

Hereford Transport Strategy Review

October 2020



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Hereford Transport Strategy Review

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Chapter 1

Introduction

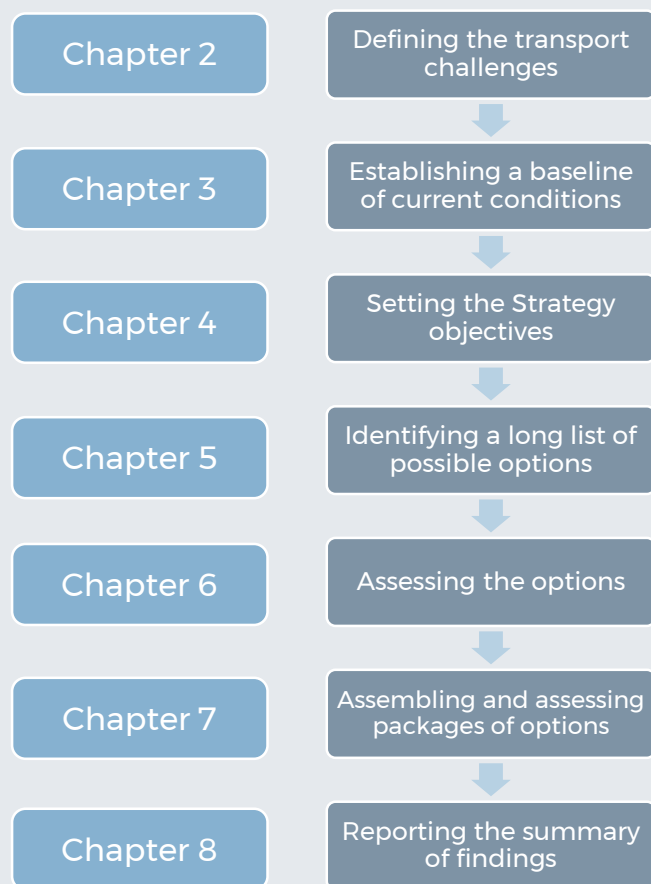


1. Introduction

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.

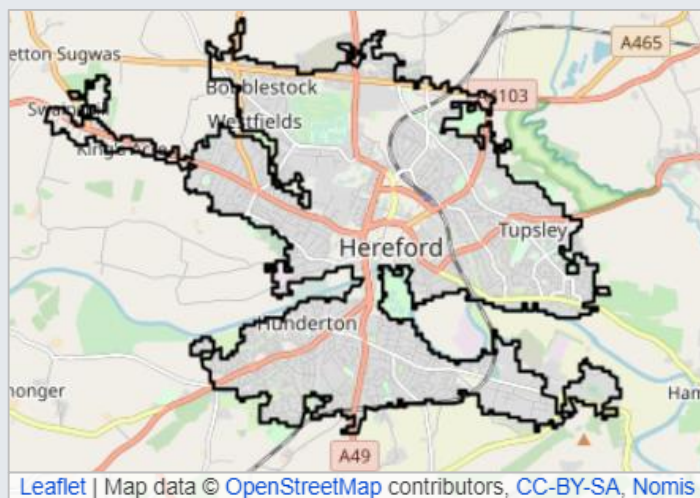
1. Introduction

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](#))

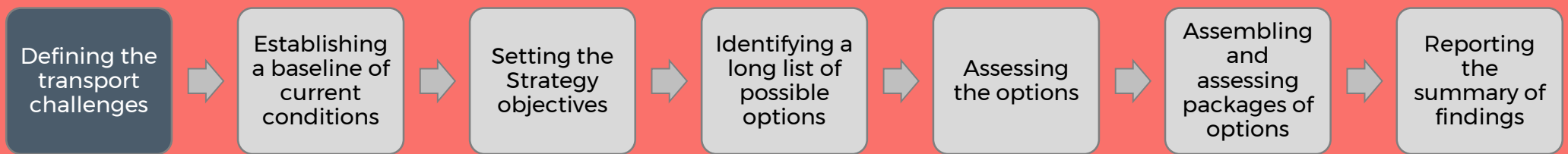
To give a sense of scale, it is a 3.75km crow-fly distance from Belmont Tesco to Hereford Sixth Form College and 5km crow-fly distance from Whitecross School to the Archive and Records Centre at Rotherwas.

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.

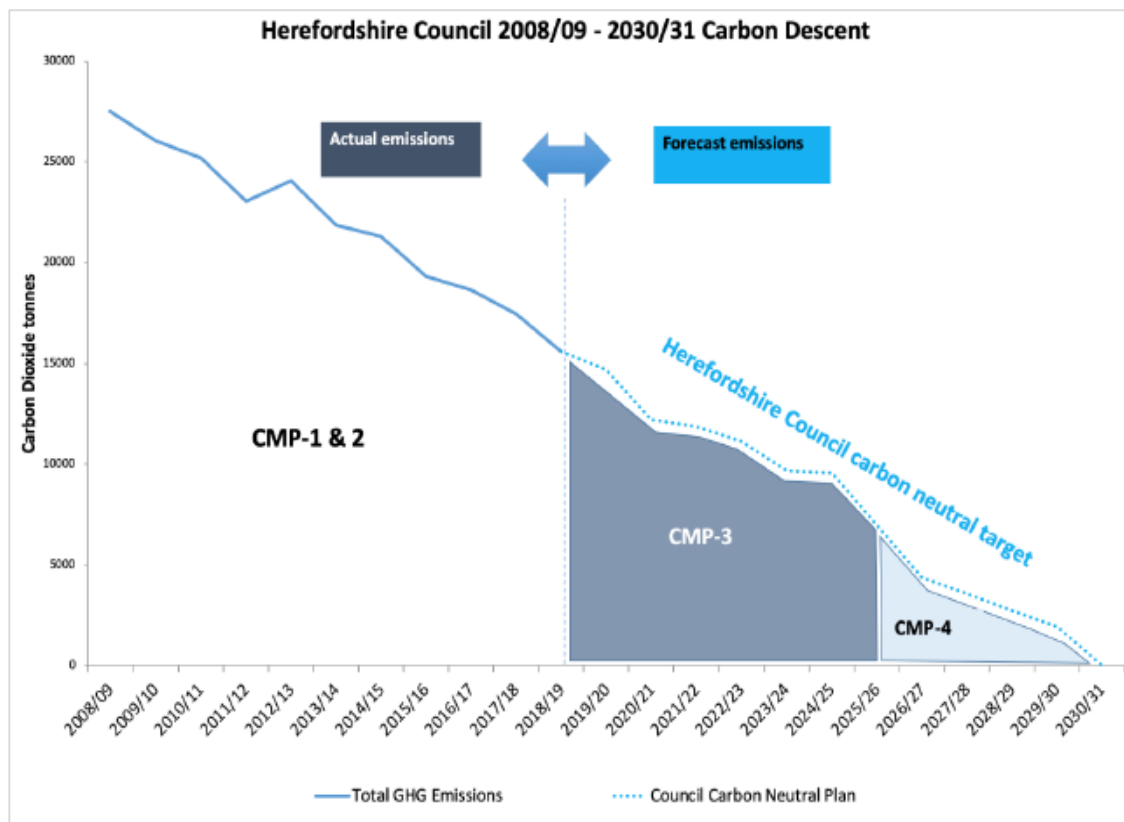
The analysis in this chapter, along with the consideration of current travel and the transport network in Chapter 3, informed the setting of objectives for the strategy review in Chapter 4.

2. Hereford's Major Challenges – The Climate Emergency

- 8 -

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°Celsius (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 (CO2) is the main greenhouse gas which is emitted.
- Annual average temperatures in England have risen by around 1°C since pre-industrial levels and already lead to more extreme weather. Urgent action may limit further temperature rise by another 0.5°C; however if current trends continue the temperature rise could be as much as 4°C ([link](#)).
- Likely local impacts of global heating include summer temperatures reaching 38.5°C 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 2°C 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

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The contribution and role of transport

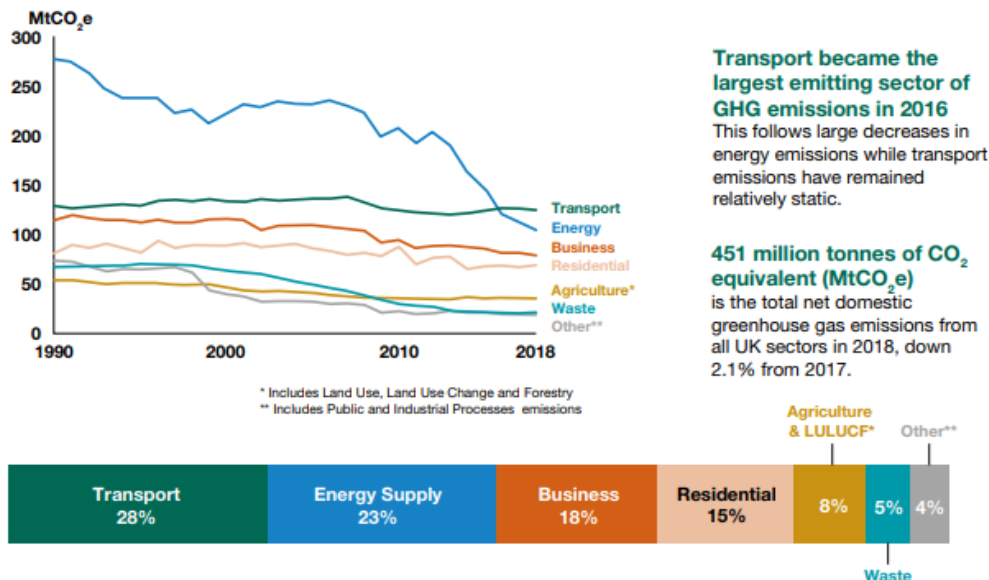
Impacts on transport network resilience and travel behaviour

- 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 CO₂ emissions:

- Surface transport contributes 35% of Herefordshire's CO₂ 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](#)).

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



Source: 2018 UK greenhouse gas emissions¹⁰

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 CO₂ 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:

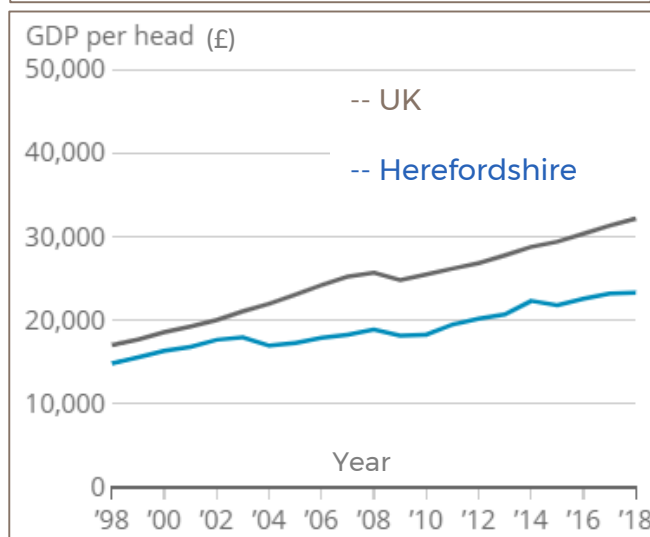
- Income, economic activity, age, household structure and car availability significantly influence emissions levels. The top 10% of emitters are responsible for 43% of emissions and the bottom 10% of emitters are responsible for only 1% of emissions ([link](#)).
- In 2019, 43% of National Travel Attitudes 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

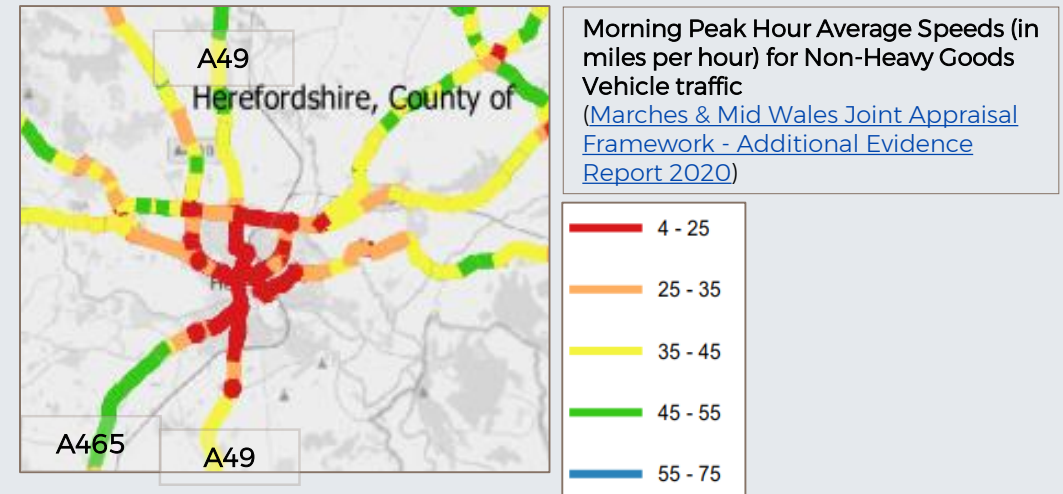
- Transport enables goods to be delivered to and homes and businesses, brings customers to retailers and connects employees to their workplaces. However, the vitality of the city's retail sector is threatened by the growth of online sales, which now accounts for 17% of national retail spend ([link](#)) 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 spare rural nature of the county.



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.

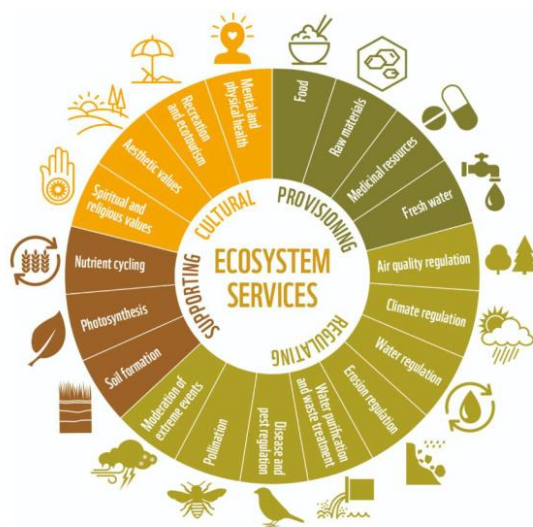


Diagram outlining categories of ecosystem services ([WWF Living Planet Report \(2018\)](#))

- 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

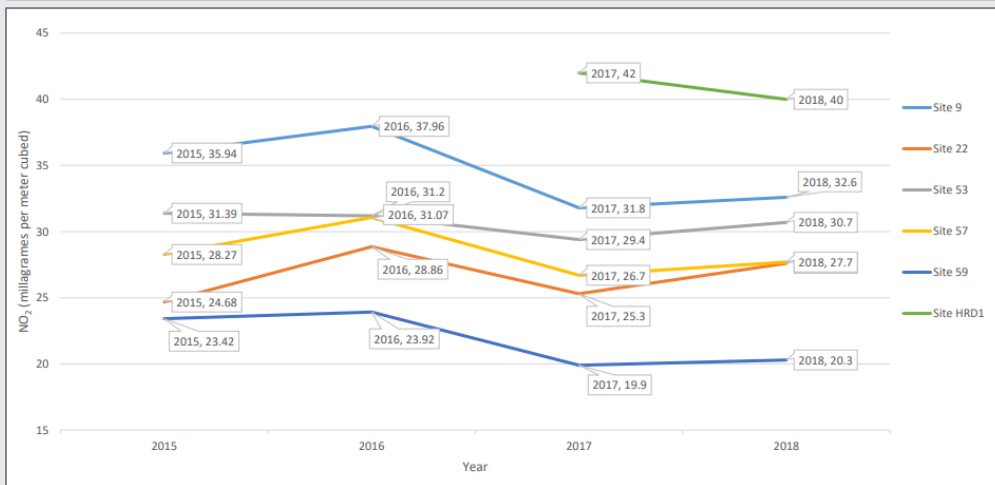
- [Herefordshire Corporate Plan 2020-2024](#) – *Our ambition for Herefordshire: Protect and enhance our environment and keep Herefordshire a great place to live;*
- [Herefordshire Core Strategy \(adopted 2015\)](#) – objectives 10 and 12 cover environment and heritage;
- [Herefordshire Green Infrastructure 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 (NO₂) 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 NO₂ 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 NO₂ levels were just below the national objective level (see graph below). Between 2010/11 and 2017/18 recorded NO₂ levels in the AQMA fell by 39% ([link](#)).

Trends in NO₂ 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](#)).

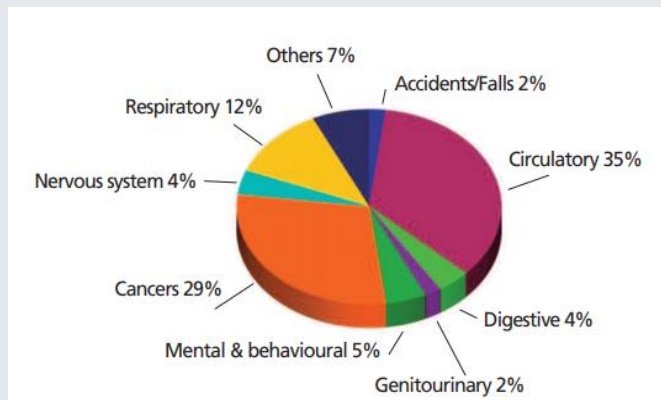
- Fine particulate matter from brake dust and tyres is another air pollutant affecting health. The current UK legal limit (25 micrograms per cubic metre) is higher than the level suggested by the World Health Organisation to protect public health (10 micrograms of NO₂ per cubic metre) ([link](#)). 4.5% 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

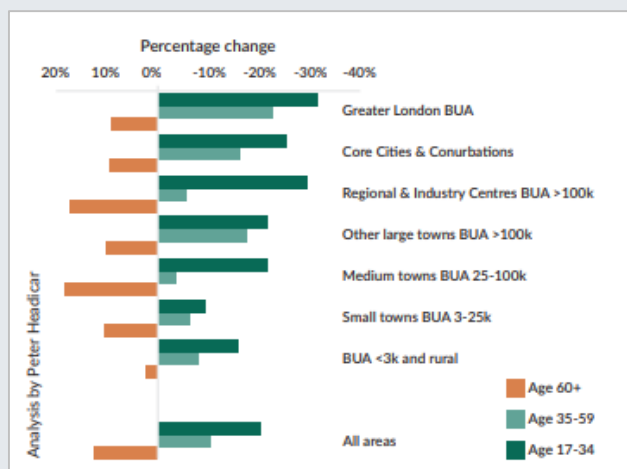
- Herefordshire's [Children and Young People's Plan 2019-2024](#): sets out the vision and priorities for children, young people and families in the county;
- [Be Well, Keep Well, Live Well](#) - Herefordshire's 5-year health and wellbeing strategy
- [Corporate Plan 2020-2024](#) - *Our ambitions for 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 injured 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'.

