings and explain how this initial sift will be taken forward in the main review (Task C).
  - An additional Technical Note was produced to facilitate discussions during a call between HC and their technical team for the packages, WSP, to address where further information was required following the initial reviews.
- **Task C – Full assessment and first draft reports:** A more detailed review of the key issues identified within the documentation. This has included Herefordshire Council and WSP providing further information and clarification to support the peer review. This assessment also considers implications for alternative testing/ scenarios to meet potential requirements for a climate emergency review for both schemes.

- **Task D – Reporting and presentation:** Briefing on findings to the Cabinet Member for Infrastructure and Transport.
- **Task E – Final report** update draft reports and publish final review reports for each package.
  - This report represents the Task E output for the South Wye Transport Package.

## 1.4 Approach to the peer review

Following the project inception meeting with Herefordshire Council on 2 April 2020, the steps have summarised in Figure 1.2 have been undertaken.

**Figure 1.2: Approach to peer review**




Source: Mott MacDonald

### 1.4.1 How has the peer review considered the information?

The peer review aims to answer three questions (as noted in Section 1.1) from an inspection of the large volume of information provided to support the package. The review provides a combination of commentary on what has been done and what might have been done differently. It is not intended to be a comprehensive technical check of every piece of information. There also needs to be an acknowledgement of things which were appropriate at the time but may no longer be appropriate in the future as a result of changing policy or guidance.

As such within the report, the review of the main documents inspected concludes with a short summary to explain if the comments made relate to:

- Looking backwards – issues identified which should be clarified or resolved.
- Looking to the future – generally points of technical detail which could be revisited if the packages are progressed further or issues related to policy and context which has progressed since the time the document was produced, for example the climate emergency.

## 1.5 History of the South Wye Transport Package

The history and context of the package is summarised in the Herefordshire Council Cabinet report of 22 October 2019[1], as noted below.

The need for interventions in the South Wye area and the development of the South Wye Transport Package was based on a technical assessment of the problems in the South Wye area supported by public consultation feedback. These can be summarised as:

- Constraints on economic growth particularly at the Hereford Enterprise Zone (HEZ) arising from traffic levels on existing highway network
- Car dependency for short distance trips
- Traffic congestion and journey time unreliability
- Traffic re-routing and rat running onto unsuitable roads
- Poor air quality and high noise levels (on Belmont Road)
- Severance to active travel journeys and related inactivity and consequential health impacts
- Road collisions and perception of road danger

Without any action of some sort to address these problems access to the HEZ would deteriorate, restricting existing business growth and the ability to fully develop the site. This deterioration would also limit opportunities to attract new business investment, result in continued and increased re-routing of traffic in response to congestion, resulting in additional delays and extended and unreliable journeys. Severance (the barrier effect created by busy roads) would increase as conditions for pedestrians and cyclists would become more challenging and there would be continued road safety issues. Environmental conditions would also deteriorate including increases in traffic noise and a worsening of air quality.

The South Wye Transport Package has been developed in response to these problems and an initial Strategic Outline Business Case (SOBC) which includes the Southern Link Road and a package of active travel measures was developed which can be seen by following the link provided in the footnote below.

[1] Hereford Transport Package and South Wye Transport Package, Head of Infrastructure and Delivery

The aims of the South Wye Transport Package are to:

- Reduce congestion and delay
- Enable access to developments such as the HEZ
- Reduce the growth in emissions
- Reduce traffic noise
- Reduce accidents
- Encourage physical activity.

Following the approval of the SOBC, funding of £27m was secured from the Marches Local Enterprise Partnership (LEP)[2] Growth Fund with a commitment of local contribution of £8m from the council's Local Transport Plan. There is an approved SWTP budget totalling £35m in the council's capital programme.

The Marches LEP grant agreement between Herefordshire Council and Shropshire Council requires the delivery of the Southern Link Road and a package of measures to improve travel and conditions for pedestrians, cyclists and public transport in the south wye area to deliver the outputs set out in the agreement. These include the delivery of 3.6 miles of new road and a package that will support new jobs and new homes. Grant funds are drawn down following submission of evidence of eligible expenditure.

### 1.5.1 South Wye Transport Package timeline

Figure 1.3 provides a timeline of the documents and decisions associated with the two transport packages.

The South Wye Transport Package development follows an extended period of appraisals and applications. The timeline, shown within Appendix 2[3] of the 22 October 2019 Cabinet Decision, of the SWTP is as follows:

- Mid 2014 – Initial Consultation on the SWTP
- Late 2014 – Preferred route of Southern Link Road selected by cabinet
- January 2015 – Consultation prior to submission of Southern Link Road planning application
- Summer 2015 – Southern Link Road planning application submitted
- Summer 2016 – Planning permission granted for Southern Link Road
- Autumn 2016 – Consultation on potential active travel measures
- November 2017 – Cabinet authorise land acquisition and making use of compulsory purchase powers
- December 2017 – Cabinet considers feedback from active travel measures consultation and authorise development to a preferred package
- March 2018 – Compulsory purchase and side road orders made
- Late 2018 – compulsory purchase order and side roads order public inquiry
- Spring 2019 – preferred active travel measures package approved
- Spring 2019 – Secretary of State confirms Compulsory Purchase Order and Side Road Order

[2] Shropshire Council is the accountable body for the LEP

[3] https://councillors.herefordshire.gov.uk/documents/s50068955/Appendix%201%20-%20South%20Wye%20Transport%20Package%20Scheme%20Development.pdf

- Summer 2019 – Commencement of delivery of Phase 1 Southern Link Road (SLR) to preserve planning consent

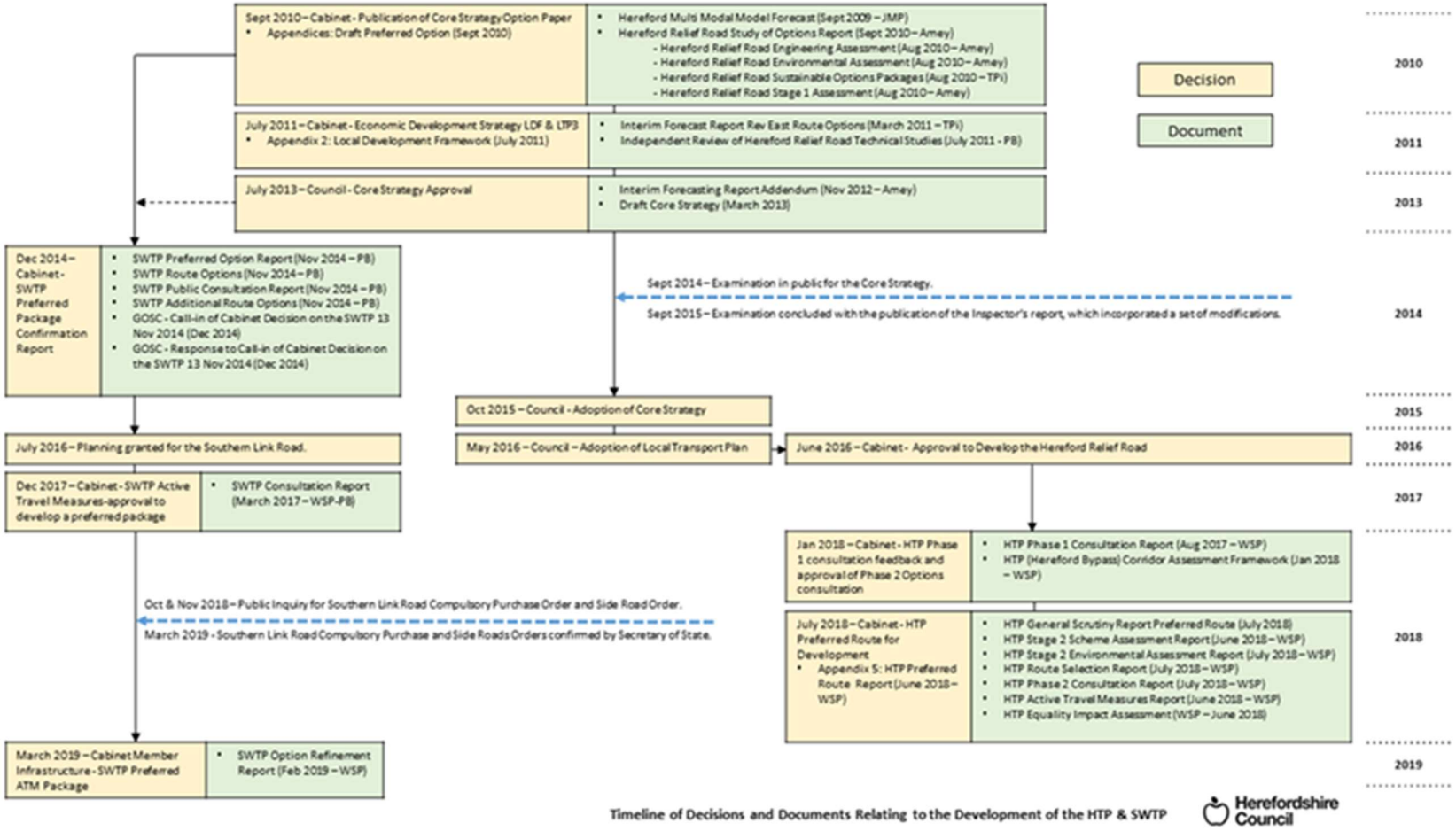
A package of initial works were undertaken to secure the planning consent, but the main works element did not commence given the 2019 decision to pause work on the SLR.

## 1.6 Report structure

The structure of this report is as follows:

- Section 2 – Transport Analysis Guidance and major scheme process
- Section 3 – Context of the South Wye Transport Package
- Section 4 – Peer review
- Section 5 – Future requirements
- Section 6 – Summary and conclusions

**Figure 1.3: Timeline of decisions and documents relating to the HTP and SWTP**




Source: Herefordshire Council

# 2 TAG and major scheme process

The peer review of the South Wye Transport Package has been undertaken using the following primary sources of guidance:

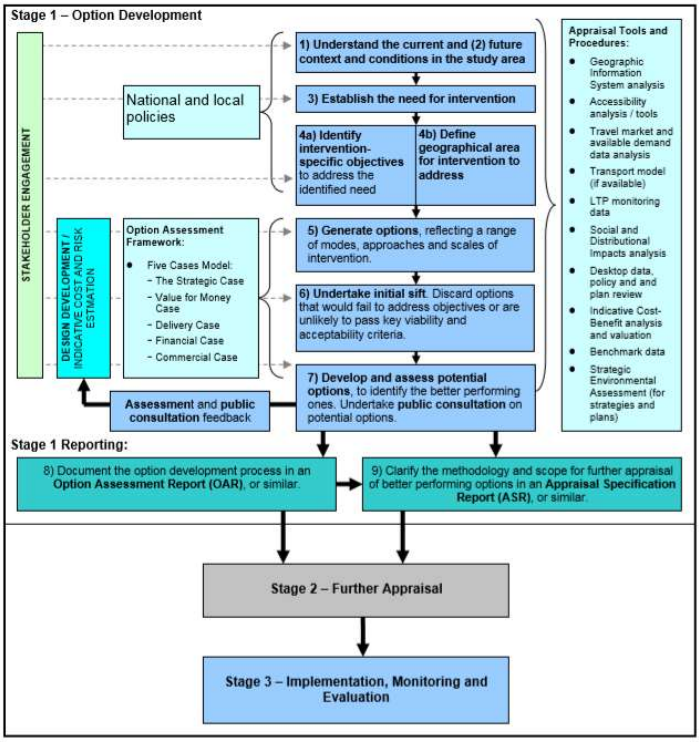
- Transport Analysis Guidance – The Transport Appraisal Process (DfT, May 2018)
- DfT Transport Business Cases (DfT, January 2013)
- Local policy (Herefordshire Council, various)

Transport Analysis Guidance (TAG) provides detail on the process of transport modelling, appraisal and the associated requirements for transport interventions. TAG involves a three-stage appraisal process as detailed within the Transport Appraisal Process (TAP).

Stage 1 Option Development of the appraisal process involves identifying the need for intervention, definition of clear set of locally developed objectives and desired outcomes and the development of options. These options are then sifted for the better performing options to be taken on to further detailed appraisal. Stage 2 Further Appraisal involves the evaluation of the better performing options and their likely impact to enable a decision as to whether to proceed with the transport intervention. Stage 3 Implementation, Monitoring and Evaluation is applicable towards the end of the development of a transport scheme.

Given the level of scheme and option development for the SWTP, this peer assessment considers Stage 1 and part of Stage 2 of the appraisal processes. Figure 2.1 indicates steps 1 to 9 in Stage 1 of the Transport Appraisal Process.

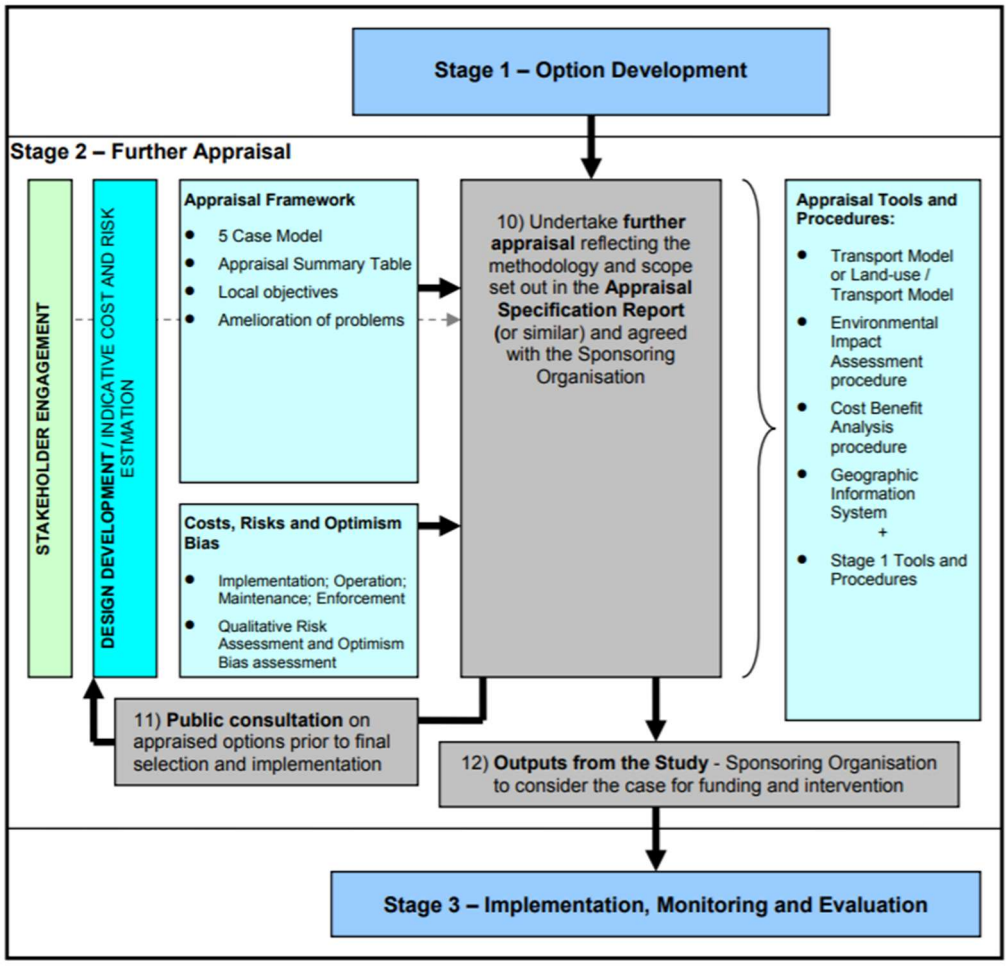
**Figure 2.1: Steps in Stage 1 of the Transport Appraisal Process**




Source: p4, Transport Analysis Guidance – The Transport Appraisal Process (DfT, May 2018)

Figure 2.2 indicates steps 10 to 12 in Stage 1 of the Transport Appraisal Process.

**Figure 2.2: Steps in Stage 2 of the Transport Appraisal Process**




Source: p21, Transport Analysis Guidance – The Transport Appraisal Process (DfT, May 2018)

To allow the peer review team to assess the South Wye Transport Package, technical and governance documents were provided to support the package by the client team. To guide this review and ensure the supporting documents cover the steps necessary to develop and appraise a major transport scheme according to TAG, the South Wye Transport Package and its supporting documents were initially assessed using the following criteria:

1. Are the current context of the package and future conditions explained?
2. Have the problem(s) the scheme will be addressing been clearly identified – including evidence of the extent of the problem(s), specific barriers / challenges, and how the scheme will overcome them (including the scale of impact)?
3. Has the impact of not progressing the package been set out, including supporting evidence? Is there adequate rationale to support why the package is needed?
4. Transport policy compliance "A transport network that supports growth enabling the provision of new jobs and houses, whilst providing the conditions for safe and active travel, which

reduces congestion and increases accessibility by less polluting and healthier forms of transport than the private car."[4]

5. Land use planning policy compliance “To improve access to services in rural areas and movement and air quality within urban areas by ensuring new developments support the provision of an accessible, integrated, safe and sustainable transport network and improved traffic management schemes”[5].
6. Land use planning policy compliance “To strengthen Hereford’s role as a focus for the county, through city centre expansion as part of wider city regeneration and through the provision of a balanced package of transport measures including park and ride, bus priority schemes and a relief road including a second river crossing”[6].
7. Would emerging policies, particularly in response to the declared climate emergency[7], result in different outcome/preferred option if the appraisal process were to be undertaken now?
8. Is there a set of specific, measurable, achievable, realistic, time-bound (SMART) objectives for the package to address the problem(s) identified?
9. Are the expected outcomes clear? How will it be possible to know when the objectives have been met, and what will ‘success’ mean?
10. Does the geographical area of impact consistent across Appraisal Steps 1, 2, 3 and 5 (i.e. existing, future and options)?
11. Do the options identified reflect a range of modes, approaches and scales of intervention? Is there evidence to support the source of these options, for example stakeholder feedback, workshops, benchmarking or research?
12. Is there a robust assessment of different package options, including the reasons for any options being discounted? Has an EAST options appraisal (or similar) been undertaken?
13. Have the options taken forward following the sift been developed with an enough level of design/specification and collecting enough evidence to be able to distinguish the relative costs, benefits and impacts of the options under consideration?
14. Have the main stakeholder groups and their contribution to the project been defined? This should include any potential conflicts between different stakeholder groups and their demands.
15. Have details of stakeholder and public consultation been provided?
16. Is there a clear description of the components of the package and how it fits with the aims and objectives of the local authority and DfT?
17. Is there an Option Assessment Report (or similar) which outlines the option development process?
18. Is there an Appraisal Specification Report (or similar) which clarifies the methodology for further appraisal of the better performing options? (Consider proportionality of appraisal)
19. Does any associated Council Governance report tally with the evidence base, decision reports and recommendations and confirmed decisions?

[4] Herefordshire Council Local Transport Plan 2016 - 2031 Strategy, page 5

[5] Herefordshire Core Strategy 2011 – 2031, objective number 5

[6] Herefordshire Core Strategy 2011 – 2031, objective number 7

[7] Draft Herefordshire Council Carbon Management Plan 2020/21 – 2025/26

# 3 Context of the South Wye Transport Package

In summary, the South Wye Transport Package comprises a new road (the Southern Link Road) and sustainable travel measures consisting of 20mph zones, bus priority, pedestrian infrastructure and cycling infrastructure.

## 3.1 Introduction to the package and appraisal work undertaken by Herefordshire Council

The SWTP is based on multiple studies and a full list of documents that have been prepared to develop the SWTP are listed in Appendix A.

Historically, technical documents were prepared to inform the evidence base associated with the Local Plan Core Strategy, which identified the need for additional infrastructure to support the growth, which was anticipated to include new road and active travel measures for Hereford.

More recent business case documents have been developed for the SWTP. These have been developed in line with TAP and provide more up to date appraisal of the issues identified and performance being addressed through the package.

Given that the appraisal process has a lengthy timeline, where key policy documents are likely to have changed within the timeframe. This update in policy and appraisal requirements should be reflected throughout the technical documents, to develop the scheme in accordance with TAG. The peer review described in Section 4. provides a commentary in respect of this.

## 3.2 Governance documents and decisions

Throughout the development of the package papers have been taken to Council members to provide a summary of work undertaken and recommendations on how to progress the next stages of work. Aim 3 of the peer review brief is to consider whether decisions to progress the packages were sound and justified. Whilst, the review principally centres on technical work rather than Council process, in the context of this peer review aim it was also important to undertake a high level inspection of the papers supplied to Council and whether the recommendations provided and governance decisions followed the technical work which underpinned the reporting cycle. Table 3.1 lists the issue which was subject to governance and a summary of the issues and decisions made.

**Table 3.1: Governance documents and decisions**

| Subject | Outline | Summary |
|---|---|---|
| 16.09.2010 - Cabinet - Publication of Core Strategy Option paper | To seek approval for the publication of the Herefordshire Core Strategy: Hereford Preferred Option paper for consultation purposes. | Core Strategy sets guidelines for developments across Herefordshire up to 2026. The (western) Hereford Relief Road and a package of other transport measures including walking and cycling links is considered under new infrastructure requirements.<br><br>Background papers:<br>- Hereford Preferred Option Paper<br>- Place Shaping Paper Consultation January 2010 |

| Subject | Outline | Summary |
|---|---|---|
| | | - Hereford Relief Road – Study of Options August 2010 |
| 28.07.2011 - Cabinet - Economic Development Strategy LDF and LTP3 | To consider the Economic Development Strategy for recommendation to Council on 18 November 2011;<br>To agree a revised strategy for the Local Development Framework;<br>To agree further consultation arrangements, including a community poll;<br>To ensure that the strong linkages between the Economic Development Strategy, the Local Development Framework and the Local Transport Plan 3 are firmly embedded in each evolving<br>strategy. | Among other things, recommends that the Cabinet approves 'the principles of the Local Development Framework Core Strategy Revised Preferred Option for the purposes of consultation, including the plan period' and notes 'the critical linkages between the adoption of the Local Transport Plan 3 and the Local Development Framework Strategy and the outcome of consultation on the Hereford Relief Road'.<br>The three strategies (appendices) represent key mechanisms for planning and delivering growth and regeneration in Herefordshire.<br><br>Appendices:<br>- Economic Development Strategy<br>- Local Development Framework<br>- Local Transport Plan |
| 19.07.2013 - Council - Core Strategy Approval | To approve the Herefordshire Local Plan - Core Strategy 2011 - 2031 (draft) for pre-submission publication in accordance with regulation 19 of the Town and Country Planning (Local Development) (England) (Amendment) Regulations 2012 (as amended). | Approved and adopted in 2015 |
| 18.12.2014 - GOSC - Call-In of Cabinet Decision on the SWTP 13 Nov 2014 | To consider the call-in of the Cabinet decision on the South Wye Transport Package. The decision has been called in by three members of the committee: Councillors TM James, AJW Powers and A Seldon. | Recommends that the committee reviews Cabinet's decision 13/11/2014 on the SWTP and decides to accept the decision with no further comment or to refer the decision back to the decision maker and, if so, what recommendations to Cabinet it wishes to make.<br>Called in for various reasons including the decision having been made contrary to the decision-making principles, improper consultation and the decision being contrary to/outside of Policy Framework (issues with OAP, route selection, consultees). |
| 02.12.2014 - GOSC - Response to Call-In of Cabinet Decision on the SWTP 13 Nov 2014 | To summarise the responses to the reasons for calling in the decision on a preferred package for the SLR. | Resolved that the decision on the preferred route option should be referred back to Cabinet, with the following recommendations:<br>1. So that Cabinet can be advised by the Finance Director (and council's Section 151 Officer) as to the robustness of the approach and actuality of the cost modelling and the consequent scoring given to all routes under the options appraisal process; and<br>2. As Grafton Wood is now designated Ancient Woodland that SC2 is re-examined, in the light of mitigations and extra costs required, as the preferred option. |

| Subject | Outline | Summary |
|---|---|---|
| 18.12.2014 - Cabinet - South Wye Transport Package Report following Call-In | To consider responses to the resolutions of General Overview & Scrutiny Committee (2 December 2014) following the call in of the decision of cabinet taken on 13 November, and confirm a preferred option for the South Wye Transport Package (SWTP) including the preferred route for a new link road from the A49 to the A465 (with a link to the B4349) | Recommends that the previous recommendations agreed by the Cabinet be reaffirmed, including that route SC2 is selected as the preferred route for the SLR. Officers were satisfied the SWTP appraisal was undertaken correctly and met national guidelines. |
| 16.10.2015 - Council - Adoption of Core Strategy | To consider the adoption of the Herefordshire Local Plan Core Strategy 2011-2031. | Recommendation that the Council should adopt the Core Strategy as the existing unitary development plan (2007) is out of date and the development of the Core Strategy has been lengthy (since 2008) and includes the provision of a relief road to the west of Hereford. |
| 20.05.2016 - Council - Adoption of Local Transport Plan | To adopt the Local Transport Plan (2016-2031). | The Local Transport Plan aligns with the Core Strategy and includes proposals for the Hereford relief road and transport packages, and continuing development of walking and cycling networks. |
| 16.06.2016 - Cabinet - Approval to Develop the Hereford Relief Road | To seek approval to commence work to develop Hereford relief road (Hereford bypass) in support of proposals within the adopted Core Strategy in the context of the overall transport strategy for the city | Recommended that funding of £600,000 be approved to support works necessary to inform route selection; and to progress the Hereford bypass to route selection within the resources available. States that the bypass is key infrastructure in the LTP and enables housing and employment growth objectives if in place to connect to the SLR by 2027. |
| 14.12.2017 - Cabinet - SWTP Active Travel Measures Progression | To consider consultation feedback and confirm next steps of delivery of the South Wye Transport Package (SWTP) Active Travel Measures (ATM) | Recommended further analysis and detailed design to a maximum value of £500,000 to confirm a preferred package of active travel measures to be delivered with the SLR and that a programme for delivery be developed.<br>Background paper: SWTP Strategic Outline Business Case |
| 08.03.2019 - Cabinet Member - SWTP Preferred ATM Package | The report proposes which active travel elements should be included in the business case for the scheme to ensure a robust case for funding can be made and confirms that other active travel measures will be considered for future delivery as other funding sources become available. | Decision that the preferred package of active travel measures as outlined in the Options Refinement Report be approved for inclusion in the SWTP full business case within a budget of £5.041m, to submit a final full business case to the DfT for the delivery of the SWTP and that the active travel measures not included in the Options Refinement Report be considered for future delivery. |

## 3.3 Planning policy context of the package

The Herefordshire Core Strategy, which runs for the period between 2011 and 2031, was a key driver to indicate the need for infrastructure. This requirement led to technical work being progressed to support the Core Strategy, which in turn was developed further as part of the Hereford Transport Package and the South Wye Transport Package. The Plan was adopted in

2015 following an Examination in Public. This review is not intended to be an evaluation of the transport infrastructure aspects informing the Core Strategy; however, it does provide important context regarding the history of the two packages.

Paragraph 3.21 of the Core Strategy explains that the areas earmarked for developments are regarded as the most suitable for future development, due to their easy access to services and facilities. The Hereford Relief Road is considered important in meeting the Core Strategy housing target and ensuring that the necessary infrastructure is coordinated with the developments.

Appendix 5 – SS3: Necessary Infrastructure for Strategic Sites provides an indication of net levels of housing which can be delivered before and after infrastructure coming forward, with critical dates for the delivery of infrastructure specified. In the case of the Hereford Relief Road, circa 3,250 dwellings can be delivered, with the Southern Link and river crossing anticipated to be required by 2022. 4,800 dwellings can come forward prior to the relief road interconnecting with the A49 north and south by 2027.

The Core Strategy states that "*A key element of the long-term Hereford transport strategy is the requirement for a Relief Road. This vital addition to the city's transport network will enable the reallocation of existing highway for bus priorities and walking and cycling measures and the re-routing of the existing A49 Trunk Road (managed by the Highways England) removing longer distance traffic from the centre of the city*".

The Core Strategy transport infrastructure requirements were underpinned by a considerable technical evidence base including:

- Hereford Relief Road Study of Options (report 551497/SO/003 Issue 2A, 10/09/2010, Amey)
- Independent Review of Hereford Relief Road Technical Studies (report 3511200A-ZEV Final, 15/07/11, Parsons Brinckerhoff)
- Local Plan Core Strategy Modelling: Non-Technical Summary (June 2013, Amey)
- Hereford Transport Strategy Phasing Study: Transport Strategy Review (Issue number 4, 20/05/2014, JMP)
- Hereford Transport Strategy Phasing Study: Strategic Prioritisation (Issue number 5, 29/05/2014, JMP).

The Local Plan Core Strategy Modelling: Non-Technical Summary (paragraphs 4.2.1 and 4.2.2) concludes that:

*"The results from this initial group of tests demonstrate clearly that the 'with road' option is the only option which can help deliver the Core Strategy and meet HA requirements for nil detriment in journey times on the A49. Nevertheless, it also identifies that whilst this option will deliver these economic objectives, and to some extent objectives regarding public transport, it makes little improvement in terms of increased health through active travel. Whilst overall CO2 emissions in the 'With Road' option increase due to traffic on the Western Relief road, actual levels in the city will reduce".*

In addition to the Core Strategy, The Local Transport Plan 2016 – 2031[8], notes that "*Additional highway capacity* [will be required] *to meet the increased demands resulting from growth, Improved access to and within the central area, Improvements to encourage more active travel within the urban area through increased supply of pedestrian, cycling and bus networks, supporting safer routes to school and improved health and access to and integration with rail".*

[8] https://www.herefordshire.gov.uk/download/downloads/id/2912/local_transport_plan_2016-2031_strategy.pdf

Conclusion: The level of detail involved in the scheme's development has moved on since the adoption of the Core Strategy. However, it is clear that the infrastructure proposals in the Core Strategy is required to support the development policies contained within this document. The proposals in the form of the HTP and the SWTP have been tested and challenged in an appropriate way through technical studies and Examination in Public, to enable them to be adopted within the Local Plan.

The important implication for developing a TAG-compliant scheme beyond the adoption of the Core Strategy is to ensure that the case for the package (i.e. the 19 questions noted in Section 2 of this report) was reviewed. This is considered further in Section 4 of this report.

## 3.4 Highways England position on growth and the Hereford Enterprise Zone

Hereford Council and Highways Agency (now Highways England) worked together between 2009 – 2015[9] to assist with the development of the transport evidence base for the Core Strategy. The key concern for Highways England is that trip generation arising from development in the Hereford Enterprise Zone (HEZ) will not exceed that agreed with Highways England until any review of capacity along the A49(T) takes place and agreement is reached.

Caps on development within the HEZ were initially set out in a Memorandum of Understanding[10]. Development is excluded from the Hereford Enterprise Zone Local Development Order (LDO)[11] once the development trip generation thresholds are reached or a re/development proposal will lead to such being exceeded. In this instance the proposal will be unable to proceed under the LDO provisions and a planning application will need to be made.

Conclusion: The HEZ cannot be expanded without exceeding the capacity of the Strategic Road Network. One of the aims of the SWTP is to improve access to the HEZ and without the road significant development of the HEZ cannot be delivered. The employment growth is constrained without the bypass being delivered in full.

[9] Statement of Common Ground between Herefordshire County Council and Highways England, 13/01/15

[10] Memorandum of Understanding dated 17/04/13, with a variation dated November 2014

[11] Hereford Enterprise Zone Local Development Order, October 2019

# 4 Peer review

This section encompasses the main body of the report and provides the findings of the peer review. A cohesive list of documents reviewed is contained in Appendix A.

The peer review has been undertaken in line with the key aims of the commission in mind, namely to:

- Establish whether each package has been developed in accordance with the major transport scheme process as laid out in TAG
- Establish whether the packages including their major road scheme components (the southern link road in the SWTP) are based on a sound evidence base
- Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

The review also considers responses by the Herefordshire Council team and technical team made to queries raised by the review team. The comments and recommendations made regarding each document is summarised in terms of:

- Looking backwards – issues identified which should be clarified or amended.
- Looking to the future – generally technical issues related to transport modelling and appraisal which may need to be revisited if the package are progressed further in the future. This point also considers environmental, climate change and net zero issues which could lead to a different vision for the package.

## 4.1 Documents reviewed

The documents supplied to Mott MacDonald by Herefordshire Council are listed and outlined in Table 4.1. This suite of documents provides a timeline of the inception of the scheme, through the identification of a need for infrastructure to support the level of development proposed in the Core Strategy, identification and sifting of preferred options, the planning application for the Southern Link Road and refinement of the options for highways and active travel within the package.

**Table 4.1: Key documents provided for review**

| Document | Outline | Summary |
|---|---|---|
| February 2003 - Hereford Transport Review Local Multi-Modal Study | Study seeks to define a long-term transport strategy beyond the Local Transport Plan period, to be incorporated into the Unitary Development Plan, Regional Planning Guidance and Regional Transport Strategy. | This report has been referenced in later work and was inspected by Mott MacDonald to consider the early context of a relief road for Hereford. |
| September 2009 - Hereford Multi Modal Model Forecast Report (JMP) | Study to examine the implications of potential housing development up to 2026 as proposed in the Regional Spatial Strategy (RSS) and its impact on the road network within Hereford and its surrounding area. | Report on implications of potential housing development (proposed in the Regional Spatial Strategy) and its impact on the road network.<br>Modelled scenarios assessed in terms of flow relief, stress and link speed for 2026 as a single future year (AM and PM peak hours).<br>Model runs reveal additional housing trips have detrimental effects on Hereford highway network. |

| Document | Outline | Summary |
|---|---|---|
| | | An Outer Distributor Road is forecast to provide some relief. |
| August 2010 – Hereford Relief Road Engineering Assessment (Amey) | Scheme Assessment in accordance with the Highways Agency Design Manual for Roads and Bridges Scheme Assessment Reporting to provide the necessary supporting information and problem identification for future analysis. | Scheme Assessment to provide supporting information and problem identification for future analysis.<br>Builds on Stage 1 Engineering Assessment in inform appraisal (in line with WebTAG process).<br>Assesses the engineering constraints and impacts of the proposed Hereford Relief Road options (either east or west of the city and an inner and outer option for each) with associated link roads |
| August 2010 - Hereford Relief Road Environmental Assessment (Amey) | Study to identify environmental and engineering advantages and disadvantages associated specifically with the introduction of a Relief Road to Hereford along the broad corridors identified. | Study to determine environmental and engineering advantages and disadvantages associated with the introduction of a Hereford relief road (eastern and western options) |
| August 2010 – Hereford Relief Road Engineering Sustainable Option Packages (TPi) | Study to examine the findings of implementing sustainable option packages for the Herefordshire region | Report considers sustainable option packages for Hereford and the results on the road network - with and without the relief road. |
| August 2010 – Hereford Relief Road Stage 1 Assessment (Amey) | Stage 1 Assessment to assess the advantages and disadvantages of the broadly defined transport infrastructure improvements from the consultation and modelling work done to date. | Assesses the advantages and disadvantages of the transport infrastructure improvements in the Hereford Core Strategy. |
| September 2010 – Hereford Relief Road Study of Options Report (Amey) | Considering the evidence to date on the transport options for Hereford leading towards the establishment of a core strategy. | Study to identify the engineering and environmental advantages and disadvantages associated with the Relief Road options.<br>Follows on from Stage 1 Assessment to identify environmental and engineering issues along relief road corridors. |
| September 2010 – Draft Preferred Option | Follow on consultation from the place shaping consultation leading towards the establishment of a core strategy. | Paper issued for public consultation to form a Core Strategy which will establish a policy framework and the broad locations for development - to be adopted in 2011.<br>Outlines Hereford Vision (including the provision of a relief road), with issues and opportunities, the spatial strategy and policies needed to achieve them. |
| March 2011 – Interim Forecast Report Rev East Route Options (TPi) | Further study considering the traffic implications of using a revised eastern route corridor with the same growth as proposed within the 'Preferred Options: Hereford' and with reduced growth. | This study considers traffic implications of using a revised eastern route corridor. Four scenarios are tested. |
| July 2011 – Local Development Framework | Report on progress with the Local Development Framework. | The Local Development Framework replaced the Unitary Development Plan. This plan period provided a statutory planning framework for the county to 2013. |
| July 2011 – Independent review of the Hereford relief road studies | High level independent review of the Hereford Relief Road technical studies and Core Strategy Preferred Option: Hereford. | Review of the Relief Road technical studies and Core Strategy Preferred Option, focusing on environmental topics (with some focus on planning |

| Document | Outline | Summary |
|---|---|---|
| | | and transportation), to review preferred route of the inner western corridor. |
| November 2012 Interim Forecasting Report Addendum (Amey) | Report examining a revised housing and employment allocation for the proposed Local Development Framework. | Addendum to the Hereford Relief Road Study of Options Report (Amey 2010). Examines a revised housing and employment allocation for the proposed Local Development Framework. |
| March 2013 – Draft Core Strategy | Draft Herefordshire Local Plan - Core Strategy 2011 – 2031. | Local Plan to guide Herefordshire development for 20 years. Includes strategic and development management policy. |
| November 2014 – SWTP Additional Route Options (Parsons Brinckerhoff, PB) | Plan showing additional route options SC8, SC8A, SC9 | 1-page drawing showing additional route options SC8, SC8A, SC9 |
| November 2014 – SWTP Preferred Options Report Final low RES (PB) | Report considering the route options for the SLR and identifying a preferred route to be included as part of the SWTP. | Builds on work by Amey on highway improvements, looking at a new southern link road, traffic max (maximum capacity for vehicles in South Wye) and sustainable transport max (reducing private car use).<br>Report considers route options for the southern link route and identify a preferred route (out of final seven route options SC#).<br>Engineering assessment said SC2 and SC8 performed better.<br>Cheapest option would be SC2.<br>All options provided regeneration and wider economic impacts and reduced congestion.<br>All options had negative environmental impacts.<br>Overall, SC2 scored highest making it the recommended option - but SC8 also performed well. |
| November 2014 – SWTP Public Consultation Report (PB) | Report summarising the approach and findings of the SWTP consultation to obtain public opinion on the options developed for the SWTP. | Public consultation in 2014 for four route options for the southern link road (SLR), SC2, SC2A, SC5, SC7.<br>Responses from questionnaire, social media, consultations and public exhibitions.<br>Consultation considered effective in terms of local coverage and attendance.<br>Public have suggested alternative alignments to the Southern Link Road options - these have been reviewed in the SWTP preferred option report.<br>Public support for improvement of traffic conditions in the South Wye area.<br>Likely preferred route SC2, an alternative 'no road' option to the SLR second highest.<br>Also support for an alternative bypass via a second crossing of the Wye. |
| November 2014 – SWTP Route Options | Plan showing route options SC2, SC2A SC5 & SC7. | 1-page plan showing route options SC2, SC2A SC5 & SC7. |

| Document | Outline | Summary |
|---|---|---|
| July 2016 – Planning Permission Decision Notice 275986 | Decision notice granting planning permission for application 151314 for the Southern Link Road (full suite of documents available on the Herefordshire Council Planning website). | Planning permission was granted for the Southern Link Road. |
| March 2017 – SWTP Active Travel Consultation Report (WSP PB) | Report summarising the approach and findings of the SWTP consultation to obtain public opinion on the possible active travel improvements. | Public consultation in 2014 helped to set the SWTP objectives.<br>Hereford Council undertook public consultation in 2016 to determine views on possible active transport travel improvements.<br>Reducing congestion and delay on the A465 is the most important SWTP objective to respondents.<br>Active travel improvements are ranked in the conclusion section, with 20 mph residential areas ranked first.<br>Consultation findings helped to inform the technical appraisal of the proposed improvements. |
| February 2019 – SWTP Option Refinement Report (WSP) | Documenting the refinement of the preferred SWTP route option. | SC2 was identified as the preferred route for the SLR.<br>- The design assessment concluded that, out of the seven potential SLR routes, route SC2 performed best in terms of design considerations.<br>- A technical assessment showed no significant difference between the routes..<br>- Public consultation found highest support for SC2.<br>Active travel schemes underwent technical assessment as nine improvement groups, across South Wye area objectives, value for money and an assessment of potential issues in delivering the scheme.<br>A preferred package of active travel improvements was drawn up:<br>- Groups 3A, 6A and 8 achieved the highest score and could provide a coherent package.<br>- Group 4 added due to a weight restriction condition in the planning permission for the SLR. |

Once an initial inspection was undertaken of the documents which underpinned the package's development was completed, Herefordshire Council provided some additional documents for the peer review as shown in Table 4.2. This suite of documents provides more detail on the modelling and appraisal work undertaken to inform the package. It should be noted that this collection are not all as yet publicly available published documents.

**Table 4.2: Modelling and appraisal documents reviewed**

| Document | Outline |
|---|---|
| Hereford Transport Model Local Model Validation Report | The local demand model validation report prepared for the Hereford Transport Model in 2018 |
| SWTP Option Assessment Report (OAR) | This 2018 report details how options and packages have been assessed for SWTP |
| SWTP Economic Appraisal Report (EAR) | This provides the Economic Appraisal Report prepared in 2018 for SWTP |
| SWTP Economic Case (EC) | The Economic Case developed for the SWTP in 2019 as part of the work in progress Full Business Case |
| SWTP Southern Link Road Planning Statement | The 2015 Planning Statement that accompanied the SLR planning application |
| SWTP Traffic Forecasting Report (TFR) | A traffic forecasting report prepared in 2018 for SWTP |

## 4.2 Initial review

At the start of the project Mott MacDonald undertook an initial rapid review of the documents listed in Table 4.1 in line with the process described in Section 1.4. The findings of this work were described in Technical Note 417997-MMD-MAN-XX-TN-TA-0005 (available on request).

An initial review of the second set of documents shown in Table 4.2 was also carried out and this is summarised in Technical Note 417997-MMD-MAN-XX-TN-TA-0007 (available on request).

These initial inspections allowed the peer review team to familiarise themselves with the package and the work undertaken to develop the scheme. As part of the initial review, discussions were held with Herefordshire Council and WSP in order to attain clarifications and additional data. A tracker showing the key comments made and the responses received is provided in Appendix B.

## 4.3 Peer review

Following this initial review and verification with the client and technical teams for the package, more inspection was undertaken of the documents considered to be those pivotal to the case for and appraisal of the scheme over time. The peer review has centred on the following:

- SWTP Preferred Option Report (3512983A-HHR Version 6.0, November 2014)
- SWTP Southern Link Road Planning Statement (3512983L-HHR Final, April 2015)
- Hereford Transport Model Local Model Validation Report (70029880-571\1\3 3rd Draft, September 2017)
- SWTP Options Assessment Report (3512983BP Revision 11, March 2019)
- SWTP Options Refinement Report (70089880 Revision 6, February 2019)
- SWTP Economic Appraisal Report (3512983BP–WSP-DEV-001-EAR03 Rev 2, February 2019)
- SWTP Economic Case (no report reference, May 2019) (part of draft Full Business Case)
- SWTP Traffic Forecasting Report (3512983BP-WSP-DEV-001-TFR02 Rev 1, December 2018).

Each document has been reviewed (where appropriate) by key disciplines including transport planning, appraisal and economics; transport modelling; environment; climate change and carbon.

The format of the review provides a concise commentary on the document provided, notes any issues identified by the review team and concludes with a summary of each document. The summary classifies whether the points made are:

- Looking backwards – issues identified which should be clarified or amended. Categorised red where the point made is deemed to be a significant issue, green if the premise is sound however things could have been covered differently (i.e. a technical recommendation which could be reconsidered).
- Looking to the future – generally technical issues which could be revisited if the packages are progressed further, as well as environmental, climate change and net zero issues which could lead to a different vision for the package. These points are all categorised as amber, on the premise that these points they would be considered in the future before the package was progressed further.

### 4.3.1 SWTP Preferred Option Report

The report contains a significant amount of technical work to review various link road alignments. The report states that the appraisal has used *"the principles of a Stage 1 level of appraisal outlined in the Department for Transport guidance WebTAG to identify a preferred route for the SLR"*. Reference is made to objectives within the draft Core Strategy (at this point the Core Strategy had not yet been adopted) relating to development, economic prosperity and environmental quality.

SWTP scheme objectives are identified as being:

- Reduce congestion and delay
- Enable access, particularly to developments such as the HEZ
- Reduce the growth in emissions such as CO2, NOx and PM10s
- Reduce traffic noise
- Encourage physical activity.

These objectives are not SMART[12], however.

Conclusions are provided in terms of engineering assessment, traffic/ safety and economic assessment, environmental assessment, social assessment.

- Engineering conclusion: SC2 cheapest and best performing
- Traffic conclusion: SC7 has reduced speed limit so best accident reduction potential but other conclusions are general covering all options
- Environmental conclusion: SC7 least worst, SC5 worst
- Social conclusion: SC2 and SC2A slightly best performing

Overall conclusions: An Appraisal Summary Table comparing the different SLR Options is at Appendix A. Option SC2 has the highest overall AST score of 1.5. Option SC5 and SC7 have the lowest scores of -2.5 and -1 respectively.

The appraisal purely considers the link road options, not the supporting sustainable transport measures. It is not clear whether the findings constitute 'success' or the best out of the options examined.

Conclusion: The level of information provided does not meet the requirements of Stage 1 of TAP. The preferred option report considers alternative link road alignments but this does not constitute an appropriate study of alternative interventions or the impact of doing nothing.

[12] Specific, Measurable, Attainable, Relevant, Time-bound

Sustainable transport proposals are considered in an Appraisal Summary Table (AST) in Appendix B but are not really covered in the main body of the report. This document has in effect been superseded by the 2018 Options Appraisal Report (OAR), which has been developed in line with Stage 1 of TAP. Hence whilst it may have had deficiencies in the context of TAP, the significance is minor given the OAR looks at options.

### 4.3.2 SWTP Southern Link Road planning statement

Noting that Hereford's transport network is already constrained and subject to congestion/ delay the Core Strategy has identified growth proposals which require transport interventions to allow their delivery. They also require other infrastructure such as water/ sewage and power supply. There is no ideal solution to growth in Herefordshire and hence the planning policy was subject to a settlement review to determine optimum allocation of housing/employment growth to the city/market towns and rural areas. This considered reducing need to travel (amongst other planning issues such as environmental impacts) which necessarily allocated largest quantum of growth to Hereford, noting the proximity to transport networks and population. Given land use space is limited within the centre of Hereford, the balance of housing and employment provision is allocated at the urban fringes such as the three Sustainable Urban Extensions and the Hereford Enterprise Zone. Space is also being provided in the centre through the regeneration of the land to the north of the city centre and this includes provision for housing and commercial development. The SWTP package was developed in that context.

It is noted that the HEZ is subject to growth in advance of the delivery of the SLR. However, this is controlled within the context of a quantum agreed with Highways England which has not yet been exceeded. It is also in the context of active travel schemes being brought forward in advance of the SWTP. Examples include the cycle bridge connecting the HEZ with the north of the city, additional bus services and a dedicated Travel Plan.

Conclusion: Given this is a planning rather than a transport document, this has purely been considered and included within the reviewed suite of documents to provide context for the package.

### 4.3.3 Hereford Transport Model Local Model Validation Report (LMVR)

Although the LMVR is a comprehensive document, with the information providing a clear understanding of the model and its validation results, several queries were raised in the rapid peer review of the document. It is important to note that the LMVR was in the process of being reviewed with the DfT as part of the submission of the SWTP Full Business Case.

The direction from HC was that a detailed technical validation of modelling was not being sought from the peer review. The assessment of the modelling was in the context of it being in general appropriate for the stage of the project and supporting the conclusions reached.

The work is considered to be appropriate for the work to date and the technical queries raised are points which may need to be considered again if the packages are progressed in the future.

### 4.3.4 SWTP Option Assessment Report (OAR)

#### 4.3.4.1 Transport appraisal

The OAR has been produced in accordance within the TAG Transport Appraisal Process (TAP) and provides a good level of detail on the problems identified, the scheme objectives and long list of options in line with TAP steps 1-8 (Figure 2.1). The report sifts to two preferred options.

It should be noted that DfT have been consulted in the development of the OAR and ORR for SWTP. The DfT confirmed to Herefordshire Council in April 2019 that they had no further comments on the OAR and ORR.

**Step 1 Understand the current context and conditions in the study area**

The OAR contains a thorough review of (then current) local, regional and national policies which have implications on the study and selection of options to resolve issues in Hereford. There is a comprehensive assessment of baseline transport conditions for all modes including active travel and public transport. Current problems identified consist of:

- Traffic congestion and journey time unreliability
- Constraints on economic growth arising from traffic levels
- Car dependency, understood through a range of psychological factors governing car use
- Relative cost and availability of city centre car parking
- Traffic re-routing onto unsuitable roads
- Severance to active travel journeys
- Road collisions and perception of road danger;
- Poor air quality and high noise levels affecting key receptors and
- Inactivity and consequential health impacts.

Geographically problems manifest themselves in terms of:

- Traffic congestion on the A465
- Delays at the A49/A465 signalised junction (Asda roundabout)
- Traffic congestion on the A49(T)
- Volume of heavy goods vehicles
- Poor walking/ cycling infrastructure .

The OAR identifies that *"In general, cheaper and easier parking at a destination is associated with more driving, whereas parking restraint is associated with less driving. Although, in many cases, the availability of alternative parking and other travel options are important factors… there is a substantial amount of off-street parking in the city centre, with 3,700 spaces across 23 car parks".*

Conclusion: It would be helpful if there was a clearer indication as to which trips are seen to be the issue i.e. through trips, Hereford internal trips or external-internal trips. This would aid weight to what the issues are that the package is trying to resolve (i.e. strengthens the case for an intervention) but it would not be justified to revisit the OAR on the basis of this point alone.

**Step 2 Understand future context and conditions in the study area**

The adopted Core Strategy is used as the basis for projected growth in housing and employment through Hereford in future years. Changes to the transport system in future years include the Hereford City Centre Package, the SWTP and the Hereford High Town Package.

The future performance of the network has been predicted using the Hereford Highway Assignment Model. The additional growth in trips generated by development is shown to result in increases in total network queue and delay, whilst journey times will go up on routes in the AM, interpeak and PM peaks compared to the base scenario.

Conclusion: No action required. This is commentary to explain how the package meets Step 2 of TAP.

**Step 3 Establish the need for intervention**

The need for an intervention is linked to the infrastructure requirements identified within the Core Strategy. Paragraph of the OAR 3.5.3 states that *"…the previous modelling of the performance of key routes and junctions in Hereford forecasts an overall deterioration in the levels of service, providing a clear indication that the current highway network is unable to accommodate the level of growth anticipated by the Core Strategy*".

Conclusion: No action required. This is commentary to explain how the package meets Step 3.

**Step 4 Identify intervention-specific objectives / Define geographical area for intervention to address**

A logic map is provided to show the connections between the underlying causes of issues and the problems to the desired outputs. Objectives then appear to have formed from those desired outputs.

Strategic scheme targets are:

- ST1: Enable the delivery of 6,500 new homes and 15ha of new employment land in Hereford by 2032
- ST2: Increase the levels of physical activity through greater uptake of active travel and
- ST3: Reduce levels of monitored air pollutants and transport-related noise levels.

South Wye package indicators (of success) are defined as:

- AI1: Reduce peak hour journey times to and from the HEZ from rural areas South-West of Hereford relative to baseline levels
- AI2: Increase active travel mode share for journeys to work to and from the South Wye area relative to baseline levels
- AI3: Increase active travel mode share for peak period journeys to and from the South Wye area relative to baseline levels
- AI4: Reduce the incidence of serious and fatal Personal Injury Collisions in the South Wye area relative to baseline levels
- AI5: Reduce levels of traffic-related emissions of CO, CO2 and NOx at monitoring sites in comparison with baseline levels and
- AI6: Reduce levels of noise attributable to traffic sources as measured at key receptors in the South Wye area in comparison with baseline levels.

The geographic scope for the area of impact has been given as the area to the south of the River Wye and extends to rural areas to the immediate south of Hereford. It includes key radial routes, including the A465 and A49(T).

The OAR study area excludes the city centre, areas north of the River Wye and origins / destinations beyond the city which would require the assessment of transport impact to extend further.

Conclusion: No action required. This is commentary to explain how the package meets Step 4.

**Step 5 Generate options, reflecting a range of modes, approaches and scales of intervention**

A range of options have been considered, partially taken from previous studies but there is also evidence of a high level of stakeholder engagement to inform this process. 13 broad options were generated (Table 19) and these were split between capital and revenue expenditure

options. Paragraph 7.1 notes that *"options to solve the identified problems which extend outside of the study area are outside of the scope of this assessment. As an example, options considering new river crossings, are excluded".*

| Capital expenditure options | Revenue expenditure options |
|---|---|
| ▪ 20mph zones<br>▪ Bus Priority Improvements<br>▪ Cycle Infrastructure Improvements<br>▪ Highway junction capacity improvements<br>▪ Light Rail Infrastructure<br>▪ Online highway improvements<br>▪ Pedestrian Infrastructure Improvements<br>▪ Rotherwas railway station<br>▪ Southern Link Road<br>▪ Strategic Park and Ride Infrastructure | ▪ Behavioural Change Programme<br>▪ Parking charges and locations<br>▪ Travel Planning Programme |

Conclusion: No action required. This is commentary to explain how the package meets Step 5.

**Step 6 Undertake initial sift. Discard options that would fail to address objectives or are unlikely to pass key viability and acceptability criteria**

Paragraph 7.2.2 states that *"These options cover capital expenditure (infrastructure) and revenue expenditure (investing in ongoing travel planning programmes or bus services, for example) as a combination of revenue and capital expenditure are likely to form part of the wider strategy to address the problems in the South Wye area. However, the major transport scheme funding (which requires the submission of a Transport Business Case, and which the OAR forms a component part) is for capital expenditure. On that basis only capital expenditure options were considered further through the assessment process".*

Whilst the funding constraint is understood, given Step 1 identified the availability of parking being a major factor in car trips, it is unfortunate that parking charges and location interventions have been discounted immediately, particularly as Table 20 (Summary of impacts by option) shows behavioural change programme to have a positive impact against 11 of 12 impacts, the most of any option in the table. Similarly, parking charges and locations, as well as travel planning programme both have similar numbers of ticks to the capital options in this table. For this OAR to be considered robust it would have been preferable to score the revenue interventions as well to demonstrate that the capital interventions perform as well as revenue options unless there are other clear reasons not to.

EAST was used to appraise the options and conduct initial sift from the long-list. Options were scored on 7-point scale both against objectives, and other assessment criteria. The objectives were assessed under strategic, economic, managerial, financial cases and "additional decision-making criteria" (Table 21).

The initial sifting process removed three options: Strategic park and ride infrastructure, Rotherwas railway station and light rail infrastructure primarily on the high anticipated costs associated with these interventions. The other seven options were collectively grouped. The active travel measures were collectively grouped and assessed as one package. The other packages are assessed as individual schemes.

Conclusion: Responses by HC and WSP to the draft peer report have reiterated that revenue options have been discounted as per paragraph 7.2.2. It is understood why this position has been taken and TAP paragraph 2.9.1 notes that *"At the end of Step 5 … An initial sift should … be undertaken to identify any 'showstoppers' which are likely to prevent an option progressing at a subsequent stage in the process*", however we do feel it would be remiss for the review team

not to note a concern that there are options which could address in part some of the problems identified, which have been discounted without any further examination. Without this how can we be sure of the contribution these other options would have made?

**Step 7 Develop and assess potential options, to identify the better performing ones. Undertake public consultation on potential options**

The remaining 7 options were then placed into four packages.

| Link Road between A49(T) and A465 | Active Travel Measures | Online highway improvements | Junction capacity improvements |
|---|---|---|---|
| ▪ Southern Link Road | ▪ 20mph zones<br>▪ Bus priority<br>▪ Pedestrian infrastructure<br>▪ Cycling infrastructure | ▪ Increasing capacity by making best use of existing road infrastructure along A465 and A49(T). | ▪ Increasing capacity of existing congested junctions on A49(T) and A465. |

As part of the initial peer review a query was raised as to how the schemes had been grouped into four packages, given the sparse explanation of how these had been decided on page 101 of the OAR. WSP advised in June 2020 that *"Given the scale and complementarity/competitive nature of the different options, it was decided to retain three of the options as distinct 'option packages' in their own right. However, given the scale of the other four options and their synergy across the area of 'active travel' it was decided to combine them into a single active travel option package (Table 23). This led to four option packages being considered further, as described in Chapter 9 of the OAR".* This response doesn't resolve the initial question as to how the option packages were formed, as it refers back to the OAR.

Scoring of the four packages took place against strategic, economic, value for money and financial criteria, in line with the 7-point TAG scale (Large beneficial, Moderate beneficial, Slight beneficial, Neutral, Slight adverse, Moderate adverse, Large adverse). The scoring concluded that the online highway improvement and the junction capacity improvement options did not perform well, primarily relating to scheme objectives and in the case of the online highway improvements environmental impacts. The junction capacity improvements had a neutral score against many of the assessment criteria, although was estimated as the joint lowest cost intervention alongside the active travel measures package.

High level BCRs for active travel measures, online highway improvements and junction capacity improvements were 1.5 indicating medium Value for Money, whereas the link road was calculated at 2.0, indicating high Value for Money.

Online highway improvements and junction capacity improvements were discounted at this point. Table 27 considers to two remaining packages and assesses a combined package of SLR plus active travel. The issue with doing this is that it results in only a single package being taken forward.

In response to the draft peer review report WSP stated that "The rationale is set out (albeit briefly) in para 8.2.12: *'As illustrated in Table 21, several options were not considered to achieve the desired outcomes in isolation. Therefore, in line with best practice guidance, consideration was given to ways in which these options could be packaged together. The aim was to create a sensible number of distinct and feasible option packages for further development and assessment.*' TAP does not give guidance on how this should be carried out." It is accepted that TAP is not explicit in how packaging should be explained.

Conclusion: In summary, we conclude that there is only a short explanation as to how and why the remaining options have been combined into four preferred packages. More explanation

would aid clarity for the reader, but it would not be justified to revisit the OAR on the basis of this point alone.

**Step 8 Produce Option Assessment Report, or similar**

The outcome of the OAR process in Step 8 of TAP is to identify the better performing options (including a low-cost option) for progressing to Stage 2 of the appraisal process. In response to the draft peer review WSP noted that *"Section 9.3 outlines that, of the four options packages taken forward, 2 of them (online highway improvement and the junction capacity improvement options) did not perform well against the assessment areas. It goes on to say: 'The Option Assessment Framework also demonstrated that the Southern Link Road and Active Travel Measures would contribute to the delivery of the area package objectives, with each performing better against different assessment areas. It was therefore proposed that these options be combined to deliver a package (Southern Link Road + Active Travel Measures) which performs well across the majority of the assessment areas.' In essence the two better performing options were taken forward, but in combination, as the identified best means of achieving the range of objectives".*

Subsequent to Stage 1 of TAP, Stage 2 (paragraph 3.1.2) requires *"a small number of better performing options in order to obtain sufficient information to enable decision-makers to make a rational and auditable decision about whether or not to proceed with intervention".*

WSP referred to paragraph 9.3.5 which states that *"it was considered that the Online Highway Improvements or the Junction Capacity Improvement packages referred to in Table 23 had the potential to form a low-cost solution to compare with the preferred package. These were two of the four options assessed using the Option Assessment Framework. However, the Option Assessment Framework demonstrated that these packages would not sufficiently contribute to the achievement of the area package objectives. Therefore, in accordance with Step 7, these weaker performing packages were not taken forward and a low-cost alternative to the preferred package was not subjected to further assessment".*

The peer review team's view of this guidance is that it should be a low-cost **alternative** option.

Conclusion: The concern with the approach taken to combine the strongest performing interventions, namely the SLR and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2, however typically other options would remain and be subject to further appraisal in Stage 2 *"to produce evidence sufficiently robust to support the business case[13]".* However, in light of the DfT email of 16/04/19 confirming that they had no further comments on version 11 the report, it can be concluded that Herefordshire Council have developed the package in an agreed manner and the peer review team's concern should be classed as something which could have been done differently rather than a fundamental issue.

#### 4.3.4.2 Environment, climate change and carbon

The OAR identifies numerous key transport-related environmental drivers in national, regional and local policy, including the switch to sustainable modes of transport to reduce carbon emissions, along with overall reductions in vehicle traffic and freight. Air Quality and transport related noise impacts on the South Wye area are the key environmental topics of focus. As would be expected, the environmental issues are framed within the desire for improved transport outcomes and of the three strategic objectives, environmental issues are focused on

[13] Page 5, Transport Analysis Guidance for the Technical Project Manager, May 2018

reducing the transport impacts of air quality and noise, which cascades into the package objectives and targets. Broader policy objectives to protect the environment and tackle climate change focus on increasing active travel mode share. A wider set of environmental topics are assessed for the four option packages, and for the preferred Southern Link Road and active travel measures package, adverse effects are predicted for noise, air quality, greenhouse gases, landscape, historic environment, biodiversity and the water environment, and a sight beneficial effect on townscape.

Conclusion: Overall, the assessment is in accordance with the guidance at the time. Should the package be progressed further, the adverse effects predicted on various environmental topics fall short of current Net Gain, Net Zero requirements and the Climate Emergency context and would need revisiting as a result.

#### 4.3.4.3 OAR overall conclusions

Several areas within the OAR could have been done differently to more robustly meet the steps of Stage 1 of the Transport Appraisal process. However, in light of the DfT email of 16/04/19 confirming no further comments on version 11 the report, it can be concluded that Herefordshire Council have developed the package in an agreed manner and the peer review team's concern should be classed as something which could have been done differently rather than a fundamental issue. Although developed in accordance with guidance at the time environmental topics would now fall short of current Net Gain, Net Zero requirements and the Climate Emergency context and would need revisiting as part of any future updates.

### 4.3.5 SWTP Options Refinement Report

Step 9 of the Transport Appraisal Process is to Clarify Modelling and Appraisal Methodology and paragraph 2.12.1 states that *"where proposals are to be taken forward for further appraisal, analysts should clarify the methodology and scope of further appraisal, and agree this with the Sponsoring Organisation, prior to undertaking the work. The methodology should be documented in an Appraisal Specification Report (ASR), or similar"*. No ASR has been provided. In July 2020 HC / WSP advised that there was an ASR for SWTP which was discussed with the DfT but not published. The issues raised and discussed during this time then migrated into the LMVR, i.e. rather than writing about what it was planned to do (specification), the team wrote about what had been done and why (validation). Updating and publication of the ASR may be something which could be considered in the future if the package is taken forward.

The Option Refinement Report (ORR) is the next report available for the scheme within the appraisal process. This was prepared to document the refinement of the preferred option, as recommended by the OAR. The preferred option is a package combining a Southern Link Road with active travel measures.

Chapters 2 to 4 consider route development, preferred route selection and refinement of the preferred route for the SLR respectively. Chapter 5 explains scheme generation, sifting, grouping and identification of the preferred active travel measures package. The report also provides a summary of public consultation taken from the SWTP Report on Consultation (November 2014) in the case of the SLR and SWTP Active Travel Consultation Report (March 2017) for the active travel measures package.

The two package elements are considered separately, which is consistent with the OAR. The Smarter Choices work takes a proportionate approach based upon EAST[14]. The SLR elements are assessed in a what appears to be a robust manner, albeit it relies upon reports and

[14] Early Assessment and Sifting Tool, DfT

consultation generally dating back to 2014, which would have been 5 years old by the time the ORR was produced.

Conclusion: The ORR provides a proportionate assessment of the active modes options and a robust assessment of the SLR. The DfT email of 16/04/19 confirming no further comments of version 6 the report provides further weight to the conclusion that Herefordshire Council have developed the package in an agreed manner.

### 4.3.6 SWTP Economic Appraisal Report and Economic Case

In reviewing these documents, several detailed technical comments relating to traffic forecasting and modelling were made. In order to aid the flow of the report and to answer the three key questions in the brief for the peer review, the detailed points are provided as Appendix C.

Conclusion: A series of comments have been made in respect of the EAR and draft Economic Case. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future.

### 4.3.7 SWTP Traffic Forecasting Report (TFR)

The Traffic Forecasting Report models two different scenarios, one with the committed highway schemes, and one with the additional South Wye Transport Package measures.

- The Southern Link Road (SLR), connecting A49/B4399 Roundabout to A465
- Active travel measures

The primary purpose of the highway model is to assess the environmental and economic benefits of the SWTP.

The modelled scenarios have included assumptions based on the opening of the SLR and combined with the bypass opening year. The transport packages have been separated, to allow the Hereford Transport Package to be assessed independently.

In reviewing this document, a number of detailed technical comments relating to traffic forecasting and modelling were made. In order to aid the flow of the report and to answer the three key questions in the brief for the peer review, the detailed points are provided as Appendix C.

Conclusion: A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future.

## 4.4 Summary of findings

Table 4.3 provides a summary of the peer review team's conclusions in respect of how the key documents to support the development of the package meet the three aims of the review. They are categorised in line with the RAG criteria explained at the start of this Section.

### Table 4.3: Summary of findings by document

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| SWTP Preferred Option Report | Conclusion: The level of information provided does not meet the requirements of Stage 1 of TAP. The preferred option report considers alternative link road alignments but this does not constitute an appropriate study of alternative interventions or the impact of doing nothing. Sustainable transport proposals are considered in an Appraisal Summary Table (AST) in Appendix B but are not really covered in the main body of the report. This document has in effect been superseded by the 2018 Options Appraisal Report, which has been developed in line with Stage 1 of TAP. Hence whilst it may have had deficiencies in the context of TAP, the significance is minor given the OAR looks at options. |
| SWTP Southern Link Road planning statement | Given this is a planning rather than a transport document, this has purely been considered and included within the reviewed suite of documents to provide context for the package. |
| Hereford Transport Model Local Model Validation Report | Although the LMVR is a comprehensive document, with the information providing a clear understanding of the model and its validation results, a number of queries were raised in the rapid peer review of the document. It is important to note that the LMVR was in the process of being reviewed with the DfT as part of the submission of the SWTP Full Business Case.<br>The direction from HC was that a detailed technical validation of modelling was not being sought from the peer review. The assessment of the modelling was in the context of it being in general appropriate for the stage of the project and supporting the conclusions reached.<br>The work is considered to be appropriate for the work to date and the technical queries raised are points which may need to be considered again if the packages are progressed in the future. |
| SWTP Options Assessment Report | A number of areas within the OAR could have been done differently to more robustly meet the steps of Stage 1 of the Transport Appraisal process. However, in light of the DfT email of 16/04/19 confirming no further comments on version 11 the report, it can be concluded that Herefordshire Council have developed the package in an agreed manner and the peer review team's concern should be classed as something which could have been done differently rather than a fundamental issue. Although developed in accordance with guidance at the time environmental topics would now fall short of current Net Gain, Net Zero requirements and the Climate Emergency context and would need revisiting as part of any future updates |
| SWTP Options Refinement Report | The ORR provides a proportionate assessment of the active modes options and a robust assessment of the SLR. The DfT email of 16/04/19 confirming no further comments on version 6 the report provides further weight to the conclusion that Herefordshire Council have developed the package in an agreed manner. |
| SWTP Economic Appraisal Report<br>SWTP Economic Case | A series of comments have been made in respect of the EAR and draft Economic Case. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |
| SWTP Traffic Forecasting Report | A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |

Notes:

- Aim 1 In accordance with TAG
- Aim 2 Sound evidence base
- Aim 3 Decisions sound
- Red = looking backwards – issue which should be clarified,
- Green = looking backwards – sound but issue could have been done differently.
- Amber = looking forwards = issue to be considered if package progressed further in the future
- Black = not applicable

# 5 Future requirements

Environmental issues, climate emergency and net zero policy has been considered separately to the individual documents that formed a part of the appraisal review. This section explains the relative overarching policies and how these have changed and adapted throughout the appraisal process. The policies used at the start of the process, albeit correct at the time of the SWTP's earlier development, are now out of date.

A fundamental shift in Government policy and ambition in the area of the environment, climate and carbon has occurred since the SWTP assessment documents were produced. The United Nation's Paris Agreement called on all countries to engage in climate action to maintain the global average temperature increase below 2°C and aim to limit it to below 1.5°C compared to pre-industrial levels. In 2018, the Intergovernmental Panel on Climate Change (IPCC) Special Report concluded limiting global warming to 1.5°C would require "unprecedented" and "deep emissions reductions in all sectors" and a decrease in global CO2 emissions by about 45% by 2030 compared to 2010, reaching net zero by 2050. Central UK Government declared a Climate Emergency in May 2019, followed in June 2019 with the target for 100% reduction in GHG emissions by 2050 (Net Zero). This materially affects investment decisions, especially in the area of transport infrastructure. Updates to the NPPF in 2018 embedded the principle of environmental "net gain" in relation to new development. Taken together, these provide grounds for challenge to any scheme which does not demonstrably provide environmental benefit and contribute to significant reduction in carbon emissions. The forthcoming Environment Bill is expected to reinforce this trajectory.

Legal challenge to both transport policy and major infrastructure projects has also gathered momentum in recent years, epitomised in the February 2020 Court of Appeal ruling regarding Heathrow's third runway. In this case the court of appeal ruled that ministers did not adequately take into account the government's commitments to tackle the climate crisis. More specifically that at the time that the UK commitment to the Paris Agreement was put into law, the Transport Minister should have instructed the Department for Transport to review the national policy statement on aviation to ensure that it remained a 'legal' policy statement in the context of the UK revised commitments with respect to carbon.

The approach to assessing major transport schemes in TAG is still catching up with policy. It remains possible for schemes to fully meet current assessment criteria and yet fall short of the high standards set by policy. TAG Unit A3 (Environmental Impacts) predominantly dates back to 2015 (although Air Quality sections were updated in 2019) and is not explicitly aligned with the policy of 100% reduction in GHG emissions by 2050, although there is a "strong preference" for Net Gain in regard to biodiversity. The latest DMRB guidance on climate change (LA 114) is from October 2019 and does reference the Net Zero target and take account of current climate change scenarios (UKCP18).

Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all the SWTP documents would now fall short of current ambition in these areas. Whilst issues around Air Quality and Noise are rightly identified, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). These points are not intending to indicate that there was any deficiency in the work undertaken, merely that more recent policy and guidance would mean that these issues should be considered again if the existing work is taken forward.

Taking this into account and given the policy changes it is likely that the Climate Emergency, Net Zero and Net Gain would now be strategic objectives against which options for SWTP (and indeed any highway / transport infrastructure scheme) would need to be assessed and progressed, likely leading to different solutions to those chosen to date.

# 6 Summary and conclusions

## 6.1 Preamble

This report provides the findings of the peer review work that has been undertaken on the governance and technical documents used to develop the South Wye Transport Package.

The aims of the peer review are to:

- Establish whether the package has been developed in accordance with the major transport scheme process as laid out in TAG
- Establish whether the package including their major road scheme components (the southern link road in the SWTP) are based on a sound evidence base
- Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

The comments and recommendations made regarding each document is summarised in terms of:

- Looking backwards – issues identified which should be clarified or amended.
- Looking to the future – generally technical issues related to transport modelling and appraisal which may need to be revisited if the package are progressed further in the future. This point also considers environmental, climate change and net zero issues which could lead to a different vision for the package.

The format of the review provides a concise commentary on the document provided, notes any issues identified by the review team and concludes with a summary of each document.

The review also considered responses by the Herefordshire Council team and technical team made to queries raised by the review team.

## 6.2 Documents reviewed

It is clear that a large volume of information has been produced to support the development of the package. Following an initial rapid review of all supplied documents, the peer review focussed upon the following:

- SWTP Preferred Option Report (3512983A-HHR Version 6.0, November 2014)
- SWTP Southern Link Road Planning Statement (3512983L-HHR Final, April 2015)
- Hereford Transport Model Local Model Validation Report (70029880-571\1\3 3rd Draft, September 2017)
- SWTP Options Assessment Report (3512983BP Revision 10, October 2018)
- SWTP Options Refinement Report (70089880 Revision 6, February 2019)
- SWTP Economic Appraisal Report (3512983BP–WSP-DEV-001-EAR03 Rev 2, February 2019)
- SWTP Economic Case (no report reference, May 2019) (part of draft Full Business Case)
- SWTP Traffic Forecasting Report (3512983BP-WSP-DEV-001-TFR02 Rev 1, December 2018).

## 6.3 Classification of review comments

The comments made have been classified in terms of:

- Looking backwards – issues identified which should be clarified or amended. Categorised red where the point made is deemed to be a significant issue, green if the premise is sound however things could have been covered differently (i.e. a technical recommendation which could be reconsidered).
- Looking to the future – generally technical issues which could be revisited if the packages are progressed further, as well as environmental, climate change and net zero issues which could lead to a different vision for the package. These points are all categorised as amber, on the premise that they would be considered in the future before the package was progressed further.

## 6.4 Peer review conclusions

A volume of technical work has been reviewed to assess the case for the package. The findings are summarised below.

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| SWTP Preferred Option Report | Conclusion: The level of information provided does not meet the requirements of Stage 1 of TAP. The preferred option report considers alternative link road alignments but this does not constitute an appropriate study of alternative interventions or the impact of doing nothing. Sustainable transport proposals are considered in an Appraisal Summary Table (AST) in Appendix B but are not really covered in the main body of the report. This document has in effect been superseded by the 2018 Options Appraisal Report, which has been developed in line with Stage 1 of TAP. Hence whilst it may have had deficiencies in the context of TAP, the significance is minor given the OAR looks at options. |
| SWTP Southern Link Road planning statement | Given this is a planning rather than a transport document, this has purely been considered and included within the reviewed suite of documents to provide context for the package. |
| Hereford Transport Model Local Model Validation Report | Although the LMVR is a comprehensive document, with the information providing a clear understanding of the model and its validation results, a number of queries were raised in the rapid peer review of the document. It is important to note that the LMVR was in the process of being reviewed with the DfT as part of the submission of the SWTP Full Business Case.<br>The direction from HC was that a detailed technical validation of modelling was not being sought from the peer review. The assessment of the modelling was in the context of it being in general appropriate for the stage of the project and supporting the conclusions reached.<br>The work is considered to be appropriate for the work to date and the technical queries raised are points which may need to be considered again if the packages are progressed in the future. |
| SWTP Options Assessment Report | A number of areas within the OAR could have been done differently to more robustly meet the steps of Stage 1 of the Transport Appraisal process. However, in light of the DfT email of 16/04/19 confirming no further comments on version 11 of the report, it can be concluded that Herefordshire Council have developed the package in an agreed manner and the peer review team's concern should be classed as something which could have been done differently rather than a fundamental issue. Although developed in accordance with guidance at the time environmental topics would now fall short of current Net Gain, Net Zero requirements and the Climate Emergency context and would need revisiting as part of any future updates |
| SWTP Options Refinement Report | The ORR provides a proportionate assessment of the active modes options and a robust assessment of the SLR. The DfT email of 16/04/19 confirming no further comments on version 6 the report provides further weight to the conclusion that Herefordshire Council have developed the package in an agreed manner. |

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| SWTP Economic Appraisal Report | A series of comments have been made in respect of the EAR and draft Economic Case. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |
| SWTP Economic Case | |
| SWTP Traffic Forecasting Report | A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |

Notes:

- Aim 1 In accordance with TAG
- Aim 2 Sound evidence base
- Aim 3 Decisions sound
- Red = looking backwards – issue which should be clarified,
- Green = looking backwards – sound but issue could have been done differently.
- Amber = looking forwards = issue to be considered if package progressed further in the future
- Black = not applicable

**Aim 1 of the review is considered to be met. Whilst there remain points of technical detail which may need to be addressed in the future if the package is taken forward, it is clear that the technical work undertaken since 2018 has been prepared in accordance with the DfT Transport Appraisal Process.**

**Aim 2 of the review, which is to establish whether the packages including their major road scheme components (the southern link road in the SWTP) have been developed with a sound evidence base is deemed to be met. The history of the package revolves around the infrastructure needs to meet the plans of the Core Strategy. It is evident that the infrastructure is required to support the development policies contained within this document. The proposals in the form of the HTP and the SWTP have been tested and challenged in an appropriate way through technical studies, modelling and Examination in Public, to enable them to be adopted within the Local Plan.**

**To further support the conclusion that the first two aims have been met, Herefordshire Council has also provided evidence that DfT has considered the OAR and ORR and confirmed that they had no further comments on these documents following review. These are two of the more critical documents to inform the case for the package and describe how its appraisal has been progressed.**

## 6.5 Governance and historical development of the package

Whilst a detailed inspection of the fine print of the governance decisions would need to be undertaken by a land use or legal expert rather than the transport professionals who have undertaken the peer review, from the information considered in these documents it does appear that all decisions have been made in accordance with the recommendations of the technical evidence provided to support the Council papers at the time, i.e. the action taken was appropriate in the context of the advice and recommendations provided and the technical information available. There is a logical flow of decisions which recommend the continuation of the package, including where decisions have been called in for further scrutiny and additional information has been provided to justify the associated course of action.

One aspect which is not explicit within any of the decisions is the point at which the schemes split from a single bypass road scheme to two packages which included additional measures and a split of the two road elements. Whilst this is not considered to be a particular flaw in either

package, it would be helpful to record this in future scheme timelines if the package is progressed further.

In addition to the council's governance the proposals have been tested and challenged in an appropriate way through technical studies and Examination in Public, to enable them to be adopted within the Local Plan. Since the adoption of the Core Strategy, more recent technical work has been subject to regular public consultation and council scrutiny and there is nothing to indicate that decisions have not been undertaken in accordance with the technical evidence and recommendations which were available at decision points.