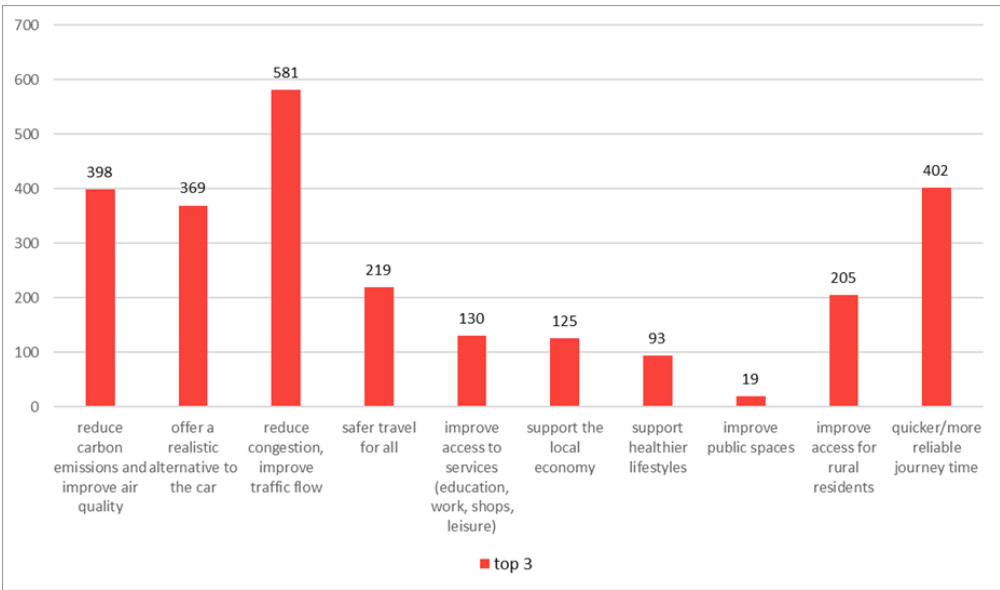
The second adjacent chart shows the amount of times an intervention was ranked into the top three priorities.

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'.

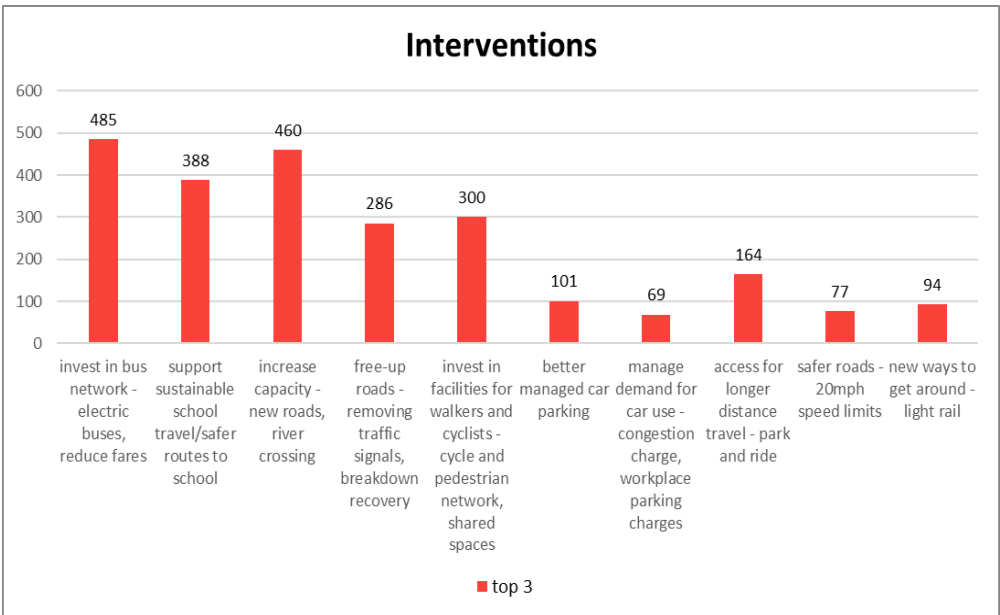
Stakeholder Engagement

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 CO₂ 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

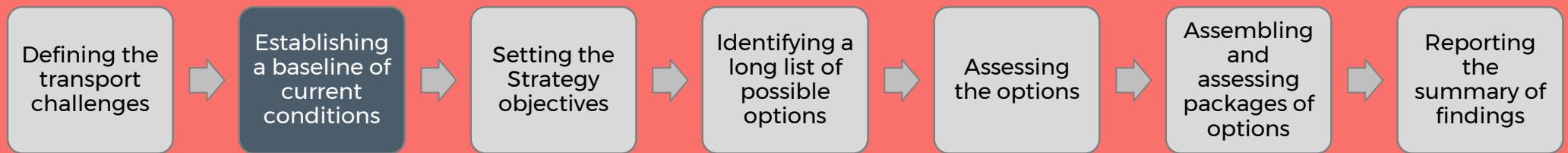
Herefordshire Council carries out a wide range of statutory duties relating to transport. These include setting a balanced budget, maintaining public highways, managing the road network, securing public transport services to meet needs which would otherwise not be met, preparing a local transport plan 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 chapter 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.

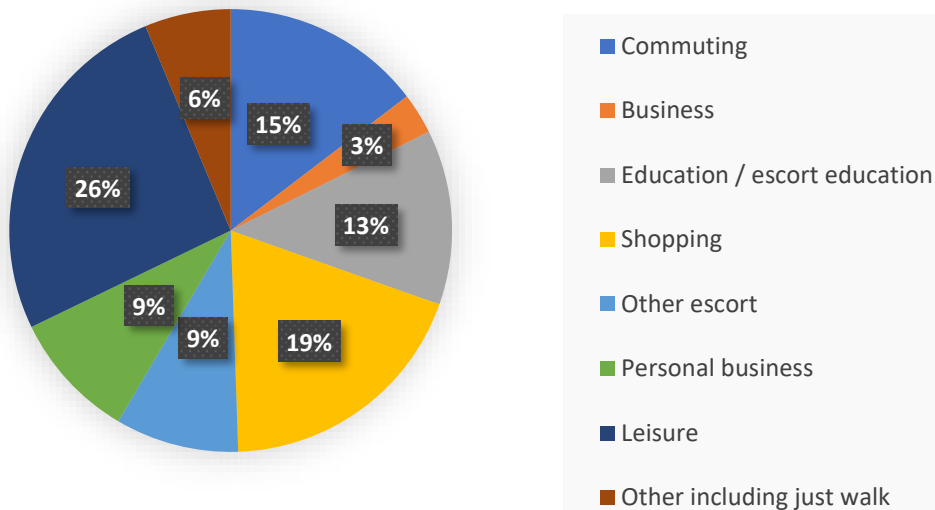
The analysis in this chapter, along with the review of challenges in Chapter 2, informed the setting of objectives for the strategy review in Chapter 4.

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.

Trip Purpose (All Modes) 2018
(2018 National Travel Survey)



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

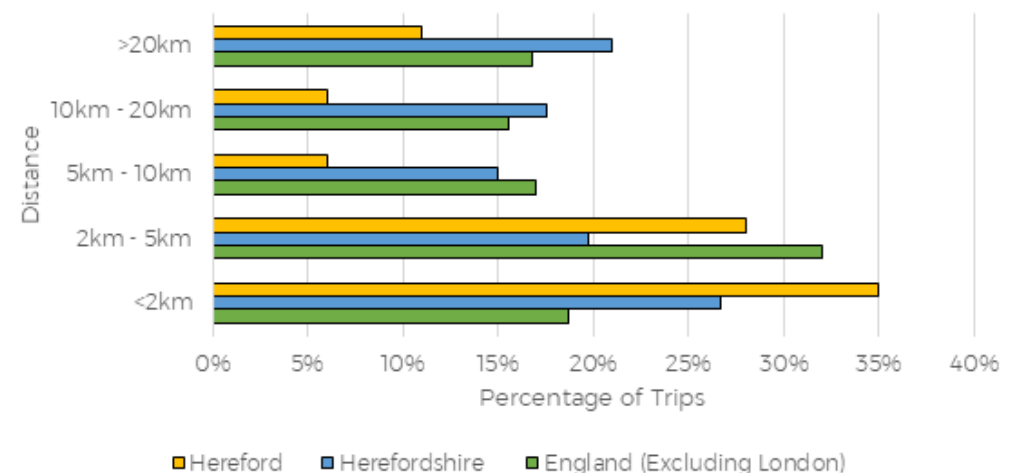
Data on trip distance is collected at a national level by the annual National Travel Survey and the Census. Whilst the last census was carried out in 2011, it remains the most recent comprehensive set of data on certain subjects. The National Travel Survey categorises distances in miles whilst the census 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:

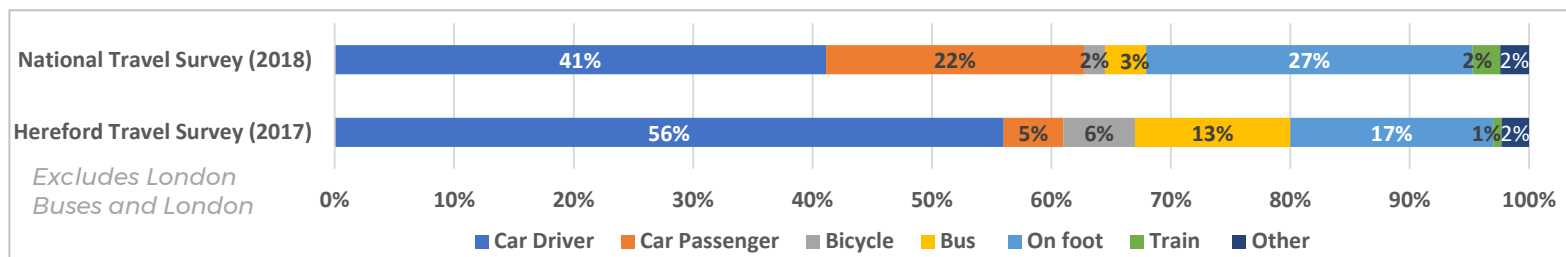
- Hereford residents make a higher proportion of short-distance commuting trips of less than 2km (38% of all commutes), compared to 27% of Herefordshire commutes and 19% of commutes in England (excluding London). *2km equates to a 25-minute walk* ([link](#)).
- 73% of commuting trips made by Hereford residents are less than 5km, compared to 46% in Herefordshire and 40% in England (excluding London). *5km equates to a 20-minute cycle* ([link](#)).

Distance Travelled to Work (Percentage of Trips)

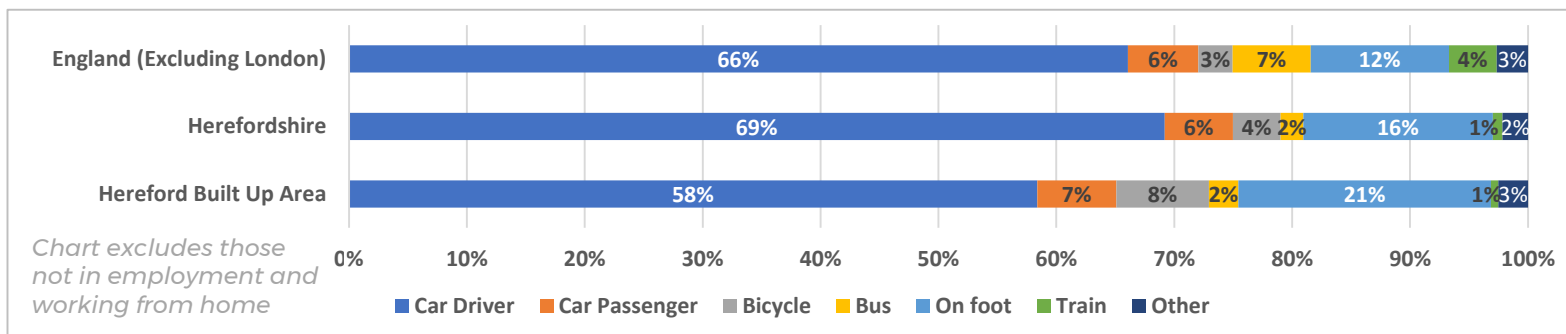


3. Hereford's Transport Factfile

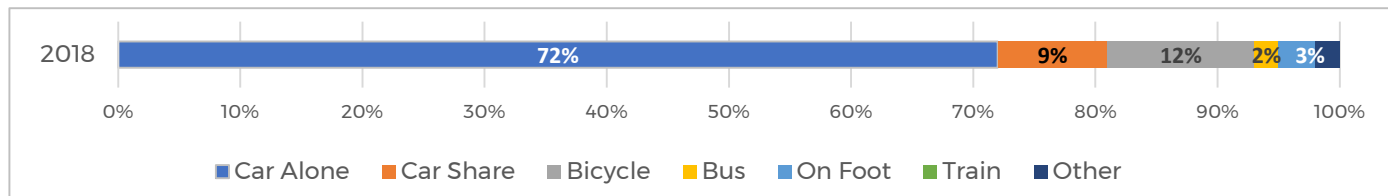
Travel mode – travel for all purposes Sources: National Travel Survey ([link](#)) and Hereford Household Travel Survey 2017



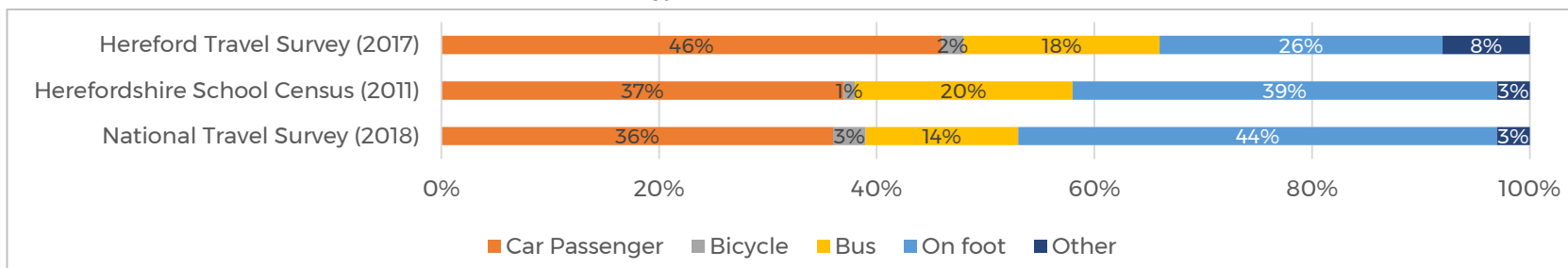
Travel mode – travel to work Source: 2011 Census ([link](#))



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

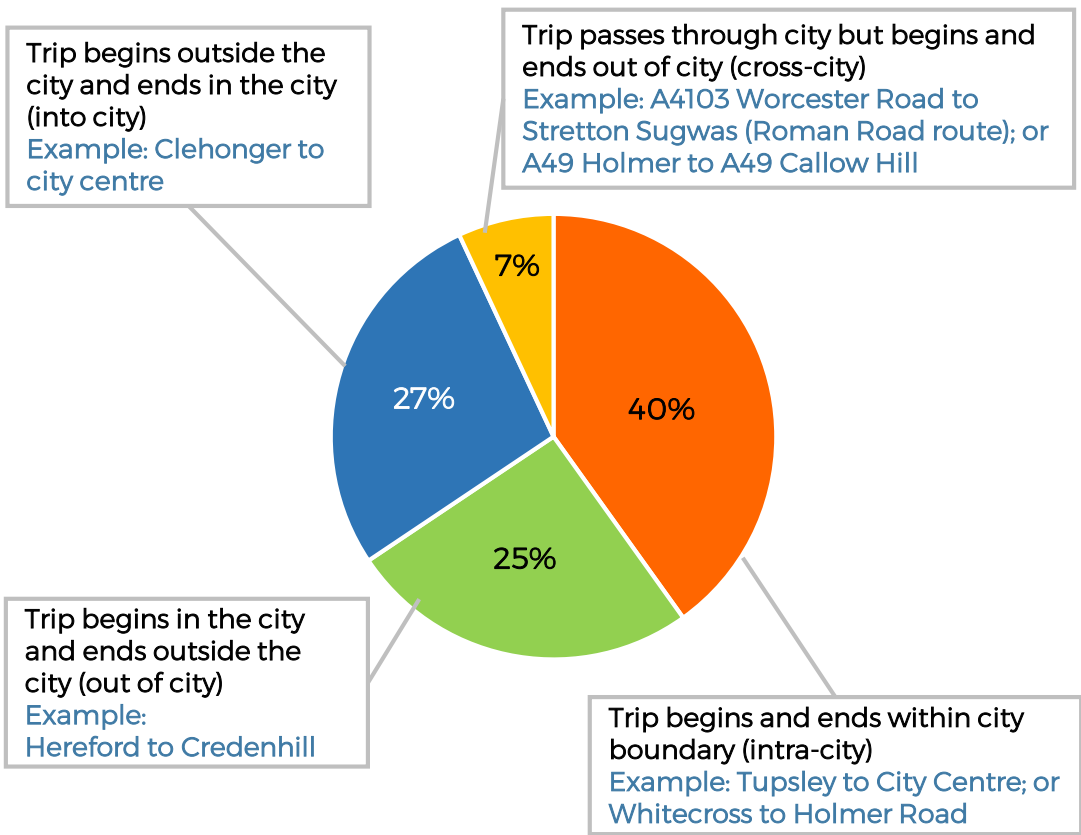
Travel flows - Introduction

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.

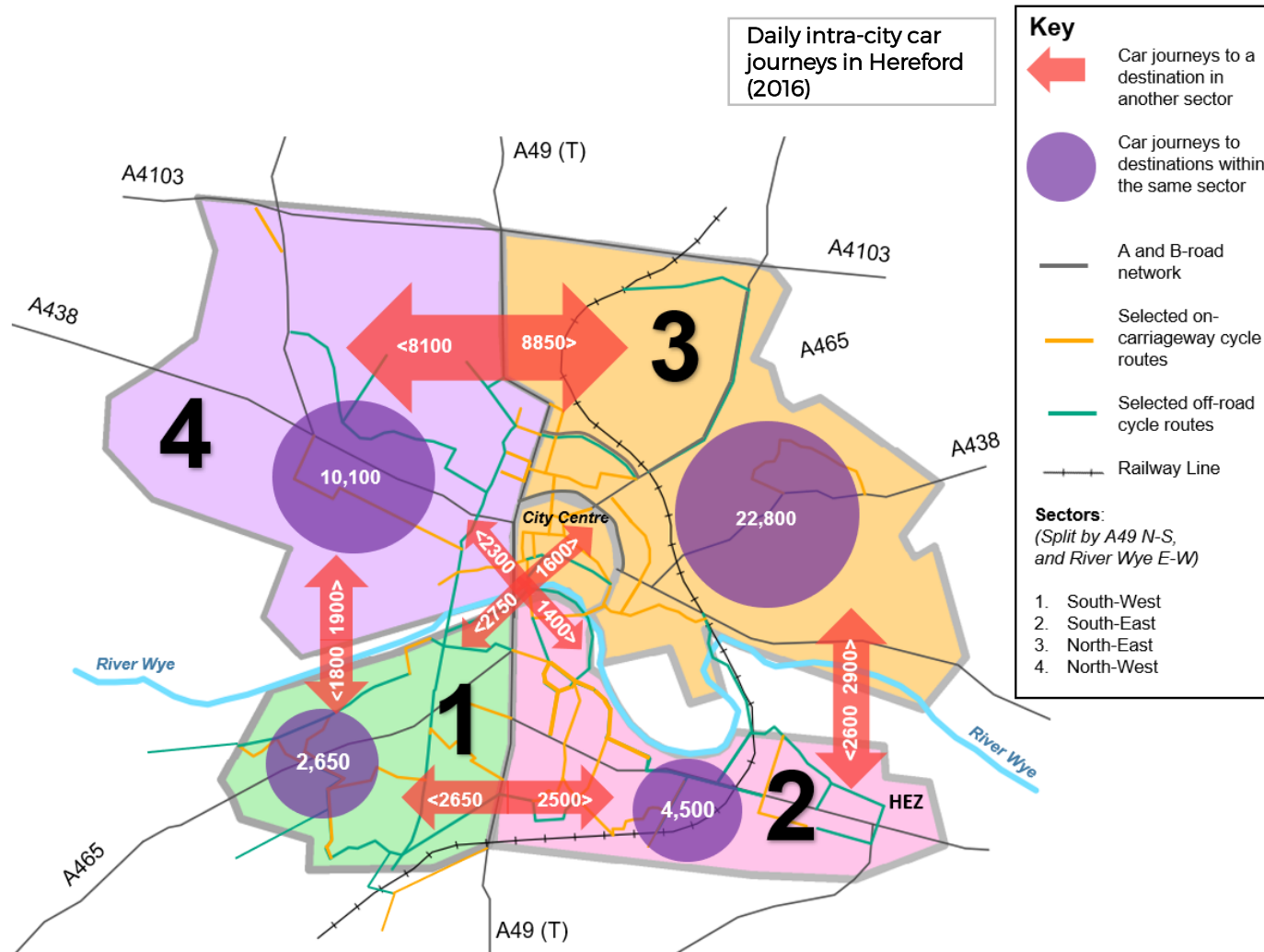
Census 2011 – Home location of commuters travelling to work in Hereford ([link](#))

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 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

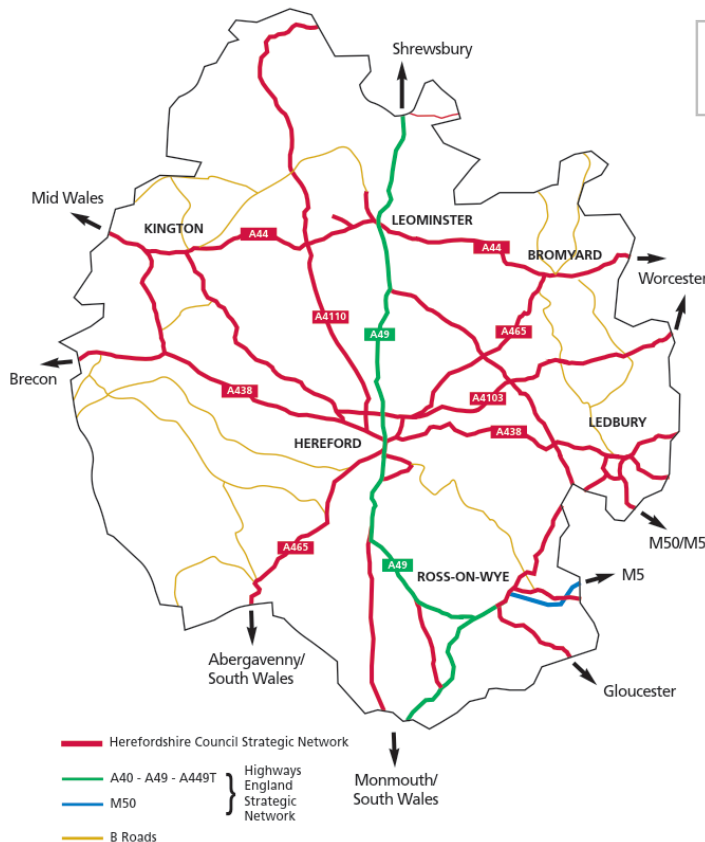
Motor vehicle journeys

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.

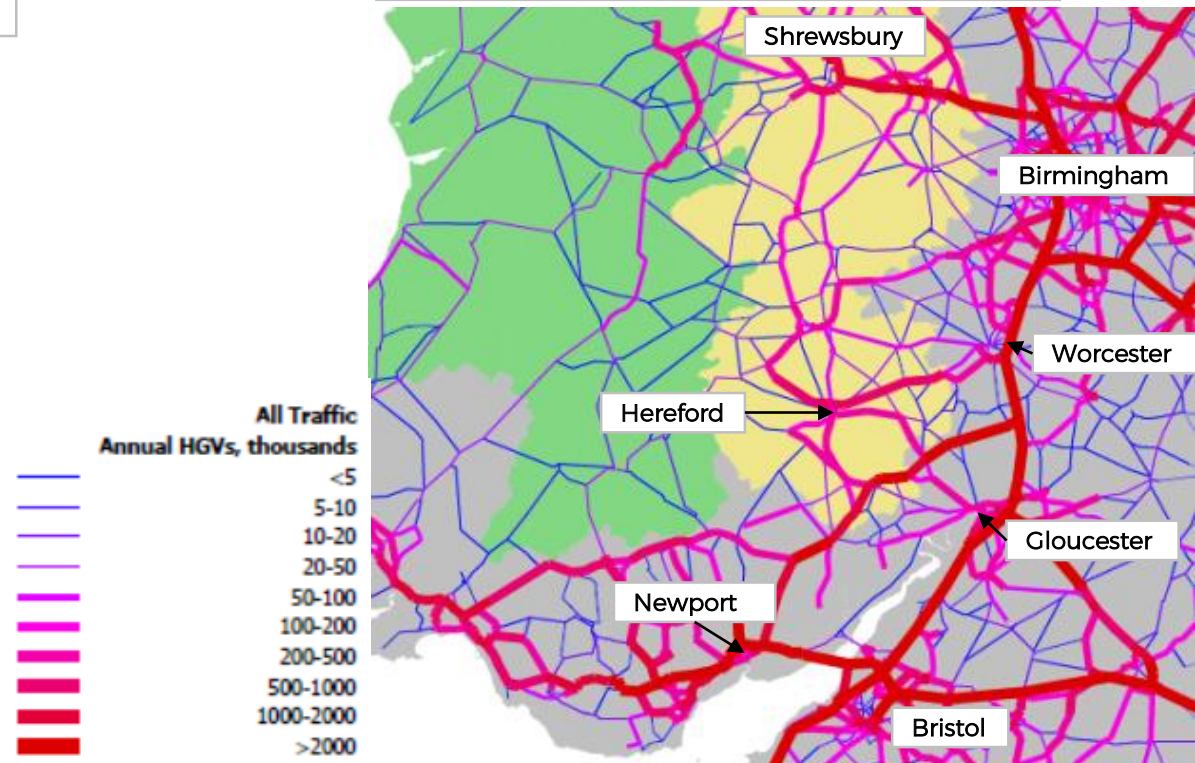
Although only 7% of the traffic within Hereford is through traffic, the A49 is part of the national Strategic Road Network and is operated and maintained by [Highways England](#), a government company. This route caters for vehicles travelling to destinations between the A40 (Ross-on-Wye) and A5 (Shrewsbury) 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%

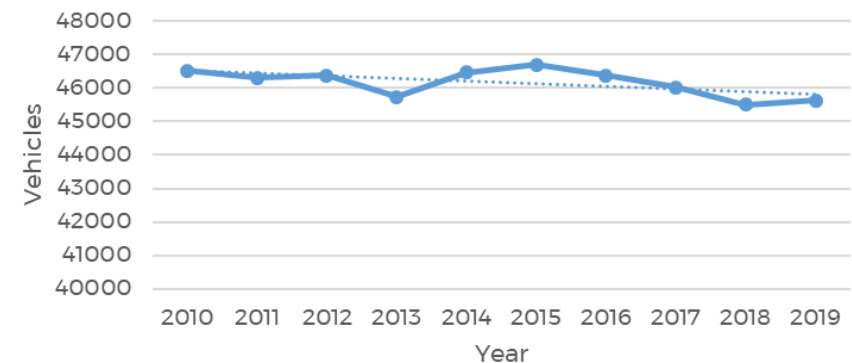
Travel to work by motorcycle and taxi each represented less than 1% of all commutes.

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 England A-roads.

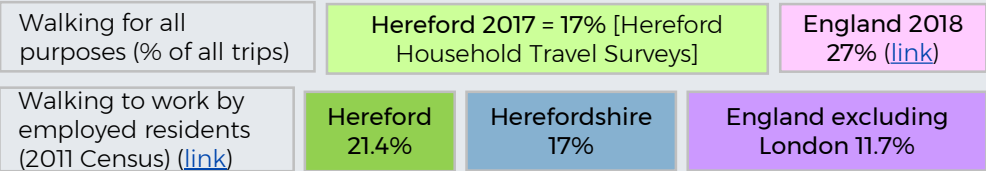
3. Hereford's Transport Factfile

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).



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

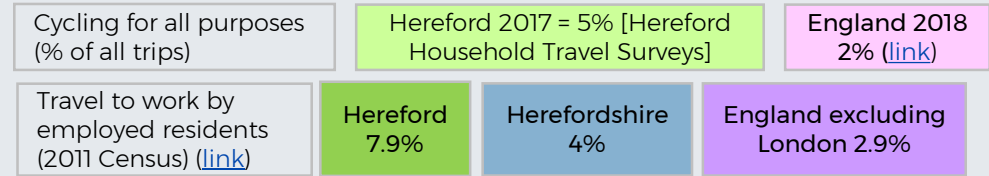
- The River Wye, railway line and major roads form major physical barriers to pedestrian movement with limited crossing points or layouts which require the road to be crossed in several stages. This can lead to longer walking journeys to reach crossing points and pedestrians choosing to cross roads away 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.



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.

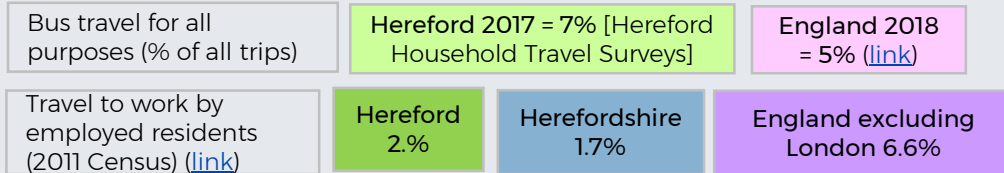
3. Hereford's Transport Factfile

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 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.

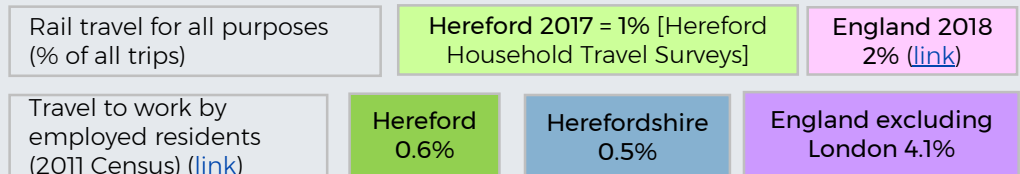
Key issues:

- **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.



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

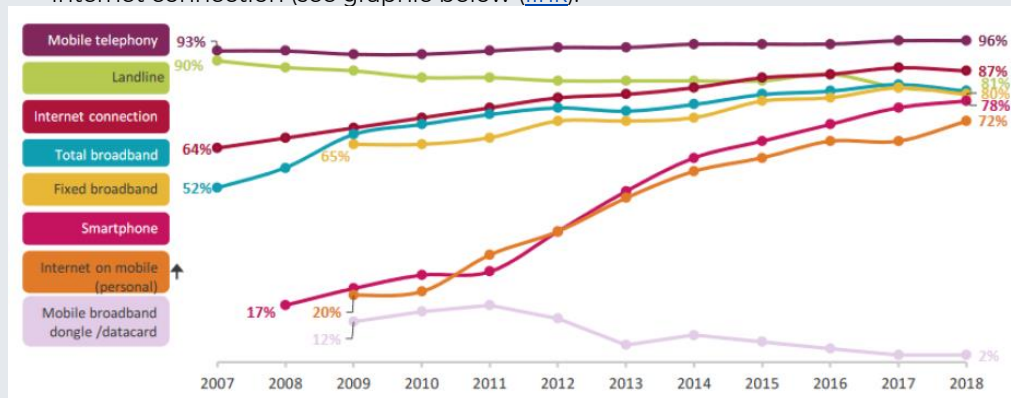
the county as a whole. Working from home as a percentage of employed residents (2011 Census) ([link](#))

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](#)).



Ofcom Communications Market Report 2019

- 91% of Herefordshire homes and businesses can access superfast broadband (classed as 24 megabits per second or 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 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](#)

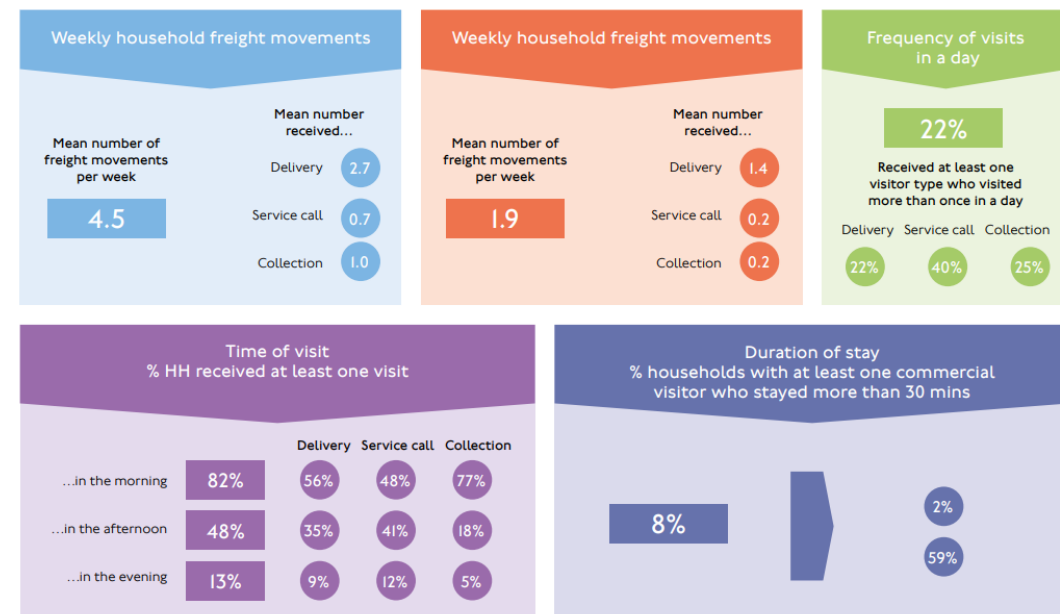
	Inbound road freight	Outbound road freight
Total traffic (million tonnes)	20.2	22.7
Temperature controlled foodstuffs	20%	25%
Other Foodstuffs	25%	26%
Construction & Metals	20%	23%
Crude Materials & Manufactured Items	27%	23%
Petrol and Petroleum Products	5%	1%
Other Bults	2%	2%

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 be 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 Midlands – 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.

3. Hereford's Transport Factfile

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

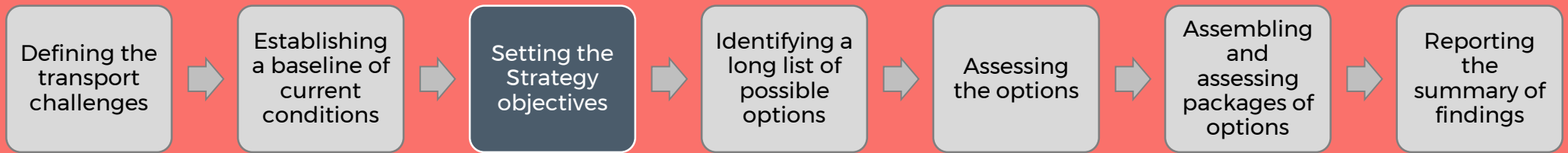
Future Mobility is a central element to the UK Government [Industrial Strategy](#). To guide this the DfT released a [Future of Mobility: Urban Strategy](#) in 2019, and are due to release a Future of Mobility: Rural Strategy later in 2020.

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
- 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
- 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

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).

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 Promotional Campaign	Option 2: Improved Cycling and Walking Infrastructure	Option 3: Safer routes to school	Option 4: Improved school bus service	Option 5: Electric Hopper Bus	Option 6: Bus priority
Option 7: Ultra Light Rail System (ULR)	Option 8: Demand responsive public transport (DRT)	Option 9: Shared mobility	Option 10: First Mile/Last Mile and Mobility Hub Interchange	Option 11: Demand management	Option 12: Intelligent Transport System (ITS)
Option 13: Traffic signal removal on the A49	Option 14: Western Bypass	Option 15a: Full Eastern Bypass (with Southern Link Road)	Option 15b: Full Eastern Bypass (without Southern Link Road)	Option 15c: Eastern Link	Option 15d: Eastern River Crossing

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

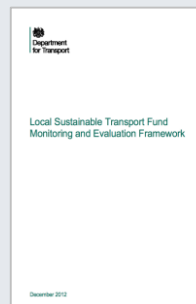
The current position

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.



"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.