**Aim 3 of the review is considered to be met.**

# Appendices

# A. Incoming document register

The following is a cohesive list of all the documents that have been reviewed throughout the peer review process:

**Initial technical documents:**

- July 2011 - Local Development Framework
- March 2013 - Draft Core Strategy
- November 2014 - SWTP Additional Route Options (PB)
- November 2014 - SWTP Preferred Option Report Final Low RES (PB)
- November 2014 - SWTP Public Consultation Report (PB)
- November 2014 - SWTP Route Options
- July 2016 – Planning Permission Decision Notice 275986
- March 2017 - SWTP Active Travel Consultation Report (WSP PB)
- February 2019 – SWTP Option Refinement Report (WSP)
- Pro forma (SWTP)
- 2003 Multi Modal Report

**Additional technical documents**

- Hereford Transport Demand Model Validation Report
- SWTP Benefits Realisation Plan
- SWTP Commercial Case
- SWTP Commercial Case Appendix C1 Procurement Strategy
- SWTP Commercial Case Appendix C2 Decision on SLR Procurement
- SWTP Commercial Case Appendix C3 Risk Register
- SWTP Commercial Case Appendix C4 Programme
- SWTP Economic Appraisal Report
- SWTP Economic Case
- SWTP Financial Case
- SWTP Financial Case Appendix F1 Southern Link Road Cost Sheet
- SWTP Financial Case Appendix F2 Risk Register
- SWTP Financial Case Appendix F3 Project Risk Management Quantitative Cost Risk Analysis
- SWTP Financial Case Appendix F4 Active Travel Measures Cost Estimates
- SWTP Traffic Forecasting Report
- SWTP Option Assessment Report
- SWTP Option Assessment Report Appendices
- SWTP Southern Link Road Planning Statement
- SWTP Southern Link Road Planning Statement Fig 2.2
- SWTP Southern Link Road Planning Statement Fig 2.3
- SWTP Schedule of supporting documents

- SWTP Strategic Outline Case Proforma
- Hereford Transport Model Local Model Validation Report
- Appendix 2 VARIATION TO MEMORANDUM OF UNDERSTANDING (NOVEMBER 2014)
- Letter: HEREFORDSHIRE LOCAL DEVELOPMENT FRAMEWORK TRANSPORT MODELLING AND APPRAISAL
- Hereford Enterprise Zone Local Development Order
- Statement of Common ground Between Herefordshire Council and Highways Agency

**Governance decisions**

- 16.09.2010 - Cabinet - Publication of Core Strategy Option paper
- 28.07.2011 - Cabinet - Economic Development Strategy LDF and LTP3
- 19.07.2013 - Council - Core Strategy Approval
- 18.12.2014 - GOSC - Call-In of Cabinet Decision on the SWTP 13 Nov 2014
- 02.12.2014 - GOSC - Response to Call-In of Cabinet Decision on the SWTP 13 Nov 2014
- 18.12.2014 - Cabinet - South Wye Transport Package Report following Call-In
- 16.10.2015 - Council - Adoption of Core Strategy
- 20.05.2016 - Council - Adoption of Local Transport Plan
- 14.12.2017 - Cabinet - SWTP Active Travel Measures Progression
- 08.03.2019 - Cabinet Member - SWTP Preferred ATM Package

# B. Summary tracker of comments

MOTT MACDONALD

Project Title **Peer Assessment of Hereford and South Wye Transport Packages**
Project No. **417997**
Document **South Wye Transport Package Comments Log**
Rev / Date **Rev 1 / 09/07/20**

| Comment ID | Status | Issue Theme | Source report | Specific location (e.g. section,page,para) | Comment | Date | Raised by | Allocated to | Response | Date | Comment_update | Date | Closed date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW1 | Closed | Options sifting | SWTP Option Assessment Report | Section 4.2.9 and 7.2 | **TAP Step 6** Identifies "In general, cheaper and easier parking at a destination is associated with more driving, whereas parking restraint is associated with less driving" - however parking charges are discarded as an option in Table 19 prior to scoring | 22/6/20 | MM | WSP | Notwithstanding its potential merits as a an intervention, para 7.2.2. outlines the reason for discarding, stating that 'a combination of revenue and capital expenditure are likely to form part of the wider strategy to address the problems in the South Wye area. However, the major transport scheme funding (which requires the submission of a Transport Business Case, and which the OAR forms a component part) is for capital expenditure. On that basis only capital expenditure options were considered further through the assessment process' | 8/7/20 | It is understood why this position has been taken and TAP paragraph 2.9.1 notes that "At the end of Step 5 … An initial sift should … be undertaken to identify any 'showstoppers' which are likely to prevent an option progressing at a subsequent stage in the process", however we do feel it would be remiss for the review team not to note a concern that there are options which could address in part some of the problems identified, which have been discounted without any further examination. Without this how can we be sure the right options have been taken forward? | 8/7/20 | 8/7/20 |
| SW2 | Closed | Options sifting | SWTP Option Assessment Report | p101 / Table 21 | **TAP Step 7** There is only a short explanation as to how and why the remaining options have been combined into four preferred packages. This needs more explanation | 22/6/20 | MM | WSP | The rationale is set out (albeit briefly) in para 8.2.12: 'As illustrated in Table 21, several options were not considered to achieve the desired outcomes in isolation. Therefore, in line with best practice guidance, consideration was given to ways in which these options could be packaged together. The aim was to create a sensible number of distinct and feasible option packages for further development and assessment.' TAP does not give guidance on how this should be carried out. | 8/7/20 | Acknowledge TAP isn't explicit on this point. More explanation would aid clarity for the reader, but it would not be justified to revisit the OAR on the basis of this point alone. | 8/7/20 | 8/7/20 |
| SW3 | Open | Options sifting | SWTP Option Assessment Report | Table 27 | **TAP Step 7-8** Only a single package has been taken forward. The outcome of the OAR process in Step 8 of TAP is to identify the better performing options (including a low-cost option) for progressing to Stage 2 of the appraisal process, which hasn't been shown to happen for SWTP | 22/6/20 | MM | WSP | [illegible] taken forward, 2 of them (online highway improvement and the junction capacity improvement options) did not perform well against the assessment areas. It goes on to say: 'The Option Assessment Framework also demonstrated that the Southern Link Road and Active Travel Measures would contribute to the delivery of the area package objectives, with each performing better against different assessment areas. It was therefore proposed that these options be combined to deliver a package (Southern Link Road + Active Travel Measures) which performs well across the majority of the assessment areas.' In essence the two better performing options were taken forward, but in combination, as the identified best means of achieving the range of objectives.<br><br>Para 9.3.5 states that 'It was considered that the Online Highway Improvements or the Junction Capacity Improvement packages referred to in Table 23 had the potential to form a low cost solution to compare with the preferred package. These were two of the four options assessed using the Option Assessment Framework. However, the Option Assessment Framework demonstrated that these packages would not sufficiently contribute to the achievement of the area package objectives. Therefore, in accordance with Step 7, these weaker performing packages were not taken forward and a low cost alternative to the preferred package was not | 8/7/20 | The concern with the approach taken to combine the strongest performing interventions, namely the SLR and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2, however typically other options would remain and be subject to further appraisal in Stage 2 | 8/7/20 | |
| SW4 | Closed | Dependent development | SWTP Option Assessment Report | Paragraph 3.5.3 | "…the previous modelling of the performance of key routes and junctions in Hereford forecasts an overall deterioration in the levels of service, providing a clear indication that the current highway network is unable to accommodate the level of growth anticipated by the Core Strategy". Despite this at no point is it suggested that a transport intervention should be implemented as a prerequisite of additional growth. HC to clarify future development relationship with infrastructure and whether all or some of the planned development must be considered to be dependent on some form of transport intervention | 22/6/20 | MM | WSP | Para 1.1.196 of the draft Strategic Case chapter states that 'Appendix 5 of the Core Strategy identifies that up to 3,250 dwellings can be delivered prior to the combination of the Southern Link Road and the river crossing section being completed. Should these infrastructure elements not be completed in a timely manner then housing delivery in Hereford may be held up or delayed.'<br>Para 1.1.14 of the draft Management Case states that 'The SWTP is not reliant on the prior completion of other programmes or projects to enable it to proceed. Other relevant and complementary projects are described in the Strategic Case.' | 8/7/20 | Closed - clarified by comment and by clarifications in discussions with HC | 8/7/20 | 8/7/20 |
| SW5 | Closed | Technical / future issue to address | SWTP Economic Appraisal Report | Table 13 | Sectorised benefits shows substantial asymmetry, particularly, but far from exclusively, in relation to Hereford City South West (Sector 1). Also, in Table 13, when considering benefits by origin and destination the sector that realises the greatest benefit is actually Hereford City North East (sector 3) and not Sectors 1 and 2 as noted in paragraph 7.3.3. | 22/6/20 | MM | | | | | | |
| SW6 | Closed | Technical / future issue to address | SWTP Economic Appraisal Report | Table 24 / Table 14 | Reliability benefits are very low compared to travel time benefits i.e. £0.6m vs £69m. We would have expected these to be several times greater or the travel time benefits to be much lower. | 22/6/20 | MM | | | | | | |
| SW7 | Closed | Technical / future issue to address | SWTP Economic Appraisal Report | Paragraph 3.8 / Table 25 / TEE | Output change in imperfectly competitive markets is mentioned (in paragraph 3.8) but doesn't seem to be included in the adjusted BCR. This would add £1.17m benefits (based on 10% of business benefits). | 22/6/20 | MM | | | | | | |
| SW8 | Closed | Technical / future issue to address | SWTP Economic Appraisal Report | Table 22 | The sensitivity testing realises a sensible range of BCRs for the scheme (for low, core and high growth) but the split by purpose is inconsistent for Other and Business. For Other, the benefits for Core and Low are virtually the same. For Business, the high growth test results in fewer Business benefits than the Core. | 22/6/20 | MM | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW9 | Closed | Technical / future issue to address | SWTP Economic Appraisal Report | Table 16 / Appendix K | The Interpeak (IP) period is providing around half of the total travel time benefits from 2041 onwards, whereas in the earlier years it provides only a fraction of this amount. The IP travel time benefits in 2041 are fifteen times higher than they are in 2026. This pattern of benefits appears to be implausible and from looking at the inconsistent interpeak delay plots in the Traffic Forecasting Report (Appendix K), it seems likely to stem from a quirk/ problem in the modelling rather than being related to a genuine impact of the scheme. In particular, the step change in the IP benefits warrants further explanation | 22/6/20 | MM | | | | | | |
| SW10 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 3.2 | When comparing the "need for VDM" tests outlined in section 3.2 against the results set out in the SWTP EAR it is clear that VDM has a significant impact on user benefits. | 22/6/20 | MM | | | | | | |
| SW11 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 3.3.3 | The following quote from section 3.3.3 *"DIADEM can only be used to estimate the elasticity of home-based trips"* is incorrect. Presumably it is intended to state that VDM isn't applied to goods vehicle trips which are generally assumed to be fixed. In the SWTP modelling, demand segments 4, 5 and 6 represent non-home-based trips subject to VDM. | 22/6/20 | MM | | | | | | |
| SW12 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 3.3.10 | Within 3.3.10 it is noted that trip matrices for the SWTP model have been derived in Origin - Destination (OD) format rather than Production - Attraction (PA). This appears to be an oversight in the original development of the model as the use of PA matrices, particularly in forecasting for schemes of this type, would be a more typical approach. Applying VDM at OD level can lead to inconsistencies as the link is broken between outbound and return trips resulting in asymmetric changes to trip patterns. | 22/6/20 | MM | | | | | | |
| SW13 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 4.1.2 | In section 4.1.2 it is noted that the SLR future Design Year aligns with the Hereford Bypass design year. In the Hereford Transport Package (HTP) modelling the SLR Design Year is modelled as 2035, 15 years after scheme opening. | 22/6/20 | MM | | | | | | |
| SW14 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 4.3.5 / Table 13 | The following quote is from section 4.3.5 "As the estimated number of new jobs in Herefordshire districts exceeds the growth in TEMPro, the number of jobs for the future year has been set equal to the base year (see bold numbers in table)." Further classification needs to be provided. It is also unclear which table this refers to as the adjacent table (Table 13) has no bold highlight and it is not obvious where the number of assumed jobs has been capped. | 22/6/20 | MM | | | | | | |
| SW15 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Table 14 | Table 14, growth rates for freight trips, look like factors that have been mistakenly formatted as percentages. | 22/6/20 | MM | | | | | | |
| SW16 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 5.1.2 | In section 5.1.2 it is noted that 4 committed schemes have been included in the Do Minimum (DM) forecasts. Of these, only Hereford Northern Expansion isn't included from the 2020 opening year onwards. The Hereford Northern Expansion is due to open in 2022. | 22/6/20 | MM | | | | | | |
| SW17 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 5.1.2 | Within section 5.2.5 it appears that a number of signalised junctions, including the A49 Ross Road and Belmont Asda junction have been optimised in the Do Something (DS) scenario only. The significance of the optimisation of these junctions in only the DS scenario is unclear but the impact of this change on the economic assessment of the scheme could be substantial. In this regard it would be helpful to know how dependent the reported scheme benefits are to the optimisation of these junctions. A simple test against a DS scenario in which the junctions are left the same as the DM would be helpful to understand this. **(More detail in MM TN 417997-MMD-MAN-XX-TN-TA-015 Appendix E.1.7)** | 22/6/20 | MM | | | | | | |
| SW18 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 5.2.8 | Active travel measures coded in the DS should lead to disbenefits for cars/GVs in the highway appraisal. Section 5.2.8 needs classification on whether these disbenefits have been identified. | 22/6/20 | MM | | | | | | |
| SW19 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 6.2.9 | In section 6.2.9 there is a suggestion that fuel cost change and income growth factors have been applied to the National Trip End Model (NTEM) growth, but these adjustments are only applicable in a fixed matrix assignment. The DIADEM VDM model negates the need for these adjustments. This should be clarified. | 22/6/20 | MM | | | | | | |
| SW20 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Table 16 | In Table 16, Constraint to TEMPro, the growth factors are mistakenly formatted as percentages. | 22/6/20 | MM | | | | | | |
| SW21 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 6.6 | In section 6.6 the value of time for Other Goods Vehicle 1 (OGV1) and Other Goods Vehicle 2 (OGV2) is based on the driver's value of time and does not take account of the influence of owners on the routeing of these vehicles. TAG Unit M3.1 para 2.8.8 indicates that consideration should be given to doubling this value | 22/6/20 | MM | | | | | | |
| SW22 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Section 8.2 | In section 8.2 a 12hr or 24hr flow for the SLR is not immediately apparent within the Traffic Forecasting Report (TFR) but based on the annualisation factors in the Economic Assessment Report (EAR), the 12hr (2-way) flow on Southern Link Road is only around 5,300 vehicles in 2020. This seems inconsistent with the level of benefit being claimed. This is clearly not a busy road, especially compared to the volumes carried by the A49 where over 45,000 vehicles per day crossed the A49 bridge in 2018 according to the DfT traffic counter. | 22/6/20 | MM | | | | | | |
| SW23 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Appendix I | The (A3 size) tabulations of traffic flows are very unwieldy and we would have expected to see a diagrammatic figure showing the flows on key links within the main body of the report. 12hr flows would also be helpful to allow greater understanding of the impact of the SLR scheme across the day. | 22/6/20 | MM | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW24 | Closed | Technical / future issue to address | SWTP Traffic Forecasting Report | Appendix K | The node delay plots show that the largest delay by far (several times larger than anywhere else) in any modelled period is in the interpeak and is in the centre of Hereford. This delay is present in all years for the DM scenario but is only present in 2020 and 2026 for the DS scenario. To some extent the removal of this delay could provide an explanation for the unusual pattern of interpeak (IP) benefits, although the same effect would also be expected to be seen in the 2032 benefits and it isn't. Further explanation of the impact of this delay on the IP forecasts is required, including the rationale for not addressing this very large delay in the DM models. | 22/6/20 | MM | | | | | | |
| HTP&SW1 | Closed | Technical / future issue to address | Hereford Transport Demand Model Validation Report | General comment | *** Applies to HTP and SWTP *** No detailed review of this document has taken place since WSP indicated in May 2020 that 'essentially, all items and queries had been responded to by correspondence with an agreement to produce a final version of the LMVR made in June 2019'. However, the DfT correspondence attached to the Note does not confirm that the DfT has reviewed and accepted the model, it merely confirms dialogue has taken place. This either requires further information to be provided or HC to confirm that this document does not require reviewing to close this out. | 22/6/20 | MM | | | | | | |

# C. Detailed modelling comments

MOTT MACDONALD

# Appendix C

As part of the peer review a number of detailed comments have been made in respect of transport modelling and forecasting. They are not intended to imply a fundamental issue with the work, these are points which the review team feels may need to be reviewed by Herefordshire Council's technical team / consultants if the package is progressed further in the future.

## SWTP Economic Appraisal Report and Economic Case

The following comments are made (references to the EAR are in bold text):

- **Table 13** – Sectorised benefits shows substantial asymmetry, particularly, but far from exclusively, in relation to Hereford City South West (Sector 1). Also, in Table 13, when considering benefits by origin and destination the sector that realises the greatest benefit is actually Hereford City North East (sector 3) and not Sectors 1 and 2 as noted in paragraph 7.3.3.
- Reliability benefits are very low compared to travel time benefits i.e. £0.6m vs £69m.
- Output change in imperfectly competitive markets is mentioned (in paragraph 3.8) but doesn't seem to be included in the adjusted BCR. This would add £1.17m benefits (based on 10% of business benefits).
- The sensitivity testing realises a sensible range of BCRs for the scheme (for low, core and high growth) but the split by purpose is inconsistent for Other and Business. For Other, the benefits for Core and Low are virtually the same. For Business, the high growth test results in fewer Business benefits than the Core.

**Table 16** (shown below as Table 1.1) within the EAR provides the breakdown of travel time benefits, model year and time period. Additional columns have been added by Mott MacDonald to show percentages (in italics).

**Table 1.1: Table 16 in EAR**

| Year | AM | IP | PM | Total | *AM* | *IP* | *PM* |
|---|---|---|---|---|---|---|---|
| 2020 | 543 | 125 | 143 | 811 | *67%* | *15%* | *18%* |
| 2026 | 396 | 47 | 111 | 554 | *71%* | *8%* | *20%* |
| 2032 | 381 | 172 | 343 | 896 | *43%* | *19%* | *38%* |
| 2041 | 367 | 704 | 319 | 1390 | *26%* | *51%* | *23%* |
| 2051 | 402 | 616 | 317 | 1335 | *30%* | *46%* | *24%* |

Table 1.1 shows, that the Interpeak (IP) period is providing around half of the total travel time benefits from 2041 onwards, whereas in the earlier years it provides only a fraction of this amount. The IP travel time benefits in 2041 are fifteen times higher than they are in 2026. This pattern of benefits appears to be implausible and from looking at the inconsistent interpeak delay plots in the Traffic Forecasting Report (**Appendix K**), it seems likely to stem from a quirk/ problem in the modelling rather than being related to a genuine impact of the scheme. In particular, the step change in the IP benefits warrants further explanation.

There are some resulting queries from investigating the EAR:

- Why do the total travel time benefits reduce by over 30% between 2020 and 2026 before recovering in 2032?
- Why is there a step change in travel time benefit between 2032 and 2041 (i.e. a 55% increase)?
- In 2020 and 2026 why are there so few benefits in the PM peak when in the following years the AM and PM travel time benefits are broadly similar?

**EAR Conclusion: Something doesn't look quite right in the modelling. On the face of it looks unusual. Further investigation recommended as part of any further development of the package to explain / clarify.**

### SWTP Traffic Forecasting Report (TFR)

The Traffic Forecasting Report models two different scenarios, one with the committed highway schemes, and one with the additional South Wye Transport Package measures.

- The Southern Link Road (SLR), connecting A49/ B4399 roundabout to A465
- Active travel measures.

The primary purpose of the highway model is to assess the environmental and economic benefits of the SWTP.

The modelled scenarios have included assumptions based on the opening of the SLR and combined with the bypass opening year. The transport packages have been separated, to allow the Hereford Transport Package to be assessed independently.

For the future modelled years, there eastbound flows are higher in the AM peak, with westbound flows higher in the PM peak. The interpeak flows are 25-45% higher eastbound and this difference reduces proportionally in the later years modelled, indicating that the flows are not entirely tidal.

The following points of detail have been identified within the document:

**Need for Variable Demand Modelling (VDM)**

Within section 3.2 there is possibly a moot point given that variable demand modelling has been applied for the SLR forecasting but when comparing the “need for VDM” tests outlined in section 3.2 against the results set out in the SWTP EAR it is clear that VDM does have a significant impact on user benefits.

**Diadem Variable Demand Model (VDM)**

The following quote from section 3.3.3 *“DIADEM can only be used to estimate the elasticity of home-based trips”* is incorrect. Presumably it is intended to state that VDM isn’t applied to goods vehicle trips which are generally assumed to be fixed. In the SWTP modelling, demand segments 4, 5 and 6 represent non-home-based trips subject to VDM.

Within 3.3.10 it is noted that trip matrices for the SWTP model have been derived in Origin - Destination (OD) format rather than Production - Attraction (PA). This appears to be an oversight in the original development of the model as the use of PA matrices, particularly in forecasting for schemes of this type, would be a more typical approach. Applying VDM at OD level can lead to inconsistencies as the link is broken between outbound and return trips resulting in asymmetric changes to trip patterns.

In the report there is a section to say VDM isn't required but then it's been done. This is a point of consistency rather than deficiency.

**VDM Conclusion: We would recommend an edit to the document is required rather than this is indicating any deficiency in development. In the report there is a section to say VDM isn't required but then it's been done - it’s a point of consistency rather than deficiency.**

**Future year scenarios**

In section 4.1.2 it is noted that the SLR future Design Year aligns with the Hereford Bypass design year. In the Hereford Transport Package (HTP) modelling the SLR Design Year is modelled as 2035, 15 years after scheme opening.

**Future year scenarios conclusion: This is an observation only.**

### National trip end forecasts

The following quote is from section 4.3.5 “As the estimated number of new jobs in Herefordshire districts exceeds the growth in TEMPro, the number of jobs for the future year has been set equal to the base year (see bold numbers in table).” Further classification needs to be provided. It is also unclear which table this refers to as the adjacent table (Table 13) has no bold highlight and it is not obvious where the number of assumed jobs has been capped.

**National trip end forecasts conclusion: Document edit recommended to clarify rather than being an issue with the modelling.**

### Growth in freight traffic

Table 14, growth rates for freight trips, look like factors that have been mistakenly formatted as percentages.

### Committed highway schemes

In section 5.1.2 it is noted that 4 committed schemes have been included in the Do Minimum (DM) forecasts. Of these, only Hereford Northern Expansion isn’t included from the 2020 opening year onwards. The Hereford Northern Expansion is due to open in 2022.

**Committed highway schemes conclusion: Northern Expansion is not included in HTP Traffic Forecasting (Table 5, p17) but it is in SWTP Traffic Forecasting (Table 15, p23). Is it correct that this is not in both reference cases?**

### Traffic signals

Within section 5.2.5 it appears that a number of signalised junctions, including the A49 Ross Road and Belmont Asda junction have been optimised in the Do Something (DS) scenario only. The significance of the optimisation of these junctions in only the DS scenario is unclear but the impact of this change on the economic assessment of the scheme could be substantial. In this regard it would be helpful to know how dependent the reported scheme benefits are to the optimisation of these junctions. A simple test against a DS scenario in which the junctions are left the same as the DM would be helpful to understand this.

The risk in optimising junctions only in the DS scenario is that the signal timings in the DM Saturn model may also be sub-optimal, especially if they have been carried forward from the base year (even in the base year, junctions modelled in Saturn are unlikely to be fully optimised if the final calibrated approach flows are not entirely consistent with the input signal timings).

To maintain an even-handed approach, it may have been more appropriate to optimise all major signalised junctions independently in the DM and DS to account for general changes in traffic resulting from developments and general background growth in traffic. As a minimum, any junctions optimised in the DS should also have been optimised in the DM.

### Active travel measures

Active travel measures coded in the DS should lead to disbenefits for cars/GVs in the highway appraisal. Section 5.2.8 needs classification on whether these disbenefits have been identified.

### Future year trip ends and constraint to TEMPro

In section 6.2.9 there is a suggestion that fuel cost change and income growth factors have been applied to the National Trip End Model (NTEM) growth, but these adjustments are only applicable in a fixed matrix assignment. The DIADEM VDM model negates the need for these adjustments. This should be clarified.

In Table 16, Constraint to TEMPro, the growth factors are mistakenly formatted as percentages.

**Generalised cost parameters**

In section 6.6 the value of time for Other Goods Vehicle 1 (OGV1) and Other Goods Vehicle 2 (OGV2) is based on the driver's value of time and does not take account of the influence of owners on the routeing of these vehicles. TAG Unit M3.1 para 2.8.8 indicates that consideration should be given to doubling this value.

**Traffic using SLR**

In section 8.2 a 12hr or 24hr flow for the SLR is not immediately apparent within the Traffic Forecasting Report (TFR) but based on the annualisation factors in the Economic Assessment Report (EAR), the 12hr (2-way) flow on Southern Link Road is only around 5,300 vehicles in 2020. This seems inconsistent with the level of benefit being claimed. This is clearly not a busy road, especially compared to the volumes carried by the A49 where over 45,000 vehicles per day crossed the A49 bridge in 2018 according to the DfT traffic counter.

**Appendix I: Forecast Link Flows**

The (A3 size) tabulations of traffic flows are very unwieldy and we would have expected to see a diagrammatic figure showing the flows on key links within the main body of the report. 12hr flows would also be helpful to allow greater understanding of the impact of the SLR scheme across the day.

**Appendix K: Node Delay Plots**

The node delay plots show that the largest delay by far (several times larger than anywhere else) in any modelled period is in the interpeak and is in the centre of Hereford. This delay is present in all years for the DM scenario but is only present in 2020 and 2026 for the DS scenario. To some extent the removal of this delay could provide an explanation for the unusual pattern of interpeak (IP) benefits, although the same effect would also be expected to be seen in the 2032 benefits and it isn’t. Further explanation of the impact of this delay on the IP forecasts is required, including the rationale for not addressing this very large delay in the DM models.

Following the detailed review, some general issues need to be discussed and examined further. These are:

- Issues relating to the optimisation of key traffic signals in only the DS scenario need to be clarified. There is a clear risk that the approach adopted may have artificially inflated the user benefits that have been attributed to the scheme in the economic appraisal.
- Very large delays in the interpeak model should be investigated, particularly considering the unusual patterns of user benefit noted in the EAR for this time period.
- A diagram showing traffic flows on key links appears to be a significant omission from the forecasting report. The inclusion of select link analyses to show the routing of trips that are making use of the SLR scheme would also aid understanding of the impacts of the scheme.

MOTT MACDONALD

# Peer Assessment of Hereford Transport Package Findings Report

July 2020

Mott MacDonald
35 Newhall Street
Birmingham B3 3PU
United Kingdom

T +44 (0)121 234 1500
mottmac.com

Herefordshire Council
Economy & Place
Thorn Business Park
Rotherwas
Hereford
HR2 6JT

# Peer Assessment of Hereford Transport Package Findings Report

July 2020

# Issue and Revision Record

| Revision | Date | Originator | Checker | Approver | Description |
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| A | 12/06/20 | CK | ED | DW | Initial Draft for Review |
| B | 17/07/20 | CK / ED | ED | DW | Final Draft |
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## Tables



## Figures

# Executive summary

Mott MacDonald (MM) was appointed by Herefordshire Council (HC) to undertake a peer review of the Hereford Transport Package (HTP) and South Wye Transport Package (SWTP). This report concludes the findings of the review of the Hereford Transport Package.

## Summary of the brief

The approach to the peer review is based on the major transport scheme process as established by the Department for Transport (DfT) and set out in its Transport Analysis Guidance (TAG) ), particularly Stages 1 and 2 of the Transport Appraisal Process (TAP). The aim of the peer assessment is to:

1. Establish whether each package has been developed in accordance with the major transport scheme process as laid out in TAG
2. Establish whether the packages including its major road scheme components, the western bypass in the HTP, is based on a sound evidence base
3. Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

In addition, the review was also asked to consider how more recent / emerging national policy, such as the climate emergency, might change the preferred package options if applied retrospectively.

It also considers whether the public and stakeholders have contributed appropriately to the processes involved in developing the two packages.

## Peer review

The format of the review provides a concise commentary on the documents provided, notes any issues identified by the review team and concludes with a summary of each document. The summary classifies whether the points made are:

- Looking backwards - issues identified which should be clarified or resolved. Categorised red where the point made is deemed to be a significant issue, green if the premise is sound however things could have been covered differently (i.e. a technical recommendation which could be reconsidered).
- Looking to the future -generally technical issues which could be revisited if the packages are progressed further, as well as environmental, climate change and net zero issues which could lead to a different vision for the package. This are all categorised as amber, on the premise that these points would be considered in the future before the package was progressed further.

The review has the following conclusions:

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| HTP Option Assessment Report (OAR) | The OAR produced for HTP follows the structure and format of the transport appraisal process as set out in TAG, where each of the steps 1-7 are set out in turn and reported within an OAR (Step 8). However, two points remain of concern following this review of the OAR:<br>• Some options were discounted, due to being appraised in different studies, should have been taken through a full process to determine if they had the opportunity to fulfil the objectives of the scheme. If the HTP Strategic Outline Business Case is progressed, we would recommend those discounted options are reconsidered.<br>• The concern with the approach taken to combine the strongest performing interventions, namely the road and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2. However, the option assessment process has shown there is an alternative option which could achieve all HTP objectives. Typically, the options which are shown to meet all objectives would be carried forward to further appraisal in Stage 2 "to produce evidence sufficiently robust to support the business case". If the scheme is progressed further, in updating the SOBC, it should be demonstrated that this has been addressed by the scheme promoters. |
| Hereford Transport Package Strategic Outline Business Case Large Local Majors | The content of these documents are essentially the same as the Strategic Outline Business Case reviewed below and therefore the issues are considered below. |
| HTP Strategic Outline Business Case (SOBC) | The SOBC structure for the HTP follows the DfT Transport Business Cases guidance closely. The primary concern with the SOBC is that it only considers one option, the preferred package, that has been taken from the OAR. This limited assessment is not in keeping with the principles of TAP which would suggest that more than one option (including a low-cost option) is considered at SOBC stage and have been assessed in comparative detail. |
| HTP Traffic Forecasting Report (TFR) | A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |
| Hereford Transport Model Local Model Validation Report (LMVR) | Although the LMVR is a comprehensive document, with the information providing a clear understanding of the model and its validation results, a number of queries were raised in the rapid peer review of the document. It is important to note that the LMVR was in the process of being reviewed with the DfT.<br>The direction from HC was that a detailed technical validation of modelling was not being sought from the peer review. The assessment of the modelling was in the context of it being in general appropriate for the stage of the project and supporting the conclusions reached.<br>The work is considered to be appropriate for the work to date and the technical queries raised are points which may need to be considered again if the packages are progressed in the future. |
| HTP Hereford Bypass Stage 2 Environmental Assessment | Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all this Stage 2 Environmental assessment falls short of current ambition in these areas. Whilst a wide range of topics are assessment, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). The documents also pre-date the exceptional floods and record-breaking water levels in the River Wye in Feb 2020. Taken this into account and given the policy changes it is likely that the Climate Emergency, Net Zero and Net Gain would now be strategic objectives against which options would need to be assessed and progressed as part of any future work on the package. |

## Future requirements

Environmental issues, climate emergency and net zero policy has been considered separately to the individual documents that formed a part of the appraisal review.

Assessment approaches and guidance are still catching up with policy. It remains possible for schemes to fully meet current assessment criteria and yet fall short of the high standards set by policy. TAG Unit A3 (Environmental Impacts) predominantly dates back to 2015 (Air Quality sections were updated in 2019) and is not explicitly aligned with the 100% reduction in GHG emissions by 2050, although there is a "strong preference" for Net Gain in regard to biodiversity. The latest DMRB guidance on climate change (LA 114) is from October 2019 and references the Net Zero target and take account of current climate change scenarios (UKCP18).

Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all the HTP documents would now fall short of current ambition in these areas. Whilst issues around air quality and noise are rightly identified, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). These points are not intending to indicate that there was any deficiency in the work undertaken at the time, merely that more recent policy and guidance would mean that these issues should be considered again if the existing work is taken forward.

## Conclusions

**Aim 1 of the review is considered to be met.** Whilst there remain points of technical detail which may need to be addressed in the future if the package is taken forward, it is clear that the technical work undertaken since 2018 has been prepared in accordance with the DfT Transport Appraisal Process (TAP).

**Aim 2 of the review, which is to establish whether the packages including their major road scheme components (the western bypass in the HTP) have been developed with a sound evidence base, is deemed to be met.** The history of the package revolves around the infrastructure needs to meet the plans of the Core Strategy. Infrastructure is required to support the development policies contained within this document and the initial HTP have been tested and challenged in an appropriate way through technical studies, modelling and Examination in Public, to enable them to be adopted within the Local Plan. In progressing to a preferred package there are areas which might have been done differently, particularly around alternative options. Given that work undertaken so far in Stage 2 of TAP remains at a draft stage, there is still the opportunity to address the comments raised in order to better make the case for the scheme, should the package be taken forward in the future. Notwithstanding, it is concluded that in general the technical work provides a suitable evidence base for the package.

Whilst a detailed inspection of the fine print of the governance decisions would need to be undertaken by a land use or legal expert rather than the transport professionals who have undertaken the peer review, from the information considered in these documents it does appear that all decisions have been made in accordance with the recommendations of the technical evidence provided to support the Council papers at the time, i.e. the action taken was appropriate in the context of the advice and recommendations provided and the technical information available. There is a logical flow of decisions which recommend the continuation of the package, including where decisions have been called in for further scrutiny and additional information has been provided to justify the associated course of action.

In addition to the council's governance the proposals have been tested and challenged in an appropriate way through technical studies and Examination in Public, to enable them to be adopted within the Local Plan. Since the adoption of the Core Strategy, more recent technical

work has been subject to regular public consultation and council scrutiny and there is nothing to indicate that decisions have not been undertaken in accordance with the technical evidence and recommendations which were available at decision points. **As such Aim 3 of the review is considered to be met.**

# 1 Introduction

Mott MacDonald (MM) has been appointed by Herefordshire Council (HC) to undertake a peer review of the Hereford Transport Package (HTP) and South Wye Transport Package (SWTP). This report concludes the findings of the review of the Hereford Transport Package.

## 1.1 Summary of the brief

The approach to the peer review is based on the major transport scheme process as established by the Department for Transport (DfT) and set out in its Transport Analysis Guidance (TAG). Hence, the peer assessment of each package reports against the following elements:

- Option development and analysis
- Analysis of impacts
- Evidence informing the business case
- Decision making

The aim of the peer assessment of the Hereford Transport Package is to:

- Establish whether each package has been developed in accordance with the major transport scheme process as laid out in TAG
- Establish whether the package including its major road scheme component, the western bypass, is based on a sound evidence base
- Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

In addition to the assessment approach as outlined above, the commission also requires a consideration of how more recent/ emerging national policy, such as the climate emergency, might change the preferred package options if applied retrospectively.

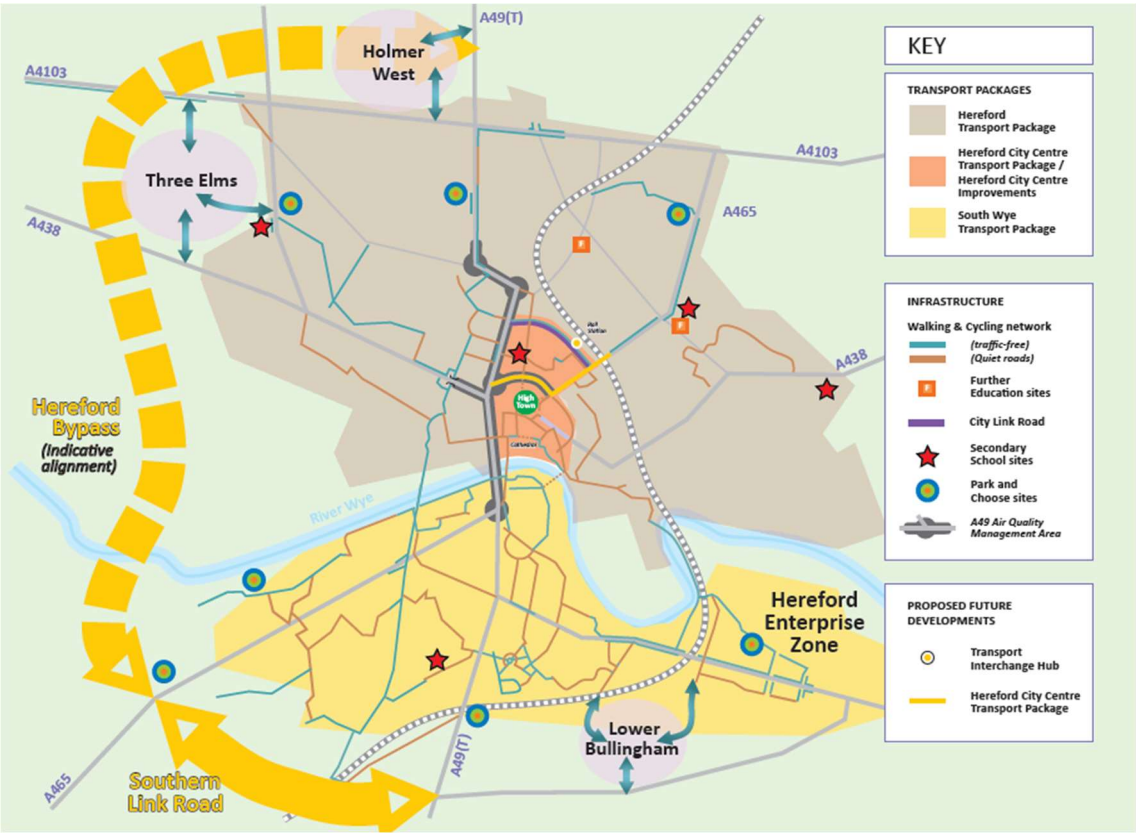
## 1.2 Drivers for the review

On 22 October 2019 Herefordshire Council's Cabinet Member for Infrastructure and Transport recommended a review of the bypass project (the road scheme component of the Hereford Transport Package) to determine the next steps. Work on the active travel measures and other bypass work including ground investigations and traffic modelling is to be continued during the review process.

The Hereford Transport Package is being reviewed in parallel with the South Wye Transport Package. Whilst not a specific driver for the review, the council's declaration of a climate emergency and commitment to reducing the carbon output of the county means that it is vital that the council continue to develop improvements to encourage a shift of travel mode and reduce congestion.

Figure 1.1 provides a diagrammatic layout of the two transport packages.

**Figure 1.1: Transport packages in Hereford**




Source: Hereford Transport Package Draft SOBC (WSP, May 2019)

## 1.3 Project deliverables

The Peer Assessment commission covers the following stages and deliverables:

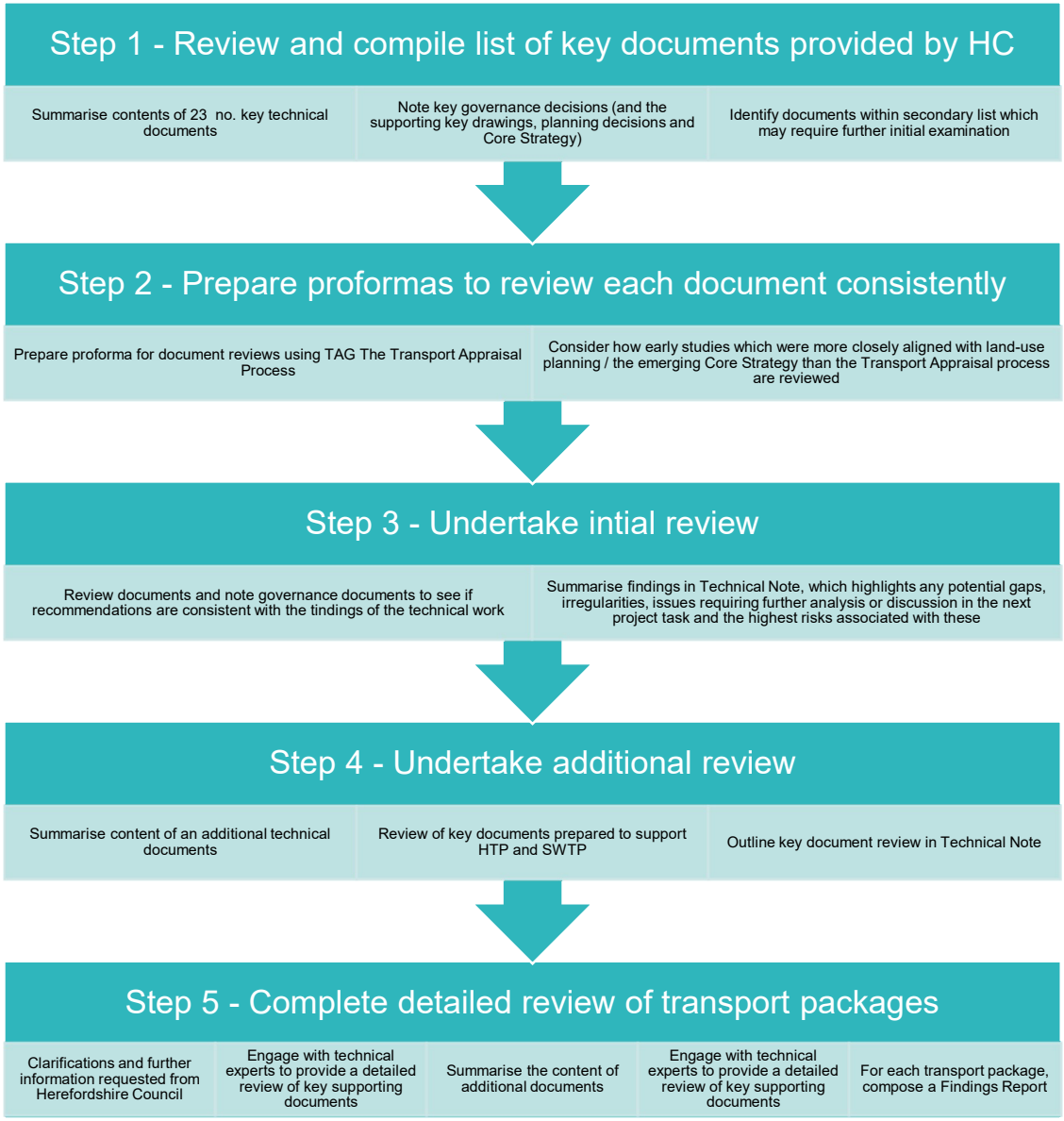
- **Task A – Project management:** The outputs from Task A are a monthly progress note and updated risk register.
- **Task B – Evidence Gathering, Initial Sift and Initial Report:** An initial evidence gathering, sifting and reporting back to the client team. To review the previous work, the constraints which have influenced optioneering were considered, rather than trying to point out small technical discrepancies. The key question is whether the preferred scheme options are correct:
  - The output from Task B has been two Technical Notes summarising the findings and explain how this initial sift will be taken forward in the main review (Task C).
  - An additional Technical Note was produced to facilitate discussions during a call between HC and their technical team for the packages, WSP, to address where further information was required following the initial reviews.
- **Task C – Full assessment and first draft reports:** A more detailed review of the key issues identified within the documentation. This has included Herefordshire Council and WSP providing further information and clarification to support the peer review. This assessment also considers implications for alternative testing/ scenarios to meet potential requirements for a climate emergency review for both schemes.

- **Task D – Reporting and presentation:** Briefing on findings to the Cabinet Member for Infrastructure and Transport.
- **Task E – Final report** update draft reports and publish final review reports for each package.
  - This report represents the Task E output for the Hereford Transport Package.

## 1.4 Approach to the peer review

Following the project inception meeting with Herefordshire Council on 2 April 2020, the steps have summarised in Figure 1.2 have been undertaken.

**Figure 1.2: Approach to peer review**




Source: Mott MacDonald

### 1.4.1 How has the peer review considered the information?

The peer review aims to answer three questions (as noted in Section 1.1) from an inspection of the large volume of information provided to support the package. The review provides a combination of commentary on what has been done and what might have been done differently. It is not intended to be a comprehensive technical check of every piece of information. There also needs to be an acknowledgement of things which were appropriate at the time but may no longer be appropriate in the future as a result of changing policy or guidance.

As such within the report, the review of the main documents inspected concludes with a short summary to explain if the comments made relate to:

- Looking backwards – issues identified which should be clarified or amended.
- Looking to the future – generally points of technical detail which could be revisited if the packages are progressed further or issues related to policy and context which has progressed since the time the document was produced, for example the climate emergency.

## 1.5 History of the Hereford Transport Package

The Hereford Transport Package is part of a number of transport packages for Hereford which will support the delivery of the Herefordshire Local Plan Core Strategy, adopted in 2015. The primary aim of the HTP is to support housing and employment growth for the city and also ensure that the requirements of Highways England and the A49 strategic route are accommodated.

In its current proposed form, the package consists of a western relief road/bypass extending the A49 north of the A4103 Roman Road and active travel measures in the form of walking, cycling bus and public space improvements across 11 movement corridors.

The history and context of the package is summarised in the Herefordshire Council Cabinet report of 22 October 2019[1], summarised below.

Significant transport issues have been identified by transport and economic studies which are considered to constrain growth and to negatively impact the local and regional economies including; congestion, barriers to active travel, poor network resilience, high collision rates and a high number of short distance car journeys. The HTP has been developed to resolve these issues and to enable growth and to provide active transport improvements.

According to the Options Appraisal Report[2], the HTP objectives are:

- To enable the delivery of future housing, employment and educational development by maintaining acceptable peak hour journey times across the city
- To enable the delivery of future housing, employment and educational development by providing attractive alternatives to the private car for journeys within the city
- To enable the improvement of regional connectivity through achieving acceptable peak hour journey times on the A49(T)
- To ensure the transport network within Hereford is resilient enough to provide consistent journey times throughout the day
- To encourage healthy lifestyles by encouraging more people to walk and cycle from new and existing developments to key trip attractors

[1] Hereford Transport Package and South Wye Transport Package, Head of Infrastructure and Delivery

[2] P166-167, Hereford Transport Package Options Assessment Report, December 2018

- To reduce the impacts of transport on air and noise within the city
- To protect the quality of the urban realm to enhance pedestrian and cyclist connectivity along and across A49(T) and A438
- To improve road safety within the city.

### 1.5.1 Hereford Transport Package timeline

Figure 1.3 provides a timeline of the documents and decisions associated with the two transport packages.

The Hereford Transport Package development follows an extended period of appraisals and applications. The timeline, shown in Appendix 2 of the 22 October 2019 Cabinet Decision[3], is as follows:

- 2003-2015 - Various transport and economic studies assessing Hereford's transport issues and options for transport strategy
- October 2015 – Adoption of Local Plan Core Strategy
- June 2016 – Cabinet authorise works to develop Hereford Transport Package
- Early 2017 – Public Consultation 1 to introduce the Hereford Transport Package and obtain public feedback
- 2017-2018 – Engineering, environmental surveys, further traffic surveys, development and assessment of bypass routes. Identification and assessment of walking, cycling, bus and public realm improvements.
- January 2018 – Cabinet approve shortlist of possible route corridors and active travel measures to present to consultation
- Early 2018 – Public Consultation 2 to present the possible bypass routes and active travel measures
- Summer 2018 – Red route selected as preferred bypass route by cabinet for further scheme development
- Early 2019 – Public Consultation 3 to present possible walking, cycling, bus and public realm improvements

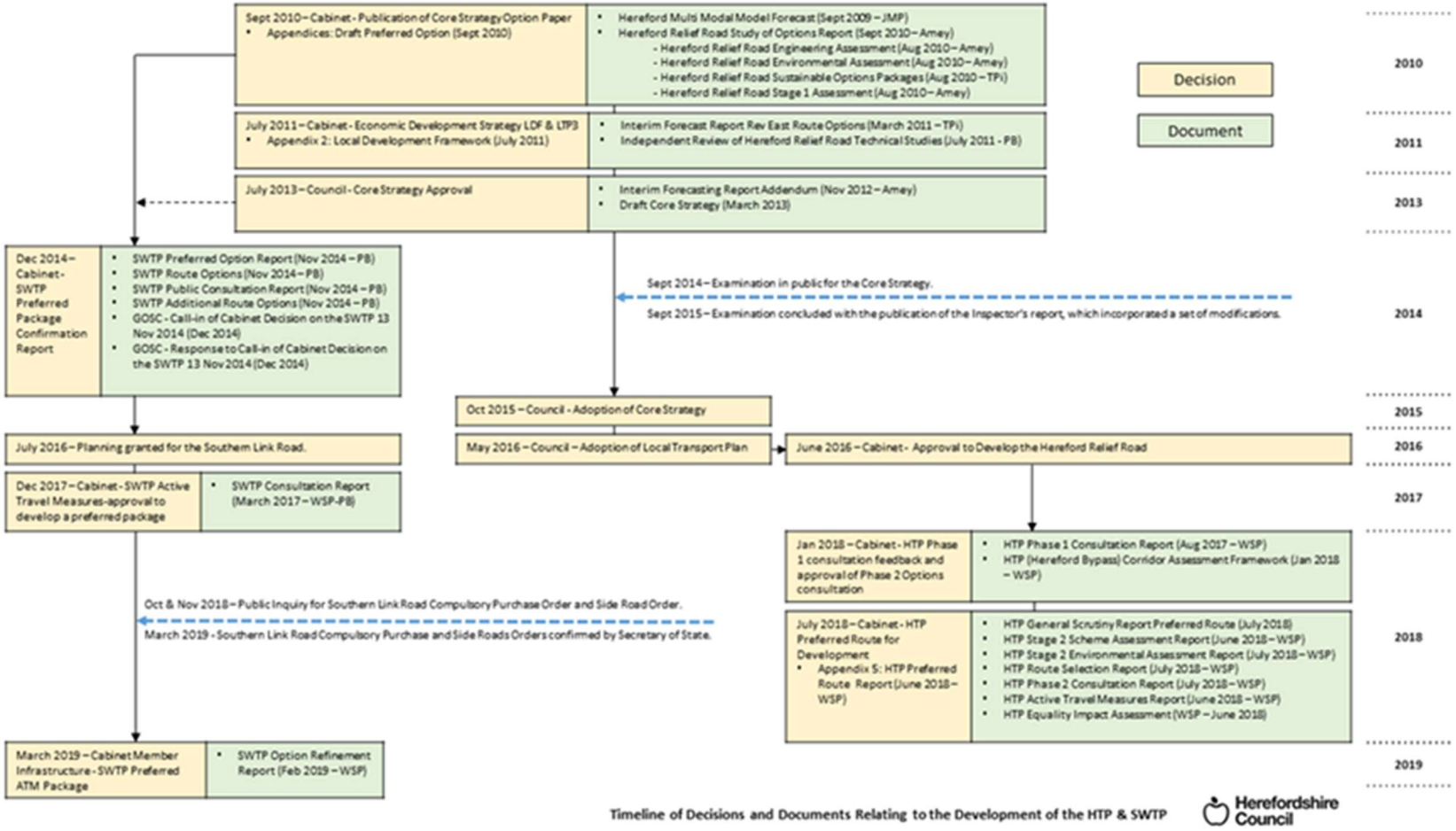
## 1.6 Report structure

The structure of this report is as follows:

- Section 2 – Transport Analysis Guidance and major scheme process
- Section 3 – Context of the Hereford Transport Package
- Section 4 – Peer review
- Section 5 – Future requirements
- Section 6 – Summary and conclusions

[3] Herefordshire Transport Package scheme development timeline

**Figure 1.3: Timeline of decisions and documents relating to the HTP and SWTP**




Source: Herefordshire Council

# 2 TAG and major scheme process

The peer review of the Hereford Transport Package has been undertaken using the following primary sources of guidance:

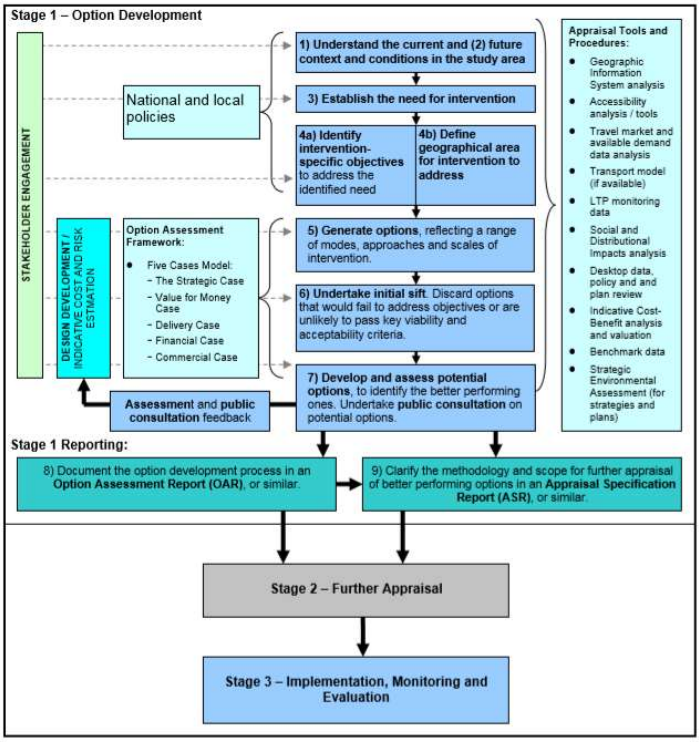
- Transport Analysis Guidance – The Transport Appraisal Process (DfT, May 2018)
- DfT Transport Business Cases (DfT, January 2013)
- Local policy (Herefordshire Council, various)

Transport Analysis Guidance (TAG) provides detail on the process of transport modelling, appraisal and the associated requirements for transport interventions. TAG involves a three-stage appraisal process as detailed within the Transport Appraisal Process (TAP).

Stage 1 Option Development of the appraisal process involves identifying the need for intervention, definition of clear set of locally developed objectives and desired outcomes and the development of options. These options are then sifted for the better performing options to be taken on to further detailed appraisal. Stage 2 Further Appraisal involves the evaluation of the better performing options and their likely impact to enable a decision as to whether to proceed with the transport intervention. Stage 3 Implementation, Monitoring and Evaluation is applicable towards the end of the development of a transport scheme.

Given the level of scheme and option development for the HTP, this peer assessment considers Stage 1 and part of Stage 2 of the appraisal processes. Figure 2.1 indicates steps 1 to 9 in Stage 1 of the Transport Appraisal Process.

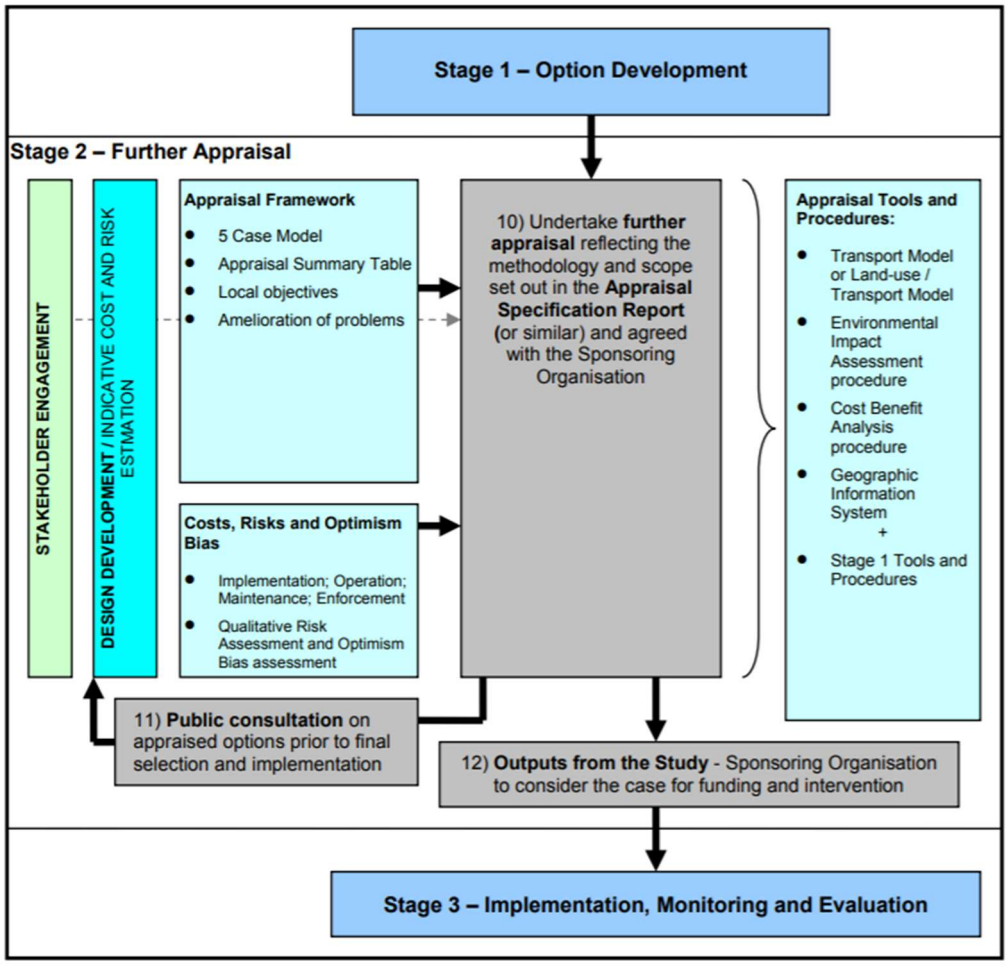
**Figure 2.1: Steps in Stage 1 of the Transport Appraisal Process**




Source: p4, Transport Analysis Guidance – The Transport Appraisal Process (DfT, May 2018)

Figure 2.2 indicates steps 10 to 12 in Stage 1 of the Transport Appraisal Process.

**Figure 2.2: Steps in Stage 2 of the Transport Appraisal Process**




Source: p21, Transport Analysis Guidance – The Transport Appraisal Process (DfT, May 2018)

To allow the peer review team to assess the Hereford Transport Package, technical and governance documents were provided to support the package by the client team. To guide this review and ensure the supporting documents cover the steps necessary to develop and appraise a major transport scheme according to TAG, the Hereford Transport Package and its supporting documents were initially assessed using the following criteria:

1. Are the current context of the package and future conditions explained?
2. Have the problem(s) the scheme will be addressing been clearly identified – including evidence of the extent of the problem(s), specific barriers / challenges, and how the scheme will overcome them (including the scale of impact)?
3. Has the impact of not progressing the package been set out, including supporting evidence? Is there adequate rationale to support why the package is needed?
4. Transport policy compliance "A transport network that supports growth enabling the provision of new jobs and houses, whilst providing the conditions for safe and active travel, which

reduces congestion and increases accessibility by less polluting and healthier forms of transport than the private car."[4]

5. Land use planning policy compliance “To improve access to services in rural areas and movement and air quality within urban areas by ensuring new developments support the provision of an accessible, integrated, safe and sustainable transport network and improved traffic management schemes”[5].
6. Land use planning policy compliance “To strengthen Hereford’s role as a focus for the county, through city centre expansion as part of wider city regeneration and through the provision of a balanced package of transport measures including park and ride, bus priority schemes and a relief road including a second river crossing”[6].
7. Would emerging policies, particularly in response to the declared climate emergency[7], result in different outcome/preferred option if the appraisal process were to be undertaken now?
8. Is there a set of specific, measurable, achievable, realistic, time-bound (SMART) objectives for the package to address the problem(s) identified?
9. Are the expected outcomes clear? How will it be possible to know when the objectives have been met, and what will ‘success’ mean?
10. Does the geographical area of impact consistent across Appraisal Steps 1, 2, 3 and 5 (i.e. existing, future and options)?
11. Do the options identified reflect a range of modes, approaches and scales of intervention? Is there evidence to support the source of these options, for example stakeholder feedback, workshops, benchmarking or research?
12. Is there a robust assessment of different package options, including the reasons for any options being discounted? Has an EAST options appraisal (or similar) been undertaken?
13. Have the options taken forward following the sift been developed with an enough level of design/specification and collecting enough evidence to be able to distinguish the relative costs, benefits and impacts of the options under consideration?
14. Have the main stakeholder groups and their contribution to the project been defined? This should include any potential conflicts between different stakeholder groups and their demands.
15. Have details of stakeholder and public consultation been provided?
16. Is there a clear description of the components of the package and how it fits with the aims and objectives of the local authority and DfT?
17. Is there an Option Assessment Report (or similar) which outlines the option development process?
18. Is there an Appraisal Specification Report (or similar) which clarifies the methodology for further appraisal of the better performing options? (Consider proportionality of appraisal)
19. Does any associated Council Governance report tally with the evidence base, decision reports and recommendations and confirmed decisions?

[4] Herefordshire Council Local Transport Plan 2016 - 2031 Strategy, page 5

[5] Herefordshire Core Strategy 2011 – 2031, objective number 5

[6] Herefordshire Core Strategy 2011 – 2031, objective number 7

[7] Draft Herefordshire Council Carbon Management Plan 2020/21 – 2025/26

# 3 Context of the Hereford Transport Package

In summary, the Hereford Transport Package comprises a western bypass, information technology to manage demand along key corridors into Hereford City, HGV restrictions within central Hereford and active travel options consisting of new and improved motorised traffic free routes, road crossing improvements, reallocation of public highway space, junction accessibility improvements and a proposed 20mph speed limit on all streets north of river (except A roads).

## 3.1 Introduction to the package and appraisal work undertaken by Herefordshire Council

The HTP is based on multiple studies and a full list of documents that have been prepared to develop the HTP are listed in Appendix A.

Historically, technical documents were prepared to inform the evidence base associated with the Local Plan Core Strategy, which identified the need for the development of a bypass scheme for Hereford.

More recent business case documents have been developed for the HTP. These have been developed in line with TAP and provide more up to date appraisal of the issues identified and performance being addressed through the package.

Given that the appraisal process has a lengthy timeline, where key policy documents are likely to have changed within the timeframe. This update in policy and appraisal requirements should be reflected throughout the technical documents, to develop the scheme in accordance with TAG. The peer review described in Section 4 provides a commentary in respect of this.

Transport and economic studies assessing Hereford's transport issues and options for transport strategy has been ongoing since 2003. The Hereford Multi Modal Forecast Report published in September 2009 to feed into the developing Core Strategy indicated that either an eastern or western aligned relief road was forecast to alleviate adverse effects anticipated from additional housing. The Hereford Relief Road Study of Options in September 2010 considered inner and outer route corridors for eastern and western relief roads concluding that the inner western corridor would be preferable and the that an eastern alignment presents too high a risk for delivery due to environmental concerns – a conclusion supported by consequent independent reviews.

The Herefordshire Local Plan Core Strategy, included an objective[8] to provide a relief road including a second river crossing:

*'"To strengthen Hereford's role as a focus for the county, through city centre expansion as part of wider city regeneration and through the provision of a balanced package of transport measures including park and ride, bus priority schemes and a relief road including a second river crossing".*

[8] Figure 3.1, p23 – 25 Strategic Objective 7, Herefordshire Local Plan Core Strategy 2011-2031

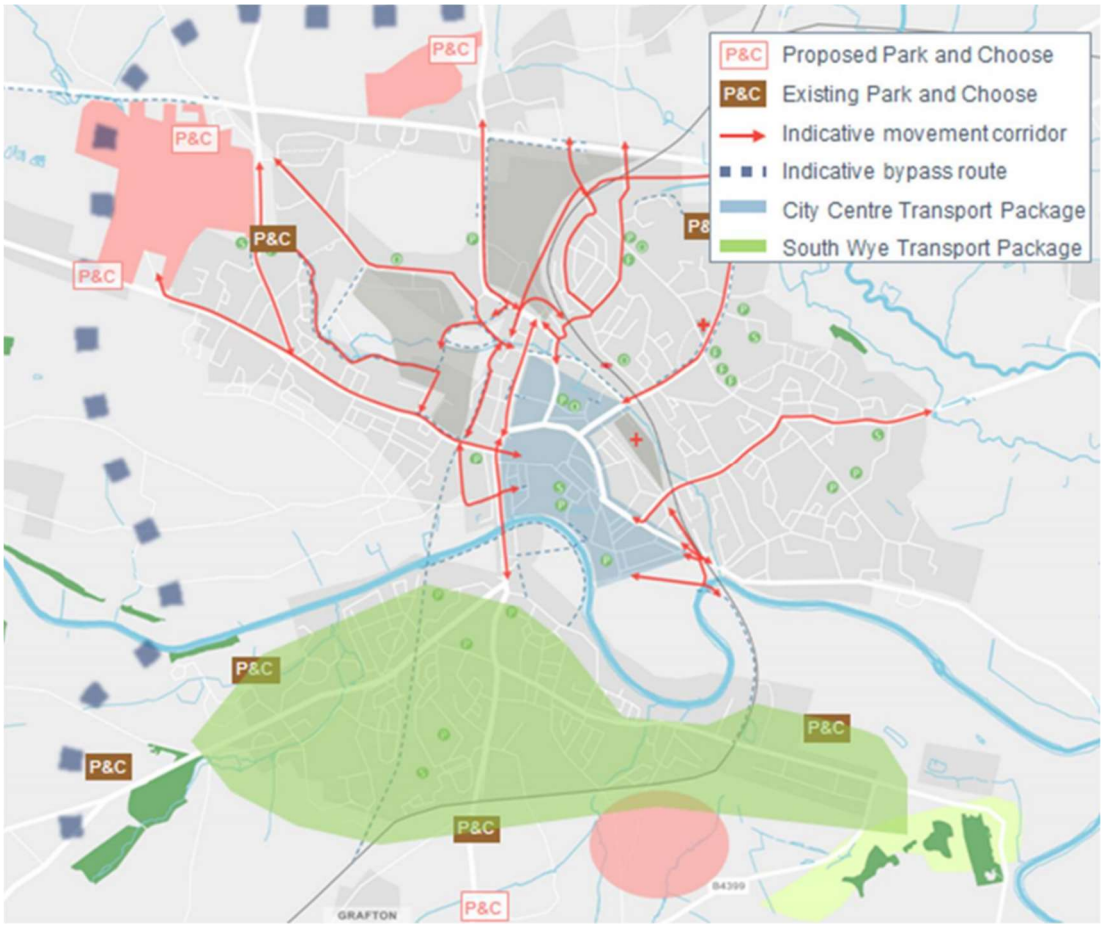
Following adoption of the Core Strategy, work was undertaken to assess the transport requirements for the city, taking into account those identified through Core Strategy development. More detail is provided in Section 3.3 regarding the Core Strategy.

The HTP (Hereford Bypass) Corridor Assessment Framework in January 2018 identified a long list of 24 possible route options in the inner western corridor and a short list of seven were subject to analysis and appraisal in the HTP Preferred Route Report in June 2018 and the HTP Route Selection Report in July 2018. The 'red route' performed best in this review and, as two phases of public consultation, in 2017 and 2018, indicated no preference this was taken forward as the preferred route.

The public consultation exercises undertaken supported active travel improvements being included in the HTP. These include walking, cycling, bus and public space improvements and are set out in 11 movement corridors as defined in the HTP Active Travel Measures at Option Development Stage report from June 2018.

The indicative bypass route and the 11 movement corridors are summarised in Figure 3.1.

**Figure 3.1: Hereford Transport Package indicative bypass route and movement corridors**




Source: HTP Active Travel Measures Report, WSP, June 2018

## 3.2 Governance decisions

Governance decision documents record Herefordshire Council's resolutions to advance the Hereford Transport Package. Decisions supporting the development of the HTP were based on evidence and proposals put forward in the technical documents.

Governance decisions related to the development of the HTP are detailed below in Table 3.1.

**Table 3.1: Governance decisions for the development of the HTP**

| Document | Outline | Summary |
|---|---|---|
| 16.09.2010 - Cabinet - Publication of Core Strategy Option paper | To seek approval for the publication of the Herefordshire Core Strategy: Hereford Preferred Option paper for consultation purposes. | Core Strategy sets guidelines for developments across Herefordshire up to 2026. The (western) Hereford Relief Road and a package of other transport measures including walking and cycling links is considered under new infrastructure requirements.<br><br>Background papers:<br>- Hereford Preferred Option Paper<br>- Place Shaping Paper Consultation January 2010<br>- Hereford Relief Road – Study of Options August 2010 |
| 28.07.2011 - Cabinet - Economic Development Strategy LDF and LTP3 | To consider the Economic Development Strategy for recommendation to Council on 18 November 2011;<br>To agree a revised strategy for the Local Development Framework;<br>To agree further consultation arrangements, including a community poll;<br>To ensure that the strong linkages between the Economic Development Strategy, the Local Development Framework and the Local Transport Plan 3 are firmly embedded in each evolving strategy. | Among other things, recommends that the Cabinet approves 'the principles of the Local Development Framework Core Strategy Revised Preferred Option for the purposes of consultation, including the plan period' and notes 'the critical linkages between the adoption of the Local Transport Plan 3 and the Local Development Framework Strategy and the outcome of consultation on the Hereford Relief Road'.<br>The three strategies (appendices) represent key mechanisms for planning and delivering growth and regeneration in Herefordshire.<br><br>Appendices:<br>- Economic Development Strategy<br>- Local Development Framework<br>- Local Transport Plan |
| 19.07.2013 - Council - Core Strategy Approval | To approve the Herefordshire Local Plan - Core Strategy 2011 - 2031 (draft) for pre-submission publication in accordance with regulation 19 of the Town and Country Planning (Local Development) (England) (Amendment) Regulations 2012 (as amended). | Approved and adopted in 2015 |
| 16.10.2015 - Council - Adoption of Core Strategy | To consider the adoption of the Herefordshire local plan core strategy 2011-2031. | Recommendation that the Council should adopt the Core Strategy as the existing unitary development plan (2007) is out of date and the development of the Core Strategy has been lengthy (since 2008) and includes the provision of a relief road to the west of Hereford. |
| 20.05.2016 - Council - Adoption of Local Transport Plan | To adopt the local transport plan (2016-2031). | Transport Plan aligns with the Core Strategy and includes proposals for the Hereford relief road, and |

| Document | Outline | Summary |
|---|---|---|
| | | continuing development of walking and cycling networks. |
| 16.06.2016 - Cabinet - Approval to Develop the Hereford Relief Road | To seek approval to commence work to develop Hereford relief road (Hereford bypass) in support of proposals within the adopted Core Strategy in the context of the overall transport strategy for the city | Recommends that funding of £600k be approved to support works necessary to inform route selection; and to progress the Hereford bypass to route selection within the resources available. States that the bypass is key infrastructure in the LTP and enables housing and employment growth objectives if in place to connect to the SLR by 2027. |
| 18.01.2018 - Cabinet - HTP Phase 1 consultation feedback and approval of Phase 2 Options consultation | To consider feedback to HTP Phase 1 consultation and confirm scope of Phase 2 consultation and progress to consultation. | Recommends that the shortlisted route corridor options be approved, a consultation of the shortlisted options should be undertaken, and a decision be taken to authorise to determine a preferred route for the bypass and a package of active travel measures with a maximum budget of £1 million. |
| 18.07.2018 - GSC - HTP General Scrutiny Report Preferred Route | To undertake pre-decision call in scrutiny of the Cabinet's proposed decision to select a preferred route for Hereford bypass as part of Hereford Transport Package. | Recommendation that the committee determine any recommendations it wishes to make to the executive to consider. |
| 27.07.2018 - Cabinet - HTP Preferred Route for Development | To consider: feedback to the HTP Phase 2 consultation, assessment of the shortlist of possible bypass route corridor options, the recommended preferred bypass route corridor, the development of associated walking, cycling, bus and public realm (active travel) improvements and to confirm the scope of the Phase 3 consultation. | Following Phase 2 consultation on the shortlisted bypass options, recommends that the red route be approved as the preferred red route, a Phase 3 consultation on the red route and associated active travel measures and detailed design and consultation for the HTP be progressed on the HTP to a maximum cost of £2.45m. |

## 3.3 Planning policy context of the package

The Herefordshire Core Strategy, which runs for the period between 2011 and 2031, was a key driver indicating the need for infrastructure. This requirement led to technical work being progressed to support the Core Strategy, which was then developed further as part of the Hereford Transport Package and the South Wye Transport Package. The Core Strategy was adopted in 2015 following an Examination in Public. The Core Strategy provides important context regarding the history of the two packages however, it should be noted, this review is not intended to be an evaluation of all the transport infrastructure aspects informing the Core Strategy

Paragraph 3.21 of the Core Strategy explains that the areas earmarked for developments are regarded as the most suitable for future development, due to their easy access to services and facilities. The Hereford Relief Road is considered important in meeting the Core Strategy housing target and ensuring that the necessary infrastructure is coordinated with the developments.

Appendix 5 – SS3: Necessary Infrastructure for Strategic Sites provides an indication of net levels of housing which can be delivered before and after infrastructure coming forward, with critical dates for the delivery of infrastructure specified. In the case of the Hereford Relief Road,

circa 3,250 dwellings can be delivered, with the Southern Link and river crossing anticipated to be required by 2022. 4,800 dwellings can come forward prior to the relief road interconnecting with the A49 north and south by 2027.

The Core Strategy states that "*A key element of the long-term Hereford transport strategy is the requirement for a Relief Road. This vital addition to the city's transport network will enable the reallocation of existing highway for bus priorities and walking and cycling measures and the re-routing of the existing A49 Trunk Road (managed by the Highways England) removing longer distance traffic from the centre of the city*".

The Core Strategy transport infrastructure requirements were underpinned by a considerable technical evidence base including:

- Hereford Relief Road Study of Options (report 551497/SO/003 Issue 2A, 10/09/2010, Amey)
- Independent Review of Hereford Relief Road Technical Studies (report 3511200A-ZEV Final, 15/07/11, Parsons Brinckerhoff)
- Local Plan Core Strategy Modelling: Non-Technical Summary (June 2013, Amey)
- Hereford Transport Strategy Phasing Study: Transport Strategy Review (Issue number 4, 20/05/2014, JMP)
- Hereford Transport Strategy Phasing Study: Strategic Prioritisation (Issue number 5, 29/05/2014, JMP).

The Local Plan Core Strategy Modelling: Non-Technical Summary (paragraphs 4.2.1 and 4.2.2) concludes that:

*"The results from this initial group of tests demonstrate clearly that the 'with road' option is the only option which can help deliver the Core Strategy and meet HA requirements for nil detriment in journey times on the A49. Nevertheless, it also identifies that whilst this option will deliver these economic objectives, and to some extent objectives regarding public transport, it makes little improvement in terms of increased health through active travel. Whilst overall CO2 emissions in the 'With Road' option increase due to traffic on the Western Relief road, actual levels in the city will reduce".*

In addition to the Core Strategy, The Local Transport Plan 2016 – 2031[9], notes that "*Additional highway capacity* [will be required] *to meet the increased demands resulting from growth, Improved access to and within the central area, Improvements to encourage more active travel within the urban area through increased supply of pedestrian, cycling and bus networks, supporting safer routes to school and improved health and access to and integration with rail".*

Conclusion: The level of detail involved in the scheme's development has moved on since the adoption of the Core Strategy. However, it is clear that the infrastructure proposals in the Core Strategy is required to support the development policies contained within this document. The proposals in the form of the HTP and the SWTP have been tested and challenged in an appropriate way through technical studies and Examination in Public, to enable them to be adopted within the Local Plan.

The important implication for developing a TAG-compliant scheme beyond the adoption of the Core Strategy is to ensure that the case for the package (i.e. the 19 questions noted in Section 2 of this report) was reviewed. This is considered further in Section 4 of this report.

[9] https://www.herefordshire.gov.uk/download/downloads/id/2912/local_transport_plan_2016-2031_strategy.pdf

# 4 Peer review

This section encompasses the main body of the report and provides the findings of the peer review. A cohesive list of documents reviewed in each stage is detailed in an incoming document register, in Appendix A.

The peer review has been undertaken in line with the key aims of the commission in mind, namely to:

- Establish whether each package has been developed in accordance with the major transport scheme process as laid out in TAG
- Establish whether the packages including their major road scheme components (the western bypass in the HTP) are based on a sound evidence base
- Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

The review also considers responses by the Herefordshire Council team and technical team made to queries raised by the review team. The comments and recommendations made regarding each document is summarised in terms of:

- Looking backwards – issues identified which should be clarified or amended.
- Looking to the future – generally technical issues related to transport modelling and appraisal which may need to be revisited if the package is progressed further in future. This point also considers environmental, climate change and net zero issues which could lead to a different vision for the package.

## 4.1 Documents reviewed

The documents supplied to Mott MacDonald by Herefordshire Council are listed and outlined in Table 4.1. This suite of documents provides a timeline of the inception of the scheme, through the identification of a need for infrastructure to support the level of development proposed in the Core Strategy, identification and sifting of preferred options and refinement of the options for highways and active travel within the package.

**Table 4.1: Key documents provided for review**

| Document | Outline | Summary |
|---|---|---|
| September 2009 - Hereford Multi Modal Model Forecast Report (JMP) | Study to examine the implications of potential housing development up to 2026 as proposed in the Regional Spatial Strategy (RSS) and its impact on the road network within Hereford and its surrounding area. | Report on implications of potential housing development (proposed in the Regional Spatial Strategy) and its impact on the road network.<br>Modelled scenarios assessed in terms of flow relief, stress and link speed for 2026 as a single future year (AM and PM peak hours).<br>Model runs reveal additional housing trips have detrimental effects on Hereford highway network.<br>An Outer Distributor Road is forecast to provide some relief. |
| August 2010 – Hereford Relief Road Engineering Assessment (Amey) | Scheme Assessment in accordance with the Highways Agency Design Manual for Roads and Bridges Scheme Assessment Reporting to | Scheme Assessment to provide supporting information and problem identification for future analysis. |

| Document | Outline | Summary |
|---|---|---|
| | provide the necessary supporting information and problem identification for future analysis. | Builds on Stage 1 Engineering Assessment in inform appraisal (in line with WebTAG process).<br>Assesses the engineering constraints and impacts of the proposed Hereford Relief Road options (either east or west of the city and an inner and outer option for each) with associated link roads. |
| August 2010 – Hereford Relief Road Environmental Assessment (Amey) | Study to identify environmental and engineering advantages and disadvantages associated specifically with the introduction of a Relief Road to Hereford along the broad corridors identified. | Study to determine environmental and engineering advantages and disadvantages associated with the introduction of a Hereford relief road (eastern and western options). |
| August 2010 - Hereford Relief Road Engineering Sustainable Option Packages (TPi) | Study to examine the findings of implementing sustainable option packages for the Herefordshire region. | Report considers sustainable option packages for Hereford and the results on the road network - with and without the relief road. |
| August 2010 – Hereford Relief Road Stage 1 Assessment (Amey) | Stage 1 Assessment to assess the advantages and disadvantages of the broadly defined transport infrastructure improvements from the consultation and modelling work done to date. | Assesses the advantages and disadvantages of the transport infrastructure improvements in the Hereford Core Strategy. |
| September 2010 - Hereford Relief Road Study of Options Report (Amey) | Considering the evidence to date on the transport options for Hereford leading towards the establishment of a core strategy. | Study to identify the engineering and environmental advantages and disadvantages associated with the Relief Road options.<br>Follows on from Stage 1 Assessment to identify environmental and engineering issues along relief road corridors. |
| September 2010 - Draft Preferred Option | Follow on consultation from the place shaping consultation leading towards the establishment of a core strategy. | Paper issued for public consultation to form a Core Strategy which will establish a policy framework and the broad locations for development - to be adopted in 2011.<br>Outlines Hereford Vision (including the provision of a relief road), with issues and opportunities, the spatial strategy and policies needed to achieve them. |
| March 2011 - Interim Forecast Report Rev East Route Options (TPi) | Further study considering the traffic implications of using a revised eastern route corridor with the same growth as proposed within the 'Preferred Options: Hereford' and also with reduced growth. | This study considers traffic implications of using a revised eastern route corridor. Four scenarios are tested. |
| July 2011 - Local Development Framework | Report on progress with the Local Development Framework | The Local Development Framework replaced the Unitary Development Plan. This plan period provided a statutory planning framework for the county to 2013. |
| July 2011 – Independent Review of the Hereford Relief Road Studies (PB) | High level independent review of the Hereford Relief Road technical studies and Core Strategy Preferred Option: Hereford. | Review of the Relief Road technical studies and Core Strategy Preferred Option, focusing on environmental topics (with some focus on planning and transportation), to review |

| Document | Outline | Summary |
|---|---|---|
| | | preferred route of the inner western corridor. |
| November 2012 - Interim Forecasting Report Addendum (Amey) | Report examining a revised housing and employment allocation for the proposed Local Development Framework. | Addendum to the Hereford Relief Road Study of Options Report (Amey 2010). Examines a revised housing and employment allocation for the proposed Local Development Framework. |
| March 2013 - Draft Core Strategy | Draft Herefordshire Local Plan - Core Strategy 2011 – 2031. | Numerous planning documents form the Local Plan to guide Herefordshire development for 20 years. Includes strategic and development management policy. |
| August 2017 - HTP Phase 1 Consultation Report (WSP) | Report summarises the approach and findings of the first phase of HTP consultation. | This report summarises the approach and findings of the first of three public consultation phases during the HTP development |
| January 2018 - HTP (Hereford Bypass) Corridor Assessment Framework (WSP) | Report outlining the way in which a long list of possible route corridors for the Hereford Bypass has been developed and explains how these have been assessed to identify a short list of possible route corridors. | Report details how a long list of possible route corridors for the Hereford Bypass has been developed. 24 possible route corridors were identified. 7 route corridors recommended to proceed to the short list, to be subjected to detailed analysis and appraisal. |
| June 2018 - HTP Active Travel Measures Report (WSP) | Report outlining work to develop the walking, cycling, bus and public space improvements for the HTP. | Outlines work done in developing walking, cycling, bus and public space improvements for the HTP.<br>Also sets out next steps for further developing active travel improvements and a business case.<br>11 movement corridors and traffic management improvements - informed by 2 phases of public consultation. |
| June 2018 - HTP Equality Impact Assessment (WSP) | Equality Impact Assessment (EqIA) screening of the Hereford Bypass short list route options. | Equality Impact Assessment (EqIA) screening report to consider the impact of the HTP on persons who share characteristics which are protected under Section 4 of the Equality Act 2010. Offers development and design considerations and construction considerations for key elements which could disproportionately affect vulnerable groups. Recommends a full EqIA for each of the short-listed options before the third stage of public consultation. |
| June 2018 - HTP Preferred Route Report (WSP) | Report presenting the findings of technical and environment assessment work as well as the Phase 2 Public Consultation, to inform the selection of the Red Route Corridor option as the recommended Preferred Route for the Hereford Bypass. | Presents findings from technical and environmental assessment work and Phase 2 public consultation.<br>The route selection report gave red route as best performing, whilst the public consultation found no clear preference and a final assessment of both of the above concluded the red route should be taken forward as the preferred route |

| Document | Outline | Summary |
|---|---|---|
| June 2018 - HTP Stage 2 Scheme Assessment Report (WSP) | Stage 2 SAR which develops upon the stage 1 SAR. | Builds on from Stage 1 Assessment, which identified shortlisted bypass options, to inform the preferred route report to be taken forward to the Cabinet for a decision.<br>Report assesses impact of a bypass on air quality, noise, landscape, ecology, heritage, water environment, people and communities, materials and waste, geology and soils, climate change. A preferred route is not offered. |
| July 2018 - HTP Phase 2 Consultation Report (WSP) | Report summarises the approach and findings of the HTP Phase 2 consultation. | Majority of questionnaire respondents approve of the HTP objectives and the bypass.<br>Respondents did not show a clear overall preference for any of the shortlisted route options.<br>Feedback from this consultation will be used in planning the next, final, stage of consultation (late 2018) and will influence the selection of a single route for Phase 3. |
| July 2018 - HTP Route Selection Report (WSP) | Report describing 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. | Describes how and why the 7 route options were assessed.<br>Structured assessment and the Stage 2 public consultation were used to establish the overall best performing route within the corridor.<br>Concludes that the red route should be recommended as the preferred route for the bypass. |
| July 2018 - HTP Stage 2 Environmental Assessment Report (WSP) | Report presenting the findings of an environmental review and assessment of the potential environmental impacts and effects of the short list of seven possible route options for the Hereford Bypass | Environmental review and assessment of the shortlist of seven route options for the Hereford bypass.<br>Environmental constraints to the proposed scheme including; ecological constraints from ancient woodlands, important trees and viaduct over the River Wye SAC; cultural heritage assets and buried archaeological matter; landscape effects to historic views within the Wye Valley; noise effects for proximal residents; and effects to Grade 1 and 2 agricultural land |
| Hereford Transport Package Strategic Outline Business Cas | HTP Strategic Outline Case (SOC) Proforma | A pro-forma SOC which covers some of the issues in a very cursory manner. Some of the strategic issues are explained but dealt with briefly and without supporting evidence. |
| March 2019 – HTP Feasibility Business Case | An internal business case/governance document as to whether to continue the development of the compliant transport Outline Business Case work | This Feasibility Business Case contains information that describes the justification for continuing the development of outline Business Case for Hereford Transport Package (HTP) project from the |

| Document | Outline | Summary |
|---|---|---|
| | | Strategic Outline Business Case (SOBC). |
| Hereford Transport Review Local Multi-Modal Study (February 2003) | The development of key documents in the review package (2009 – 2010) refer back to this study | |

Once an initial inspection was undertaken of the documents which underpinned the package's development was completed, Herefordshire Council provided some additional documents for the peer review as shown in Table 4.2. This suite of documents provides more detail on the modelling and appraisal work undertaken to inform the package. It should be noted that this collection are not all published documents.