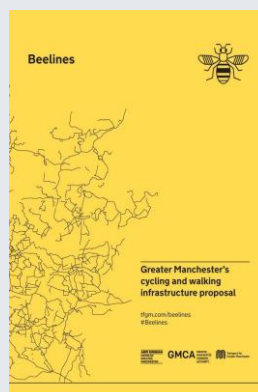
It will include active travel elements from: (1) the Hereford City Centre Transport Package; (2) the 11 active travel corridors north of the river set out in Hereford Transport Package (HTP) consultations; (3) the South Wye Transport Package; (4) Hereford Enterprise Zone active travel measures, funded 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 Yeomans Canyon Travel 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 roadscape 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%.

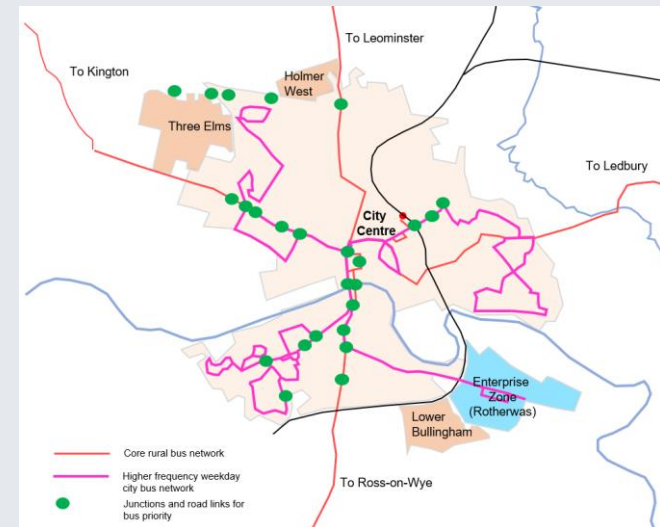


"Bus priority needs introducing from all aspects so that local and interurban services can bypass the queues at peak hour" (Response to 2020 Public Engagement)

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.



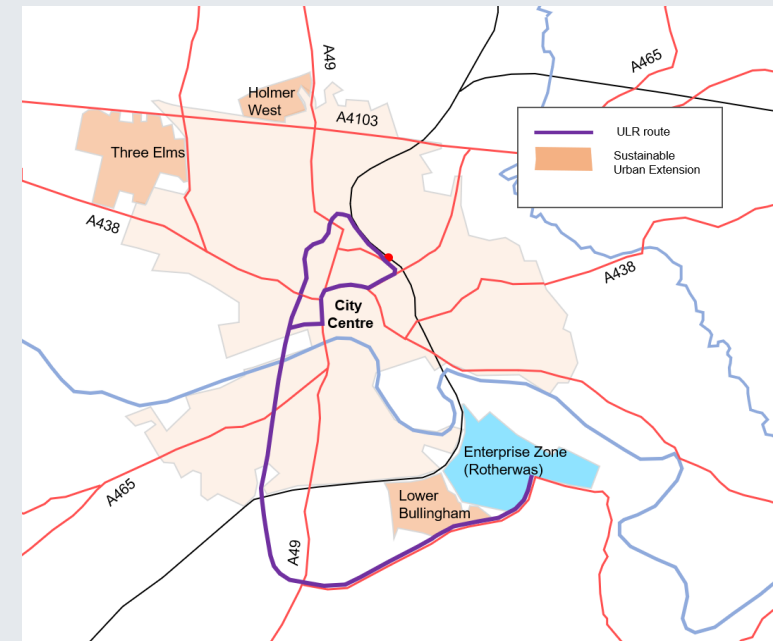
"A metro like system would be ideal with park and ride facilities."
(Response to 2020 Public Engagement)

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

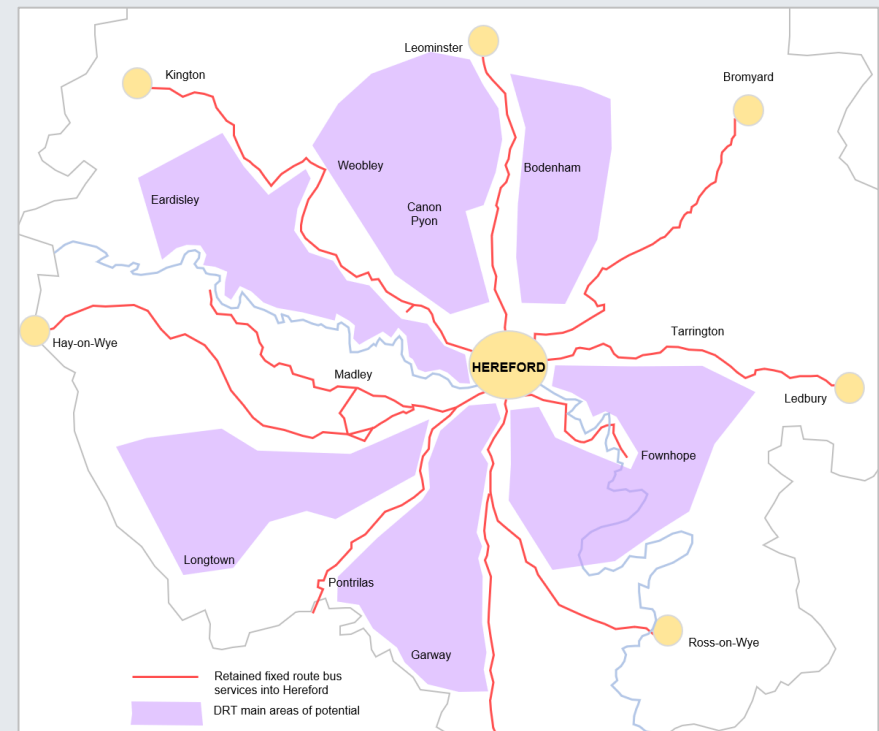
[CallConnect](#) is an established bookable, flexible bus service which has served rural areas since 2001, covering hamlets, large villages and market towns. Each bus operates within an area of up to 12 miles giving passengers access to hundreds of locations. Customers need to register to use the service 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 be 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 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 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 Key mobility options: Beryl bike hire, bus, cycle, car club, walk
Mobility Point	Locations: 20 sites on main bus corridors 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:

- 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;
- 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;
- 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 UTM 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 gully 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 Street 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).

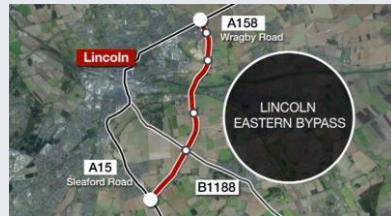
The current position

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.



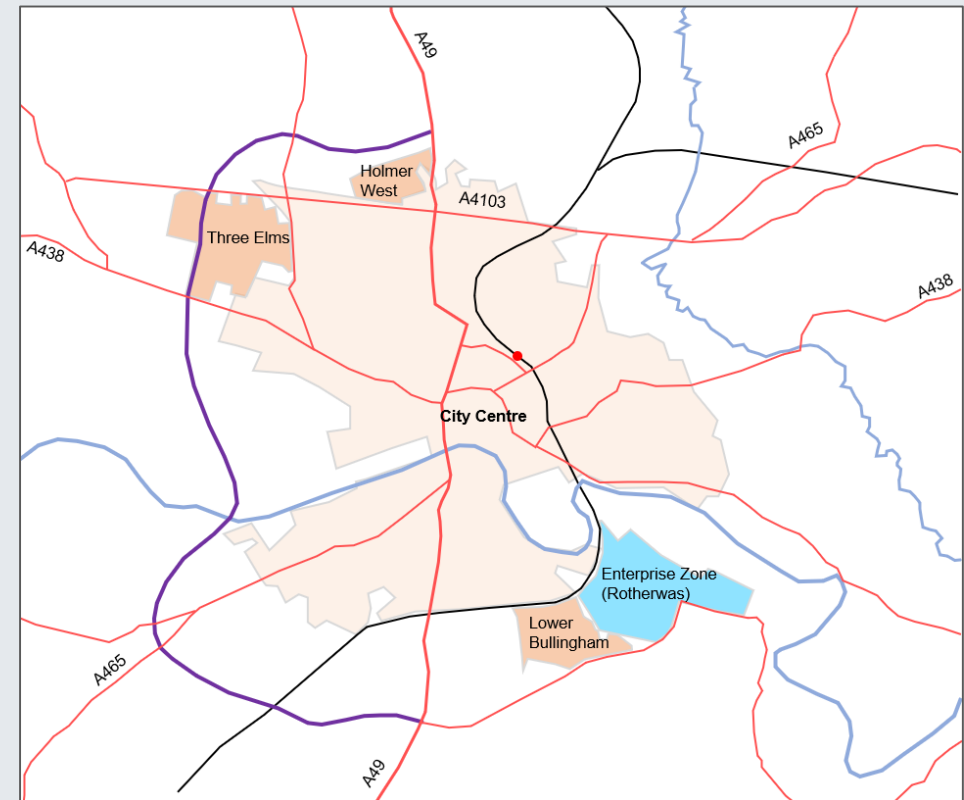
"Install the Western Bypass, this will reduce congestion in the City and allow sustainable transport options to work" (Response to 2020 Public Engagement)

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:

- 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;
- 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;
- Eastern Link** - this would comprise a shorter section of new road to link Rotherwas and the A438 Worcester Road; and
- Eastern River Crossing** - A short section of new road between the Rotherwas Access Road and the B4224 Hampton Park Road.

Estimated costs:

A - Capital: £115m, 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

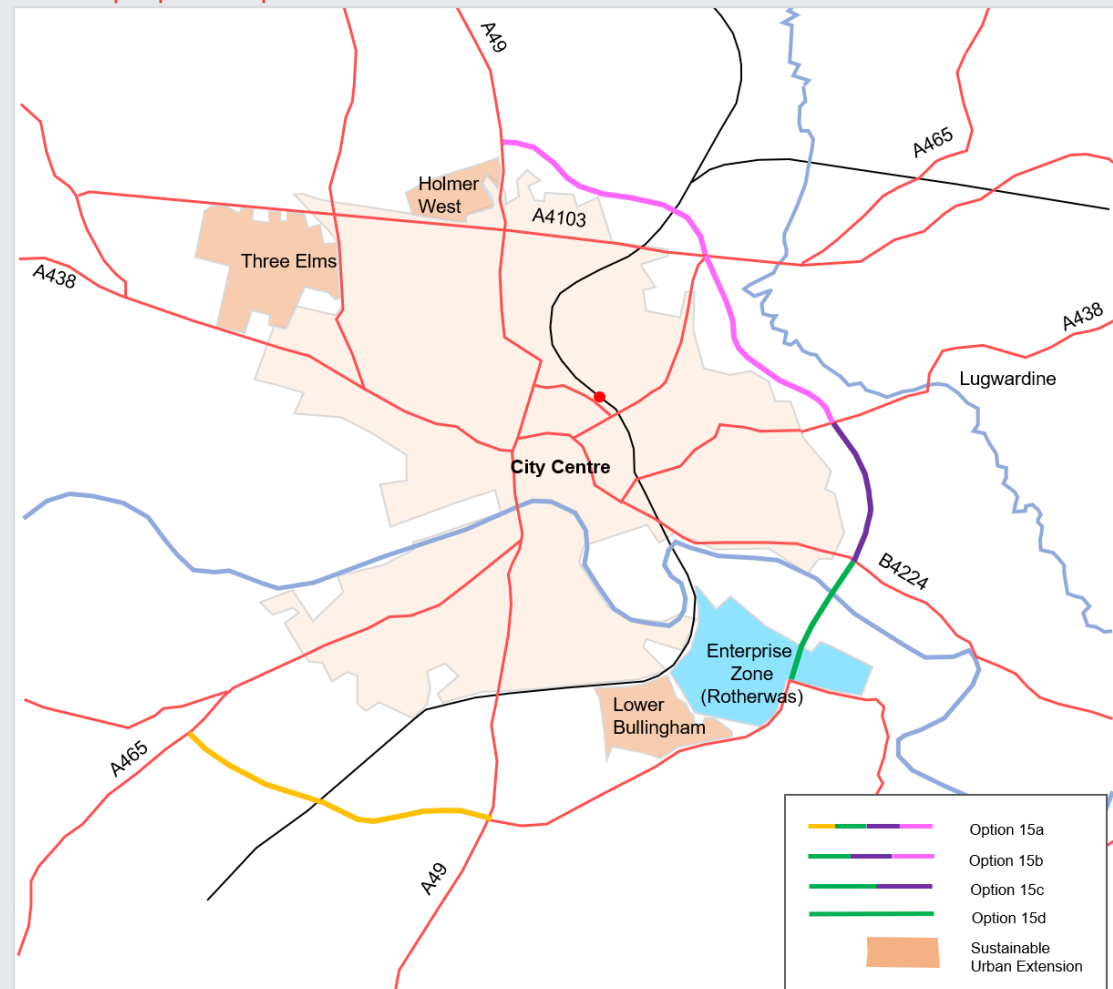
The opportunity for Hereford:

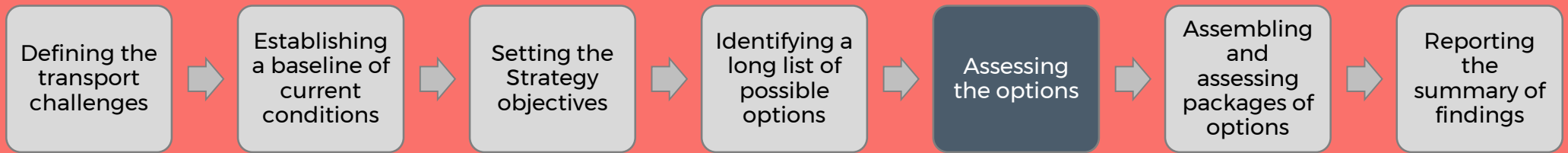
- Delivering the Eastern Bypass would provide a second river crossing which could support increased network resilience in Hereford.

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	<ul style="list-style-type: none"> 4 outcomes with associated indicators 	Large adverse	Adverse	Neutral	Beneficial	Large beneficial
Economy	<ul style="list-style-type: none"> 4 outcomes with associated indicators 	Large adverse	Adverse	Neutral	Beneficial	Large beneficial
Environment	<ul style="list-style-type: none"> 4 outcomes with associated indicators 	Large adverse	Adverse	Neutral	Beneficial	Large beneficial
Society	<ul style="list-style-type: none"> 4 outcomes with associated indicators 	Large adverse	Adverse	Neutral	Beneficial	Large beneficial
Acceptability	<ul style="list-style-type: none"> Stakeholder Reference Panel 2020 Public Engagement 	Majority, negative view	Minority negative view	Ambivalent/polarised view	Minority, positive view	Majority, positive view
Deliverability	<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> Technological barriers 	Very challenging	Relatively challenging	Not known	Relatively easy	Very easy
	<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> Implementation timescale 	Over 10 years	7-10 years	4-6 years	1-3 years	Less than 1 year
Affordability	<ul style="list-style-type: none"> Capital cost 	Over £20 million	£10-20 million	£10 million	£5-10 million	£0-2 million
	<ul style="list-style-type: none"> Revenue cost 	Over £1M	£200k-£1m	Up to £200k	Up to £100k	0 or generates revenue
	<ul style="list-style-type: none"> Council revenue streams 	High risk	Medium-high risk	Medium risk	Medium-low risk	Low risk
	<ul style="list-style-type: none"> Risk of cost increases 	High risk	Medium-high risk	Medium risk	Medium-low risk	Low risk
	<ul style="list-style-type: none"> Value for Money 	High Cost, Low Benefit	Medium Cost, Low Benefit or High Cost, Medium Benefit	Low Cost, Low Benefit or Medium Cost, Medium Benefit or High Cost, High Benefit	Medium Cost, High Benefit or Low Cost, Medium Benefit	Low Cost, High Benefit
	<ul style="list-style-type: none"> 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

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?	<ul style="list-style-type: none">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?	<ul style="list-style-type: none">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?	<ul style="list-style-type: none">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?	<ul style="list-style-type: none">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?	<ul style="list-style-type: none">Change in journey times along key corridors within Hereford
5.3 What impact does the option/package have on bus patronage and bus reliability?	<ul style="list-style-type: none">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)?	<ul style="list-style-type: none">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)	<ul style="list-style-type: none">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?	<ul style="list-style-type: none">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)?	<ul style="list-style-type: none">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-routing 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

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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	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

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6. Option Assessment Framework Results

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?	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

6. Option Assessment Framework Results

Affordability						
Likelihood of funding	Initial value for money	Risk of cost increases	Revenue cost		Capital cost	
			To what degree does the option impact on other Council revenue streams?	What are the revenue cost implications of the option?		
How do the benefits compare to the costs?		To what degree are the costs of the option likely to increase?	What are the estimated construction costs/implementation costs of the option?			
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 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	£100-200k	Over £20m	Option 2
Funding bodies typically fund this type of option	Low cost, high benefit	Medium-low risk	Low risk	£0 or generates revenue	£2-5m	Option 3
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	Over £1m	£0-2m	Option 4
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 5
Funding bodies typically fund this type of option	Medium cost, high benefit or low cost, medium benefit	Medium-low risk	Low risk	£0 or generates revenue	£10-20m	Option 6
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 7
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	£200k-1m	£0-2m	Option 8
Funding bodies occasionally fund this type of option	Low 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-low risk	Low risk	Up to £100k	£0-2m	Option 10
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	£0 or generates revenue	£0-2m	Option 11
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	£200k-1m	£2-5m	Option 12
There is little expectation to fund this type of option	Medium cost, low benefit or high cost, medium benefit	Low risk	Medium risk	£0 or generates revenue	£10-20m	Option 13
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 14
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 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

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.