**Table 4.2: Modelling and appraisal documents reviewed**

| Document Pack | Outline |
|---|---|
| Large Local Majors Bid Business Case Documents | A set of business case documents for HTP were being prepared for submission as for a Large Local Majors bid. These were not finished documents but the working drafts to provide some additional information, particularly regarding the latest position on the strategic case |
| HTP Option Assessment Report (OAR) | This provides the Options Appraisal Report prepared in 2018 for HTP |
| HTP Strategic Outline Business Case (SOBC) | This is strategic outline business case prepared in 2018 for HTP |
| Traffic Modelling Reports | A traffic forecasting report prepared in 2018 for HTP and the local demand model validation report prepared for the Hereford Transport Model in 2018 |

## 4.2 Initial review

At the start of the project Mott MacDonald undertook an initial rapid review of the documents listed in Table 4.1 in line with the process described in Section 1.4. The findings of this work were described in Technical Note 417997-MMD-MAN-XX-TN-TA-0005 (available on request).

An initial review of the second set of documents shown in Table 4.2 was also carried out and this is summarised in Technical Note 417997-MMD-MAN-XX-TN-TA-0007 (available on request).

These initial inspections allowed the peer review team to familiarise themselves with the package and the work undertaken to develop the scheme. On completion of the initial review, discussions were held with Herefordshire Council and WSP in order to attain clarifications and additional data. A tracker showing the key comments made and the responses received is provided in Appendix B.

## 4.3 Peer review

Following this initial review and verification with the client and technical teams for the package, more inspection was undertaken of the documents considered to be those pivotal to the case for and appraisal of the scheme over time. The peer review has centred on the following:

- HTP Option Assessment Report (70024065WSP-XX-XX-RP-TP-00010 Revision 3, December 2018)
- Hereford Transport Package Strategic Outline Business Case Large Local Majors (Strategic Case) (70058524 Draft SOBC v2, June 2019)

- HTP Strategic Outline Business Case (70043845 SOBC-001, July 2018, Draft)
- HTP Traffic Forecasting Report (3512983BP -WSP-DEV-001-TFR02, Revision 1, December 2018)
- Hereford Transport Model Local Model Validation Report (70029880-571\1\3, Third Draft, September 2019)
- HTP Hereford Bypass Stage 2 Environmental Assessment (70024065-WSP-XX- XX-RP-EN-00007_V02, Version 2, 05/07/18)

Each document has been reviewed (where appropriate) by key disciplines including transport planning, appraisal and economics; transport modelling; environment; climate change and carbon.

The format of the review provides a concise commentary on the document provided, notes any issues identified by the review team and concludes with a summary of each document. The summary classifies whether the points made are:

- Looking backwards – issues identified which should be clarified or amended. Categorised red where the point made is deemed to be a significant issue, green if the premise is sound however things could have been covered differently (i.e. a technical recommendation which could be reconsidered).
- Looking to the future – generally technical issues which could be revisited if the packages are progressed further, as well as environmental, climate change and net zero issues which could lead to a different vision for the package. This are all categorised as amber, on the premise that these points would be considered in the future before the package was progressed further.

### 4.3.1 HTP Option Assessment Report (OAR)

#### 4.3.1.1 Transport appraisal

In terms of reporting structure and the format of the assessment, the OAR has been produced in accordance with the guidance within the TAG Transport Appraisal Process (TAP), May 2018. There is clear definition of the TAP Steps 1 to 8.

**Step 1 Understand the current context and conditions in the study area**

The OAR contains a thorough review of (then current) local, regional and national policies which have implications on the study and selection of options to resolve issues in Hereford. There is a comprehensive assessment of baseline transport conditions for all modes including active travel and public transport.

Network resilience resulting from a single river crossing and the consequent impacts of incidents is a current issue.

It is not clear as to which trips are seen to be the issue i.e. through trips, Hereford internal trips, external-internal trips. HC have clarified that the main role of the proposed road infrastructure has always been considered in relation to providing local traffic relief rather than through trips and therefore provides legitimacy to modify the network within the city in support of more sustainable modes and demand management.

There is no indication of parking supply or demand within Hereford.

Conclusion: A clearer indication of the trips which are considered to be the issue would aid weight to what the issues are that the package is trying to resolve (i.e. strengthens the case for an intervention) but it would not be justified to revisit the OAR on the basis of this point alone.

**Step 2 Understand future context and conditions in the study area**

The adopted Core Strategy is used as the basis for projected growth in housing and employment through Hereford in future years. Changes to the transport system in future years include the Hereford City Centre Package, the SWTP and the Hereford High Town Package.

The future performance of the network has been predicted using the Hereford Highway Assignment Model. The additional growth in trips generated by development is shown to result in increases in total network queue and delay, whilst journey times will go up on the 10 specified routes in each of the AM, interpeak and PM peaks compared to the base scenario.

Conclusion: No action required. This is commentary to explain how the package meets Step 2 of TAP.

**Step 3 Establish the need for intervention**

The Core Strategy commits to growth and notes that infrastructure is required to accommodate this. A predicted outcome of future development is that without further intervention the growth would lead to additional delays, unreliable journeys, deteriorating environmental conditions, road safety problems, walking, cycling and bus use being undesirable, and health impacts.

In Section 4.2 it is stated *"The planned growth for Hereford and Herefordshire cannot be accommodated on the highway network. Without intervention, the network will experience a poor level of service with more significant delays and capacity issues. Highways England anticipate that additional road capacity improvements will be required to support the economic growth over the medium to longer term and that without intervention, economic growth in the area may suffer*".

In the OAR it could be construed that the planned development will occur regardless of a transport intervention, whilst also suggesting that it should not occur without a transport intervention.

Conclusion: The peer review is not commenting on whether the development is or is not dependent on the infrastructure. This comment merely notes inconsistencies presented within the reporting which could be addressed in future iterations of documentation to support the package but do not in themselves warrant a fundamental issue.

**Step 4 Identify intervention-specific objectives / Define geographical area for intervention to address**

A logic map is provided that shows the connections between the underlying causes of issues and the problems to the desired outputs. Objectives then appear to have form from those desired outputs.

The geographic scope for the area of impact has been given as the area to which the scheme promoter wants to impact i.e. Hereford. The OAR does not consider whether there would be impacts would extend beyond the city which would require the assessment of transport impact to extend further.

Conclusion: No action required. The process of forming objectives in the OAR has been undertaken correctly. The commentary provided is to explain how the document meets Step 4 of TAP.

**Step 5 Generate options, reflecting a range of modes, approaches and scales of intervention**

A large range of options have been considered, partially taken from previous studies but also from stakeholder engagements. In total 39 options were generated covering road, rail, bus and active travel.

Whilst the road options are specific, most active travel options are generic which could impact on the perceived feasibility during scoring. Demand management options such as a parking review and road user charging are included albeit with general descriptions. It is acknowledged that that road elements are specific as more detailed work was done on these as part of the Core Strategy's development. It would not necessarily be reasonable to either develop significant detail of the active travel elements at this stage or to disregard the detail held on the road elements to 'level up' the two sets of options.

In preparing the draft peer review report it was noted that a high-occupancy vehicle lane is included as a public transport option rather than a road option. It is likely that the vast majority of vehicles using such a facility would be private vehicles. WSP advised on 08/07/20 that the *"HOV lane is described in Table 28 as "…. permitting only vehicles with 2 or more occupants, including buses, ….". It could have been categorised as either part of the' Public Transport Options' or 'Road Options'".*

Conclusion: No action required. This is commentary to explain how the package considers Step 5 of TAP and the comment made regarding the high-occupancy vehicle is a point requiring clarity rather than reworking.

**Step 6 Undertake initial sift. Discard options that would fail to address objectives or are unlikely to pass key viability and acceptability criteria**

EAST was used to appraise the options and conduct initial sift from the long list. Options were scored on 7-point scale both against objectives, and other assessment criteria. The objectives were assessed under strategic case whilst the remaining assessment criteria were classified under economic, managerial, financial and commercial cases.

The long-list options have been appraised against the scenario year 2032 based on:

- The population, housing and employment growth set out in Section 3.2 and Section 3.4 and the transport infrastructure associated with the South Wye Transport Package, Hereford City Centre Transport Package and High Town Package.

The end of the section not well structured. A list of the top 10 highest scoring options is provided. Then a list of the rejected options is provided however there is no mention that some of the 10 highest scoring options are also in the rejected list. Other unrejected options are not mentioned anywhere. It should have been stated that twelve options were to be taken forward to the next assessment (it is noted that this statement appears at the beginning of the next section, however even then one of those 12 options is then rejected and not included in any package).

Conclusion 6a: Presentation issues relating to the structure can be resolved and do not question the validity of the report.

One (or more) of five reasons is given as to why options are discounted after the initial sifting. 13 of the options were discounted due to being "assigned to other packages of funding streams". When questioned as to why this was the case, the response from Herefordshire was that most of these discounted options were revenue not capital schemes.

This discounting of options presents several issues for the remainder of the assessment. Firstly, the idea that these schemes included within other funded packages would suggest that they are in some way committed and the HTP assessment does not need to consider them as they could be done anyway. However, none of these options are included in the forecast exercise in Step 2. The key question then becomes, should some or all 13 of these discounted options be implemented, would there be the need to implement any or all of the remaining 12 schemes from this OAR? This leaves a critical gap in the business case process as to whether there is a need for the selected scheme or package.

The peer review considers that the 13 discounted options should have been taken forwards to the next step of assessment unless there are other clear reasons not to. Following further development (to the same extent as the other options), they would also be scored as part of one or more packages before a final judgement is made on the preferred package of measures to take to OBC stage.

In preparing the draft peer review report the following questions related to discounting options were raised with the technical team. Responses dated 08/07/20 are provided below in italics:

Q1. 13 options have been put through the initial scoring exercise only to be discounted due to them being looked as part of other studies rather than their ability to contribute to objectives or to be delivered. Why were they assessed at all if this was the known outcome?

A1. *"in accordance with WebTAG (Step 5), we were keen to develop a long list of options which reflected the full range of options available to HC. It was only during this process that several of the options were considered to be not feasible, outside the remit of HC, or assigned to another HC package or funding stream".*

Q2. Should some or all of these 13 options be delivered in separate studies would there still be a need to progress with the preferred package?

A2. *"this is a theoretical question as we did not know, and still do not know, whether some or all of the options will be delivered in Hereford and, if they are, the scale of that intervention".*

Q3. Should some or all of these 13 discounted schemes be included as part of the active travel, park & ride, or low-cost packages in the second stage of assessments, would the end result be the same?

A3. "*We do not know. However, this is unlikely as, given they were being developed in separate ways, they would need to be in both the DM and DS".*

Conclusion 6b: Some options which were discounted, due to being appraised in different studies, should have been taken through the full process to determine if they had the opportunity to fulfil the objectives of the scheme. If the HTP Strategic Outline Business Case is progressed, we would recommend those discounted options are reconsidered.

**Step 7 Develop and assess potential options, to identify the better performing ones. Undertake public consultation on potential options**

The remaining 11 options (following the short bypass being sifted out in this step rather than the previous step) were then placed into one or more of four packages.

In the strategic fit assessment area, the road package has been scored overall as "moderate beneficial" against meeting intervention objectives. This is due to having:

- a significant positive contribution to 3 objectives
- a positive contribution to 1 objective

- a slight positive contribution to 2 objectives
- no contribution to 2 objectives.

No measures are provided for what constitutes a particular score against objectives.

The Park & Ride option has been discarded as it doesn't meet as many of the objectives to the same level as road or active travel. It is acknowledged that there are issues around revenue funding being required to subsidise Park & Ride services beyond, however the peer review team remains on the view that options have been discounted too quickly.

Should the OAR have not discounted several other options on the basis they will be looked at elsewhere, the Park and Ride may have produced higher scores against objectives. For example, a comprehensive review of city centre parking resulting in higher prices and reduced supply could significantly increase the ability of a Park & Ride scheme to improve performance of the network.

There has been no consideration of the Park and Ride package in combination with active travel package. Together, these packages would achieve the following:

- a significant positive contribution to 3 objectives
- a positive contribution to 3 objectives
- a slight contribution to 2 objectives

The Park & Ride and Active Travel package could therefore fulfil every objective of the HTP study for a lower cost than the preferred Road and Active Travel package. In combination with some of the discounted options that are being considered for funding elsewhere, that performance could be improved further. However, this opportunity has not been considered and is not taken forward as a low-cost alternative to the strategic outline business case as per the guidance in Step 8 of TAP.

If the package is progressed, in Stage 2 it will be important to demonstrate how the road package helps to deliver the active travel package. It is acknowledged that the reduction in traffic on the A49 may encourage more active travel users but there is no evidence provided to quantify:

- What (negative) mode shift does building a bypass create? What (positive) mode shift do the active measures create?
- What (negative and positive) mode shift do they create in combination?

The peer review team asked if *"data (could) be provided on the actual impact of the packaged active travel measures with road as opposed to the individual assessment on mode share (i.e. by combining the active travel element with the road is there model data that shows increased active travel use to back up the change from slight beneficial when considered as active travel only and moderate beneficial when packaged with the road)".*

WSP advised that *"there is model data which shows that the bypass would reduce traffic flows on key corridors within Hereford. This is the basis by which the report states that there is 'potential' for more successful active travel measures with a bypass being constructed, and this is what led to the 'moderate beneficial' entry. At this point in the process, we did not have modelling information to evidence this".*

The conclusion for Step 7 and 8 is provided on the following page.

**Step 8 Produce Option Assessment Report, or similar**

The outcome of the OAR process in Step 8 of TAP is to identify the better performing options (including a low-cost option) for progressing to Stage 2 of the appraisal process. The preferred package is a combination of the road package and active travel package.

Subsequent to Stage 1 of TAP, Stage 2 (paragraph 3.1.2) requires *"a small number of better performing options in order to obtain sufficient information to enable decision-makers to make a rational and auditable decision about whether or not to proceed with intervention".* The mainly qualitative appraisal of the options in the OAR is not sufficient to have got to a final preferred option.

Conclusion: The concern with the approach taken to combine the strongest performing interventions, namely the road and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2. However, the option assessment process has shown there is an alternative option which could achieve all HTP objectives. Typically, the options which are shown to meet all objectives would be carried forward to further appraisal in Stage 2 *"to produce evidence sufficiently robust to support the business case[10]".* If the scheme is progressed further, in updating the SOBC, it should be demonstrated that this has been addressed by the scheme promoters.

#### 4.3.1.2 Environment, climate change and carbon

The report identifies numerous key transport-related environmental drivers in national, regional and local policy, including the switch to sustainable modes of transport to reduce carbon emissions, along with overall reductions in vehicle traffic and freight. Air Quality and Noise impacts are the key environmental topics of focus, with no significant discussion of the importance of flood risk. As would be expected, the environmental issues are framed within the desire for improved transport outcomes and of the eight strategic scheme outcomes, environmental issues are focused on air quality and noise within Hereford centre. Shortlisting of options was therefore limited to the strategic outcomes of focus, although this has taken carbon emissions into account in section 8.3. A wider set of environmental topics are assessed for the preferred packages, with adverse effects predicted for noise, landscape, historic environment, biodiversity and the water environment, and a neutral effect on greenhouse gases. A beneficial effect is predicted for air quality.

Section 8.3 of the OAR took account of carbon and states that there will be a neutral effect on greenhouse gases. However, this conclusion does not necessarily align on review of the Appraisal Summary Tables (ASTs), particularly when moving strategic trips to the bypass that reduces congestion and improved journey times will encourage more car trips from local users which will increase regional greenhouse gas emissions. These discrepancies and the light touch given to Climate Change indicates that it is open to challenge in terms of Net Zero and alignment with the Paris Agreement.

Conclusion: Overall, the assessment is in accordance with the guidance at the time. Should the package be progressed further, the adverse effects predicted on various environmental topics fall short of current Net Gain, Net Zero requirements and the Climate Emergency context and would need revisiting as a result.

[10] Page 5, Transport Analysis Guidance for the Technical Project Manager, May 2018

#### 4.3.1.3 OAR overall conclusions

The OAR produced for HTP follows the structure and format of the transport appraisal process as set out in TAG, where each of the steps 1-7 are set out in turn and reported within an OAR (Step 8). However, the following remain of concern following this review of the OAR:

Some options were discounted, due to being appraised in different studies, should have been taken through a full process to determine if they had the opportunity to fulfil the objectives of the scheme. If the HTP Strategic Outline Business Case is progressed, we would recommend those discounted options are reconsidered.

The concern with the approach taken to combine the strongest performing interventions, namely the road and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2. However, the option assessment process has shown there is an alternative option which could achieve all HTP objectives. Typically, the options which are shown to meet all objectives would be carried forward to further appraisal in Stage 2 “to produce evidence sufficiently robust to support the business case”. If the scheme is progressed further, in updating the SOBC, it should be demonstrated that this has been addressed by the scheme promoters.

### 4.3.2 Large Local Majors bid business case documents

#### 4.3.2.1 Transport

The content of these documents are essentially the same as the Strategic Outline Business Case reviewed below and therefore the issues are considered in Section 4.3.2 below.

#### 4.3.2.2 Environment, climate change and carbon

Environmental issues in these reports focus on air quality and noise issues within Hereford City Centre, with no other environmental topics addressed. In reporting the outcome of public consultation, a key concern raised relates to the environmental impact of the bypass.

Conclusion: Overall, aside from noise and air quality, there is a lack of the broader environmental topics and fall short of the Net Gain requirements.

Climate change and resilience, carbon or greenhouse gases have not been adequately considered in these documents, which is in keeping with the guidance at the time of writing but is an issue in terms of the requirements of the Government’s 2019 Net Zero legislation.

### 4.3.3 HTP Strategic Outline Business Case (SOBC)

#### 4.3.3.1 Transport planning, modelling, appraisal and economics

It is important to note that the SOBC is a work in progress document which has not been published / submitted. The SOBC follows on from the work in the Option Assessment Report and includes much of that documentation as directly copied source material. As a result, the issues noted for the OAR are carried over to the SOBC. This includes:

- That there are concerns in that some positive options appear to have been discarded before being fully assessed prior to the preferred package being arrived at
- That the OAR failed to recommend several best performing options including a low-cost option for more detailed assessment at SOBC

Notwithstanding the above, a detailed review of the SOBC has been undertaken. To understand how the SOBC complies with standard process, the structure has been reviewed against the DfT's *Transport Business Cases* best practice, 2013.

**The Strategic Case**

The format of the strategic case follows the standard structure. The impact of not changing, internal drivers for change and external drivers for change sections are incorporated into a single section, however this does not present any issue.

There is a significant amount of information regarding the use of the Highway Assignment Model for forecasting that wasn't included within the Traffic Forecasting Report (TFR). However, this seems to be primarily focussed on the combined impact of the HTP and the Southern Link Road (SLR) rather than drawing comparisons between the HTP and a Do Minimum (DM) scenario that includes the SLR.

Network statistics are as per the TFR and confusingly present the results against a DM that doesn't include the SLR.

Whilst a section has been titled ‘constraints’, it refers only to a risk register that contains five risks (table 7.4 of the report). It is expected that a comprehensive understanding of the type, location and scale of physical environmental, planning and engineering delivery risks would be provided at this stage. How different options are impacted by these risks should then be part of the appraisal.

The ‘scheme’ is presented in detail with information as to how its impacts on the network. In providing evidence of how wide the scale of impact will be, a concern over how the geographic scope was defined in the OAR has been answered. As previously mentioned, it is expected that the level of assessment at SOBC would be applied to a range of better performing options but that has not been done in this instance.

**The Economic Case**

The structure of the Economic Case follows the DfT Business Case guidance.

The way in which the Economic Case has been produced provides a risk of confusion. It isn’t clear which of the Do Minimum (DM) and Do Something (DS1) introduced within the Strategic Case is being referred to as the DM in the Economic Case. Absolute clarity is required that the DM here includes the SLR and is therefore actually DS1 from the Strategic Case. If the SLR is only included within the Do Something, then the assessment should not be claiming benefits for that scheme. It must be noted that the VfM Statement (in Appendix B of the report) suggests the DM includes the SLR, however this should have been made clear throughout the report.

Scheme costs are stated as being assumed to be £153m. It is unclear why this is the case.

The calculation of reliability benefits uses different annualisation factors to the TUBA.

In reviewing this document, a number of other more detailed technical comments relating to traffic modelling were made. Noting that these are issues which could be addressed if the HTP is taken forward, these constitute advice on how the evidence base could be strengthened if it is developed further. In order to aid the flow of the report and to answer the three key questions in the brief for the peer review, these detailed points are provided as Appendix C.

**Financial, Commercial and Management Cases**

The final three cases contain limited information, which is as to be expected at SOBC stage.

The Financial Case mentions 7 alignments of the bypass. This is the first mention of any alignment options having been generated or appraised. It is unclear why the strategic and economic cases make no mention of these alignments.

The Financial Case alludes to Optimism Bias being included within the scheme cost and set at 32% of the Bill of Quantities. At this stage of a project, the Optimism Bias should be 44% as set out in the Green Book Supplementary Guidance. Whilst mention to mitigation is given, the justification is missing and it appears that the text may have been taken from a different report.

However, it should also be noted Optimism Bias should not be considered within the calculation of scheme costs within a Financial Case (it is used only for the Economic Case as per TAG A1.2). Instead there should be a Quantified Risk Assessment undertaken and a justified monetised value of risk added to the scheme cost.

Conclusion: The SOBC structure for the HTP follows the DfT Transport Business Cases guidance closely. The primary concern with the SOBC is that it only considers one option, the preferred package, that has been taken from the OAR. This limited assessment is not in keeping with the principles of TAP which would suggest that more than one option (including a low-cost option) are considered at SOBC stage and have been assessed in comparative detail. Acknowledging that this is a draft document, should the HTP be progressed, these matters should be looked at again.

#### 4.3.3.2 Environment, climate change and carbon

As with other HTP documents, the key environmental problem identified is air and noise pollution in Hereford City centre. Where sustainable development is discussed, as in Section 2.4, this appears to focus predominantly on the economic and social spheres, with the environmental focus covered separately (and focused on noise and air quality as previously identified). For the key topics covered in the Appraisal Summary Table, increased noise is predicted as a result of the bypass, increased air pollution along the bypass route (although some reduction in air pollution in the city centre), increased greenhouse gas emissions due to the increased travel distance, negative landscape, historic environment and biodiversity effects, and no water environment effects presented (although these may be likely).

Conclusion: Overall, whilst the assessment is in accordance with the guidance at the time, the assessment associated with the predicted rise in greenhouse gas emissions falls short of the government's current Net Zero requirement.

### 4.3.4 HTP Traffic Forecasting Report

In reviewing this document, a number of detailed technical comments relating to traffic forecasting and modelling were made. In order to aid the flow of the report and to answer the three key questions in the brief for the peer review, the detailed points are provided as Appendix C.

Conclusion: A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future.

### 4.3.5 Hereford Transport Local Modal Validation Report (LMVR)

Although the LMVR is a comprehensive document, with the information providing a clear understanding of the model and its validation results, a number of queries were raised in the

rapid review of the document. As part of the clarification between draft and final peer review reporting, Herefordshire Council and WSP have advised that DfT were in the process of reviewing the LMVR at the time work on the package was paused and hence hadn't reached sign off. As such, it was agreed a more detailed review of the report was not required by the peer review team.

### 4.3.6 HTP Hereford Bypass Stage 2 Environmental Assessment

This is a comprehensive environmental report which covers a wider range of environmental topics in detail. It is necessarily focused on the western bypass solution “the scheme” and relative merits of various western routes. As such it doesn’t seek to answer the fundamental question whether a bypass is required or not, although there is some commentary on the 2010 report on eastern and western options.

The report is up to date for time of production, and does reference Climate Change Act, however it pre-dates net zero by 2050, net gain or the climate emergency. The assessment applies the then-current Design Manual for Roads and Bridges (DMRB) methodology, however this is now updated.

Adverse environmental effects are identified across numerous topics: Air Quality (both beneficial (city centre) and adverse effects - elsewhere), Noise (‘slight’ adverse according to the methodology), Landscape and Visual (numerous large adverse effects), Heritage (numerous adverse effects due to the footprint and also visual setting), Ecology (habitat loss, veteran trees, loss of connectivity, species), geology/land quality (impacts on Agricultural land, above Source Protection Zones, potential groundwater effects).

In the assessment of the water topic, a 35% increase in flows has been allowed for the predicted effects of climate change. This appears to be sufficient for the date of the assessment, however the further floods in Feb 2020 following Storm Dennis led to the River Wye reaching its highest ever level. Potential impacts identified include the need for stream realignment/ culverting, and some increase in fluvial flood risk. These conclusions may no longer be acceptable given the 2020 floods.

The materials topic is not focused on carbon impacts but more on materials availability, which would have been standard at the time. No carbon assessment is made.

The people and communities topic presents a mixed picture. There are some transport benefits (as would be expected), but numerous adverse effects.

The climate section applies UKCP09 scenarios as it just pre-dated the UKCP18 scenarios.

Conclusion: Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all this Stage 2 Environmental assessment falls short of current ambition in these areas. Whilst a wide range of topics are assessment, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). The documents also pre-date the exceptional floods and record-breaking water levels in the River Wye in Feb 2020. Taken this into account and given the policy changes it is likely that the Climate Emergency, Net Zero and Net Gain would now be strategic objectives against which options would need to be assessed and progressed as part of any future work on the package.

## 4.4 Summary of findings

Table 4.3 provides a summary of the peer review team's conclusions in respect of how the key documents to support the development of the package meet the three aims of the review. They are categorised in line with the RAG criteria explained at the start of this section.

**Table 4.3: Summary of findings by document**

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| HTP Option Assessment Report (OAR) | The OAR produced for HTP follows the structure and format of the transport appraisal process as set out in TAG, where each of the steps 1-7 are set out in turn and reported within an OAR (Step 8). However, two points remain of concern following this review of the OAR:<br>• Some options were discounted, due to being appraised in different studies, should have been taken through a full process to determine if they had the opportunity to fulfil the objectives of the scheme. If the HTP Strategic Outline Business Case is progressed, we would recommend those discounted options are reconsidered.<br>• The concern with the approach taken to combine the strongest performing interventions, namely the road and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2. However, the option assessment process has shown there is an alternative option which could achieve all HTP objectives. Typically, the options which are shown to meet all objectives would be carried forward to further appraisal in Stage 2 "to produce evidence sufficiently robust to support the business case". If the scheme is progressed further, in updating the SOBC, it should be demonstrated that this has been addressed by the scheme promoters. |
| Hereford Transport Package Strategic Outline Business Case Large Local Majors | The content of these documents are essentially the same as the Strategic Outline Business Case reviewed below and therefore the issues are considered below. |
| HTP Strategic Outline Business Case (SOBC) | The SOBC for the HTP follows the DfT Transport Business Cases guidance closely. The primary concern with the SOBC is that it only considers one option, the preferred package, that has been taken from the OAR. This limited assessment is not in keeping with the principles of TAP which would suggest that more than one option (including a low-cost option) is considered at SOBC stage and have been assessed in comparative detail. |
| HTP Traffic Forecasting Report (TFR) | A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |
| Hereford Transport Model Local Model Validation Report (LMVR) | As part of the clarification between draft and final peer review reporting, Herefordshire Council and WSP have advised that DfT were in the process of reviewing the LMVR at the time work on the package was paused and hence hadn't reached sign off. As such, it was agreed a more detailed review of the report was not required by the peer review team. |
| HTP Hereford Bypass Stage 2 Environmental Assessment | Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all this Stage 2 Environmental assessment falls short of current ambition in these areas. Whilst a wide range of topics are assessment, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). The documents also pre-date the exceptional floods and record-breaking water levels in the River Wye in Feb 2020. Taken this into account and given the policy changes it is likely that the Climate Emergency, Net Zero and Net Gain would now be strategic objectives against which options would need to be assessed and progressed as part of any future work on the package. |

Notes:

- Aim 1 In accordance with TAG
- Aim 2 Sound evidence base
- Aim 3 Decisions sound
- Red = looking backwards – issue which should be clarified
- Green = looking backwards – sound but issue could have been done differently
- Amber = looking forwards – issue to be considered if package progressed further in the future
- Black = not applicable

# 5 Future requirements

Environmental issues, climate emergency and net zero policy has been considered separately to the individual documents that formed a part of the appraisal review. This section explains the relative overarching policies and how these have changed and adapted throughout the appraisal process. The policies used at the start of the process, albeit correct at the time of the HTP's earlier development, are now out of date.

A fundamental shift in Government policy and ambition in the area of the environment, climate and carbon has occurred since the HTP assessment documents were produced. The United Nation's Paris Agreement called on all countries to engage in climate action to maintain the global average temperature increase below 2°C and aim to limit it to below 1.5°C compared to pre-industrial levels. In 2018, the Intergovernmental Panel on Climate Change (IPCC) Special Report concluded limiting global warming to 1.5°C would require "unprecedented" and "deep emissions reductions in all sectors" and a decrease in global CO2 emissions by about 45% by 2030 compared to 2010, reaching net zero by 2050. Central UK Government declared a Climate Emergency in May 2019, followed in June 2019 with the target for 100% reduction in GHG emissions by 2020 (Net Zero). This materially affects investment decisions, especially in the area of transport infrastructure. Updates to the NPPF in 2018 embedded the principle of environmental "net gain" in relation to new development. Taken together, these provide grounds for challenge to any scheme which does not demonstrably provide environmental benefit and contribute to significant reduction in carbon emissions. The forthcoming Environment Bill is expected to reinforce this trajectory.

Legal challenge to both transport policy and major infrastructure projects has also gathered momentum in recent years, epitomised in the February 2020 Court of Appeal ruling regarding Heathrow's third runway. In this case the court of appeal ruled that ministers did not adequately take into account the government's commitments to tackle the climate crisis. More specifically that at the time that the UK commitment to the Paris Agreement was put into law, the Transport Minister should have instructed the Department for Transport to review the national policy statement on aviation to ensure that it remained a 'legal' policy statement in the context of the UK revised commitments with respect to carbon.

Assessment approaches and guidance are still catching up with policy. It remains possible for schemes to fully meet current assessment criteria and yet fall short of the high standards set by policy. TAG Unit A3 (Environmental Impacts) predominantly dates back to 2015 (although Air Quality sections were updated in 2019) and is not explicitly aligned with the policy of 100% reduction in GHG emissions by 2050, although there is a "strong preference" for Net Gain in regard to biodiversity. The latest DMRB guidance on climate change (LA 114) is from October 2019 and does reference the Net Zero target and take account of current climate change scenarios (UKCP18).

Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all the HTP documents would now fall short of current ambition in these areas. Whilst issues around Air Quality and Noise are rightly identified, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). The documents also pre-date the exceptional floods and record-breaking water levels in the River Wye in Feb 2020. These points are not intending to indicate that there was any deficiency in the work undertaken, merely that more recent policy

and guidance would mean that these issues should be considered again if the existing work is taken forward.

Taking this into account and given the policy changes it is likely that the Climate Emergency, Net Zero and Net Gain would now be strategic objectives against which options for HTP (and indeed any highway / transport infrastructure scheme) would need to be assessed and progressed, likely leading to different solutions to those chosen to date.

# 6 Summary and conclusions

## 6.1 Preamble

This report provides the findings of the peer review work that has been undertaken on the governance and technical documents used to develop the Hereford Transport Package.

The aims of the peer review are to:

- Establish whether the package has been developed in accordance with the major transport scheme process as laid out in TAG
- Establish whether the package including their major road scheme components (the southern link road in the HTP) are based on a sound evidence base
- Clarify whether the decisions to progress these packages were sound and justified in line with the recommendations of the technical work.

The comments and recommendations made regarding each document is summarised in terms of:

- Looking backwards – issues identified which should be clarified or amended.
- Looking to the future – generally technical issues related to transport modelling and appraisal which may need to be revisited if the package are progressed further in the future. This point also considers environmental, climate change and net zero issues which could lead to a different vision for the package.

The format of the review provides a concise commentary on the document provided, notes any issues identified by the review team and concludes with a summary of each document.

The review also considered responses by the Herefordshire Council team and technical team made to queries raised by the review team.

## 6.2 Documents reviewed

It is clear that a large volume of information has been produced to support the development of the package. Following an initial rapid review of all supplied documents, the peer review focussed upon the following:

- HTP Option Assessment Report (70024065WSP-XX-XX-RP-TP-00010 Revision 3, December 2018)
- Hereford Transport Package Strategic Outline Business Case Large Local Majors (Strategic Case) (70058524 Draft SOBC v2, June 2019)
- HTP Strategic Outline Business Case (70043845 SOBC-001, July 2018)
- HTP Traffic Forecasting Report (3512983BP -WSP-DEV-001-TFR02, Revision 1, December 2018)
- Hereford Transport Model Local Model Validation Report (70029880-571\1\3, Third Draft, September 2019)

## 6.3 Classification of review comments

The comments made have been classified in terms of:

- Looking backwards – issues identified which should be clarified or amended. Categorised red where the point made is deemed to be a significant issue, green if the premise is sound

however things could have been covered differently (i.e. a technical recommendation which could be reconsidered).

- Looking to the future – generally technical issues which could be revisited if the packages are progressed further, as well as environmental, climate change and net zero issues which could lead to a different vision for the package. This are all categorised as amber, on the premise that these points would be considered in the future before the package was progressed further.

## 6.4 Peer review conclusions

A volume of technical work has been reviewed to assess the case for the package. The findings are summarised below.

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| HTP Option Assessment Report | The OAR produced for HTP follows the structure and format of the transport appraisal process as set out in TAG, where each of the steps 1-7 are set out in turn and reported within an OAR (Step 8). However, two points remain of concern following this review of the OAR:<br>• Some options were discounted, due to being appraised in different studies, should have been taken through a full process to determine if they had the opportunity to fulfil the objectives of the scheme. If the HTP Strategic Outline Business Case is progressed, we would recommend those discounted options are reconsidered<br>• The concern with the approach taken to combine the strongest performing interventions, namely the road and active travel measures, at the end of Stage 1 is that it could appear that a preferred package has been settled at this point. It is fully acknowledged that this remaining option needs to be (and is) subject to further appraisal in Stage 2. However, the option assessment process has shown there is an alternative option which could achieve all HTP objectives. Typically, the options which are shown to meet all objectives would be carried forward to further appraisal in Stage 2 "to produce evidence sufficiently robust to support the business case". If the scheme is progressed further, in updating the SOBC, it should be demonstrated that this has been addressed by the scheme promoters. |
| Hereford Transport Package Strategic Outline Business Case Large Local Majors | The content of these documents are essentially the same as the Strategic Outline Business Case reviewed below and therefore the issues are considered below. |
| HTP Strategic Outline Business Case | The SOBC for the HTP follows the DfT Transport Business Cases guidance closely. The primary concern with the SOBC is that it only considers one option, the preferred package, that has been taken from the OAR. This limited assessment is not in keeping with the principles of TAP which would suggest that more than one option (including a low-cost option) is considered at SOBC stage and have been assessed in comparative detail. |
| HTP Traffic Forecasting Report | A series of comments have been made in respect of the TFR. These are points of clarification which should be considered further by the scheme promoters and technical team in the future if the package is progressed further. This is no way implies the work done is incorrect, it merely is intended to provide a 'critical friend' approach to what may need to be inspected again in the future. |
| Hereford Transport Model Local Model Validation Report | As part of the clarification between draft and final peer review reporting, Herefordshire Council and WSP have advised that DfT were in the process of reviewing the LMVR at the time work on the package was paused and hence hadn't reached sign off. As such, it was agreed a more detailed review of the report was not required by the peer review team. |
| HTP Hereford Bypass Stage 2 Environmental Assessment | Since they pre-date these policy and guidance updates, and the latest UKCP18 climate scenarios, unfortunately all this Stage 2 Environmental assessment falls short of current ambition in these areas. Whilst a wide range of topics are assessment, there is insufficient assessment of carbon and climate impacts compared to current requirements (although the assessment was valid at the time). The documents also |

| Document | Conclusion as to whether the document meets the peer review aims |
|---|---|
| | pre-date the exceptional floods and record-breaking water levels in the River Wye in Feb 2020. Taken this into account and given the policy changes it is likely that the Climate Emergency, Net Zero and Net Gain would now be strategic objectives against which options would need to be assessed and progressed as part of any future work on the package. |

**Aim 1 of the review is considered to be met.** Whilst there remain points of technical detail which may need to be addressed in the future if the package is taken forward, it is clear that the technical work undertaken since 2018 has been prepared in accordance with the DfT Transport Appraisal Process (TAP).

**Aim 2 of the review, which is to establish whether the packages including their major road scheme components (the western bypass in the HTP) have been developed with a sound evidence base, is deemed to be met.** The history of the package revolves around the infrastructure needs to meet the plans of the Core Strategy. Infrastructure is required to support the development policies contained within this document and the initial HTP proposals have been tested and challenged in an appropriate way through technical studies, modelling and Examination in Public, to enable them to be adopted within the Local Plan. In progressing to a preferred package there are areas which might have been done differently, particularly around alternative options. Given that work undertaken so far in Stage 2 of TAP remains at a draft stage, there is still the opportunity to address the comments raised, should the package be taken forward in the future. Notwithstanding, it is concluded that in general the technical work provides a compliant evidence base for the package.

## 6.5 Governance and historical development of the package

Whilst a detailed inspection of the fine print of the governance decisions would need to be undertaken by a land use or legal expert rather than the transport professionals who have undertaken the peer review, from the information considered in these documents it does appear that all decisions have been made in accordance with the recommendations of the technical evidence provided to support the Council papers at the time, i.e. the action taken was appropriate in the context of the advice and recommendations provided and the technical information available. There is a logical flow of decisions which recommend the continuation of the package, including where decisions have been called in for further scrutiny and additional information has been provided to justify the associated course of action.

One aspect which is not explicit within any of the decisions is the point at which the schemes split from a single bypass road scheme to two packages which included additional measures and a split of the two road elements. Whilst this is not considered to be a particular flaw in either package, it would be helpful to record this in future scheme timelines if the package is progressed further.

In addition to the council's governance the proposals have been tested and challenged in an appropriate way through technical studies and Examination in Public, to enable them to be adopted within the Local Plan. Since the adoption of the Core Strategy, more recent technical work has been subject to regular public consultation and council scrutiny and there is nothing to indicate that decisions have not been undertaken in accordance with the technical evidence and recommendations which were available at decision points.

**Aim 3 of the review is considered to be met.**

# Appendices

# A. Incoming document register

The following is a cohesive list of all the documents that have been reviewed throughout the peer review process:

**Initial technical documents:**

- September 2009 - Hereford Multi Modal Model Forecast Report (JMP)
- August 2010 – Hereford Relief Road Engineering Assessment (Amey)
- August 2010 – Hereford Relief Road Environmental Assessment (Amey)
- August 2010 - Hereford Relief Road Engineering Sustainable Option Packages (TPi)
- August 2010 – Hereford Relief Road Stage 1 Assessment (Amey)
- September 2010 - Hereford Relief Road Study of Options Report (Amey)
- September 2010 - Draft Preferred Option
- March 2011 - Interim Forecast Report Rev East Route Options (TPi)
- July 2011 - Local Development Framework
- July 2011 – Independent Review of the Hereford Relief Road Studies (PB)
- November 2012 - Interim Forecasting Report Addendum (Amey)
- March 2013 - Draft Core Strategy
- August 2017 - HTP Phase 1 Consultation Report (WSP)
- January 2018 - HTP (Hereford Bypass) Corridor Assessment Framework (WSP)
- June 2018 - HTP Active Travel Measures Report (WSP)
- June 2018 - HTP Equality Impact Assessment (WSP)
- June 2018 - HTP Preferred Route Report (WSP)
- June 2018 - HTP Stage 2 Scheme Assessment Report (WSP)
- July 2018 - HTP Phase 2 Consultation Report (WSP)
- July 2018 - HTP Route Selection Report (WSP)
- July 2018 - HTP Stage 2 Environmental Assessment Report (WSP)
- Business Case (HTP)
- HTP Feasibility Business Case

**Additional technical evidence:**

- HTP Option Assessment Report
- HTP Strategic Outline Business Case
- HTP SOBC Large Local Majors (Financial Case)
- HTP SOBC Large Local Majors (Commercial Case)
- HTP SOBC Large Local Majors (Management Case)
- HTP SOBC Large Local Majors (Strategic Case)
- Traffic Forecasting Report HTP
- Hereford Transport Demand Model Validation Report
- Hereford Transport Model Local Model Validation Report

**Governance Decisions**

- 16.09.2010 - Cabinet - Publication of Core Strategy Option paper

- 28.07.2011 - Cabinet - Economic Development Strategy LDF and LTP3
- 19.07.2013 - Council - Core Strategy Approval
- 16.10.2015 - Council - Adoption of Core Strategy
- 20.05.2016 - Council - Adoption of Local Transport Plan
- 16.06.2016 - Cabinet - Approval to Develop the Hereford Relief Road
- 18.01.2018 - Cabinet - HTP Phase 1 consultation feedback and approval of Phase 2 Options consultation
- 18.07.2018 - GSC - HTP General Scrutiny Report Preferred Route
- 27.07.2018 - Cabinet - HTP Preferred Route for Development

# B. Summary tracker of comments

MOTT MACDONALD

Project Title: Peer Assessment of Hereford and South Wye Transport Packages
Project No.: 417997
Document: Hereford Transport Package Comments Log
Rev / Date: Rev 1 / 17/07/20

| Comment ID | Status | Issue Theme | Source report | Specific location (e.g. section,page,para) | Comment | Date | Raised by | Allocated to | Response | Date | Comment_update | Date | Response | Date | Comment_update | Date | Closed date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HTP01 | Closed | Technical / future issue to address | HTP Option Assessment Report | Section 2.5 | The section would benefit from having an indication of the number of external-external trips through the city centre. Is the data available? | 22/6/20 | MM | | | | | | | | | | |
| HTP02 | Closed | Technical / future issue to address | HTP Option Assessment Report | Section 2.5 | The section would benefit from having details regarding the parking supply and demand within the town. Is the data available? | 22/6/20 | MM | | | | | | | | | | |
| HTP03 | Closed | Technical / future issue to address | HTP Option Assessment Report | Section 4.2 | Tables on pages 156, 157, 158 state planned growth cannot be accommodated onto the network without intervention. This is contrary to the contents of Appendix 5 of the Local Plan. Suggestion that the text is amended to explain growth over and above that tested (c5000 dwellings) cannot be accommodated. | 22/6/20 | MM | | | | | | | | | | |
| HTP04 | Closed | Technical / future issue to address | HTP Option Assessment Report | Section 6 | Quantified justification of area of impact needed (noted this is present in the SOBC) | 22/6/20 | MM | | | | | | | | | | |
| HTP05 | Closed | Options sifting | HTP Option Assessment Report | Table 28 | What is the justification for the A49 HOV lane being a public transport instead of a highway scheme? What is the comparison of volume of buses to volume of multiple occupancy car/vans? | 22/6/20 | MM | WSP | The HOV lane is described in Table 28 as ".... permitting only vehicles with 2 or more occupants, including buses, ...". It could have been categorised as either part of the' Public Transport Options' or 'Road Options'. | 8/7/20 | Closed | 9/7/20 | | | | | 9/7/20 |
| HTP06 | Closed | Options sifting | HTP Option Assessment Report | Section 8.5 | 13 options have been put through the initial scoring exercise only to be discounted due to them being looked as part of other studies rather than their ability to contribute to objectives or to be delivered.<br>Why were they assessed at all if this was the known outcome?<br>Should some or all of these 13 options be delivered in separate studies would there still be a need to progress with the preferred package?<br>Should some or all of these 13 discounted schemes be included as part of the active travel, park & ride, or low cost packages in the second stage of assessments, would the end result be the same? | 22/6/20 | MM | WSP | Point 1 - in accordance with WebTAG (Step 5), we were keen to develop a long list of options which refelcted the full range of options available to HC . It was only during this process that several of the options were considered to be not feasbile, outside the remit of HC, or assigned to another HC package or funding stream. Point 2 - this is a theoretical question as we did not know, and still do not know, whether some or all of the options will be delivered in Hereford and, if they are, the scale of that intervention. Point 3 - we do not know. However, this is unlikely as, given they were being developed in separate ways, they would need to be in both the DM and DS. | 8/7/20 | Closed | 9/7/20 | | | | | 9/7/20 |
| HTP07 | Open | Options sifting | HTP Option Assessment Report | Appendix F Value for Money - Impact on Society table 'Physical Activity' (page 312 of pdf report) | Concern that the scoring is subjective rather than quantifiable on this key point.<br>For the impact on physical activity the road package scores "moderate adverse" as the bypass makes it easier for people to travel by car.<br>For the impact on physical activity the active travel package scores "slight beneficial". There will be an increase in trips but this is limited as traffic still high on key routes.<br>For the preferred package the score is "moderate beneficial" i.e. higher than the active travel package.<br>What evidence is there for the swing in modal shift that would be required for this combined score? | 22/6/20 | MM | WSP | This is explained by the commentary under the Preferred Package column, namely: "Potential for more successful active travel measures when implemented in conjunction with the proposed bypass as this would reduce traffic levels on key urban corridors in Hereford." | 8/7/20 | Can data be provided on the actual impact of the packaged active travel measures with road as opposed to the individual assessment on mode share (i.e by combining the active travel element with the road is there model data that shows increased active travel use to back up the change from slight beneficial when considered as atrn only and moderate beneficial when packaged with the road) | 9/7/20 | There is model data which shows that the bypass would reduce traffic flows on key corridors within Hereford. This is the basis by which the report states that there is 'potential' for more successful active travel measures with a bypass being constructed, and this is what led to the 'moderate beneficial' entry. At this point in the process, we did not have modelling information to evidence this. | 15/7/20 | | | 9/7/20 |
| HTP08 | Closed | Options sifting | HTP Option Assessment Report | Appendix F Strategic Fit table (page 305 of pdf) and Value for Money - Impact on Society table 'Physical Activity' (page 312 of pdf report) | Road package is assessed as having "no contribution" to Objective 5 Encouraging Healthy Lifestyles in one table but a "moderate adverse" impact on physical activity in another table. Can that discrepancy be justified? | 22/6/20 | MM | WSP | They are referring to different aspects. Objective 5 specifically refers to "walk and cycle from new developents to key attractors". The VfM table refers to city-wide activity. | 8/7/20 | Closed | 9/7/20 | | | | | 9/7/20 |
| HTP09 | Closed | Options scoring | HTP Option Assessment Report | Appendix F Strategic Fit table (page 305 of pdf) and Value for Money - Impact on Environment table (page 309 of pdf report) | The preferred package scores slight adverse on noise, and moderate beneficial on air quality in the Impact on Environment table but is judged to have a moderate beneficial impact overall when scored against Objective 6 Air Quality and Noise. Can that discrepancy be justified? | 22/6/20 | MM | WSP | This is incorrect. The Preferred Package is shown as having a "positive contribution" to Objective 6, and a Large Beneficial Imapct overall (ie across all eight objectives). This is not inconsistent with the individual scores for noise and air quality. | 8/7/20 | Closed | 9/7/20 | | | | | 9/7/20 |
| HTP10 | Open | Options sifting | HTP Option Assessment Report | Section 9 | The assessment selects one preferred package. TAG Transport Appraisal Process indicates that the output of an OAR is the selection of the best performing options including a low cost option with the intention that those options are tested in detail at SOBC stage. What justification is there as to why that guidance has not been followed and all other option packages (even those that will potentially contribute to all objectives e.g. P&R+Active Travel) rejected for detailed appraisal? | 22/6/20 | MM | WSP | Section 9 of the OAR details a low cost alternative and presents a detailed assessment of how it performs against the other options. The assessment shows that other package combinations (eg P&R + Ative Travel) are inferior to the Preferred Package. We have not carried out the Stage 2 assessment to which the OAR refers, and did not agree which other options were to be assessed in this greater level of detail. This would need to be considered further if the work was restarted. | 8/7/20 | The response to the point on park and ride indicates that the ATM and park and ride was inferior to the preferred package. Can data be provided that quantifies this inferiority? | 9/7/20 | The inferior nature of the Park and Ride package is described over nine pages in Table 37 in the OAR. This covers many different areas, as explained in the table. There is no simple data which can be provided to substantiate such a wide range of topics. | 15/7/20 | | | 9/7/20 |
| HTP11 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 4.6 | growth in HGVs is taken from Road Traffic Forecast 2015 (RTF15) which is substantially different to the current version Road Traffic Forecast 2018 (RTF18). Rates of growth for Other Good Vehicles (OGVs) in RTF18 are dramatically reduced from the values in the 2015 data. Will this be updated in future releases? | 22/6/20 | MM | | | | | | | | | | |
| HTP12 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 5.1.12 | it is not clear where, or how, the adjustment of traffic signals in future years was done. To be even handed it would be important to ensure that any optimisation of signals was undertaken for both the 'do minimum' (DM) and 'do something' (DS) to avoid unduly influencing the subsequent appraisal.<br>Can clarification or explanation be provided? | 22/6/20 | MM | | | | | | | | | | |
| HTP13 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 6.2.4 | Growth in Goods Vehicle (GV) trips should be taken from either the National Transport Model (NTM) or the RTF. The National Road Traffic Forecast (NRTF) was discontinued and replaced with RTF15 and subsequently RTF18.<br>Can this be clarified or corrected? | 22/6/20 | MM | | | | | | | | | | |
| HTP14 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 6.6 | Generalised costs are from the July 2017 TAG Databook where goods vehicle values of time have not been adjusted. The value of time for Other Goods Vehicle 1 (OGV1) and Other Goods Vehicle 2 (OGV2) is based on the driver's value of time and does not take account of the influence of owners on the routeing of these vehicles. TAG Unit M3.1 paragraph 2.8.8 indicates that consideration should be given to doubling this value.<br>Can justification be provided as to why that hasn't been considered? | 22/6/20 | MM | | | | | | | | | | |
| HTP15 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 7 | Forecast model convergence is not presented in this section.<br>Consider inclusion for later iterations. | 22/6/20 | MM | | | | | | | | | | |
| HTP16 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 8 | The Network statistics are confusingly presented for three scenarios, including a DM scenario that doesn't include the SLR. Two DS scenarios are presented despite "DS1" presumably being the true Do Minimum in this case. This is inconsistent with the description of the DM provided in section 5 and makes subsequent comparisons difficult as there are no direct comparisons presented in the tables between DS1 (the actual DM) and DS2 (the actual DS).<br>Consider revising the report to make this clearer. | 22/6/20 | MM | | | | | | | | | | |
| HTP17 | Closed | Technical / future issue to address | Traffic Forecasting Report HTP | Section 9 | First and only mention of how traffic flows have changed in the forecasts. Having detail on this would the impacts considerably easier to understand.<br>Consider revising the report to make this clearer. | 22/6/20 | MM | | | | | | | | | | |
| HTP18 | Closed | Option sifting and assessment | HTP Strategic Outline Business Case | General comment | Many of the issues with the HTP Options Assessment Report are repeated throughout the SOBC.<br>Of key importance are issues HTP06 to HTP10 of this spreadsheet. | 22/6/20 | MM | WSP | Dealt with above. | 8/7/20 | Closed | 9/7/20 | | | | | 9/7/20 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HTP19 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 2 | There is a significant amount of information regarding the use of the Highway Assignment Model for forecasting that wasn't included within the Traffic Forecasting Report (TFR). However, this seems to be primarily focussed on the combined impact of the HTP and the Southern Link Road (SLR) rather than drawing comparisons between the HTP and a Do Minimum (DM) scenario that includes the SLR.<br>Will this information be transferred to the TFR?<br>Consider revising future revisions of the SOBC to make the comparison between the DM (including SWTP) and DS clearer. | 22/6/20 | MM | | | | | | | | | | | |
| HTP20 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 2.5.6 | Whilst a section has been titled 'constraints', it refers only to a risk register that contains five risks (table 7.4 of the report). It is expected that a comprehensive understanding of the type, location and scale of physical environmental, planning and engineering delivery risks would be provided at this stage. How different options are impacted by these risks should then be part of the appraisal.<br>Further revisions should consider revising this section. | 22/6/20 | MM | | | | | | | | | | | |
| HTP21 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 3 | The way in which the Economic Case has been produced provides a significant risk of confusion. It isn't at all clear from the section, which of the DM and DS1 introduced within the Strategic Case is being referred to as the DM in the Economic Case. Absolute clarity is required that the DM here includes the SLR and is therefore actually DS1 from the Strategic Case. If the SLR is only included within the Do Something, then the assessment is falsely claiming benefits for that scheme. It must be noted that the VfM Statement (in Appendix B of the report) suggests the DM includes the SLR, however this should have been made clear throughout the report.<br>Consider revising the economic case to make DM and DS easily understood and comparable. | 22/6/20 | MM | | | | | | | | | | | |
| HTP22 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 3 | it is stated that TUBA version 1.9.9 has been used for the assessment. This version was superseded in March 2018 by v1.9.10 which should have been enough time to rerun the TUBA for a July 2018 report.<br>Was a TUBA run using 1.9.10 undertaken then or subsequently and combined with RTF18 and updated WebTag databook values what impact has this had? | 22/6/20 | MM | | | | | | | | | | | |
| HTP23 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 3.4 | The TUBA assessment has been undertaken using data from 2026, 2032, 2041 and 2051.<br>Why was the 2035 forecase year not included? | 22/6/20 | MM | | | | | | | | | | | |
| HTP24 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 3.4 | The annualisation factors are very different from those used in the assessment of the South Wye Transport Package. The AM model is only being used for a single hour, with far greater reliance on the IP model. The annualisation factors in Table 53 of the SOBC don't tally with the associated commentary and don't reflect the lack of reliance on the AM peak – either the table, the text or both are incorrect.<br>Can clarification or justification on these points be provided? | 22/6/20 | MM | | | | | | | | | | | |
| HTP25 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Table 61 | It is noted that Table 61 Model Convergence refers to relative gap which is associated with variable demand modelling, however the TFR suggests that VDM was not applied.<br>Could this be confirmed? | 22/6/20 | MM | | | | | | | | | | | |
| HTP26 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 3.5 | The calculation of reliability benefits uses different annualisation factors to the TUBA.<br>Clarrification or justification required. | 22/6/20 | MM | | | | | | | | | | | |
| HTP27 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 4.1.1 | The Financial Case mentions 7 alignments of the bypass. This is the first mention of any alignment options having been generated or appraised. It is unclear why the strategic and economic cases make no mention of these alignments | 22/6/20 | MM | | | | | | | | | | | |
| HTP28 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 4.1.1 | The Financial Case alludes to Optimism Bias being included within the scheme cost and set at 32% of the Bill of Quantities. At this stage of a project, the Optimism Bias should be 44% as set out in the Green Book Supplementary Guidance. Whilst mention to mitigation is given, the justification is missing and it appears that the text may have been taken from a different report.<br>Clariification or justification is required. | 22/6/20 | MM | | | | | | | | | | | |
| HTP29 | Closed | Technical / future issue to address | HTP Strategic Outline Business Case | Section 4.1.1 | It should also be noted Optimism Bias should not be considered within the calculation of scheme costs within a Financial Case (it is used only for the Economic Case as per TAG A1.2). Instead there should be a Quantified Risk Assessment undertaken and a justified monetised value of risk added to the scheme cost.<br>What is the justification for using a reduced OB rather than a QRA for the financial case? | 22/6/20 | MM | | | | | | | | | | | |
| HTP&SW1 | Closed | Technical / future issue to address | Hereford Transport Demand Model Validation Report | General comment | *** Applies to HTP and SWTP *** No detailed review of this document has taken place since WSP indicated in May 2020 that 'essentially, all items and queries had been responded to by correspondence with an agreement to produce a final version of the LMVR made in June 2019'. However, the DfT correspondence attached to the Note does not confirm that the DfT has reviewed and accepted the model, it merely confirms dialogue has taken place. This either requires further information to be provided or HC to confirm that this document does not require reviewing to close this out. | 22/6/20 | MM | | | | | | | | | | | |

# C. Detailed modelling comments

MOTT MACDONALD

# Appendix C

As part of the peer review a number of detailed comments have been made in respect of transport modelling and forecasting. They are not intended to imply a fundamental issue with the work, these are points which the review team feels may need to be reviewed by Herefordshire Council's technical team / consultants if the package is progressed further in the future.

## HTP Strategic Outline Business Case (SOBC)

### Economic Case

In section 3.4 it is stated that TUBA version 1.9.9 has been used for the assessment. This version was superseded in March 2018 by v1.9.10 which should have been enough time to rerun the TUBA for a July 2018 report.

The TUBA assessment has been undertaken using data from 2026, 2032, 2041 and 2051. This raises a question as to why wasn't 2035 also included if this was available (as detailed in the TFR)?

The annualisation factors are very different from those used in the assessment of the South Wye Transport Package. The AM model is only being used for a single hour, with far greater reliance on the IP model. The annualisation factors in Table 53 of the SOBC don't tally with the associated commentary and don't reflect the lack of reliance on the AM peak – either the table, the text or both are incorrect.

The annualised trip totals in Table 54 show that the AM model is only accounting for a small proportion (9%) of trips in the assessment (compared with around 27% for the PM peak and around 64% for the IP).

It is noted that Table 61 Model Convergence refers to relative gap which is associated with variable demand modelling, however the TFR suggests that VDM was not applied. Could this be confirmed?

Sectorised benefits (Table 64) appear to be reasonably symmetrical (especially compared to the SWTP equivalent). General patterns of benefits appear sensible by purpose, time period and year.

## HTP Traffic Forecasting Report

The following inconsistencies have been identified in the HTP Traffic Forecasting Report (TFR).

**Need for Variable Demand Modelling (VDM)**

In section 3.2, it is noted that variable demand modelling has not been applied for the forecasting undertaken in support of the "SOBC-Lite" to date but that this will be included in the ongoing work as the scheme progresses.

**Future year scenarios**

In section 4.1.2, six modelled years have been considered, including the SLR Design Year 2035. However, in the Southern Link Road (SLR) forecasting (described in SWTP Traffic Forecasting Report v3 - Feb 2019.pdf) the year 2035 is not modelled, with the SLR Design Year aligning with the Hereford Bypass. Additionally, paragraph 4.4.4 refers to a table not included within the report.

**Growth in freight traffic**

In section 4.6 growth in HGVs is taken from Road Traffic Forecast 2015 (RTF15) which is substantially different to the current version Road Traffic Forecast 2018 (RTF18). Rates of growth for Other Good Vehicles (OGVs) in RTF18 are dramatically reduced from the values in the 2015 data.

**Committed highway schemes**

Within section 5.1.2, four committed highway schemes have been identified and include the SLR. These mirror the schemes included in the SLR forecasts except for the Hereford Northern Urban Expansion, which is omitted. An infrastructure uncertainty log is not provided.

**Traffic signals**

In section 5.1.12, it is not clear where, or how, the adjustment of traffic signals in future years was done. To be even handed it would be important to ensure that any optimisation of signals was undertaken for both the 'do minimum' (DM) and 'do something' (DS) to avoid unduly influencing the subsequent appraisal.

**Future year trip ends and development zones**

In section 6.2.4 growth in Goods Vehicle (GV) trips should be taken from either the National Transport Model (NTM) or the RTF. The National Road Traffic Forecast (NRTF) was discontinued and replaced with RTF15 and subsequently RTF18. This may be a typing error.

**Reference case matrix totals**

In section 6.5 levels of GV growth are from RTF15 and are significantly higher than the current forecasts in RTF18. Also, given that the forecasts are based on a fixed trip assignment it is not clear that Transport Appraisal Guidance (TAG) guidance (Unit M4 7.4.1) has been followed with respect to fuel cost and income growth factors.

**Generalised cost parameters**

The generalised costs in section 6.6 are from the July 2017 TAG Databook where goods vehicle values of time have not been adjusted. The value of time for Other Goods Vehicle 1 (OGV1) and Other Goods Vehicle 2 (OGV2) is based on the driver's value of time and does not take account of the influence of owners on the routeing of these vehicles. TAG Unit M3.1 paragraph 2.8.8 indicates that consideration should be given to doubling this value.

**Model convergence**

Chapter 7 does not cover forecast model convergence at all which is a significant omission. The section appears to be a summary of the calibration and validation results from the Local Model Validation Report (LMVR) along with a tabulation of base model convergence statistics, information that is largely repeated from chapter 2 where previous work is summarised.

**Network statistics**

The Network statistics in chapter 8 are confusingly presented for three scenarios, including a DM scenario that doesn't include the SLR. Two DS scenarios are presented despite "DS1" presumably being the true Do Minimum in this case. This is inconsistent with the description of the DM provided in section 5 and makes subsequent comparisons difficult as there are no direct comparisons presented in the tables between DS1 (the actual DM) and DS2 (the actual DS).

**Summary and conclusions**

Chapter 9 provides the first and only brief mention of forecast traffic flows within the report.

This detailed review of the HTP Traffic Forecasting Report has resulted in the above detailed queries and questions and has raised general queries about the report.

The HTP Forecasting Report is generally quite scant on detail and omits major sections that would be required in order to provide confidence that the forecasts have been undertaken appropriately. Where results have been provided these have confusingly been presented against a Do Minimum scenario that doesn't include the SLR.

Substantial elements of the report that are not provided include sections detailing:

- Forecast model convergence
- Diagrammatic presentation of forecast flows for the DM and DS scenarios
- Commentary on key changes in flow DS vs DM (including a tabulation of flows on key links)
- Commentary on key changes in delay DS vs DM
- Summary of journey times on key corridors DS vs DM
- Flow difference plots
- Select link analyses DS vs DM to show routing of trips using the bypass and other key routes.

# Hereford Transport Strategy Review



November 2020

Question today

*Imagine tomorrow*

*Create for the future*



# Hereford Transport Strategy Review

WSP UK Limited
The Mailbox
Wharfside St
Birmingham
B1 1RQ
Tel: 0121 352 4700

**wsp.com**

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# Contents Page

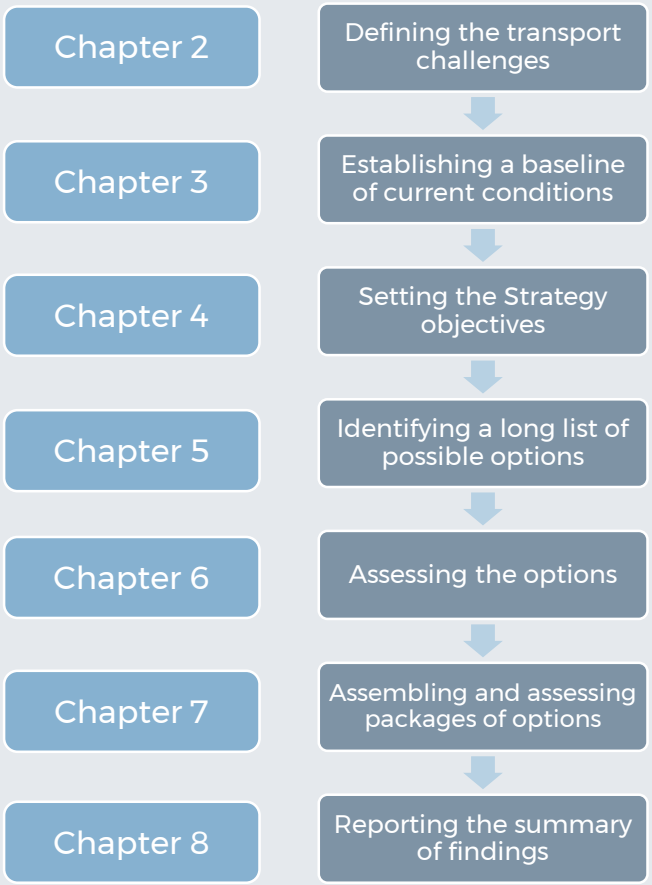
# Chapter 1
# Introduction

# 1. Introduction

## Introduction

WSP was appointed by Herefordshire Council in February 2020 to undertake the Hereford Transport Strategy Review. The Council wishes to understand how a refreshed Transport Strategy might identify a range of options to address current and future transport demands in the city, as well as address the declared Climate Emergency.

It was agreed that the review should start from first principles and follow the established process for Strategy development. This included the engagement of various stakeholders at all stages of the study (see **Appendix A** for details). The approach adopted is shown below:




This report follows the structure as shown in the figure above. There are three appendices providing details on the Stakeholder Engagement and on the performance of the options and packages.

## A Period of Uncertainty

The study is being undertaken in a period of unprecedented uncertainty for the country. The Covid-19 pandemic has forced people to change how they live their lives, including the way in which they travel, how often they travel and to what destinations. Whilst the initial lockdown led to a large reduction in travel movements by motor vehicle and by public transport, traffic levels have since reverted to pre-Covid levels in some parts of the country. The imposition of local lockdowns is further complicating the picture at a national level.

No-one can predict the future with certainty at the best of times. The additional uncertainty of how people will respond to the Covid effects in the medium to long term adds another layer of complexity. Despite these challenges, there remains an urgent need for Hereford to refresh its transport strategy and to identify a clear vision for its future.

## Our Approach to the Assessment

As is the norm for strategy development, the assessment described within this report makes use of both qualitative and quantitative information. Very often both sets of information have been combined to provide an overall view on the impacts of a particular option or package of options. The qualitative information has been derived from a variety of sources including previous work within Hereford, results from similar schemes implemented elsewhere, and the advice of expert advisors from both WSP and the Council. The quantitative information draws on outputs from the Hereford Transport Model.

This report describes the key objectives, outcomes and indicators which have been developed during the review to guide assessment of the options and packages. This has resulted in the identification of 35 indicators which have been used to assess performance against the four key themes of climate emergency, economy, environment and society. Of these indicators, 25 are based on qualitative assessment and 10 are based on quantitative outputs from the Hereford Transport Model.

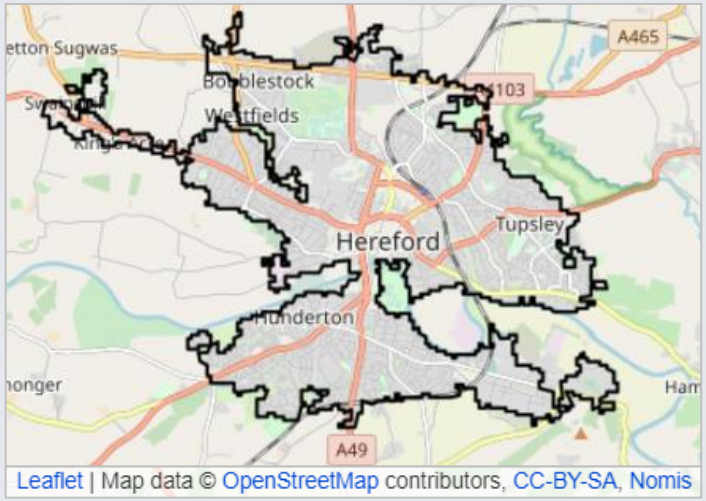
The approach taken to the modelling has been to assume a core set of parameters against which all options could be compared in a consistent and transparent manner. This was supplemented with a limited number of sensitivity tests to gauge the effects of making changes to some of the core assumptions. Further details on how the model has been used and the specific indicators it has informed is provided in chapter 6 of this report.

Despite this, it is inevitable that some uncertainty remains when predicting the effects of the different options into the future. To reflect this uncertainty, and consistent with the normal process for strategy development, we have presented assessments of performance (both at the initial option assessment stage and the subsequent package assessment stage) against a simple five-point scale. This provides indications of performance within bands rather than at specific points.

Whilst the modelling results are robust in indicating differences (and similarities) between different options, there is necessarily less certainty over the magnitude of changes which the options will deliver over the medium to longer term. The approach adopted reinforces the point that any quantitative data on transport-related changes presented in this report need to be treated as indicative rather than absolute.

## Hereford Overview

In 2017 Hereford had an estimated population of around 61,500 people (link). The city represents around 1% of the land area of Herefordshire and almost one-third of the population. The urban area is covered by Hereford City Council plus parts of several neighbouring parishes. The surrounding rural area contains a series of villages which look to Hereford to meet a large proportion of their employment needs and facilities.




Hereford Built-Up Area, 2011 (Office for National Statistics)

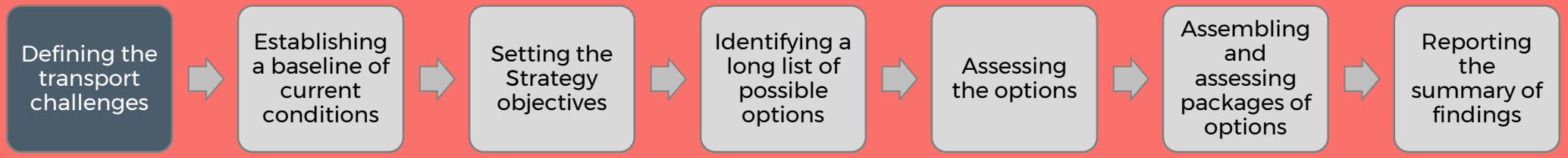
To give a sense of scale, it is a 3.75km crow-fly distance from Belmont Tesco to Hereford Sixth Form College and 5km crow-fly distance from Whitecross School to the Archive and Records Centre at Rotherwas.

At the time of the 2011 Census 62% of residents lived north of the River Wye and the remaining 38% south of the river (link).

The City centre is a main employment area (accounting for over 40% of commuting to City locations in 2011). The Widemarsh / Holmer Road area is also significant (over 20% of commuting to city locations in 2011), along with Rotherwas (around 15% of commuting to city locations in 2011) (link).

The following key future developments are proposed, most of which are outlined in the Herefordshire Core Strategy:

- Lower Bullingham urban extension – over 1,000 new homes, five hectares of employment land and a primary school;
- Three Elms urban extension – over 1,000 new homes, 10 hectares of employment land and a primary school;
- Holmer West urban extension – 500 new homes;
- City Centre Urban Village – 800 new homes;
- Hereford business quarter – office space in Bath and Gaol Streets; and
- New Model Institute for Technology and Technology (NMITE) - 5,000 students by 2032.




# Chapter 2
# Defining the transport challenges

*The first step in the transport strategy review was to consider the key issues and challenges facing Hereford now and in the future, how these relate to transport and the underlying causes and drivers. This chapter discusses these key issues and challenges facing the city, which were grouped into four themes. The four themes were the Sustainable Development pillars of Economy, Environment and Society plus Climate Emergency, in recognition of the importance of tackling climate change. The review of challenges was informed by a review of data and evidence, including some additional analysis, a literature review of policy and strategy and views provided through public engagement.*

*Each theme is summarised on two pages, highlighting key issues, policy context and transport's role or contribution to each challenge.*

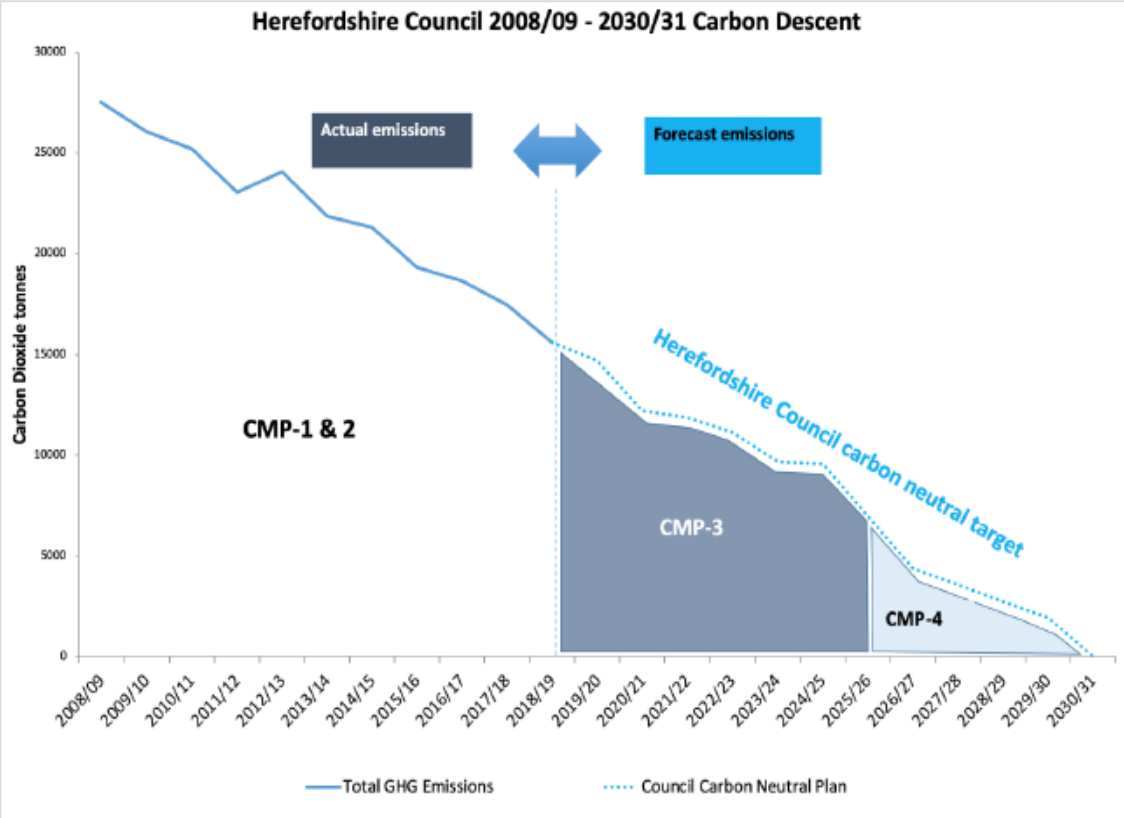
*The chapter also describes how transport is regulated and funded, and summarises the results of an online consultation collecting public views of travel in Hereford.*

*The analysis in this chapter, along with the consideration of current travel and the transport network in Chapter 3, informed the setting of objectives for the strategy review in Chapter 4.*

# 2. Hereford's Major Challenges – The Climate Emergency

## Key Issues

- The Intergovernmental Panel on Climate Change states that: *'without increased and urgent mitigation ambition in the coming years, leading to a sharp decline in greenhouse gas emissions by 2030, global warming will surpass 1.5 ˚Celcius (C) in the following decades, leading to irreversible loss of the most fragile ecosystems, and crisis after crisis for the most vulnerable people and societies'* (link). Carbon dioxide (C02) is the main greenhouse gas which is emitted.
- Annual average temperatures in England have risen by around 1ºC since pre-industrial levels and already lead to more extreme weather. Urgent action may limit further temperature rise by another 0.5ºC; however if current trends continue the temperature rise could be as much as 4ºC (link).
- Likely local impacts of global heating include summer temperatures reaching 38.5ºC and increasing incidences of flooding, with associated disruption. Across the UK heat-related deaths are anticipated to rise from 2,000 per year at present to 7,000 per year in the 2040s.
- In 2018 the UK Committee on Climate Change (CCC) highlighted 25 headline policy actions; by 2019 only one had been delivered by government in full and on 10 there was considered to be not even partial progress (link).




Herefordshire's target carbon descent (Herefordshire Carbon Reduction Plan April 2020)

## Policy Context

- The Paris Agreement sets a goal of limiting the increase in global average temperatures to well below 2ºC above pre-industrial levels and to pursue efforts to limit warming to 1.5˚C. 189 countries, including the UK, are party to the agreement.
- The Climate Change Act (2008) was amended in 2019 through secondary legislation and regulations. This set a revised target of net zero greenhouse gas emissions by 2050, instead of the previous 80% reduction (link).
- In 2017 the UK Government published its Clean Growth Strategy outlining plans to decarbonise all sectors of the economy through the 2020s. In February 2020 it consulted on bringing forward the deadline to phase out the sale of petrol and diesel vehicles from 2040 to 2035 (link).
- Herefordshire Council declared a Climate Emergency in March 2019 (link). The Cabinet agreed (link) to accelerate reduction of its carbon emissions and aspire to be carbon neutral by 2030 – this is substantially more ambitious than the previous target (**see chart**). The new Carbon Reduction Plan was published in April 2020.
- The UK Government plans to issue a decarbonising transport strategy later this year (2020). The DfT published Decarbonising Transport: Setting The Challenge in March 2020 which details what government, business and society will need to deliver a significant reduction in carbon emissions, reaching net zero by 2050. See next page for a graph showing the broad sources of emissions in the UK.

# 2. Hereford's Major Challenges – The Climate Emergency

## The contribution and role of transport

Impacts on transport network resilience and travel behaviour

- Climate change is expected to result in more frequent extreme weather events including storms causing flash flooding (link), and in turn increasing risks to maintaining and operating the transport network. Higher temperatures and wind speeds also have the potential to damage transport infrastructure (link). Extreme weather events will shape how the transport network is maintained and designed and may influence travel behaviour.

Transport generates a significant proportion of Herefordshire $CO_2$ emissions:

- Surface transport contributes 35% of Herefordshire's $CO_2$ emissions. The remainder is derived from domestic emissions (24%) and industry and commercial (42%) (link).
- Nationally, transport is the largest contributor to carbon emissions (**see graph below**). Emissions were stable in 2017 and fell by 2% in 2018, as better fuel efficiency and increased use of biofuels outweighed the slight rise in demand for car travel (link).

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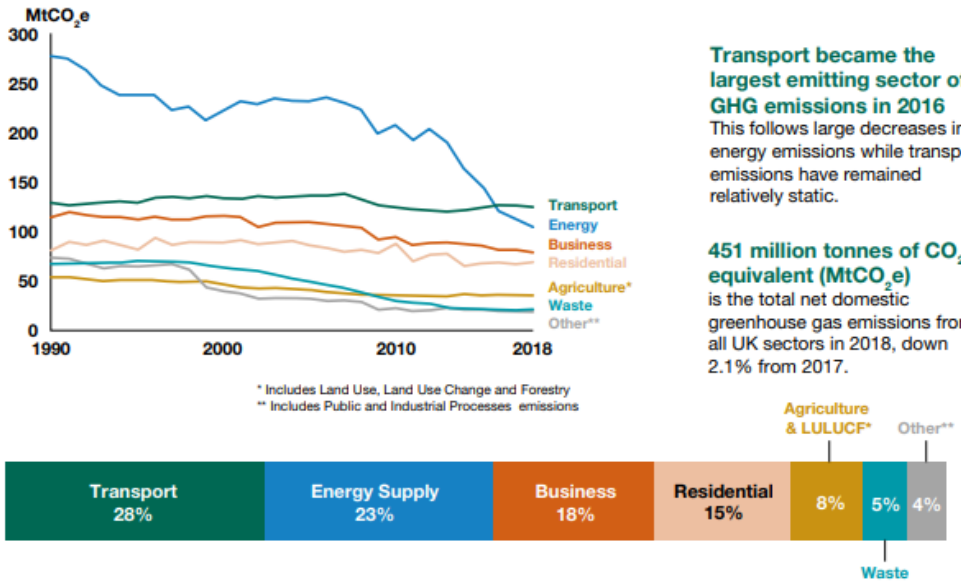
UK Domestic Greenhouse Gas Emissions by Sector (Decarbonising Transport: Setting The Challenge (DfT, 2020))




*Source: 2018 UK greenhouse gas emissions*[10]

Transport remains largely reliant on fossil fuels and new cars are, on average, becoming less fuel efficient:

- In Hereford existing journeys by low carbon travel modes (walking and cycling) are estimated to represent less than 30% of all travel (link).
- Plug-in cars and vans comprise less than 1% of all the county's vehicles (link). There is approximately one charging point for every 10 electric vehicles in the county (by comparison the rate in Shropshire is one charger per 25 vehicles) (see link).
- Average emissions of $CO_2$ per kilometre by new cars fell between 2009 and 2016. However, this trend has now reversed - the prevalence of SUVs means that cars sold in 2018 and 2017 are on average less efficient than the previous year (link).

Significant carbon emissions from constructing transport infrastructure:

- Construction of transport infrastructure leads generates greenhouse gases. Between 35% to over 40% of the greenhouse gas emissions for the full road infrastructure system, including vehicle production and use, can be attributed to the road construction, maintenance and operation (link).
- Solely meeting the UK's 2050 electric car targets would require just under two times the current annual total world cobalt production, nearly the entire world production of neodymium, 75% of the world's lithium production and at least 50% of the world's current copper production ( link).

Additional commentary:

- Income, economic activity, age, household structure and car availability significantly influence emissions levels. The top 10% of emitters are responsible for 43% of emissions and the bottom 10% of emitters are responsible for only 1% of emissions (link).
- In 2019, 43% of National Travel Attitudes Study respondents said they were willing to reduce the amount they use a car in order to reduce the impact of climate change, compared with 38% in 2017 (link).
- Engagement on the 2020 Herefordshire County Plan (Council's Corporate Plan) (link) found that action to tackle the climate emergency was the top priority for younger people.

# 2. Hereford's Major Challenges – Economy

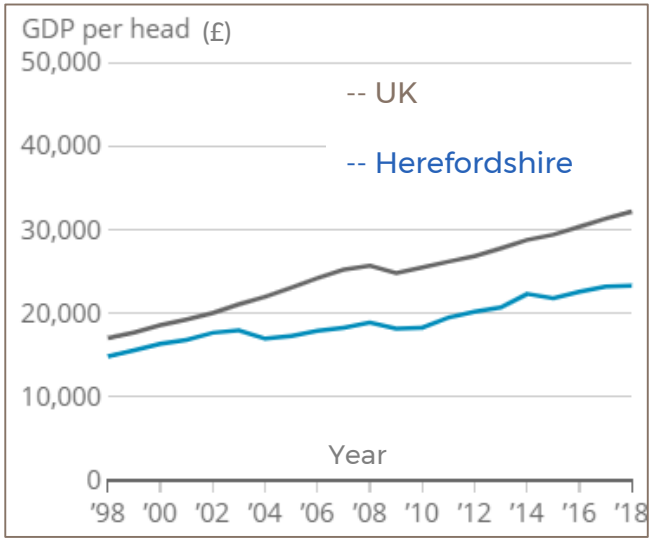


## Key Issues

- In 2018 Herefordshire's Gross Domestic Product (GDP) was approximately £23,000 per head, compared to the UK average of approximately £32,000 GDP per head (link).
- Herefordshire has a poor social mobility rating due to low wages. 31% of county jobs pay less than the living wage and Herefordshire is in the bottom 5% of authorities nationally in terms of average weekly wage. This is attributed to an economy traditionally based on agriculture, food and drink processing and manufacturing (link).
- In line with the UK, Herefordshire has an economy formed mainly of small businesses, with 87% of enterprises employing 10 or fewer staff (link). Prior to the Coronavirus pandemic unemployment was low at 2% (link). Whilst local engineering and manufacturing companies have struggled to recruit people with the right skills there is also 10% of the working age population who have no qualifications (link).
- Hereford is a cultural and entertainment focus for the county, with the cathedral, Courtyard Arts Centre, Hereford Museum and Art Gallery, and numerous festivals, events and organisations. It is the sole sub-regional shopping centre in the county, drawing customers from a wide area.
- In 2011 the City had a higher percentage of employees working in manufacturing relative to England & Wales as a whole, (15% compared to 9%) and a smaller percentage working in professional, financial and administrative positions (11% compared to 17%) (link).
- Nationally up to 30% of jobs are thought to be susceptible to automation and technology, including those in the transportation & storage, manufacturing and construction sectors (link). Less well-educated workers may be at greater risk, emphasising the importance of skills and retraining. Disruptive business models are changing the way that businesses and markets work. People may have multiple jobs, being paid for the different tasks they undertake.
- A significant proportion of college graduates leave Hereford to continue their education and tend not to return immediately. The New Model Institute for Technology and Engineering (NMITE) aims to attract and retain more young people in the City (link). It is anticipated to grow to have 5,000 students and 600 staff over the next 15 years (link).
- The adopted Core Strategy states that Hereford will accommodate 6,500 new homes between 2011 and 2031 (link). At least 2,500 of these are planned to be built on the edge of the City – at Lower Bullingham (over 1,000 new homes); Three Elms (over 1,000 homes); Holmer West (500 new homes), plus around 800 new homes in the City Centre.



GDP Per Head of Population Comparison between Herefordshire and the UK (1998-2018) (ONS 2018)




## Key Policy Context

- The government's Industrial Strategy: aims to create an economy that boosts productivity and earning power throughout the UK;
- England's National Planning Policy Framework (2019) sets an economic objective "to build a strong, responsive and competitive economy… by identifying and coordinating the provision of infrastructure";
- Marches Strategic Economic Plan (2019): a strategy to grow the size and productivity of the economy based on the themes of innovation and business environment, skills, infrastructure and places;
- Midlands Engine Strategy (2017): how the government's strategy will be applied in the region;
- Herefordshire Corporate Plan 2020-2024: *Our ambition for Herefordshire: Support an economy which builds on the county's strengths and resources;*
- Herefordshire Core Strategy (adopted 2015): objectives cover housing needs (objective 1), education and skills (objective 3) and economic prosperity (objectives 6 to 9); and
- Invest Herefordshire – Herefordshire's Economic Vision 2016 – 2031: a coordinated plan for the county's economic growth with 7 aims.

# 2. Hereford's Major Challenges – Economy

## The contribution and role of transport

Transport and travel as an intrinsic element of the economy

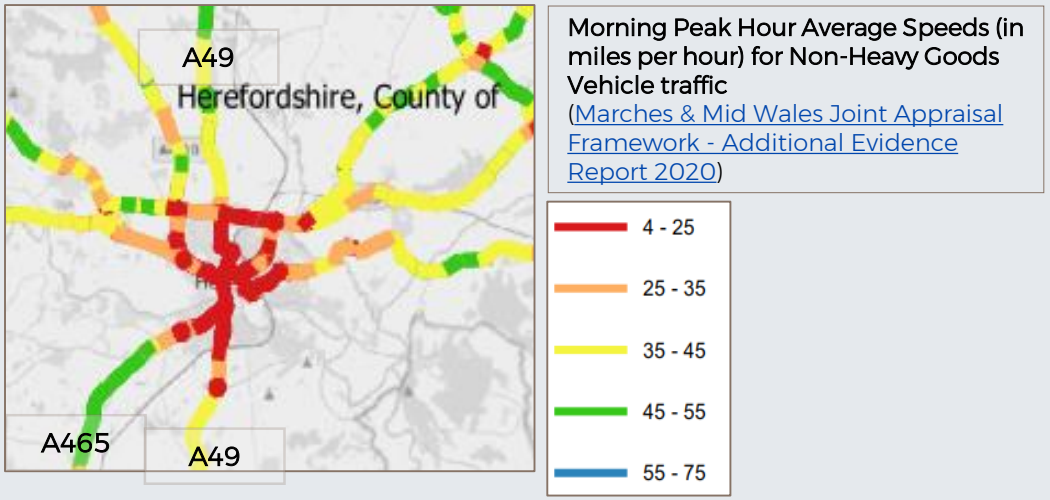
- Transport enables goods to be delivered to homes and businesses, bringing customers to retailers and connects employees to their workplaces. However, the vitality of the city's retail sector is threatened by the growth of online sales, which now accounts for 17% of national retail spend (link) and other sectors may be at risk from a trend towards internet-based services. The Covid pandemic has required many more people to limit travel or to work from home, with significant knock-on effects for certain sectors of the economy. Transport operators, including logistics companies, are also significant employers.

Impacts of travel delays on businesses and residents

- Delays and unreliable journeys place direct costs on business and organisations, and affect goods and people reaching their destination on time. Engagement with major Herefordshire businesses identified that the delays lose them time delivering products and costs them money, including late delivery penalties, putting them at a competitive disadvantage. One company estimated that traffic delays led to 100 hours a week being lost whilst collecting and delivering parts and components between sites. Data on existing congestion experienced in the city is summarised in **Chapter 3**.
- Delays and unreliable journey times, by motor vehicle or public transport, can have significant impacts on people's lives. It wastes time which could be used more productively, results in missed appointments and the need to factor in additional travel time for journeys. Journeys on foot or by cycle also experience delay waiting to cross roads or taking longer routes to avoid the busiest road corridors. Public transport users face anxiety, stress and sometimes additional expense due to delayed services, for example, if a missed connection meant buying a new ticket or taking a taxi (link).

Unequal accessibility to services

- Good accessibility to jobs, education, services, friends and family helps to foster a good quality of life; however, not all parts of the city and county have the same levels of accessibility to key employment areas and services. The Indices of Multiple Deprivation considers *Geographical Barriers to Services* - the distance to access a post office, primary school, supermarket and GP. Almost two thirds of all Herefordshire LSOAs (72 of the 116) are within the bottom 25% in England in terms of accessing these facilities due to the sparse rural nature of the county.




Morning Peak Hour Average Speeds (in miles per hour) for Non-Heavy Goods Vehicle traffic (Marches & Mid Wales Joint Appraisal Framework - Additional Evidence Report 2020)

Impacts of new development and additional travel demand

- Government planning policy requires applicants to provide transport infrastructure to support new development and ensure transport impacts are not severe. The policies do not require impacts to be fully mitigated.
- A Memorandum of Understanding has been signed by Herefordshire Council and Highways England which limits the number of vehicle trips which may be generated by development at the Hereford Enterprise Zone to protect the operational efficiency of the A49 trunk road (link).

Additional commentary: economic impacts of transport investment

- The impact of transport investment on the economy is complex and not uniform. People respond in a wide variety of ways to transport investment based on changes to the transport network; this could include changing mode, travelling more or less, travelling to different destinations, moving house and so on – and these can be challenging to predict with confidence.
- Different transport investments have varied economic impacts. Studies found that improvements to the public realm (such as improved paving and landscaping) can boost local trading by up to 40% (link). Schemes which increase levels of physical activity, such as through additional walking and cycling, have been found to generate 'very high' value for money when assessed against the Treasury criteria (link).

# 2. Hereford's Major Challenges – Environment



## Key issues

- Biodiversity is key to the survival of life on Earth. At a national level, the long-term biodiversity picture is mixed with nearly 30% of the Government's biodiversity indicators showing a deterioration (link). This decline includes the distribution of pollinating insects, the relative abundance of priority species, and the percentage of habitats and species of European importance which are favourable or improving conservation status.
- The City's and county's natural environment provides a very extensive range of valuable benefits to the economy and society (**see diagram below**). These can be divided into four categories as follows: (a) provisioning services such as growing food and providing fresh water; (b) regulating services such as cleaning the air, capturing carbon, regulating water flows to reduce flooding, cooling urban areas and limiting noise; (c) supporting services such as photosynthesis, allowing the other services to be provided; and (d) cultural services including recreation and mental wellbeing. As an example, across the UK, pollutants removed by vegetation, primarily by woodland, are estimated to save £1.1 billion in avoided health costs (link).
- Hereford and the wider county generally benefits from an attractive natural environment. The River Wye and part of the River Lugg have national and international ecological designations and the City has a rich townscape centred on the historic City Centre.



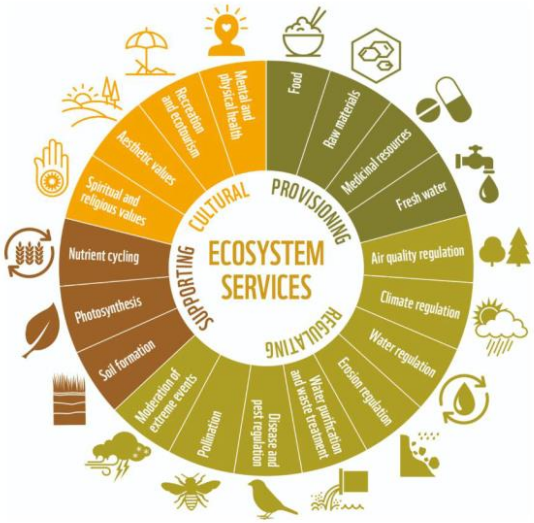



Diagram outlining categories of ecosystem services (WWF Living Planet Report (2018)

- Not all parts of the City have the same environmental quality, with some areas experiencing high levels of air pollution and traffic noise. Open space is not evenly spread across the city, and perceptions of security can vary from busy city centre areas to more isolated areas with less people. Flooding is an existing and future challenge for the city and the county.

## Key policy context

National and regional

- England's National Planning Policy Framework (2019) sets an environmental objective to protect and enhance our natural, built and historic environment; including minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.
- 25 Year Plan for the Environment (2018) – sets out the UK government's ten environmental goals and the proposed actions to achieve them;
- The Heritage Statement (2017) – outlines the UK government's vision and strategy for the historic environment; and
- Biodiversity 2020 (2011) – sets out the government's strategic direction on biodiversity. A new National Strategy for Nature is anticipated soon.
- Clean Air Strategy (2019) – the UK government's strategy to improve air quality; and
- Air Quality Plan for Tackling Roadside Nitrogen Dioxide Emissions (2017) – outlines the steps being taken to improve areas where poor air quality persists as a result of vehicle emissions.

Herefordshire

- Herefordshire Corporate Plan 2020-2024 – *Our ambition for Herefordshire: Protect and enhance our environment and keep Herefordshire a great place to live;*
- Herefordshire Core Strategy (adopted 2015) – objectives 10 and 12 cover environment and heritage;
- Herefordshire Green Infrastructure Strategy (2010) – aimed to place a framework of natural and culturally important features and functions at the heart of planning for sustainable development. Was adopted as part of the Core Strategy evidence base.
- Herefordshire and Worcestershire Air Quality Strategy (2009) – aims to support the achievement of air quality objectives and raise air quality as an for consideration within local and regional planning.
- Hereford and Leominster (Bargates) Air Quality Action Plans (2014) – both documents set out 15 air quality actions with target dates for these actions.

# 2. Hereford's Major Challenges – Environment

## The contribution and role of transport

- Road transport impacts on air quality: Nitrogen dioxide ($NO_2$) is generated by burning fossil fuels, such as petrol or diesel in motor vehicles. Road transport is the largest source by sector, representing 35% of national emissions (link). Air pollution is a contributory factor in the onset of heart disease and cancer and particularly affects those with heart and lung conditions, plus children and older people. A 2016 report estimated that around 40,000 UK deaths per year are linked to chronic conditions that are caused or exacerbated by lifelong exposure to outdoor air pollution (link). According to the World Health Organisation, children who grow up in more polluted areas are more likely to develop depression, bipolar disorder, or schizophrenia (link).
- Herefordshire Council designated an Air Quality Management Area (AQMA) in 2011 (link) for roads where levels of $NO_2$ are higher than national objective levels (the A49 from Asda junction to Holmer Road, plus Newmarket and Blueschool Streets and part of Eign Street). In 2016 $NO_2$ levels were just below the national objective level (see graph below). Between 2010/11 and 2017/18 recorded $NO_2$ levels in the AQMA fell by 39% (link).

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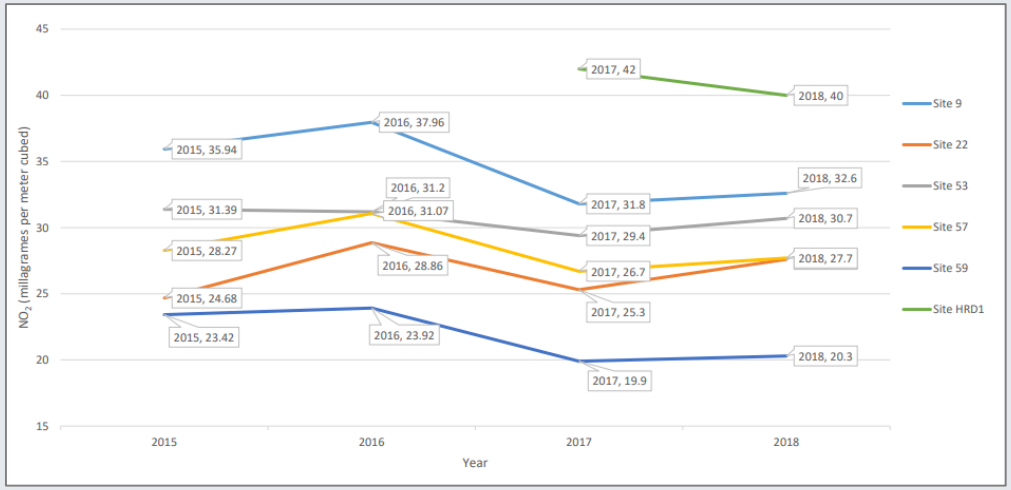
Trends in $NO_2$ at monitoring sites within Hereford AQMA 2015-2018 (2019 Air Quality Annual Status Report (2020))




- Air pollution is identified as a direct threat to biodiversity in England. Many habitats of nature conservation importance are sensitive to additional airborne nitrogen dioxides and transport is the largest source of these emissions (link).
- Fine particulate matter from brake dust and tyres is another air pollutant affecting health. The current UK legal limit (25 micrograms per cubic metre) is higher than the level suggested by the World Health Organisation to protect public health (10 micrograms of $NO_2$ per cubic metre) (link). 4.5% of deaths in Herefordshire are said to be attributable to man-made particulate matter air pollution less than 2.5 micrometres in size (link).
- Transport impacts on water quality: A recent London study found that road run-off – when pollutants settle on the surface of the road and then wash into watercourses when it rains – pose a significant risk to river health (link). Pollution from towns, cities and transport affects 12% of water bodies in the Severn river basin district, which covers the whole county (link);
- Transport impacts on heritage: Existing transport infrastructure adversely affects the setting heritage assets, such as the proximity of the inner ring road to the city walls (link), which are a scheduled ancient monument. Some designated heritage assets form parts of the transport network, such as the historic Wye Bridge and the Grade II listed railway station.
- Transport impacts on the urban environment: Roads and streets comprise around three-quarters of public space (link). At present streets primarily cater for vehicular movement, limiting space for other modes or uses. The post-war design of towns and cities has tended to favour access for motor vehicles over providing for walking, cycling and public transport. A national design audit of housing schemes found that many of the poor aspects of new developments related to transport – highway design and parking; walkability and car dependence; and streets, connections and amenities (link). Denser urban areas tend to be associated with less travel and less car use (link).
- Negative impacts of transport infrastructure on the environment: Depending on location, design and mitigation strategies, new transport infrastructure has the potential to have a range of negative environmental impacts. These can comprise impacts on ecology, noise, air and light pollution, landscape, heritage, water quality and soils. Raw materials are required for construction and they generate waste which requires management and disposal.

Additional commentary - public attitudes supporting the environment: In 2019 76% of National Travel Attitudes Study respondents agreed that *"for the sake of the environment, everyone should reduce how much they use their cars*". In 2017 63% agreed with the statement (link). During the consultation for the Hereford Area Action Plan, 74% of respondents thought that the plan should include guidelines to support methods of high quality design and construction of new infrastructure (link).

# 2. Hereford's Major Challenges – Society

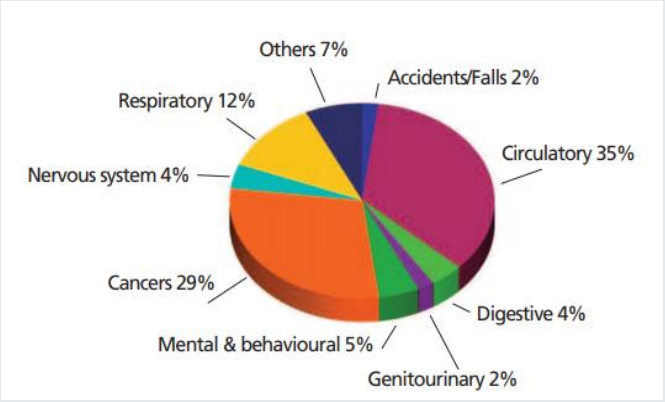


## Key issues

- Hereford city's population structure is broadly similar to the UK, whilst Herefordshire has a higher proportion of the people aged 65 or over (25% in the county as a whole compared to 18% in Hereford) (link; 2019 population estimates). In predominantly rural areas the older population is projected to increase by 50%, with virtually no equivalent increase in young people (link).
- More people are living alone and more young adults are living with their parents. A rising retirement age and taking on large financial burdens later in life means people may need to work for longer. People are generally living longer and having fewer children, creating an ageing society.
- The chart below indicates the common causes of death in Herefordshire. Two-thirds of deaths are attributable to cancers and circulatory (heart) disease. Most heart disease and around 30% of cancers are caused by lifestyle risks such as smoking, poor diet, low levels of physical activity and excessive drinking (link).



Common causes of death in Herefordshire (Be Well, Keep Well, Live Well, 2016)




- 23% of Herefordshire adults are considered to be inactive and do not meet the recommended minimum levels of exercise (link).
- Obesity is a leading cause of ill health; an independent risk factor for cardiovascular diseases such as heart disease and stroke, as well as increasing the likelihood of developing other risk factors such as hypertension (high blood pressure) and type II diabetes. The latest data for 2016/17 shows that 9.2% of Herefordshire's population were classed as obese. 65% of adults in Herefordshire are classified as overweight or obese, slightly above the England average of 62% (link).
- Rural residents need to travel to Hereford to access a range of services – often reliant on car travel, including low income households.
- Some parts of Hereford are classified as being within the top 10% and 20% most deprived areas in England whilst other areas are the top 10% least deprived (link). Parts of rural Herefordshire are in the bottom 10% nationally in terms of access to a range of services, both by car or by public transport and walking.
- There is evidence that social isolation and loneliness has significant health implications (link). Research also indicates that the higher the volume of traffic on a street, the greater the social isolation, as people spend less time in the space and have far fewer acquaintances [link].
- Quality of life experienced by residents is shaped by a wide range of factors and there are substantial variations in the quality of life by area across the city. Quality of life is increasingly viewed as being important in attracting investment and employees and therefore shaping economic growth.

## Policy context

National and Regional

- England's National Planning Policy Framework (2019) sets a social objective to support strong, vibrant and healthy communities.
- Public Health England Strategy 2020-2025 - sets out the organisation's priorities for the next 5-years.
- Everybody Active, Every Day (Public Health England, 2014) - provides a briefing on: the urgent need to increase physical activity levels in the UK and the unique position MPs have in helping convince their constituents to change lifestyles.
- Building the Foundations – Tackling Obesity Through Planning and Development - A series of themes and more specific elements that help to create healthy-weight environments to tackle obesity in England.

Herefordshire

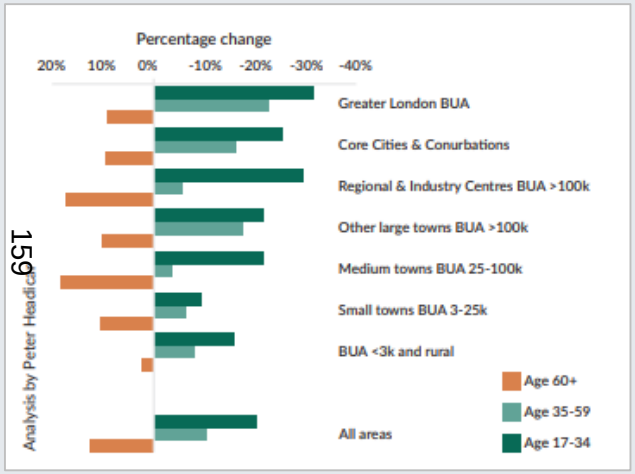
- Herefordshire's Children and Young People's Plan 2019-2024: sets out the vision and priorities for children, young people and families in the county;
- Be Well, Keep Well, Live Well – Herefordshire's 5-year health and wellbeing strategy
- Corporate Plan 2020-2024 – *Our ambitions for Herefordshire: Protect and enhance our environment and keep Herefordshire a great place to live and strengthen communities to ensure everyone lives well and safely together;*
- Herefordshire Core Strategy objectives cover quality of life (objective 2) and environment, heritage and culture (objective 10 and 12)

# 2. Hereford's Major Challenges – Society

## The contribution and role of transport

Accessibility issues:

- The sparse rural population often have limited transport options and tend to rely on the private car for the majority of journeys.
- Nationally, the 20% of the population with lowest incomes travel half the distance compared with the 20% of the population in the highest income group (link). Some low income households can spend up to 30% of their disposable income to buy and run a vehicle (link).
- Nationally average miles driven per person is rising for the over 60s and reducing for other age groups, particularly the 17-34 group (**see infographic**)




Percentage change in car driver miles per person per year by age group and area type and built-up area (BUA) size, 2002-5 to 2011-14 (Commission on Travel Demand Infographic 2018)

- Young people are learning to drive later in life (less than 40% of 17-20 year olds have a drivers' licence). This is thought to be due to a variety of largely non-transport reasons, including the cost, starting a family later in life or not at all, more young people going to university and living in urban areas (link).
- Nationally 'baby boomers' entering retirement have higher car ownership levels than previous cohorts and drive more. However, there is also a growing group of less mobile older people with poor access to services and who rely on others for travel (link).
- Online connectivity can reduce the need to travel for an increasing range of trips including work, shopping, education, training and healthcare. The benefits need to be balanced against the potential for increased van traffic and increased social isolation.
- People are most inclined to reconsider existing travel behaviour when a major life event occurs, such as moving house, changing job or having a child (link). Many factors influence how we travel - practical ones such as cost and journey time, but also attitudes and social or personal norms.
- Adults with a disability make two thirds the number of trips as adults without a disability (link).
- Certain groups have requirements to enable them to travel confidently – such as public toilets being available and seating for people to rest at intervals.

Transport impacts on public health:

- The majority of journeys made in Hereford involve little or no physical activity and many causes of early death are linked to inactivity. An inactive person spends 38% more days in hospital than an active person (link).
- Noise from transport can cause adverse health outcomes due to lack of sleep and stress (link).

Collisions and perception of road danger:

- The number of people killed or seriously injured on the county's roads has shown an upward trend since 2013, with 94 killed or seriously inured in 2018. This upward trend is reflected nationally and is attributed to a large number of police forces changing reporting systems [Herefordshire Local Transport Plan Progress Report 2018/19]. Contributory factors which influence road collisions can be grouped into three broad themes – driver behaviour, the vehicle and the road environment.
- For some people, there are parts of the transport network which can feel unsafe, such as walking or cycling close to fast or heavy traffic, or using subways which are hidden from view. Safety is one of the most common responses to what puts people off walking, cycling and bus travel in Hereford (link). Safety concerns were also a key issue in the 2015 Hereford Travel Survey (link) and the LTP consultation survey (November 2015 – January 2016) (link). Concern about traffic danger is the most commonly cited reason for accompanying 7-10 year old children to school (link).
- Some groups, such as novice cyclists, women and older people, have a stronger preference for a cycling network of direct routes separated from motor traffic (link) – enabling these groups to cycle is important if mode share is to increase.

Impacts of transport on communities:

- Traffic noise and vibration impacts on residential amenity - 4 out of the 5 main road corridors leading into Hereford have been identified as Noise Important Areas, within the noisiest 1% of roads in the UK (link); Residential areas can be divided by busy roads, reducing interaction with neighbours. The issue of rat-running through communities was highlighted by respondents in previous transport package consultations.
- Depending on location, design and mitigation strategies, new transport infrastructure has the potential to have a range of negative impacts on the communities in terms of noise, air and light pollution, views and severance.

# 2. Hereford's Major Challenges – The legal and funding context

## Who delivers transport operations and improvements?

### Role of Herefordshire Council

Herefordshire Council is the local highway authority, local transport authority and local planning authority for the county.

The Council carries out a wide range of statutory duties as set out in law and follows statutory guidance where it exists. Examples of its statutory duties include:

- Setting a balanced budget, taking into account the projected level of expenditure and funding (link);
- Maintaining public highways that are maintainable at public expense (link);
- Network management duty - managing the road network with a view to achieving expeditious movement of traffic (link);
- Securing provision of public transport services considered appropriate to meet requirements which would otherwise not be met, including subsidising services (link) and providing home to school transport for certain eligible children (link);
- Public sector equality duty - making reasonable adjustments in order to avoid a disabled person being placed at a substantial disadvantage when accessing services and facilities (link);
- Undertaking studies into accidents and taking measures to reduce such accidents, as well as preparing and carrying out a programme of measures designed to promote road safety (link);
- Preparing a Local Transport Plan (link); and
- Set of priorities for the development and use of land in the authority's area (in development plan documents such as local plan or core strategy) (link).

### Role of other organisations

Key aspects of transport provision rests with a range of other organisations, some of which are private companies. A selection of these organisations are listed below:

- Department for Transport, a ministerial department of government which provides funding for significant transport improvements and innovation, often allocated through funding competitions. They also publish national policy, guidance and regulations. A number of other ministerial departments are relevant to local transport, including the Department for Business, Energy and Industrial Strategy, covering climate change and clan growth, and the Ministry of Housing, Communities and Local Government, covering planning.
- Highways England, the government company who maintain and operate the A49 trunk road – the road is not the responsibility of Herefordshire Council;
- The Marches Local Enterprise Partnership which prepares a Strategic Economic Plan for Herefordshire, Shropshire and Telford and Wrekin and makes decisions on funding for major transport schemes allocated through a prioritisation process.
- Midlands Connect – Herefordshire Council is a member of this regional transport body tasked with identifying the transport infrastructure required to boost the region's economy and recommending priorities for spending to government;
- Network Rail, responsible for infrastructure on the national rail network and train operating companies including Transport for Wales, who operate many of the rail services through Hereford and also manage Hereford railway station; and
- **Bus and coach companies**, who run services commercially within Hereford and beyond. City services are mostly operated by locally-based Yeomans Canyon Travel with a range of other companies operating the rural services.

# 2. Hereford's Major Challenges – The legal and funding context

## How transport is funded?

Funding for transport services and infrastructure is extremely complex, and the funding is usually part of a competitive bidding process.

Council spending for ongoing services such as routine road maintenance or supporting passenger transport is mostly funded by locally raised taxes. The majority comes from Council Tax and Business Rates (link). These taxes also have to fund other important services including adult social care and education.

The Council spends several million pounds per year on passenger transport. This includes subsidising bus services, concessionary travel for older and disabled people, support to community transport, travel to school and college and special travel including for adult social care and special educational needs.

Spending on new infrastructure (such as new roads or cycleways) tends to be funded from one or more of the following: (1) Capital grant funding from other bodies; (2) Taxes raised locally, such as Council Tax and Business rates; or (3) Contributions from planning applicants as part of new developments.

**Business case guidance:**

Funding bodies such as the Department for Transport provide guidance on how they will appraise and evaluate business cases submitted to them for funding approval (link).

Treasury guidance (link) requires information to show that schemes are: (a) supported by a robust case for change that fits with wider public policy objectives (the strategic case); (b) demonstrate value for money (the economic case); (c) are commercially viable (the commercial case); (d) financially affordable (the financial case); and (e) achievable (the management case). Some criticisms of the current process are that the current appraisal process (a) does not effectively take into account the full costs and benefits of proposed transport schemes and (b) does not give enough weight to alignment with wider government legislation and policies, such as those covering health or carbon emissions, or government targets, such as to double cycling by 2025.



Commentary on capital grant funding: Grant funds are often allocated via competitive bidding processes which can make future investment unpredictable. Councils have to submit business cases, and if successful, may only receive a proportion of the money they bid for. Money usually needs to be spent in a relatively short period of time once funding has been confirmed. Each fund tends to have different eligibility criteria depending on Government priorities. At present there are some government funds which Herefordshire Council cannot bid for, such as the Transforming Cities Fund, due to minimum population threshold criteria.

In terms of road transport, announcements from the government's 2020 Budget indicate the preference given to strategic roads rather than local transport schemes. £27bn was announced for strategic roads between 2020-2025 compared to around £11.7bn for local authority road transport schemes over the same period. Of the £11.7bn approximately £8.4bn was allocated to specific larger cities and conurbations (link). Additional allocations are expected to follow in the comprehensive spending review later in 2020.

Commentary on developer contributions: These are legal agreements made between developers and the Council with the aim of mitigating the impacts of development. They are based on negotiation and take account of viability. They are sometimes referred to as Section 106 agreements after part of the Town and Country Planning Act 1990. The contributions must meet the three tests of being: (i) necessary to make the development acceptable in planning terms; (ii) directly related to the development; and (iii) fairly and reasonably related in scale and kind to the development. (link). Section 106 contributions secured are listed in the Authority Monitoring Reports (link). Legal agreements for developers to make alterations or improvements to a public highway, as part of planning approval, are covered by Section 278 of the Highways Act 1980.

Commentary on parking revenue: The Road Traffic Regulation Act 1984 (as amended) identifies that any surplus in Council parking revenue, after the cost of running the schemes has been covered, can be spent on providing additional parking facilities, public transport schemes, highway improvements, road maintenance and environmental improvements. However income that the Council receives from car parking does not have to be ringfenced for spending in the areas detailed above. The surplus in 2018/19 contributed towards highways and transport services costs (link).

# 2. Stakeholder Views

## Public Consultation

An online consultation regarding travel in Hereford ran from 3rd February until the 31st March 2020 (link). The questions invited respondents to provide their views on existing transport conditions for locations they chose on a map of Hereford. Questions 8 and 10 invited respondents to consider transport in Hereford as a whole. Some 850 responses were received, the questions set out below:

- *Q8 - In developing the Transport Strategy for Hereford we are keen to understand what you think the most important outcomes are;* and
- *Q10 - Taking into account the outcomes above, please tell us which transport improvements you think would be most effective.*

The two questions asked respondents to rank (between 1 and 10) the most important outcome/most effective to least important outcome/least effective. There were also questions for stakeholders to put text in boxes with other recommendations if they did not appear as choices in Q8 and Q10.

The first adjacent chart shows the amount of times an outcome was ranked into the top three priorities.

Of the responses received to the consultation the most popular outcomes were 'reduce congestion, improve traffic flow', 'quicker/more reliable journey times', 'reduce carbon emissions and improve air quality' and 'offer a realistic alternative to the car'. The four least popular outcomes ranked were 'improve public spaces', 'support healthier lifestyles', 'support the local economy' and 'improve access to services'.

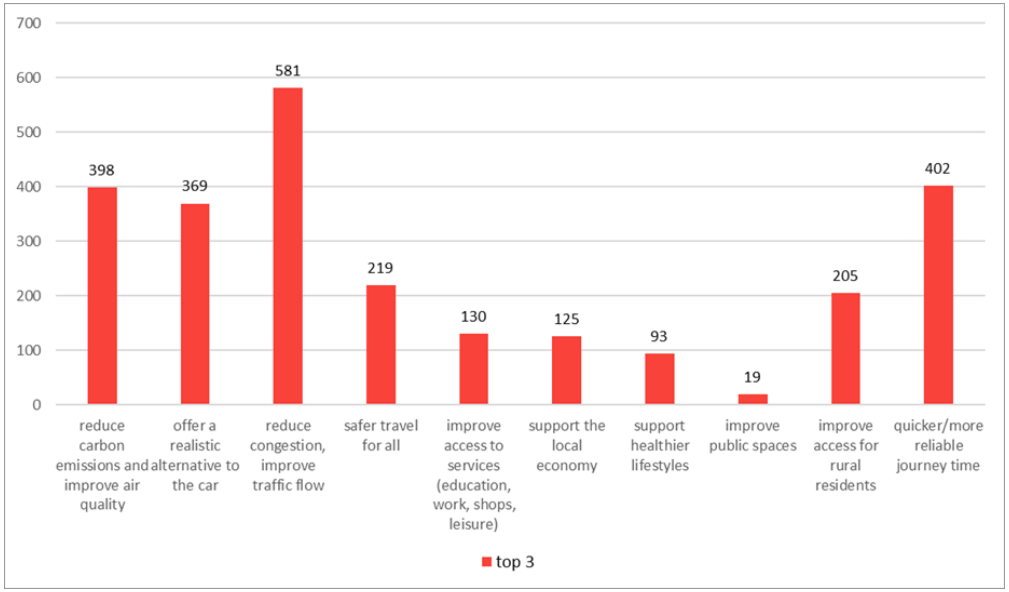
The second adjacent chart shows the amount of times an intervention was ranked into the top three priorities.

The three most popular interventions were 'invest in bus network - electric buses, reduce fares', 'increase capacity – new roads, new river crossing' and 'support sustainable school travel/safer routes to school'. The four least popular interventions were 'manage demand for car use', 'new ways to get around - light rail', 'safer roads - 20mph speed limits' and 'better managed car parking'.

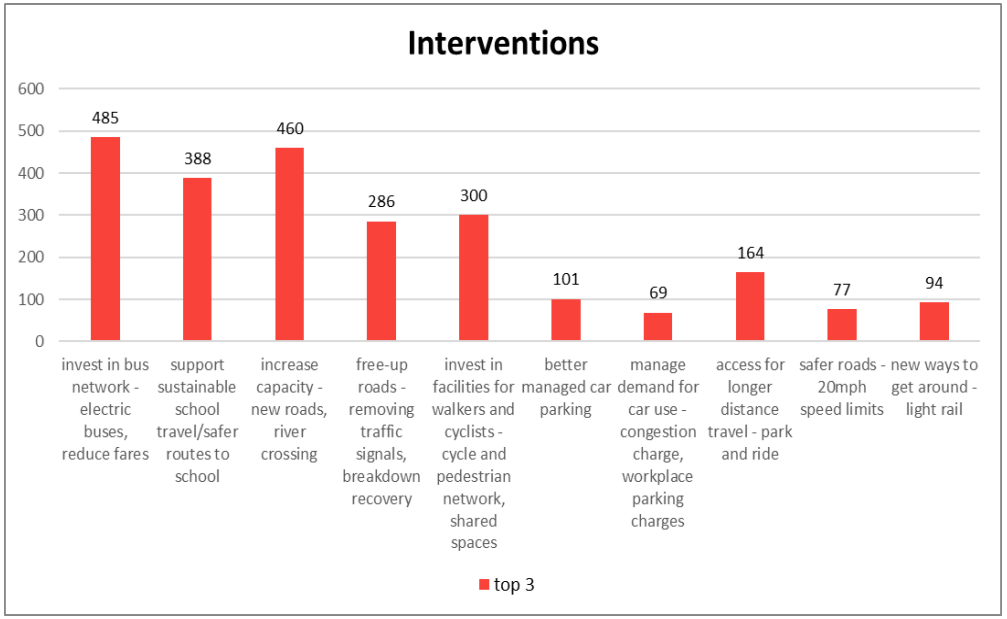
## Stakeholder Engagement

A number of Stakeholders and Members were invited to comment on the Option Assessment and Package Assessment. Chapter 6 summarises their views.

*Number of top 3 preferences for question 8 (Outcomes)*




*Number of top 3 preferences for question 10 (Interventions)*



# 2. Chapter Summary

Chapter 2 examined the key issues facing the city. This was informed by a review of data and evidence, including some additional analysis, a literature review of policy and strategy and views provided through public engagement.

The challenges were grouped into four themes:

- **Climate Emergency** – Without urgent mitigation, rising global temperatures will lead to more extreme weather events, with very significant and widespread impacts on the economy, environment and society. Carbon dioxide is the main gas causing the greenhouse effect. The key transport-related issues are: (i) impacts on transport network resilience and travel behaviour; (ii) the significant proportion of Herefordshire $CO_2$ emissions generated from transport sector; (iii) the large reliance on fossil fuels; (iv) the decline in average fuel efficiency of new cars; and (v) significant carbon emissions generated from constructing transport infrastructure;
- **Economy** – Transport and travel are an intrinsic part of the economy. The key transport-related issues are: (i) delays and unreliable journey times affecting businesses delivering goods and people travelling within and across the city; (ii) unequal access to facilities and services; and the (iii) impacts of new development, generating additional travel demand and requiring transport infrastructure;
- **Environment** – The natural environment provides a very extensive range of benefits to the economy and society including food production, clean water, cleaning the air, capturing carbon, cooling urban areas and providing space for recreation and mental wellbeing. The key transport-related issues comprise (i) road transport impacts on air quality (with consequential health effects), (ii) transport impacts on water quality, (iii) impacts on heritage and (iv) urban environment, plus (v) negative impacts generated by new transport infrastructure; and
- **Society** – Travel patterns and transport use are shaped by and linked to a range socio-economic factors, including age, health and disability, income, stage of life and household arrangements. The key transport-related issues are: (i) public health, especially in terms of people choosing travel modes which involve little or no physical activity; (ii) road collisions and perception of road danger; (iii) transport and accessibility issues affecting particular groups in society and (iv) the impacts of transport on communities such as noise, vibration and heavy traffic.



The chapter also summarised two other topics:

### Legal and funding context

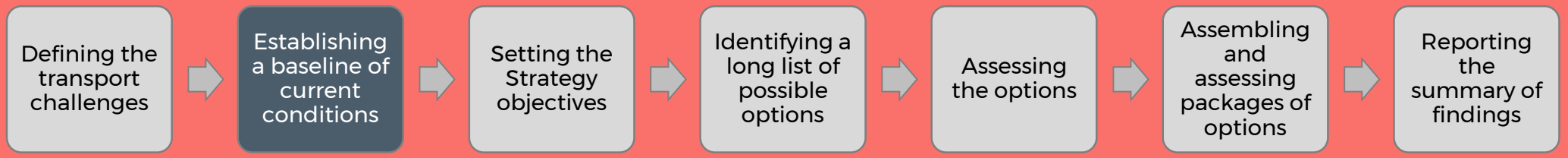
Herefordshire Council carries out a wide range of statutory duties relating to transport. These include setting a balanced budget, maintaining public highways, managing the road network, securing public transport services to meet needs which would otherwise not be met, preparing a local transport plan and preparing a local plan. A range of other organisations also have an influence on, or fund transport in Hereford. They include government ministerial departments, the government company Highways England who maintain and operate the A49, regional bodies Midlands Connect and the Marches LEP, Network Rail, train operating companies and bus companies.

Council funding for ongoing services such as road maintenance is mostly funded from locally raised taxes. Spending on new infrastructure tends to be funded by bodies including central government, locally raised taxes or contributions from planning applicants of large new developments.

### Stakeholder views

Herefordshire Council ran an online public consultation regarding travel in Hereford in February and March 2020. Two of the questions invited respondents to consider transport in the city as a whole:

- *In developing the Transport Strategy for Hereford we are keen to understand what you think the most important outcomes are* – the most popular public responses were 'reduce congestion, improve traffic flow', 'quicker/more reliable journey times', 'reduce carbon emissions and improve air quality' and 'offer a realistic alternative to the car'
- *Taking into account the outcomes above, please tell us which transport improvements you think would be most effective* - the most popular public responses were invest in bus network - electric buses, reduce fares', 'increase capacity – new roads, new river crossing' and 'support sustainable school travel/safer routes to school'.




# Chapter 3
# Establishing a baseline of current transport conditions

*The next step in the transport strategy review was to understand the current use of the transport network in the city.*

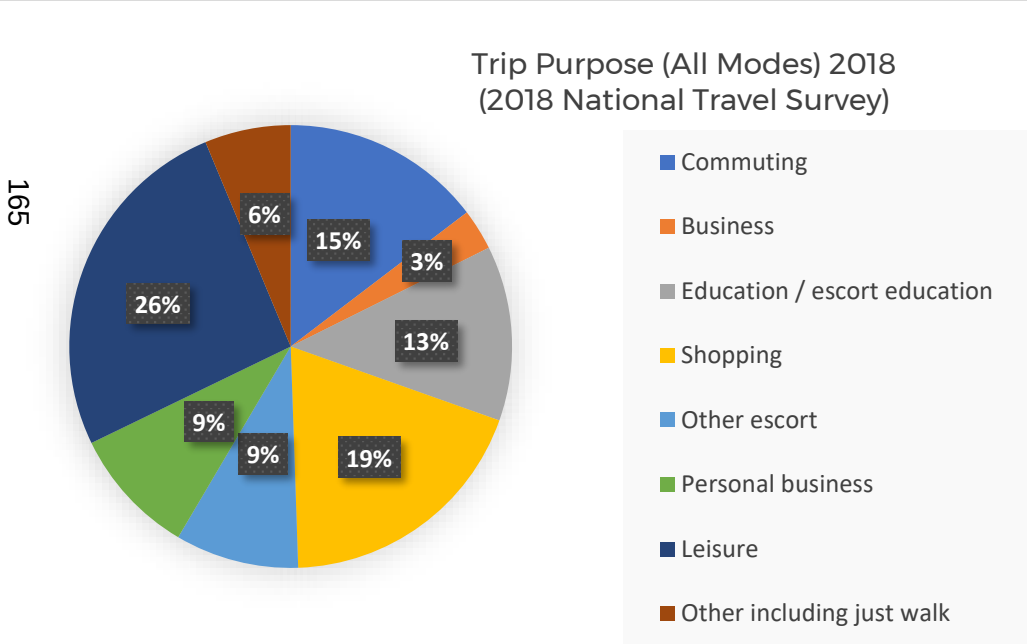
*This chapter summarises travel patterns in the city, based on available data, and describes the city's current transport system and its key issues. The chapters covers every major transport mode in descending order of their current mode share in the city. The chapter also considers the topics of digital connectivity and accessibility to services, travel promotion and information, parking and loading, freight and future trends and technology.*

*The analysis in this chapter, along with the review of challenges in Chapter 2, informed the setting of objectives for the strategy review in Chapter 4.*

# 3. Hereford's Transport Factfile

## Trip purpose

Data on trip purpose is collected annually in the National Travel Survey (link) – see chart below. It indicates that, for example, a greater number of leisure and shopping trips are made than commuting trips. It should be noted that some types of trip (for example education) are concentrated into short time periods whilst journeys for other purposes (such as shopping and leisure) are spread throughout the day. The definition of 'leisure' includes trips to visit friends at home and elsewhere, trips to entertainment, sport, holiday and day trips, some of which may be less representative of usual trips taken in and around Hereford.




## Number of trips and time spent travelling

At a national level the average number of trips and hours spent travelling per year are broadly the same as in the 1970s (link). The number of miles travelled per person in 2018 was 46% greater than 1972/3; however, there has been a downward trend in miles travelled since 2002. Residents of rural areas travel further and make more trips than urban residents, mainly arising from additional car use (link).

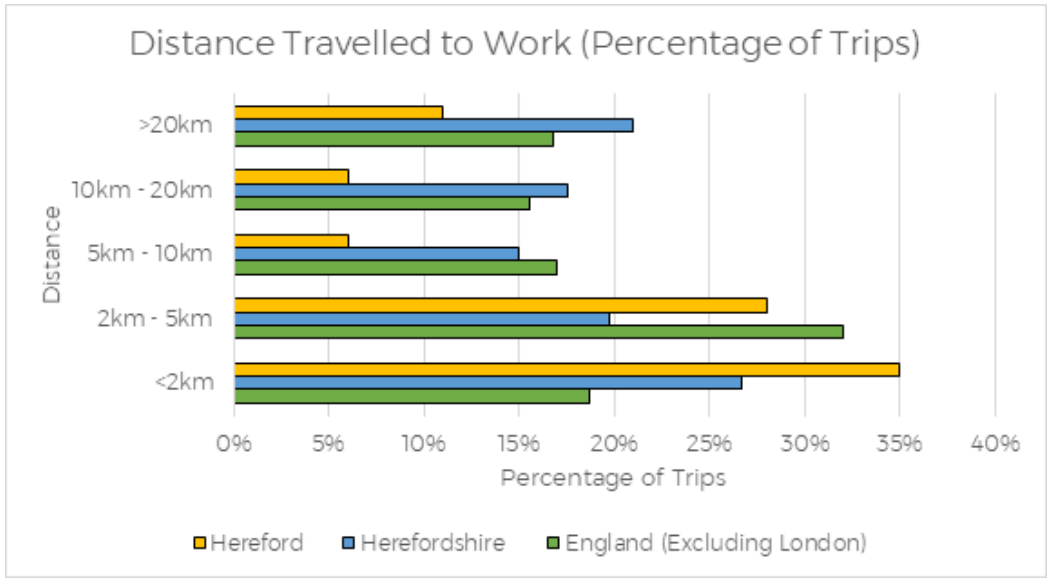
## Trip distance

Data on trip distance is collected at a national level by the annual National Travel Survey and the Census. Whilst the last census was carried out in 2011, it remains the most recent comprehensive set of data on certain subjects. The National Travel Survey categorises distances in miles whilst the census uses kilometres (km). 1 mile equates to just over 1.6km.

The 2018 National Travel Survey (link) indicates that the majority of journeys are short distance, with 25% of trips being under 1 mile, and 68% under 5 miles.

The 2011 Census (link) collected information on distance travelled to work (commuting) – see chart below. It found that:

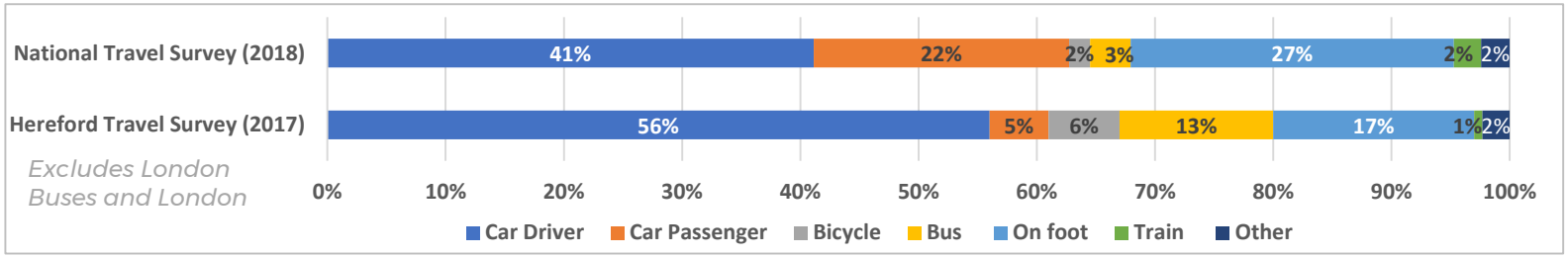
- Hereford residents make a higher proportion of short-distance commuting trips of less than 2km (38% of all commutes), compared to 27% of Herefordshire commutes and 19% of commutes in England (excluding London). *2km equates to a 25-minute walk* (link).
- 73% of commuting trips made by Hereford residents are less than 5km, compared to 46% in Herefordshire and 40% in England (excluding London). *5km equates to a 20-minute cycle* (link).



# 3. Hereford's Transport Factfile

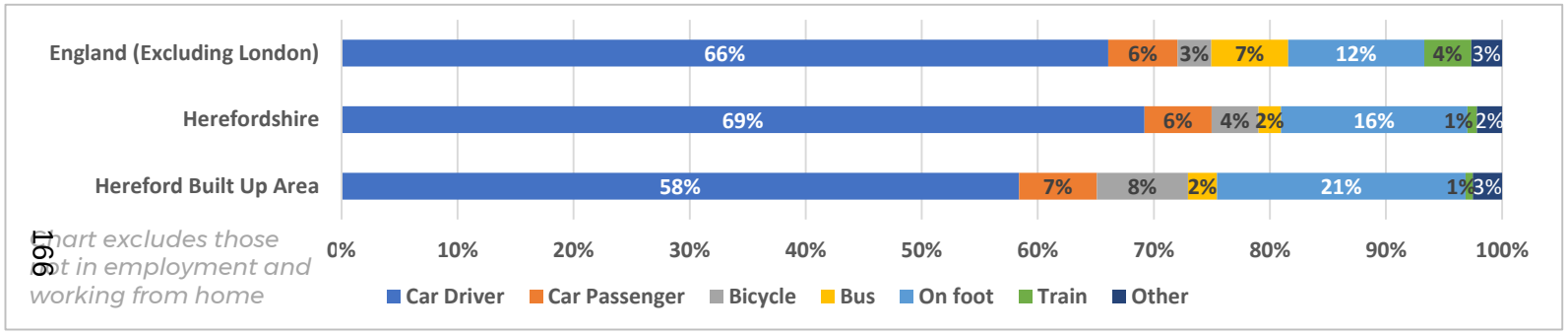
## Travel mode – travel for all purposes

Sources: National Travel Survey (link) and Hereford Household Travel Survey 2017



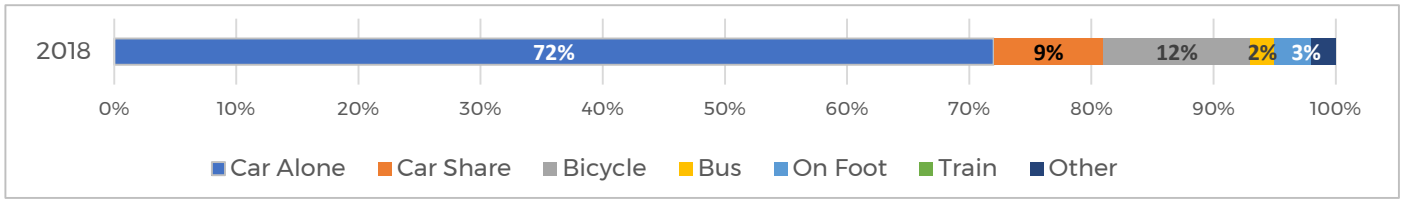

## Travel mode – travel to work

Source: 2011 Census (link)



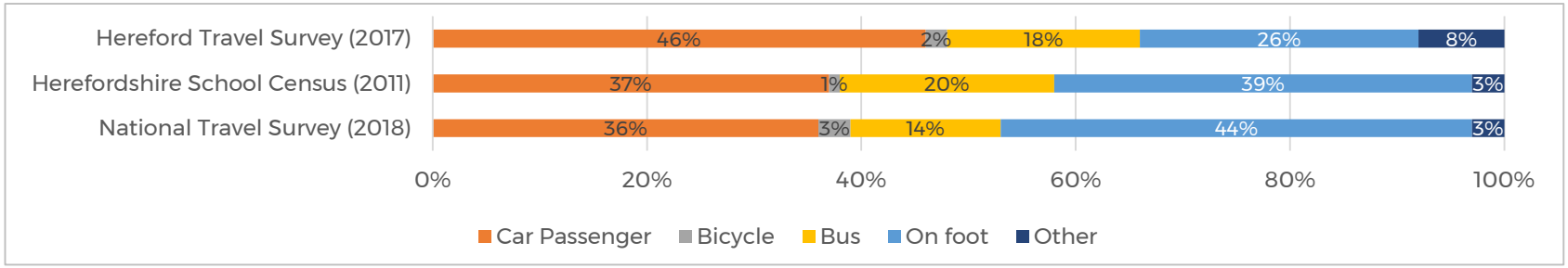

## Travel mode – travel to work by Hereford Enterprise Zone employees

Source: 2018 Travel Survey (link)




## Travel mode – travel to school

Sources: Hereford Household Travel Survey 2017, National Travel Survey (link) and Herefordshire Sustainable Mode of Travel to School Strategy (link)




## Travel mode

Data on travel mode is collected annually in the National Travel Survey. It was also collected in the 2011 Census and in the 2017 Household Travel Surveys commissioned by Herefordshire Council. The latter survey was based on respondents' completion of a travel diary – figures included in this report are based on respondents' first trip of the day. Based on this survey, walking is proportionally the second most important travel mode in Hereford.

A higher proportion of employees of Hereford Enterprise Zone commute by car than the Hereford average.

Travel as a car passenger accounts for nearly half of the school run in Hereford, which is higher than the national picture. Walking accounts for a quarter of all travel to school in the city, which is lower than across the country as a whole.

# 3. Hereford's Transport Factfile

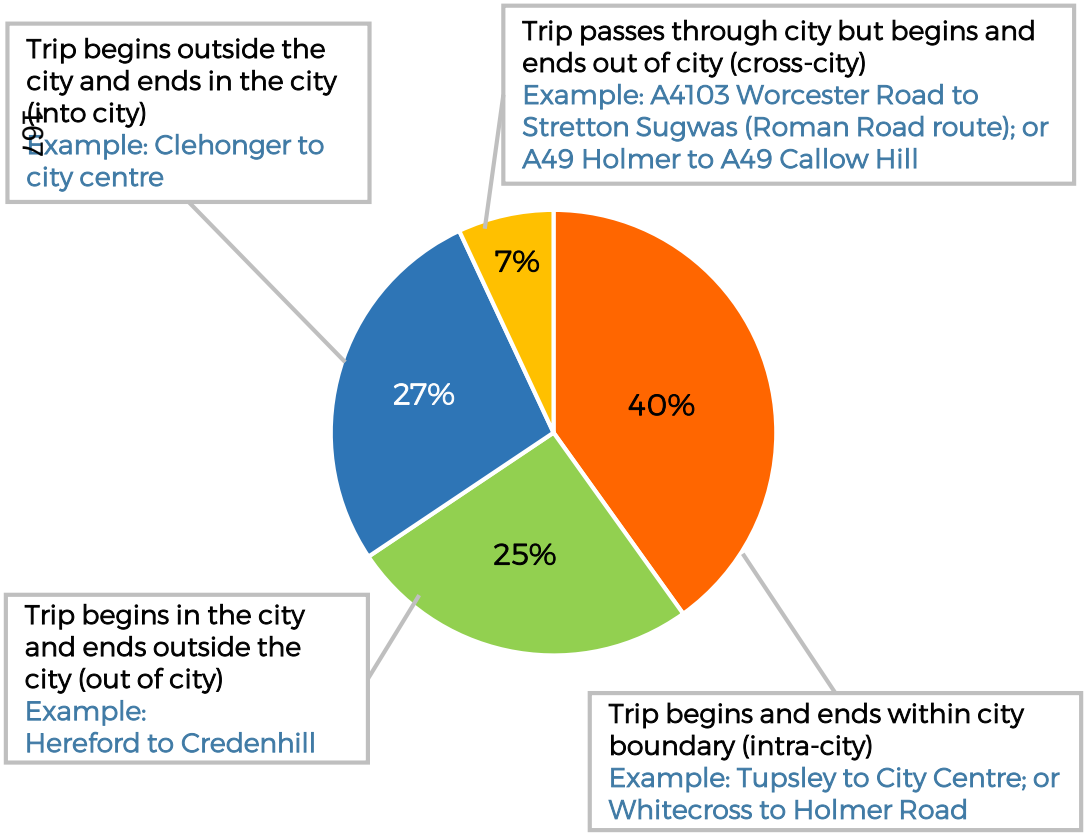
## Travel flows - Introduction

Data on travel flows in Hereford has been derived from (a) traffic surveys carried out in 2016 and (b) from Census data on travel to work. These are described in the chart below and the tables to the right.

## Travel flows – motor vehicle trips

The chart below indicates that the largest proportion of motor vehicle trips in Hereford have start and end points within the city and are therefore relatively short-distance journeys. Journeys which pass through the city with origins and destinations outside the city are a relatively small proportion of all trips.

Categories of motor vehicle travel flows through Hereford from 2016 traffic surveys




## Travel flows – Census 2011 travel to work data

Data on travel to work patterns is collected most comprehensively in the Census. In 2011 over 70% of Hereford residents who regularly commuted to work travelled to a destination elsewhere within the city. This is a higher level of self-containment compared to the county's market towns, where between 45% and 50% of residents live and work in the same town.

Employment in Hereford is particularly important for residents of villages surrounding the city. 65% of commuters from villages to the south-west of Hereford (in the Madley and Clehonger areas) travel to jobs in the city. Around half of those commuting from villages north-west and north-east of Hereford travel to jobs in the city.

| Census 2011 – Employment location of commuters usually resident in Hereford and travelling to work (link) | |
|---|---|
| Work within in Hereford | 71% |
| Work elsewhere in Herefordshire | 19% |
| Work elsewhere in the UK | 10% |

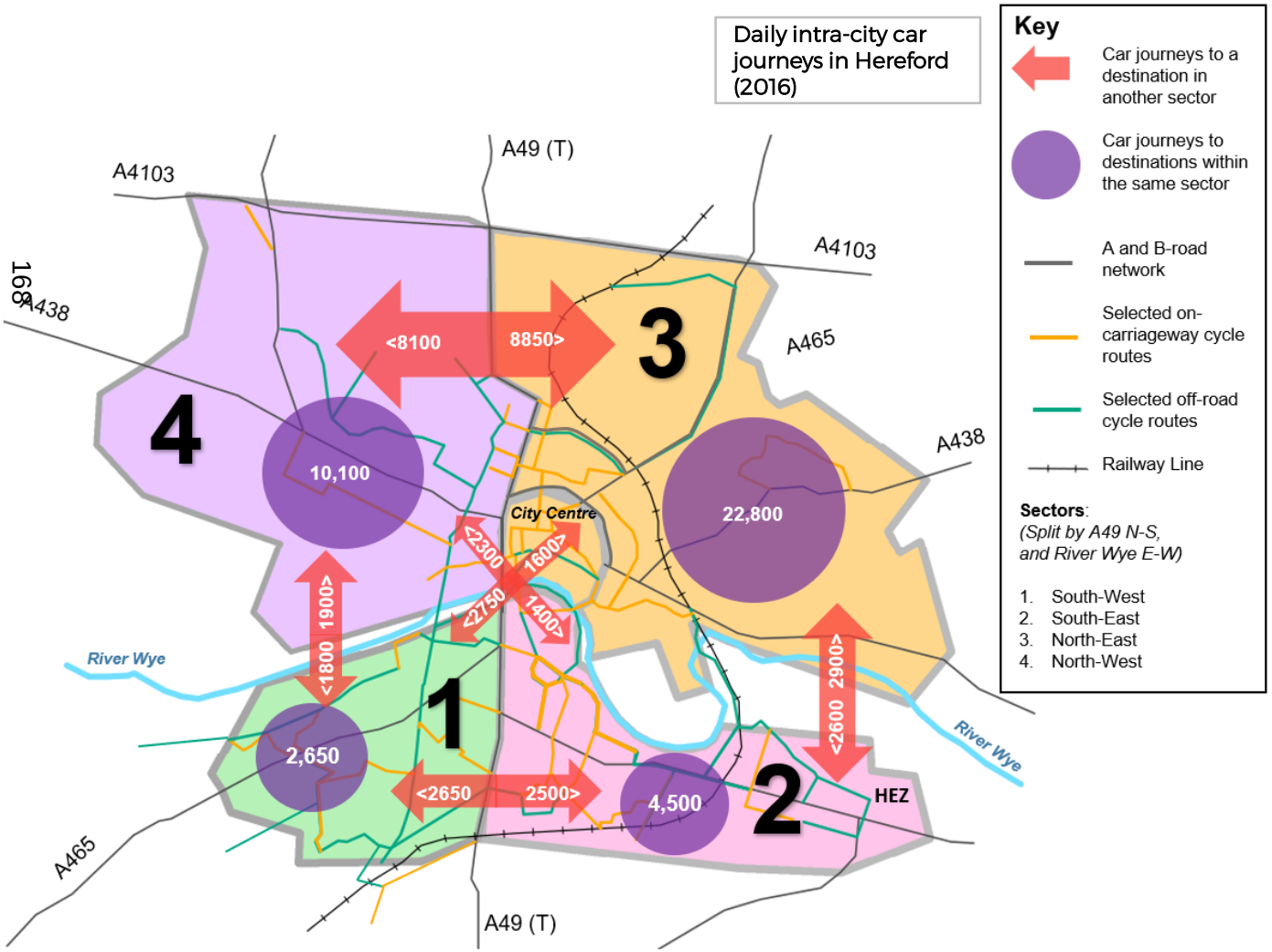
In 2011 around 40% of employees who regularly commuted to jobs based in Hereford lived outside the city. Nearly three-quarters of this group live elsewhere in Herefordshire.

| Census 2011 – Home location of commuters travelling to work in Hereford (link) | |
|---|---|
| Live within Hereford | 59% |
| Live elsewhere in Herefordshire | 32% |
| Live elsewhere in England & Wales | 9% |

# 3. Hereford's Transport Factfile

## Travel flows – continued

The plan below indicates the number of daily motor vehicle trips which do not leave the city boundary and travel between, or within, the four quadrants of the city. The data was derived from traffic surveys carried out in 2016. The plan includes motor vehicle journeys made for all purposes, including shopping, visiting friends, commuting, travel to school or college, and so on. The four quadrants and the key locations within them are listed to the right.




| | |
|---|---|
| Quadrant 1 | **South-West Hereford** (Belmont, Hunderton, and Newton Farm) |
| Quadrant 2 | **South-East Hereford** (Hinton, Putson, Rotherwas and Hereford Enterprise Zone) |
| Quadrant 3 | **North-East Hereford** (City Centre, Hampton Park, Tupsley, College Green, Holmer and Holmer Road employment area) |
| Quadrant 4 | **North-West Hereford** (Whitecross, Bobblestock, Westfields and Widemarsh employment area) |

The plan shows that:

- The largest number of short-distance car trips are made within the north-east quadrant of the city (22,800 trips), which includes journeys to the city centre from elsewhere in the quadrant;
- The second largest number of short-distance car trips trips are made between north-east and north-west Hereford, and vice versa (16,950 trips);
- The third largest number of short-distance car trips are made within the north-west quadrant of the city (10,100 trips); and
- In total just over 40,000 daily car trips have their start and end point in the same quadrant of the city – and are likely to be no longer than 2 miles in length.

# 3. Hereford's Transport Factfile

## County and regional journeys

### Motor vehicle journeys

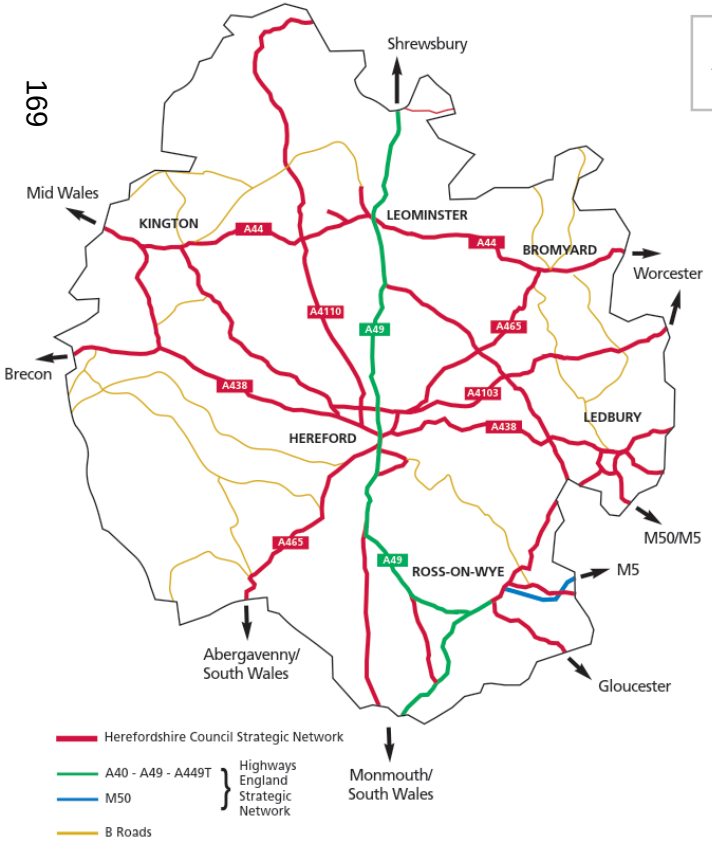
Some longer-distance road and rail journeys pass through Hereford. These include journeys with certain origins or destinations in parts of South, Mid or North Wales and in parts of the West Midlands counties. Based on traffic surveys conducted in 2016, 7% of motor vehicle trips recorded in Hereford pass through the city but begin and end outside of city. Congestion and longer journey times within Hereford leads some drivers whose journeys would otherwise pass through the city to seek out alternative routes.

The alternative routes include other River Wye crossings upstream or downstream of the city (Bridge Sollers, 10km upstream and Holme Lacy 7km downstream) or via longer diversionary routes. Some of the diversionary routes use lower-standard rural roads rather than A- or B-roads.

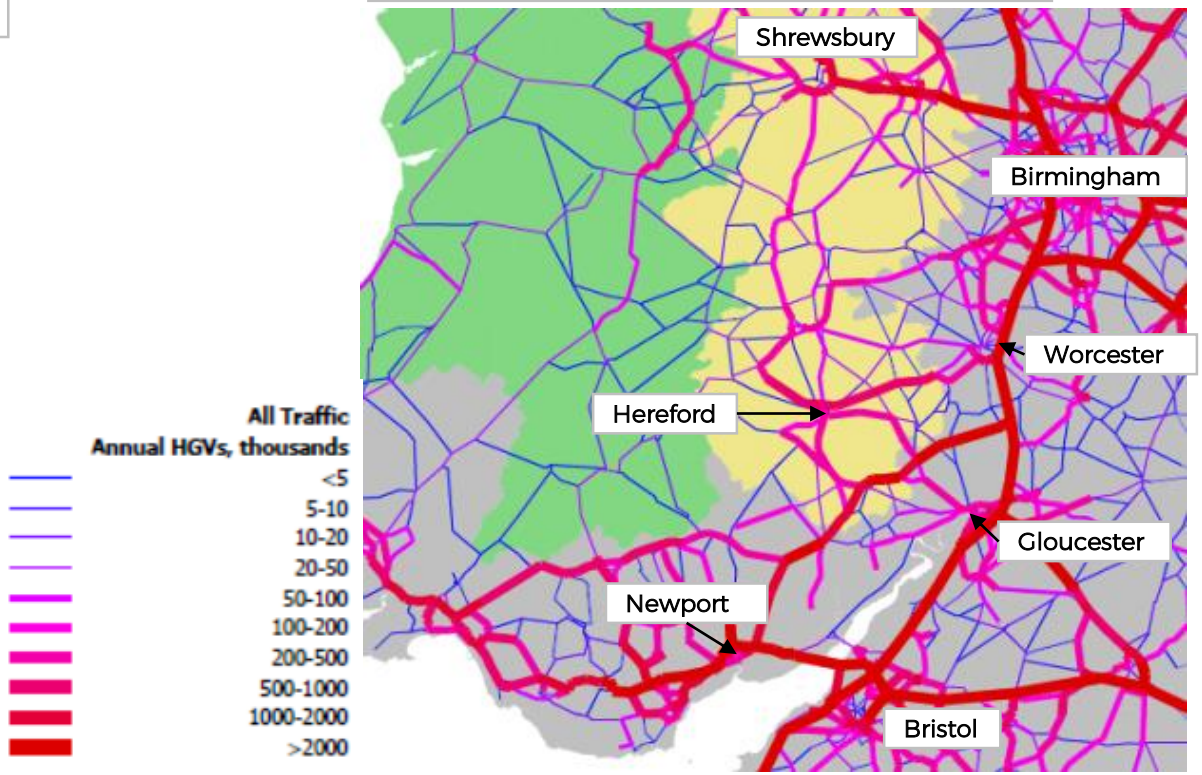
Although only 7% of the traffic within Hereford is through traffic, the A49 is part of the national Strategic Road Network and is operated and maintained by Highways England, a government company. This route caters for vehicles travelling to destinations between the A40 (Ross-on-Wye) and A5 (Shrewsbury) and beyond (see plan below left). Likewise, roads such as the A438, A465, A480 and A4103 cater for through traffic between such areas as Abergavenny, Kington, Ledbury and Worcester. The plan below indicates the annual number of freight movements made on routes through Hereford, for east-west movements as well as north-south flows. For such journeys, the road network through Hereford has an important regional connectivity role.

Herefordshire Council is a member of Midlands Connect. Members comprise 22 local authorities, nine Local Enterprise Partnerships, East Midlands and Birmingham airports, and chambers of commerce covering the area from the Welsh border to the Lincolnshire coast. The body published its 25-year Transport Strategy in July 2017 setting out a rolling programme of strategic road and rail improvements and since then has submitted funding bids for a range of these proposals.

Herefordshire's Strategic Highway Network




Annual Heavy Goods Vehicle Movements [Marches and Mid Wales Freight Strategy Technical Annex, 2017]



# 3. Hereford's Transport Factfile

## Motor vehicle journeys

Includes taxis, motorcycles and scooters. Parking and freight are covered separately

**Existing network:** The street network is not evenly distributed across the city and many A-road corridors radiate out from the city centre. There are a limited number of 20mph zones but the majority of city's streets have 30mph speed limits.

**Existing vehicles:** 25% of households in Hereford have no access to a private car or van compared to 16% of Herefordshire households and 23% of households in England excluding London (link). A In the city centre, parts of Hinton, Hunderton and Newton Farm between 40-50% of households do not have access to a car or van.

**Existing journeys:** The proportion of all trips made in Hereford by driving are in line with national averages but the levels of car commuting to work is lower. In some edge-of-city suburbs (Hampton Park Road, Belmont Rural and King's Acre Road) more than 70% of commuting residents drive to work; north of Roman Road the figure is 80% (link).

| | | | |
|---|---|---|---|
| Driving for all purposes (% of all trips) | Hereford 2017 = 61% [Hereford Household Travel Surveys] | | England 2018 61% |
| Driving to work by employed residents (2011 Census) (link) | Hereford 56% | Herefordshire 63% | England excluding London 66% |
| Car/van passenger for all purposes (% of all trips) | Hereford 2017 = 5% [Hereford Household Travel Surveys] | | England 2018 22% |
| Travel to work as car/van passenger (2011 Census) | Hereford 7% | Herefordshire 6% | England excluding London 6% |

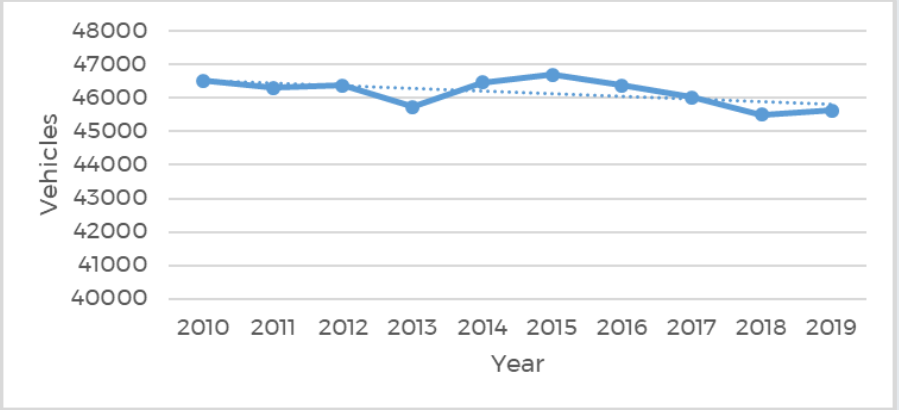
Travel to work by motorcycle and taxi each represented less than 1% of all commutes.

The highest traffic flows are on the A49 Greyfriars Bridge, with annual average daily traffic flows of 45,630 vehicles recorded in 2019. Flows are around 2% lower than they were in 2010. Traffic flows remain high all through the inter-peak period (see image to right).

**Key issues:**

- Longer journey times: Surveys found that cross-city journeys on the A49 between 0800-0900 took on average 9 minutes longer northbound and 7 minutes longer southbound than equivalent journeys taking place between 0700-0800. Note that some journey times will be longer than this.

A49 Greyfriars Bridge Annual Average Daily Traffic Flows 2010-2019




Source: Herefordshire Council automatic traffic count

- Queuing and delays occur at junctions and sections of the main road corridors plus other roads, particularly in the morning peak period. Delays also occur at locations outside the city where drivers use routes to avoid the congestion in the city. The city has significant amounts of *transient queuing* (i.e. for example sat at traffic signals waiting for them to turn green) across the network, especially at peak times. In addition *overcapacity queuing* also occurs regularly (i.e. junctions are over capacity and queuing does not clear in one signal phase).
- Short distance trips: Just under 80,000 motor vehicle journeys made daily within the city have their start and end points within the city (see infographic on previous page), most of which are very short distance trips. More than 40% of Herefordshire residents who usually drive to work travel less than 2km (link).
- Limited route options, particularly for north-south movements (one major bridge crossing of the Wye within the city) but also for east-west movements north and south of the river. The absence of alternative routes means that the transport network is not resilient to disruption and road closures caused by collisions or other incidents. Incidents can result in quickly deteriorating transport conditions.
- Drivers re-routing via less suitable residential roads and rural routes in response to congestion and unreliable journey times. Some of the routes are substantially longer than the most direct route;
- There is limited highway space to share between different transport modes. Private cars are a relatively space-inefficient mode of transport compared to walking, cycling and public transport. 62% of car trips in England made for any journey purposes are made by lone drivers (link); and
- Condition of the road network: A higher proportion (7%) of Herefordshire A-roads should be considered for maintenance compared to 3% of English A-roads.

# 3. Hereford's Transport Factfile

## Pedestrian journeys

Refers to all journeys made in pedestrian spaces including wheelchairs and mobility scooters

**Existing network:** Footways are adjacent to most carriageways in the city, with a number of additional off-carriageway connections. The city centre has an extensive pedestrianised area. The walking network is not evenly distributed across the city, being less dense and with significant gaps in some suburbs.

**Existing journeys:** There are above average levels of walking to work in Hereford (see infographics below).

| | | |
|---|---|---|
| Walking for all purposes (% of all trips) | Hereford 2017 = 17% [Hereford Household Travel Surveys] | England 2018 27% (link) |

| | | | |
|---|---|---|---|
| Walking to work by employed residents (2011 Census) (link) | Hereford 21.4% | Herefordshire 17% | England excluding London 11.7% |

In Hereford annual average daily pedestrian flows on surveyed routes (including the seven major radial corridors into the city) have fallen by 18% between 2012 and 2017/18 (link). Nationally, the average number of walking trips marginally increased (by 1% between 2002 - 2018) and average walking miles increased by 2% (link). The highest road crossing flows were recorded at city centre locations [*Hereford Transport Model Report of Non-Motorised Users and Public Transport Data 2018*].

**Key issues**

- The River Wye, railway line and major roads form major physical barriers to pedestrian movement with limited crossing points or layouts which require the road to be crossed in several stages. This can lead to longer walking journeys to reach crossing points and pedestrians choosing to cross roads away from dedicated facilities. Safe connections across the A49 section of the ring road are particularly limited;
- Severance and delay to pedestrian journeys due to the speed and volume of traffic on many roads and with no priority over vehicles when crossing side roads;
- There is below average public satisfaction in relation to the condition of pavements, cleanliness of routes, signposting on routes, and safe crossing points in Herefordshire (link);
- Lack of inclusive infrastructure to cater for different groups in society, such as public toilets, benches and seating areas in public spaces; and
- Other pedestrian environment issues such as pavement parking, steps, no dropped kerbs at road crossings and locations without zebra or signal crossings can disproportionately impact on particular groups in society, including the less mobile or those with a disability.