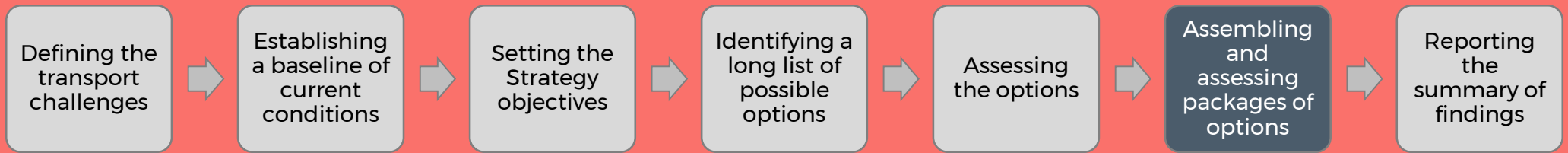
6. Summary of Option Assessment

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

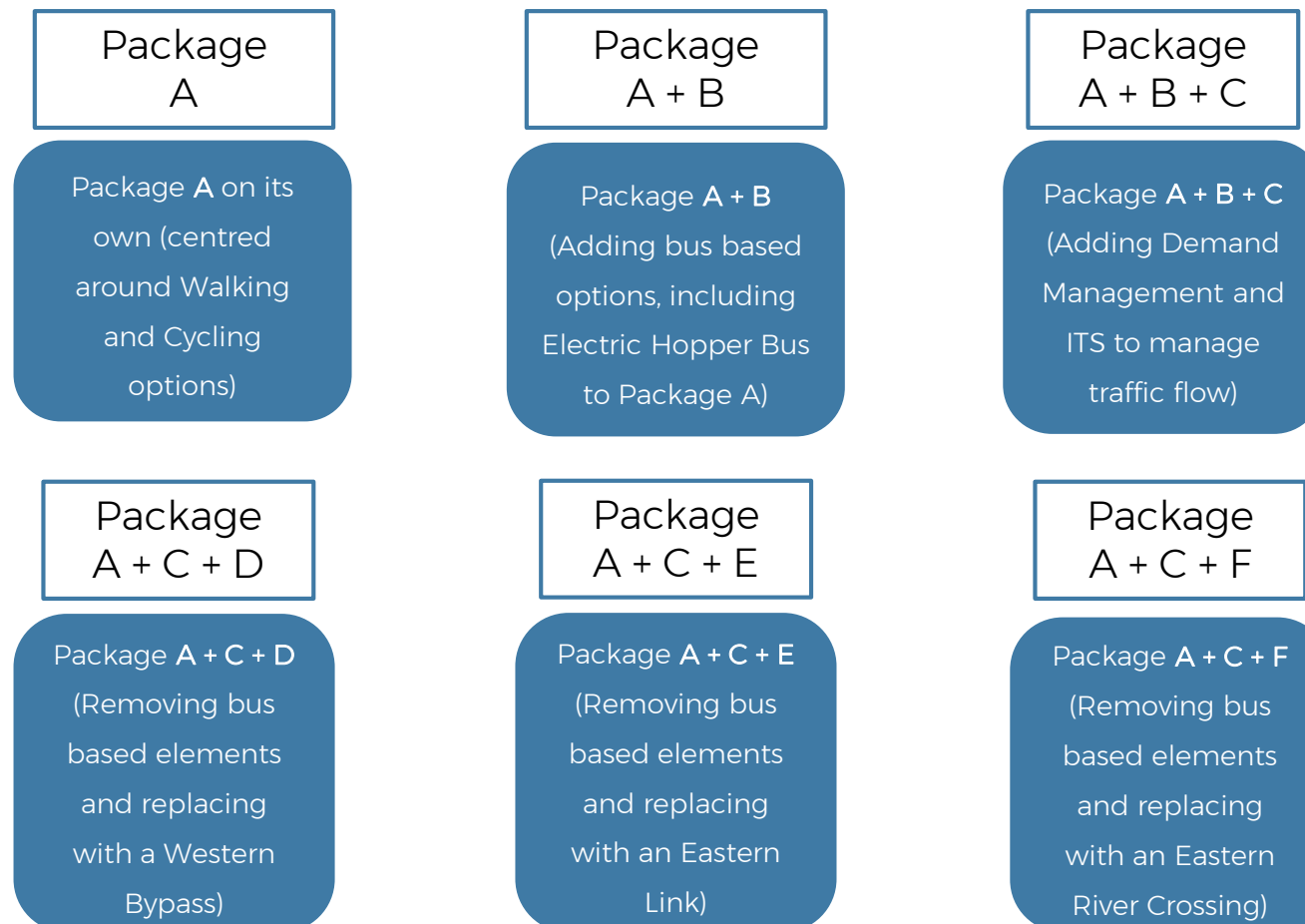
- Eastern River Crossing

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 from 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:

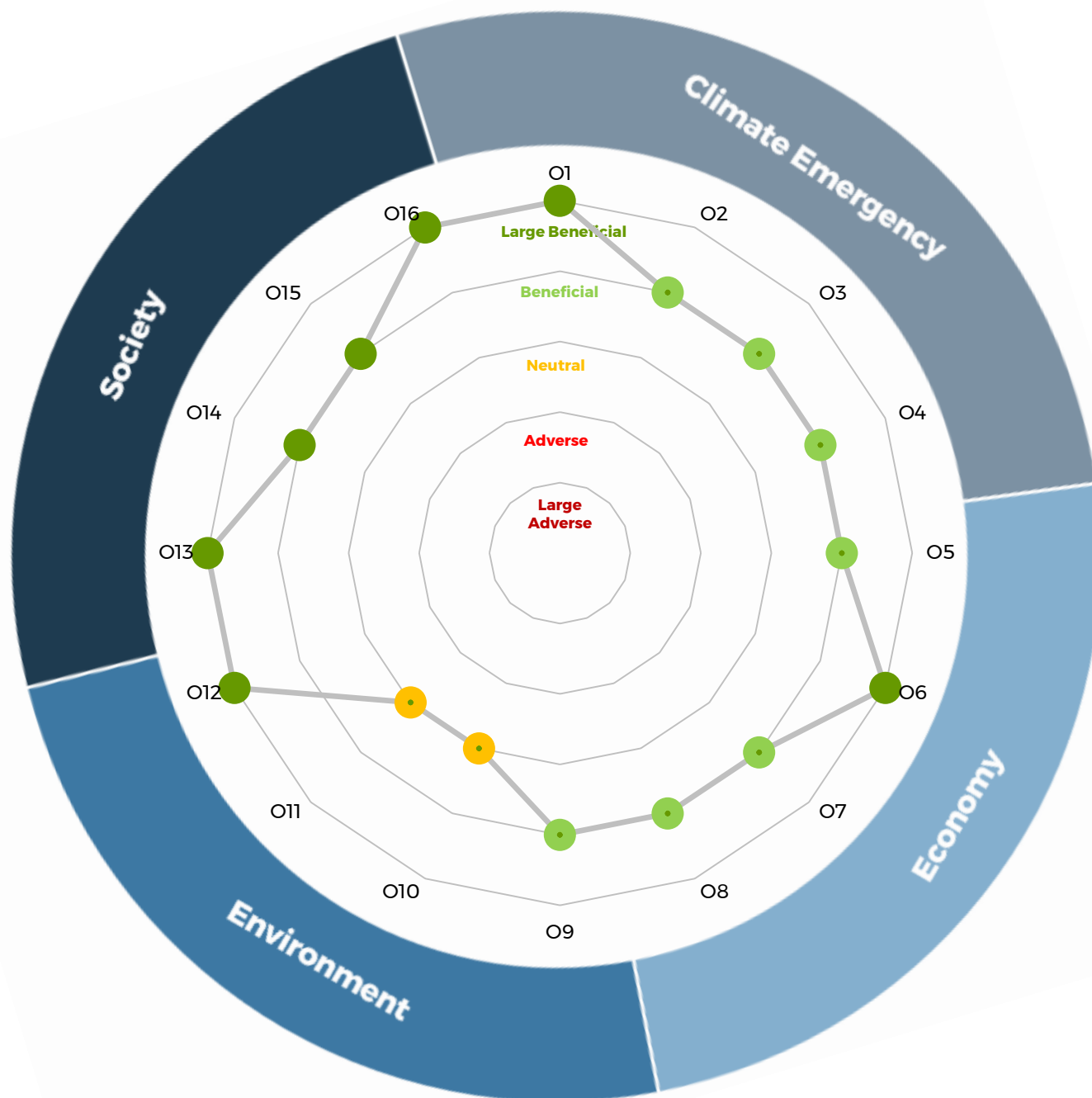
- An indicator which incorporates embodied carbon has been included due to Stakeholder feedback - (3.1 What impact does this package have on embodied carbon?)
- The acceptability five-point criteria has been updated to reflect the results from the Stakeholder Reference Panel and 2020 Public Engagement 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

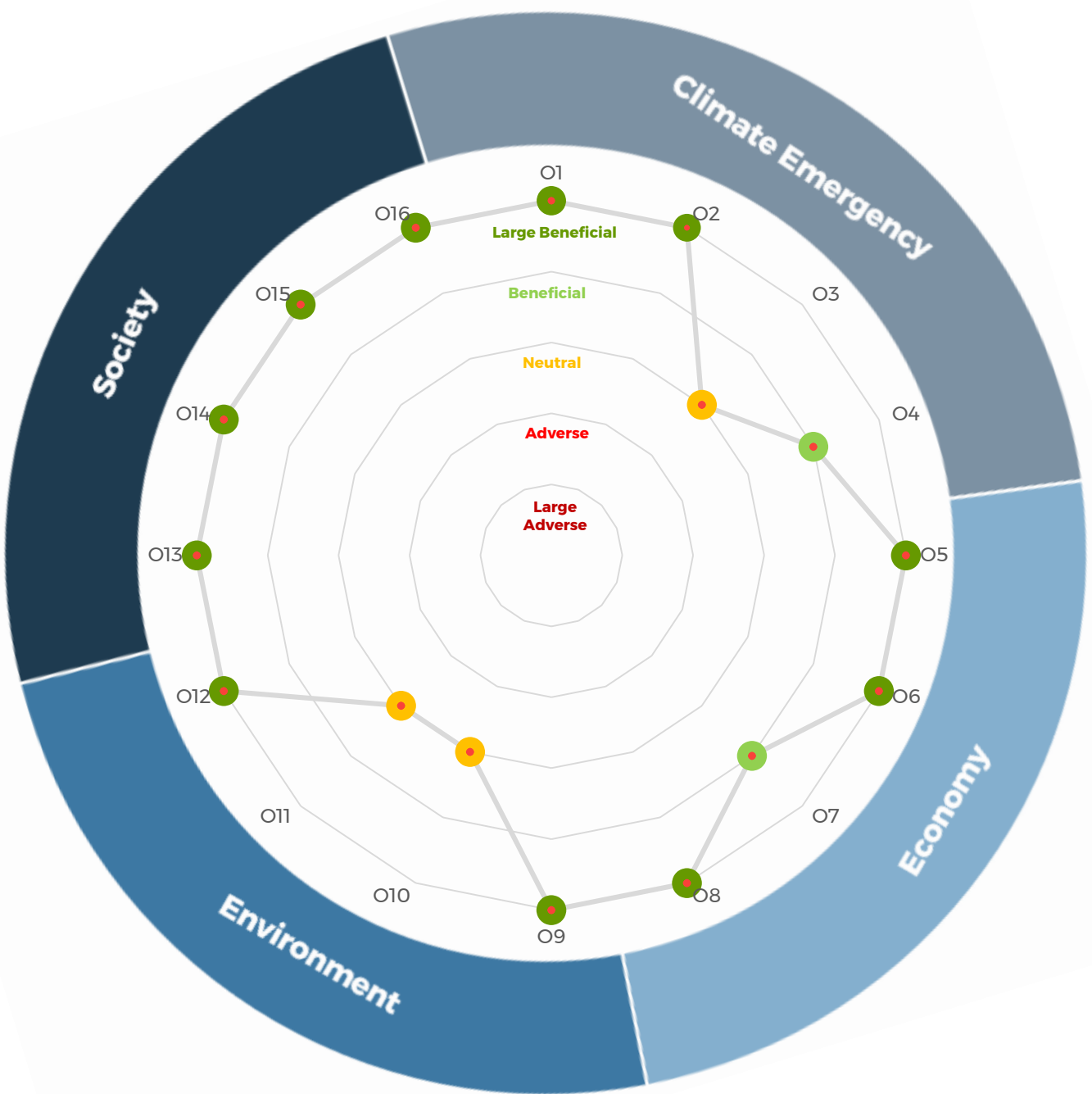


7. Package A (Focus on Walking and Cycling)

	Main impacts of Package A	
Climate Emergency		<ul style="list-style-type: none"> Forecast to result in a 10% reduction in tonnes of carbon.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Limited construction activities and therefore will result in a low/medium increase in embodied carbon.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Active travel infrastructure with supporting promotion and information will improve access to new developments in Hereford.
		<ul style="list-style-type: none"> Forecast to reduce congestion levels in the City Centre by 7%.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> Forecast to reduce traffic in the Air Quality Management Area by 8% and result in a 5% mode shift to less polluting modes.
		<ul style="list-style-type: none"> Unlikely to have direct adverse impacts on the water environment and designated biodiversity sites.
		<ul style="list-style-type: none"> Will lead to the creation of new and improved public spaces, paving and planting; however some parts of the city will be unaffected.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Forecast to reduce vehicle movements through the Noise Important Areas by 12%.
Acceptability		<ul style="list-style-type: none"> The public supported safer routes to school and improved walking and cycling infrastructure. They were not directly asked about promotional campaign, shared mobility solutions or mobility hubs.
Deliverability		<ul style="list-style-type: none"> 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. Most elements of Package A have been delivered in places with similar characteristics to Hereford and use tried and tested technology. 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		<ul style="list-style-type: none"> The total capital cost of Package A is £57.4m. The total revenue cost of Package A is £2.4m pa. Package A has the highest value for money of all the assessed packages. 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

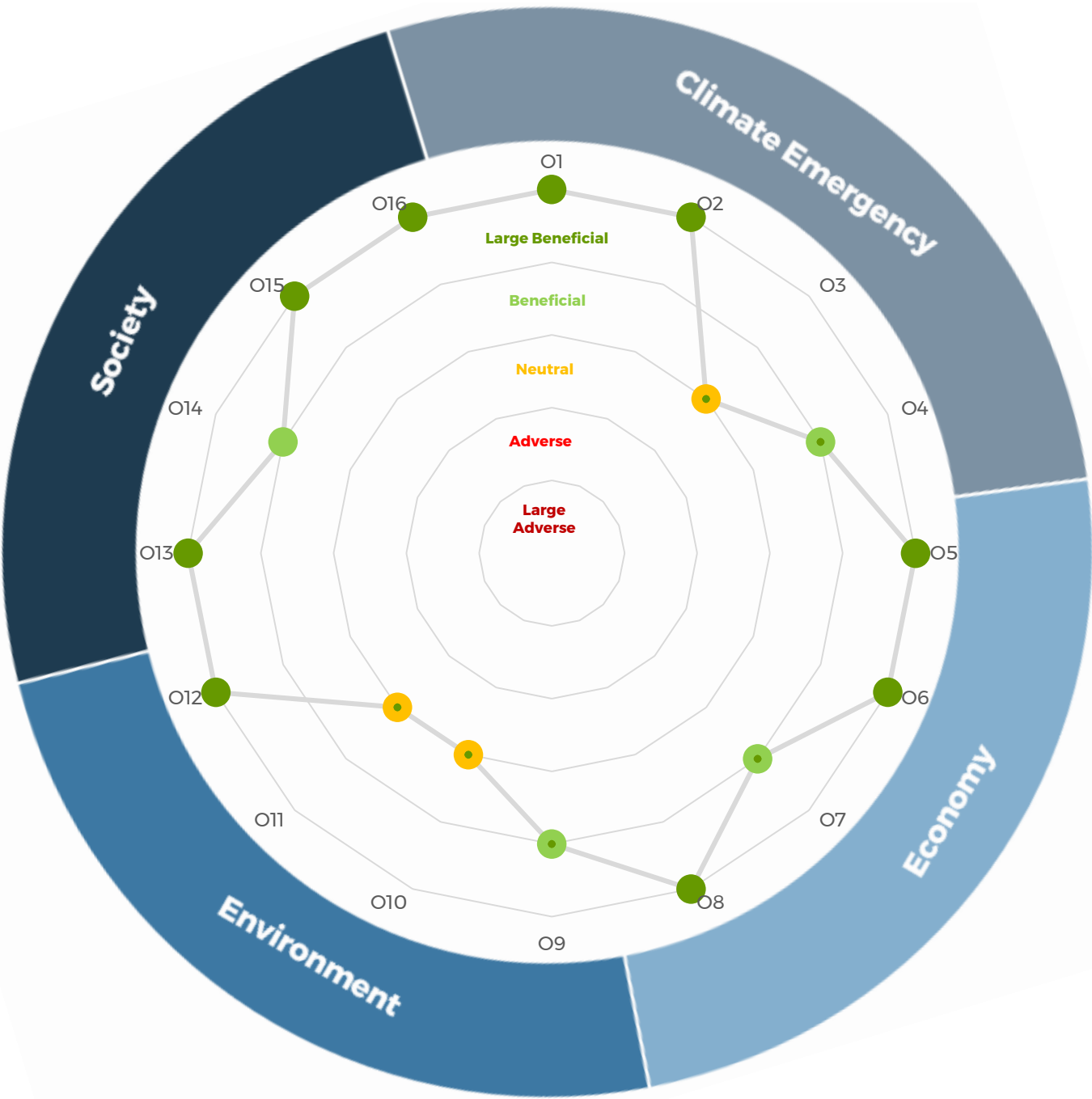


7. Package A + B (Walking and Cycling, plus Bus)

Main impacts of Package A + B	
Climate Emergency	<ul style="list-style-type: none"> • Forecast to result in a 10% reduction in tonnes of carbon.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • Some additional construction works (e.g. bus priority) and therefore will result in a medium increase in embodied carbon.
	<ul style="list-style-type: none"> • Widens travel choice and provides better information on options available to travellers alongside flexible route choice from DRT buses.
Economy	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • Support new development with additional active travel infrastructure, supporting promotion and information and new bus routes to serve these areas.
	<ul style="list-style-type: none"> • Forecast to reduce congestion levels in the City Centre by 7%.
	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Forecast to reduce traffic in the Air Quality Management Area by 19% and result in a 5% mode shift to less polluting modes.
	<ul style="list-style-type: none"> • Transport infrastructure in this package is unlikely to have direct adverse impacts on the water environment and designated biodiversity sites.
	<ul style="list-style-type: none"> • Will lead to the creation of new and improved public spaces, paving and planting; however some parts of the city will be unaffected.
	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • Forecast to reduce vehicle movements through the Noise Important Areas by 12%.
Acceptability	<ul style="list-style-type: none"> • The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure. • They were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs or improved school bus.
Deliverability	<ul style="list-style-type: none"> • 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. • 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. • Most elements of Package A + B use tried and tested technology. • 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	<ul style="list-style-type: none"> • The total capital cost of Package A + B is £75.9m • The total revenue cost of Package A + B is £5.9m pa. • Package A + B has a medium value for money relative to the other assessed packages. • 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