## Cycle journeys

**Existing network:** The network of routes available for cycling comprises all of the roads plus off-road links, such as Great Western Way and Hereford Greenway. The network is not evenly distributed across the city, being less dense, and with significant gaps, in some suburbs.

**Existing vehicles:** 42% of people in England currently own or have access to a bicycle (link). Within the city there are 186 pay-as-you-go Beryl Bikes available from 39 bays.

**Existing journeys** Cycling has a higher mode share in Hereford than nationally.

| | | |
|---|---|---|
| Cycling for all purposes (% of all trips) | Hereford 2017 = 5% [Hereford Household Travel Surveys] | England 2018 2% (link) |

| | | | |
|---|---|---|---|
| Travel to work by employed residents (2011 Census) (link) | Hereford 7.9% | Herefordshire 4% | England excluding London 2.9% |

Between 2003 and 2018 cycle flows measured at a number of the city's off-road routes increased by an average of 73%. Nationally, average cycling trips have decreased 5% (2002 - 2018) but average cycling miles increased 50% (link).

Many of the most popular routes used by Beryl Bikes users are the most heavily trafficked road corridors (see image to right).

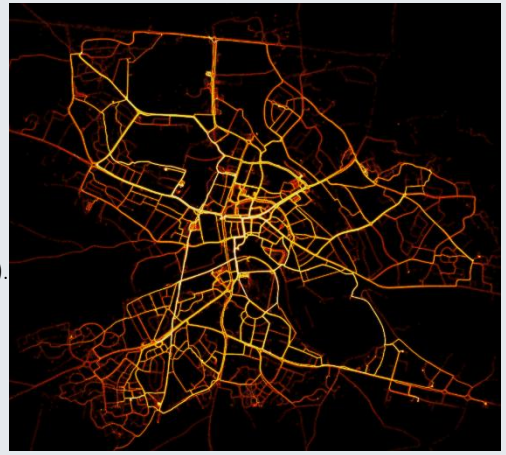


**Image to right: Beryl Bike use up to October 2019.** Lighter / whiter colours denote more intensive cycle use

**Key issues**

- The cycle network is currently fragmented and disjointed: there are some good quality off-carriageway routes but most of the busiest roads have no protected cycle tracks. Cyclists often use indirect routes to avoid these busy road corridors. Non-cyclists can be unaware of the existence of off-road connections.
- Safety concerns were a top five reason deterring people from walking and cycling identified in the Hereford Household Travel Survey. 61% of respondents to the National Travel Attitudes Survey (link) believe that cycling on the roads is too dangerous. A-roads are often the most direct network available for cyclists, but also places where fear of and intimidation by motor vehicles is greatest.
- Critical junctions: The city has a large number of junctions where cyclists come into potential conflict with heavy or fast motor traffic and have no priority or dedicated crossing phase.

# 3. Hereford's Transport Factfile

## Bus and coach journeys

**Existing network:** The bus network radiates into/out of the city centre and journeys to most other destinations require interchange. Currently there are two bus stations, separate from each other and the railway station, with some services terminating at Shire Hall. A bus hub is planned adjacent to the railway station. National Express coach services run from the country bus station to London via locations including Gloucester.

Most city routes are run by Yeomans Canyon Travel without public subsidy on half hourly or hourly timetables pre-Covid. The exception is service 74 (Newton Farm – City Centre), with 4-5 services per hour. The county's core network, connecting Leominster, Ledbury, Kington and Ross-on-Wye to Hereford, operates broadly hourly Monday to Saturday, whilst other routes are less frequent. There are almost no Sunday services.

**Existing journeys:** Levels of commuting by bus are low in Hereford, but bus use for all trip purposes is higher than the national average – see infographic below.

| | | |
|---|---|---|
| Bus travel for all purposes (% of all trips) | Hereford 2017 = 7% [Hereford Household Travel Surveys] | England 2018 = 5% (link) |

| | | | |
|---|---|---|---|
| Travel to work by employed residents (2011 Census) (link) | Hereford 2.7% | Herefordshire 1.7% | England excluding London 6.6% |

Bus use in the city declined by 65% between 2001 and 2018, although much of the reduction occurred before 2009 (link and *Herefordshire Local Transport Plan Progress Report 2018-19)*. For comparison, bus use declined by 28% across the West Midlands (link) during the same period. There are now more bus trips made on Herefordshire's rural network than on the city network.

**Key issues:**

- Service frequency: Bus frequencies have been reduced on several city and country routes in recent years. Nearly a quarter of bus passengers thought bus frequency was poor or very poor. This does not account for the views of non-bus users;
- Service quality: Customer features such as contactless payments, on-bus Wi-Fi and USB charging for mobiles have been introduced on some but not all buses in Hereford. Real-time information (at stops or online) is also available at some bus stops;
- Cost: Nearly 30% of fare-paying passengers on local bus services thought fares were poor or very poor value for money (again, this does not include those who do not travel by bus) [Transport Focus Herefordshire Bus Passenger Survey 2016];
- Journey times: Journey time analysis indicates that buses do not have a competitive advantage over other modes except walking;
- Post-war street layouts favouring cul-de-sacs means there are limited number of through routes which can be used by buses, especially south of the river; and
- For many commuting journeys within Hereford there is a preference for car even where bus services are available, such as from north-east Hereford to the city centre area.

## Rail journeys

**Existing network:** Hereford's rail station is situated to the north-east of the city centre. It is served by rail lines in three directions – the Marches Line connecting Newport to the south and Shrewsbury to the north and a line from the east (Worcester). Trains are operated by three companies – Great Western Railway, Transport for Wales (TfW) and West Midlands Trains. TfW operate Hereford railway station. There are only three other railway stations in the county.

**Existing journeys:** Rail travel represents a very small proportion of journeys made in Hereford – see infographic below.

| | | |
|---|---|---|
| Rail travel for all purposes (% of all trips) | Hereford 2017 = 1% [Hereford Household Travel Surveys] | England 2018 2% (link) |

| | | | |
|---|---|---|---|
| Travel to work by employed residents (2011 Census) (link) | Hereford 0.6% | Herefordshire 0.5% | England excluding London 4.1% |

Between 2008 and 2018 rail trips to and from Hereford rail station increased by 27%, compared to a 39% increase nationally. In 2018-19 an estimated 1,241,000 entries and exits and 57,000 interchanges were made there (link).

In a one-day survey at the rail station in March 2017 there were 1,778 passenger arrivals and 1,675 departures [*Hereford Transport Model Report of Non-Motorised Users and Public Transport Data 2018*].

**Key issues:**

- Only one railway station serving the city and only two of the five market towns in Herefordshire (Ledbury and Leominster) are directly served by rail. This limits the contribution of rail for local journeys;
- Poor rail-bus integration: The railway station is served by two local and six rural bus services and both of the city's two bus stations are some distance from it. On completion of the bus hub the majority of services will relocate from the country bus station, enhancing interchange;
- Frequency and timetable gaps: The services on each line do not operate on a clockface timetable – i.e. with scheduled departures at the same time every hour. In the pre-Covid spring 2020 timetable there was only one arrival from Ledbury into Hereford between 0700 and 0900 (compared to three from Abergavenny and four from Leominster). There are instances of gaps in the timetable of up to 1 hour 15 minutes on each line; and
- The Hereford Area Plan consultation (link) asked about improving access to the railway station. The most commonly raised public views related to (i) bus services, including shuttle services around the city centre, park and choose, improved taxi and drop-off areas (76 comments) and (ii) safe walking and cycling routes to the centre, wider footways, cycle storage at the station and an underpass through to the station (45 comments).

# 3. Hereford's Transport Factfile

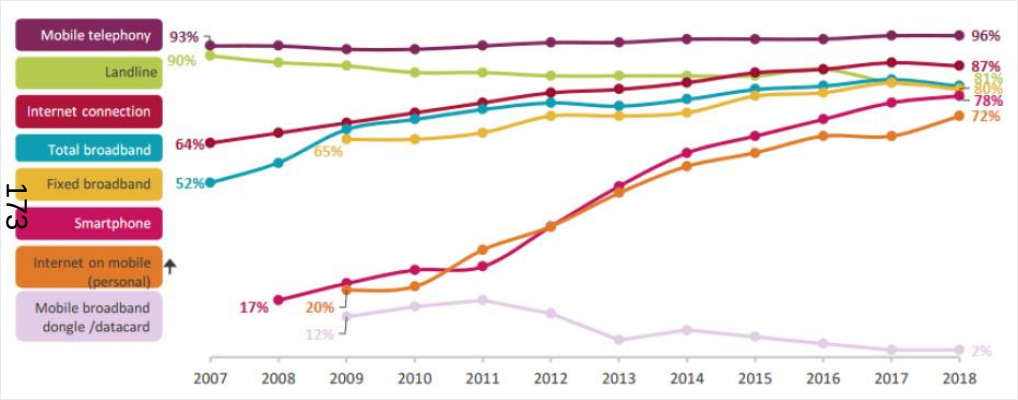
## Digital connectivity and reducing the need to travel

**Existing situation:**

- In 2011 one in 10 employed Hereford residents mainly work at or from home and a further 8% had no fixed place of work (link). Home working is more significant across the county as a whole.

| Working from home as a percentage of employed residents (2011 Census) (link) | Hereford 10% | Herefordshire 17% | England excluding London 11% |
|---|---|---|---|

- Nationally nearly 80% of people have a smartphone and nearly 90% have an internet connection (see graphic below (link).

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Ofcom Communications Market Report 2019

- 91% of Herefordshire homes and businesses can access superfast broadband (classed as 24 megabits per second over above) and speeds of over 30 megabits per second (from under 1% in 2012). This is behind the UK national average of 97%. Over 20% of county has access to full fibre broadband, compared to 10% nationally (link).

**Key issues:**

- Less than 8% of adults nationally have never used the internet but levels of digital exclusion are much higher in some groups (link);
- Rural mobile phone network coverage lags behind that of urban areas. Whilst 65% of the county's households can receive a signal indoors from all four mobile phone operators, there are nearly 4% of households who cannot receive a signal indoors from any operator (link); and
- Facilities and services in many rural areas have closed. This increases the need to either travel to urban areas to access them, or to access services online.

## Travel Information and Promotion Programmes

**Existing activity**: Herefordshire Council provides a range of travel information, advice, support and promotion activities, supported by other organisations in the county. The key elements of this are:

**Choose How You Move**: this is the brand identity which aims to reduce traffic congestion and improve quality of life by promoting and supporting increased bus travel, car-sharing, cycling and walking. *Choose How You Move* is funded by the Department for Transport.

**Destination Hereford**: this project aimed to increase active and sustainable travel, and improve rural access to public transport between 2011 and 2015, with £4.97 million from the DfT (link). It covered a range of initiatives including providing personalised journey planning with residents across parts of the city. Surveys in 2012 and 2015 indicated that after the project there was:

- A net 2.7% change over the three year period from car journeys to journeys made by public transport and active travel modes;
- An increased share of journeys made by active travel modes (27% of all journeys in 2015 compared to 22% of all journeys in 2012);
- Similar levels of public transport use (7% of all journeys in 2015 compared to 8% in 2012); and
- A decrease in car driver mode share (from 66% of all journeys in 2012 to 57% in 2015).

**Travel plans:** The Council encourages employers and schools to prepare travel plans outlining measures to reduce car use, promote sustainable travel behaviour and reduce the need to travel. Preparing travel plans are also a condition of certain planning permissions, such as for major residential developments.

The Enterprise Zone has prepared an area-wide travel plan to encourage sustainable travel as a condition of the simplified planning arrangements in place (link). Each business must prepare and implement their own travel plan to support this.

**Other activities** – The Council funds or oversees a range of other activities. For example, in 2017/18 65 schools in the county received road safety talks covering 3,801 children in Reception up to Year 5 [*Herefordshire Local Transport Plan Progress Report 2016/18*].

**Key issues**

- Many people have limited knowledge of alternative travel options;
- Many initiatives are revenue funded by competitively bidding for a share of government monies. These tend to be short-term funding streams, and there is therefore a risk that that they will not have a long-term impact/benefit;
- There is an emphasis on smartphone apps as a means of providing travel information, which limits knowledge for those who do not have the technology.

# 3. Hereford's Transport Factfile

## Freight and delivery journeys

**Existing network and vehicles:** Hereford forms a 'through' route for road freight in several directions, particularly along the A49(T) and A465. The A49(T) serves as the only north-south corridor for freight movements through the city, with limited alternative options. Some roads have weight limits or access-only restrictions to prevent their use as through routes by heavy goods vehicles.

LGVs represent 12% of all licenced vehicles in Herefordshire (18,100) compared to 2,000 HGVs (link).

Road transport by lorries (heavy goods vehicles, or HGVs) and vans (light goods vehicles, or LGVs) are the dominant modes for freight distribution.

Within the county there are aggregate rail freight facilities at Moreton-on-Lugg. Several distribution firms are based at Rotherwas, such as DPD, Parcelforce and APD.

Hereford Pedicargo carry out deliveries and waste collection by cycle in the city within 3km of High Town, including last mile deliveries and first mile collection services for national organisations.

**Existing journeys:** On average HGVs comprise more than 6% of motor traffic on the A49 Greyfriars Bridge and more than 4% of motor traffic on other parts of the A49 (Ross Road and Holmer Road) and A438 Newmarket Street. On most other main road corridors HGVs comprise between 1-3% of all motor traffic. As a similar comparator city, Salisbury's inner ring road carries between 3-4% HGVs. The agri-food industry dominates road freight – see **table below**.

Road freight by commodity transported in the Marches & Mid Wales area

Marches & Mid Wales Freight Strategy 2018

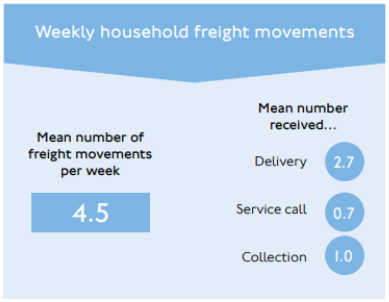
| | Inbound road freight | Outbound road freight |
|---|---|---|
| Total traffic (million tonnes) | 20.2 | 22.7 |
| Temperature controlled foodstuffs | 20% | 25% |
| Other Foodstuffs | 25% | 26% |
| Construction & Metals | 20% | 23% |
| Crude Materials & Manufactured Items | 27% | 23% |
| Petrol and Petroleum Products | 5% | 1% |
| Other Bulks | 2% | 2% |

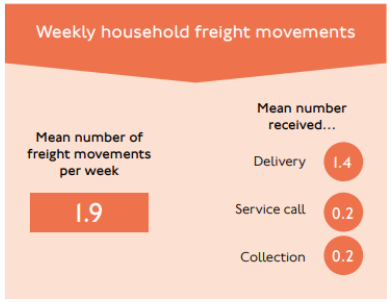
Source: MDS Transmodal GB Freight Model

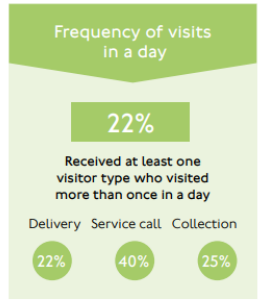
Nationally LGV traffic has risen by 97% over a 25 year period, compared to 13% for HGVs and 21% for cars and taxis (link). The rapid growth in van traffic is likely to be due to changes in the way consumers and businesses operate, including growth in internet shopping and associated home deliveries. It was estimated in 2018 that internet shopping deliveries accounted for 8% of all van mileage (link). The number of parcels shipped in the UK rose by 65% between 2012 and 2017 and the value of next-day deliveries rose from £3.1bn in 2012 to £5.5bn in 2016 (link).

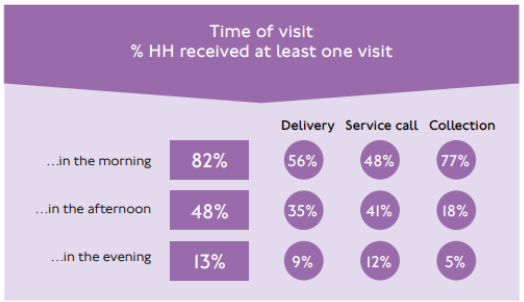
Research into home shopping trends in London found that most households received one or two types of freight movement (deliveries) per day (link) – **see infographic below**. The level of deliveries is assumed to have increased during the Covid-19 lockdown period.

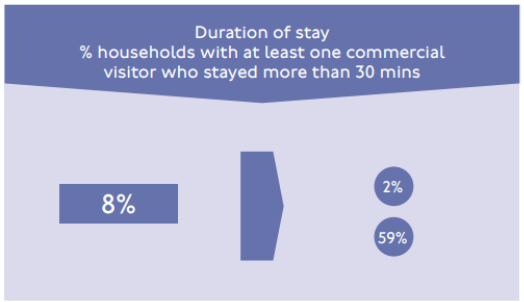
Research into freight movements to residential households




**Key issues**

- Unreliable journey times and delays to freight and deliveries due to congestion;
- Limited opportunities to convert long-distance freight to other modes;
- Current reliance on vans for home deliveries; and
- Emergence of drones as means of making certain urgent non-bulky deliveries (link).

# 3. Hereford's Transport Factfile

## Parking and loading

### Existing supply by mode

Vehicle parking: There are approximately 3,700 off-street public parking spaces in the city centre distributed across 27 sites. 15 of these car parks are controlled by the Council (more than 60% of the total spaces), and the other 12 car parks are privately owned. There are also over 400 on-street parking bays in the city centre, some of which are pay and display (link).

Many commercial premises across the city, including in the main employment areas, and out-of-centre retail sites have extensive free parking. There are estimated to be between 900-1,000 private non-residential parking spaces in the city centre area encircled by the inner ring road.

City centre on-street parking charges were introduced in 2017. Charges apply from 8am to 6pm, Monday to Saturday (including bank holidays) and do not apply on Sundays.

There are 24 residents' parking zones, mostly in or close to the city centre (link) and the Council's residents' parking policy was updated in 2017 (link).

Loading: Many businesses and organisations do not have off-street loading facilities and deliveries and collections take place instead in the street. Factors including the type and size of business and the role of home delivery influence the products which need to be transported, the vehicles used, the frequency and timing of vehicle movements, and so on.

The Council uses Traffic Regulation Orders to mark out dedicated loading bays or sections of road where loading is permitted, often between specified hours. Loading facilities (for Goods Vehicles only and all vehicles) are predominantly positioned around the core city centre in Broad Street, Commercial Road, Gaol Street, King Street, St Peter's Square, Union Street, West Street & Widemarsh Street. These bays serve these streets plus the pedestrianised zone, to ensure that this remains vehicle-free after 10:30 and before 16:30. The use of these bays is reserved for loading of heavy or bulky items that could not otherwise by carried by hand, in order to support businesses and their customers in the day-to-day commerce of the city centre.

Cycle parking: There are over 500 public cycle parking spaces at over 50 locations across the city. These range from on-street hoops (often known as Sheffield stands) to covered shelters at busier destinations. The Council has provided grants to local businesses of up to 250 employees and city schools to install cycle parking. 75 of the 79 schools in the county have some form of cycle rack. (link)

Park and choose: There are seven park and choose sites on the edge of Hereford, from where drivers can continue journeys on foot, by cycle or by bus. The seven sites have a total of 183 car spaces and 31 cycle lockers (link).

### Existing demand:

1.13m visits were made to Council off-street car parks in Hereford city centre (October 2018-September 2019), an increase of 1.7% on the previous year. This covers payments within coins or cards and pay by phone, but does not account for season ticket use, on-street parking, trips made to privately-owned car parks or private parking.

2016 surveys found that some car parks were close to or at capacity (the bus station, Bath Street, Gaol Street, Maylord Orchard, Union Walk, West Street, Wye Street and Venns Close/Symonds Street) whilst other locations had more than 50% available spaces, including Merton Meadow and Friars Street.

### Key issues

- City centre vehicle parking spaces are spread between a number of smaller car parks which can be difficult to access and find for visitors;
- High demand to park in certain city centre car parks or streets can result in drivers circulating in search of spaces. There is also high levels of demand for limited on-street parking spaces in some residential areas, such as terraced streets close to the city centre;
- The Council's parking tariffs seek to cater for different requirements but can be complex to understand;
- Some residential streets in areas without parking restrictions are subject to overspill commuter parking;
- Those who drive to work or shop at locations outside the city centre often have free parking, in contrast to the city centre arrangements; and
- The Council does not control the cost and availability of parking at the 12 privately owned car parks in the city centre;
- The use of digital signage (to help drivers find spaces) is now being superseded by smartphone apps;
- The availability of safe cycle parking is considered to be an important factor influencing levels of cycling;
- 71% of respondents to the Hereford Area Plan considered there was a need for more parking to be identified (link); and
- Plug-in cars and vans comprise less than 1% of all the county's vehicles (link). There are a limited number of existing public electric vehicle charging points, with 8 chargepoints across 6 city centre car parks in Hereford, plus a further 11 chargepoints at supermarkets, businesses and organisations elsewhere in the city. A significant increase in electric vehicle charging points will be required to cater for future demand, with the proposed 2035 ban on the production of petrol and diesel cars.

# 3. Hereford's Transport Factfile

## Key transport policies and strategies – local and regional

Selected key current local and regional strategy and policy documents are listed and summarised below:

Herefordshire strategies and policies

- Herefordshire Carbon Reduction Plan 2020-21 to 2025-26 was issued in April 2020;
- Herefordshire Local Plan Core Strategy 2011 – 2031 (2015) – Sets out the spatial planning strategy for Herefordshire, including transport policies;
- Herefordshire Local Transport Plan 2016 – 2031 (2016) – sets out strategy and policies for delivering all aspects of transport and travel in the county, taking account of the growth set out in the Core Strategy; and
- Herefordshire Sustainable Modes of Travel to School Strategy (SMOTS) (2018) – Outlines how proposals to promote and facilitate sustainable travel to and from schools.



Regional strategies and policies

- Midlands Connect Strategy (2017) – 25-year strategy for rail and road improvements;
- Driving a Revolution in Rail Services for West Midlanders – A 30-year Rail Investment Strategy (2018-2047) - Aims to improve regional rail connectivity;
- Highways England – The Midlands to Wales and Gloucestershire Route Strategy (2015) – Set out options for long-term investment in the Strategic Road Network;
- Investing in Strategic Transport Corridors in The Marches (2016) – The report sets out strategic transport priorities for investment in the strategic road and rail network in the Marches LEP area (covering the three authorities of Herefordshire, Shropshire and Telford & The Wrekin); and
- The Marches & Mid Wales Freight Strategy (2017) – Sets out the strategy to ensure the efficient movement of freight in the Marches and Mid Wales while minimising impacts on the environment and residents.

## Key transport policies and strategies – national

Selected key current national strategy and policy documents are set out below, in order of publication date:

- Transport Investment Strategy (2017) – Sets out how the DfT will respond to today's transport challenges.
- Connecting people: A strategic vision for rail (2017) – Explains the government strategy to improve reliability, expand the network, enhance passenger experience, modernise the rail workforce and make the sector more productive and innovative;
- Cycling and Walking Investment Strategy (2017) - Sets out DfT's aspirations to create a walking and cycling nation through short and long-term actions by 2040;
- Future of Mobility: Urban Strategy (2019) – Principles which will guide the approach to emerging mobility technologies and services in urban areas. A parallel document is expected on the future of mobility in rural areas;
- Inclusive Transport Strategy: achieving equal access for disabled people (2019) – Principles which will create a genuinely inclusive transport system that works for all;
- Gear Change – A bold vision for cycling and walking (2020) – Outlining the steps required to make England a great cycling and walking nation; and
- Road Investment Strategy 2 (2020) – Outlines a long-term vision for motorways and major roads and a five-year investment programme from 2020 to 2025;
- Transport Decarbonisation Plan – when published later in 2020, this will set out how the government intends to reduce transport emissions and reach net zero transport emissions by 2050. An initial publication entitled Decarbonising transport: setting the challenge published in March 2020. This set five strategic priorities – to accelerate the mode shift to public transport and active travel, decarbonise road vehicles, decarbonise goods transport, tailor solutions to places, make the UK a hub for green technology and innovation and driving global carbon reductions; and
- National Bus Strategy – government announced in February 2020 the intention to prepare a long-term vision for buses focused on passenger priorities and with a long-term funding commitment. The publication date is not yet known.

## Future trends and scenarios

### Future travel demand

Commentary

A government Commission on Travel Demand (link) notes that transport bodies are currently required to develop their plans based on the National Trip End Model which forecasts travel demand. Whilst this factors in projections on population, employment, housing, car ownership and trip rates it does not take account of government policies on themes such as public health or climate change. The commission recommends that a '*predict and provide*' approach is replaced with a '*decide* [the desired future scenario] *and provide*' approach. In addition it does not require authorities to test strategies against a range of potential scenarios.

Covid-19

The Coronavirus emergency substantially changed short-term travel demand and travel behaviour. A range of different future travel demand and behaviour scenarios are possible in the medium to long term, with key influences including:

- reduced levels of trip-making due to fewer commuting and shopping trips and increased working from home;
- Lower levels of public transport use;
- Higher levels of car use and / or higher levels of cycling and walking; and
- Redesigning city streets to enable longer-term social distancing.

### Future Trends

Current transport forecasts incorporate government predictions and assumptions and are largely based on past trends. However, transport and travel is influenced by economic, environment, social and technological changes. Whilst there is significant uncertainty, key expected mobility trends include:

Decarbonisation and alternative vehicle power sources: The DfT state that there is no plausible path to net zero without major transport emissions reductions, reductions that need to start being delivered soon. (link). The UK has a current 2035 date for the end of sales of internal combustion engine vehicles. Subject to consultation this may be brought forward to 2032 to help address national air quality and carbon challenges. The change in vehicle energy sources will have significant requirements for infrastructure changes to facilitate charging.

Travel modes: The mix and mode share of different forms of transport will continue to change. E-scooters and other types of micro-mobility are increasingly common but currently illegal to use on public highways and footways (link). Some parts of the UK are trialling their use and a government consultation on legalising them took place in May and June 2020 (link).

Data and information: Digital and internet connectivity is considered by many to an essential backbone to allow many other innovations to be fully developed. Removing the need for travel, with remote working and the digital delivery of services, is a central element to future mobility;

Vehicle Automation and Technology: There is uncertainty over timescales and regulatory arrangements for autonomous (driverless) vehicles and their levels of autonomy. In-vehicle technology could have benefits in terms of safety and driver information;

Sharing: Many people are increasingly happy to share assets and services if it is convenient and the price is right. Shared access to mobility solutions in the form of bike hire (such as Beryl Bikes in Hereford), car hire, taxi or pooled transit and bus offer people alternatives to 'owning' a car, particularly in urban areas where services are accessible most of the time;

Future motor vehicle journeys: The Hereford Transport Model core scenario forecasts that the number of vehicle trips made in Herefordshire in the morning and evening peak periods are forecast to increase by up to 10% between 2016-2026. Motor vehicle travel time is forecast to increase by up to 14% due to a combination of congestion and longer distances travelled. Time spent in transient queues (such as waiting for traffic lights to change) is forecast to increase by up to 15% at peak times and queues at overcapacity junctions are forecast to increase by up to 88% at peak times.

Future rail journeys: Demand on the Marches Line is anticipated to grow by 34% between 2016-2023 and by 141% by 2043 (link).

Future cycle journeys: Based on trip distance and topography up to 40% of travel to work and more than 40% of travel to school journeys in Hereford have the potential to be cycled (link). This is subject to suitable infrastructure being in place. There is even greater potential if e-bikes are considered.

Future freight movement: Coordinated freight distribution using zero emission modes for first and last mile delivery is increasing in many cities across the UK.

Given the pace of change, an agile approach is key to navigating an uncertain landscape. To ensure that Herefordshire is best placed to benefit from the emerging future mobility landscape, a flexible approach is suggested which:

- Thinks about needs;
- Takes a people-centric approach, together with an activity- and place-led thinking about mobility;
- Actively anticipates change;
- Considers new business models / revenues; and
- Agglomerates mobility and utility

Future Mobility is a central element to the UK Government Industrial Strategy. To guide this the DfT released a Future of Mobility: Urban Strategy in 2019, and are due to release a Future of Mobility: Rural Strategy later in 2020.

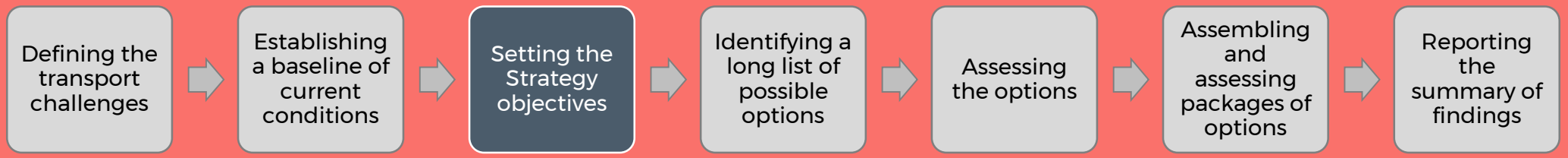
# 3. Chapter summary



Chapter 3 summarised travel patterns in the city, based on available data, and described the city's current transport system and its key issues. It covered every major transport mode plus other aspects relevant to the baseline transport position in Hereford. The issues described in this chapter contribute to or exacerbate the key challenges referenced in Chapter 2.

Key elements from the chapter are summarised below:

- **Travel patterns** – The majority of journeys are short distance. Nationally 25% of trips are less than a mile; in Hereford nearly 40% of employed residents commute less than 2 kilometres. More shopping and leisure trips take place than commuting trips;
- **Travel flows –** 40% of motor vehicle trips in Hereford have both their start and end point in the city. More than 40,000 daily car trips start and end in the same quadrant of the city and are likely to be no longer than 2 miles. 52% of motor vehicle trips travel into or out of the city. The remaining 7% of trips start and end outside the city and pass through. Congestion and delays leads some drivers to use alternative routes avoiding the city;
- **Motor vehicle journeys** – Key interconnected issues in terms of large numbers of short-distance car trips, limited route options (especially river crossings), queuing and delays, longer journey times, and drivers re-routing via less suitable residential roads and rural routes. The highway network is not resilient to disruption, there is limited space to share between transport modes and a key corridor in the city, the A49, is controlled by a government company rather than Herefordshire Council;
- **Walking** is the travel mode with the second largest mode share for journeys by city residents. Key issues include major physical barriers and severance to pedestrian movements (caused by the River Wye, the railway line and the major roads) and below average satisfaction with walking infrastructure;
- **Cycling journeys –** There are key issues in terms of a fragmented cycle network, safety concerns deterring cycling and a large number of junctions where people cycling come into potential conflict with heavy traffic;
- **Bus, coach and rail journeys** – Bus passenger numbers and service frequencies have declined in recent years. Bus services do not have a competitive advantage over car journey times. Rail accounts for around 1% of all travel by city residents. There is poor rail-bus integration, gaps in the timetables and three of the county's five market towns do not have a rail station, limiting its contribution for local trips;
- **Digital connectivity and services –** A smaller proportion of Herefordshire residents have access to superfast broadband than the UK average and poorer mobile coverage in rural areas;
- **Travel information and promotion** – Many people have limited knowledge of alternative travel options;
- **Freight and delivery journeys** – Light goods vehicle (van) traffic has risen by 97% over a 25 year period, compared to 13% growth for HGVs and 21% for cars and taxis. Deliveries have unreliable journey times and delays due to congestion, there is a reliance on vans for home deliveries and there are limited opportunities to convert long-distance freight to other modes;
- **Parking and loading** – there are a mix of on and off-street parking spaces in and around the city centre provided by Herefordshire Council and private companies. Key issues include some car parks operating at or close to capacity and high demand for parking in some residential areas, including from commuters; and
- **Future trends and scenarios** – Current government modelling of future travel demand does not factor in government policies or legislation relating to health objectives or carbon reduction targets. Future trends are expected to include greater sharing of transport vehicles (such as Beryl Bikes), greater automation and decarbonisation of vehicles.




# Chapter 4
# Setting the Strategy Objectives

*The next step in the strategy review was to define objectives. The purpose of this was to enable each potential transport intervention to be assessed on how well they are likely to achieve the objectives. The objectives were developed to respond to the key challenges, policy context and public consultation (summarised in Chapter 2) and the review of travel patterns and transport issues (covered in Chapter 3).*

*This chapter presents the objectives covering the four themes of climate emergency, economy, environment and society. It also sets out the 16 more detailed outcomes and indicators against which the options were judged.*

*The objectives and outcomes were used to help generate a list of options (described in Chapter 5). As noted above, the objectives, outcomes and indicators described in this chapter form the basis for assessing the options (set out in Chapter 6). They are also central to considering how options can best be packaged together to better achieve the desired objectives and outcomes for the city (Chapter 7).*

# 4. Objectives and outcomes



The next stage in the study was to develop  a series of objectives and outcomes which were specific to the Hereford Transport Strategy Review, and against which any potential options could be judged. In accordance with Department for Transport guidance, these objectives and outcomes were informed by the review of key challenges, policy context and public consultation (**Chapter 2**) and the consideration of travel patterns and transport issues in the city (**Chapter 3**). They were also informed by inputs from the Stakeholder Reference Panel and Members.

It was decided to adopt an assessment framework based around four objective themes**,** namely:

- **Climate Emergency**: Reducing carbon emissions from the transport sector to meet the 2030 target of zero emissions;
- **Economy**: Creating a resilient transport system which allows reliable and efficient movement of people and goods and which supports sustainable development and a thriving local economy;
- **Environment**: Reducing air pollutants to create attractive and high quality places to live, work and visit whilst also protecting, conserving and enhancing the natural environment and Herefordshire's built environment; and
- **Society**: Providing an affordable, safe and secure transport system for all sectors of society which facilitates improved public health and has limited adverse impacts on communities.

Recognising the different aspects covered in the identification of the key challenges and issues as described above, each of the four objective areas was then split into four **desired outcomes**. That is, the assessment of possible transport interventions in Hereford would be centred upon how well they met these 16 outcomes. The outcomes are shown on the next page.

The next stage was to develop a series of **indicators** against which the desired outcomes would be measured. Some of the outcomes had more than one indicator, reflecting the complex nature of the impacts being assessed.. In total there were 35 indicators, some quantitative and some qualitative. The indicators are shown on the following pages.

# 4. Objectives and outcomes

| | |
|---|---|
| **Climate Emergency** | **O1:** The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target<br>**O2:** The need to travel by private motor vehicle is reduced and travel distance is reduced<br>**O3:** The amount of resources and energy used in the transport system is minimised<br>**O4:** The transport system is flexible and adaptable to climate change and future needs |
| **Economy** | **O5:** Reliable and efficient movement of people and goods and provision of services<br>**O6:** The transport system facilitates sustainable development<br>**O7:** Transport supports a thriving local economy<br>**O8:** A more resilient transport system |
| **Environment** | **O9:** A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live<br>**O10:** A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain<br>**O11:** A transport system that protects, conserves and enhances Herefordshire's character and built environment<br>**O12:** The transport system contributes to creating attractive and high quality places to live, work and visit |
| **Society** | **O13:** The transport system facilitates improved public health through more active lifestyles<br>**O14:** All sectors of society have easy and affordable access to the services and facilities they need<br>**O15:** The transport network is safe and secure for everyone to use confidently<br>**O16:** The adverse impacts of transport on communities are reduced, including severance and noise |

# 4. Objectives and outcomes

| | Outcomes | Indicators |
|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | 1.1 What impact does the option have on carbon emissions? |
| | O2: The need to travel is reduced and travel distance is reduced | 2.1 What impact does the option have on reducing the level of motorised traffic? |
| | | 2.2 What impact does the option have on reducing the need to travel by car for short journeys? |
| | O3: The amount of resources and energy used in the transport system is minimised | 3.1 What impact does this option have on fuel use? |
| | O4: The transport system is flexible and adaptable to climate change and future needs | 4.1 What impact does the option have on helping movement in response to climate change impacts such as flooding? |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | 5.1 What impact does the option have on delay and congestion across the city as a whole? |
| | | 5.2 What impact does the option have on journey times and journey time reliability for motor vehicles along key corridors? |
| | | 5.3 What impact does the option have on bus patronage and bus reliability? |
| | O6: The transport system facilitates sustainable development | 6.1 What impact does the option have on travel to the Sustainable Urban Extensions (SUEs), Enterprise Zone and other new development in Hereford? |
| | O7: Transport supports a thriving local economy | 7.1 What impact does the option have on congestion levels in the City Centre (cordon around City Centre)? |
| | | 7.2 What impact does the option have on improving access to employment sites, training opportunities and education (university), some of which are located outside Hereford. |
| | O8: A more resilient transport system | 8.1 What impact does the option have on making the network less susceptible to the impacts of incidents, maintenance and roadworks? |
| | | 8.2 What impact does the option have on increasing modal choice? |

# 4. Objectives and outcomes

| | Outcomes | Indicators |
|---|---|---|
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live | 9.1 What impact does the option have on traffic flows on roads in the Air Quality Management Area (AQMA)? (AQMA includes the A49 and parts of the A438) |
| | | 9.2 What impact does the option have on modal shift to less polluting modes across the city? |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | 10.1 What impact does the option have on water quality? |
| | | 10.2 What impact does the option have on protected priority habitats and species? |
| | | 10.3 What impact does the option have on designated sites? |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | 11.1 What impact does the option have on the landscape and visual surroundings? |
| | | 11.2 What impact does the option have on cultural heritage, including designated sites? |
| | | 11.3 What impact does the option have on the streetscape? |
| | O12: The transport system contributed to creating attractive and high quality places to live, work and visit | 12.1 What impact does the option have on making residential areas more pleasant to live? |
| | | 12.2 What impact does the option have on improving accessibility to the City Centre via sustainable transport? |
| | | 12.3 What impact does the option have on encouraging footfall in the City Centre? |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | 13.1 What impact does the option have on making people more active by increasing levels of cycling and walking? |
| | | 13.2 What impact does the option have on making people more active by using public transport? |
| | | 13.3 What impact does the option have on childhood obesity? |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | 14.1 What impact does the option have on meeting the accessibility needs of all sectors of society, including those with protected characteristics or those without access to a car? |
| | | 14.2 What impact does the option have on improving accessibility to services and facilities for rural residents? |
| | | 14.3 What impact does the option have on improving integration between transport modes? |
| | O15: The transport network is safe and secure for everyone to use confidently | 15.1 What impact is the option likely to have on accidents/collisions by all modes? |
| | | 15.2 What impact does the option have on making people feel more confident and safe to use the bus? |
| | | 15.3 What impact does the option have on making people feel more confident and safe to cycle and walk? |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | 16.1 What impact does the option have on severance on key cross city corridors e.g. A49, A438 and A465? |
| | | 16.2 What impact does the option have on Noise Important Areas (NIAs)? |


# Chapter 5
# Identifying a long list of possible options

*The next step in the transport strategy review was to consider a range of potential alternatives which could contribute to achieving the objectives described in Chapter 4.*

*This chapter presents the long list of options which were developed. The chapter has a page for each option, setting out the current situation, what the option would comprise, a case study and key issues which would need to be considered if the option were taken forward.*

*The long list of options were then assessed to identify better performing interventions (see chapter 6).*

# 5. Introduction



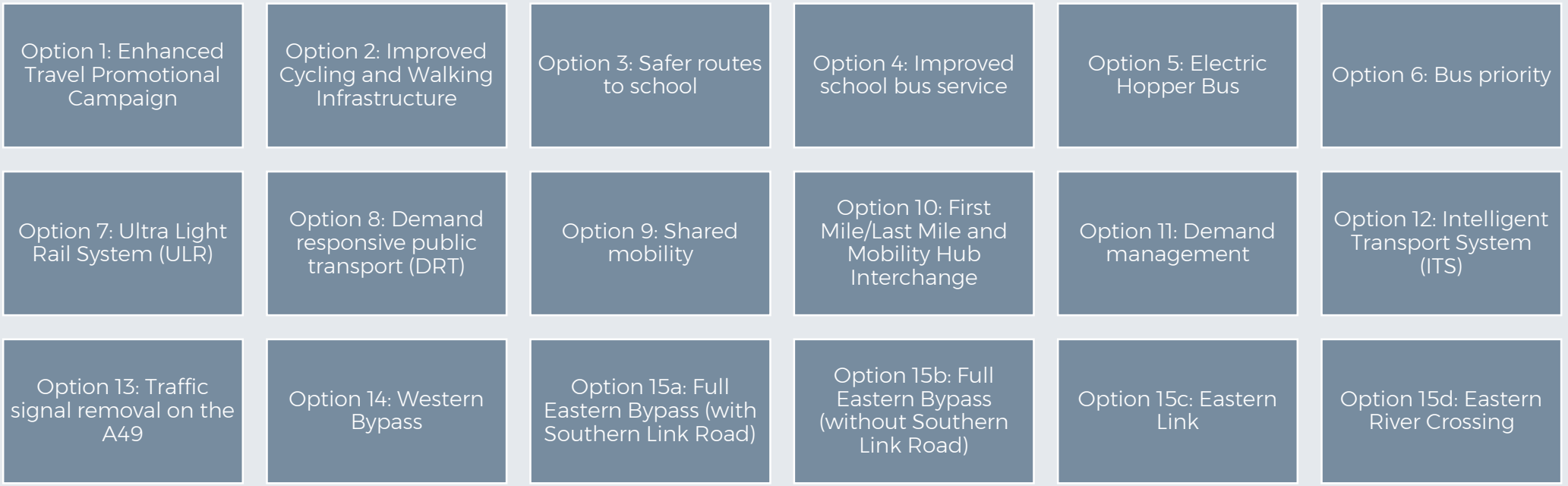
A long list of options was developed to support and mitigate the current and future challenges and contribute to meeting the objectives and outcomes. The options include but are not limited to the measures considered in previous Hereford studies and those which form the current transport packages in the City. The options have also been developed in the context of the declared Climate Emergency, and are based on inputs from the Stakeholder Reference Panel and Members.

As indicated earlier, the focus of the study is on Hereford City. However, residents living in the rural parts of Herefordshire wishing to access the City will benefit from some of the options considered.

The long list of options fall under the following themes and are included in the figure below:

- Changing travel behaviour
- Increasing levels of sustainable travel
- Encouraging the use of sustainable travel
- Future mobility
- Managing traffic in the city
- Provision of new road schemes





# Option 1: Enhanced Travel Promotion Campaigns

## Introduction

Promotional campaigns are used to provide travel information and encourage behavioural change. Examples of promotional campaigns include:

- **Marketing**: Raising the profile of current travel options or awareness of impacts;
- **Travel Planning**: Travel Plans aim to raise awareness of sustainable travel options
- **Financial incentives**: Encouraging behaviour change through reduced costs/free trials
- **Supporting infrastructure and service provision**: Infrastructure that encourages changes in behaviour such as car clubs, ride sharing/hailing clubs

## The current position

Herefordshire Council currently support a number of behavioural change programmes. Key elements are described below:

- The Council were awarded £4.97 million from the LSTF for the **Destination Hereford** Project (2011-2015). The aim of the project was to reduce congestion and help improve journey choices, with a particular focus on cycling, walking and public transport (active travel modes). The project was largely based on travel awareness campaigns focused on local businesses and schools. Surveys and monitoring indicated that car trips were reduced and active travel and public transport usage increased;
- **Choose How you Move** is the over-arching brand used by Herefordshire Council for all active travel schemes. Developed for the LSTF programme, it has over 40% brand awareness and provides a solid platform for the delivery of money secured from central government. It promotes increased cycling, walking, bus travel and car sharing to reduce traffic congestion and improve quality of life.

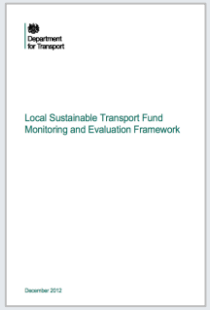
  Elements of the brand include:

  - Communications campaigns to sell the benefits of active travel, generate awareness of travel options and motivate actions; and
  - Supported trials: A range of offers to help people get started, including (a) free one-to-one cycle lessons; (b) led rides and walks to encourage the take-up of cycling and walking for all; (c) the Walking for Health scheme offers groups walks around the city; and (d) using the Beryl Bike share scheme as an easy and convenient way to try cycling around Hereford.



## UK Case Study: Local Sustainable Transport Fund (LSTF)

In 2011 the Department for Transport awarded LSTF monies to 77 local authorities, including Herefordshire Council. This funded sustainable transport infrastructure and complementary initiatives. The core objectives were to support the local economy and to reduce carbon emissions. In addition, the LSTF aimed to deliver wider social and economic benefits, improve safety, improve air quality and increase physical activity. The programme was successful in achieving its objectives. LSTF projects reduced car use, and increased bus use, cycling and walking. The DfT continued to support these types of transport investment with further funding in 2017. The fund was part of a £65 million investment programme to encourage cycling and walking to work and education.


Department for Transport

Local Sustainable Transport Fund
Monitoring and Evaluation Framework

December 2012

*"With the Climate Emergency and the obesity epidemic we must adjust our behaviour away from dependency on our cars."* (Response to 2020 Public Engagement)

## What does the option propose?

The option comprises a reinvigorated travel brand and marketing campaign. Existing initiatives would continue and ambitious new ones would commence as follows:

- Face-to-face personal travel planning campaign with residents to highlight available travel options and promotions;
- Provide advice and support for local businesses to promote and influence sustainable travel choices for their workforce and provide grant funding towards infrastructure;
- Expand current grant funding to local businesses for video conferencing equipment and cargo bikes;
- Ticketing on public transport using apps or smartcards;
- Real time information for public transport supported by an interactive app;
- Discounts (loyalty card) for using active travel or off peak travel (supported by an interactive app) and financial incentives for car sharing and use of Park and Choose;
- Installation of wayfinding and signage on key routes into the city, at Park and Choose sites and new developments and along cycling and walking routes; and
- Road safety campaigns.

**Estimated costs**

Capital: £0.25m, Revenue: £2m pa

The opportunity for Hereford:

- An enhanced range of non-infrastructure measures could change travel behaviour, particularly if targeted at supporting individuals who are moving house, changing job or other life events where people may need to reconsider established travel patterns

Issues to be considered if the option is taken forward include:

- Requirement for ongoing revenue funding
- Overcoming institutionalised resistance to change
- Public receptiveness to campaigns
- Lack of public knowledge of the range of advice, support and information available
- Understanding trust barriers which need to be overcome to enable behaviour change

# Option 2: Improved Cycling and Walking Infrastructure

## Introduction

Cycling and walking are convenient, accessible and affordable travel modes ideally suited for making short everyday journeys. Walking and cycling are also the most common examples of active travel. There is strong evidence that comprehensive investment in quality infrastructure can generate increased levels of cycling and walking and encourage people to change their mode of travel.

## The current position

Herefordshire Council is developing a capital investment programme entitled **Herefordshire Active Travel Measures.** This aims to bring together the active travel components of the Council's existing transport projects and packages to form a comprehensive countywide network of active travel routes. This would cover Hereford city, the market towns and key long-distance rural links between them.

It will include active travel elements from: (1) the Hereford City Centre Transport Package; (2) the 11 active travel corridors north of the river set out in Hereford Transport Package (HTP) consultations; (3) the South Wye Transport Package; (4) Hereford Enterprise Zone active travel measures, funded by the Local Enterprise Partnership; (5) Hereford City Centre Improvements; (6) Improvements identified in the Local Cycling and Walking Infrastructure Plan (LCWIP); (7) Schemes identified in the Herefordshire Sustainable Modes of Transport to School Strategy; (8) schemes submitted for funding by Highways England (Designated Funds); and (9) active travel measures identified in Market Towns studies (at differing stages for Bromyard, Ledbury, Leominster and Ross-on-Wye).

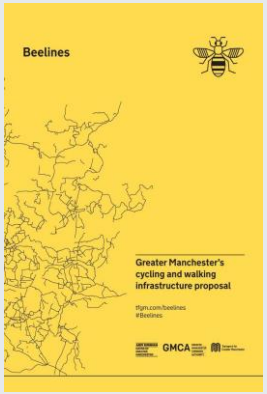


## UK Case Study: Greater Manchester

The Bee Network is Greater Manchester's visionary programme to become the UK's first city-region to have a fully joined up and integrated cycling and walking network.

The elected mayor's £160 million Cycling and Walking Challenge Fund runs from 2018 to 2022 and will implement the project across the ten Greater Manchester councils. It will construct 75 miles of fully segregated cycle tracks parallel to the main roads, plus a network of quieter roads will be connected together with 1,400 new crossing points on busier roads. The second element of neighbourhood design is the provision of filter points on roads, which allow for movement of people cycling or walking but do not allow through motor traffic.

This approach will open up communities and neighbourhoods across Greater Manchester, making them more accessible and pleasant to live, work and play. The delivery of Bee Network will connect every community in Greater Manchester and make it easier to travel on foot or by bike. The vision is not to be anti-car but about giving people an attractive alternative, especially for short journeys.




*"We need better crossing points for pedestrians and cyclists at key points where they feel safe to do so and better cycling infrastructure on the A49 itself so cyclists share the road safely with cars."* (Response to 2020 Public Engagement)

## What does the option propose?

The option comprises of the following elements:

- Implementing all the Herefordshire Active Travel Measures schemes identified for Hereford, along with additional cycling and walking infrastructure to create a dense network of safe routes. The aim should be for residents and visitors to have access to strategic cycling and walking routes approximately every 400 metres across the city. Redesigning junctions and crossings to prioritise safer cycling and walking movements, such as by amending geometry or introducing zebra or signal crossings, for example. In London these measures are promoted under the Healthy Streets banner;
- Introducing 20mph speed limits on most city roads and streets, including all residential roads and on approaches to schools, to make cycling and walking safer and more attractive;
- Implementing measures to prevent through traffic passing through residential areas but retaining vehicle access to properties (known as low-traffic neighbourhoods). This usually includes features such as bollards and planters to prevent through traffic, or introducing one-way streets, bus-only sections or time-limited restrictions. These measures are intended to create safer, healthier, attractive neighbourhoods where people are able to cycle, walk or access public transport more easily.

**Estimated costs:**
Capital: £45m, Revenue: £0.225m pa

The opportunity for Hereford:

- Hereford is a relatively compact city, and many trips can be made by cycle or on foot within a 10 to 20 minute journey time.

Issues to be considered if the option is taken forward include:

- Limited data on walking and cycling journeys
- Severance caused by A49 running north/south through the centre of Hereford, the river and railway
- At present there is a below average satisfaction with the condition of pavements, cleanliness of routes, signposting on routes and safe crossing points in Hereford
- The cycling and walking network is not evenly distributed across the city with significant gaps and fragmentation
- On some corridors accommodating high-quality infrastructure requires conversion of traffic lanes or parking spaces for cycling and walking infrastructure

# Option 3: Safer routes to school

## Introduction

Safer routes to schools projects aim to enable more children to cycle or walk to school. The projects tend to have a range of benefits including improving pupil and parent safety, improving health and wellbeing, reducing congestion during peak times, improving air quality and reducing carbon dioxide emissions. Safer travel to school can be facilitated through the delivery of:

- Infrastructure schemes to improve cycling and walking routes. Recent innovation in other cities has included *school streets*, which are timed traffic restrictions outside schools at the start and end of the school day to reduce road danger;
- Road safety education programmes, Bikeability (the national cycling training programme) and school crossing patrols;
- Car sharing to reduce school gate traffic;
- Traffic management, parking controls and enforcement in the vicinity of the school; and
- Promotional events including Bike to School Week and curriculum resources.

Many elements involve partnership working with a range of organisations and can be set out in school travel plans with agreed improvement programmes.

## The current position

Infrastructure improvements to create safer routes to school are identified in Herefordshire Sustainable Modes of Transport to School Strategy (SMOTS) and the **Local Cycling and Walking Infrastructure Plan (LCWIP).** These measures include the delivery of shared use paths, traffic calming measures, improved crossings measures, 20mph speed limits, cycle improvements, signal retiming, signage in Hereford City Centre, on road cycle paths, tactile paving and dropped kerbs.

## UK Case Study: Solihull

In 2017 Solihull Council trialled 'School Streets' projects at three local schools (Haslucks Green Junior School, Marston Green Infant Academy and Oak Cottage Primary School) with the aim of creating a "safer, more pleasant environment for everyone."
The pilot project created a 'car free zone' on specific roads surrounding the schools during pick up and drop off times (Monday-Friday). It also saw the introduction of 20mph zones at all times of the day.

Overall the pilot scheme has made positive changes to travel behaviour and traffic management associated with the school run and was permanently implemented in September 2018. There are currently discussions about extending the 'School Streets' project to two further schools (St Andrew's Primary School and Widney Junior School) in Solihull in 2020.


*"Increasingly forward thinking cities are planning for the future and replacing infrastructure which favours the car with infrastructure which makes residential areas pleasant to live in, without the fear of cars endangering children going to school"* (Response to 2020 Public Engagement)

## What does the option propose?

The option comprises of the following elements:

- Constructing additional cycling and walking infrastructure schemes focussed on accessing schools;
- Implementing 'School Streets' in a phased approach on roads outside schools. This would introduce restrictions on traffic at school drop-off and pick-up times, creating a 'car free' zone. This would initially begin with pilot trials at a selected number schools of schools in Hereford, such as those experiencing particular road safety issues.
- To make existing educational and programmes more visible and encourage pupils to enrol. Existing programmes include Bikeability (cycle training), road safety education, school crossing patrols, bike and scooter training, bike clubs, walking initiatives, class talks and integrating active travel within the school curriculum.
- To introduce park and walk plans for pupils and parents
- To introduce walking buses/cycling buses for pupils
- To set up afterschool clubs to reduce the level of school traffic during the afternoon pick up

**Estimated costs**
Capital: £5 m, Revenue: £0.025 pa

The opportunity for Hereford:

- Most children in Hereford live within cycling or walking distance of their schools. Improving their routes to and from school can encourage more to travel by these active modes.

Issues to be considered if the option is taken forward include:

- Changing habitual use of cars for short distance journeys
- Revenue funded activities are currently funded from the Access Fund (finishing soon)
- Parental choice of school means some journeys are too far to access by walking or cycling alone and need to be support by other modes
- Perceived safety issues and 'image' of active travel to school
- Link between parent and pupil travel - creating difficulties in changing pupil behaviour to active modes

# Option 4: Improved school bus service

## Introduction

The Council's Sustainable Modes of Travel to School Strategy (SMOTS) contains a wide range of proposed actions to promote and facilitate sustainable travel to and from schools. The SMOTS vision is:

*"To have a fully integrated transport system where every pupil within Herefordshire, where appropriate, has the option to travel to and from school through active travel choices, improving health, safety and reducing reliance on short distance car journeys."*

## The current position

The Council's Home to School Transport Policy outlines how transport to local authority schools is provided in line with statutory entitlement and in accordance with certain discretionary provisions. In broad terms provision is based on the following criteria:

- Living in Herefordshire;
- Being of compulsory school age (i.e. 5 to 16 years), and extended in Herefordshire to include 4 year olds;
- Attending their nearest suitable school; and
- Living over 2 miles from school if below the age of 8, and over 3 miles from school if aged between 8 and 16

There are additional provisions for families on low incomes, children with disabilities or medical problems and where the walking route is classed as hazardous. Transport assistance is usually either in the form of a bus pass to use a local bus service or travel on a dedicated contract bus, coach or minibus. Where spare seats are available on vehicles contracted by the local authority to provide transport to school, these may be allocated to children not entitled to free transport for an annual contribution of £828.

There is no automatic free home to school transport for students over 16, but assistance is focused on those who need it most.

On the majority of routes, a bus or rail travel permit allows travel at any time during the day before 6pm Monday to Friday, term-time only.

Several bus services, both commercially-operated or subsidised by the Council, are routed to serve schools and colleges.

## UK Case Study: Yorkshire

In 2002 two yellow school buses were piloted in West Yorkshire. The buses travelled between Hebden Bridge and Heptonstall to six rural primary schools, with the aim of reducing traffic congestion caused by school car journeys.

The pilot scheme was positively received by both pupils and their parents and the buses were adopted to run permanently. To date the scheme has resulted in 68 children using the bus per day of which 50-60% previously travelled to school by car. Further to this, there was between 15-60% reduction in school gate congestion.


*"Promote the use of buses to travel to and from school by having a bus stop outside the school"* (Response to 2020 Public Engagement)

## What does the option propose?

The option would require the Council implementing the following elements:

- Revising the Home to School Transport Policy to:
  - Extend discretionary entitlement to additional children. This could for example entitle secondary school children who live more than 2 miles from school to free bus services, rather than 3 miles at present;
  - Reducing the cost of parental contributions for those who do not qualify for free school transport.
- Operating additional vehicles to serve identified geographical areas with discretionary entitlement;
- Introducing a Youth Concessionary Bus Pass scheme available to certain age groups. This could take the form of a flat fare, fares at discounted rate or as a season tickets.

**Estimated costs**

Capital: £0, Revenue: £1m pa

The opportunity for Hereford:

- A range of factors lead to many parents driving their children to school. An improved school bus service would provide a suitable and safe alternative in Hereford.

Issues to be considered if the option is taken forward include:

- Changes to home to school transport policy would most likely need to be applied countywide
- Ongoing subsidy which would need to be met by Herefordshire Council, depending on the scope of the discretionary entitlement
- Dispersed home locations of students and large school catchments
- Operation and management of the service
- Potential mode switch from cycling or walking to bus use
- Many students live within cycling or walking distance of school and bus transport to school may not be appropriate

# Option 5: Electric Hopper Bus



## Introduction

This option would comprise an electric bus vehicle fleet operating at higher frequencies on routes across the city. The objective of increased bus frequency would be to make the travel mode more convenient, accessible and encourage modal shift. Electric buses have zero carbon emissions, have a higher acceleration compared to petroleum buses and are quieter in operation.

## The current position

Most city routes are run by Yeomans Canyon Travel without Council subsidy and operate half hourly or hourly using diesel vehicles. Service 74 (Newton Farm – City Centre) operates more frequently, with 4-5 services per hour. The county's core network, from Leominster, Ledbury, Kington and Ross-on-Wye to Hereford, operates broadly hourly Monday to Saturday, whilst other routes are less frequent. There are almost no Sunday services.

## UK Case Study: York

York boasts one of the biggest fleets of double decker electric buses outside of London. In October 2019, 21 electric buses were introduced in York. The fully electric, zero emission buses each have the capacity to carry 99 passengers and can travel 150 miles from one overnight charge.

This further supports the existing electric bus provision in the city. Over the last five years, 12 electric single decker buses have been operating at two Park and Ride sites in York helping to improve air quality and reduce congestion in the city.

Together this has resulted in about a third of bus journeys in the city being carried out on low emission vehicles.




*"Better, cheaper electric bus service including to surrounding rural area which might benefit from an Uber style model"* (Response to 2020 Public Engagement)

## What does the option propose?

Due to the fact that most of city bus services are commercially operated and the Council does not currently have direct control or influence over these, the two main elements of the option have been considered separately:

1. It is considered that the most appropriate and effective way to obtain a fleet of electric buses in Hereford is for the Council to offer grants to the existing operator. This should be supported by effective working relationships, framed within an Advanced Quality Partnership Scheme (AQPS), and entering into a legal agreement with appropriate public transport provider (s) for them to use the vehicles to operate the city services. Operating the existing timetables would suggest a peak vehicle requirement of 19 vehicles.

2. Introducing bus franchising, covering a specified area, where the Council has the power to decide what bus services run where and when. The Bus Services Act 2017 outlines that the Council would need authorisation from central government to introduce this. A 15-min frequency has been modelled for existing city routes plus extensions to serve the urban extensions. This would give a total peak vehicle requirement of 37 electric buses for city services.

The higher-frequency hopper bus network would cover the majority of the city. The services would serve the sustainable urban extensions and Park and Choose locations, which would support journeys into Hereford from the surrounding hinterlands.

The option would offer higher-quality, higher frequency services to a range of destinations, including employment, shops and education. The new bus fleet could also include features including free passenger wifi, mobile phone USB charging points, a second on-board wheelchair space, audible and digital displays announcing bus stops.

**Estimated costs**

Capital: £8.5 m, Revenue: £2.5m pa

The opportunity for Hereford:

- Delivering an electric hopper bus service in Hereford would support the national goal to reach zero emission transport by 2050 and the county's net zero target of 2030.

Issues to be considered if the option is taken forward include:

- Vehicle purchase and depot upgrade investment costs
- Ongoing subsidy costs of providing an enhanced service
- Electric vehicle range affected by weather and topography
- Commercial/regulatory/operational challenges
- Ensuring sufficient local electricity grid capacity and rapidly changing technology

# Option 6: Bus priority

## Introduction

Bus priority refers to measures to release buses from congestion and improve their reliability and reduce journey times. The objective is to make buses a more attractive travel choice.

Herefordshire Council's Future Bus Services Report identifies a number of bus priority options including the provision of bus lanes and improvements at key junctions. Bus priority can also be delivered through preferential bus treatment by the SCOOT system which manages the traffic signals in the city.

Bus priority operates most successfully where it is part of a coherent city-wide transport strategy, and when the cost of bus use is comparable to or less than equivalent driving costs, including car parking. Bus priority tends to be most successful when associated with the following factors:

- High bus frequencies, levels of bus use and the potential for a significant increase in bus use;
- Sufficient roadspace to introduce bus priority without significantly increasing delay to other road users;
- Bus operators willing to invest in service quality and frequency improvements;
- High-quality bus stop infrastructure, incorporating real time information screens;
- Park and choose sites to interchange onto bus services, including for journeys from rural areas; and
- Good quality cycling and walking connections to bus stops from adjacent areas, including off-road routes.



## The current position

At present there is no dedicated infrastructure to prioritise bus services within Hereford. The Core Strategy refers to bus priority being introduced in association with the three sustainable urban extensions at Holmer West, Three Elms and Lower Bullingham.

## UK Case Study: Leeds

A bus priority lane has been introduced on the A647 Stanningley Road and Stanningley Bypass which forms the principal radial route to the west of Leeds City Centre. The scheme covers a total of 1.5km of 2km dual carriageway. It operates in the morning (07:00-10:00) and evening (16:00-19:00) peak periods on Monday to Friday.

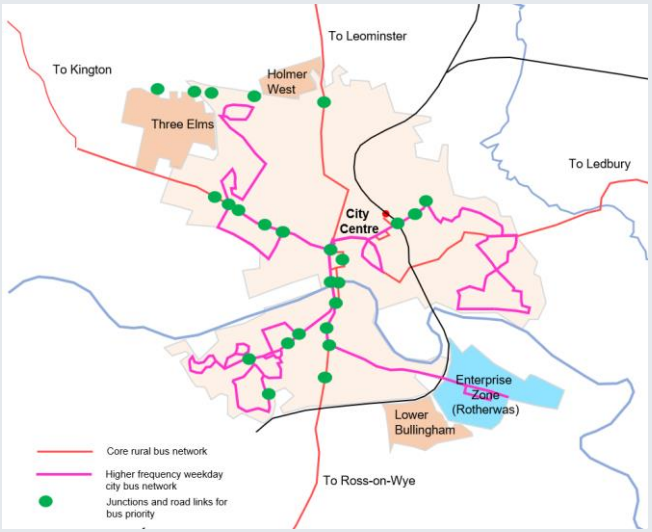
The lane has led to an increase in efficiency; the congestion in peak periods has fallen by 20% and collisions have reduced by 30%.

"Bus priority needs introducing from all aspects so that local and interurban services can bypass the queues at peak hour" (Response to 2020 Public Engagement)

## What does the option propose?

This option would comprise a number of bus priority interventions (**see diagram below**) across the network:

- Creating bus lanes, such as by converting traffic lanes or through the prohibition of on-street parking, with the lanes operating between specified hours only, such as times of peak congestion;
- Signalising junctions to enable more efficient traffic flow, including prioritising bus movements at junctions; and
- Creating bus-only road sections (sometimes known as bus gates).




The bus lanes would operate when congestion most affects bus movements. Traffic Regulation Orders (the legal orders to restrict the categories of vehicle who may use the bus priority) and automatic number plate recognition cameras for enforcement would support the infrastructure. The option would also support active travel by allowing cyclists to use the priority lanes and ensuring that the bus priority signals facilitates easier crossings for cyclists and pedestrians.

**Estimated costs**

Capital: £10 m, Revenue: £0.05m pa

The opportunity for Hereford:

- Introducing bus priority measures in Hereford could provide faster and more reliable journeys for passengers, particularly on routes with significant traffic congestion.

Issues to be considered if the option is taken forward include:

- Stakeholder approval (including Highways England for measures on the A49 trunk road)
- Requires conversion of space currently used as traffic lanes, with impact on other traffic
- Establishing a voluntary partnership with local bus operators
- Assuming existing bus frequencies, certain elements of bus priority would be used by a relatively small number of services per hour

# Option 7: Ultra light rail system

## Introduction

Ultra light rail (ULR) is an emerging mass transit mode, currently being developed as a cheaper alternative to conventional heavy or light rail options, whilst still providing an improved passenger experience compared with bus services. The following elements have been identified as key considerations in the development of an ultra light rail system:

- **Road width:** For Ultra Light Rail to operate on infrastructure shared with the private car and to allow the mass transit to move safely minimum lane widths and turning radius are necessary
- **Priority measures and/or dedicated infrastructure :** The aim of delivering an Ultra Light System is to encourage modal shift away from the private car. To achieve this it is necessary that any Ultra Light Rail alignment provides a competitive journey time in comparison to the private car
- **Demand** – To be successfully and maximise the benefits of the scheme, the Ultra Light Rail route should connect to current or planned employment sites, new housing estates or large amenities.

## The current position

The Herefordshire Sustainable Transport Group have presented a case for delivering Ultra Light Rail in Hereford.

## UK Case Study: Coventry

A research and development project is currently being undertaken that could lead to the delivery of a Very Light Rail service in Coventry. Delivering this scheme would be the first system of its type in the country. It would be a lightweight, battery powered vehicle, capable of autonomous operation, and operating on specifically designed tracks which can be installed with minimum disruption.

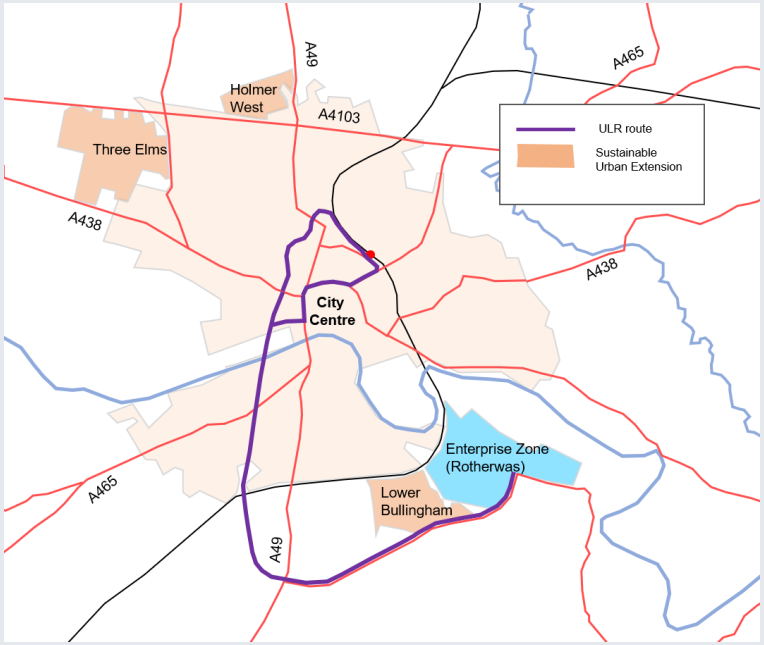
"A metro like system would be ideal with park and ride facilities."
(Response to 2020 Public Engagement)

## What does the option propose?

The plan to the right shows the option, comprising a 18km network with 16 tram stops around the City Centre. Approximately 1.5km of the route would be along existing highways such as Commercial Road, with other sections using former railway alignments including the Great Western Way cycling and walking route and private land. It would integrate with other public transport by serving the rail station and proposed bus hub. The option would require the purchase of vehicles to operate the service and a depot connected to the network.

The route would connect a number of important land uses including the Enterprise Zone, high density housing areas south of the River Wye, railway station (transport interchange planned to be delivered), Park and Chose sites, the county hospital and the central retail core. The route of the option would also be within walking distance of Plough Lane and Widemarsh/Grandstand Road employment areas and the Holmer Area retail parks.

## Plan of the proposed option




Other proposed elements of the option would be:

- Segregated footway / cycleway adjacent to the whole length of the route. This would support Option 2 (Improved Cycling and Walking Infrastructure);
- Covered and secure cycle storage at ultra light rail stops;
- Provision of Beryl Bike hubs at ultra light rail stops; and
- Smart ticketing to allow seamless integration with other modes of travel

**Estimated costs**

Capital: >£100m, Operating cost: £1m pa likely to be partially offset by fare revenue

The opportunity for Hereford:

- Ultra light rail could provide Hereford with a modern alternative to the car with the capacity to transport significant passenger volumes.

The challenges of this option are:

- Whether there is sufficient demand to support an ultra light rail service and potential passenger abstraction from existing bus services, impacting on their viability
- Potential levels of ongoing subsidy required to support services
- Third party land requirements, such as west of the city centre and south of the railway line
- Managing the potential conflicts between ultra light rail vehicles and other modes where it would share carriageway space or require dedicated lanes in and around the city centre
- 75% of Hereford residents would live more than 400m walk distance from the proposed network

# Option 8: Demand responsive public transport (DRT)

## Introduction

Demand Responsive Transport (DRT) is a form of shared passenger transport. It provides connects people and places that are not served, or difficult to serve, by conventional bus operations. DRT is a blurring of two modes, bus and taxi, and tends to be characterised by passengers sharing journeys on high quality mini-bus vehicles. DRT does not operate with a fixed route or timetable; instead a route is shaped and updated by changing user demand. Passengers usually register their journeys via a mobile phone app or by phone call.

DRT can be used to provide a public transport service in areas with lower passenger demand where regular bus services may not be an effective way of meeting customer needs, such as rural and/or suburban areas. DRT can also complement or supplement conventional fixed-route bus services which tend to offer radial connections into a town or city centre.

## The current position

The county has a number of independent community transport schemes for people who do not have access to suitable transport services or who are unable to use the services available, booked by telephone. All the bus services in Herefordshire operate on fixed routes.

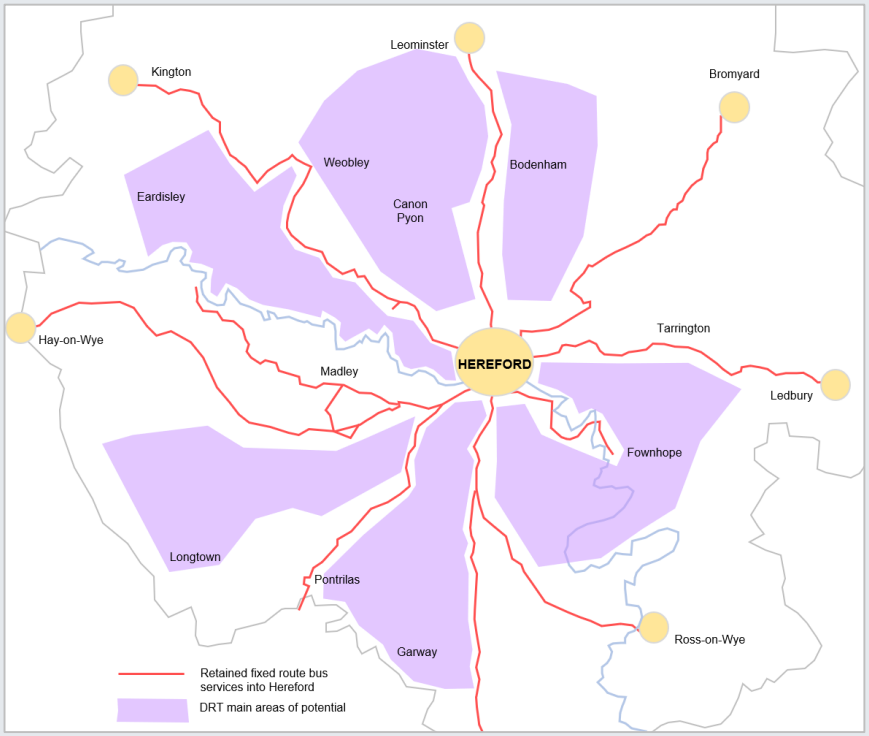
## UK Case Study: Lincolnshire CallConnect

CallConnect is an established bookable, flexible bus service which has served rural areas since 2001, covering hamlets, large villages and market towns. Each bus operates within an area of up to 12 miles giving passengers access to hundreds of locations. Customers need to register to use the service and book in advance by phone or online, from 1 hour to 1 week in advance of the journey. Between 20-25% of users are unable to access fixed-route bus stops.


## What does the option propose?

The option would introduce DRT to areas of Hereford's rural catchment not served by the county's identified core and secondary bus network and where the Council currently provides financial support to existing bus services. The main areas of potential are shown in the plan to the right. Redesigning other parts of the bus network would be reliant on partnership working with commercial bus operators, or via bus franchising, which requires government approval.

## Plan of the proposed option




DRT would aim to support the core bus network and could provide connections (feed in services) into the core bus network at designated interchange points.. There is scope for this option to serve other parts of the rural county. The Rural Mobility Fund (2020) could potentially provide a means to trial this option, subject to a successful bid.

**Estimated costs**

Capital: £0, Revenue: £0.05m pa

The opportunity for Hereford:

- Demand responsive transport could provide a more flexible bus-based transport format to reach less well-served parts of the catchment population.

Issues to be considered if the option is taken forward include:

- Lack of public awareness and understanding of flexible bus services
- Potential to competing with fixed bus routes
- Requires a degree of pre-booking and use of technology which may be a barrier to use for some people
- Potential objections from bus operators and taxi companies
- Likely high passenger subsidy cost compared to traditional buses

# Option 9: Shared Mobility



## Introduction

Shared mobility sits between traditional public transport and private vehicles.

The term shared mobility refers to both:

- shared vehicles or third party assets - vehicles available to multiple users at different times, who may not know each other (examples include car clubs; bike share) and
- shared trips / filling empty capacity - seats in vehicles already making a journey used by passengers who may, or may not know each other (examples including Liftshare, BlaBlaCar, and Ridepooling).

Many of the shared mobility options use technology, including mobile phone apps, to allow people to make bookings or connect people making similar journeys.

## The current position

Beryl Bikes operate a shared micromobility service which offers users the opportunity to use the bikes across Hereford, with a range of charging options based on duration of ride. After use customers park the bike in one of the designated Beryl Bays or in another considerate location (a convenience fee will apply for parking them outside designated bays).

A group of residents in the St James and Bartonsham area share a pool of cars, with parking bays designated for free parking of car club vehicles.

Herefordshire Park and Share is promoted by the Council and develops liftsharing for people who may not live near someone making a journey to the same destination. The Council has worked with local businesses, including hotels, garden centres, pubs and shops, to allow car sharers to leave a car in their car parks. The scheme uses Liftshare, an online ride sharing service, to connect people making similar journeys.



## UK Case Study: ZipCar

ZipCar is the UK's largest car sharing service where users can pay by minute, hour or day and operates in London, Bristol, Oxford and Cambridge. There are over 250,000 members in London and almost 3,000 vehicles of varying sizes. ZipCar estimates that there could be 800,000 active car club members in London by 2025. In 2018 ZipCar partnered with Volkswagen to introduce 325 electric vehicles in to its fleet, and hopes this will help drive investment in London's rapid charging network. The company's vision is for its fleet to be fully electric across all vehicle types by 2025, helping to keep people moving while reducing the impact of cars on the environment.


"Beryl Bikes have encouraged a huge behaviour change in Hereford"
(Response to 2020 Public Engagement)

## What does the option propose?

The option would extend existing and introduce new shared mobility schemes to the city. This provision would be procured or, just as appropriately, encouraged to be provided on a commercial basis by the private sector as part of the wider mobility marketplace. The shared mobility options would include:

- **Electric bike share scheme -** The bike share scheme would be extended to cover electric bikes, either with current operator Beryl or a separate e-bike operator. These would remove some of the barriers which deter people from cycling, or which deter people making certain journeys by cycle;
- **Car club and e-car club** – Widespread rollout of car club vehicles across the city, including in the three urban extensions to provide bookable vehicles, including vans for city residents and businesses to use, with flexible pricing structures;
- **Cargo bike hire** – This would introduce self-powered and electric cargo bikes for hire across Hereford to reduce short-distance car trips and delivery miles; and
- **E-scooters** – A UK trial of e-scooters began in June 2020 to allow government to assess the benefits as well as their impact on public space. All local authorities are invited to take part in the trial. Hereford could look to maximise the potential of this shared micromobility option and secure an early trial or operation in the city. The interaction of e-scooters with pedestrians would need careful consideration.

The mix of elements can be tailored to meet the specific requirements of Hereford's residents, businesses and visitors.

**Estimated costs**

Capital: £0.1m, Revenue: £0.1m pa

The opportunity for Hereford:

- Delivering this option in Hereford will provide users with short term access to shared vehicles according to their needs and convenience.

Issues to be considered if the option is taken forward include:

- Public perception and behaviour change
- Vandalism of shared assets
- New business models
- Safety perceptions
- Integration into existing networks and hubs
- Commercial viability or ongoing subsidy requirements

# Option 10: First Mile-Last Mile Journeys and Mobility Hubs



## Introduction

'**First mile-last mile**' is a phrase typically used to journeys from home to a public transport stop or hub; and/or from a public transport stop or car park to the final destination.
These are usually shorter-distance journeys, with other modes (bus, car, motorcycle, train) being used for the longer leg. First mile/last mile journeys are often made by cycle or on foot but can also include the use of taxis, conventional buses, demand-responsive buses, car club vehicles and bike share schemes, for example.

**Mobility hubs** are enhanced interchange locations where travellers can change between travel modes, and which are coordinated with other supporting infrastructure. Mobility hubs can be developed at rail stations, bus stops, park and ride and park and choose sites. In addition to a covered waiting area and depending on the location, hubs can include refreshment kiosks, cycle repair stands and bike pumps, secure and covered cycle parking, electric vehicle charging points, online shopping delivery lockers, wayfinding and digital travel information displays. They can be complemented with environmental improvements to surrounding public spaces, improved crossing points, traffic calming, planting to widen biodiversity and energy generation from solar panels on shelters.

## The current position

Existing services in Hereford comprise:

- **Beryl Bikes** – are an-app based service where users can unlock one of the 186 bikes from one of the 39 bays across Hereford and are charged by the hour;
- **Cargo-bikes** – Pedicabs & Cargo offer a last mile delivery service and first mile collection service for businesses and organisations, operating on electric cargo bikes. Pedicabs & Cargo also offer a recycling collection service and opportunity for hire

In terms of mobility hubs in Hereford:

- At present bus services start and finish at a number of locations in the city centre, with the city bus station at Tesco, the country bus station off Commercial Road and other services terminating at St. Peter's Square. A limited number serve the rail station. This limits effective interchange between travel modes. A **transport hub** is planned for the rail station forecourt offering new interchange facilities between modes. This would give the opportunity for buses currently terminating at the Country bus station to terminate at the new hub instead, providing better connectivity with other transport modes.
- There are currently seven branded **Park and Choose** sites around Hereford where travellers can change onto a different mode, usually on foot, by cycle or bus. Some sites include lockers for users to securely leave their cycles, other sites near public transport routes include cycle parking so users can continue journeys by bus or train.

## UK Case Study: WYCA

The West Yorkshire Combined Authority (WYCA) bid to DfT for the Future Mobility Zone (FMZ) funding, built upon established multi-modal thinking, but radically extended this to include emerging and future mobility modes with mobility hubs used as a catalyst to regenerate local and district centres.

Large and small mobility hub concepts feature a modular approach to integration with the local community and built environment. The focus is on the customer, removing friction from day to day travel and providing access to other services whilst trip making.


"Park and ride sites stop unnecessary cars coming along the A49 into the city"
(Response to 2020 Public Engagement)

## What does the option propose?

The option for Hereford comprises easily-recognisable branded mobility hubs, at key locations where people can interchange between travel modes. They would be modelled on best practice examples from across Europe and would include a range of features listed in the introduction box on the left. The locations and key mobility options available are listed in the **table** below.

The mobility hub format would be delivered at different scales and different locations. The principal site would located at the rail station, with other hubs along core bus network routes, at retail areas, the Enterprise Zone, other major employment areas in the city and in the three urban extensions (Holmer West, Lower Bullingham and Three Elms) Existing park and choose sites would be upgraded or relocated to enable better interchange between modes for journeys into city from the wider county or rest of the country. Additional park and choose sites would be identified and developed to ensure each main road corridor into the city was covered. It could be extended to include market towns and villages served by the core bus services.

| Scale | Locations, modes and facilities |
|---|---|
| Central Mobility Hub | Locations: Hereford Railway Station<br>Key mobility options: Beryl bike hire, bus, car, car club, cycle, rail, taxi, ride-share pick-up |
| Park & Choose Mobility Hub | Locations: 5 edge of city sites with 100 car parking spaces<br>Key mobility options: Beryl bike hire, car, cycle, bus, ride-share pick-up |
| Local Mobility Hub | Locations: 10 sites at local centres in three urban extensions, main employment areas and retail centres<br>Key mobility options: Beryl bike hire, bus, cycle, car club, walk |
| Mobility Point | Locations: 20 sites on main bus corridors<br>Key mobility options: Beryl bike hire, bus, cycle, walk |

**Estimated costs**

Capital: £7m, Revenue: £0.035m pa

The opportunity for Hereford:

- Improve interchange between modes, including as part of longer journeys and for rural residents travelling to the city

Issues to be considered if the option is taken forward include:

- Need to robustly challenge the status quo and transform the attitudes and habits of people in Hereford
- Site selection and space availability
- Some travel modes and mobility hub facilities are best-suited to larger catchment populations;
- Securing suitable public transport frequencies to support the mobility hubs
- Consultation with operators, stakeholders and public

# Option 11: Demand management



## Introduction

Demand management is the application of strategies and policies to manage how many people travel by a particular mode, at a particular time and to a particular destination. Measures often relate to the supply and cost of parking, but can also relate to the cost of driving and the supply of roadspace. Demand management can be implemented for a number of reasons, including to reduce congestion, improve air quality and encourage the use of cycling, walking and public transport. Without demand management, the benefits of transport measures which reduce congestion will be eroded, as extra traffic fills the space.

Examples of demand management used elsewhere in the UK include:

- **Parking policies:** Using tariffs and parking supply to influence parking demand, with different tariffs for different lengths of stay and for different locations. Residents' parking zones seek to prioritise residents over commuter vehicles, with some locations introducing emission-based pricing, with prices varying according to a vehicle's carbon dioxide emissions;
- **Congestion charge:** A daily levy imposed on drivers travelling into an identified zone such as the city centre. This is implemented in central London and Durham;
- **Workplace Parking Levy**: a charge on employers who provide employer parking, with the objective of tackling congestion and raising funds to be ringfenced for major transport investment;
- **Ultra Low Emission Zone (ULEZ):** Charging vehicles which do not meet emission limits relating to air polluting nitrogen oxides and particulate matter emitted by engines. The objective is to encourage the adoption and use of ultra low emission vehicles, particularly in areas with the poorest air quality;
- **Road space reallocation and traffic management**: Converting road space currently used for all motor vehicles for other travel modes to use (eg bus lanes or cycle tracks) or other purposes including public space and new planting.



## The current position

The Local Transport Plan sets out the Council's Hereford parking policy, which includes charging for on-street parking and reviewing the Residents' Parking Schemes.

## UK Case Study: Nottingham

In 2012, Nottingham City Council introduced a Workplace Parking Levy scheme to tackle problems associated with traffic congestion, by using the charge to provide funding for major transport infrastructure initiatives and as an incentive for employers to manage their workplace parking provision. Nottingham City Council charges employers with more than 10 parking spaces £424 yearly per space.

The scheme has raised £61 million since it was implemented [X], which is invested in transport infrastructure for the city.



"Managing demand for car use through the delivery of a congestion charge or parking charges will be beneficial to Hereford." (Response to 2020 Public Engagement)

## What does the option propose?

The aim of the option would be to reduce the number of motor vehicles travelling into the city centre at peak times or making short-distance vehicle journeys within Hereford. The exact scope and scale of measures would need further investigation and feasibility; the assessed option assumes a combination of these measures to influence vehicle parking demand:

(a) **Consolidate off-street parking into a smaller number of locations** which are well-located to the main road corridors, to reduce drivers circulating looking for spaces. A new multi-storey car park or car parks could be constructed on surface car parks, with a 2016 study identifying the Country Bus Station, Gaol Street, Merton Meadow and St Martins as potential sites;

(b) **Parking policy changes** - (1) Amend off-street parking tariffs to spread demand more evenly across the city centre or more evenly through the day; (2) Increase on-street parking tariffs to encourage greater use of off-street car parks, avoid drivers circulating looking for spaces and ensure on-street spaces remain available for those who have a specific need to park close to a destination; (3) A phased reduction in the overall number of parking spaces in the city centre, both on-street and off-street. On-street spaces could be converted for a range of alternative uses including wider footways, cycle tracks, street trees and parklets. Off-street car parks could be redeveloped for new homes and businesses;

(c) **Workplace Parking Levy**: Levying a charge on businesses in a specific area who have more than 10 private car parking spaces. This would be introduced in the city centre, which has the greatest availability of alternative travel options.

Appropriate levels of dedicated parking provision would continue to be located close to key destinations for blue badge holders, loading and residents. The parking strategy would be devised to ensure that rural residents with limited non-car travel options are not disadvantaged by the strategy.

**Estimated costs**

Capital: £0m, Revenue: £0.5m pa

The opportunity for Hereford:

- Introducing demand management initiatives in Hereford would encourage a long term behaviour change to more sustainable travel habits

Issues to be considered if the option is taken forward include:

- Establishing the right balance for charging to mitigate impact on businesses
- Ensuring the policies and schemes account for those who have limited non-car alternatives available to them, including many living in rural areas
- The location of any congestion charge and parking fees
- Perception of potential negative impacts on businesses in the City Centre
- Technological and legislative requirements for workplace parking charges
- Need for strong political leadership

# Option 12: Intelligent Transport Systems



## Introduction

*Intelligent Transport Systems (ITS)* refers to the use of technology to provide a range of benefits for travel by different modes. A range of technology can provide more information on journey planning, incidents on the network, make efficient use of roadspace and regulate who uses roadspace. This can include the following elements:

- **Open Data**: Releasing data into the public domain to aid the development of online information and apps that can help users to make informed decisions. This can for example help people decide on the most efficient route or the most efficient mode of travel;
- **Variable message signage**: Supplements or replaces conventional road signs at key road intersections. These signs can provide information such as car parking availability, alternative routes to avoid congested locations, directions to major events for visitors and information on emergency road closures due to incidents or maintenance;
- **Urban Traffic Management and Control**: This refers to traffic monitoring and control systems. Key signalised junctions and crossings are controlled by an UTMC which can adjust signal timings at junctions in response to changing traffic situations. It allows operators to react to unfolding situations directly by adjusting light priorities, signage and other measures;

## The current position



Herefordshire Council currently maintains and operates a SCOOT system. However, in 2019 Herefordshire Council published their 'Highway Network Management Plan' which sets out their plan to upgrade and expand the existing SCOOT system and implement further ITS measures around the city. These include:

- Extending the SCOOT system to more junctions around the city;
- Bringing pedestrian and cycle crossings into the SCOOT system;
- Implementing real time parking messaging systems around the city.
- Implementing Urban Traffic Control;
- Implementing bus priority systems;
- Implementing Variable Message Signs on the Strategic Road Network.

## UK Case Study: York

York has recently received funding from the DfT to trial technology led traffic management.

City of York Council is partnering with Intrix in a project which will use vehicle tracking to optimise and improve traffic signals in the city. The system will be used to monitor traffic, predict traffic patterns and amend signal timings to allow traffic to flow more freely.


"Work with Highways England to re-programme traffic signals, as too often the current signals are on set patterns and do not appear to be responsive to traffic flows." (Response to 2020 Public Engagement)

## What does the option propose?

Reflecting upon the measures proposed in the Highway Network Management Plan, the option comprises the following elements:

- **Using technology to reduce delays:** Traffic flow monitoring cameras would be deployed on key approaches to Hereford to collect and analyse information on traffic flows. The data would be used to amend signal timings and to provide traffic information on electronic signs, to apps and websites. The existing SCOOT system would be delivered more widely across the city to optimise the efficient movement of pedestrians, cyclists and motor vehicles on main roads and at single signal junctions respectively.
- **UTMC**: System which can inform/control measures around Hereford to adjust traffic situations.
- **Car park management:** Drivers would be directed to available spaces, based on monitoring vehicles entering and leaving Hereford's city centre car parks. Sensors can be installed in each parking bay or at entry/exit barriers to achieve this. The data can be fed in real time to electronic signs , apps and websites to provide accurate information on car park occupancy. In the future it could enable automatic charging of vehicles as they leave a car park;
- **Smart asset management:** Sensors would monitor the condition of highway assets (such as drainage gullies, road to enable more cost-effective maintenance regimes and minimise impacts on the network (e.g. drainage gulley sensors, road temperature sensors, asset subsidence sensors, vehicle impact sensors on bridges);
- **Review of communications network:** To ensure the most cost effective and Future Ready approach is being taken;
- **Connected infrastructure:** Infrastructure on main corridors to support developments in vehicle connectivity
- **Electric vehicle charging and smart grids:** Deliver an electric vehicular charging network across the city, including on street locations in the city centre and residential neighbourhoods

**Estimated costs**

Capital: £4 m, Revenue £0.08m pa

The opportunity for Hereford:

- Technology can enable the existing transport infrastructure to be used more efficiently and travellers to be better informed about their journeys.

Issues to be considered if the option is taken forward include:

- Ongoing costs to monitoring and maintain the technology and IT systems
- Public would need reassurance regarding data protection
- Ensuring ITS measures are compatible with partner organisations such as Highways England, bus operators and emergency services

# Option 13: Traffic signal removal on the A49

## Introduction

This option would remove traffic signals along the A49 corridor. Road users would instead make their own decisions about manoeuvres at junctions, interacting with each other and relying in part rely on courteous driving. Traffic signal removal can be accompanied by a change in the street design; both to enable the alternative junction designs to operate and change the look and feel of the street environment. This can in turn support smoother traffic flow.

## The current position

There are currently 12 groups of traffic signals on the A49 between A4103 Roman Road and the B4399 Rotherwas Access Road. Eight sets relate to road junctions, some of which have multiple stop lines, such as at the Ross Road / Belmont Road junction (Asda Junction). There are another four locations with traffic signals to facilitate cyclist and pedestrian crossings. Depending on the location, the A49 within Hereford has on average between 23,000 and 45,000 vehicle movements per day.

## UK Case Study: Poynton

In 2012, a street design scheme was completed in Poynton town centre aimed at revitalising the shopping area. It also aimed to improve road safety at the traffic-signal controlled crossroads where two heavily-trafficked roads met; London Road (15,000 vehicles per day) and Park Lane / Chester Road (17,000 vehicles per day).

The scheme removed the traffic signals and redesigned the junction with informal roundabouts. The amount of pedestrian space was doubled and the carriageways and footways were repaved. The London Road arms were reduced to single lane approaches from two lanes to create shorter pedestrian crossing distances. Entry gateway features were created to denote the area. The scheme led to reduced average speeds but more efficient traffic movement, and more responsive and safer interaction between pedestrians, cyclists and drivers.

Before scheme

After scheme

*"Turning off some traffic lights, this city is filled with them!"* (Response to 2020 Public Engagement)

## What does the option propose?

This option would change how traffic is controlled at a number of junctions along the A49 corridor. Eight signal junctions and four pedestrian crossings (converted to uncontrolled crossing points with the removal of the signals) would be converted to alternative control types as summarised below.

- **City Centre Link Road (Station Approach)** - priority-controlled crossroads with banned movements retained and a signal crossing for cyclists and pedestrians to the north of the junction;
- **Blackfriars Street** - priority-controlled T junction and a signal crossing for cyclists and pedestrians to the north of the junction;
- **Newmarket Street (Debenhams)** - conversion to a give-way roundabout, with a redesigned standalone signal crossing for cyclists and pedestrians on the Edgar Street arm;
- **Eign Street (Steel's Junction)** - priority controlled junction (give-way) with Eign Sreet traffic giving way to A49 movements; retain existing banned turns;
- **Barton Road / St. Nicholas Street** – roundabout with signal crossing for cyclists and pedestrians to the north of the junction on Victoria Street;
- **A465 Ross Road / St. Martin's Street / Asda Access** - priority control, with the A49 arms being the major movement in each case
- **Holme Lacy Road / Walnut Tree Avenue** - four-way roundabout, with signal crossings for cyclists and pedestrians on northern, western and eastern arms; and
- **Bullingham Lane** - priority-controlled T junction, with signal crossing for cyclists and pedestrians to the north of the junction.

Existing standalone traffic signal crossings for cyclists and/or pedestrians would be retained in their current locations on Holmer Road, Newtown Road and Ross Road. The removal of signals would be accompanied by a redesign of the street environment, potentially similar to that introduced on Newmarket Street.

**Estimated costs**

Capital: Between £10-20M

The opportunity for Hereford:

- Removing the traffic signals on the A49 could enable smoother traffic flow through the city

Issues to be considered if the option is taken forward include:

- The A49 has substantially higher traffic flows and wider carriageways than locations where this has usually been implemented
- The A49 is operated and maintained by Highways England and any works would need their approval and being in full accordance with the design standards for trunk roads
- The option is likely to negatively impact on certain road users, including cyclists or pedestrians and particularly those with disabilities, such as those who are blind or partially sighted
- Potential redistribution of traffic onto minor roads if accessing the A49 takes longer from side roads

# Option 14: Western Bypass

## Introduction

A western bypass would comprise a new road connecting the A49(T) south of Hereford to the A49(T) in the north, travelling around the west of Hereford. It would include the Southern Link Road (from the A49 Ross Road to the A365 Belmont Road).

## The current position

The Hereford Transport Package identified a western bypass as part of the preferred option for the city. The option was packaged with cycling, walking, bus and public space improvements in the city. The Cabinet Member for Transport paused the development of the Hereford Transport Package pending the outcome of this review of transport strategy.

## UK Case Study: Lincoln Eastern Bypass

The A15 Lincoln Eastern Bypass currently being built will be a 7.5km dual carriageway connecting the A158 Wragby Road Roundabout to the A15 at Bracebridge Heath. The bypass will cross the River Witham and form a link road on the eastern side of the city.

The bypass aims to address traffic congestion around Lincoln City Centre, encourage growth and enhance the urban environment.

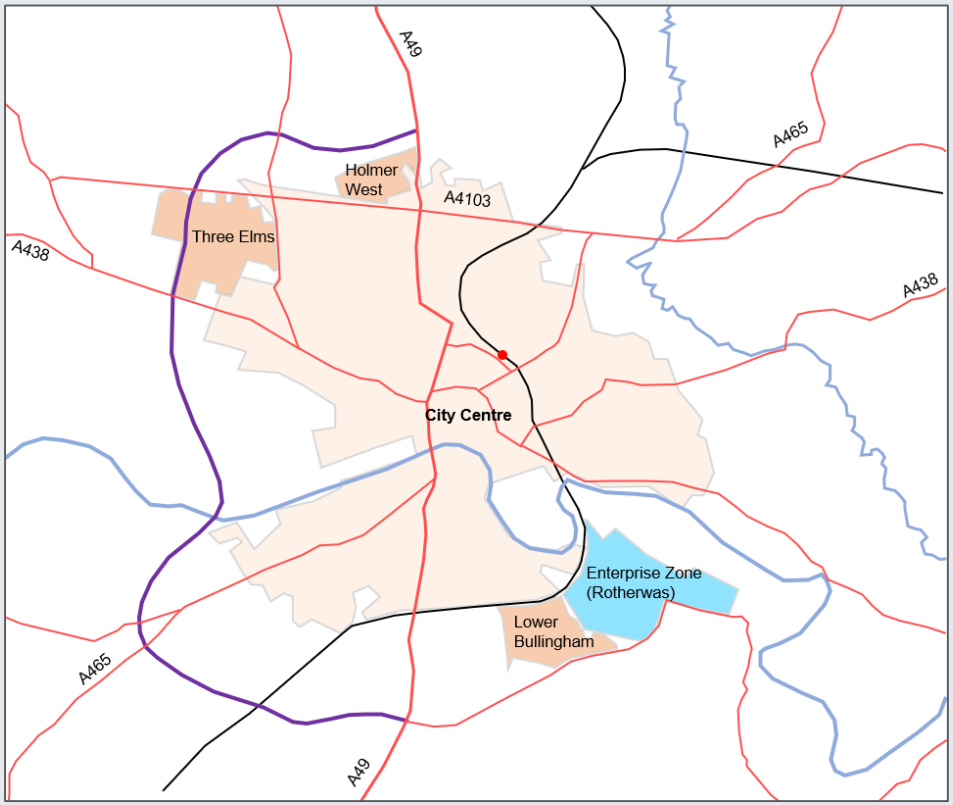

*"Install the Western Bypass, this will reduce congestion in the City and allow sustainable transport options to work"* (Response to 2020 Public Engagement)

## What does the option propose?

The option assumes the construction of the western bypass with junctions connecting to the major intersecting radial roads, including the A465 and A438. It includes the Southern Link Road, the section connecting the A49 to the A465 south-west of the city. It assumes the implementation of the proposed red route, the preferred route approved for further scheme development at the cabinet meeting of 27 July 2018, having regard to the information presented to them.

The bypass would also deliver a new bridge across the Wye, associated infrastructure to provide connections for cyclists, pedestrians and horse-riders and measures to mitigate impacts on homes, businesses, the natural and built environment.

## Plan of the proposed option




**Estimated costs**

Capital: £190m, Revenue: £0.108m pa

The opportunity for Hereford:

- The Western Bypass has a well developed evidence base and policy support for delivery of a resilient highway network.

Issues to be considered if the option is taken forward include:

- The route would have a negative environmental impact on the surrounding area
- Legal and feasibility constraints in addressing associated environmental impacts
- Political acceptability
- Public acceptability
- Walking, cycling and horse riding assessment implications

# Option 15: Eastern Bypass

## Introduction

An eastern bypass or eastern link would comprise a new road travelling around some or all of the east of the city.

## The current position

The merits and feasibility of an eastern bypass were last comprehensively reviewed in 2010. The study favoured a western bypass, which was progressed as part of the Hereford Transport Package.

"An Eastern Bypass would reduce lorries having to use Greyfriars Bridge to travel along the A49" (Response to 2020 Public Engagement)

## What does the option propose?

The option considers four variants for the Eastern Bypass option. All of the variants include a new bridge across the River Wye, but each of them connect to different radial roads, as follows:

a) **Full Eastern Bypass with Southern Link Road** – this would comprise a new road connecting Rotherwas to the A49 north of Hereford, plus the Southern Link Road from the A49 to the A465 and B4349 south-west of the city;

b) **Full Eastern Bypass without Southern Link Road** – this would comprise a new road connecting Rotherwas to the A49 north of Hereford but without the Southern Link Road;

c) **Eastern Link** – this would comprise a shorter section of new road to link Rotherwas and the A438 Worcester Road; and

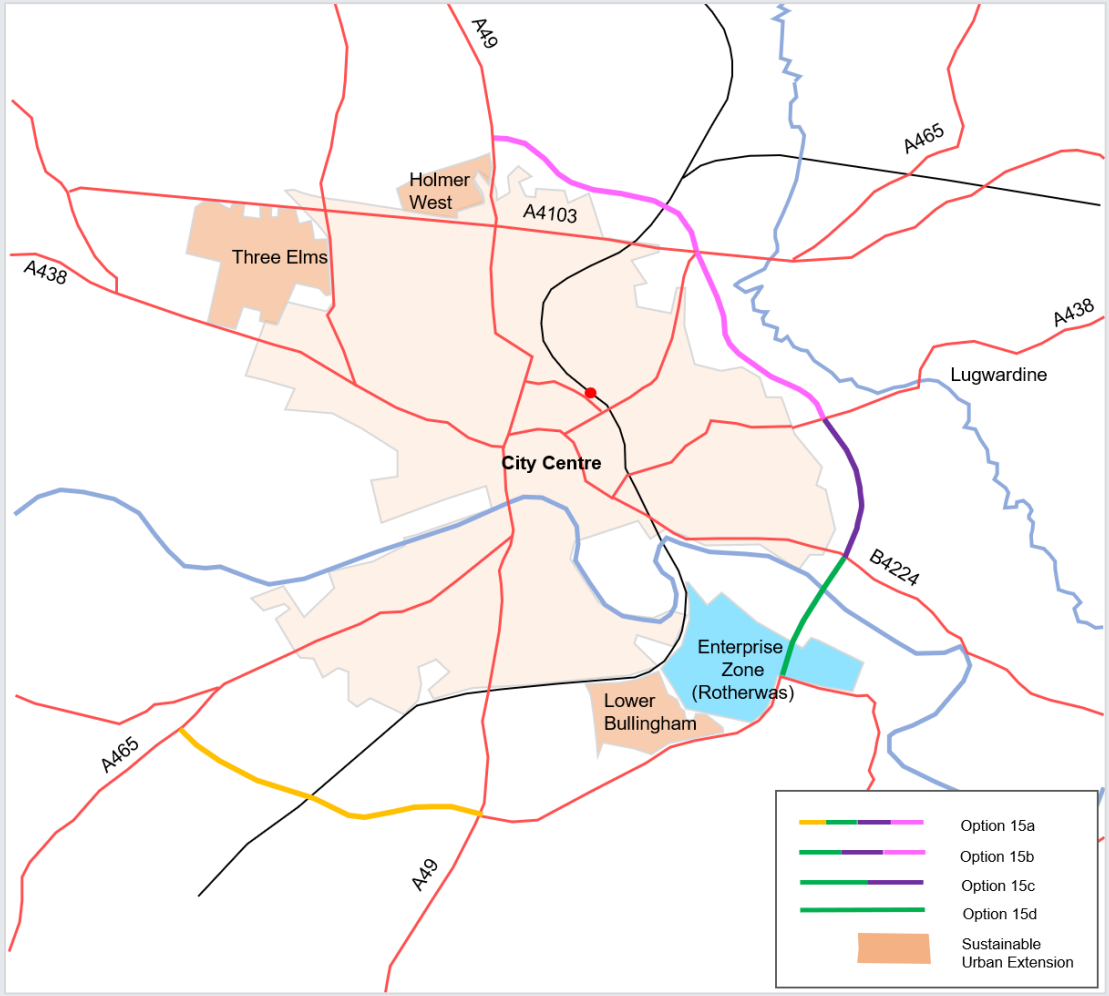
d) **Eastern River Crossing**– A short section of new road between the Rotherwas Access Road and the B4224 Hampton Park Road.

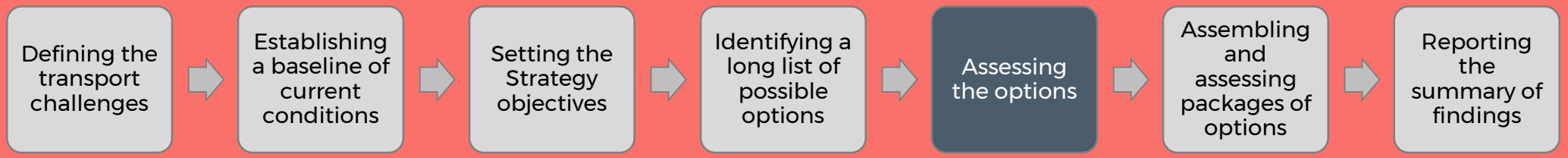
**Estimated costs:**
**A -** Capital: £155m, Revenue: £0.1m pa
**B –** Capital: £125m, Revenue: £0.1m pa
**C –** Capital: £55m, Revenue: £0.06m pa
**D –** Capital: £42m, Revenue: £0.04m pa

The opportunity for Hereford:
- Delivering the Eastern Bypass would provide a second river crossing which could support increased network resilience in Hereford.

Issues to be considered if the option is taken forward include:
- The route would have a negative environmental impact on the surrounding area
- Legal and feasibility constraints in addressing associated environmental impacts
- Political acceptability
- Public acceptability
- Significant adverse effects on the integrity of international important ecological sites
- Walking, cycling and horse riding assessment implications

## Plan of the proposed option






# Chapter 6
# Assessing the options

*The next step in the transport strategy review was to assess how well each option performed against the different objectives and outcomes and to consider their likely public acceptability, deliverability and affordability.*

*This chapter describes the Option Assessment Framework which was devised to guide the assessment process, along with commentary of the contribution of the Hereford Transport Model. A series of tables contain the assessment results, and the views of the Stakeholder Reference Panel and elected members are summarised. The end of the chapter sets out the three options which did not perform well against the assessment and confirms the other options which were taken forward.*

*Chapter 7 then outlines how the better performing options were packaged together to better achieve the balance of desired outcomes for Hereford.*

# 6. Option Assessment Framework

An Option Assessment Framework was developed to ensure that all 18 options were assessed on a consistent and transparent basis. It comprises of two parts:

1. The extent to which an option meets the desired outcomes. Each of the 35 indicators was measured on a five-point scale, ranging from 'large adverse' to 'large beneficial'.
2. Commentary on public acceptability, deliverability and affordability, again on a five-point scale.

Details of the grading criteria within the Option Assessment Framework are shown on the next page.

Some of the indicators are measured by using outputs from the Hereford Transport Model. The model, how it was used and its limitations are explained on the pages following.

The following six pages show how each option performs against each indicator, both in absolute terms and relative to one another. Full details of the OAF can be found in **Appendix B**.

This is followed by a summary of the responses from Members and the Stakeholder Reference Panel on the Option Assessment.

# 6. Option Assessment Framework

The detail of the Option Assessment Framework is shown below. The full framework can be found in **Appendix B**.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Climate Emergency** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Economy** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Environment** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Society** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Acceptability** | • Stakeholder Reference Panel<br>• 2020 Public Engagement | Majority, negative view | Minority negative view | Ambivalent/polarised view | Minority, positive view | Majority, positive view |
| **Deliverability** | • Technical/practical feasibility | No examples in the UK | Limited operational UK examples | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Existing examples of option delivery in Hereford |
| | • Technological barriers | Very challenging | Relatively challenging | Not known | Relatively easy | Very easy |
| | • Legal powers | Requires a third party process with little chance of success with associated increased timeline/risks | Requires an extended third party process with associated risks and lower chance of success | Requires a common third party process with associated risks | Required third party process with a good chance of success within reasonable timescale | No additional permissions |
| | • Implementation timescale | Over 10 years | 7-10 years | 4-6 years | 1-3 years | Less than 1 year |
| **Affordability** | • Capital cost | Over £20 million | £10-20 million | £10 million | £5-10 million | £0-2 million |
| | • Revenue cost | Over £1M | £200k-£1m | Up to £200k | Up to £100k | 0 or generates revenue |
| | • Council revenue streams | High risk | Medium-high risk | Medium risk | Medium-low risk | Low risk |
| | • Risk of cost increases | High risk | Medium-high risk | Medium risk | Medium-low risk | Low risk |
| | • Value for Money | High Cost, Low Benefit | Medium Cost, Low Benefit<br>or<br>High Cost, Medium Benefit | Low Cost, Low Benefit<br>or<br>Medium Cost, Medium Benefit<br>or<br>High Cost, High Benefit | Medium Cost, High Benefit<br>or<br>Low Cost, Medium Benefit | Low Cost, High Benefit |
| | • Likelihood of funding | There is little expectation to fund this type of option | Securing funding for this type of option would be difficult | Funding bodies occasionally fund this type of option | Funding bodies typically fund this type of option | Funding is readily available for the option |

# 6. Option Assessment Framework

## Hereford Transport Model

The multi-modal transport model for Hereford was used to inform and assess options as part of the strategy review. The Hereford Transport Model was developed following DfT guidance. It is based on data collected in 2016 and represents the highway network, public transport services and cycling/walking provision.

As indicated earlier, the review was undertaken during a period of great uncertainty due the effects of Covid-19 on many aspects of everyday life, including travel behaviour. These effects reinforce the normal uncertainties associated with using transport models to forecast travel patterns into the future. As such the modelled results need to be taken as indicative of the effects which would be likely to occur. More confidence can be given to the relative performance between different options than the absolute values which the model produces.

Forecast models for future years were built from the validated base year model and modified to represent specific changes which are committed on the different transport networks (e.g. new roads, changing junction configurations). The demand side was modified by combining committed development with other local development aspirations and controlling these to national forecasts of population and employment growth which are published via the National Trip End Model.



By coding changes into the model to reflect the characteristics of each option, the model will calculate the impact on traffic flows (including journey times and the time spent queuing at junctions) and the use of the different travel modes across the Hereford transport network. This has been used to inform some of the entries in the Option Assessment Framework (OAF).

Some of the options assessed in this review are easier to model than others. For some, we were able to apply reasonably accurate representations of the options in the model (e.g. the bypass options, electric hopper bus), for some we had to apply proxies for the options (e.g. promotional campaign, ULR), and we were not been able to model some at all (e.g. demand-responsive transport, shared mobility). For some options we modelled more than one variant of the option to gauge how sensitive the outputs are on the modelling assumptions which have been made.

We used the model to test options 1, 2, 5, 6, 7, 11, 13, 14, 15a, 15b, 15c and 15d and to inform the traffic-related entries in the OAF. The other options were not capable of being tested in the model and so the OAF contains qualitative information only.

The modelling was carried out at an assumed assessment year of 2026. Whilst each of the options would require its own delivery programme, it was important to assess all options on a consistent basis. It was considered that 2026 provided the best balance between allowing time to implement/construct the option whilst minimising the additional uncertainty which longer range forecasting inevitably introduces.

The DfT's Transport Analysis Guidance databook guided the model parameters used. It considers the changes in fleet composition over time, the proportion of petrol, diesel, and electric vehicles changing year on year. For example, in the model base year (2016) only 1% of the car fleet is electric; by 2026 this is forecast to increase to 16%. Outputs from the Hereford Transport Model were used alongside DfT datasets to inform the carbon assessment undertaken in the OAF.

The Covid-19 pandemic has indicated the uncertainty around future trends or assumptions. Further commentary regarding this is outlined in Chapter 8.

## The Modelling Indicators

It is important to recognise that the majority of indicators used in the option assessment (25 out of 35) do not rely on model outputs. The way in which the other ten indicators use outputs from the model is shown below.

| Indicator | Explanation |
|---|---|
| 1.1 What impact does the option/package have on carbon emissions? | • Change in tonnes of carbon (affected by vehicle kilometres and vehicle speed) |
| 2.1 What impact does the option/package have on reducing the level of motorised traffic? | • Change in vehicle kilometres travelled within the modelled area |
| 2.2 What impact does the option/package have on reducing travel by car for short journeys? | • Change in mode share for journeys within Hereford |
| 5.1 What impact does the option/package have on delay and congestion across the city as a whole? | • Change in the time spent queuing at junctions across the whole of the Hereford built-up area |
| 5.2 What impact does the option/package have on journey times and journey time reliability along key corridors (A49, A438 and A465) for motor vehicles, pedestrians and cyclists? | • Change in journey times along key corridors within Hereford |
| 5.3 What impact does the option/package have on bus patronage and bus reliability? | • Change in bus patronage |
| 7.1 What impact does the option/package have on congestion levels in the city centre (cordon around the city centre)? | • Change in the time spent queuing at junctions in Hereford City Centre |
| 9.1 What impact does the option/package have on traffic flows on roads in the Air Quality Management Area (AQMA)? (AQMA includes the A49 and parts of the A438) | • Change in traffic flows on roads within the AQMA |
| 9.2 What impact does the option/package have on modal shift to less polluting modes across the city? | • Change in mode share to sustainable modes of travel (e.g. walking, cycling, bus and rail) |
| 16.2 What impact does the option/package have on Noise Important Areas (NIAs)? | • Change in traffic flows on roads within the NIA |

## Induced demand

The phenomenon of 'induced demand' is well-established and usually refers to the impact of new road construction. It describes 'new' vehicle traffic that appears once the capacity of the road network is increased.

A recent evidence review into induced travel demand was conducted for Highways England (link). This identified that the induced traffic effect is greater where additional road capacity is provided in locations with high congestion levels and suppressed demand. Much of the evidence is however based on large metropolitan areas. The Campaign for the Protection of Rural England compared traffic data relating to Highways England schemes across the country pre- and post-completion (link) and reached similar conclusions.

The existence of induced traffic means that some or all of the predicted benefits of new roads, including reducing congestion, will be eroded as people take advantage of the improved road conditions. Traffic can be induced from local or longer-distance journeys. People respond to the improved road conditions by changing their travel behaviour in one or more of the following ways:

- Changing travel mode, e.g. switching from public transport to driving
- Changing the time of journey, e.g. switching to the peak periods as congestion reduces
- Changing route, e.g. using the new road to travel further but more quickly to the destination
- Increasing the frequency of travel, e.g. making journeys that were not made previously; or
- Changing the origin or destination of the journey, e.g. moving house or job.

The Hereford Transport Model takes account of some of these effects, specifically changing travel mode, time of journey and route. However, it does not make allowance for any propensity to make completely new journeys, and it does not allow for the longer-term possibilities of moving house or jobs. Hence, the model results presented in this study take account of many of the aspects of induced traffic, although not all. As such, there is a possibility that the congestion relief benefits which are predicted for all packages may be slightly overestimated, particularly in the longer term.

## Long distance transfers

Although the model is focussed on the urban area of Hereford, it contains some surrounding rural areas so that it can estimate the extent of re-routeing across Herefordshire and adjacent counties. However, the model is not capable of estimating any longer distance transfers which may occur as a result of interventions carried out within the city (e.g. journeys between Cardiff and Manchester). As such, there is a further possibility that the congestion relief benefits which are predicted for all packages may be slightly overestimated,.

The assessment results for each of the proposed options is summarised in the following pages.

# 6. Option Assessment Framework Results

The following six pages summarise the results of the Option Assessment Framework. The first four pages show the extent to which each indicator performs against the five point assessment criteria. The next two pages summarise the performance against acceptability, deliverability and affordability.

| | Outcomes | Indicators | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 | Option 8 | Option 9 | Option 10 | Option 11 | Option 12 | Option 13 | Option 14 | Option 15a | Option 15b | Option 15c | Option 15d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | 1.1 What impact does the option have on carbon emissions? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral |
| | O2: The need to travel is reduced and travel distance is reduced | 2.1 What impact does the option have on reducing the level of motorised traffic? | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 2.2 What impact does the option have on reducing the need to travel by car for short journeys? | Beneficial | Large Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Neutral | Neutral; | Adverse | Adverse | Adverse | Adverse | Adverse |
| | O3: The amount of resources and energy used in the transport system is minimised | 3.1 What impact does this option have on fuel use? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral |
| | O4: The transport system is flexible and adaptable to climate change and future needs | 4.1 What impact does the option have on helping movement in response to climate change impacts such as flooding? | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Neutral | Adverse | Beneficial | Neutral | Neutral | Neutral | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial |

# 6. Option Assessment Framework Results



| | Outcomes | Indicators | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 | Option 8 | Option 9 | Option 10 | Option 11 | Option 12 | Option 13 | Option 14 | Option 15a | Option 15b | Option 15c | Option 15d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Economy 207 | O5: Reliable and efficient movement of people and goods and provision of services | 5.1 What impact does the option have on delay and congestion across the city as a whole? | Beneficial | Neutral | Neutral | Neutral | Neutral | Large Adverse | Neutral | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Large Adverse | Beneficial | Beneficial | Large Beneficial | Large Beneficial | Beneficial |
| | | 5.2 What impact does the option have on journey times and journey time reliability for motor vehicles along key corridors? | Beneficial | Neutral | Neutral | Neutral | Neutral | Adverse | Neutral | Neutral | Beneficial | Neutral | Neutral | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Neutral | Neutral |
| | | 5.3 What impact does the option have on bus patronage and bus reliability? | Beneficial | Neutral | Neutral | Beneficial | Large Beneficial | Beneficial | Large Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |
| | O6: The transport system facilitates sustainable development | 6.1 What impact does the option have on travel to the Sustainable Urban Extensions (SUEs), Enterprise Zone and other new development in Hereford? | Large Beneficial | Large Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial |
| | O7: Transport supports a thriving local economy | 7.1 What impact does the option have on congestion levels in the City Centre (cordon around City Centre)? | Neutral | Neutral | Neutral | Neutral | Neutral | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Large Adverse | Beneficial | Large Beneficial | Large Beneficial | Beneficial | Beneficial |
| | | 7.2 What impact does the option have on improving access to employment sites, training opportunities and education (university), some of which are located outside Hereford. | Beneficial | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial |
| | O8: A more resilient transport system | 8.1 What impact does the option have on making the network less susceptible to the impacts of incidents, maintenance and roadworks? | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Beneficial | Beneficial | Large Beneficial | Large Beneficial | Large Beneficial | Beneficial | Beneficial |
| | | 8.2 What impact does the option have on increasing modal choice? | Beneficial | Large Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Large Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |

# 6. Option Assessment Framework Results

| | Outcomes | Indicators | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 | Option 8 | Option 9 | Option 10 | Option 11 | Option 12 | Option 13 | Option 14 | Option 15a | Option 15b | Option 15c | Option 15d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Environment 208 | O9: A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live | 9.1 What impact does the option have on traffic flows on roads in the Air Quality Management Area (AQMA)? (AQMA includes the A49 and parts of the A438) | Neutral | Neutral | Neutral | Neutral | Neutral | Beneficial | Neutral | Neutral | Neutral | Beneficial | Neutral | Neutral | Adverse | Large Beneficial | Large Beneficial | Large Beneficial | Large Beneficial | Large Beneficial |
| | | 9.2 What impact does the option have on modal shift to less polluting modes across the city? | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | 10.1 What impact does the option have on water quality? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Adverse | Adverse | Adverse | Adverse |
| | | 10.2 What impact does the option have on protected priority habitats and species? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Large adverse | Large Adverse | Large Adverse | Adverse | Adverse |
| | | 10.3 What impact does the option have on designated sites? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Large Adverse | Large Adverse | Adverse | Adverse |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | 11.1 What impact does the option have on the landscape and visual surroundings? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Large Adverse | Large Adverse | Large Adverse | Large Adverse | Large Adverse |
| | | 11.2 What impact does the option have on cultural heritage, including designated sites? | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Large Adverse | Large Adverse | Large Adverse | Large Adverse | Large Adverse |
| | | 11.3 What impact does the option have on the streetscape? | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral |
| | O12: The transport system contributed to creating attractive and high quality places to live, work and visit | 12.1 What impact does the option have on making residential areas more pleasant to live? | Neutral | Large Beneficial | Beneficial | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Large Adverse | Large Adverse | Adverse | Adverse |
| | | 12.2 What impact does the option have on improving accessibility to the City Centre via sustainable transport? | Beneficial | Large Beneficial | Beneficial | Beneficial | Large Beneficial | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 12.3 What impact does the option have on encouraging footfall in the City Centre? | Beneficial | Large Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Beneficial | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |

# 6. Option Assessment Framework Results



| | Outcomes | Indicators | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 | Option 8 | Option 9 | Option 10 | Option 11 | Option 12 | Option 13 | Option 14 | Option 15a | Option 15b | Option 15c | Option 15d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Society 209 | O13: The transport system facilitates improved public health through more active lifestyles | 13.1 What impact does the option have on making people more active by increasing levels of cycling and walking? | Large Beneficial | Large Beneficial | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 13.2 What impact does the option have on making people more active by using public transport? | Beneficial | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 13.3 What impact does the option have on childhood obesity? | Beneficial | Large Beneficial | Large Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Neutral | Neutral | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | 14.1 What impact does the option have on meeting the accessibility needs of all sectors of society, including those with protected characteristics or those without access to a car? | Beneficial | Large Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Large Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 14.2 What impact does the option have on improving accessibility to services and facilities for rural residents? | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Adverse | Beneficial | Adverse | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial |
| | | 14.3 What impact does the option have on improving integration between transport modes? | Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Large Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |
| | O15: The transport network is safe and secure for everyone to use confidently | 15.1 What impact is the option likely to have on accidents/collisions by all modes? | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Beneficial | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 15.2 What impact does the option have on making people feel more confident and safe to use the bus? | Beneficial | Beneficial | Neutral | Beneficial | Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |
| | | 15.3 What impact does the option have on making people feel more confident and safe to cycle and walk? | Beneficial | Large Beneficial | Large Beneficial | Neutral | Neutral | Beneficial | Neutral | Neutral | Beneficial | Beneficial | Neutral | Neutral | Adverse | Neutral | Neutral | Neutral | Neutral | Neutral |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | 16.1 What impact does the option have on severance on key cross city corridors e.g. A49, A438 and A465? | Neutral | Large Beneficial | Beneficial | Neutral | Beneficial | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Adverse | Beneficial | Beneficial | Beneficial | Beneficial | Beneficial |
| | | 16.2 What impact does the option have on Noise Important Areas (NIAs)? | Neutral | Neutral | Neutral | Neutral | Neutral | Beneficial | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |

| | Deliverability | | | | Acceptability | | |
|---|---|---|---|---|---|---|---|
| | Implementation timescale of the option | Legal powers | Technical/practical feasibility | | Public acceptability | Stakeholder acceptability | |
| | How long will the option take to be delivered and in operation? | Does the option require permissions, approvals or legal powers? | How easily can the technological barriers be overcome to deliver this option? | Has the option been successfully implemented elsewhere? | Responses from the 2020 Public Engagement | Responses from the Stakeholder Reference Panel | |
| | 1-3 years | No additional permissions | Relatively easy | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Ambivalent /polarised view | Majority, positive view | Option 1 |
| | 4-6 years | Required third party process with a good chance of success within reasonable timescale | Very easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Minority, positive view | Majority, positive view | Option 2 |
| | 1-3 years | Required third party process with a good chance of success within reasonable timescale | Very easy | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Minority, positive view | Majority, positive view | Option 3 |
| | 1-3 years | No additional permissions | Very easy | Limited operational UK examples | Ambivalent /polarised view | Majority, positive view | Option 4 |
| | 4-6 years | Requires an extended third party process with associated risks and lower chance of success | Very easy | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Majority, positive view | Majority, positive view | Option 5 |
| | 1-3 years | Requires a common third party process with associated risks | Relatively easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Ambivalent /polarised view | Majority, positive view | Option 6 |
| | 7-10 years | Requires an extended third party process with extended risks and lower chance of success | Relatively challenging | Limited operational UK examples | Ambivalent /polarised view | Minority, positive view | Option 7 |
| | 1-3 years | Requires a common third party process with associated risks | Relatively easy | Limited operational UK examples | Ambivalent /polarised view | Minority, positive view | Option 8 |
| | 1-3 years | Required third party process with a good chance of success within reasonable timescale | Relatively easy | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Ambivalent /polarised view | Majority, positive view | Option 9 |
| | 1-3 years | Requires a common third party process with associated risks | Relatively easy | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Minority, positive view | Majority, positive view | Option 10 |
| | 4-6 years | Requires a common third party process with associated risks | Not known | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Ambivalent /polarised view | Majority, positive view | Option 11 |
| | 1-3 years | No additional permissions | Relatively easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Minority, positive view | Minority, positive view | Option 12 |
| | 4-6 years | Requires a third party process with little chance of success with associated increased timeline/risks | Very easy | Significant numbers of examples delivered elsewhere in the UK but with different characteristics to Hereford | Minority, positive view | Minority, positive view | Option 13 |
| | 7-10 years | Requires an extended third party process with associated risks and lower chance of success | Very easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Majority, positive view | Minority, positive view | Option 14 |
| | 7-10 years | Requires a third party process with little chance of success with associated increased timeline/risks | Very easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Majority, positive view | Minority, positive view | Option 15a |
| | 7-10 years | Requires a third party process with little chance of success with associated increased timeline/risks | Very easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Majority, positive view | Ambivalent/polarised view | Option 15b |
| | 4-6 years | Requires an extended third party process with associated risks and lower chance of success | Very easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Majority, positive view | Ambivalent/polarised view | Option 15c |
| | 4-6 years | Requires an extended third party process with associated risks and lower chance of success | Very easy | Significant numbers of examples delivered elsewhere in the UK with similar characteristics to Hereford | Majority, positive view | Minority, positive view | Option 15d |

| | Affordability | | | Revenue cost | | Capital cost | |
|---|---|---|---|---|---|---|---|
| | Likelihood of funding | Initial value for money | Risk of cost increases | Revenue cost | | Capital cost | |
| | Is there funding available (including third party funding) to deliver this option? | How do the benefits compare to the costs? | To what degree are the costs of the option likely to increase? | To what degree does the option impact on other Council revenue streams? | What are the revenue cost implications of the option? | What are the estimated construction costs/implementation costs of the option? | |
| Option 1 | Funding bodies typically fund this type of option | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium-low risk | Low risk | Over £1m | £0-2m | |
| Option 2 | Funding bodies typically fund this type of option | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium-low risk | Low risk | £200k-1m | Over £20m | |
| Option 3 | Funding bodies typically fund this type of option | Low cost, high benefit | Medium-low risk | Low risk | Up to £100k | £2-5m | |
| Option 4 | Securing funding for this type of option would be difficult | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium risk | Low risk | £200k-1m | £0-2m | |
| Option 5 | Funding bodies occasionally fund this type of option | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium risk | High risk | Over £1m | £5-10m | |
| Option 6 | Funding bodies typically fund this type of option | Medium cost, high benefit or low cost, medium benefit | Medium-low risk | Low risk | Up to £100k | £10-20m | |
| Option 7 | Securing funding for this type of option would be difficult | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | High risk | Low risk | £200k-1m | Over £20m | |
| Option 8 | Funding bodies occasionally fund this type of option | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium risk | Low risk | Up to £100k | £0-2m | |
| Option 9 | Funding bodies occasionally fund this type of option | Low cost, high benefit | Medium risk | Low risk | Up to £100k | £0-2m | |
| Option 10 | Funding bodies occasionally fund this type of option | Low cost, high benefit | Medium-low risk | Low risk | £200k-1m | £10-20m | |
| Option 11 | Funding bodies occasionally fund this type of option | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium risk | Medium risk | Up to £100k | £0-2m | |
| Option 12 | Funding bodies typically fund this type of option | Low cost, low benefit or medium cost, medium benefit or high cost, high benefit | Medium risk | Low risk | Up to £100k | £2-5m | |
| Option 13 | There is little expectation to fund this type of option | Medium cost, low benefit or high cost, medium benefit | Low risk | Medium risk | Up to £100k | £10-20m | |
| Option 14 | Funding bodies occasionally fund this type of option | Medium cost, low benefit or high cost, medium benefit | Medium risk | Low risk | Up to £200k | Over £20m | |
| Option 15a | Funding bodies occasionally fund this type of option | Medium cost, low benefit or high cost, medium benefit | Medium risk | Low risk | Up to £100k | Over £20m | |
| Option 15b | Funding bodies occasionally fund this type of option | Medium cost, low benefit or high cost, medium benefit | Medium risk | Low risk | Up to £100k | Over £20m | |
| Option 15c | Funding bodies occasionally fund this type of option | Medium cost, low benefit or high cost, medium benefit | Medium risk | Low risk | Up to £100k | Over £20m | |
| Option 15d | Funding bodies occasionally fund this type of option | Medium cost, low benefit or high cost, medium benefit | Medium risk | Low risk | Up to £100k | Over £20m | |

# 6. Stakeholder Engagement – Option Assessment



Stakeholder Engagement was undertaken to provide comment upon the Option Assessment, complementing the public consultation described in **Chapter 2**. The views of Members and the Stakeholder Reference Panel (SRP) fed into the Option Appraisal. The following questions were asked to both the Council Members and the SRP:

1. **Please provide your observation on the overall outcomes**

The main themes included:

- The options need to reflect the opportunities for transport provided by COVID-19
- DfT Transport Appraisal Guidance is outdated due to COVID-19
- Concerns over the number of responses from the public engagement process
- Options only focused on Hereford city centre and did not consider rural areas
- How has housing delivery and growth in the Local Plan been considered
- Transport Plan for Hereford Hospital is needed
- Strong policy levers are needed alongside infrastructure and interventions to reduce car use
- No account has been taken for exogenous factors
- No consideration of the uncertainty of external factors

2. **Please provide any specific observations about the appraisal of individual options**

The main themes included:

- Scoring should be given a weighting
- Appraisal does not include embodied carbon

3. **Please indicate if you think options should be taken forward or discarded at this point in the review**

See next page for responses.

4. **Please indicate up to three possible groups of options with a comment as to why you believe these should go together**

See Chapter 7.

# 6. Stakeholder Engagement – Option Assessment

**Question 3 Responses** (Please indicate if you think options should be taken forward or discarded at this point in the review)

The Members and SRP were asked to indicate which options should be taken forward and which options should be discarded at this point in the review. The tables below illustrate their responses. The options highlighted in green (total score column) indicate the most popular options and those highlighted in red (total score column) indicate the least popular.

| Members Response | Take Forward | Discard | Total Score |
|---|---|---|---|
| Option 2: Improved Walking and Cycling | 9 | | 9 |
| Option 3: Safer routes to school | 9 | | 9 |
| Option 1: Enhanced Travel Promotional Campaign | 8 | 1 | 7 |
| Option 4: Improved school bus service | 7 | 1 | 6 |
| Option 10: FMLM and Mobility Hub Interchange | 5 | 1 | 4 |
| Option 6: Bus priority | 5 | 2 | 3 |
| Option 8: DRT | 6 | 2 | 4 |
| Option 9: Shared Mobility | 5 | 2 | 3 |
| Option 11: Demand Management | 4 | 1 | 3 |
| Option 5: Electric hopper bus service | 5 | 2 | 3 |
| Option 12: ITS | 3 | 1 | 2 |
| Option 14: Western Bypass | 3 | 5 | -2 |
| Option 7: ULR | 2 | 4 | -2 |
| Option 13: Traffic signal removal on the A49 | 2 | 5 | -3 |
| Option 15c: Eastern Link | 2 | 7 | -5 |
| Option 15a: Full Eastern Bypass with SLR | 1 | 7 | -6 |
| Option 15d: Eastern River Crossing | 1 | 7 | -6 |
| Option 15b: Full Eastern Bypass without SLR | 0 | 7 | -7 |

| SRP Response | Take Forward | Discard | Total Score |
|---|---|---|---|
| Option 2: Improved Walking and Cycling | 9 | | 9 |
| Option 3: Safer routes to school | 9 | | 9 |
| Option 5: Electric hopper bus service | 9 | | 9 |
| Option 6: Bus priority | 9 | | 9 |
| Option 11: Demand Management | 9 | | 9 |
| Option 9: Shared Mobility | 8 | 1 | 7 |
| Option 10: FMLM and Mobility Hub Interchange | 8 | 1 | 7 |
| Option 4: Improved school bus service | 7 | | 7 |
| Option 1: Enhanced Travel Promotional Campaign | 7 | | 7 |
| Option 8: DRT | 6 | 1 | 5 |
| Option 7: ULR | 6 | 3 | 3 |
| Option 12: ITS | 6 | 3 | 3 |
| Option 13: Traffic signal removal on the A49 | 2 | 7 | -5 |
| Option 14: Western Bypass | 2 | 7 | -5 |
| Option 15a: Full Eastern Bypass with SLR | 2 | 7 | -5 |
| Option 15d: Eastern River Crossing | 2 | 7 | -5 |
| Option 15b: Full Eastern Bypass without SLR | 1 | 8 | -7 |
| Option 15c: Eastern Link | 1 | 8 | -7 |

The most popular options were those promoting sustainable transport, with the road schemes being the least popular with both the members and the SRP.

# 6. Summary of Option Assessment

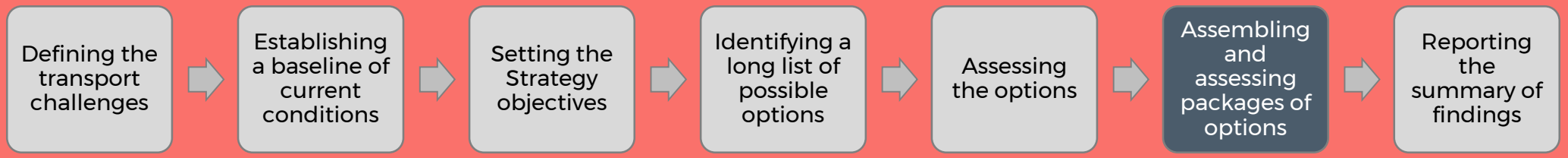


The next stage of the study considered the results of the individual option appraisal and decided which ones should be taken forward for further assessment Specifically, it identified those options which did not perform well and should not be taken forward.

The Department for Transport's Transport Appraisal Process was used to undertake the initial sift of the options to identify any 'showstoppers' which would prevent an option progressing further in the development process. This was supplemented by comments from Members and the Stakeholder Reference Panel.

Using this Appraisal Process, the following options performed poorly and were not taken forward for packaging:

- **Ultra Light Rail** (Option 7) performed poorly against three technical soundness indicators. There were also identified issues relating to its deliverability in the context of a city the size and population of Hereford and the level of ongoing revenue support which was likely to be required to maintain services;
- **Traffic signal removal on the A49** (Option 13) would increase congestion on a key corridor and consequently create a worse environment for pedestrians and cyclists;
- The **Full Eastern Bypass variants** (Option 15a and 15b) would have very severe adverse environmental impacts during both construction and operation.




# Chapter 7
# Assembling and assessing packages of options

*The next step in the transport strategy review was to package together better performing options brought forward from chapter 6.*

*This chapter explains how the better performing options were grouped to create six packages, and how six combinations of packages were assessed against the strategy objectives, public acceptability, deliverability and affordability. This was carried out using a revised Package Assessment Framework. The chapter summarises the assessment with two pages per package. The first pages show a 'radar diagram' which illustrates the extent to which the outcomes are met. The second pages provide more detail including information on acceptability, affordability and deliverability.*

# 7. Packaging the options



It was clear from the Option Assessment that no single option would meet all the desired outcomes for Hereford and that different options had their relative strengths and weaknesses. It was therefore decided to combine the remaining options into 'themed' groupings such that they could then be combined into different combinations of packages. Following further input from Members and the Stakeholder Reference Panel it was decided to group the remaining options as shown below.

A revised assessment methodology was used (see later in Chapter 7). The assessment considered how each element would work in combination, whether they would complement each other and, in some cases, whether different elements would work against each other (and limit the achievement of the desired outcomes). It was therefore not a case of simply aggregating the results of the option assessment.

The methodology means it is not always apparent how each individual element contributes to the overall performance of the package. However, each option was assessed on their own merits and the results are summarised in **Chapter 6** and reported in more detail in **Appendix B**.



## Package A
Focus: Walking and Cycling measures

- Enhanced Travel Promotion Campaigns
- Improved Walking and Cycling Infrastructure
- Safer routes to school
- Shared Mobility
- Mobility Hubs

## Package B
Focus: Improving public transport

- Improved school bus
- Electric hopper bus
- Bus priority
- Demand responsive transport

## Package C
Focus: Managing traffic demand

- Bus priority
- Demand Management
- Intelligent Transport Systems

## Package D
Focus: Providing a new river crossing

- Western Bypass

## Package E
Focus: Providing a new river crossing

- Eastern Link

## Package F
Focus: Providing a new river crossing

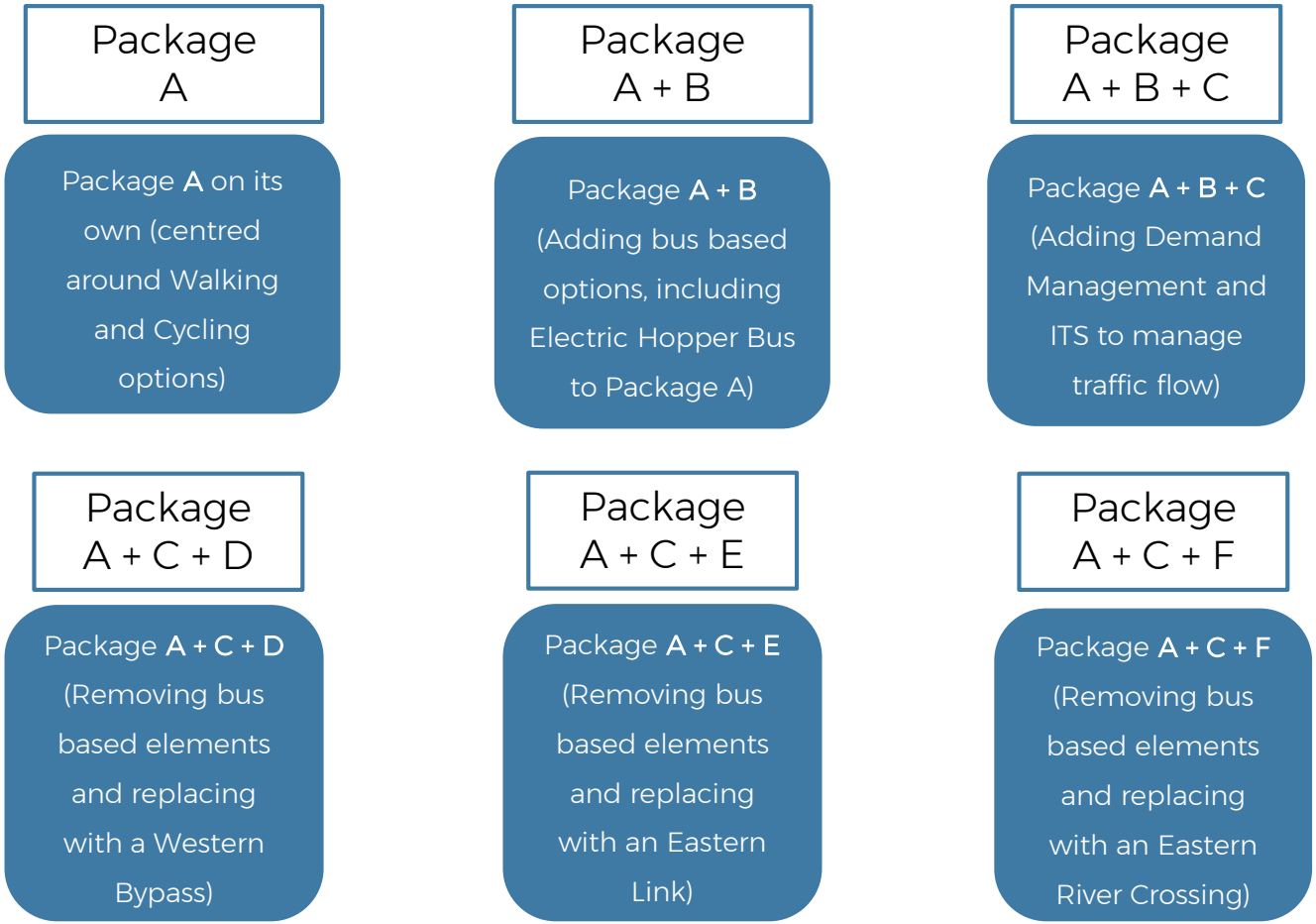
- Eastern River Crossing

# 7. Packaging the options

Following further discussion with Members, the following six combinations of packages were taken forward for more detailed assessment. Key factors influencing which packages were taken forward included the results form the Option Assessment, which showed that:

- The different elements within Package A (focussed on cycling and walking) performed strongly, and had strong stakeholder and public support, leading Package A to be common to all six combinations;
- The complementary nature of Package C (Demand Management) with the road schemes, to limit the extent of induced traffic; and
- The road schemes adversely impacting on bus patronage, suggesting that Package B should not be combined with packages which include road schemes.

The same assessment methodology was adopted as outlined previously, in terms of considering how each element of the package would work in combination.



# 7. Package Assessment Framework (PAF)

The table below sets out the revised Assessment Framework which was used to assess the packages of options (the full framework can be found in **Appendix C).** The framework differs from the Option Assessment Framework in the following ways:

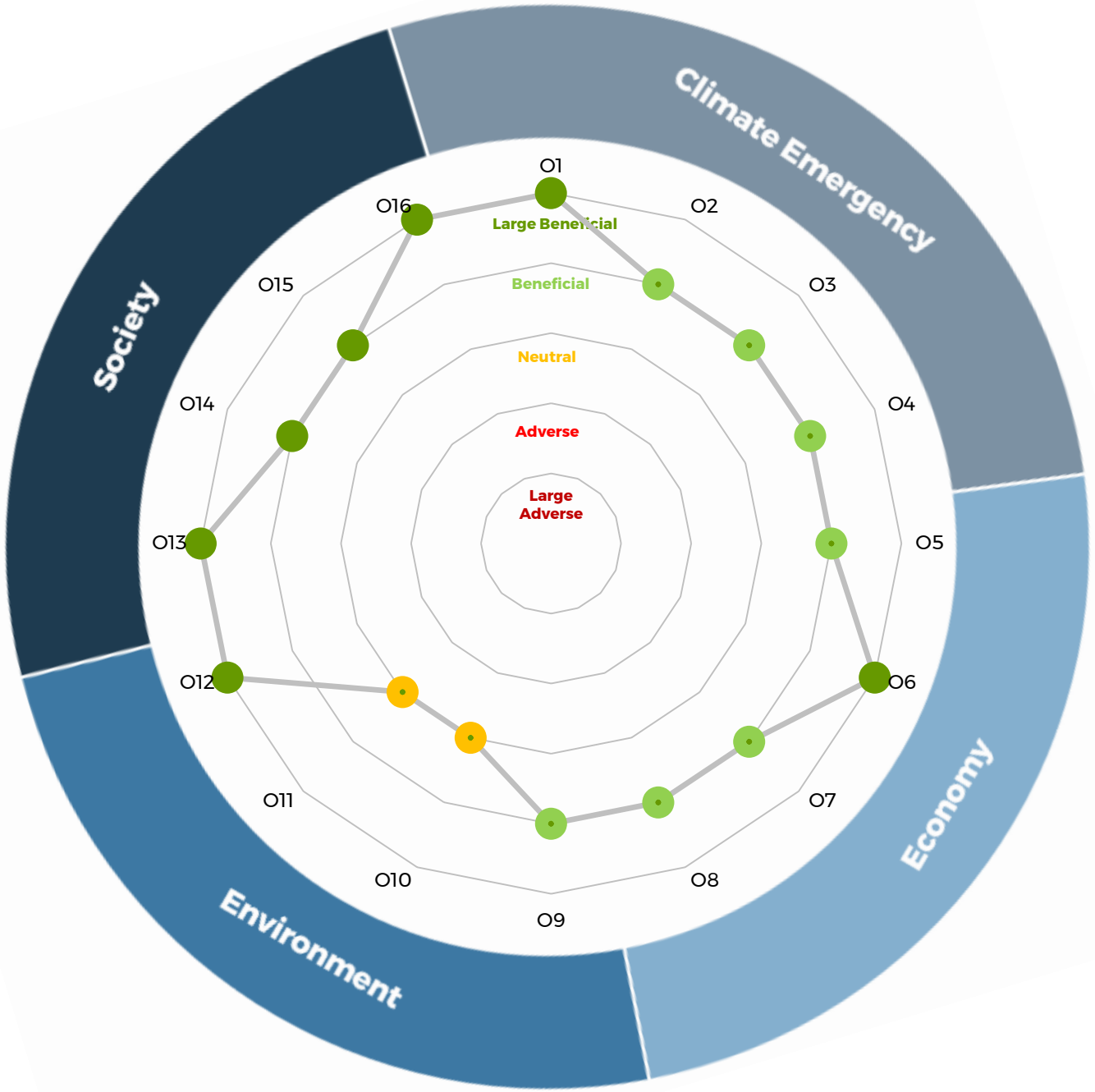
- An indicator which incorporates embodied carbon has been included due to Stakeholder feedback - (3.1 What impact does this package have on embodied carbon?)
- The acceptability five-point criteria has been updated to reflect the results from the Stakeholder Reference Panel and 2020 Public Engagement in terms of their views on packages
- The criteria for capital costs and revenue costs have been revised to reflect the higher costs of packages compared to individual options

| | | | | | | |
|---|---|---|---|---|---|---|
| **Climate Emergency** | • 4 outcomes with associated indicators | Large adverse or High | Adverse or Medium/High | Neutral or Medium | Beneficial or Low/Medium | Large beneficial or Low |
| **Economy** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Environment** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Society** | • 4 outcomes with associated indicators | Large adverse | Adverse | Neutral | Beneficial | Large beneficial |
| **Acceptability** | • Stakeholder Reference Panel | Every element is supported by less than 30% of responses | Every element is supported by 30-49% responses | Every element is supported by 50-69% of responses | Every element is supported by 70-89% of responses | Every element is supported by over 90% of responses |
| | • 2020 Public Engagement | Package contains 0 out of the top 5 interventions in terms of public popularity | Package contains 1 out of the top 5 interventions in terms of public popularity | Package contains 2 out of the top 5 interventions in terms of public popularity | Package contains 3 out of the top 5 interventions in terms of public popularity | Package contains 4 or more of the top 5 interventions in terms of public popularity |
| **Affordability** | • Capital cost | Over £150 million | £100-149 million | £75-99 million | £50-75 million | £0-49 million |
| | • Revenue cost | Over £4 million | £3-3.9M | £2-2.9M | £1-1.9M | £0-0.9M |
| | • Council revenue streams | High risk | Medium-high risk | Medium risk | Medium-low risk | Low risk |
| | • Risk of cost increases | High risk | Medium-high risk | Medium risk | Medium-low risk | Low risk |
| | • Value for Money | Higher Cost, Lower Benefit | Medium Cost, Lower Benefit or Higher Cost, Medium Benefit | Lower Cost, Lower Benefit or Medium Cost, Medium Benefit or Higher Cost, Higher Benefit | Medium Cost, Higher Benefit or Lower Cost, Medium Benefit | Lower Cost, Higher Benefit |
| | • Likelihood of funding | There is little expectation to fund this type of package | Securing funding for this type of package would be difficult | Funding bodies occasionally fund this type of package | Funding bodies typically fund this type of package | Funding is readily available for the package |
| **Deliverability** | • Technical/practical feasibility | No examples in the UK of any element of the package | Most elements of the package have limited UK examples | Most elements of the package have been delivered elsewhere in the UK but with different characteristics to Hereford | Most elements of the package have been delivered elsewhere in the UK with similar characteristics to Hereford | Most elements of the package have been delivered previously in Hereford |
| | • Technological barriers | Very challenging | Relatively challenging | Not known | Relatively easy | Very easy |
| | • Legal powers | Includes very complex permissions and consents with limited chance of success and/or increased risk | Generally requires more complex permissions and consents with associated risks and lower chance of success | Generally requires permissions and consents with a degree of risk | Generally requires permissions and consents with a good chance of success within reasonable timescale | No additional permissions |
| | • Implementation timescale | Over 10 years | 7-10 years | 4-6 years | 1-3 years | Less than 1 year |

The next pages summarise the findings of the Package Assessment. There are two pages for each package. The first page shows a 'radar diagram' which illustrates the extent to which the outcomes are met. The second page provides more detail including information on acceptability, affordability and deliverability.

# 7. Package A (Focus on Walking and Cycling)

| | | Outcome |
|---|---|---|
| Climate Emergency | O1 | The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target |
| | O2 | The need to travel by private motor vehicle is reduced and travel distance is reduced |
| | O3 | The amount of resources and energy used in the transport system is minimised |
| | O4 | The transport system is flexible and adaptable to climate change and future needs |
| Economy | O5 | Reliable and efficient movement of people and goods and provision of services |
| | O6 | The transport system facilitates sustainable development |
| | O7 | Transport supports a thriving local economy |
| | O8 | A more resilient transport system |
| Environment | O9 | A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live |
| | O10 | A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain |
| | O11 | A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) |
| | O12 | The transport system contributes to creating attractive and high quality places to live, work and visit |
| Society | O13 | The transport system facilitates improved public health through more active lifestyles |
| | O14 | All sectors of society have easy and affordable access to the services and facilities they need |
| | O15 | The transport network is safe and secure for everyone to use confidently |
| | O16 | The adverse impacts of transport on communities are reduced, including severance and noise |

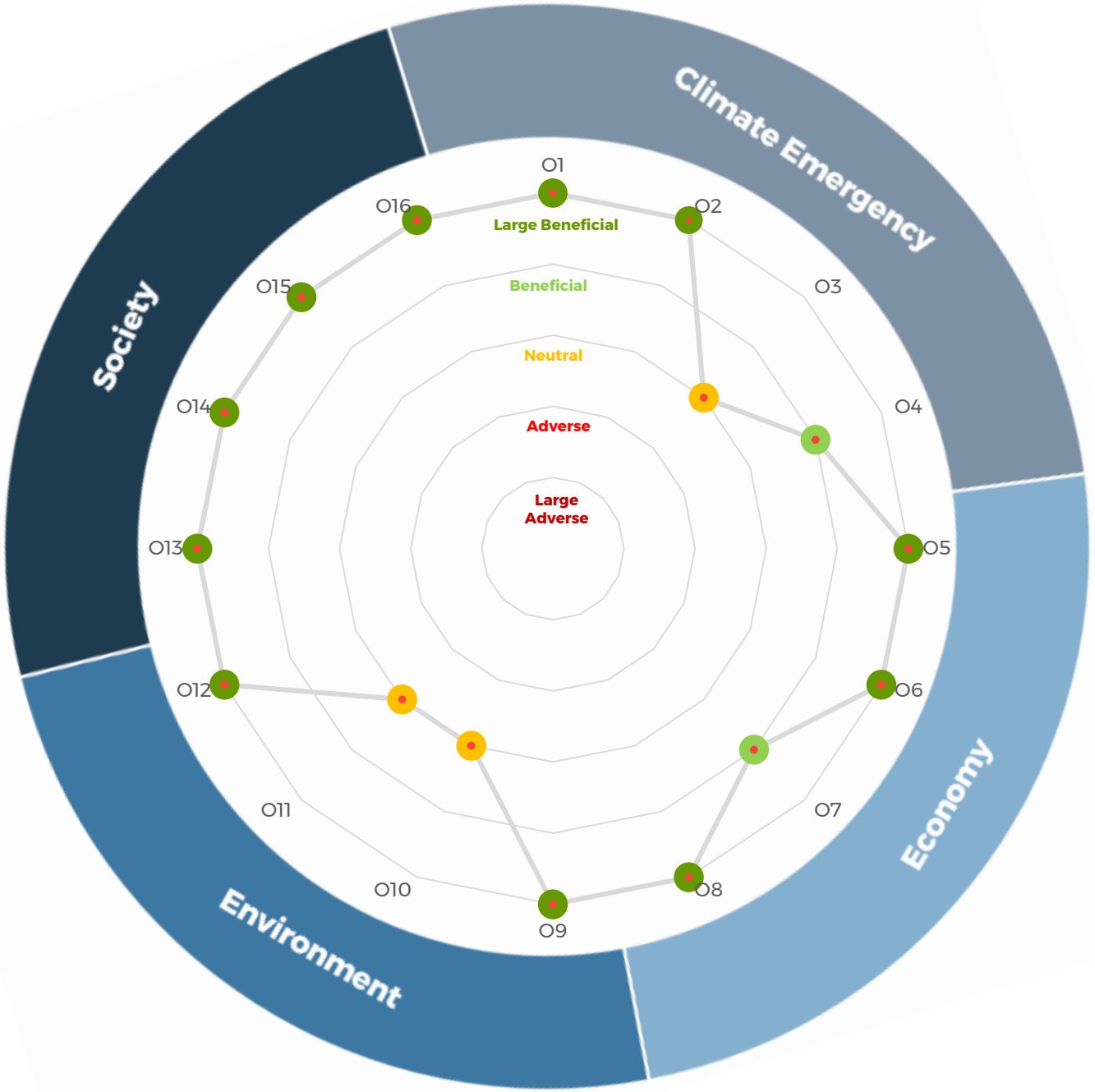


# 7. Package A (Focus on Walking and Cycling)

| | Main impacts of Package A |
|---|---|
| Climate Emergency | • Forecast to result in a 10% reduction in tonnes of carbon. |
| | • Forecast to lead to a 9% reduction in kms travelled by private motor vehicles and a 9% reduction in car mode share for short-distance trips in the city. |
| | • Limited construction activities and therefore will result in a low/medium increase in embodied carbon. |
| | • Widens travel choice and provides better information on options available to travellers, both of which will help people respond to climate change impacts on the transport network. |
| Economy | • Forecast to reduce delay and congestion by 14% across the city, reduce journey times along key corridors by 3% and lead to a 4% reduction in bus trips. |
| | • Active travel infrastructure with supporting promotion and information will improve access to new developments in Hereford. |
| | • Forecast to reduce congestion levels in the City Centre by 7%. |
| | • Combines active travel infrastructure, promotion and information which work in combination to improve modal choice. These elements will also help to overcome the effects of incidents, maintenance and roadworks. |
| Environment | • Forecast to reduce traffic in the Air Quality Management Area by 8% and result in a 5% mode shift to less polluting modes. |
| | • Unlikely to have direct adverse impacts on the water environment and designated biodiversity sites. |
| | • Will lead to the creation of new and improved public spaces, paving and planting; however some parts of the city will be unaffected. |
| | • Contains measures intended to make residential areas more pleasant places to live, such as restricting through traffic on residential roads and introducing school streets. It will also provide a marked improvement in access to the city centre by sustainable travel modes and encourage footfall in the City Centre. |
| Society | • The cycling and walking infrastructure, promotion and information and shared mobility options will work together to enable people to be more active and encourage regular physical activity in children. |
| | • Focuses on the more affordable transport modes of cycling and walking which are accessible and available to many people in society, including those without access to a car. The package will provide some benefit to rural residents but most of the benefit will relate to shorter-distance trips in the city. |
| | • Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in collisions, accidents and levels of severance. |
| | • Forecast to reduce vehicle movements through the Noise Important Areas by 12%. |
| Acceptability | • The public supported safer routes to school and improved walking and cycling infrastructure.<br>• They were not directly asked about promotional campaign, shared mobility solutions or mobility hubs. |
| Deliverability | • Package A will require a range of permissions and consents (e.g. certain Mobility Hubs) with some level of risk but with good chance of success.<br>• Most elements of Package A have been delivered in places with similar characteristics to Hereford and use tried and tested technology.<br>• Most elements of Package A could be delivered in 3 years; however some elements such as promotional campaigns and improved walking and cycling may take longer to be implemented. |
| Affordability | • The total capital cost of Package A is £57.4m.<br>• The total revenue cost of Package A is £2.4m pa.<br>• Package A has the highest value for money of all the assessed packages.<br>• Funding bodies typically fund the options proposed in Package A. However, Shared Mobility Solutions and Mobility Hubs are more recent concepts and there is less clear evidence of funding bodies responding to these types of solutions in smaller cities such as Hereford. |

# 7. Package A + B (Walking and Cycling, plus Bus)

| | | Outcome |
|---|---|---|
| Climate Emergency | O1 | The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target |
| | O2 | The need to travel by private motor vehicle is reduced and travel distance is reduced |
| | O3 | The amount of resources and energy used in the transport system is minimised |
| | O4 | The transport system is flexible and adaptable to climate change and future needs |
| Economy | O5 | Reliable and efficient movement of people and goods and provision of services |
| | O6 | The transport system facilitates sustainable development |
| | O7 | Transport supports a thriving local economy |
| | O8 | A more resilient transport system |
| Environment | O9 | A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live |
| | O10 | A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain |
| | O11 | A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) |
| | O12 | The transport system contributes to creating attractive and high quality places to live, work and visit |
| Society | O13 | The transport system facilitates improved public health through more active lifestyles |
| | O14 | All sectors of society have easy and affordable access to the services and facilities they need |
| | O15 | The transport network is safe and secure for everyone to use confidently |
| | O16 | The adverse impacts of transport on communities are reduced, including severance and noise |



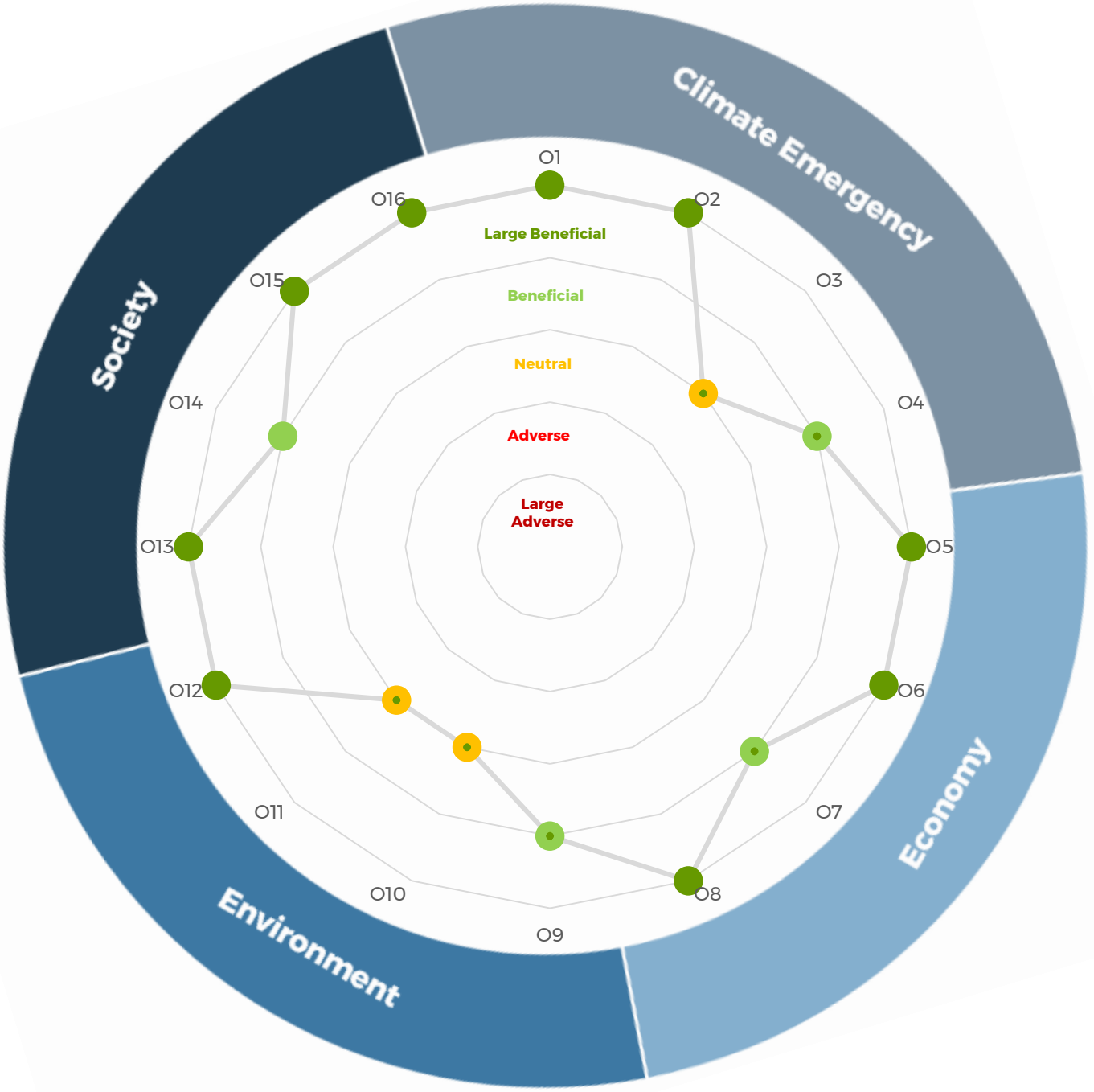
# 7. Package A + B (Walking and Cycling, plus Bus)

| | | Main impacts of Package A + B |
|---|---|---|
| Climate Emergency | | • Forecast to result in a 10% reduction in tonnes of carbon. |
| | | • Forecast to lead to a 9% reduction in kms travelled by private motor vehicles and a 15% reduction in car mode share for short-distance trips in the city. |
| | | • Some additional construction works (e.g. bus priority) and therefore will result in a medium increase in embodied carbon. |
| | | • Widens travel choice and provides better information on options available to travellers alongside flexible route choice from DRT buses. |
| Economy | | • Forecast to reduce delay and congestion by 15% across the city, reduce journey times along key corridors by 2% and lead to a 19% increase in bus trips. |
| | | • Support new development with additional active travel infrastructure, supporting promotion and information and new bus routes to serve these areas. |
| | | • Forecast to reduce congestion levels in the City Centre by 7%. |
| | | • The package emphasis is on active travel networks, promotion and information, which will help overcome the effects of incidents, maintenance and roadworks. These elements alongside improved bus services work in combination to improve modal choice. |
| Environment | | • Forecast to reduce traffic in the Air Quality Management Area by 19% and result in a 5% mode shift to less polluting modes. |
| | | • Transport infrastructure in this package is unlikely to have direct adverse impacts on the water environment and designated biodiversity sites. |
| | | • Will lead to the creation of new and improved public spaces, paving and planting; however some parts of the city will be unaffected. |
| | | • Contains measures intended to make residential areas more pleasant places to live, such as restricting through traffic on residential roads, introducing school streets and electric buses. It will also provide a marked improvement in access to the City Centre by sustainable travel modes and encourage footfall in the City Centre. |
| Society | | • The cycling and walking infrastructure, promotion, information and shared mobility options will work together to enable people to be more active, including as part of a public transport journey, and encourage regular physical activity in children. |
| | | • Focuses on the more affordable transport modes (cycling and walking) which are accessible/available to many people in society, including those without access to a car. Provides improved bus frequency to allow rural residents to easily transfer from other modes and the DRT will widen access to bus services for rural residents. |
| | | • Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in collisions, accidents and levels of severance. |
| | | • Forecast to reduce vehicle movements through the Noise Important Areas by 12%. |
| Acceptability | | • The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure.<br>• They were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs or improved school bus. |
| Deliverability | | • There are limited examples where Local Authorities have gone substantially beyond their statutory responsibilities to fund travel to school by bus and there are few examples of where DRT services have operated consistently over time.<br>• There are significant issues over how an Electric Hopper Bus could be introduced in Hereford due to the Bus Services Act (2017). Most other elements will require a range of permissions and consents with some level of risk but with a good chance of success in most cases.<br>• Most elements of Package A + B use tried and tested technology.<br>• Most elements of Package A + B could be delivered in 4 years; however some elements such as promotional campaigns, improved walking and cycling, bus infrastructure and the implementation of the Electric Hopper Bus may take longer. |
| Affordability | | • The total capital cost of Package A + B is £75.9m<br>• The total revenue cost of Package A + B is £5.9m pa.<br>• Package A + B has a medium value for money relative to the other assessed packages.<br>• Shared mobility solutions and mobility hubs are more recent concepts and there is less clear evidence of funding bodies responding to these types of solutions in smaller cities such as Hereford. There are also no known external funding sourced for widened entitlement to school transport. |