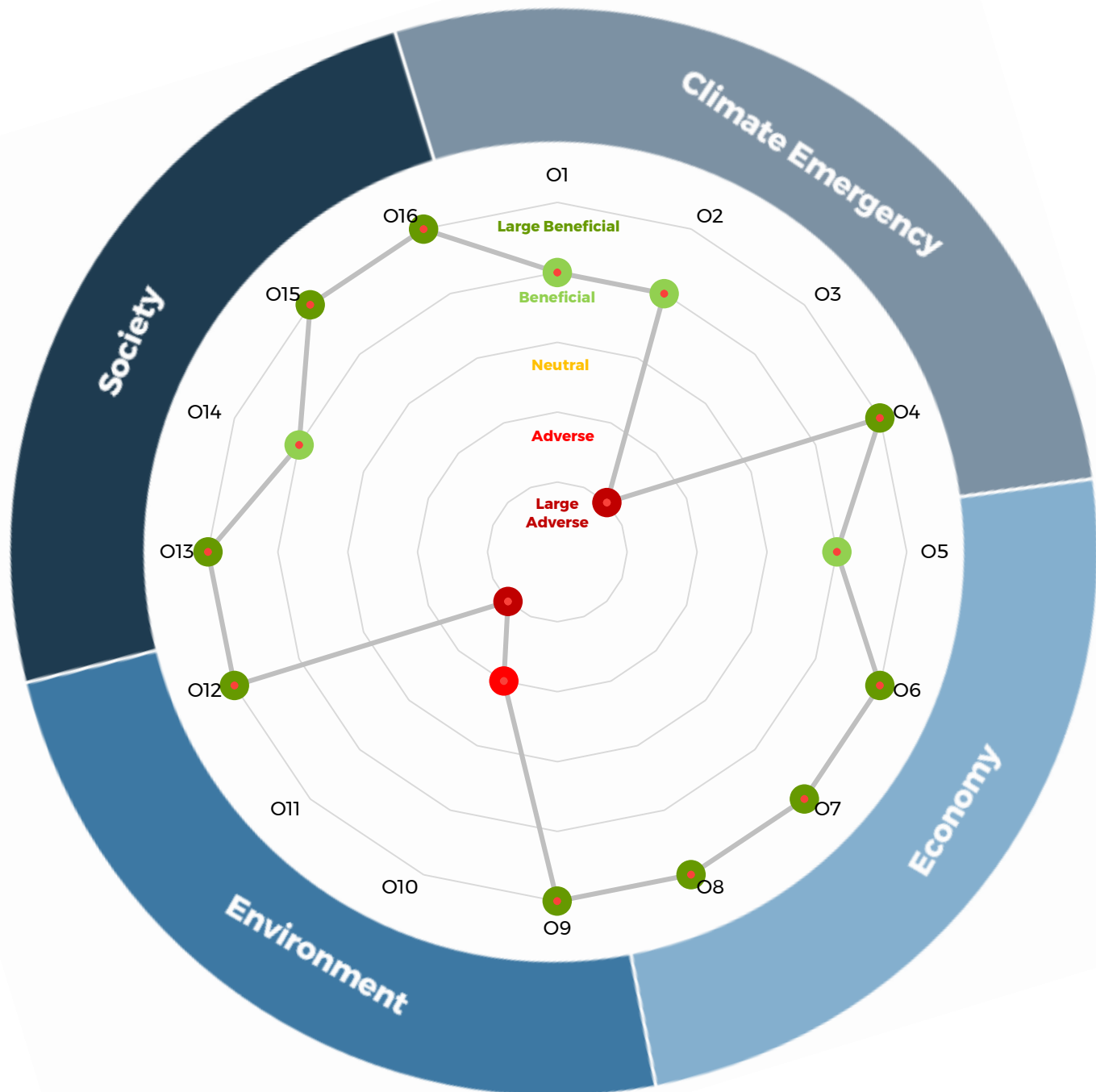
7. Package A + B + C (Walking and Cycling, Bus and Demand Management)

		Main impacts of Package A + B + C
Climate Emergency		<ul style="list-style-type: none"> Forecast to result in a 10% reduction in tonnes of carbon.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Some additional works and therefore will result in a medium increase in embodied carbon.
		<ul style="list-style-type: none"> Widens travel choice and provides better information on options available to travellers alongside flexible route choice from DRT buses.
Economy		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Support new development with additional sustainable transport (cycling, walking and bus) alongside promotion and information.
		<ul style="list-style-type: none"> Forecast to reduce congestion levels in the City Centre by 8%.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> Forecast to reduce traffic in the Air Quality Management Area by 9% and result in a 6% mode shift to less polluting modes.
		<ul style="list-style-type: none"> Transport infrastructure in this package is unlikely to have direct adverse impacts on the water environment and designated biodiversity sites.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Forecast to reduce vehicle movements through the Noise Important Areas by 12%.
Acceptability		<ul style="list-style-type: none"> The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure. They were not directly asked about promotional campaign, shared mobility solutions, bus priority, DRT, mobility hubs, improved school bus or ITS.
Deliverability		<ul style="list-style-type: none"> 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. 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. Most elements of Package A + B + C use tried and tested technology. 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		<ul style="list-style-type: none"> The total capital cost of Package A + B + C is £79.9m. The total revenue cost of Package A + B + C is £5.5m pa. Package A + B + C has a medium value for money relative to the other assessed packages. 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)

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	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

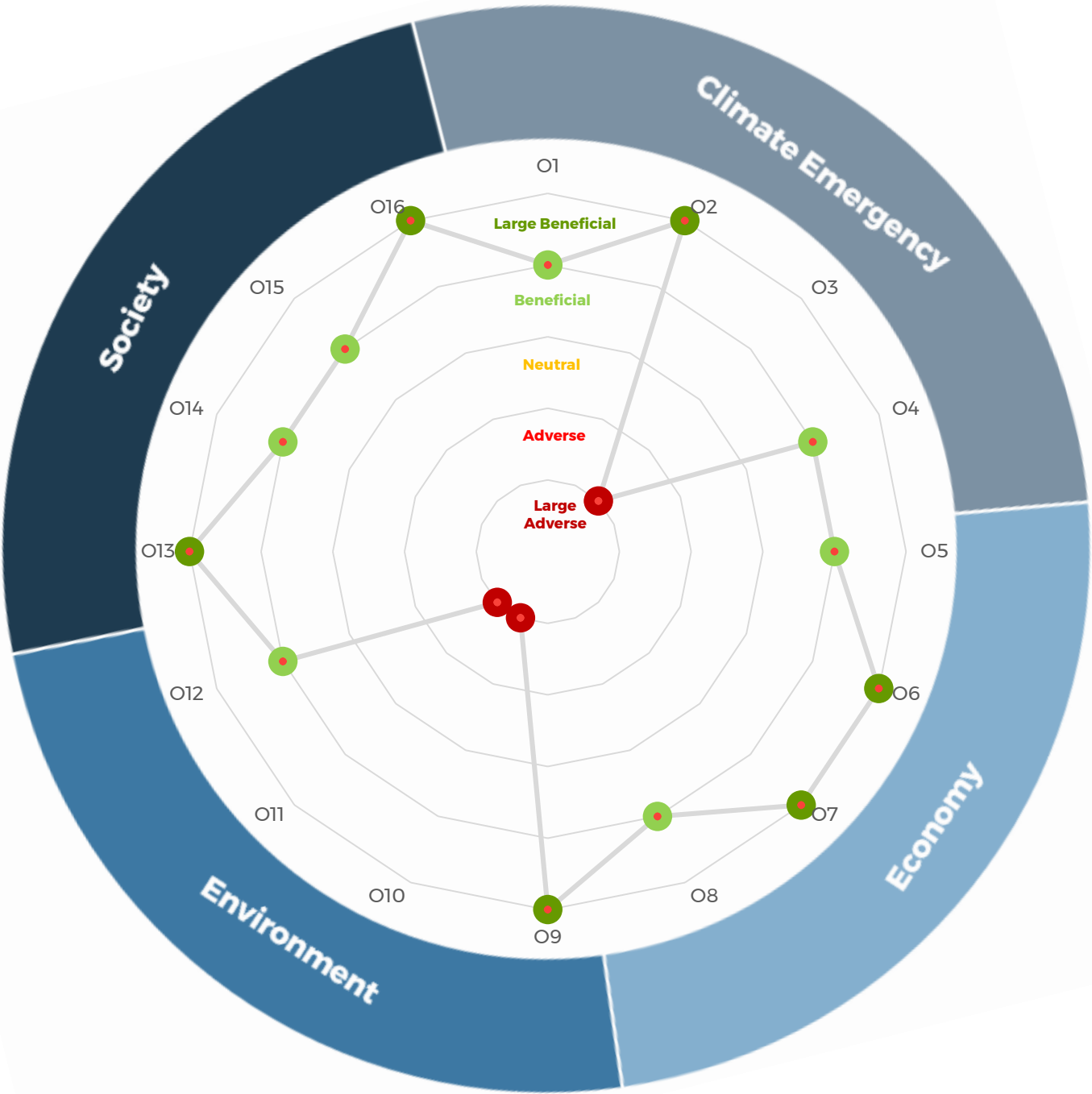


7. Package A + C + D (Walking and Cycling, Demand Management and Western Bypass)

		Main impacts of Package A + C + D
Climate Emergency		<ul style="list-style-type: none"> Forecast to result in a 3% reduction in tonnes of carbon.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Anticipated to result in a high increase in embodied carbon, the largest impact coming from construction of the Western Bypass.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Active travel infrastructure with supporting promotion and information and a new bypass route will improve access to new developments in Hereford.
		<ul style="list-style-type: none"> Forecast to reduce congestion levels in the City Centre by 19%.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> Forecast to reduce traffic in the Air Quality Management Area by 27% and result in a 5% mode shift to less polluting modes.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure. They were not directly asked about promotional campaigns, shared mobility solutions, mobility hubs, bus priority, DRT, mobility hubs, improved school bus or ITS.
Deliverability		<ul style="list-style-type: none"> 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. Most elements of Package A + C + D have been delivered in places with similar characteristics to Hereford and use tried and tested technology 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		<ul style="list-style-type: none"> The total capital cost of Package A + C + D is £261.4m. The total revenue cost of Package A + C + D is £2.1m pa. Package A + C + D has the lowest value for money of all the assessed packages. 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)

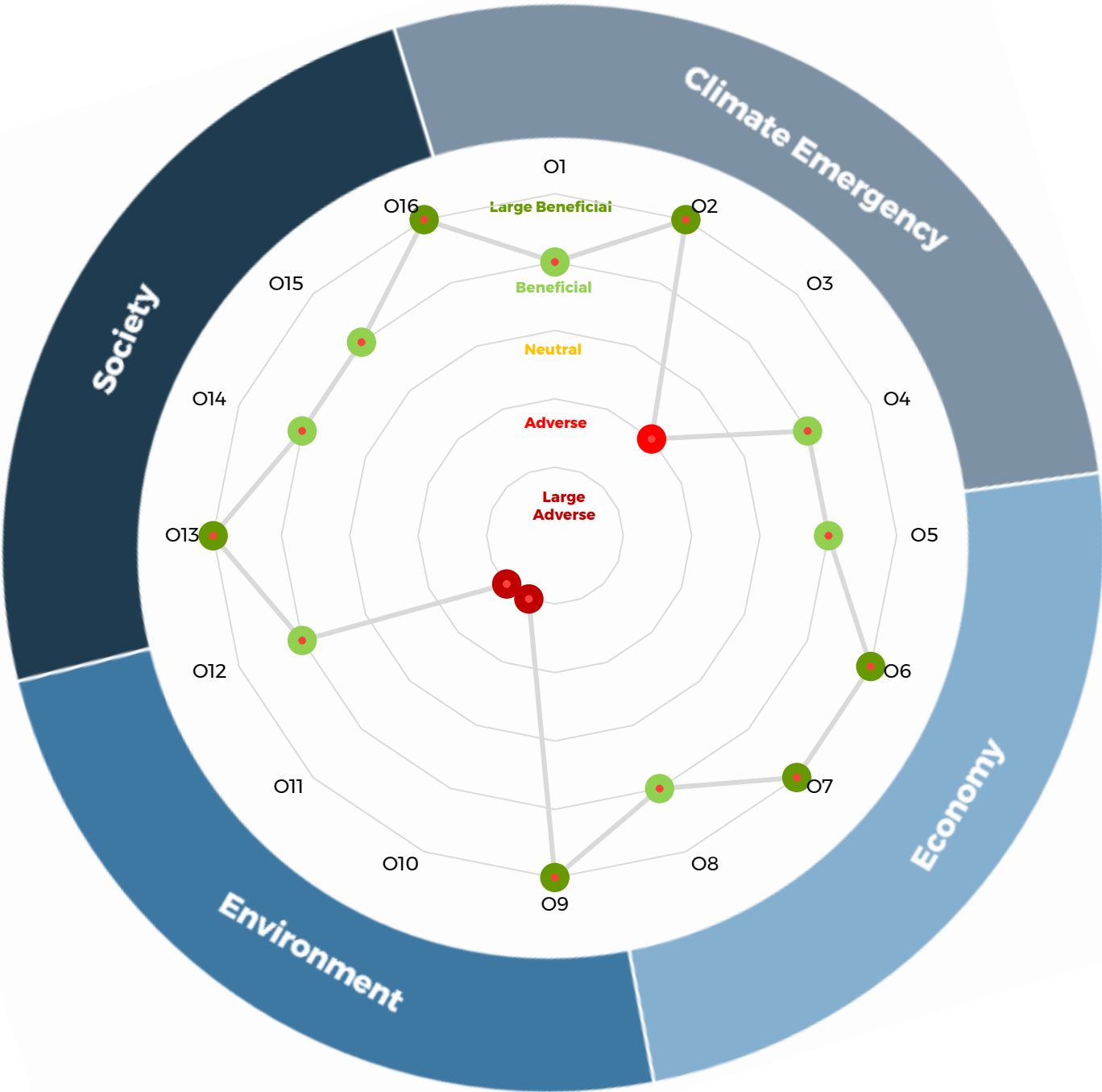
	Outcome	
Climate Emergency	O1	The reduction of carbon emissions from the transport sector is accelerated to reach the County's 2030 net zero emissions target
	O2	The need to travel by private motor vehicle is reduced and travel distance is reduced
	O3	The amount of resources and energy used in the transport 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)

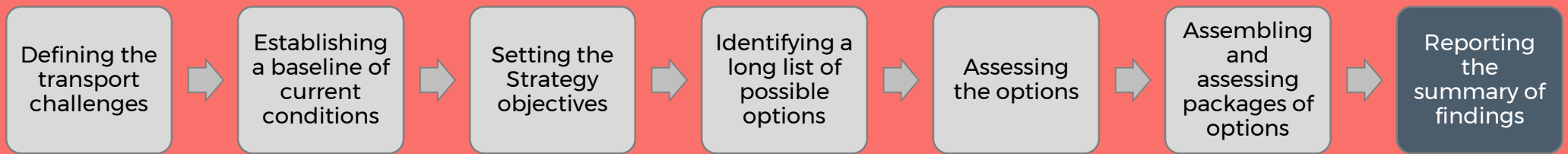
		Main impacts of A + C + E
Climate Emergency		<ul style="list-style-type: none"> Forecast to result in a 8% reduction in tonnes of carbon.
		<ul style="list-style-type: none"> Forecast to lead to 5% reduction in kms travelled by private motor vehicles and a 16% reduction in car mode share for short-distance trips in the city.
		<ul style="list-style-type: none"> Anticipated to result in a high increase in embodied carbon, the largest impact coming from construction of the Eastern Link.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Active travel infrastructure with supporting promotion and information and a new bypass route will improve access to new developments in Hereford.
		<ul style="list-style-type: none"> Forecast to reduce congestion levels in the City Centre by 18%.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> Forecast to reduce traffic in the Air Quality Management Area by 21% and result in a 5% mode shift to less polluting modes.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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*).
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in accidents.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> The public supported Increase in road capacity, safer routes to school and improved cycling and walking infrastructure. They were not directly asked about promotional campaign, shared mobility solutions, mobility hubs, bus priority, DRT, mobility hubs, improved school bus or ITS
Deliverability		<ul style="list-style-type: none"> 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. Most elements of Package A + C + E have been delivered in places with similar characteristics to Hereford and use tried and tested technology 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		<ul style="list-style-type: none"> The total capital cost of Package A + C + E is £126.4m. The total revenue cost of Package A + C + E is £2.0m pa. Package A + C + E has a medium value for money relative to the other assessed packages. 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

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		<ul style="list-style-type: none"> Forecast to result in a 9% reduction in tonnes of carbon.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Anticipated to result in a medium/high increase in embodied carbon, the largest impact coming from construction of the Eastern River Crossing.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Active travel infrastructure with supporting promotion and information and a new bypass route will improve access to new developments in Hereford.
		<ul style="list-style-type: none"> Forecast to reduce congestion levels in the City Centre by 15%.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> Forecast to reduce traffic in the Air Quality Management Area by 19% and result in a 5% mode shift to less polluting modes.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> Will deliver safer road crossings, protected space for cycling, reduce vehicle speeds and traffic flows on residential streets, with beneficial reduction in accidents
		<ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure. They were not directly asked about promotional campaign, shared mobility solutions, mobility hubs, bus priority, DRT, mobility hubs, improved school bus or ITS.
Deliverability		<ul style="list-style-type: none"> 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. Most elements of Package A + C + F have been delivered in places with similar characteristics to Hereford and use tried and tested technology. 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		<ul style="list-style-type: none"> The total capital cost of Package A + C + F is £113.4m. The total revenue cost of Package A + C + F is £2.1m pa. Package A + C + F has a medium value for money relative to the other assessed packages. 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.

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 through 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

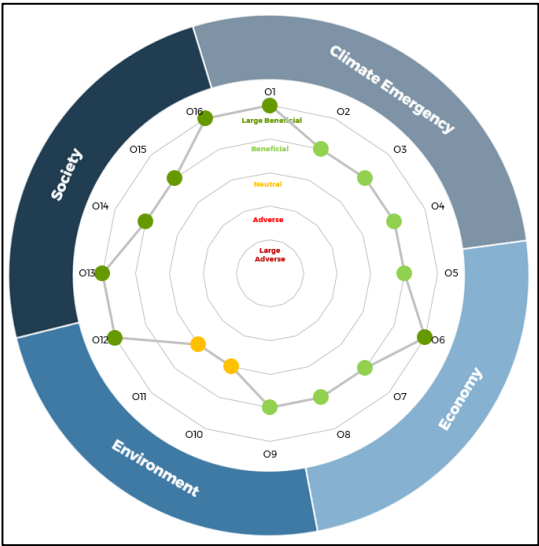
Package A + C + F (Walking and Cycling, Demand Management and Eastern River Crossing)

- 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

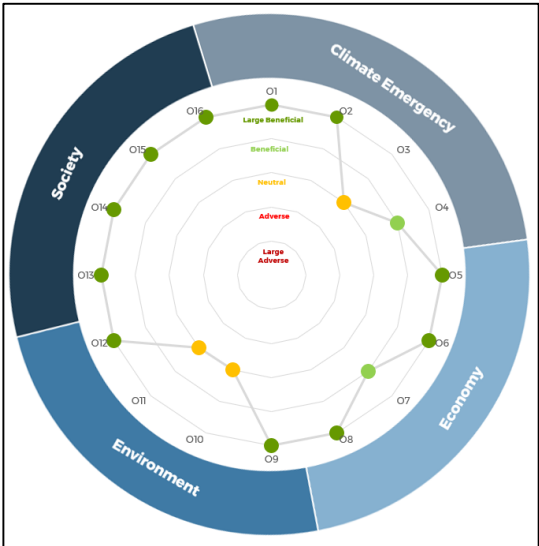
8. Package Comparison

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.