# 7. Package A + B + C (Walking and Cycling, Bus and Demand Management)



| | | Outcome |
|---|---|---|
| Climate Emergency | O1 | The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target |
| | O2 | The need to travel by private motor vehicle is reduced and travel distance is reduced |
| | O3 | The amount of resources and energy used in the transport system is minimised |
| | O4 | The transport system is flexible and adaptable to climate change and future needs |
| Economy | O5 | Reliable and efficient movement of people and goods and provision of services |
| | O6 | The transport system facilitates sustainable development |
| | O7 | Transport supports a thriving local economy |
| | O8 | A more resilient transport system |
| Environment | O9 | A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live |
| | O10 | A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain |
| | O11 | A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) |
| | O12 | The transport system contributes to creating attractive and high quality places to live, work and visit |
| Society | O13 | The transport system facilitates improved public health through more active lifestyles |
| | O14 | All sectors of society have easy and affordable access to the services and facilities they need |
| | O15 | The transport network is safe and secure for everyone to use confidently |
| | O16 | The adverse impacts of transport on communities are reduced, including severance and noise |



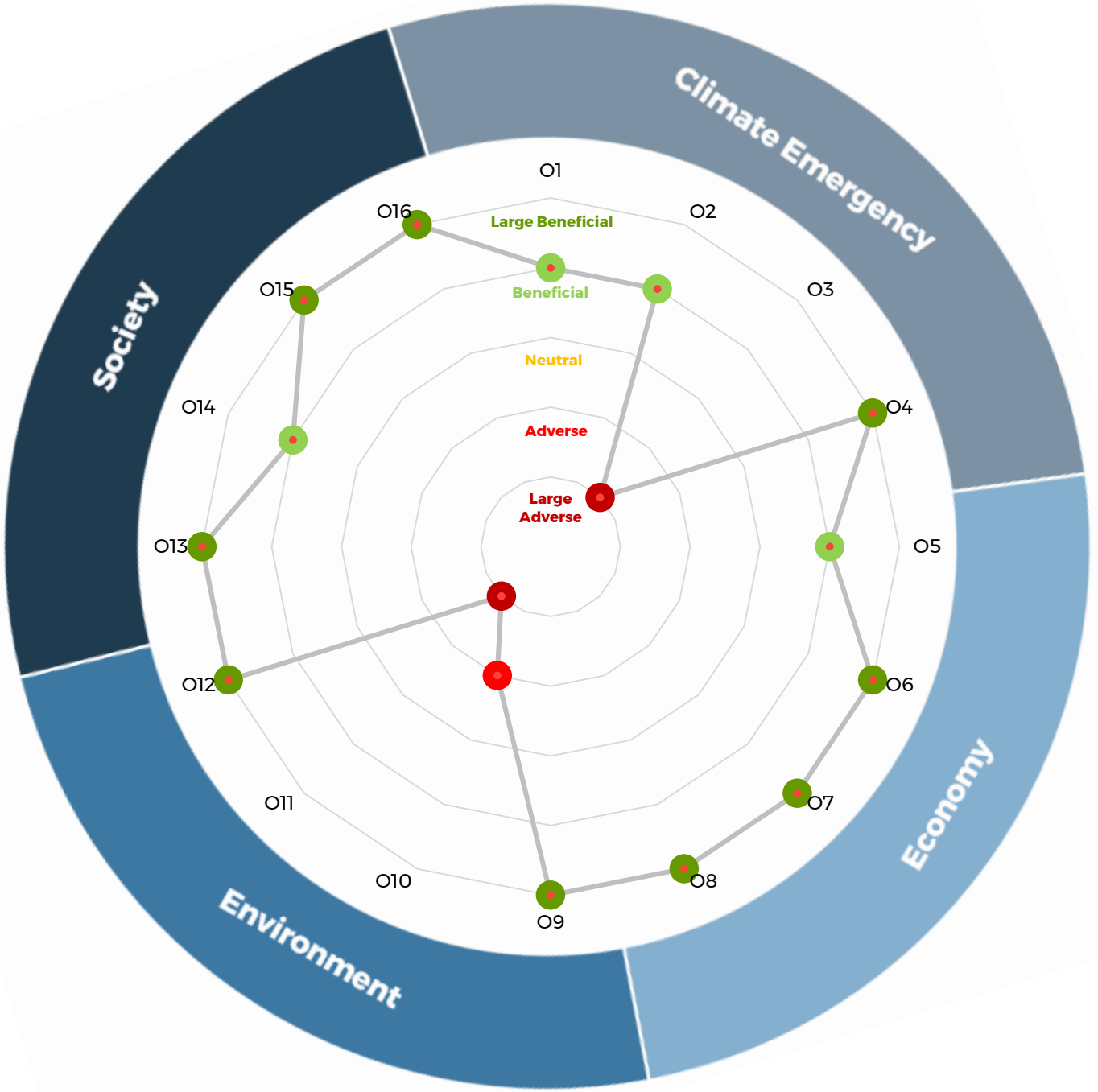
# 7. Package A + B + C (Walking and Cycling, Bus and Demand Management)



| | Main impacts of Package A + B + C |
|---|---|
| Climate Emergency | • Forecast to result in a 10% reduction in tonnes of carbon. |
| | • Forecast to lead to a 9% reduction in kms travelled by private motor vehicles and a 17% reduction in car mode share for short-distance trips in the city. |
| | • Some additional works and therefore will result in a medium increase in embodied carbon. |
| | • Widens travel choice and provides better information on options available to travellers alongside flexible route choice from DRT buses. |
| Economy | • Forecast to reduce delay and congestion by 15% across the city, reduce journey times along key corridors by 4% and lead to a 20% increase in bus trips. |
| | • Support new development with additional sustainable transport (cycling, walking and bus) alongside promotion and information. |
| | • Forecast to reduce congestion levels in the City Centre by 8%. |
| | • Will widen route choice through improved active travel networks plus promotion and information. Some of the proposed ITS measures will also help to manage the impact of incidents, maintenance and roadworks. The elements work in combination to significantly improve modal choice. |
| Environment | • Forecast to reduce traffic in the Air Quality Management Area by 9% and result in a 6% mode shift to less polluting modes. |
| | • Transport infrastructure in this package is unlikely to have direct adverse impacts on the water environment and designated biodiversity sites. |
| | • Will lead to the creation of new and improved public spaces, paving and planting; however some parts of the city will be unaffected. The ITS measures might have some adverse impacts on the streetscape, but the overall effect is considered to be neutral. |
| | • Contains measures intended to make residential areas more pleasant places to live, such as restricting through traffic on residential roads, introducing school streets and electric buses. It will provide a marked improvement in access to the City Centre by sustainable travel modes and encourage footfall in the City Centre. |
| Society | • The cycling and walking infrastructure, promotion, information and shared mobility options will work together to enable people to be more active, including as part of a public transport journey, and encourage regular physical activity in children. |
| | • Focuses on the more affordable transport modes (cycling, walking and bus) which are accessible and available to many people in society, including those without access to a car. However, demand management will either reduce parking or place additional costs on vehicle travel for rural residents. |
| | • Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in collisions, accidents and levels of severance. It will encourage confidence in the reliability of bus travel. |
| | • Forecast to reduce vehicle movements through the Noise Important Areas by 12%. |
| Acceptability | • The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure.<br>• They were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| Deliverability | • There are limited examples where Local Authorities have gone substantially beyond their statutory responsibilities to fund travel to school by bus and there are few examples of where DRT services have operated consistently over time.<br>• There are significant issues over how an Electric Hopper Bus could be introduced in Hereford due to the Bus Services Act (2017) and the consents required and their chance of success would depend on which demand management measures are progressed and in what combination. Most other elements will require a range of permissions and consents with some level of risk but with a good chance of success in most cases.<br>• Most elements of Package A + B + C use tried and tested technology.<br>• Most elements of Package A + B + C could be delivered in 4 years; however some elements such as promotional campaigns, improved walking and cycling and bus infrastructure may take longer to be implemented. Finding a means to deliver the Electric Hopper Bus in accordance with the Bus Services Act is also likely to take some time as could the implementation of more restrictive demand management measures.. |
| Affordability | • The total capital cost of Package A + B + C is £79.9m.<br>• The total revenue cost of Package A + B + C is £5.5m pa.<br>• Package A + B + C has a medium value for money relative to the other assessed packages.<br>• Shared mobility solutions and mobility hubs are more recent concepts and there is less clear evidence of funding bodies responding to these types of solutions in smaller cities such as Hereford. There are also no known external funding sourced for widened entitlement to school transport. |

# 7. Package A + C + D (Walking and Cycling, Demand Management and Western Bypass)

| | | Outcome |
|---|---|---|
| Climate Emergency | O1 | The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target |
| | O2 | The need to travel by private motor vehicle is reduced and travel distance is reduced |
| | O3 | The amount of resources and energy used in the transport system is minimised |
| | O4 | The transport system is flexible and adaptable to climate change and future needs |
| Economy | O5 | Reliable and efficient movement of people and goods and provision of services |
| | O6 | The transport system facilitates sustainable development |
| | O7 | Transport supports a thriving local economy |
| | O8 | A more resilient transport system |
| Environment | O9 | A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live |
| | O10 | A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain |
| | O11 | A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) |
| | O12 | The transport system contributes to creating attractive and high quality places to live, work and visit |
| Society | O13 | The transport system facilitates improved public health through more active lifestyles |
| | O14 | All sectors of society have easy and affordable access to the services and facilities they need |
| | O15 | The transport network is safe and secure for everyone to use confidently |
| | O16 | The adverse impacts of transport on communities are reduced, including severance and noise |



# 7. Package A + C + D (Walking and Cycling, Demand Management and Western Bypass)

| | Main impacts of Package A + C + D |
|---|---|
| Climate Emergency | • Forecast to result in a 3% reduction in tonnes of carbon. |
| | • Forecast to lead to less than 2% increase in kms travelled by private motor vehicles and a 17% reduction in car mode share for short-distance trips in the city. |
| | • Anticipated to result in a high increase in embodied carbon, the largest impact coming from construction of the Western Bypass. |
| | • Widens travel choice and provides better information on options available to travellers, alongside an additional link across the river which will increase network resilience. |
| Economy | • Forecast to reduce delay and congestion by 29% across the city, reduce journey times along key corridors by 7% and lead to a 3% reduction in bus trips. |
| | • Active travel infrastructure with supporting promotion and information and a new bypass route will improve access to new developments in Hereford. |
| | • Forecast to reduce congestion levels in the City Centre by 19%. |
| | • The package will provide a second strategic road link across the river and ITS measures which will help to manage the impacts of incidents, maintenance and roadworks. It also combines active travel infrastructure, promotion and information which work in combination to improve modal choice. |
| Environment | • Forecast to reduce traffic in the Air Quality Management Area by 27% and result in a 5% mode shift to less polluting modes. |
| | • The Western Bypass will have adverse impacts on the ecological, chemical and hydromorphological quality of the River Wye, Yazor Brook, Withy Brook and Newton Brook. It will have adverse impacts on designated biodiversity sites with the Southern Link Road passing through Grafton Wood ancient woodland. |
| | • The Western Bypass will have significant impact on landscape and visual effects. It will have significant impacts on a number of designated (six Grade II and one Grade II*) listed buildings and non-designated heritage assets including below ground archaeological remains/earthworks, built heritage and landscaped parks. |
| | • Contains measures intended to make residential areas more pleasant places to live, such as restricting through traffic on residential roads and introducing school streets. |
| Society | • The active travel infrastructure and associated promotion and information reinforced by the demand management provide greater opportunity to make people more active by walking and cycling and enable people to cycle and walk as part of longer journeys made by public transport. |
| | • Provides affordable transport modes of travel, promotion and information and mobility hubs which will benefit many sectors of society, including those without access to a car. Mobility hubs would enable transfers to be made onto sustainable transport at key locations, benefiting rural residents. |
| | • Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in collisions, accidents and levels of severance. |
| | • The Western Bypass will reduce traffic flows on some cross city corridors and is forecast to reduce vehicle movements through the Noise Important Areas by 31%. |
| Acceptability | • The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure.<br>• They were not directly asked about promotional campaigns, shared mobility solutions, mobility hubs, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| Deliverability | • Most elements of Package A + C + D will require a range of permissions and consents (e.g. certain mobility hubs) with some level of risk but with good chance of success. The Western Bypass will require DCO or planning permission and land acquisition or CPO.<br>• Most elements of Package A + C + D have been delivered in places with similar characteristics to Hereford and use tried and tested technology<br>• Most elements of Package A + C + D could be delivered in less than 4 years; however some elements such as promotional campaigns and improved walking and cycling may take longer to be implemented. The Western Bypass could take up to 10 years and would require further detailed design, approvals and construction to be delivered. |
| Affordability | • The total capital cost of Package A + C + D is £261.4m.<br>• The total revenue cost of Package A + C + D is £2.1m pa.<br>• Package A + C + D has the lowest value for money of all the assessed packages.<br>• Funding bodies typically fund the options proposed in Package A + C + D. However, some elements are more challenging e.g. gaining agreed funding for the Western Bypass is likely to depend on gaining Central Government approval |

# 7. Package A + C + E (Walking and Cycling, Demand Management and Eastern Link)

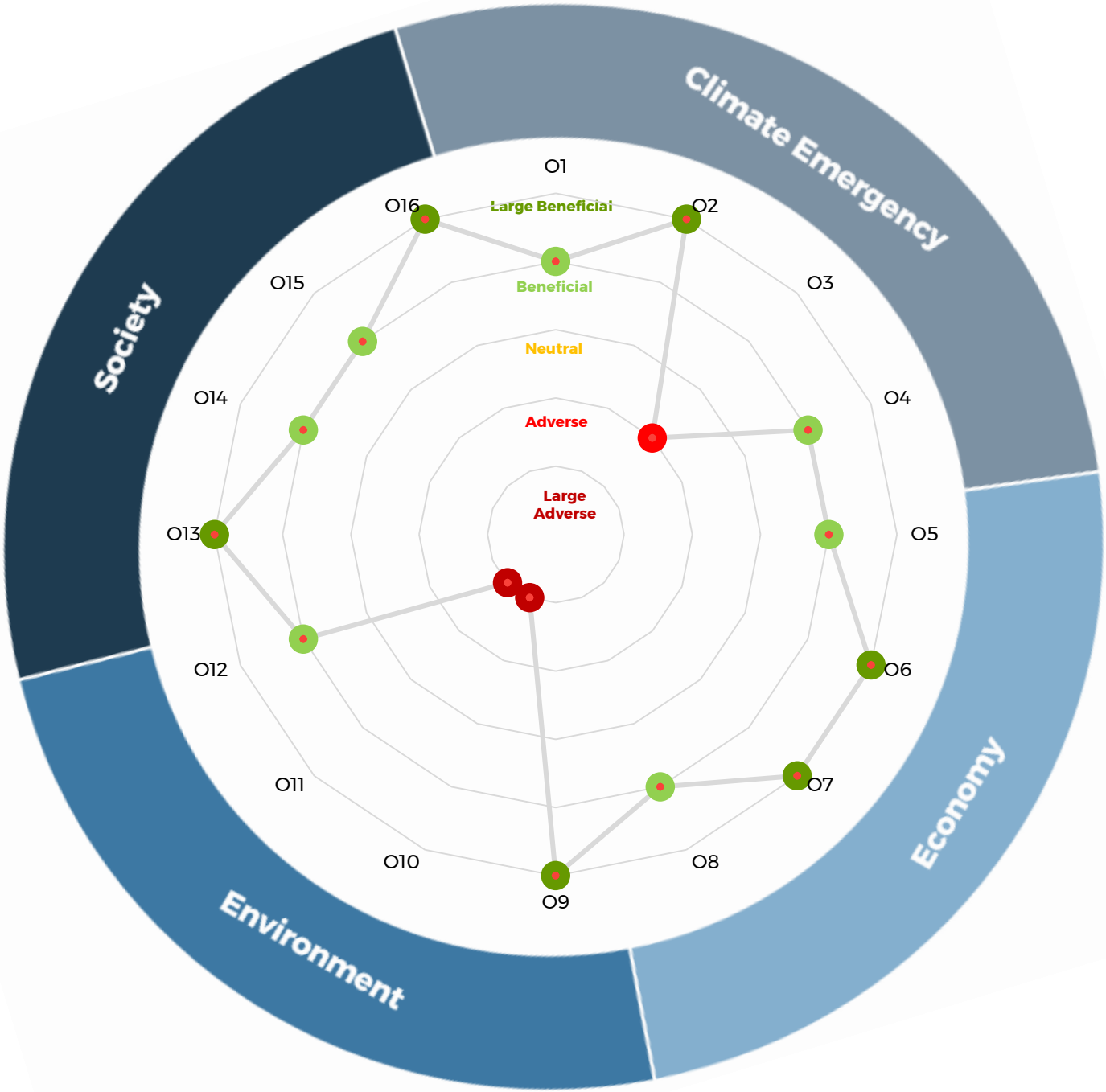
| | | Outcome |
|---|---|---|
| Climate Emergency | O1 | The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target |
| | O2 | The need to travel by private motor vehicle is reduced and travel distance is reduced |
| | O3 | The amount of resources and energy used in the transport system is minimised |
| | O4 | The transport system is flexible and adaptable to climate change and future needs |
| Economy | O5 | Reliable and efficient movement of people and goods and provision of services |
| | O6 | The transport system facilitates sustainable development |
| | O7 | Transport supports a thriving local economy |
| | O8 | A more resilient transport system |
| Environment | O9 | A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live |
| | O10 | A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain |
| | O11 | A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) |
| | O12 | The transport system contributes to creating attractive and high quality places to live, work and visit |
| Society | O13 | The transport system facilitates improved public health through more active lifestyles |
| | O14 | All sectors of society have easy and affordable access to the services and facilities they need |
| | O15 | The transport network is safe and secure for everyone to use confidently |
| | O16 | The adverse impacts of transport on communities are reduced, including severance and noise |

# 7. Package A + C + E (Walking and Cycling, Demand Management and Eastern Link)

| | Main impacts of A + C + E |
|---|---|
| Climate Emergency | • Forecast to result in a 8% reduction in tonnes of carbon. |
| | • Forecast to lead to 5% reduction in kms travelled by private motor vehicles and a 16% reduction in car mode share for short-distance trips in the city. |
| | • Anticipated to result in a high increase in embodied carbon, the largest impact coming from construction of the Eastern Link. |
| | • Widens travel choice and provides better information on options available to travellers, alongside an additional link across the river which will increase network resilience. |
| Economy | • Forecast to reduce delay and congestion by 23% across the city, reduce journey times along key corridors by 6% and lead to a 3% reduction in bus trips |
| | • Active travel infrastructure with supporting promotion and information and a new bypass route will improve access to new developments in Hereford. |
| | • Forecast to reduce congestion levels in the City Centre by 18%. |
| | • The package will provide a new river crossing and ITS measures which will help to manage the impacts of incidents, maintenance and roadworks. It also combines active travel infrastructure, promotion and information which work in combination to improve modal choice. |
| Environment | • Forecast to reduce traffic in the Air Quality Management Area by 21% and result in a 5% mode shift to less polluting modes. |
| | • The Eastern Link will cross over a large area of the River Wye floodplain and is likely to have an adverse impact with flood relief measures required. There are likely to be complex hydrological relationships existing between the River Wye SAC, the River Lugg, Lugg and Hampton Meadows SSSI, Lugg Rhea and the wider floodplain. It is likely to have significant adverse impacts on the designated features of River Wye SAC, River Lugg SSSI and the Lugg and Hampton Meadows SSSI. |
| | • The Eastern Link will have significant impact on landscape and visual effects, with new infrastructure in greenfield locations. It will cross part of one scheduled monument (Rotherwas House and Chapel) and close to another (Tupsley Ring Ditches) and pass close to listed buildings (two Grade II and one Grade II*). |
| | • Will make residential areas more pleasant places to live, such as restricting through traffic on residential roads and introducing school streets. However, the Eastern Link will lead to an increase in traffic flow in some residential areas within north-east Hereford and further east (Lugwardine and Bartestree). |
| Society | • The active travel infrastructure and associated promotion and information reinforced by the demand management provide greater opportunity to make people more active by walking and cycling and enable people to cycle and walk as part of longer journeys made by public transport. |
| | • Provides affordable transport modes of travel, promotion and information and mobility hubs which will benefit many sectors of society, including those without access to a car. Mobility hubs will enable transfers to be made onto sustainable transport at key locations, benefiting rural residents. |
| | • Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in accidents. |
| | • The Eastern Link will reduce traffic flows on some cross city corridors with a beneficial reduction on severance. It is forecast to reduce vehicle movements through the Noise Important Areas by 21%. |
| Acceptability | • The public supported Increase in road capacity, safer routes to school and improved cycling and walking infrastructure.<br>• They were not directly asked about promotional campaign, shared mobility solutions, mobility hubs, bus priority, DRT, mobility hubs, improved school bus or ITS |
| Deliverability | • Most elements of Package A + C + E will require a range of permissions and consents (e.g. certain mobility hubs) with some level of risk but with good chance of success. The Eastern Link will require DCO or planning permission and land acquisition or CPO.<br>• Most elements of Package A + C + E have been delivered in places with similar characteristics to Hereford and use tried and tested technology<br>• Most elements of Package A + C + E could be delivered in less than 4 years; however some elements such as promotional campaigns and improved walking and cycling may take longer to be implemented. The Eastern Link could take up to 10 years and would require detailed design, approvals and construction to be delivered. |
| Affordability | • The total capital cost of Package A + C + E is £126.4m.<br>• The total revenue cost of Package A + C + E is £2.0m pa.<br>• Package A + C + E has a medium value for money relative to the other assessed packages.<br>• Funding bodies typically fund the options proposed in Package A + C + E. However, some elements are more challenging e.g. gaining agreed funding for the Eastern Link is likely to depend on gaining Central Government or LEP approval |

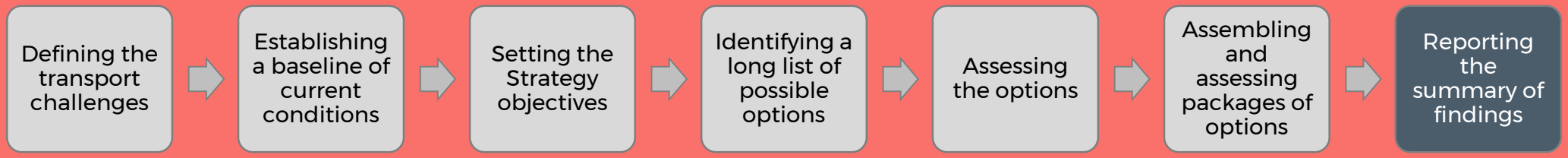
# 7. Package A + C + F (Walking and Cycling, Demand Management and Eastern River Crossing)

| | | Outcome |
|---|---|---|
| Climate Emergency | O1 | The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target |
| | O2 | The need to travel by private motor vehicle is reduced and travel distance is reduced |
| | O3 | The amount of resources and energy used in the transport system is minimised |
| | O4 | The transport system is flexible and adaptable to climate change and future needs |
| Economy | O5 | Reliable and efficient movement of people and goods and provision of services |
| | O6 | The transport system facilitates sustainable development |
| | O7 | Transport supports a thriving local economy |
| | O8 | A more resilient transport system |
| Environment | O9 | A reduction in key air pollutants (nitrogen oxides and particulates) especially where people live |
| | O10 | A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain |
| | O11 | A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) |
| | O12 | The transport system contributes to creating attractive and high quality places to live, work and visit |
| Society | O13 | The transport system facilitates improved public health through more active lifestyles |
| | O14 | All sectors of society have easy and affordable access to the services and facilities they need |
| | O15 | The transport network is safe and secure for everyone to use confidently |
| | O16 | The adverse impacts of transport on communities are reduced, including severance and noise |



# 7. Package A + C + F (Walking and Cycling, Demand Management and Eastern River Crossing)

| | Main impacts of A+C+F |
|---|---|
| Climate Emergency | • Forecast to result in a 9% reduction in tonnes of carbon. |
| | • Forecast to lead to 7% reduction in kms travelled by private motor vehicles and a 16% reduction in car mode share for short-distance trips in the city. |
| | • Anticipated to result in a medium/high increase in embodied carbon, the largest impact coming from construction of the Eastern River Crossing. |
| | • Widens travel choice and provides better information on options available to travellers, alongside an additional link across the river which will increase network resilience. |
| Economy | • Forecast to reduce delay and congestion by 23% across the city, reduce journey times along key corridors by 5% and lead to a 3% reduction in bus trips |
| | • Active travel infrastructure with supporting promotion and information and a new bypass route will improve access to new developments in Hereford. |
| | • Forecast to reduce congestion levels in the City Centre by 15%. |
| | • The package will provide a new river crossing and ITS measures which will help to manage the impacts of incidents, maintenance and roadworks. It combines active travel infrastructure, promotion and information which work in combination to improve modal choice. |
| Environment | • Forecast to reduce traffic in the Air Quality Management Area by 19% and result in a 5% mode shift to less polluting modes. |
| | • The Eastern River Crossing will cross over a large area of the River Wye floodplain and is likely to have an adverse impact with flood relief measures required. There are likely to be complex hydrological relationships existing between the River Wye SAC, the River Lugg, Lugg and Hampton Meadows SSSI, Lugg Rhea and the wider floodplain. It is likely to have significant adverse impacts on the designated features of River Wye SAC. |
| | • The Eastern River Crossing will have significant impact on landscape and visual effects, with new infrastructure in greenfield locations. It will cross part of one scheduled monument (Rotherwas House and Chapel) and pass close to listed buildings (two Grade II and one Grade II*), affecting the integrity of sites. |
| | • Contains measures intended to make residential areas more pleasant places to live, such as restricting through traffic on residential roads and introducing school streets. However, the Eastern River Crossing will lead to an increase in traffic flow in some residential areas within east Hereford between the Hampton Park Road and Ledbury Road. |
| Society | • The active travel infrastructure and associated promotion and information reinforced by the demand management provide greater opportunity to make people more active by walking and cycling and enable people to cycle and walk as part of longer journeys made by public transport |
| | • Provides affordable transport modes of travel, promotion and information and mobility hubs which will benefit many sectors of society, including those without access to a car. Mobility hubs will enable transfers to be made onto sustainable transport at key locations, benefiting rural residents. |
| | • Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in accidents |
| | • The Eastern River Crossing will reduce traffic flows on some cross city corridors with a beneficial reduction on severance and is forecast to reduce vehicle movements through the Noise Important Areas by 19%. |
| Acceptability | • The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure.<br>• They were not directly asked about promotional campaign, shared mobility solutions, mobility hubs, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| Deliverability | • Most elements of Package A + C + F will require a range of permissions and consents (e.g. certain mobility hubs) with some level of risk but with good chance of success. The Eastern River Crossing will require DCO or planning permission and land acquisition or CPO.<br>• Most elements of Package A + C + F have been delivered in places with similar characteristics to Hereford and use tried and tested technology.<br>• Most elements of Package A + C + F could be delivered in less than 4 years; however some elements such as promotional campaigns and improved walking and cycling may take longer to be implemented. The Eastern River Crossing could take up to 10 years and would require detailed design, approvals and construction to be delivered. |
| Affordability | • The total capital cost of Package A + C + F is £113.4m.<br>• The total revenue cost of Package A + C + F is £2.1m pa.<br>• Package A + C + F has a medium value for money relative to the other assessed packages.<br>• Funding bodies typically fund the options proposed in Package A + C + F. However, some elements are more challenging e.g. gaining agreed funding for the Eastern River Crossing is likely to depend on gaining Central Government or LEP approval. |




# Chapter 8
# Reporting the summary of findings

*The final step in the transport strategy review was to report the findings of the package assessment.*

*This chapter summarises the key similarities and differences of the packages, and in similarity to Chapter 7, uses radar diagrams to compare their relative performance against the strategy outcomes on one page. Commentary is provided on acceptability, deliverability and affordability considerations plus working with other organisations to implement the strategy. The chapter concludes by describing the level of uncertainty in the study and advising on how best to make use of the study outputs in developing a transport strategy for Hereford.*

# 8. Package Comparison

Whilst there are some similarities between the six packages in terms of how they perform against the study objectives, there are also some key differences as set out below. This information is intended to assist Herefordshire Council in its deliberations on how best to refresh the Transport Strategy for Hereford.

## Similarities

Most of the 'society' benefits are generated by Package A (focussed on walking and cycling). Since this is common to all six packages, there is very little variation in how the different packages perform against the society outcomes.

## Differences

There are some key differences in how the packages perform against the Climate Emergency, Economy and Environmental outcomes, as well as in their cost, value for money and deliverability.

## Public Acceptability

From the public responses at the start of the study, it is evident that all packages will have their supporters and detractors. Whilst most people will support the elements of Packages A and A + B (primarily focused on walking and cycling and travel by bus), there will almost certainly be divided opinion over the relative merits of demand management or any of the road schemes.

# 8. Package Comparison

## Package A ( Focus on Walking and Cycling)

- Scores well across a wide range of indicators, with 'beneficial' or 'large beneficial' being achieved across 14 of the 16
- It leads to a significant reduction in carbon emissions and has the lowest embodied carbon of all six packages
- It leads to a significant reduction in congestion across the city and a moderate reduction in city centre congestion
- As the package is not focused on major new infrastructure, it has negligible impact on the environmental indicators
- It scores particularly highly in meeting 'society needs', including making people more active and reducing vehicle speeds in residential areas
- However, it leads to a small reduction in bus patronage (due to some people diverting from bus to walk or cycle)
- It has the lowest cost of the six packages at £57m and revenue costs of £2m pa
- It has the highest Value for Money of all six packages
- It is relatively straight forward to implement and most elements could be introduced within 3 years

## Package A + B (Walking and Cycling, plus Bus)

- Also scores well across a wide range of indicators, with the additional benefit of leading to a significant increase in bus patronage
- The performance across most other indicators is very similar to Package A although it performs slightly more strongly across some by improving modal choice and meeting the needs of more sections of society
- It is more expensive than Package A at £ 76m and has a significantly higher annual revenue cost at £6m pa to support the extended school bus service and Electric hopper bus network
- It provides medium Value for Money
- There is a significant challenge in that introducing the electric hopper bus will be difficult given current legislation
- Most elements could be introduced within 4 years although overcoming the bus legislation issues could take longer

## Package A + B + C (Walking and Cycling, Bus and Demand Management)

- Is very similar to Package A+B across most indicators, albeit with a marginal improvement in some congestion and journey time indicators
- It has a capital cost of £80m and a similar revenue cost at £6m pa, also providing a medium Value for Money
- The challenges in implementing the Electric hopper bus given existing legislation are the same
- The complexities (and public resistance) to demand management measures will depend upon the detailed measures proposed but this could be significant
- Most elements could be introduced within 4 years although overcoming the bus legislation issues could take longer, as could implementing more restrictive demand management interventions

# 8. Package Comparison

## Package A + C + D (Walking and Cycling, Demand Management and Western Bypass)

- Only provides a small reduction in carbon emissions and has the highest level of embodied carbon across all six packages (due to the Western Bypass)
- Provides the greatest reduction in congestion across the city and within the city centre than the other packages
- Provides additional network resilience with a second strategic link over the River Wye
- It has a large adverse impact on the environment, particularly landscape and heritage
- It still scores well against the society indicators, due mainly to the influence of the walking and cycling measures
- It has the highest capital cost of all six packages at £261m, although the annual revenue costs are lower than packages A+B and A+B+C at £2m pa
- It provides the lowest Value for Money across all six packages
- The Western Bypass would require Central Government funding and possibly a Development Consent Order for construction to proceed
- Whilst most elements of the package could be implemented within 4 years, the Western Bypass could take up to 10 years to be designed, funded and constructed

## Package A + C + E (Walking and Cycling, Demand Management and Eastern Link)

- It provides a smaller reduction in carbon emissions than the non-road packages but more than Package A+C+D. It also has a lower embodied carbon than Package A+C+D
- Provides less congestion relief than Package A+C+D but more than the non-road packages
- Provides additional network resilience with second link over the River Wye
- It also has a large adverse impact on the environment, not only landscape and heritage but also the water environment
- It will increase traffic flows though some residential areas to the east of the city
- It continues to score well against the society indicators due mainly to the walking and cycling measures
- It has a significant capital cost of £126m and provides a medium Value for Money. The revenue costs are similar to Package A+C+D at £2m pa
- The Eastern Link would similarly require Government funding and possibly a Development Consent Order to proceed
- Whilst most elements of the package could be implemented within 4 years, the Eastern Link could take up to 10 years to be designed, funded and constructed



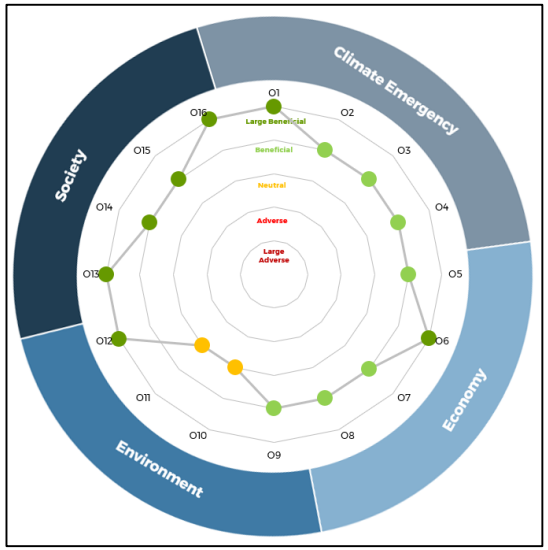
## Package A + C + F (Walking and Cycling, Demand Management and Eastern River Crossing)

- Is very similar to Package A+C+E across many indicators, with a moderate reduction in carbon emissions, but generally provides slightly less congestion relief
- Provides additional network resilience with second link over the River Wye
- It also has a large adverse impact on the environment due to landscape, heritage and water environment
- It will also increase traffic flows through some residential areas to the east of the city (although different areas to Package A+C+E)
- It continues to score well against the society indicators due mainly to the walking and cycling measures
- It has a significant cost of £113m and provides a medium Value for Money. The revenue costs remain at £2m pa
- The Eastern River Crossing would similarly require government funding and possibly a Development Consent Order to proceed
- Whilst most elements of the package could be implemented within 4 years, the Eastern River Crossing could take up to 10 years to be designed, funded and constructed

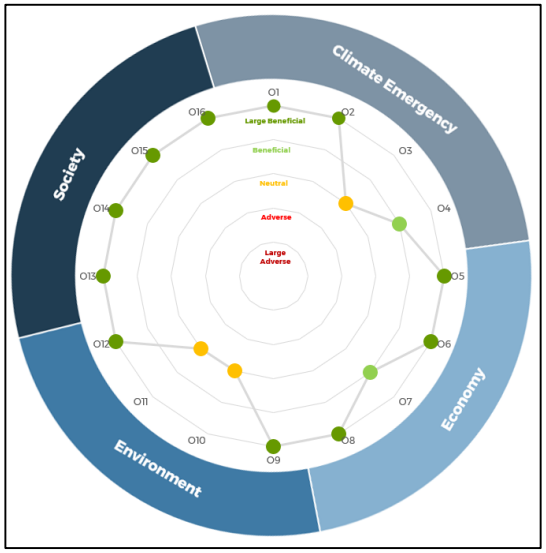
# 8. Package Comparison

For comparison purposes all six radar diagrams are shown below and the following page shows how all six packages compare against acceptability, deliverability and affordability.

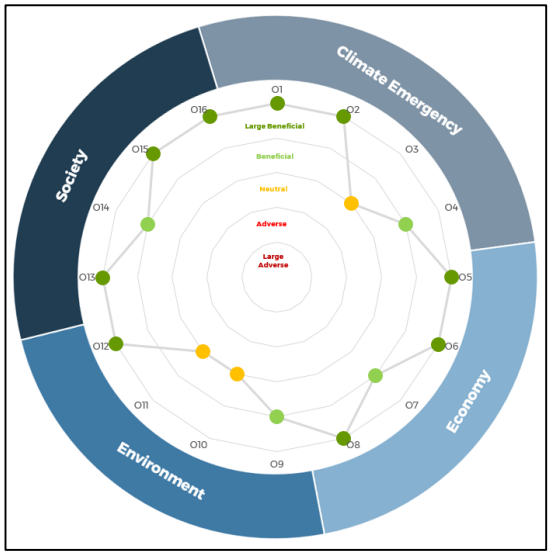
## Package A



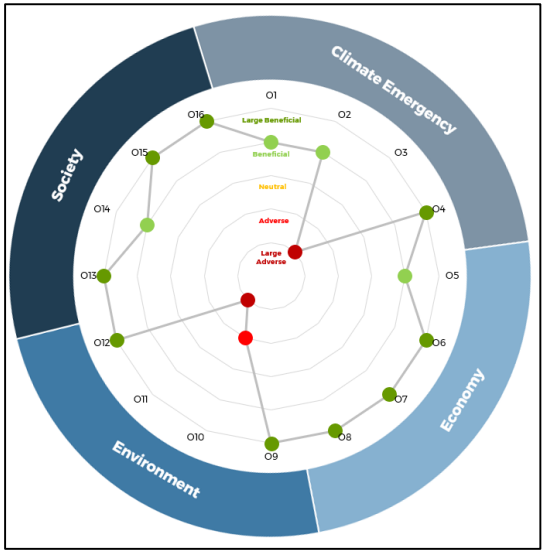

## Package A + B



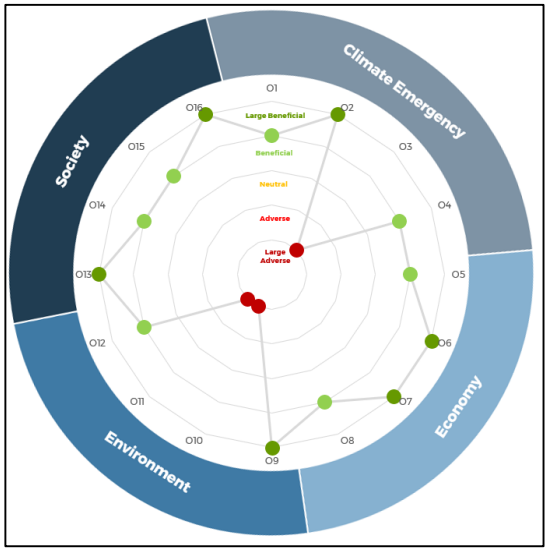

## Package A + B + C



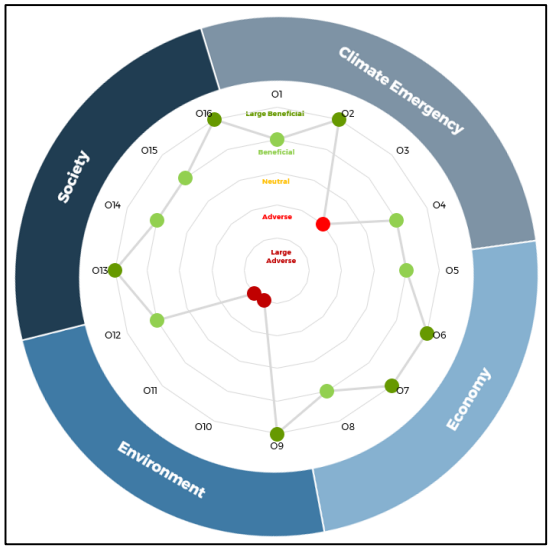

## Package A + C + D




## Package A + C + E




## Package A + C + F

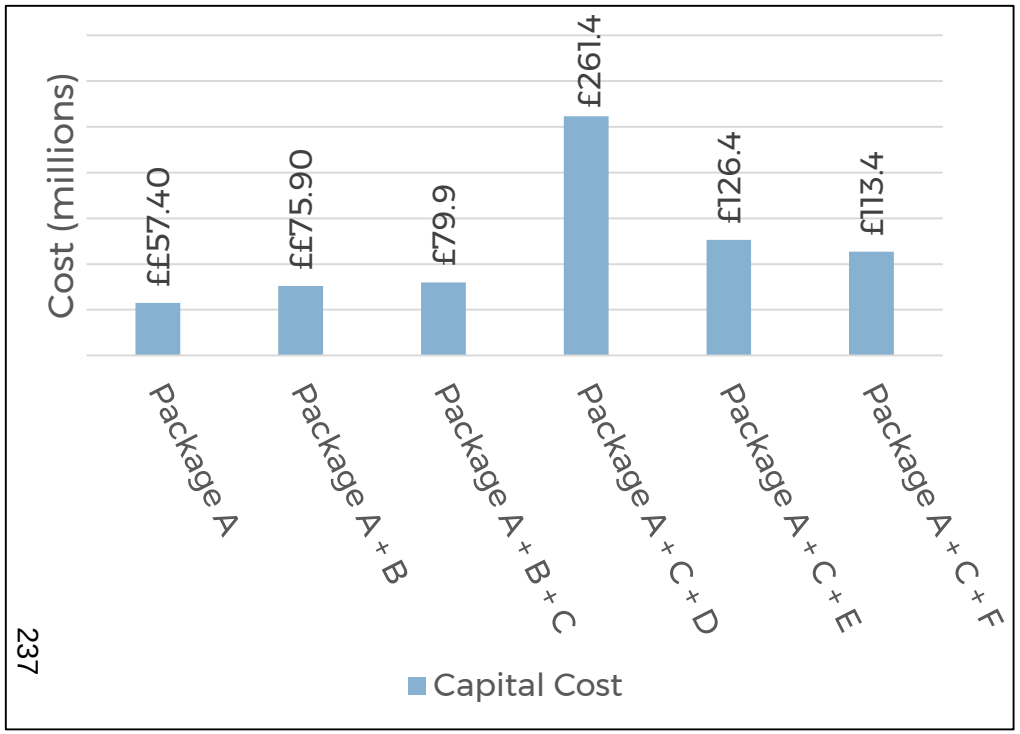


# 8. Package Comparison – Acceptability and Deliverability

| | Package A | Package A + B | Package A + B + C | Package A + C + D | Package A + C + E | Package A + C + F |
|---|---|---|---|---|---|---|
| Acceptability | • The public supported safer routes to school and improved walking and cycling infrastructure | • The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure | • The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure | • The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure | • The public supported Increase in road capacity, safer routes to school and improved cycling and walking infrastructure | • The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure |
| Deliverability | • Requires a range of permissions and consents but with good chance of success<br>• Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology<br>• Most elements could be delivered in 3 years | • Limited examples where Local Authorities have gone substantially beyond their statutory responsibilities to fund travel to school by bus and there are few examples of where DRT services have operated consistently over time<br>• Significant issues over how an Electric hopper bus could be introduced in Hereford due to the Bus Services Act (2017)<br>• Most elements could be delivered in 4 years | • Limited examples where Local Authorities have gone substantially beyond their statutory responsibilities to fund travel to school by bus and there are few examples of where DRT services have operated consistently over time<br>• Significant issues over how an Electric hopper bus could be introduced in Hereford due to the Bus Services Act (2017)<br>• Most elements could be delivered in 4 years; but some elements of the demand management could take longer | • The Western Bypass will require DCO or planning permission with land acquisition and CPO<br>• Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology<br>• Most elements could be delivered in less than 4 years but the Western Bypass could take up to 10 years and would require further detailed design, approvals and construction to be delivered | • The Eastern Link will require DCO or planning permission with land acquisition and CPO<br>• Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology<br>• Most elements of could be delivered in less than 4 years but the Eastern Link could take up to 10 years and would require detailed design, approvals and construction to be delivered | • The Eastern River Crossing will require DCO or planning permission with land acquisition and CPO<br>• Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology<br>• Most elements could be delivered in less than 4 years but the Eastern River Crossing could take up to 10 years and would require detailed design, approvals and construction to be delivered |

# 8. Package Comparison - Affordability



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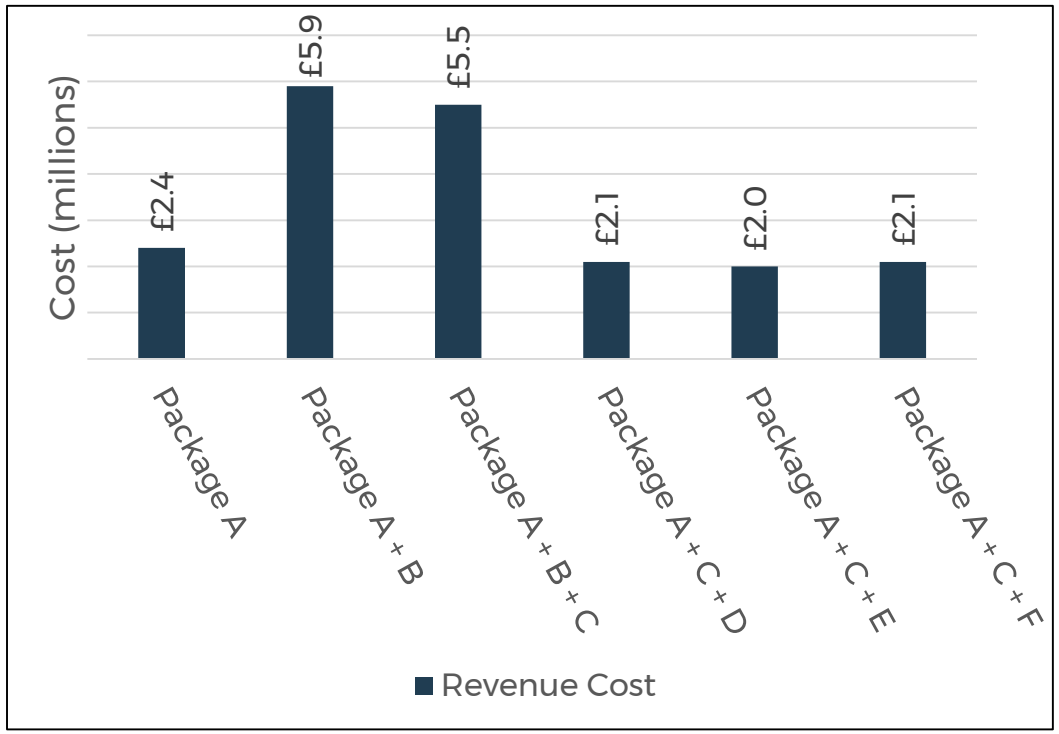


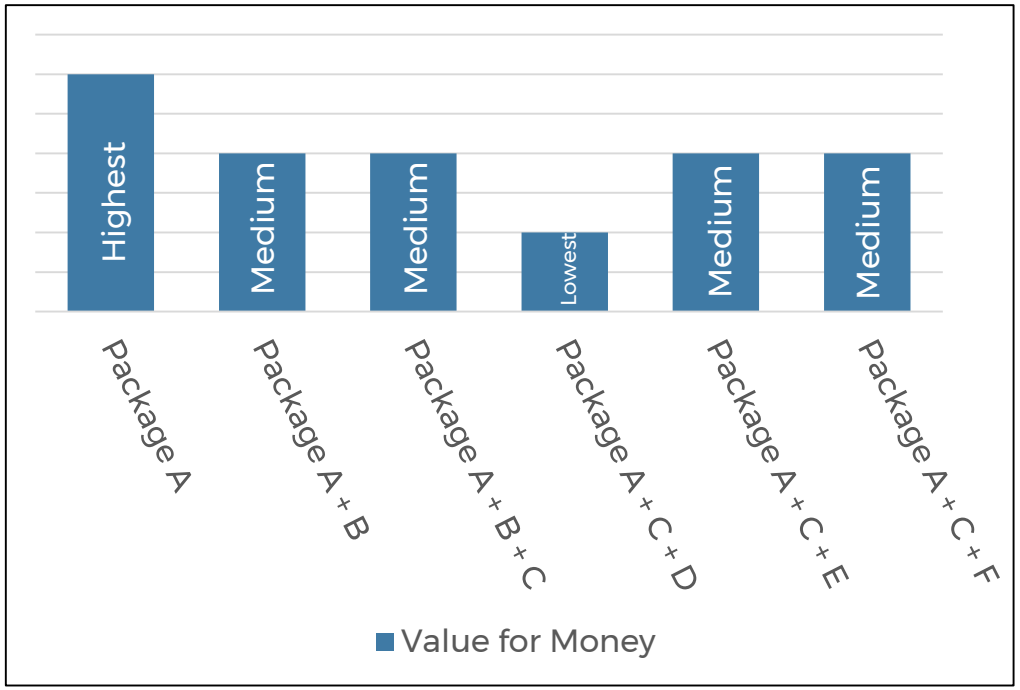


| | Funding | |
|---|---|---|
| **Package A** | | Funding bodies typically fund this type of package |
| **Package A + B** | | No known external funding source for widened entitlement to school transport |
| **Package A + B + C** | | No known external funding source for widened entitlement to school transport |
| **Package A + C + D** | | Very high cost and funding for the Western Bypass is likely to depend on gaining Central Government approval |
| **Package A + C + E** | | Gaining funding for the Eastern Link is likely to depend on gaining Central Government or LEP approval |
| **Package A + C + F** | | Gaining funding for the Eastern River Crossing is likely to depend on gaining Central Government or LEP approval |

# 8. Comparison of packages against the study objectives

This page highlights the key differences between packages for each of the four objective themes:

- Climate Emergency: *Reducing carbon emissions from the transport sector to meet the 2030 target of zero emissions*
    - Packages A, A + B and A + B + C are likely to achieve the greatest reduction in tonnes of carbon and distance travelled by motor vehicle. Packages which contain proposed new road links are likely to have the greatest adverse impacts in terms of embodied carbon, generated by the construction of major new transport infrastructure.

- Economy: *Creating a resilient transport system which allows reliable and efficient movement of people and goods and which supports sustainable development and a thriving local economy*
    - The package which includes the western bypass ( A + C + D) is forecast to provide greatest congestion relief to the city and greatest resilience for the transport network, with a new strategic link over the River Wye. The eastern link and eastern river crossing would also provide significant congestion relief and increase resilience. The other packages (A, A + B, A + B + C) also provide congestion relief but limited improved resilience due to the absence of a new road link.

- Environment: *Reducing air pollutants to create attractive and high quality places to live, work and visit whilst also protecting, conserving and enhancing the natural environment and Herefordshire's built environment*
    - Packages which contain proposed new road links will have an adverse impact on various environmental factors (landscape, heritage and water environment). Those packages without a road scheme (A, A + B, A + B + C) are likely to have negligible adverse impacts due to the absence of any major new road infrastructure.

- Society: *Providing an affordable, safe and secure transport system for all sectors of society which facilitates improved public health and has limited adverse impacts on communities.*
    - Each package performs well against social indicators and most of the benefits are likely to be generated by the package focussed on walking and cycling (package A). The package which combines measures for cycling, walking and bus travel (A + B) is assessed as having the greatest benefits across each social indicator. The benefits of elements which enable greater levels of sustainable travel would be dampened in packages which also include road links (A + C + D, A + C + E, A + C + F) although they would be reinforced by the demand management measures.

# 8. Working with other organisations

## Background

Whilst Herefordshire Council is the primary organisation for progressing all the options assessed in this study, it will need to work in conjunction with several other organisations to implement them successfully. These include:

- Highways England for any of the new road schemes and/or other measures affecting the A49;
- The Department for Transport, the Ministry of Housing, Communities and Local Government and the Marches LEP for funding opportunities;
- Bus operators for any new services within Hereford;
- As well as the local communities within Hereford (residents and businesses) to ensure that any proposals have overall community support.

## Trunk Road Issues

Working with Highways England will also be important in delivering the adopted Core Strategy for Herefordshire. The existing Transport Strategy for the city is based upon the Western Bypass being implemented by 2027 in order to provide additional road capacity to allow the Core Strategy to be fully implemented. Any decision not to pursue the Western Bypass will require further discussion with Highways England to confirm the extent of development which they would support, mindful of its impact on the A49.

Work carried out as part of this study shows that the existing A49 peak hour journey times through Hereford have not changed greatly since the Core Strategy discussions with Highways England. Previously Highways England was prepared to accept some worsening of journey times on the A49 but not prepared to accept the 35% increases in peak hour journey times predicted for 2027. Undertaking a similar assessment for this study, the peak hour journey times for 2026 along the same sections of A49 are predicted to worsen by only 4% with Package A in place, with other packages providing lower journey times still further. As such, this gives confidence that the Core Strategy can continue to be delivered beyond 2026 without serious detrimental impact on the A49.

All packages are likely to require improvements on the A49 Corridor and hence Herefordshire Council will need to work closely with Highways England to develop schemes.

# 8. Dealing with Uncertainty

## The long term effects of Covid-19 on travel behaviour

The Covid-19 pandemic profoundly changed people's lifestyles and travel behaviour, with Government guidance to stay at home, only make essential journeys and work from home wherever possible. At the height of the lockdown in April 2020 national road traffic levels fell to 35% of the equivalent period in 2019 and bus and rail patronage fell to 5% of the equivalent week (link). Weekday cycling levels were 60% higher than the previous year and weekend cycling levels were twice as high.

It is not yet clear what the longer-term implications of the enforced behaviour change will be. National data for the end of September 2020 indicated that weekday car traffic had returned to some 90% of 2019 levels and weekend car traffic was close to 2019 levels, whilst public transport remained at less than half of the previous year's patronage. Higher levels of home working are expected to remain but it is less clear what other travel trends may occur.

The package assessment described in this report was carried out on the implicit assumption that pre-Covid travel behaviours would return by 2026. As a sensitivity test to the main assessment, and to judge the impacts of possible long-term lower post-Covid-19 traffic levels, the transport model was used to test a scenario of 20% less peak hour travel demand on the 2026 Do Minimum and Package A scenarios.

The headline results were as follows:

- In terms of congestion and journey times, the 'Covid-19 reduced travel scenario' for the 2026 Do Minimum is broadly equivalent to the effects of Packages A + C + D, A + C + E and A + C + F (i.e. those containing the road schemes), and
- The addition of Package A to the 'Covid-19 reduced travel' Do Minimum would lead to a significant reduction in car trips compared to the non-Covid Do Minimum scenario.

In other words:

- A long-term reduction in peak hour travel in Hereford resulting from Covid-19 would have a significant benefit in terms of reducing congestion and vehicle journey times across the city, and
- Implementing the packages on top of a 'Covid-19 reduced travel scenario' would provide additional significant benefits;

However, as stated above, it is far from clear how large any long-term Covid-19 travel reduction would be, both across the UK and locally within Hereford.

## Concluding Remarks

Whilst the Covid-19 pandemic has highlighted the uncertainties of forecasting into the future, the strategy review was undertaken in a manner which enabled all options (and packages) to be assessed in a consistent and transparent manner. As such, even though there must inevitably be a degree of uncertainty over future transport patterns and traffic levels across the city, the review provides a robust basis on which to make comparisons between a wide range of different possible approaches.

It therefore provides the Council with important information to help decide what transport vision it wishes for the city.

# Appendix A – Stakeholder Engagement

# Stakeholder Engagement

## Introduction

As part of the review Herefordshire Council has sought input from various people that live and work in Herefordshire. This included consultation with the public, stakeholders and Council Members. The engagement asked for input across all aspects of the review including issues and challenges, setting the objectives and outcomes, identifying the options and solutions and then combining these into packages.

## Public Consultation

A public consultation was undertaken using an online engagement tool called Commonplace. This sought out feedback to the following points:

- Understanding the problem
- Setting objectives
- Establishing a baseline
- Identifying options

The online consultation regarding travel in Hereford ran from 3rd February to 31st March 2020. The questions were a mixture of freetext or tick boxes while for questions 8 and 10 the respondents were requested to put the listed outcomes and interventions into priority order. The two questions asked respondents to rank (between 1 and 10) the most important outcome/most effective to least important outcome/least effective. There were also questions for stakeholders to put text in boxes with other recommendations if they did not appear as choices in Q8 and 10. A summary of the responses received for the outcomes and possible interventions is covered at the end of **Chapter 2.**

## Stakeholder Reference Panel

In addition to the public consultation, a Stakeholder Reference Panel (SRP) has been established, from whom views have been sought via email responses and webinars. There were two SRP sessions. The first occurred in April 2020 and sought feedback on the issues, the objectives and outcomes, and the options identified. The second occurred in June 2020 which sought feedback on the appraisal of the options and the combining of options into separate packages.

The SRP consisted of a number of organisations as shown on the following page. Not all people included in the SRP provided feedback. The same questions that were put to the SRP were also put to Council Members and their feedback was also sought both in April and in June.

## List of Stakeholder Reference Panel Members

| Sector | Organisation/Group |
|---|---|
| Accessibility | Royal National College for the Blind |
| Accessibility | Hereford Disability |
| Business | Herefordshire and Worcestershire Chamber of Commerce |
| Business | Herefordshire Business Board |
| Business | Hereford BID |
| Business | Hereford Enterprise Zone |
| Education | Herefordshire and Ludlow College |
| Education | Hereford Sixth Form College |
| Emergency services | Emergency Services (Blue Light) |
| Environmental | Natural England |
| Environmental | Extinction Rebellion |
| Local body | Hereford City Council |
| Local Enterprise Partnership | Marches Local Enterprise Partnership |
| Local interest | Here for Herefordshire |
| Local interest | Hereford Civic Society |
| National / regional transport body | Department for Transport |
| National / regional transport body | Midlands Connect |
| National / regional body | Highways England |
| National / regional body | Homes England |
| Rail authority | Transport for Wales |
| Transport interest | Freight Transport Association |
| Transport interest | Sustrans |
| Transport operator | Local Bus Operator |
| Transport user | Rail and bus for Herefordshire |
| Transport user | Herefordshire Transport Forum/Transport Alliance |

# Appendix B – Option Assessment Framework

# Option 1: Enhanced Travel Promotion Campaigns



| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Provide information, personalised journey planning and advice to influence travel modes and routes, enable more short distance journeys to be made by non-car modes or help people plan journeys during times of extreme weather events;<br>• Deliver a 2% reduction in motorised traffic, which is considered a conservative estimate in light of similar campaigns elsewhere in the country; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Inform people of their travel choices and encourage sustainable travel to and from new developments, employment sites and training/education opportunities within Hereford City Centre. Evidence indicates that 'life events' such as moving house or starting a new job are times when people are most receptive to change their travel behaviour;<br>• Widen people's knowledge of the travel choices available to them and allow people to respond to incidents, maintenance and roadworks, making informed decisions about when and how they travel; and<br>• Lead to a 8% reduction in citywide over capacity queues, 2% reduction in total travel times and 2% increase in bus patronage, with supporting journey time reductions and bus reliability improvements. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites and the visual surroundings; and<br>• Is forecast to deliver a 3% increase in overall mode share for walking, cycling, bus and rail travel. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Widen people's knowledge of the active travel network, the public transport network and the interchange options available to them, including those who live in rural areas;<br>• Promote safer travel behaviour which will have a consequential benefit on accidents and collisions and promote increased active travel, with beneficial impacts on health and tackling obesity;<br>• Include elements to make people feel more confident and safe to use the bus or to cycle and walk; and<br>• Include personalised travel planning which can be focused on helping to meet the travel needs of particular social groups or those with protected characteristics. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 7 out of 11 respondents supported this option.<br>• The public were not directly asked to express a view on this option. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The option does not involve physical infrastructure to be delivered and therefore does not require any associated approvals.<br>• Some technological challenges might arise from the app related elements of the option.<br>• 1-3 years to fully implement (assuming funding were available) – this is based on preparation in advance of launching any promotional campaign or personalised travel planning project, and the need for consistent messaging over a number of years to achieve higher levels of behaviour change; |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • Implementation costs of between £0.25m and £2m annual revenue costs,<br>• The costs of many elements of this option are relatively well understood; however there are some aspects e.g. smart ticketing which may be associated with higher cost risks.<br>• In terms of funding, whilst committed DfT funds currently end in 2021, the DfT have supported various behaviour change programmes over the last decade. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 2: Improved Walking and Cycling Infrastructure

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Deliver a comprehensive network of quality infrastructure for cyclists and pedestrians and would enable more short distance journeys to made more easily by these modes in preference to by car;<br>• Provide wider route choice and enable the upgrade of existing walking and cycling routes which are susceptible to flooding; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Provide quality active travel infrastructure connecting new development locations to key destinations across the city and neighbourhoods to major employment and education/training sites across the city;<br>• Provide reliable alternative methods of travel to the private motor vehicle, making the network less susceptible to disruptive events and thus mitigating the impact of incidents, maintenance and roadworks; and<br>• Provide greater choice of transport infrastructure for people to travel by cycle or on foot across the city. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Lead to some transfer of motorised traffic to walking and cycling trips;<br>• Create new public spaces, improve paving and planting as part of the walking and cycling infrastructure and deliver low traffic neighbourhoods with a beneficial impact on the streetscape;<br>• Reduce vehicle trips and restrict through traffic in residential areas which will have a large beneficial impact on the level of traffic noise and severance, making residential areas more pleasant to live;<br>• Provide high quality infrastructure to allow city residents to conveniently and safely access the city centre by cycle or on foot and generate additional footfall and spend; and<br>• Have a negligible impact on water quality, priority habitats and species, designated sites, the landscape and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Provide high quality infrastructure to address key factors which currently dissuade people from making journeys by active travel modes and benefit most sectors of society;<br>• Enable people to cycle and walk as part of longer journeys made by public transport, improve access to bus stops, the railway station and other public transport, improve overall integration between transport modes and enable people to incorporate physical activity into everyday life; and<br>• Deliver infrastructure and measures which would improve overall levels of safety, make people feel more confident and safe to cycle or walk and overcome severance on key cross city corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 9 out of 11 respondents supported this option.<br>• In the public engagement 300 out of 847 responses identified *'improvements to the walking and cycling network'* in their top three transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • Examples of successfully delivery elsewhere in the UK with similar characteristics to Hereford.<br>• Some elements would involve permissions (Traffic Regulation Orders, planning permission and land acquisition) and would involve substantial construction across many parts of the city.<br>• 4-6 years to fully implement due to design and construction (assuming funding were available). |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • Greater than £45m capital costs and £0.225m annual revenue costs;<br>• Potential minor impact on revenue streams in terms of loss of on-street parking to accommodate active travel infrastructure.<br>• Most of the elements of this option are understood; however there are some aspects e.g. low traffic neighbourhoods which will require careful engagement with local communities which creates some additional risk.<br>• Funding bodies and developers regularly provide funds for walking and cycling schemes. Delivery would be phased due to the scale of investment required. National Government is increasingly expected to fund these type of options. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 3: Safer routes to school

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| **Climate Emergency** | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Deliver a comprehensive network of safer routes to school which would enable some short distance journeys to school, previously made by motor vehicle, to be made by non-car modes. Reductions in the level of motorised traffic is likely to be localised;<br>• Provide greater route choice and upgrade cycling and walking routes to school which are currently susceptible to flooding; and<br>• Be anticipated to result in less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| **Economy** | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Enable journeys to school from new residential developments, including the proposed Sustainable Urban Extensions, to be more easily made by cycling or walking; and<br>• Enhance cycling and walking infrastructure, thereby widening modal choice for journeys to school. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| **Environment** | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Create an environment where children feel safer when travelling; thereby enabling some children currently travelling to school as a car passenger to transfer to cycling or walking;<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage;<br>• Reduce traffic noise and severance in residential areas as a result of reduced vehicle trips along 'school streets'; and<br>• Have spin-off benefits in terms of improving sustainable transport access to the city centre. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| **Society** | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Address key safety factors which dissuade parents from letting their children make journeys to school by cycle or on foot;<br>• Lead to more cycling and walking trips to school with consequential beneficial impacts on increasing physical activity and reducing childhood obesity;<br>• Deliver cycling and walking infrastructure which improves integration between transport modes (by improving access to bus stops and the railway station), improve overall levels of safety (with crossings, 'school streets' and segregated cycleways); and<br>• Improve travel modes which are more affordable and widely available than other options. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| **Acceptability** | Stakeholder acceptability of the option | | | | | | • 9 out of 11 respondents supported this option.<br>• In the public engagement 388 out of 847 respondents identified *'safer routes to school'* in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| **Deliverability** | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • Some elements of the option such as 'school streets' represent emerging concepts, with limited UK examples of outside of London, whilst others are established. Limited technology involved;<br>• Some elements may involve Traffic Regulation Orders, planning permission and land acquisition; and<br>• 1-3 years to fully implement due to design and construction (assuming funding were available). |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| **Affordability** | Capital cost of the option | | | | | | • £5m of capital costs and £0.025m of annual revenue costs.<br>• Most of the elements of this option are understood; however there are some aspects e.g. school streets which will require careful engagement with local communities which creates some additional risk.<br>• Recent government announcements on the transport response to the Covid-19 recovery outlines emergency funding for local authorities and refers to measures to encouraging cycling and walking to school and school streets. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 4: Improved School Bus Service

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | ■ | | | • Enable more children to travel to school by bus, including some journeys currently made as a car passenger, including short-distance trips. Reductions in the level of motorised traffic are likely to be localised; and<br>• Be anticipated to result in less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | ■ | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | ■ | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | ■ | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | ■ | | | • Enable some journeys to school from new residential developments to be more easily made by bus;<br>• Increase bus patronage; and<br>• Give discretionary entitlement to bus travel to a greater number of children and introduce discounted ticketing for students. |
| | O6: The transport system facilitates sustainable development | | | | ■ | | |
| | O7: Transport supports a thriving local economy | | | ■ | | | |
| | O8: A more resilient transport system | | | | ■ | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | ■ | | | • Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage; and<br>• Include discounted ticketing for students, which is likely to improve accessibility into the City Centre by bus for young people and generate additional footfall. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | ■ | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | ■ | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | ■ | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | ■ | | • Extend the scope of eligibility for free bus travel to school and therefore is likely to provide some benefits to children living in rural areas. Introducing concessionary fares for young people on conventional bus services could address some of the affordability issues for those not eligible for the free bus travel;<br>• Provide a safer mode of travel to school compared to walking, cycling or trips in a private motor vehicle. This is supported by literature on the safety of bus travel; and<br>• Make children feel more confident using the bus in general. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | ■ | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | ■ | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | ■ | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | ■ | • 7 out of 11 respondents supported this option.<br>• The public were not directly asked to express a view on this option. |
| | Public acceptability of the option | | | ■ | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | ■ | | | • No consents or additional permissions would be needed to deliver the option.<br>• As Local Education Authority Herefordshire Council funds transport for those school children who meet statutory requirements and certain limited discretionary tests. Declining local authority funds mean that there are limited examples where Councils have gone substantially beyond their statutory responsibilities to fund additional travel to school by bus.<br>• This option does not require any infrastructure or complex technology but would require the implementation of a new home to school transport policy.<br>• 1-3 years to fully implement via change of policy (assuming funding were available) |
| | Legal powers | | | | | ■ | |
| | Implementation timescale of the option | | | | ■ | | |
| Affordability | Capital cost of the option | | | | | ■ | • £0 implementation costs and £1m annual revenue costs;<br>• Children assumed to use existing bus services and no new dedicated home to school services would be required, but this would require detailed study;<br>• The extent of subsidy support required is not yet clear and nor is the potential impact on revenue from current parental contributions;<br>• Reducing the level of parental contributions and extending the free school travel criteria will both place additional costs on the Council.<br>• Government bus strategy and further announcements on funding anticipated for later in 2020. |
| | Revenue cost of the option/impact on Council revenues | ■ | | | | | |
| | Risk of cost increases | | | ■ | | | |
| | Initial value for money of the option | | | ■ | | | |
| | Likelihood of funding | | ■ | | | | |

# Option 5: Electric Hopper Bus

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Enable some short distance journeys to be made by the hopper bus in preference to by car, cycling or walking; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Connect major development locations to the city centre and other destinations, with the potential to cater for a large proportion of everyday short distance journeys. It would connect neighbourhoods to major employment and education/ training sites across the city. Some destinations would require interchange in the city centre;<br>• Enhance bus accessibility, mostly for origins and destinations within walking distance of the proposed hopper routes; and<br>• Deliver over 10% increase in bus patronage and bus reliability improvements. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Reduce noise in residential areas due to the design of the electric bus;<br>• Provide higher frequency bus access into the city centre from residential neighbourhoods.<br>• Encourage additional trips to be made into the city centre and consequently increase footfall in the city centre; and<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Make people more active by using public transport, through cycling or walking at either end of the bus journey;<br>• Provide a transport mode accessible to many sectors of society. It would be particularly beneficial to those who do not have access to a car and certain people with disabilities, helping to support their accessibility needs;<br>• Provide higher frequency city bus services, improving interchange including between bus and rail and allowing rural residents to more easily transfer from other modes and complete their journey to city destinations by bus; and<br>• Provide a safer mode of travel than by walking, cycling or trips in a private motor vehicle and offer a means for people to avoid crossing busy main roads by foot or by cycle. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 9 out of 11 respondents supported this option.<br>• In the public engagement 485 out of 808 respondents chose *'invest in bus network'* in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • Electric bus fleets are currently more common in large urban centres with buoyant passenger levels. Achieving the desired bus frequencies may require bus franchising model set out in the Bus Services Act 2017 to be pursued.<br>• This option does not rely on significant infrastructure but requires the purchase of a large electric bus fleet.<br>• 4-6 years to fully implement via change of policy (assuming funding were available) |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • £8.5m (based on assumed requirement for 37 electric buses) and £2.5m annual revenue costs.<br>• The electric vehicles would have the additional costs of battery replacement, probably within 6-10 years. The level of fare box revenue is uncertain.<br>• There may be significant subsidy implications to operate a more comprehensive and more frequent bus service across the city.<br>• There are limited examples of comprehensive bus frequency enhancement outside UK metropolitan areas. Patronage levels are a key determinant of the cost to operate this option and are not yet well understood. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 6: Bus Priority

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Make bus services more attractive, including for short distance journeys; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Enable more reliable and faster bus journeys to locations including the Sustainable Urban Extensions, the Enterprise Zone, other new developments in Hereford and to employment sites and training/education opportunities;<br>• Reduce delay and congestion by 4% at key junctions in the city centre; and<br>• Generate a 25% increase in 'over capacity queues' and 4% increase in vehicle travel times, largely resulting from introducing bus priority measures on Greyfriars bridge. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Deliver between 3 and 10% reduction in traffic flows on roads in the Air Quality Management Area (AQMA);<br>• Enable more reliable and faster bus journeys to the City Centre and thus encourage additional visits to the City Centre by bus; and<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Enable more reliable and faster bus journeys. This would have consequential benefits in terms of integration with timetabled public transport connections and would make people more confident to rely on bus services for their journeys;<br>• Provide benefits to rural residents travelling into the city along radial corridors;<br>• Lead to a transfer of trips from private motor vehicle to public transport. Those using the bus will usually require an element of physical activity to access the service.<br>• Improve a transport mode accessible to many sectors of society. However, the cost of travel is a barrier to some and may exclude some people on this basis; and<br>• Deliver between 3 and 10% reduction of flows on roads in the Noise Important Areas (NIAs). |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 9 out of 11 respondents supported this option.<br>• The public were not directly asked to express a view on this option. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • Extensive bus priority has been implemented in other small historic UK cities. There is a requirement for wider Urban Traffic Control systems to enable greatest benefit from this option.<br>• Some elements will require Traffic Regulation Orders to prohibit parking or introduce bus lanes. It is not yet clear whether there would be requirements for third party land acquisition. The A49 is maintained and operated by Highways England and they would need to lead the consenting process for any measures on that road.<br>• 1-3 years to fully implement (assuming funding were available). The option involves a number of physical infrastructure elements across the city with some likely complex traffic management required during construction. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • £10m capital cost and £0.05m annual revenue costs.<br>• *A Better Deal for Bus Users* (February 2020) states that all new road investments funded by the Department for Transport should support bus priority or demonstrate why it is not appropriate. The regional funding arrangements for bus priority is less clear. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 7: ULR

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| **Climate Emergency** | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | ■ | | | The option would:<br>• Enable some short distance journeys to be made by ULR in preference to by car. However, around 73% of Hereford's resident population would live further than 400m from the route;<br>• Run on a dedicated route or track and could be susceptible to climate change events such as flooding; and<br>• Lead to a less than 2% forecast change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | ■ | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | ■ | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | ■ | | | | |
| **Economy** | O5: Reliable and efficient movement of people and goods and provision of services | | | | ■ | | The option would:<br>• Introduce a new mode of travel in the city which directly serves the Enterprise Zone, the Lower Bullingham Sustainable Urban Extension (SUE), the Edgar Street Grid, major employment at Rotherwas Industrial Estate and the City Centre and would run close to Widemarsh and Holmer Road;<br>• Deliver a dedicated route which would be largely unaffected by highway incidents, roadworks or maintenance; and<br>• Deliver a 10% increase in public transport patronage (bus and ULR combined) with some abstraction of passengers from bus services. |
| | O6: The transport system facilitates sustainable development | | | | ■ | | |
| | O7: Transport supports a thriving local economy | | | | ■ | | |
| | O8: A more resilient transport system | | | | | ■ | |
| **Environment** | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | ■ | | | The option would:<br>• Provide an additional sustainable transport mode to access the city centre, mostly for residents living in certain parts of South Hereford;<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites and cultural heritage but would have some visual effects especially where new infrastructure is constructed on undeveloped land; and<br>• Have negative impacts on existing active travel networks, including the Great Western Way, currently an important traffic-free route for cyclists and pedestrians. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | ■ | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | ■ | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | ■ | | | |
| **Society** | O13: The transport system facilitates improved public health through more active lifestyles | | | | ■ | | The option would:<br>• Provide a segregated walking and cycling path along the whole route;<br>• Introduce a new public transport mode and is likely to lead to a transfer of trips from private motor vehicle to public transport. Those using the ULR will usually require an element of physical activity to walk or cycle to access the transit stop;<br>• Allow almost all sectors of society to have the opportunity to access this mode. However, it is likely to have similar affordability issues as other local public transport and may exclude some people on this basis;<br>• Enable easy interchange between modes and includes secure cycle parking and Beryl Bike hubs at transit stops; and<br>• Reduce traffic on certain key cross city corridors and help to overcome severance on these corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | ■ | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | ■ | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | ■ | | | |
| **Acceptability** | Stakeholder acceptability of the option | | | | ■ | | • 6 out of 11 respondents supported this option.<br>• In the public engagement 94 out of 808 responses chose 'ULR' in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | ■ | | | |
| **Deliverability** | Technical/practical feasibility (successful implementation and technological barriers) | | ■ | | | | • 7-10 years to fully implement (assuming funding were available). There are no directly comparable systems of this scale in operation in the UK, which poses difficulties with estimating timescales for delivery. The technology is currently being tested and may need refinement to enable successful operation at scale.<br>• A number of permissions, approvals and legal powers would be required to operate and regulate the ULR with associated risks. |
| | Legal powers | | ■ | | | | |
| | Implementation timescale of the option | | ■ | | | | |
| **Affordability** | Capital cost of the option | ■ | | | | | • Greater than £100m capital costs and £1m annual revenue costs.<br>• Potential minor impact on revenue streams in terms of parking revenue.<br>• A ULR scheme of this scale has not been constructed in the UK therefore there is a high risk of cost increases.<br>• There are some examples of DfT or regional bodies funding tram-based rapid transit schemes in recent years but no examples in the UK of schemes in settlements the size of Hereford being funded. |
| | Revenue cost of the option/impact on Council revenues | ■ | | | | | |
| | Risk of cost increases | ■ | | | | | |
| | Initial value for money of the option | | | ■ | | | |
| | Likelihood of funding | | ■ | | | | |

# Option 8: Demand Responsive Transport

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Encourage some people to transfer from private motor vehicle to demand responsive public transport, reducing the overall level of motorised traffic. However, these numbers would be relatively small;<br>• Provide a transport mode which has an unfixed route and has the ability to divert around parts of the network which may be affected by climate change impacts such as flooding; and<br>• Be anticipated to result in less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Lead to increased bus patronage as people respond to the increased flexibility of DRT;<br>• Provide direct bus connections to some developments and employment sites, training opportunities and education for some residents of Hereford and the surrounding rural area; and<br>• Widen access to bus services for journeys to and from locations which are poorly served by conventional bus services such as isolated rural settlements and/or some city fringes. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Improve accessibility to the City Centre for some residents of Hereford and the surrounding rural area;<br>• Encourage a limited number of additional trips to the City Centre; and<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Improve interchange for some travellers, for example potentially enhancing connections onto inter-urban bus services or accessing rail services;<br>• Enable some residents to access bus services closer to their home or closer to their intended destination which may have beneficial impacts on perception of safety; and<br>• Allow many sectors of society to have the opportunity to access this mode; however this depends upon people being resident in an area covered by the demand responsive public transport. It is also likely to have similar affordability issues as other local public transport and may exclude some people on this basis. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 6 out of 11 respondents supported this option.<br>• The public were not directly asked their view on this option. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • This option does not rely upon significant infrastructure (with associated construction period) but requires agreement on the operating model and the installation of back office systems to operate the service;<br>• There are some examples of this option operating elsewhere in the UK. However, few have operated consistently over a period of time;<br>• Additional technology would need to be put in place in Herefordshire although the systems are tried and tested elsewhere; and<br>• 1-3 years to fully implement (assuming funding were available). Demand responsive public transport can be introduced under existing legislation. In areas where bus services are supported financially by Herefordshire Council via a tendering process, the conventional fixed route could be replaced with DRT when the contract is re-tendered. In areas where bus services are operated commercially it would be more complex to achieve and may require bus franchising powers being granted by Central Government. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • £0 capital costs and £0.05m annual revenue cost.<br>• The majority of costs relate to the day to day operation of the service. A new bus operation would introduce additional risks.<br>• Limited potential for passenger abstraction from other bus services financially supported by the Council.<br>• *A Better Deal for Bus Users* (February 2020), outlines a £20 million fund to trial on demand public transport services in rural and suburban areas. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 9: Shared Mobility



| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Enable more journeys, including short distance journeys, to be undertaken by non-motorised travel modes;<br>• Provide transport options which are not constrained to fixed routes and can divert around parts of the network which may be affected by climate change impacts such as flooding; and<br>• Be anticipated to result in less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Enable more journeys to be undertaken by non-motorised travel modes, with a beneficial impact on delay, congestion and journey time reliability;<br>• Offer a new means of travel to reach destinations city wide and outside the city, including the Sustainable Urban Extension, the Enterprise Zone, new developments, employment sites, training opportunities and education;<br>• Include new shared mobility infrastructure in new developments;<br>• Provide users with the flexibility of different options to make their journey if their original plans or travel mode were disrupted; and<br>• Provide additional travel modes to a large proportion of the population e.g. extending the Beryl Bike hire, including e-bikes. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Lead to a net reduction in motor vehicle trips and consequential beneficial impact on the AQMA;<br>• Provide zero emission, low emission and more fuel efficient modes of travel;<br>• Deliver mobility solutions which would improve sustainable transport accessibility to the City Centre and consequentially encourage additional trips to the City Centre; and<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Provide mobility solutions which make people more active, with consequential reduction in childhood obesity;<br>• Enable people to more easily access conventional public transport for onward travel;<br>• Deliver an e-bike solution which is likely to make new and returning cyclists more confident to use this mode; and<br>• Enhance accessibility across a number of sectors of society, widening travel options and introducing pay as you go rather than relying on vehicle ownership. However, none of the mobility solutions are proposed to be free at the point of use and therefore the option may pose some affordability issues for some people. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | • Stakeholder acceptability of the option | | | | | | • 8 out of 11 respondents supported this option.<br>• The public was not directly asked about this option. |
| | • Public acceptability of the option | | | | | | |
| Deliverability | • Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • Most of the mobility solutions proposed are successfully delivered elsewhere in the UK but are often found in larger urban areas. Additional technology would need to be put in place in Herefordshire.<br>• Dedicated vehicle parking bays will require Traffic Regulation Orders.<br>• 1-3 years to fully implement (assuming funding were available). This option does not rely upon significant infrastructure (with associated construction period) but requires the purchase of vehicles or cycles and 'back office' systems to operate the services. |
| | • Legal powers | | | | | | |
| | • Implementation timescale of the option | | | | | | |
| Affordability | • Capital cost of the option | | | | | | • £0.1m capital costs and £0.1m annual revenue cost.<br>• Negligible impact on Council revenue streams.<br>• Degree of cost risk associated with the ongoing revenue support.<br>• Funding from Government has been recently announced for seven Future Mobility Zones, however these zones are all in large urban areas. |
| | • Revenue cost of the option/impact on Council revenues | | | | | | |
| | • Risk of cost increases | | | | | | |
| | • Initial value for money of the option | | | | | | |
| | • Likelihood of funding | | | | | | |

# Option 10: FMLM and Mobility Hubs



| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Would reduce the level of motorised traffic as improved interchange, including new and enhanced Park and Choose sites, enables people to make more use of existing public transport options or complete their journey by other active modes; and<br>• Is anticipated to result in less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Lead to an increase in bus patronage, particularly from those interchanging at new and enhanced Park and Choose sites;<br>• Deliver mobility hubs at locations including the Sustainable Urban Extensions, the Enterprise Zone and key employment sites. The impacts will depend in part upon the frequency and quality of the bus services which accompany them and the quality of the cycling and walking networks (not part of this option);<br>• Lead to some reduction in delay and congestion on the network; and<br>• Co-locate transport modes and widen modal choice. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Lead to some reduction in traffic flows on roads in the AQMA;<br>• Reduce the level of motorised traffic as improved interchange, including new and enhanced Park and Choose sites, enables some people to make more use of existing public transport options or complete their journey by other active modes;<br>• Have negligible impact on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings or cultural heritage, based on the assumption that any new Park and Choose sites would be located away from sensitive areas; and<br>• Deliver mobility hubs on radial public transport corridors into the city which would improve interchange and sustainable transport accessibility to the city centre. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Co-locate as many transport modes as possible at identified or branded locations to enable easier interchange. This would enable more people to cycle and walk as part of a longer journey, such as from a Park and Choose site to their ultimate destination or from public transport stops to ultimate destinations;<br>• Deliver mobility hubs which are designed to enable level boarding and improve accessibility to bus services for certain protected groups and enable those without access to a car to reach their ultimate destination more easily. Mobility hubs, either on inter-urban bus routes or on the city fringe, which will improve non-car accessibility to services and facilities in Hereford for rural residents;<br>• Enhance waiting facilities at key locations which is likely to have a beneficial impact on passenger confidence and safety; and<br>• Provide secure cycle parking, such as lockers, to make people feel more confident about leaving their bike at a public transport interchange. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | • Stakeholder acceptability of the option | | | | | | • 8 out of 11 respondents supported this option.<br>• In the public engagement 164 of 808 respondents put '*access for longer distance travel - park and ride*' in their top 3 transport improvements that would be most effective for Hereford. |
| | • Public acceptability of the option | | | | | | |
| Deliverability | • Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The development of comprehensive mobility hubs for a range of modes has tended to occur in the largest metropolitan areas. It is not heavily reliant on technology but will require a certain amount of land for the larger scale mobility hubs.<br>• A number of mobility hubs would require planning permission or TROs to be amended or introduced; and<br>• 1-3 years to fully implement (assuming funding were available), based on design, potential land purchase and some construction. |
| | • Legal powers | | | | | | |
| | • Implementation timescale of the option | | | | | | |
| Affordability | • Capital cost of the option | | | | | | • £7M capital costs (construction of mobility hubs) and £0.035 annual revenue costs.<br>• Negligible impact on Council revenue streams;<br>• Degree of cost risk will depend in part on the scale of mobility hubs proposed and their number;<br>• To date funding bodies have tended to invest in traditional larger scale interchanges. The dispersed mobility hub concept is more recent and there is less clear evidence of funding bodies responding to this type of solution. |
| | • Revenue cost of the option/impact on Council revenues | | | | | | |
| | • Risk of cost increases | | | | | | |
| | • Initial value for money of the option | | | | | | |
| | • Likelihood of funding | | | | | | |

# Option 11: Demand Management

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Lead to a reduction in short distance travel by car, with other modes becoming more attractive for short journeys; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Reduce overall vehicle trip demand which will lessen the impact of incidents, maintenance and roadworks on journeys;<br>• Discourage the use of private motor vehicles but does not contain measures to widen the availability of alternative modes; and<br>• Deliver a 3% reduction in 'over capacity queues' and a 5% reduction in delay and congestion at key junctions in the city centre. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Deliver new multi-storey car parks and may lead to other car parks being redeveloped for other land uses;<br>• Reduce vehicle travel demand which may have a consequential benefit in making streets more attractive to cycle and walk to the City Centre; and<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Encourage a mode shift from private motor vehicle to cycling, walking or public transport with consequential benefits in terms of physical activity;<br>• Either reduce parking supply or place additional costs on vehicle travel. These measures are considered to adversely affect rural residents but the degree of impact will depend upon the pricing structure and exemptions;<br>• Have some limited potential for the car park consolidation element to improve interchange between private motor vehicles and other modes in the city centre; and<br>• Reduce motor vehicle journeys which is likely to be associated with a reduction in accidents and collisions. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 9 out of 11 respondents supported this option.<br>• In the public engagement 69 of 808 respondents put demand management in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • There are UK examples of consolidating car parks including in historic cities. Workplace Parking Levy is currently only implemented in Nottingham, although other authorities are considering this measure. Changes to parking policy are associated with limited technological requirements whilst Workplace Parking Levy is associated with greater technological challenges;<br>• Multi-storey car parks would require planning permission. Parking policy changes may require extensive TROs with associated consultation. Consultation and approvals processes for Workplace Parking Levy is likely to be more contentious; and<br>• 4-6 years to fully implement (assuming funding were available). The timescales for implementation will depend upon the scale of demand management measures and the level of consultation required. Most of the measures do not involve substantial construction. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | ▪ £0M implementation and construction costs and £0.5 annual revenue cost;<br>▪ Some demand management measures would generate additional parking revenue but other measures would lead to a reduction in parking revenues for the Council;<br>▪ There are likely to be greater cost risks associated with demand management measures which have fewer operational examples; and<br>▪ Most of the demand management measures tend to be funded by the organisation that will operate them on the assumption that future income will cover costs. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 12: Intelligent Transport Systems

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Make more efficient use of the available road space;<br>• Provide better information on climate change impacts affecting the transport network, helping travellers to make more informed decisions; and<br>• Be anticipated to result in less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Deliver Urban Traffic Control systems and information on available parking spaces which are anticipated to have a beneficial impact on levels of delay, congestion and journey time reliability, including for buses;<br>• Benefit motor vehicle journeys to the Sustainable Urban Extensions, the Enterprise Zone, other new developments, employment sites, training opportunities and education which use the main corridors, where the ITS measures would be located; and<br>• Some of the proposed measures would help to manage the impacts of incidents, maintenance and roadworks affecting the transport network, enabling travellers to make more informed decisions. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Increase average speeds which may have a beneficial impact on air quality;<br>• Connect drivers to parking spaces and encourage additional visits to the city centre;<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage; and<br>• Be associated with additional street furniture, with adverse impacts on streetscape. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Have a beneficial impact for rural residents accessing the city by motor vehicle, particularly on journeys using main road corridors to or through the city centre;<br>• Not increase levels of end to end cycling and walking journeys but has the potential to dissuade some people from making some cycling and walking journeys if signal timings are amended in favour of drivers;<br>• Not significantly impact on groups who do not have access to a car;<br>• Not change the overall mode share or key factors which influence collision rates;<br>• Not influence the factors which make people feel more confident and safe to use the bus; and<br>• Not anticipated to change the overall volumes of traffic on key cross city corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 6 out of 11 respondents supported this option.<br>• In the public engagement 101 out of 808 responses put *'better managed car parking'* in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • A number of regional centres have introduced Urban Traffic Control and parking related Variable Messaging Signs.<br>• The technology has been applied elsewhere; however introducing UTC is likely to require upgrades to traffic signals; and<br>• 1-3 years to fully implement (assuming funding were available). It is assumed the option can be implemented within highway land and using Highways Act powers. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • £4M capital costs and £0.08m annual revenue costs.<br>• Additional parking revenue generated by connecting drivers to available parking spaces; and<br>• There is limited ITS currently in Hereford. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 13: Removal of Traffic Lights on the A49

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| **Climate Emergency** | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Have a negligible effect on travel by car for short journeys;<br>• Not create any additional transport links or upgrade existing transport links to mitigate climate change impacts;<br>• Deliver less than 2% change in motorised traffic; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| **Economy** | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Reduce incidents and maintenance associated with traffic lights along the A49 corridor;<br>• Not introduce a new travel mode or extend the availability of existing ones;<br>• Make it more difficult for some pedestrians and cyclists to cross both the A49 and the joining roads at locations where signal crossings were not retained for their use; and<br>• Increase over capacity queues by more than 10% and increase delay and congestion at key junctions in the city centre by over 10%. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| **Environment** | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Increase flows on roads in the AQMA by between 3 and 10%;<br>• Deliver some benefit in terms of reduced street clutter from removal of signals but some additional street furniture may be required (e.g. railings) to maintain safety;<br>• Remove signalled controlled crossings for cyclists and pedestrians at certain locations along the A49. Replacement crossings would not be as convenient and may discourage some cycling and walking trips to and from the city centre; and<br>• Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| **Society** | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Remove signalled controlled crossings for cyclists and pedestrians at certain locations along the A49. This may make some people feel less confident and safe to cycle or walk;<br>• Not benefit the travel of those households without access to a car or those members of society who do not drive. Removal of signal crossings for pedestrians and cyclists at certain locations would disproportionally impact on children, older people or those with protected characteristics (e.g. blind people), even with replacement crossings being provided nearby;<br>• Create increased congestion for rural residents accessing the city; and<br>• May make people feel less confident or safe to cycle and walk and increase severance with fewer signal crossing opportunities. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| **Acceptability** | Stakeholder acceptability of the option | | | | | | • 2 out of 11 respondents supported this option.<br>• In the public engagement 286 of the 808 respondents put *'free up roads - removing traffic signals'* in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| **Deliverability** | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • This type of option is not known to have been implemented in locations with traffic flows as high as the A49;<br>• The A49 is maintained and operated by Highways England (Government-owned company). The decision to remove traffic lights rests with Highways England (a third party) who assess the merits of all proposals against a range of criteria including highway safety and efficient operation of the network.<br>• 4-6 years to fully implement (assuming funding were available). |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| **Affordability** | Capital cost of the option | | | | | | • Between £10-20m capital costs (removing signals from junctions and implementing new pedestrian crossings).<br>• The option will not impact on Council revenues.<br>• Low cost risk due to limited changes to infrastructure.<br>• Herefordshire Council do not have control over the operation of the A49. Highways England would need to approve this option before funding could be sought.. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 14: Western Bypass



| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Generate more short distance journeys by car;<br>• Provide another link across the river and potentially increase network resilience to climate change events such as flooding; and<br>• Lead to a forecast of more than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Some motor vehicle trips to and from Three Elms, Holmer West and Lower Bullingham SUE would use this new road. The new road link would be less well related to the Edgar Street Grid;<br>• Improve vehicle access to the Enterprise Zone from certain origins but would be less well related to the City Centre, Widemarsh and Holmer Road employment areas;<br>• Provide additional network resilience with a second strategic road link across the river; and<br>• Deliver a 9% reduction in delay and congestion at key junctions in the city centre and a 4% reduction in 'over capacity queues'. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Initially deliver a 21% reduction in flows on roads in AQMA;<br>• Have adverse effects on SAC and SSSI / WFD protected area and on water quality during construction phase (new viaduct over the River Wye and flood plain). Likely adverse effects on Belmont Stream and Yazor Brook during construction and operation;<br>• Cross Belmont Parkland Habitat of Principal Importance leading to habitat loss, be in proximity to ancient woodlands (north of the River Wye) and measures would be required to avoid damage and disturbance to the woodlands. Likely habitat loss and damage within Yazor Brook and Grafton Wood;<br>• Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location, impact to high sensitivity local landscape character areas.<br>• Have adverse impacts on designated and non-designated heritage assets, including below-ground archaeological remains/earthworks, built heritage and landscaped parks;<br>• There may be potential benefits for rural communities west of the city if traffic reroutes onto the bypass in preference to routes through villages. However, there is likely to be negative impacts on residential areas on the western side of the city as a result of additional traffic. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Improve accessibility for rural residents with access to a car for journeys to selected destinations, including the Enterprise Zone;<br>• Include some new infrastructure for cycling and walking. It will increase traffic levels on routes leading to the bypass and initially reduce traffic elsewhere in the city, which will have a range of impacts on how safe and confident people feel to cycle and walk; and<br>• Enable more short distance car journeys to be made and make people more inactive, including children. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 2 out of 11 respondents supported this option.<br>• In the public engagement 460 0f 808 respondents put *'increase capacity - new roads, river crossing'* in their top 3 transport improvements that would be most effective in Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliver-ability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The option would require either Development Consent Order/Planning permission and land acquisition/CPO;<br>• The environmental impact on designated sites is comparatively less severe than eastern bypass options, which may give a greater likelihood of achieving consent; and<br>• 7-10 years to fully implement (assuming funding were available). |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • Estimated £190m capital costs and £0.108m annual revenue costs;<br>• The option will not impact on Council tax, business rates or parking revenues;<br>• Some cost risks associated with the option. Major road schemes typically experience an increase in costs as more detailed design work is carried out and construction costs outstrip the assumed levels of inflation; and<br>• Regional and national funding bodies have new roads within their current infrastructure plans. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 15a: Full Eastern Bypass with Southern Link Road



| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Provide another link across the river and potentially increase network resilience to climate change events such as flooding. This option would provide more additional links in the network compared to Options 15b, 15c and 15d;<br>• Generate more short distance journeys by car;<br>• Increase motorised traffic by less than 2%; and<br>• Change tonnes of carbon by less than 2%. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Provide a new road link to access Lower Bullingham and Holmer West Strategic Urban Extensions and the Enterprise Zone from certain origins. The new road link would be less well related to Three Elms Strategic Urban Extension and Edgar Street Grid;<br>• Provide a second strategic road link across the river. The option would provide more additional links in the network compared to Option 15b, 15c and 15d;<br>• Deliver an initial 10% reduction in 'over capacity queues', a 13% reduction in delay and congestion at key junctions in city centre and a 2% reduction in 'total travel time'; and<br>• Be poorly related to the City Centre, Widemarsh and Holmer Road employment areas but reduce congestion for motor vehicles to and through the city centre. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Deliver an initial 24% reduction in flows on roads in AQMA;<br>• Construct a new viaduct over the River Wye River Wye (SAC/WFD protected area) and flood plain. Likely to have a adverse effect on water quality during construction phase and overall flood risk;<br>• Cause loss of priority habitat, damage to integrity and features of identified priority habitats located east and northeast of Hereford (ancient and semi-ancient woodland at Brainton Wood and Grafton Wood);<br>• Cause significant impact on SSSI sites (Lugg and Hampton Meadows) and SAC/SSSI sites (River Wye) during construction phase and possible impacts during operation;<br>• Have significant landscape and visual impacts, constituting new infrastructure in greenfield locations;<br>• Pass close to numerous scheduled monuments (Rotherwas House and chapel, Tupsley ring ditches, Lugg bridge) and listed buildings, affecting the integrity of the sites – inner eastern alignment;<br>• Initially reduce traffic flows in the majority of residential areas in the city. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Not directly benefit the travel of those households without access to a car or those members of society who do not drive. The forecast reduction in bus patronage may affect the viability of bus services, which is likely to disproportionately impact groups including women, children and older people;<br>• Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and<br>• Increase traffic flows on some cross city road links and initially reduce flows on other cross city road links and have a net benefit on severance on key cross city corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 2 out of 11 respondents supported this option.<br>• In the public engagement 460 0f 808 respondents put 'increase capacity - new roads, river crossing' in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliver-ability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The option would require either Development Consent Order or planning permission and land acquisition or Compulsory Purchase Orders. The likelihood of securing permission is lessened due to the environmental impact of the scheme on protected sites to the east of the city; and<br>• 7-10 years to fully implement (assuming funding were available), representing a major infrastructure project requiring detailed design, approvals and construction. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • Estimated capital costs of £155m and £0.1m annual revenue costs.<br>• The option will not impact on Council tax, business rates or parking revenues;<br>• Some cost risks associated with the option. Major road schemes typically experience an increase in costs as more detailed design work is carried out and construction costs outstrip the assumed levels of inflation; and<br>• Regional and national funding bodies have new roads within their current infrastructure plans. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 15b: Full Eastern Bypass without Southern Link Road

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| **Climate Emergency** | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Generate more short distance journeys by car;<br>• Provide another link across the river and potentially increase network resilience to climate change events such as flooding. The option would provide fewer additional links in the network compared to Option 15a; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| **Economy** | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Provide a new road link in close proximity to Lower Bullingham and Holmer West SUEs and the Enterprise Zone and some vehicle journeys to and from these locations would make use of the new road. The new road link would be less well related to Three Elms SUE, the Edgar Street Grid, the City Centre, Widemarsh and Holmer Road employment areas. Vehicle trips to the Enterprise Zone from the A465 would still need to travel through South Hereford, unlike Option 15a;<br>• Deliver an initial 11% reduction in 'over capacity queues, a 2% reduction in 'total travel time' and 12% reduction in delay and congestion at key junctions in the city centre; and<br>• The option would provide a second strategic road link across the river. The option would provide fewer additional links in the network compared to Option 15a. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| **Environment** | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Initially deliver a 22% reduction in flows on roads in AQMA;<br>• Construct a new viaduct over the River Wye River Wye (SAC/WFD protected area) and flood plain. Likely to have a adverse effect on water quality during construction phase and overall flood risk;<br>• Cause loss of priority habitat, damage to integrity and features of identified priority habitats located east and north east of Hereford (ancient and semi-ancient woodland at Brainton Wood) and cause significant impacts to SSSI sites (Lugg and Hampton Meadows) and Broadlands Local Nature Reserve with loss of/damage to sites;<br>• Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location;<br>• Pass close to numerous scheduled monuments (Rotherwas House and chapel, Tupsley ring ditches, Lugg Bridge) and listed buildings, affecting the integrity of the sites – inner eastern alignment;<br>• Initially reduce traffic flows in the majority of residential areas in the city. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| **Society** | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Not directly benefit the travel of those households without access to a car or those members of society who do not drive. The forecast reduction in bus patronage may affect the viability of bus services, which is likely to disproportionately impact groups including women, children and older people;<br>• Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and<br>• Increase traffic flows on some cross city road links and initially reduce flows on other cross city road links and would initially have a net benefit on severance on key cross city corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| **Acceptability** | Stakeholder acceptability of the option | | | | | | • 1 out of 11 respondents supported this option.<br>• In the public engagement 460 0f 808 respondents put *'increase capacity - new roads, river crossing'* in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| **Deliverability** | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The option would require either Development Consent Order or planning permission and land acquisition or Compulsory Purchase Orders. The likelihood of securing permission is lessened due to the environmental impact of the scheme on protected sites to the east of the city; and<br>• 7-10 years to fully implement (assuming funding were available), representing a major infrastructure project requiring detailed design, approvals and construction. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| **Affordability** | Capital cost of the option | | | | | | • Estimated capital costs of £125m and £0.1m annual revenue costs.<br>• The option will not impact on Council tax, business rates or parking revenues;<br>• Some cost risks associated with the option. Major road schemes typically experience an increase in costs as more detailed design work is carried out and construction costs outstrip the assumed levels of inflation; and<br>• Regional and national funding bodies have new roads within their current infrastructure plans. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 15c: Eastern Link



| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Enable more short distance journeys by be made by car;<br>• Provide another link across the river and potentially increase network resilience to climate change events such as flooding. The option would provide fewer additional links in the network compared to Option 15a and 15b; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • The option would provide a new road link in close proximity to Lower Bullingham SUEs and the Enterprise Zone. Some vehicle journeys to and from these locations would make use of the new road. The road link would be less well related to Three Elms and Holmer West SUEs and Edgar Street Grid. The option would be poorly related to the City Centre, Widemarsh and Holmer Road employment areas;<br>• Deliver an initial 14% reduction in 'over capacity queues', 2% in total travel time and 8% reduction in delay and congestion at key junctions in city centre; and<br>• The option would provide a second strategic road link across the river, providing some additional network resilience. The option would provide fewer additional links in the network compared to Option 15a and 15b. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Initially deliver a 14% reduction in flows on roads in AQMA;<br>• Construct a new viaduct over the River Wye River Wye (SAC/WFD protected area) and flood plain and is likely to have a adverse effect on water quality during construction phase. Construction of bridge piers in the flood plain will cause an adverse impact to flood risk;<br>• Loss of priority habitat, damage to integrity and features of identified priority habitats located east and north east of Hereford.<br>• Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location;<br>• Cross part of one scheduled monuments(Rotherwas House and chapel) and run close to another (Tupsley ring ditches) and pass close to listed buildings, affecting the integrity of the sites;<br>• Initially reduce traffic flows in the majority of residential areas in the city. The traffic is likely to reroute onto the bypass in preference to travelling through residential neighbourhoods. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Not directly benefit the travel of those households without access to a car or those members of society who do not drive. The forecast reduction in bus patronage may affect the viability of bus services, which is likely to disproportionately impact groups including women, children and older people;<br>• Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and<br>• Increase traffic flows on some cross city road links and initially reduce flows on other cross city road links and would initially have a net benefit on severance on key cross city corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the option | | | | | | • 1 out of 11 respondents supported this option.<br>• In the public engagement 460 of 808 respondents chose *'increase capacity - new roads, river crossing'* in their top 3 transport improvements that would be most effective for Hereford. |
| | Public acceptability of the option | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The option would require either Development Consent Order/Planning permission and land acquisition or Compulsory Purchase Orders. The likelihood of securing permission is lessened due to the environmental impact of the scheme on protected sites to the east of the city; and<br>• 4-6 years to fully implement (assuming funding were available), representing a major infrastructure project requiring detailed design, approvals and construction. |
| | Legal powers | | | | | | |
| | Implementation timescale of the option | | | | | | |
| Affordability | Capital cost of the option | | | | | | • Estimated capital costs of £55m and £0.06m annual revenue costs;<br>• The option will not impact on Council tax, business rates or parking revenues;<br>• Some cost risks associated with the option. Major road schemes typically experience an increase in costs as more detailed design work is carried out and construction costs outstrip the assumed levels of inflation; and<br>• Regional and national funding bodies have new roads within their current infrastructure plans. |
| | Revenue cost of the option/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the option | | | | | | |
| | Likelihood of funding | | | | | | |

# Option 15d: Eastern River Crossing

| | | Average scoring | | | | | Impact of the option |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Enable more short distance journeys by be made by car;<br>• Provide another link across the river and potentially increase network resilience to climate change events such as flooding. The option would provide fewer additional links in the network compared to Option 15a, 15b and 15c; and<br>• Lead to a forecast of less than 2% change in tonnes of carbon. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • The option would provide a new road link to in close proximity to Lower Bullingham SUEs and the Enterprise Zone. Some vehicle journeys to and from these locations would make use of the new road. The new road link would be less well related to Three Elms and Holmer West SUEs and Edgar Street Grid. The option would be poorly related to the City Centre, Widemarsh and Holmer Road employment areas;<br>• Deliver an initial 8% reduction in 'over capacity queues', 1% reduction in total travel time and 6% reduction in delay and congestion at key junctions in city centre; and<br>• The option would provide a second strategic road link across the river, providing some additional network resilience. The option would provide fewer additional links in the network compared to Option 15a, b and c. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Initially deliver a 12% reduction in flows on roads in AQMA;<br>• Construct a new viaduct over the River Wye River Wye (SAC/WFD protected area) and flood plain and is likely to have a adverse effect on water quality during construction phase. Construction of bridge piers in the flood plain will cause an adverse impact to flood risk;<br>• Have the potential for loss of /damage to priority habitat sites located east of Hereford and River Wye SSSI;<br>• Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location;<br>• Pass close to scheduled monuments (Rotherwas house and chapel) and listed buildings, affecting the integrity of the sites;<br>• Initially reduce traffic flows in the majority of residential areas in the city. The traffic is likely to reroute onto the bypass in preference to travelling through residential neighbourhoods. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Not directly benefit the travel of those households without access to a car or those members of society who do not drive. The forecast reduction in bus patronage may affect the viability of bus services, which is likely to disproportionately impact groups including women, children and older people;<br>• Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and<br>• Increase traffic flows on some cross city road links and initially reduce flows on other cross city road links and would initially have a net benefit on severance on key cross city corridors. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | • Stakeholder acceptability of the option | | | | | | • 2 out of 11 respondents supported this option.<br>• In the public engagement 460 0f 808 respondents put *'increase capacity - new roads, river crossing*' in their top 3 transport improvements that would be most effective for Hereford. |
| | • Public acceptability of the option | | | | | | |
| Deliverability | • Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The option would require either Development Consent Order or planning permission and land acquisition or Compulsory Purchase Orders. The likelihood of securing permission is lessened due to the environmental impact of the scheme on protected sites to the east of the city; and<br>• 4-6 years to fully implement (assuming funding were available), representing a major infrastructure project requiring detailed design, approvals and construction. |
| | • Legal powers | | | | | | |
| | • Implementation timescale of the option | | | | | | |
| Affordability | • Capital cost of the option | | | | | | • Estimated capital costs of £42m and £0.04 annual revenue costs.<br>• The option will not impact on Council revenues.<br>• Some cost risks associated with the option. Major road schemes typically experience an increase in costs as more detailed design work is carried out and construction costs outstrip the assumed levels of inflation.<br>• Regional and national funding bodies have funding programmes within their infrastructure plans. |
| | • Revenue cost of the option/impact on Council revenues | | | | | | |
| | • Risk of cost increases | | | | | | |
| | • Initial value for money of the option | | | | | | |
| | • Likelihood of funding | | | | | | |

# Appendix C – Package Assessment Framework

# Package A (Focus on Walking and Cycling)

| | | Average scoring | | | | | Impact of the package |
|---|---|---|---|---|---|---|---|
| **Climate Emergency** | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | ■ | • Forecast to lead to a 10% reduction in tonnes of carbon, 9% reduction in vehicle kms, 9% reduction in the number of trips by car for short journeys;<br>• Low/medium increase in embodied carbon;<br>• Provides wider travel choice and more up to date information on travel conditions although this will not be sufficient to address all climate change events on the transport network. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | ■ | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | ■ | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | ■ | | |
| **Economy** | O5: Reliable and efficient movement of people and goods and provision of services | | | | ■ | | • Forecast to deliver a large beneficial reduction in delay and congestion (-14% in queues), small reduction in journey times along key corridors (-3%) and a 4% reduction in bus trips;<br>• Supports new development and employment sites, training and education with additional sustainable transport plus travel promotion and information, including new routes specifically designed to serve these areas;<br>• Forecast to lead to a beneficial reduction in city centre congestion (-7%);<br>• Widens route choice but does not create any new road links to increase network resilience. |
| | O6: The transport system facilitates sustainable development | | | | | ■ | |
| | O7: Transport supports a thriving local economy | | | | ■ | | |
| | O8: A more resilient transport system | | | | ■ | | |
| **Environment** | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | ■ | | • Forecast to deliver a 8% reduction in traffic flows on roads in the Air Quality Management Areas and a beneficial mode shift (5%) towards less polluting modes;<br>• Negligible impact on water quality, designated sites and cultural heritage. Park and Choose sites will have some impact on the landscape but this could be mitigated by careful site selection;<br>• Creates new public spaces and improves paving/planting as part of cycling and walking infrastructure;<br>• Restricts through traffic in residential areas and introduces school streets which will make residential areas more pleasant to live;<br>• Delivers measures which work in combination to improve sustainable travel to the city centre and footfall in the city centre. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | ■ | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | ■ | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | ■ | |
| **Society** | O13: The transport system facilitates improved public health through more active lifestyles | | | | | ■ | • Contains measures which provide opportunities to make people more active by cycling and walking and enable people to cycle and walk as part of longer journeys made by public transport;<br>• Provides affordable modes of travel, promotion and information and mobility hubs which provide significant benefit to many sectors of society including those without access to a car;<br>• Mobility hubs will provide some benefit to improve accessibility to services and facilities for rural residents;<br>• Delivers safer road crossings, cycleways to separate cyclists from traffic and reduces traffic speeds and volumes on residential streets;<br>• Enhances waiting facilities at key locations to improve passenger confidence and safety;<br>• Forecast to lead to a 12% reduce in vehicle movements through Noise Important Areas. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | ■ | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | ■ | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | ■ | |
| **Acceptability** | Stakeholder acceptability of the package | | | | ■ | | • Package scored 87% on Stakeholder acceptability (average score of the elements);<br>• Contains 2 of the top 5 ranking interventions (safer routes to school and improved walking and cycling infrastructure). The public were not directly asked about promotional campaign, shared mobility solutions or mobility hubs. |
| | Public acceptability of the package | | | ■ | | | |
| **Deliverability** | Technical/practical feasibility (successful implementation and technological barriers) | | | | | ■ | • Most elements delivered in places with similar characteristics to Hereford but several elements have aspects which constitute emerging practice;<br>• Some minor challenges over the app based solutions;<br>• Certain mobility hubs may require land purchase and/or require planning permission and requirements for TROs to be amended or introduced;<br>• Most elements could be delivered in 3 years but some may take longer e.g. promotional campaigns and improved walking and cycling infrastructure. |
| | Legal powers | | | | ■ | | |
| | Implementation timescale of the package | | | | ■ | | |
| **Affordability** | Capital cost of the package | | | | ■ | | • Capital cost: £57,350,000 and Revenue cost: £2,385,000 pa;<br>• Not anticipated to have significant impact on parking revenues, council tax and business rate receipts;<br>• Some aspects e.g. school streets and low traffic neighbourhoods will require greater consideration and pose a higher level of risk;<br>• Shared mobility solutions and mobility hubs are more recent concepts and there is less clear evidence of funding bodies responding to these types of solutions in smaller cities. |
| | Revenue cost of the package/impact on Council revenues | | | | ■ | | |
| | Risk of cost increases | | | | | ■ | |
| | Initial value for money of the package | | | | | ■ | |
| | Likelihood of funding | | | | ■ | | |

# Package A + B (Walking and Cycling, plus Bus)

| | | Average scoring | | | | | Impact of the package |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | ■ | • Forecast to lead to a 10% reduction in tonnes of carbon, 9% reduction in vehicle kms and 15% reduction in the number of trips by car for short journeys;<br>• Medium increase in embodied carbon;<br>• Provides wider travel choice and more up to date information on travel conditions alongside flexible route choice from DRT buses. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | ■ | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | ■ | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | ■ | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | ■ | • Forecast to deliver a large beneficial reduction in delay and congestion across Hereford (-15% in queues), 3% reduction in journey times along key corridors and 19% increase in bus trips;<br>• Supports new development and access to employment sites, training opportunities and education with additional sustainable transport, alongside travel promotion and information;<br>• Forecast to lead to a beneficial reduction in city centre congestion (-7%);<br>• Combines improved active travel infrastructure and promotion and information alongside improved bus services which work in combination to significantly improve modal choice. |
| | O6: The transport system facilitates sustainable development | | | | | ■ | |
| | O7: Transport supports a thriving local economy | | | | ■ | | |
| | O8: A more resilient transport system | | | | | ■ | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | ■ | • Forecast to deliver a 19% reduction in traffic flows on roads in the Air Quality Management Areas and 5% mode shift towards less polluting modes;<br>• Negligible impact on water quality, designated sites and cultural heritage. Park and Choose sites will have some impact on the landscape but this could be mitigated by careful site selection;<br>• The adoption of electric buses will reduce noise in residential areas;<br>• Contains elements which work in combination to provide a marked improvement in accessing the city centre by sustainable modes and encouraging footfall in the city centre. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | ■ | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | ■ | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | ■ | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | ■ | • Contains elements which work in combination to encourage people to use the bus as well as enabling people to cycle and walk as part of longer journeys made by public transport;<br>• Provides affordable modes of travel, promotion and information, mobility hubs, improved bus frequency and bus priority which will provide significant benefit to many sectors of society including those without access to a car;<br>• The improved bus frequency will allow rural residents to more easily transfer from other modes and DRT would widen access to bus services for rural residents;<br>• Increases bus frequency and bus priority measures which will encourage confidence in the reliability of this mode;<br>• Forecast to lead to a 12% reduction in vehicle movements through the Noise Important Areas. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | ■ | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | ■ | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | ■ | |
| Acceptability | Stakeholder acceptability of the package | | | | ■ | | • Scored 85% on Stakeholder acceptability (average score of all elements);<br>• Contains 3 of the top 5 ranking interventions (invest in the bus network, safer routes to school and improved walking and cycling infrastructure). The public were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, Mobility Hubs or improved school bus. |
| | Public acceptability of the package | | | | ■ | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | ■ | | | • Limited examples where other Local Authorities have gone substantially beyond their statutory responsibilities to fund travel to school by bus and there are few examples of where DRT services have operated consistently over a period of time;<br>• Significant issues over how an electric hopper bus system could be introduced to Hereford, due to the Bus Services Act 2017;<br>• Most elements could be delivered in 4 years however some elements will take longer to be implemented. |
| | Legal powers | ■ | | | | | |
| | Implementation timescale of the package | | | ■ | | | |
| Affordability | Capital cost of the package | | | ■ | | | • Capital Cost: £75,860,000 and Revenue Cost: £5,885,000 pa;<br>• Some aspects (e.g. school streets, low traffic neighbourhoods, electric hopper bus and DRT) will require greater consideration and pose a higher level of risk including revenue support for the bus service operation;<br>• There are no known external funding sources for widened entitlement to school transport. |
| | Revenue cost of the package/impact on Council revenues | | ■ | | | | |
| | Risk of cost increases | | | ■ | | | |
| | Initial value for money of the package | | | | ■ | | |
| | Likelihood of funding | | ■ | | | | |

# Package A + B + C (Walking and Cycling, Bus and Demand Management



| | | Average scoring | | | | | Impact of the package |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Forecast to result in a 10% reduction in tonnes of carbon, 9% reduction in vehicle kms and 17% reduction in the number of trips by car for short journeys;<br>• Medium increase in embodied carbon;<br>• Provides wider travel choice and more up to date information on travel conditions alongside flexible route choice from DRT. Some of the ITS measures would provide better information on climate change impacts affecting the transport network. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Forecast to deliver a 15% reduction in delay and congestion, 4% reduction in journey times along key corridors and 20% increase in bus trips;<br>• Motor vehicle journeys to the SUEs, Enterprise Zone, other new developments, employment sites, training opportunities and education which use the main corridors are likely to benefit from ITS elements;<br>• Forecast to lead to a beneficial reduction in city centre congestion (-8%);<br>• Some of the proposed ITS measures will help travellers make more informed decisions;<br>• Combines improved active travel infrastructure and promotion and information alongside improved bus services which work in combination to significantly improve modal choice. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Forecast to deliver a 9% reduction in traffic flows on roads in the Air Quality Management Areas and 6% mode shift towards less polluting modes;<br>• Negligible impact on water quality, designated sites and cultural heritage. Park and Choose sites will have some impact on the landscape but this could be mitigated by careful site selection;<br>• ITS elements are likely to be associated with the installation of new signs and street furniture which might have some adverse impacts on the streetscape;<br>• Introducing demand management will lead to a range of responses (more people cycling, walking or catching the bus into the city centre vs some people shopping less regularly within the city centre). |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • In addition to Packages A + B the demand management measures will encourage a mode shift from private motor vehicle to public transport with consequential benefits on physical activity;<br>• Demand management measures will either reduce parking supply or place additional costs on vehicle travel;<br>• Forecast to lead to a 12% reduction in vehicle movements through the Noise Important Areas. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the package | | | | | | • Scored 82% on Stakeholder acceptability (average score of all elements);<br>• Contains 3 of the top 5 ranking interventions (invest in the bus network, safer routes to school and improved walking and cycling infrastructure). The public were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| | Public acceptability of the package | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • Workplace Parking Levy is limited to Nottingham although other authorities are considering this measure. However, other parking charge regimes are commonplace across the UK;<br>• The level of technological difficulty for demand management would depend on which measures are progressed and in what combination;<br>• The consents required and their chance of success would depend on which demand management measures are progressed and in what combination;<br>• Most elements could be delivered in 4 years however some elements will take longer to be implemented. |
| | Legal powers | | | | | | |
| | Implementation timescale of the package | | | | | | |
| Affordability | Capital cost of the package | | | | | | • Capital Cost: £79,860,000 and Revenue Cost: £5,465,000 pa;<br>• The net effect of demand management on parking revenue is uncertain in that higher charges would probably generate greater revenue although a reduction in parking spaces could lead to a decrease in revenue;<br>• The costs of ITS and demand management will depend upon the type of intervention being delivered;<br>• Most of the demand management measures tend to be funded by the organisation that will operate them on the assumption that future income will cover costs. |
| | Revenue cost of the package/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the package | | | | | | |
| | Likelihood of funding | | | | | | |

# Package A + C + D (Walking and Cycling, Demand Management and Western Bypass



| | | Average scoring | | | | | Impact of the package |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | ■ | | • Forecast to result in a 3% reduction in tonnes of carbon, less than 2% increase in vehicle kms and 17% reduction in the number of trips by car for short journeys;<br>• High increase in embodied carbon, the largest impact coming from the construction of the Western Bypass;<br>• The Western Bypass will provide an additional link across the river and will increase network resilience to climate change events. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | ■ | | |
| | O3: The amount of resources and energy used in the transport system is minimised | ■ | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | ■ | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | ■ | | • Forecast to deliver a 29% reduction in delay and congestion, 7% reduction in journey times along key corridors and 3% reduction in bus trips;<br>• The Western Bypass route alignment will run close to Three Elms, Holmer West and Lower Bullingham SUEs, providing a new route to these developments;<br>• Forecast to lead to a beneficial reduction in city centre congestion (-19%);<br>• The Western Bypass will improve vehicle access to the Enterprise Zone from certain origins but will be less well related to the City Centre, Widemarsh and Holmer Road employment areas;<br>• The Western Bypass will provide a second strategic road link across the river, giving additional network resilience. |
| | O6: The transport system facilitates sustainable development | | | | | ■ | |
| | O7: Transport supports a thriving local economy | | | | | ■ | |
| | O8: A more resilient transport system | | | | | ■ | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | ■ | • Forecast to deliver a 27% reduction in traffic flows on roads in the Air Quality Management Areas and 5% mode shift towards less polluting modes;<br>• The Western Bypass will have adverse impacts on the ecological, chemical and hydromorphological quality of the River Wye, Yazor Brook, Withy Brook and Newton Brook. It will have adverse impacts on designated biodiversity sites with the Southern Link Road passing through Grafton Wood ancient woodland;<br>• The Western Bypass will have significant impact on landscape and visual effects. It will have significant impacts on a number of designated (six Grade II and one Grade II*) listed buildings and non-designated heritage assets including below ground archaeological remains/earthworks, built heritage and landscaped parks;<br>• Contains measures intended to make residential areas more pleasant places to live, such as restricting through traffic on residential roads and introducing school streets. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | ■ | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | ■ | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | ■ | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | ■ | • Contains elements which will encourage greater use of sustainable modes but these benefits will be dampened by the Western Bypass although they would be reinforced by the demand management measures;<br>• The Western Bypass will reinforce the benefits from other elements by reducing traffic flows on some cross city corridors;<br>• Forecast to lead to a 31% reduction in vehicle movements through the Noise Important Areas. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | ■ | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | ■ | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | ■ | |
| Acceptability | Stakeholder acceptability of the package | | | ■ | | | • Scored 68% Stakeholder acceptability (average score of all elements). The lowest scoring element was the Western Bypass which was supported by the fewest stakeholders;<br>• Contains 3 of the top 5 ranking interventions (increase in road capacity, safer routes to school and improved walking and cycling infrastructure). The public were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| | Public acceptability of the package | | | | ■ | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | ■ | | • The Western Bypass will require DCO or planning permissions and land acquisition or CPO;<br>• Most elements of the package could be delivered in less than 4 years however some elements will take longer to be implemented. The Western Bypass would take longest to implement, being a major infrastructure project requiring further detailed design, approvals and construction. |
| | Legal powers | | ■ | | | | |
| | Implementation timescale of the package | | ■ | | | | |
| Affordability | Capital cost of the package | ■ | | | | | • Capital Costs: £261,350,000 and Revenue Costs: £2,123,000 pa;<br>• High risks associated with delivery of a major road scheme such as the Western Bypass;<br>• Gaining agreed funding for the Western Bypass is likely to depend on gaining Central Government approval. |
| | Revenue cost of the package/impact on Council revenues | | | ■ | | | |
| | Risk of cost increases | | | ■ | | | |
| | Initial value for money of the package | | | ■ | | | |
| | Likelihood of funding | | | ■ | | | |

# Package A + C + E (Walking and Cycling, Demand Management and Eastern Link)

| | | Average scoring | | | | | Impact of the package |
|---|---|---|---|---|---|---|---|
| **Climate Emergency** | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | ■ | | • Forecast to result in a 8% reduction in tonnes of carbon, 5% reduction in vehicle kms and 16% reduction in the number of trips by car for short journeys;<br>• Medium/high increase in embodied carbon, the largest impact coming from the construction of the Eastern Link;<br>• The Eastern Link will provide another link across the river, helping to increase network resilience to climate change events. However, many trips will be unaffected by this element. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | ■ | |
| | O3: The amount of resources and energy used in the transport system is minimised | | ■ | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | ■ | | |
| **Economy** | O5: Reliable and efficient movement of people and goods and provision of services | | | | ■ | | • Forecast to deliver a 23% reduction in delay and congestion, 6% reduction in journey times along key corridors and 3% reduction in bus trips;<br>• The Eastern Link will provide a new link in close proximity to Lower Bullingham SUE and the Enterprise Zone but will be less well related to the Three Elms and Holmer West SUEs and Edgar Street Grid;<br>• Forecast to lead to a 18% reduction in city centre congestion;<br>• The Eastern Link will improve access to the Enterprise Zone from journeys from some origins but would be poorly related to the City Centre, Widemarsh and Holmer Road employment areas. Vehicle trips to the Enterprise Zone will still need to travel through Hereford from certain radial routes including A465 (south-west), A49 north and A4103;<br>• The Eastern Link will provide a new river crossing, giving additional network resilience. |
| | O6: The transport system facilitates sustainable development | | | | | ■ | |
| | O7: Transport supports a thriving local economy | | | | | ■ | |
| | O8: A more resilient transport system | | | | | ■ | |
| **Environment** | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | ■ | • Forecast to deliver a 21% reduction in traffic flows on roads in the Air Quality Management Areas and 5% mode shift towards less polluting modes;<br>• The Eastern Link will cross over a large area of the River Wye floodplain and is likely to have an adverse impact with flood relief measures required. There are likely to be complex hydrological relationships existing between the River Wye SAC, the River Lugg, Lugg and Hampton Meadows SSSI, Lugg Rhea and the wider floodplain. It is likely to have significant adverse impacts on the designated features of River Wye SAC, River Lugg SSSI and the Lugg and Hampton Meadows SSSI;<br>• The Eastern Link will have significant impact on landscape and visual effects, with new infrastructure in greenfield locations. It will cross part of one scheduled monument (Rotherwas House and Chapel) and close to another (Tupsley Ring Ditches) and pass close to listed buildings (two Grade II and one Grade II*);<br>• The Eastern Link will lead to an increase in traffic flow in some residential areas within north-east Hereford and further east (Lugwardine and Bartestree). |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | ■ | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | ■ | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | ■ | | |
| **Society** | O13: The transport system facilitates improved public health through more active lifestyles | | | | | ■ | • Contains elements which encourage greater use of sustainable modes. These benefits would be dampened by the Eastern Link although they would be reinforced by the demand management measures;<br>• The Eastern Link will reinforce the benefits of other elements by reducing these traffic flows on the key cross city corridors;<br>• Forecast to lead to a 21% reduction in vehicle movements through the Noise Important Areas. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | ■ | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | ■ | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | ■ | |
| **Acceptability** | Stakeholder acceptability of the package | | | ■ | | | • Scored 65% Stakeholder acceptability (average score of all elements). The lowest scoring element was the Eastern Link which was supported by the fewest stakeholders;<br>• Contains 3 of the top 5 ranking interventions (increase in road capacity, safer routes to school and improved walking and cycling infrastructure). The public were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| | Public acceptability of the package | | | | ■ | | |
| **Deliverability** | Technical/practical feasibility (successful implementation and technological barriers) | | | | ■ | | • The Eastern Link will require DCO or planning permissions and land acquisition or CPO;<br>• Most elements could be delivered in less than 4 years however some elements will take longer to be implemented. The Eastern Link would take longest to implement, being a major infrastructure project requiring detailed design, approvals and construction. |
| | Legal powers | | ■ | | | | |
| | Implementation timescale of the package | | ■ | | | | |
| **Affordability** | Capital cost of the package | | ■ | | | | • Capital Cost: £126,350,000 and Revenue Cost: £2,047,000 pa;<br>• High risks associated with the delivery of a major road scheme such as the Eastern Link;<br>• Gaining agreed funding for the Eastern Link is likely to depend on gaining Central Government or LEP approval. |
| | Revenue cost of the package/impact on Council revenues | | | ■ | | | |
| | Risk of cost increases | | | ■ | | | |
| | Initial value for money of the package | | | | ■ | | |
| | Likelihood of funding | | | ■ | | | |

# Package A + C + F (Walking and Cycling, Demand Management and Eastern River Crossing)

| | | Average scoring | | | | | Impact of the package |
|---|---|---|---|---|---|---|---|
| Climate Emergency | O1: The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target | | | | | | • Forecast to result in a 9% reduction in tonnes of carbon, 7% reduction in vehicle kms and 16% reduction in the number of trips by car for short journeys;<br>• Medium/high increase in embodied carbon, the largest impact coming from the construction of the Eastern River Crossing;<br>• The Eastern River Crossing will provide another link across the river, helping to increase network resilience to climate change events. However, many trips will be unaffected by this element. |
| | O2: The need to travel is reduced and travel distance is reduced | | | | | | |
| | O3: The amount of resources and energy used in the transport system is minimised | | | | | | |
| | O4: The transport system is flexible and adaptable to climate change and future needs | | | | | | |
| Economy | O5: Reliable and efficient movement of people and goods and provision of services | | | | | | • Forecast to deliver a 22% reduction in delay and congestion, 5% reduction in journey times along key corridors and 3% reduction in bus trips;<br>• The Eastern River Crossing will provide a new link in close proximity to Lower Bullingham SUE and the Enterprise Zone but will be less well related to the Three Elms and Holmer West SUEs and Edgar Street Grid;<br>• Forecast to lead to a 15% reduction in city centre congestion;<br>• The Eastern River Crossing will improve access to the Enterprise Zone from journeys from some origins but will be poorly related to the City Centre, Widemarsh and Holmer Road employment areas. Vehicle trips to the Enterprise Zone will still need to travel through Hereford from certain radial routes including A465 (south-west), A49 north and A4103;<br>• The Eastern River Crossing will provide a new river crossing, giving additional network resilience. |
| | O6: The transport system facilitates sustainable development | | | | | | |
| | O7: Transport supports a thriving local economy | | | | | | |
| | O8: A more resilient transport system | | | | | | |
| Environment | O9: A reduction in key air pollutants (nitrogen oxides and particulates), especially where people live | | | | | | • Forecast to deliver a 19% reduction in traffic flows on roads in the Air Quality Management Areas and 5% mode shift towards less polluting modes;<br>• The Eastern River Crossing will cross over a large area of the River Wye floodplain and is likely to have an adverse impact with flood relief measures required. There are likely to be complex hydrological relationships existing between the River Wye SAC, the River Lugg, Lugg and Hampton Meadows SSSI, Lugg Rhea and the wider floodplain. It is likely to have significant adverse impacts on the designated features of River Wye SAC;<br>• The Eastern River Crossing will have significant impact on landscape and visual effects, with new infrastructure in greenfield locations. It will cross part of one scheduled monument (Rotherwas House and Chapel) and pass close to listed buildings (two Grade II and one Grade II*), affecting the integrity of sites;<br>• The Eastern River Crossing will lead to an increase in traffic flow in some residential areas within east Hereford between the Hampton Park Road and Ledbury Road. |
| | O10: A transport system that protects, conserves and enhances Herefordshire's natural environment, including delivering biodiversity net gain | | | | | | |
| | O11: A transport system that protects, conserves and enhances Herefordshire's character and built environment (heritage and townscape) | | | | | | |
| | O12: The transport system contributes to creating attractive and high-quality places to live, work and visit | | | | | | |
| Society | O13: The transport system facilitates improved public health through more active lifestyles | | | | | | • Provide measures to encourage greater use of sustainable modes but these benefits would be dampened by the Eastern River Crossing although they would be reinforced by the demand management measures;<br>• The Eastern River Crossing will reinforce the benefits from other elements by reducing these traffic flows on the key cross city corridors;<br>• Forecast to lead to a 19% reduction in vehicle movements through Noise Important Areas. |
| | O14: All sectors of society have easy and affordable access to the services and facilities they need | | | | | | |
| | O15: The transport network is safe and secure for everyone to use confidently | | | | | | |
| | O16: The adverse impacts of transport on communities are reduced, including severance and noise | | | | | | |
| Acceptability | Stakeholder acceptability of the package | | | | | | • Scored 68% Stakeholder acceptability (average score of all elements). The lowest scoring element was the Eastern River Crossing which was supported by the fewest stakeholders;<br>• Contains 3 of the top 5 ranking interventions (increase in road capacity, safer routes to school and improved walking and cycling infrastructure). The public were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs, improved school bus or ITS. |
| | Public acceptability of the package | | | | | | |
| Deliverability | Technical/practical feasibility (successful implementation and technological barriers) | | | | | | • The Eastern River Crossing will require DCO or planning permissions and land acquisition or CPO;<br>• Most elements could be delivered in less than 4 years however some elements will take longer to be implemented. The Eastern River Crossing would take longest to implement, being a major infrastructure project requiring detailed design, approvals and construction. |
| | Legal powers | | | | | | |
| | Implementation timescale of the package | | | | | | |
| Affordability | Capital cost of the package | | | | | | • Capital Costs: £113,350,000 and Revenue Costs: £2,057,000 pa;<br>• High risks associated with the delivery of a major road scheme such as the Eastern River Crossing;<br>• Gaining agreed funding for the Eastern River Crossing is likely to depend on gaining Central Government or LEP approval. |
| | Revenue cost of the package/impact on Council revenues | | | | | | |
| | Risk of cost increases | | | | | | |
| | Initial value for money of the package | | | | | | |
| | Likelihood of funding | | | | | | |

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# Technical Note

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|---|---|---|---|
| **Project:** | Hereford Transport Strategy Review | | |
| **Our reference:** | 417997-MMD-MAN-XX-TN-TA-0018 Ver 2 | **Your reference:** | - |
| **Prepared by:** | Mark Harrison | **Date:** | 30/09/20 |
| **Approved by:** | Martin Revill | **Checked by:** | Ed Ducker |
| **Subject:** | Critical Friend - Summary of Findings | | |

## Executive summary

Mott MacDonald (MM) has been appointed by Herefordshire Council (HC) to undertake the role of a 'critical friend', providing an independent study of the Hereford Transport Strategy Review (HTSR) currently being developed by the Council and its consultants WSP.

The Hereford Transport Strategy Review report presents the work undertaken in a clear way and summary graphics such as the radar diagrams in Chapters 7 and 8 help to draw out the conclusions of the technical work. Given the very limited time available the intention of this 'critical friend' support has not been to check any of the scoring or technical work which underpins the strategy. Instead, the focus has been a review that provides additional interpretation of the work, to review the clarity in presenting the strategy, and to pose questions on the way forward where appropriate.

The headline conclusions of the critical friend review relate to the following areas and are presented here by way of executive summary. A more detailed presentation of some of the issues addressed in the review follows in sections 1 and 2. There several themes identified which we feel would be worth further consideration before the authority progresses with adoption of the strategy:

1. The balance and clarity of reporting against objectives
2. The level of detail available for some options
3. The packaging of options
4. Induced traffic
5. Covid-19 response and future uncertainty

### Balance and clarity of reporting against objectives

Within the Transport Strategy Review there is a large amount of detail on modelled percentage impacts upon the highway network as a result of the various options. This is all technically interesting detail however it detracts from what is required within a strategy, namely establishing the issues to be addressed, the objectives and what options perform most strongly in contributing to meeting the objectives. This information on the identification and assessment of objectives is all present, and includes information on a series of indicators across the 'balanced scorecard' of those objectives demonstrating the performance of packages in tackling the climate emergency, achieving Hereford's growth and economic ambitions, and in meeting broader targets for environmental sustainability and a fairer society.

The emphasis on modelling results risks focussing debate on a limited number of metrics, and on those options that bring the greatest congestion benefits, which the radar diagrams in Chapter 7 demonstrate are

not necessarily what is required for scoring positively against other outcomes relating to, for example, climate emergency and environment. There is a risk that the focus on such metrics from the modelled outputs 'hides' the benefits and disbenefits of some packages in achieving the adopted objectives. This needs to be kept in mind if these options are taken forward to the next stages of the Transport Appraisal Process. For example, given policy ambitions such as a 100% reduction in greenhouse gas emissions by 2050 it is likely that climate emergency and net zero will be key considerations for future transport infrastructure funding, as will considerations around social and distributional impacts.

There is also a point of clarity when examining some of the congestion metrics, as it is unclear within the strategy reporting exactly what some of these congestion data refer to, and where and when any decongestion benefits are likely to be seen.

### Level of detail available for some options

Some options appear to have been developed and tested much more rigorously than others, which is understandable at a strategy development stage, and given the history of some proposals. For instance, given its long development history there is understandably far more detail available to support the western bypass. It is important that this doesn't result in an unconscious bias towards this option, compared with other options which could provide valid contributions towards the strategy objectives. It is important that the presentation of some of the less developed options allows for this nuance and ensures clarity in explaining the contributions to strategy objectives of some of these less well-developed options and packages.

### Packaging of options

Clear presentation and explanation of how the package combinations have been tested would be helpful to the reader. For instance, Package A is shown in all packaging combinations due to its strong support from stakeholders and performance in terms of contribution towards strategy objectives, and it is important to emphasise that this is the case. In a similar way, Package C is included in all three road improvement options. There is the potential that without clear presentation of the rationale for the packaging, it could be perceived that active modes and demand management measures may be used to improve the performance of the road options, or at least present the perception that this is the case. It is also important that the packaging is presented in such a way that stakeholders and decision makers truly understand the contribution of specific packages to the achievement of objectives. The testing of combinations of packages that includes packages A and C within multiple tests has the potential to hide the impacts of some packages.

### Induced traffic

Rationale for the use of the Hereford Transport Model (HTM) and the assumptions and prospective limitations are clearly laid out on p58. This page also explains the issue of induced traffic, where 'new' traffic appears once the capacity of the road network is increased. The strategy correctly notes that this may overestimate the congestion benefits identified within the road schemes, particularly over the longer term. Traffic could be induced from local or regional journeys. HTM is not able to reassign longer distance transfers which could be made as a result of any of the options and therefore it is not possible to conclusively estimate induced traffic from the data available.

The Impact of Road Projects in England Report[1] examined new schemes on the Strategic Road Network over a 20-year period using information within Highways England's Post Opening Project Evaluation (POPE) reports. The researchers found evidence that road schemes induce traffic, often far above background trends over the longer term and show little evidence of economic benefit to local economies.

[1] Transport for Quality of Life on behalf of CPRE (March 2017) https://www.cpre.org.uk/wp-content/uploads/2019/11/TheZendZofZtheZroad.pdf

*While many schemes appeared to show improvements one year after opening, only one showed positive evidence of improved reliability in journey times five years after opening, when reliability improvements can be rapidly eroded by induced traffic.*

In 2018 the Department for Transport commissioned an evidence review on induced travel demand[2]. The work drew several tentative conclusions, of which the following is of most relevance to the Transport Strategy Review:

*Induced demand is likely to be higher for capacity improvements in urban areas or on highly congested routes. There is little evidence that extreme levels of induced demand would occur on the Strategic Road Network although on highly congested parts of the network there may be a clear localised response.*

One interpretation from this is that a highway capacity improvement scheme that delivers the highest congestion relief, especially if it is in an urban area, could be the most likely to induce additional demand.

### Covid-19 response and future uncertainty

Page 90 of the Transport Strategy Review considers the impact of Covid-19 upon travel. A sensitivity test has been undertaken to see the impact of 20% less peak hour travel demand. This demonstrates a benefit in reducing peak hour congestion and journey times and the assumptions made appear reasonable.

Another approach to understanding he impact of Covid-19, which if nothing else has demonstrated the uncertainty of the future, even in the short term, would be to address the strategy by moving away from modelled forecast impacts. The current period of regime transition towards a new form of mobility system that supports a future society in which working, education, leisure, and consequent travel patterns have changed so dramatically in a short period of time suggests an alternative approach may be appropriate. Technological innovation, travel behaviour change, as well as the impact of the Covid-19 pandemic all lead to deep uncertainty around how we plan for transport in the future.

Traditional transport planning has been driven by adhering to trends and the nature of the world we have known. This has resulted in the forecast led paradigm commonly known as ‘predict and provide’. Planning for the future by solely looking in the rear-view mirror is no longer adequate in the face of the opportunities, threats and uncertainties ahead. What is required is strong planning that is vision-led, and which negotiates uncertainty to achieve more resilient decision making. Data will still need to be used to differentiate approaches within a vision, however it is vital that overreliance on metrics which may no longer be appropriate do not cloud the aims of a strategy.

Scenario planning offers a technique which instead of forecasting a single future, develops scenarios by identifying key uncertainties which depict multiple plausible futures. One of the benefits of scenario planning is that it removes some of our biases and assumptions about what we think the future will be, by drawing our attention to the multiplicity of futures which could occur. Furthermore, the technique helps us to imagine the future we want to see, rather than an unsatisfactory future planned for using the common ‘predict and provide’ regime.

# 1. Introduction

## 1.1 Project context

The Transport Strategy for Hereford is currently being reviewed and alternative options are being considered in the context of the declared climate emergency. It is separate from a review of the Local Plan Core

[2] WSP and Rand Europe (May 2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762976/latest-evidence-on-induced-travel-demand-an-evidence-review.pdf

Strategy or the Local Transport Plan, but the work could inform future reviews of these policies and plans. The geographical scope of the work is Hereford but naturally the strategy is required to recognise and account for travel patterns to and from the rest of the County and further afield which impact upon the city.

The emerging work by WSP considers current and future transport issues, sets new objectives, develops alternative transport options for Hereford, and includes an initial appraisal of these.

### 1.2 Outputs

Independent 'critical friend' support provided by Mott MacDonald is not intended to be a detailed technical review to establish compliance with TAG[3]; the work is a more informal independent logic check, to help with interpretation of the outputs, and to question the emerging strategy work where appropriate. The work is in no way intended to be a check or audit of modelling or other technical outputs. This 'critical friend' review examines the key issues within the draft strategy and provides commentary where there may be alternative options or where the outputs may be subject to different interpretations.

The project has the following stages and deliverables:

- **Initial discussion** (with HC and WSP) to understand the brief for the HTSR and the approach being taken. This was held on 21/08/20.
- **Discussion** (with HC Cabinet Member for Infrastructure and Highways) took place on 16/09/20. The following key issues were identified, and they have helped to inform the initial direction of travel during this critical friend support:
  - A review of strategy objectives and packaging
  - A review of road elements and congestion benefits
  - Whether there is unconscious bias towards the western bypass, given its technical evidence base is much further progressed than the other options
  - Future uncertainty and alternative scenarios.
  - Where do the benefits come from and how soon will they be realised?
- **Investigation of issues within the Transport Strategy and reporting**. This Technical Note constitutes this project deliverable.

### 1.3 Documents provided

The following documents have been provided by HC:

- Hereford Transport Strategy Review (dated 18/09/20, received 21/09/20)
- Draft Package Assessment Framework (received 26/08/20).

# 2. Critical friend review

### 2.1 Introduction and approach

The critical friend team has undertaken a rapid review of the Hereford Transport Strategy Review report, with emphasis on the following areas:

- Consideration of the relationship of the strategy with existing and emerging policy
- Appreciation of the suitability of the objectives

[3] https://www.gov.uk/guidance/transport-analysis-guidance-webtag

- Examination of the proposed options
- Review of how the packages have been derived (e.g. scoring and consultation).

The critical friend review commentary follows the sections within the HTSR report, namely:

- Chapter 2 – Hereford's Major Challenges
- Chapter 3 – Hereford's Transport Fact File
- Chapter 4 – Strategy Objectives
- Chapter 5 – Option Development
- Chapter 6 – Option Assessment
- Chapter 7 – Recommendations

The earlier 'executive summary' section of this Technical Note provides a summary of Mott MacDonald's findings.

## 2.2 Chapter 2 – Hereford's Major Challenges

### 2.2.1 Chapter summary

This sets the scene for the strategy, providing data, analysis and policy context relating to the climate emergency, economy, environment and society. Legal and funding context is provided; this is useful as it is important that any strategy is realistic and is framed within an appropriate and realistic context and demonstrates awareness of how its vision can be delivered. The Chapter also outlines the stakeholder engagement undertaken to inform the strategy.

### 2.2.2 Review comments

#### 2.2.2.1 Climate emergency, economy, environment and society

Key issues are set out providing structure for objectives and outcomes later in the transport strategy. Relevant reference is made to each of the four key areas, linking Hereford's challenges to broader regional, national and international policies. The emphasis of these key challenges highlights the need for transport investment initiatives to encompass a wholly sustainable approach, thus achieving Hereford's growth and economic ambitions, while meeting broader targets for environmental sustainability and improved connectivity.

Reference is made to the fact that "*the majority of journeys in Hereford involve little or no physical activity*" (p17), however the analysis of travel modes and distances suggests that 25% of trips within Hereford are made by active modes, with 38% of commuter trips being less than 2km. There is little mention to the benefits of public transport in achieving objectives around the climate emergency, economy, environment and society. This section draws reference to the historical bias of transport schemes towards the investment in road schemes, but not how future investments can be used to shape a vision for Hereford, by meeting objectives and improving the transport offering.

The benefits of walking and cycling are briefly discussed, referencing that these schemes "generate 'very high' value for money when assessed against the Treasury criteria" and the potential health benefits of more active lifestyles. Additional information on further benefits of active modes could be included in this section, not least an increase in economic activity as a result of increased footfall in high-street environments, and the positive impacts pedestrianisation can have not just on the environment, but also for the local economy.

#### 2.2.2.2 Legal and funding context

Midlands Connect has an important regional role in transport strategy, funding and delivery. Documents published by Midlands Connect are referred to in Chapter 3, but they are not mentioned on p14 under the role of other organisations.

Gear Change: A bold vision for cycling and walking[4] (DfT, July 2020) is referred to in Chapter 3 under key policy documents. Its importance relating to funding context (p15, Hereford Transport Strategy Review) should also be emphasised:

*"Active Travel England's assessment of an authority's performance on active travel will influence the funding it receives for other forms of transport. Since active and sustainable travel will be at the heart of our policy, Active Travel England's assessment of* ***an authority's performance with respect to sustainable travel outcomes, particularly cycling and walking, will be taken into account when considering funding allocations for local transport schemes****. We will consult on introducing new criteria to measure local highway authorities' performance in respect of sustainable travel outcomes, particularly cycling and walking, when considering funding allocations for local transport schemes."*

#### 2.2.2.3 Consultation responses

Consultation responses are summarised for questions regarding important outcomes and effective interventions.

The most popular public responses were 'reduce congestion, improve traffic flow', 'quicker/more reliable journey times', 'reduce carbon emissions and improve air quality' and 'offer a realistic alternative to the car'.

The most popular public responses for interventions were 'invest in bus network - electric buses, reduce fares', 'increase capacity – new roads, new river crossing' and 'support sustainable school travel/safer routes to school'.

Part of a scheme promoter's role is to establish whether these outcomes could all be achieved and how much the interventions suggested could contribute to these. Some of the desirable outcomes may not be compatible with each other, for example if traffic flow is improved what is the 'stick' to bolden the incentive to use realistic alternatives to the car? Whilst reducing congestion could result in marginal improvements to carbon emissions and air quality at source there is a risk of more traffic being induced which would mean more emissions overall within Hereford. For balance it should be noted that when solutions were consulted upon (p66), the road options were the least popular with Members and the stakeholder reference panel.

## 2.3 Chapter 3 – Hereford's Transport Fact file

### 2.3.1 Chapter summary

This chapter uses data to summarise existing travel patterns in the city and its key issues. Future trends and technology are also considered.

### 2.3.2 Review comments

#### 2.3.2.1 Baseline information

Baseline data offers a broad overview of the transport network and usage within Hereford, with direct comparisons made through local, regional and national datasets. This section references Herefordshire

[4] https://www.gov.uk/government/publications/cycling-and-walking-plan-for-england

Council's membership of Midlands Connect and the strategic importance of the key roads running through the city itself.

While it's appreciated that data is readily available for motorised modes of transport, there is significantly greater detail in this analysis than for other modes. Active modes, for instance, could possibly be expanded on, with the inclusion of wider cycling data from the Propensity to Cycle tool, or even data from Strava which could offer further insights into the key walking routes, as well as cycling. Further baselining data could strengthen the arguments for investment for the preferred scheme/package.

The diagram on p22 is missing data for the link between zones 1 & 4 (the alignment between zones representing the connection made by the western bypass link). Given that highway investment on this alignment is the focus of one of the package options later in the strategy, it would be helpful to have the context of existing trips between these zones.

#### 2.3.2.2 Evidence from other policies and strategies

In addition to the Future of Mobility: Urban Strategy[5] (DfT, March 2019), WSP is currently developing the Future of Rural Mobility Study on behalf of Midlands Connect, which we understand may inform DfT thinking on national rural mobility. Given Hereford's rural surroundings this emerging work may also be of relevance to the strategy's development in due course, including for mobility hubs identified in package A of the strategy.

## 2.4 Chapter 4 – Strategy Objectives

### 2.4.1 Chapter summary

This chapter explains the strategy objectives, outcomes and indicators. The four objectives are:

- Climate Emergency: Reducing carbon emissions from the transport sector to meet the 2030 target of zero emissions
- Economy: Creating a resilient transport system which allows reliable and efficient movement of people and goods and which supports sustainable development and a thriving local economy
- Environment: Reducing air pollutants to create attractive and high-quality places to live, work and visit whilst also protecting, conserving and enhancing the natural environment and Herefordshire's built environment and
- Society: Providing an affordable, safe and secure transport system for all sectors of society which facilitates improved public health and has limited adverse impacts on communities.

There are 16 outcomes and 35 indicators which options are assessed against to identify their contribution towards the four objectives.

### 2.4.2 Review comments

Fundamentally, the objectives and outcomes of the transport strategy link back to the four key issues outlined in Chapter 2, namely:

- Climate Emergency
- Economy
- Environment
- Society

[5] https://www.gov.uk/government/publications/future-of-mobility-urban-strategy

Four outcomes are listed for each of the issues, with a total of 35 indicators outlining contributors to achieving each outcome.

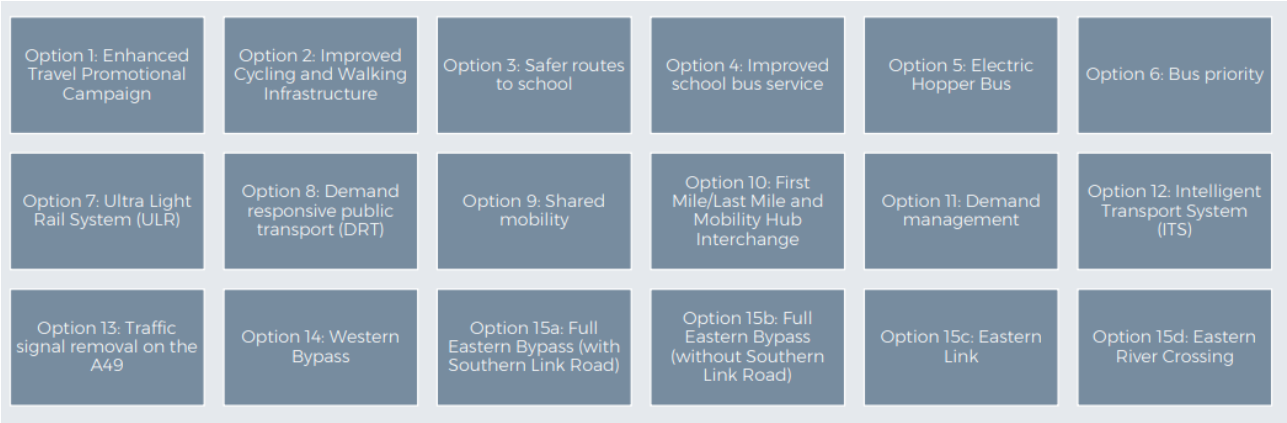
The outcomes themselves are relevant and applicable to both the strategy and the respective issues, however they are not 'SMART' objectives which would strengthen the strategy by offering viable and attainable measures of success to a specified timescale. In order to meet the chapter title (Setting the Strategy Objectives) a SMART approach could improve this section.

## 2.5 Chapter 5 – Option Development

### 2.5.1 Chapter summary

Chapter 5 provides a longlist of 18 options, which have been developed from a combination of previous studies, stakeholder and member inputs, as well as new thinking to contribute to addressing issues such as the declared climate emergency.

**Figure 2.1: Long list of options**




Source: Hereford Transport Strategy Review, p39

### 2.5.2 Review comments

The options are summarised within the strategy document and there is much more technical detail behind the options identified not included here. However, several options appear to be presented in much less detail than some others. Also, some options presented for Hereford have little in common with the context of the city than others, and some example studies may not be the best exemplars for Hereford. This is perhaps not unreasonable at this stage, but should more nuanced approaches be presented with some of the options?

Estimated capital and revenue costs provide useful context for the scale of intervention, particularly in the case of options which appear earlier within their feasibility cycle, where the quantum of measures is less well defined.

It has been noted that the Covid-19 pandemic has a huge short and medium impact on public transport and all movement patterns in general. This serves to illustrate the uncertainty around planning for future transport in Hereford, and more widely.

In the bottom right corner of each option slide there is a summary of opportunities and challenges. It is unfortunate that all options are presented as having more challenges than opportunities, with the majority being presented as having a single positive opportunity. We do not believe this is because the options are in the main deficient or not worth pursing, however, we would recommend that prior to publication of the final

strategy more positive opportunities for each option are emphasised to highlight the strategic case for each potential intervention and to provide a more balanced summary of the options.

## 2.6 Chapter 6 – Option Assessment

### 2.6.1 Chapter summary

47 indicators across climate emergency, economic, social, environmental, acceptability, deliverability and affordability criteria have been used to assess the long list of options. Climate emergency, economic, social and environmental impacts have been assessed using the five-point scoring criteria similar to a TAG Appraisal Summary Table (large adverse, adverse, neutral, beneficial, large beneficial). The other themes and indicators have been assessed using bespoke scoring criteria, all of which are logical.

### 2.6.2 Review comments

Rationale for the use of the Hereford Transport Model (HTM) and the assumptions and prospective limitations are clearly laid out on p58. This page also explains the issue of induced traffic, where 'new' traffic appears once the capacity of the road network is increased. The strategy properly notes that this may overestimate the congestion benefits identified within the road schemes, particularly over the longer term. Traffic could be induced from local or regional journeys. HTM is not able to reassign longer distance transfers which could be made as a result of any of the options and therefore it is not possible to conclusively estimate induced traffic from the data available. More discussion on induced traffic is provided in the preceding executive summary of this Technical Note.

It isn't possible to tell from the strategy whether the western and eastern bypass options are expected to induce the same level of longer distance transfers.

In terms of engagement walking and cycling infrastructure and safer routes to school scored highly with both Members and the stakeholder panel. The stakeholder group also scored bus and demand management options highly. Road options, particularly the eastern route variants scored poorly with both groups, but public consultation considered that increasing road capacity was one of the most popular interventions alongside investing in the bus network and supporting sustainable and safe routes to school.

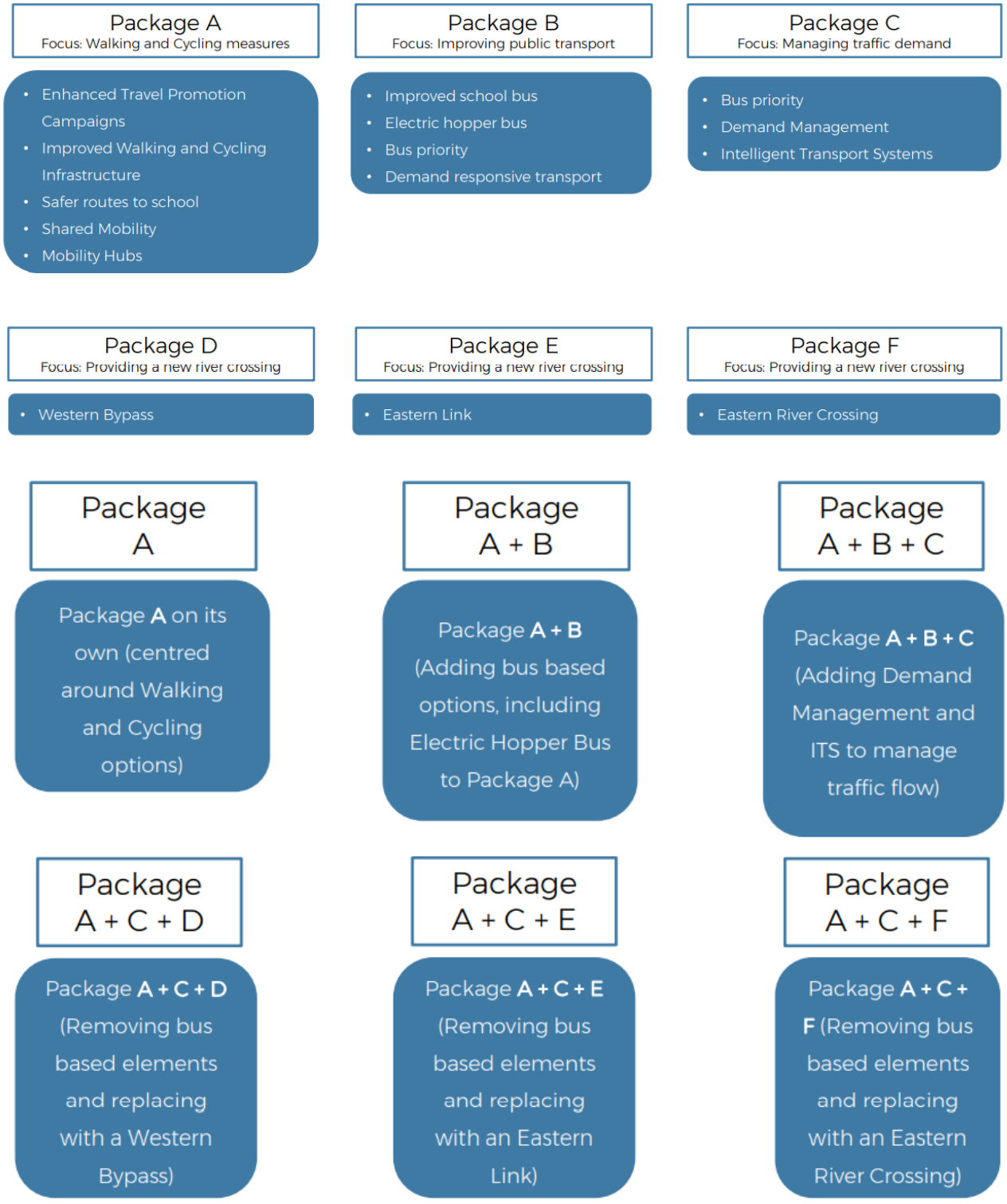
## 2.7 Chapter 7 – Packaging the options

### 2.7.1 Chapter summary

At the end of Chapter 6, several poorly performing options were discarded following an initial sift in line with the Transport Appraisal Process, which was supplemented by stakeholder comments. These were ultra-light rail, traffic signal removal and the full eastern bypass.

The options were then grouped into six packages as shown below, before being tested in combination.

**Figure 2.2: Packages and package combinations for testing**




Source: Hereford Transport Strategy Review, p69 & p70

### 2.7.2 Review comments

Packages A to C have a logic in their groupings. There could be a case to provide variants of these packages with greater or lesser ambition. Packages D to F all have the focus of providing a new highway option for the river crossing. They would contribute towards the economy objective by creating a resilient transport system.

The rationale for how the package combinations have been identified for testing comes across much less clearly than grouping of interventions within the individual packages. It would be helpful to provide more introductory text to assist the reader and provide clarity around the rationale for packaging and testing.

Package A is included in all combinations for testing given its strong support and performance in terms of expected benefits to cost. There is also a rationale for adding the bus and in turn the demand management packages to active travel to explain the cumulative impact of these options, though there is no clarity from the tests run of the impact of these packages in isolation.

Package C (demand management measures, which focus on parking management in the centre of Hereford) is also included in tests for all three road options. Is it a prerequisite that demand management is required for all road options? Presentation of the impact of the packages in isolation would be useful, as would clarity around the rationale for the complementarity of the demand management packages to the highway improvement packages presented.

The inclusion of packages A and C in tests for the highway improvement packages could present a perception that the active modes and travel demand measures are used to enhance the benefits associated with the three road scheme options.

## 2.8 Chapter 8 – Package comparison

### 2.8.1 Chapter summary

The positives and negatives of each package are summarised and compared against the other packages. Respective contributions to strategy objectives are also noted.

### 2.8.2 Review comments

Society benefits are generated from package A. Given this is included in all tests, contributions towards this metric are not differentiated within the other five combined packages tested.

This section shows changes in carbon emissions and congestion for package A and the three packages with road elements included. Given the current uncertainty in traffic demand forecasting (see earlier comments) there is a risk that too much emphasis could be placed on the quoted percentages at this early stage within the prospective development of these packages. Whilst the supporting modelling work will indicate this, a strategy document is not detailed enough to go in to exactly what the reductions actually mean, for example *'greater reductions in congestion across the city (29%) and within the city centre (19%) than the other packages'* in the case of package A + C + D (p87). Is this on particular links, all links or particular junctions, for example? What is the difference from this to the 23% congestion relief in the east option in real terms? It feels incredibly precise for a strategy and risks distracting from ensuring decisions are made on the basis of how options meet the strategy objectives, in the same way calculation of outline BCRs could do at this very early stage in the scheme development process. The congestion savings need to be put in perspective against the respective contribution towards the climate emergency, environmental and society objectives, as well as the much higher capital costs of the road schemes.