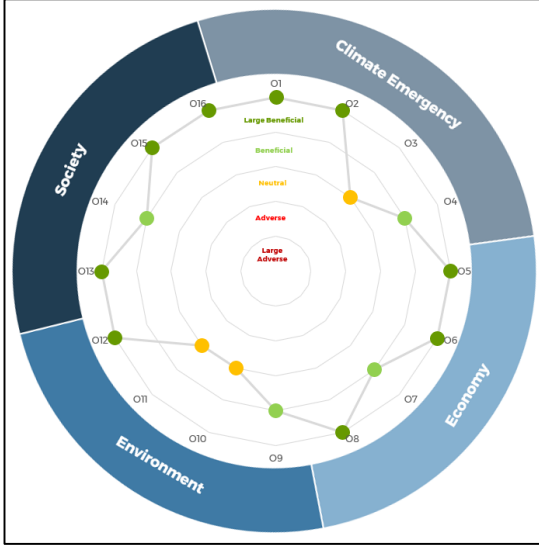
Package A



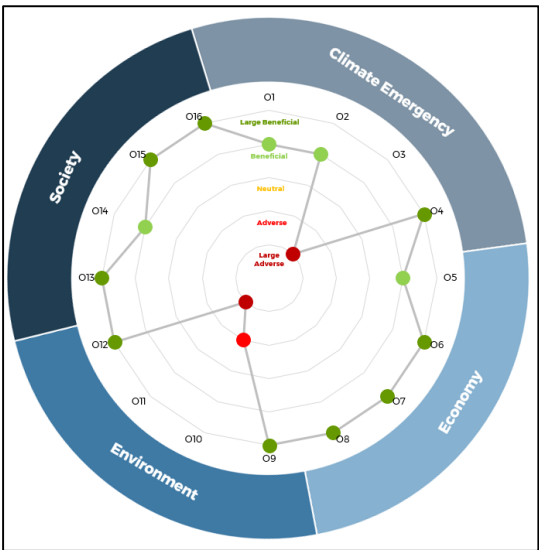
Package A + B



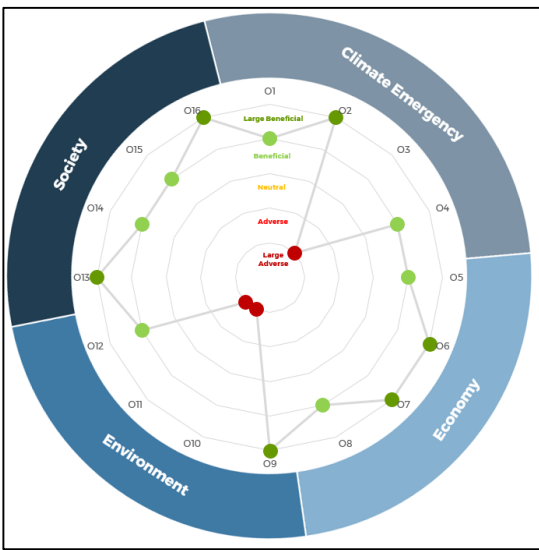
Package A + B + C



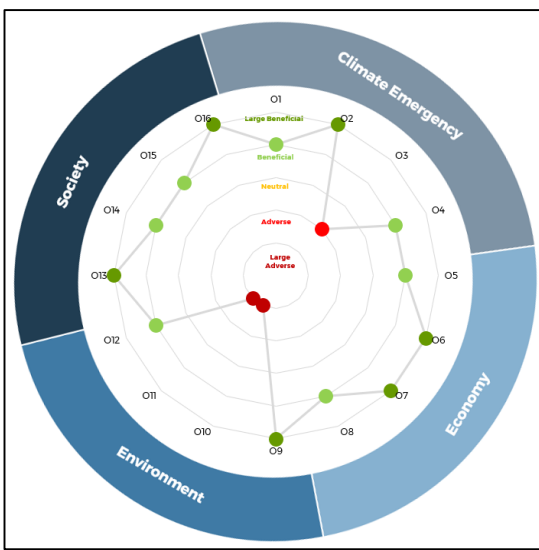
Package A + C + D



Package A + C + E



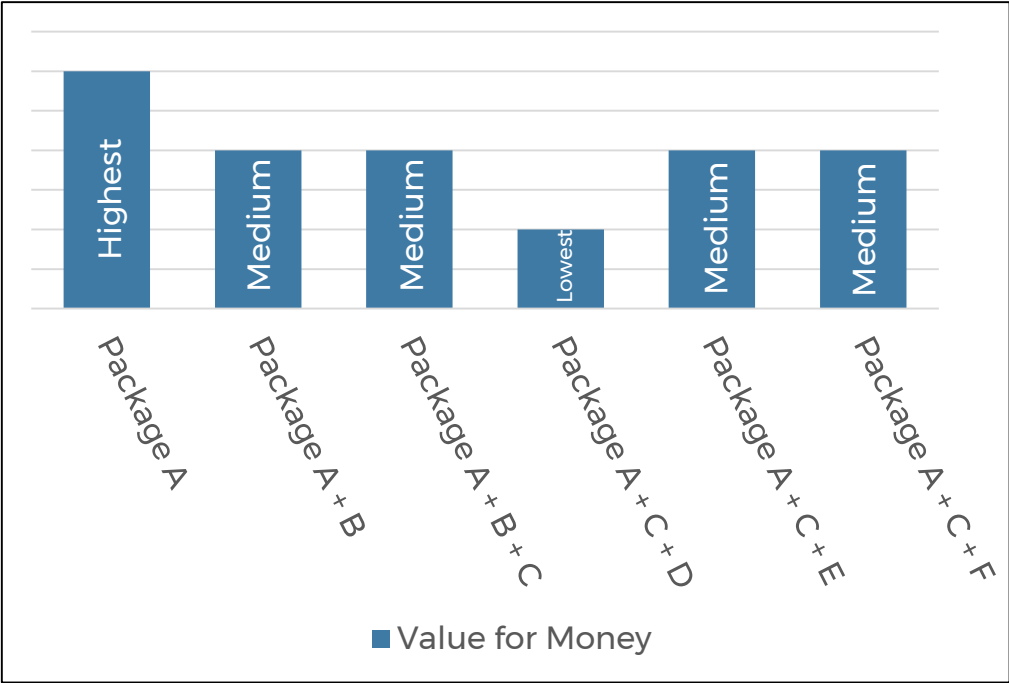
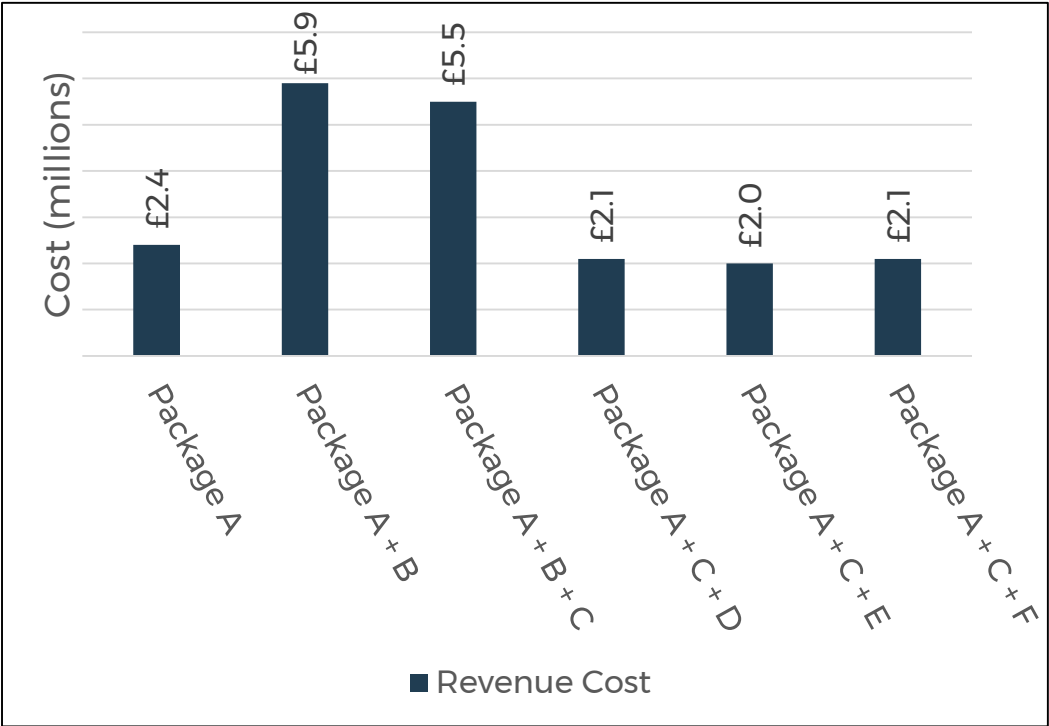
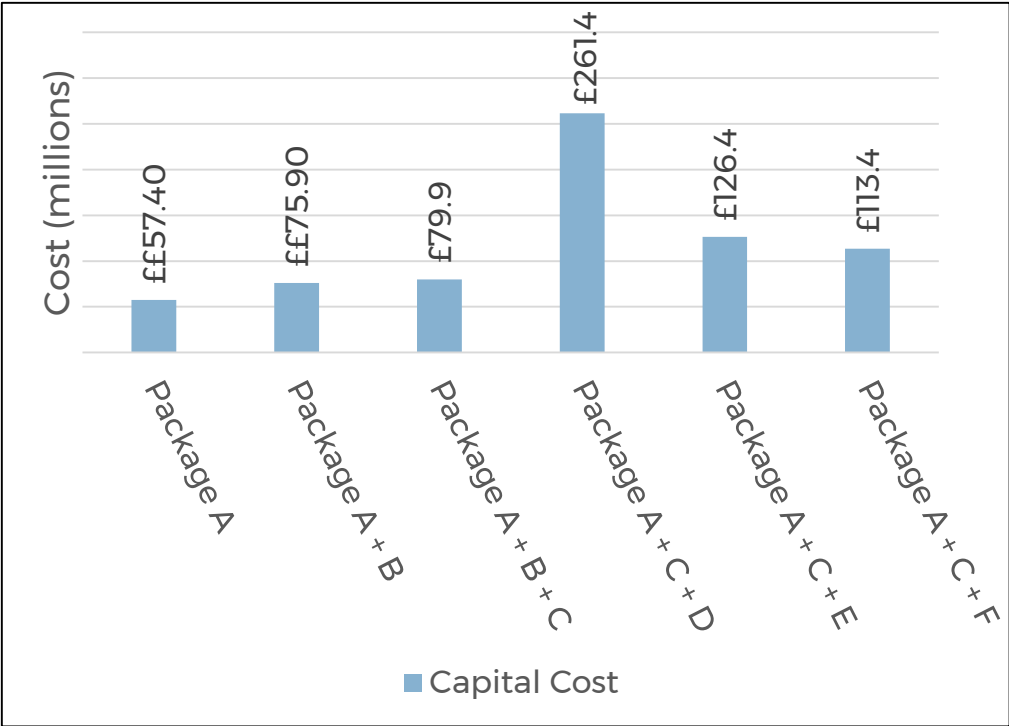
Package A + C + F



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		<ul style="list-style-type: none"> The public supported safer routes to school and improved walking and cycling infrastructure 		<ul style="list-style-type: none"> The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure 		<ul style="list-style-type: none"> The public supported investment in the bus network, safer routes to school and improved walking and cycling infrastructure 		<ul style="list-style-type: none"> The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure 		<ul style="list-style-type: none"> The public supported Increase in road capacity, safer routes to school and improved cycling and walking infrastructure 		<ul style="list-style-type: none"> The public supported increase in road capacity, safer routes to school and improved cycling and walking infrastructure
Deliverability		<ul style="list-style-type: none"> Requires a range of permissions and consents but with good chance of success Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology Most elements could be delivered in 3 years 		<ul style="list-style-type: none"> 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 Significant issues over how an Electric hopper bus could be introduced in Hereford due to the Bus Services Act (2017) Most elements could be delivered in 4 years 		<ul style="list-style-type: none"> 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 Significant issues over how an Electric hopper bus could be introduced in Hereford due to the Bus Services Act (2017) Most elements could be delivered in 4 years; but some elements of the demand management could take longer 		<ul style="list-style-type: none"> The Western Bypass will require DCO or planning permission with land acquisition and CPO Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology 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 		<ul style="list-style-type: none"> The Eastern Link will require DCO or planning permission with land acquisition and CPO Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology 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 		<ul style="list-style-type: none"> The Eastern River Crossing will require DCO or planning permission with land acquisition and CPO Most elements have been delivered in places with similar characteristics to Hereford and use tried and tested technology 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



	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.

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



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
Emergency services	Emergency Services (Blue Light)
Environmental	Natural England
Environmental	Extinction Rebellion
Local body	Hereford City Council
Local interest	Here for Herefordshire
Local interest	Hereford Civic Society
National / regional transport body	Department for Transport
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						<ul style="list-style-type: none"> 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; Deliver a 2% reduction in motorised traffic, which is considered a conservative estimate in light of similar campaigns elsewhere in the country; and 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites and the visual surroundings; and 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						<ul style="list-style-type: none"> 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; 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; Include elements to make people feel more confident and safe to use the bus or to cycle and walk; and 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						<ul style="list-style-type: none"> 7 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> The option does not involve physical infrastructure to be delivered and therefore does not require any associated approvals. Some technological challenges might arise from the app related elements of the option. 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						<ul style="list-style-type: none"> Implementation costs of between £0.25m and annual revenue costs £2M, including staff cost. 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. 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						<ul style="list-style-type: none"> Deliver a comprehensive network of quality infrastructure for cyclists and pedestrians and would enable more short distance journeys to be made more easily by these modes in preference to by car; Provide wider route choice and enable the upgrade of existing walking and cycling routes which are susceptible to flooding; and 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Lead to some transfer of motorised traffic to walking and cycling trips; 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; 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; 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 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> 9 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> Examples of successfully delivery elsewhere in the UK with similar characteristics to Hereford. Some elements would involve permissions (Traffic Regulation Orders, planning permission and land acquisition) and would involve substantial construction across many parts of the city. 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						<ul style="list-style-type: none"> Greater than £20m capital costs and between £100,000-£200,000 annual maintenance costs; Potential minor impact on revenue streams in terms of loss of on-street parking to accommodate active travel infrastructure. 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. 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						<ul style="list-style-type: none"> 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; Provide greater route choice and upgrade cycling and walking routes to school which are currently susceptible to flooding; and 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						<ul style="list-style-type: none"> Enable journeys to school from new residential developments, including the proposed Sustainable Urban Extensions, to be more easily made by cycling or walking; and 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						<ul style="list-style-type: none"> 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; Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage; Reduce traffic noise and severance in residential areas as a result of reduced vehicle trips along 'school streets'; and 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						<ul style="list-style-type: none"> Address key safety factors which dissuade parents from letting their children make journeys to school by cycle or on foot; Lead to more cycling and walking trips to school with consequential beneficial impacts on increasing physical activity and reducing childhood obesity; 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 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						<ul style="list-style-type: none"> 9 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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; Some elements may involve Traffic Regulation Orders, planning permission and land acquisition; and 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						<ul style="list-style-type: none"> £5m of capital costs and £20,000 of annual revenue costs. 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. 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						<ul style="list-style-type: none"> 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 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						<ul style="list-style-type: none"> Enable some journeys to school from new residential developments to be more easily made by bus; Increase bus patronage; and 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						<ul style="list-style-type: none"> Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage; and 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> 7 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> No consents or additional permissions would be needed to deliver the option. 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. This option does not require any infrastructure or complex technology but would require the implementation of a new home to school transport policy. 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						<ul style="list-style-type: none"> Between £0-M implementation costs and over £1M annual revenue costs; Children assumed to use existing bus services and no new dedicated home to school services would be required, but this would require detailed study; The extent of subsidy support required is not yet clear and nor is the potential impact on revenue from current parental contributions; Reducing the level of parental contributions and extending the free school travel criteria will both place additional costs on the Council. 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						<ul style="list-style-type: none"> Enable some short distance journeys to be made by the hopper bus in preference to by car, cycling or walking; and 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						<ul style="list-style-type: none"> 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; Enhance bus accessibility, mostly for origins and destinations within walking distance of the proposed hopper routes; and 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						<ul style="list-style-type: none"> Reduce noise in residential areas due to the design of the electric bus; Provide higher frequency bus access into the city centre from residential neighbourhoods. Encourage additional trips to be made into the city centre and consequently increase footfall in the city centre; and 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						<ul style="list-style-type: none"> Make people more active by using public transport, through cycling or walking at either end of the bus journey; 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; 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 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						<ul style="list-style-type: none"> 9 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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. This option does not rely on significant infrastructure but requires the purchase of a large electric bus fleet. 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						<ul style="list-style-type: none"> £5-10m (based on assumed requirement for 37 electric buses) and over £1m revenue costs. The electric vehicles would have the additional costs of battery replacement, probably within 6-10 years. The level of fare box revenue is uncertain. There may be significant subsidy implications to operate a more comprehensive and more frequent bus service across the city. 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						<ul style="list-style-type: none"> Make bus services more attractive, including for short distance journeys; and 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						<ul style="list-style-type: none"> 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; Reduce delay and congestion by 4% at key junctions in the city centre; and 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						<ul style="list-style-type: none"> Deliver between 3 and 10% reduction in traffic flows on roads in the Air Quality Management Area (AQMA); Enable more reliable and faster bus journeys to the City Centre and thus encourage additional visits to the City Centre by bus; and 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						<ul style="list-style-type: none"> 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; Provide benefits to rural residents travelling into the city along radial corridors; 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. 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 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						<ul style="list-style-type: none"> 9 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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. 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. 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						<ul style="list-style-type: none"> £10m capital cost and £20,000 maintenance costs. 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						<p>The option would:</p> <ul style="list-style-type: none"> 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; Run on a dedicated route or track and could be susceptible to climate change events such as flooding; and 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						<p>The option would:</p> <ul style="list-style-type: none"> 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; Deliver a dedicated route which would be largely unaffected by highway incidents, roadworks or maintenance; and 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						<p>The option would:</p> <ul style="list-style-type: none"> Provide an additional sustainable transport mode to access the city centre, mostly for residents living in certain parts of South Hereford; 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 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						<p>The option would:</p> <ul style="list-style-type: none"> Provide a segregated walking and cycling path along the whole route; 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; 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; Enable easy interchange between modes and includes secure cycle parking and Beryl Bike hubs at transit stops; and 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						<ul style="list-style-type: none"> 6 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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. 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						<ul style="list-style-type: none"> £108M capital costs and between £200k-1M revenue costs. Potential minor impact on revenue streams in terms of parking revenue. A ULR scheme of this scale has not been constructed in the UK therefore there is a high risk of cost increases. 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Lead to increased bus patronage as people respond to the increased flexibility of DRT; 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 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						<ul style="list-style-type: none"> Improve accessibility to the City Centre for some residents of Hereford and the surrounding rural area; Encourage a limited number of additional trips to the City Centre; and 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						<ul style="list-style-type: none"> Improve interchange for some travellers, for example potentially enhancing connections onto inter-urban bus services or accessing rail services; 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 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						<ul style="list-style-type: none"> 6 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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; There are some examples of this option operating elsewhere in the UK. However, few have operated consistently over a period of time; Additional technology would need to be put in place in Herefordshire although the systems are tried and tested elsewhere; and 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						<ul style="list-style-type: none"> £2m-5m capital costs (vehicle purchase and 'back office' systems) and £200,000-£1m to cover annual revenue support. The majority of costs relate to the day to day operation of the service. A new bus operation would introduce additional risks. Limited potential for passenger abstraction from other bus services financially supported by the Council. <i>A Better Deal for Bus Users</i> (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						<ul style="list-style-type: none"> Enable more journeys, including short distance journeys, to be undertaken by non-motorised travel modes; 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 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						<ul style="list-style-type: none"> Enable more journeys to be undertaken by non-motorised travel modes, with a beneficial impact on delay, congestion and journey time reliability; 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; Include new shared mobility infrastructure in new developments; Provide users with the flexibility of different options to make their journey if their original plans or travel mode were disrupted; and 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						<ul style="list-style-type: none"> Lead to a net reduction in motor vehicle trips and consequential beneficial impact on the AQMA; Provide zero emission, low emission and more fuel efficient modes of travel; Deliver mobility solutions which would improve sustainable transport accessibility to the City Centre and consequentially encourage additional trips to the City Centre; and 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						<ul style="list-style-type: none"> Provide mobility solutions which make people more active, with consequential reduction in childhood obesity; Enable people to more easily access conventional public transport for onward travel; Deliver an e-bike solution which is likely to make new and returning cyclists more confident to use this mode; and 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						<ul style="list-style-type: none"> 8 out of 11 respondents supported this option. The public was not directly asked about this option.
	Public acceptability of the option						
Deliverability	Technical/practical feasibility (successful implementation and technological barriers)						<ul style="list-style-type: none"> 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. Dedicated vehicle parking bays will require Traffic Regulation Orders. 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						<ul style="list-style-type: none"> £0m-2m capital costs (vehicle purchase and back office systems) and up to £100k ongoing revenue costs (operator licence, maintenance and back office systems). Negligible impact on Council revenue streams. Degree of cost risk associated with the ongoing revenue support. 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						<ul style="list-style-type: none"> 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 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						<ul style="list-style-type: none"> Lead to an increase in bus patronage, particularly from those interchanging at new and enhanced Park and Choose sites; 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); Lead to some reduction in delay and congestion on the network; and 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						<ul style="list-style-type: none"> Lead to some reduction in traffic flows on roads in the AQMA; 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; 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 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						<ul style="list-style-type: none"> 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; 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; Enhance waiting facilities at key locations which is likely to have a beneficial impact on passenger confidence and safety; and 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						<ul style="list-style-type: none"> 8 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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. A number of mobility hubs would require planning permission or TROs to be amended or introduced; and 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						<ul style="list-style-type: none"> £02M capital costs (construction of mobility hubs) and up to £100,000 revenue costs (maintenance); Negligible impact on Council revenue streams; Degree of cost risk will depend in part on the scale of mobility hubs proposed and their number; 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						<ul style="list-style-type: none"> Lead to a reduction in short distance travel by car, with other modes becoming more attractive for short journeys; and 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						<ul style="list-style-type: none"> Reduce overall vehicle trip demand which will lessen the impact of incidents, maintenance and roadworks on journeys; Discourage the use of private motor vehicles but does not contain measures to widen the availability of alternative modes; and 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						<ul style="list-style-type: none"> Deliver new multi-storey car parks and may lead to other car parks being redeveloped for other land uses; Reduce vehicle travel demand which may have a consequential benefit in making streets more attractive to cycle and walk to the City Centre; and 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						<ul style="list-style-type: none"> Encourage a mode shift from private motor vehicle to cycling, walking or public transport with consequential benefits in terms of physical activity; 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; 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 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						<ul style="list-style-type: none"> 9 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> £0-2M implementation and construction costs and some revenue generated; Some demand management measures would generate additional parking revenue but other measures would lead to a reduction in parking revenues for the Council; There are likely to be greater cost risks associated with demand management measures which have fewer operational examples; and 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						<ul style="list-style-type: none"> Make more efficient use of the available road space; Provide better information on climate change impacts affecting the transport network, helping travellers to make more informed decisions; and 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Increase average speeds which may have a beneficial impact on air quality; Connect drivers to parking spaces and encourage additional visits to the city centre; Have negligible environmental impacts on water quality, protected priority habitats and species, designated sites, the landscape and visual surroundings and cultural heritage; and 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						<ul style="list-style-type: none"> 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; 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; Not significantly impact on groups who do not have access to a car; Not change the overall mode share or key factors which influence collision rates; Not influence the factors which make people feel more confident and safe to use the bus; and 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						<ul style="list-style-type: none"> 6 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> A number of regional centres have introduced Urban Traffic Control and parking related Variable Messaging Signs. The technology has been applied elsewhere; however introducing UTC is likely to require upgrades to traffic signals; and 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						<ul style="list-style-type: none"> £10-20M capital costs and between £200k-1M ongoing revenue costs (maintenance and back office systems) Additional parking revenue generated by connecting drivers to available parking spaces; and 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						<ul style="list-style-type: none"> Have a negligible effect on travel by car for short journeys; Not create any additional transport links or upgrade existing transport links to mitigate climate change impacts; Deliver less than 2% change in motorised traffic; and 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						<ul style="list-style-type: none"> Reduce incidents and maintenance associated with traffic lights along the A49 corridor; Not introduce a new travel mode or extend the availability of existing ones; 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 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						<ul style="list-style-type: none"> Increase flows on roads in the AQMA by between 3 and 10%; 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; 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 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						<ul style="list-style-type: none"> 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; 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 disproportionately impact on children, older people or those with protected characteristics (e.g. blind people), even with replacement crossings being provided nearby; Create increased congestion for rural residents accessing the city; and 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						<ul style="list-style-type: none"> 2 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> This type of option is not known to have been implemented in locations with traffic flows as high as the A49; 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. 4-6 years to fully implement (assuming funding were available).
	Legal powers						
	Implementation timescale of the option						
Affordability	Capital cost of the option						<ul style="list-style-type: none"> Between £10-20m capital costs (removing signals from junctions and implementing new pedestrian crossings) and up to £100k annual maintenance costs; The option will not impact on Council revenues; Low cost risk due to limited changes to infrastructure; and 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						<ul style="list-style-type: none"> Generate more short distance journeys by car; Provide another link across the river and potentially increase network resilience to climate change events such as flooding; and 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						<ul style="list-style-type: none"> 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; 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; Provide additional network resilience with a second strategic road link across the river; and 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						<ul style="list-style-type: none"> Initially deliver a 21% reduction in flows on roads in AQMA; 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; 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; Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location, impact to high sensitivity local landscape character areas. Have adverse impacts on designated and non-designated heritage assets, including below-ground archaeological remains/earthworks, built heritage and landscaped parks; 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						<ul style="list-style-type: none"> Improve accessibility for rural residents with access to a car for journeys to selected destinations, including the Enterprise Zone; 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 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						<ul style="list-style-type: none"> 2 out of 11 respondents supported this option. In the public engagement 460 Of 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)						<ul style="list-style-type: none"> The option would require either Development Consent Order/Planning permission and land acquisition/CPO; The environmental impact on designated sites is comparatively less severe than eastern bypass options, which may give a greater likelihood of achieving consent; and 7-10 years to fully implement (assuming funding were available).
	Legal powers						
	Implementation timescale of the option						
Affordability	Capital cost of the option						<ul style="list-style-type: none"> Estimated £190m capital costs and up to £100,000 annual maintenance costs; The option will not impact on Council tax, business rates or parking revenues; 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 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						<ul style="list-style-type: none"> 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; Generate more short distance journeys by car; Increase motorised traffic by less than 2%; and 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						<ul style="list-style-type: none"> 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; 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; 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 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						<ul style="list-style-type: none"> Deliver an initial 24% reduction in flows on roads in AQMA; 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; 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); Cause significant impact on SSSI sites (Lugg and Hampton Meadows) and SAC/SSSI sites (River Wye) during construction phase and possible impacts during operation; Have significant landscape and visual impacts, constituting new infrastructure in greenfield locations; 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; 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						<ul style="list-style-type: none"> 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; Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and 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						<ul style="list-style-type: none"> 2 out of 11 respondents supported this option. In the public engagement 460 Of 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)						<ul style="list-style-type: none"> 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 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						<ul style="list-style-type: none"> Estimated capital costs of £155m and up to £100,000 annual maintenance costs. The option will not impact on Council tax, business rates or parking revenues; 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 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						<ul style="list-style-type: none"> Generate more short distance journeys by car; 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 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Initially deliver a 22% reduction in flows on roads in AQMA; 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; 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; Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location; 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; 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						<ul style="list-style-type: none"> 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; Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and 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						<ul style="list-style-type: none"> 1 out of 11 respondents supported this option. In the public engagement 460 Of 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)						<ul style="list-style-type: none"> 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 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						<ul style="list-style-type: none"> Estimated capital costs of £125m and up to £100,000 annual maintenance costs. The option will not impact on Council tax, business rates or parking revenues; 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 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						<ul style="list-style-type: none"> Enable more short distance journeys by be made by car; 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 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Initially deliver a 14% reduction in flows on roads in AQMA; 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; Loss of priority habitat, damage to integrity and features of identified priority habitats located east and north east of Hereford. Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location; 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; 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						<ul style="list-style-type: none"> 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; Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and 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						<ul style="list-style-type: none"> 1 out of 11 respondents supported this option. 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)						<ul style="list-style-type: none"> 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 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						<ul style="list-style-type: none"> Estimated capital costs of £55m and up to £100,000 annual maintenance costs; The option will not impact on Council tax, business rates or parking revenues; 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 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						<ul style="list-style-type: none"> Enable more short distance journeys by be made by car; 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 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						<ul style="list-style-type: none"> 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; 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 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						<ul style="list-style-type: none"> Initially deliver a 12% reduction in flows on roads in AQMA; 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; Have the potential for loss of /damage to priority habitat sites located east of Hereford and River Wye SSSI; Have significant landscape and visual impacts, constituting new infrastructure in a greenfield location; Pass close to scheduled monuments (Rotherwas house and chapel) and listed buildings, affecting the integrity of the sites; 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						<ul style="list-style-type: none"> 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; Improve accessibility for rural residents with access to a car for journeys to selected destinations, potentially including the Enterprise Zone; and 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						<ul style="list-style-type: none"> 2 out of 11 respondents supported this option. In the public engagement 460 Of 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)						<ul style="list-style-type: none"> 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 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						<ul style="list-style-type: none"> Estimated capital costs of £45m and up to £100,000 annual maintenance costs. The option will not impact on Council revenues. 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. 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



		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						<ul style="list-style-type: none"> 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; Low/medium increase in embodied carbon; 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						<ul style="list-style-type: none"> 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; 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; Forecast to lead to a beneficial reduction in city centre congestion (-7%); 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						<ul style="list-style-type: none"> 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; 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; Creates new public spaces and improves paving/planting as part of cycling and walking infrastructure; Restricts through traffic in residential areas and introduces school streets which will make residential areas more pleasant to live; 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						<ul style="list-style-type: none"> 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; 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; Mobility hubs will provide some benefit to improve accessibility to services and facilities for rural residents; Delivers safer road crossings, cycleways to separate cyclists from traffic and reduces traffic speeds and volumes on residential streets; Enhances waiting facilities at key locations to improve passenger confidence and safety; 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						<ul style="list-style-type: none"> Package scored 87% on Stakeholder acceptability (average score of the elements); 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)						<ul style="list-style-type: none"> Most elements delivered in places with similar characteristics to Hereford but several elements have aspects which constitute emerging practice; Some minor challenges over the app based solutions; Certain mobility hubs may require land purchase and/or require planning permission and requirements for TROs to be amended or introduced; 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						<ul style="list-style-type: none"> Capital cost: £57,350,000 and Revenue cost: £2,385,000 pa; Not anticipated to have significant impact on parking revenues, council tax and business rate receipts; Some aspects e.g. school streets and low traffic neighbourhoods will require greater consideration and pose a higher level of risk; 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						

		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						<ul style="list-style-type: none"> 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; Medium increase in embodied carbon; 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						<ul style="list-style-type: none"> 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; Supports new development and access to employment sites, training opportunities and education with additional sustainable transport, alongside travel promotion and information; Forecast to lead to a beneficial reduction in city centre congestion (-7%); 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						<ul style="list-style-type: none"> 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; 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; The adoption of electric buses will reduce noise in residential areas; 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						<ul style="list-style-type: none"> 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; 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; 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; Increases bus frequency and bus priority measures which will encourage confidence in the reliability of this mode; 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						<ul style="list-style-type: none"> Scored 85% on Stakeholder acceptability (average score of all elements); 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)						<ul style="list-style-type: none"> 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; Significant issues over how an electric hopper bus system could be introduced to Hereford, due to the Bus Services Act 2017; 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						<ul style="list-style-type: none"> Capital Cost: £75,860,000 and Revenue Cost: £5,885,000 pa; 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; 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						

		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						<ul style="list-style-type: none"> 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; Medium increase in embodied carbon; 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						<ul style="list-style-type: none"> Forecast to deliver a 15% reduction in delay and congestion, 4% reduction in journey times along key corridors and 20% increase in bus trips; 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; Forecast to lead to a beneficial reduction in city centre congestion (-8%); Some of the proposed ITS measures will help travellers make more informed decisions; 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						<ul style="list-style-type: none"> 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; 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; 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; 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						<ul style="list-style-type: none"> 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; Demand management measures will either reduce parking supply or place additional costs on vehicle travel; 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						<ul style="list-style-type: none"> Scored 82% on Stakeholder acceptability (average score of all elements); 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)						<ul style="list-style-type: none"> Workplace Parking Levy is limited to Nottingham although other authorities are considering this measure. However, other parking charge regimes are commonplace across the UK; The level of technological difficulty for demand management would depend on which measures are progressed and in what combination; The consents required and their chance of success would depend on which demand management measures are progressed and in what combination; 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						<ul style="list-style-type: none"> Capital Cost: £79,860,000 and Revenue Cost: £5,465,000 pa; 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; The costs of ITS and demand management will depend upon the type of intervention being delivered; 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						

		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						<ul style="list-style-type: none"> 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; High increase in embodied carbon, the largest impact coming from the construction of the Western Bypass; 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						<ul style="list-style-type: none"> Forecast to deliver a 29% reduction in delay and congestion, 7% reduction in journey times along key corridors and 3% reduction in bus trips; The Western Bypass route alignment will run close to Three Elms, Holmer West and Lower Bullingham SUEs, providing a new route to these developments; Forecast to lead to a beneficial reduction in city centre congestion (-19%); 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; 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						<ul style="list-style-type: none"> 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; 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.
	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						<ul style="list-style-type: none"> 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; The Western Bypass will reinforce the benefits from other elements by reducing traffic flows on some cross city corridors; 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						<ul style="list-style-type: none"> Scored 68% Stakeholder acceptability (average score of all elements). The lowest scoring element was the Western Bypass which was supported by the fewest stakeholders; 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)						<ul style="list-style-type: none"> The Western Bypass will require DCO or planning permissions and land acquisition or CPO; 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						<ul style="list-style-type: none"> Capital Costs: £261,350,000 and Revenue Costs: £2,123,000 pa; High risks associated with delivery of a major road scheme such as the Western Bypass; 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)

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		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						<ul style="list-style-type: none"> 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; Medium/high increase in embodied carbon, the largest impact coming from the construction of the Eastern Link; 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						<ul style="list-style-type: none"> Forecast to deliver a 23% reduction in delay and congestion, 6% reduction in journey times along key corridors and 3% reduction in bus trips; 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; Forecast to lead to a 18% reduction in city centre congestion; 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; 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						<ul style="list-style-type: none"> 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; 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*); 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						<ul style="list-style-type: none"> 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; The Eastern Link will reinforce the benefits of other elements by reducing these traffic flows on the key cross city corridors; 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						<ul style="list-style-type: none"> Scored 65% Stakeholder acceptability (average score of all elements). The lowest scoring element was the Eastern Link which was supported by the fewest stakeholders; 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)						<ul style="list-style-type: none"> The Eastern Link will require DCO or planning permissions and land acquisition or CPO; 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						<ul style="list-style-type: none"> Capital Cost: £126,350,000 and Revenue Cost: £2,047,000 pa; High risks associated with the delivery of a major road scheme such as the Eastern Link; 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)

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		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						<ul style="list-style-type: none"> 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; Medium/high increase in embodied carbon, the largest impact coming from the construction of the Eastern River Crossing; 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						<ul style="list-style-type: none"> Forecast to deliver a 22% reduction in delay and congestion, 5% reduction in journey times along key corridors and 3% reduction in bus trips; 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; Forecast to lead to a 15% reduction in city centre congestion; 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; 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						<ul style="list-style-type: none"> 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; 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; 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						<ul style="list-style-type: none"> 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; The Eastern River Crossing will reinforce the benefits from other elements by reducing these traffic flows on the key cross city corridors; 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						<ul style="list-style-type: none"> 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; 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)						<ul style="list-style-type: none"> The Eastern River Crossing will require DCO or planning permissions and land acquisition or CPO; 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						<ul style="list-style-type: none"> Capital Costs: £113,350,000 and Revenue Costs: £2,057,000 pa; High risks associated with the delivery of a major road scheme such as the Eastern River Crossing; 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						