Shropshire Council

Shrewsbury North West Relief Road

Full Business Case

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Full Business Case

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Introduction

1 Introduction

1.1 OVERVIEW

1.1.1. This document is the Full Business Case (FBC) for the Shrewsbury North West Relief Road (NWRR). It has been prepared on behalf of Shropshire Council (hereafter referred to as the Council), the scheme promoters, for consideration by the Department for Transport (DfT).

1.1.2. The content and form of the business case adheres to published DfT guidance, including the most up to date Transport Analysis Guidance (TAG). It updates and builds upon the Outline Business Case (OBC) submission, which was approved by DfT in March 2019.

1.1.3. This FBC will explain how and why the Council has decided to put the scheme forward in its current form, and at the present time. It will show that the proposals are based on a realistic analysis of the current situation, a clear vision for the future, a careful consideration of options, a robust appraisal of costs and benefits, and a clear plan for delivering the scheme.

1.1.4. The structure and content of this FBC is based on the best practice contained within 'Transport Business Case – the five-case model' (last updated December 2022) and on supplementary guidance outlined in DfT's Transport Investment Strategy policy paper (published July 2017). The aforementioned five-case model is detailed in Table 1-1.

Table 1-1 – DfT Five Case Model for Business Cases

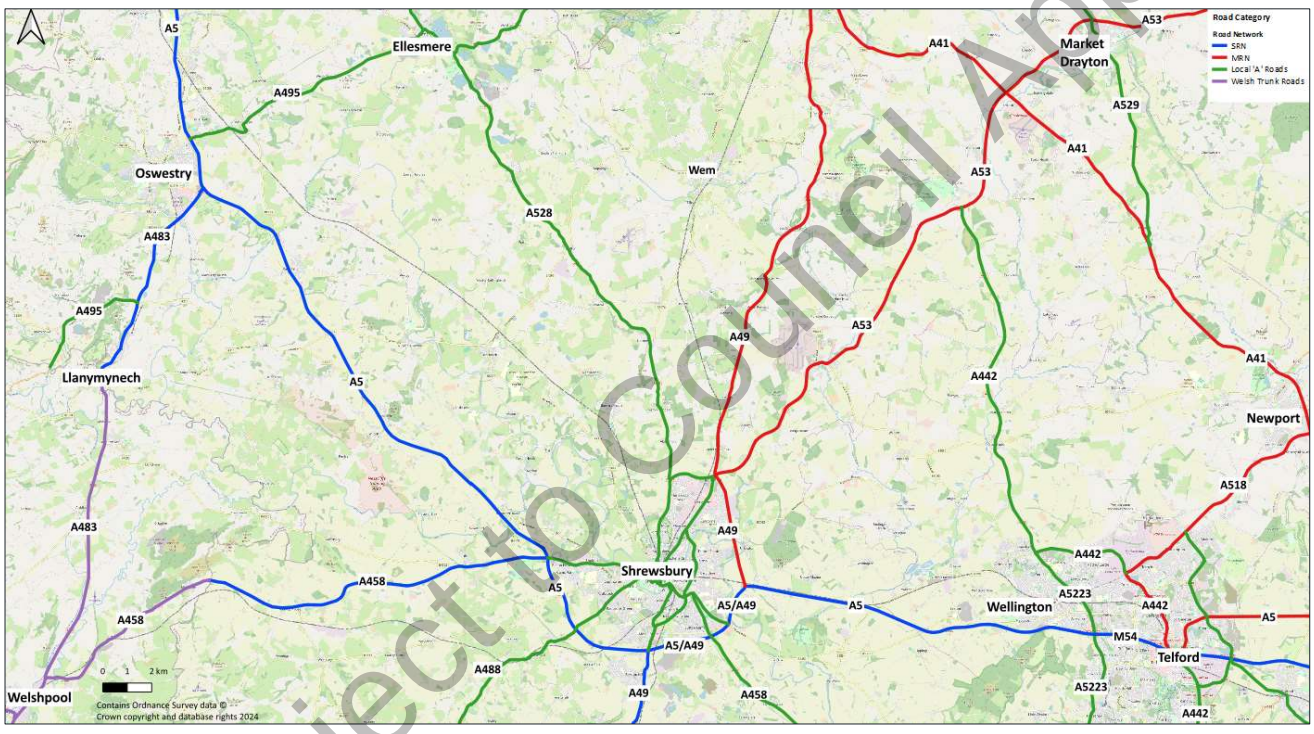
Dimension	Summary
Strategic	Demonstrates that there is a robust 'case for change', closely aligned to national, regional and local policy objectives
Economic	Demonstrates that the scheme Value for Money, based on a formal appraisal undertaken in line with DfT guidance
Financial	Explains how much the scheme will cost over its lifespan and how it will be paid for, including local contributions, showing that it is affordable
Commercial	Shows that the proposed approach to finance and procurement is robust, showing that the scheme is commercially viable
Management	Shows that the scheme is achievable in practical terms and explains how the project will be managed to ensure it achieves its objectives

1.2 AREA OVERVIEW AND SCHEME DESCRIPTION

1.2.1. Shropshire became a unitary council in 2009 and is the Local Transport Authority (LTA) and Local Planning Authority (LPA) for Shrewsbury. Previously, these functions had been the responsibilities of Shropshire County Council and Shrewsbury and Atcham Borough Council. Together with Herefordshire and Telford and Wrekin, Shropshire was also part of The Marches Local Enterprise Partnership (LEP). However, since the LEP ceased trading in March 2024, Herefordshire Council, Monmouthshire County Council, Powys County Council and Shropshire Council have formed the groundbreaking Marches Forward Partnership which has replaced the LEP in tackling cross border interests and boosting investment into the Marches region.

1.2.2. Shrewsbury Town Council, established in 2009, provides a range of local services. Shrewsbury is in the Shrewsbury and Atcham parliamentary constituency and is located 47 miles west of Birmingham, and 12 miles east of the border with Wales, and is the principal town and administrative centre of Shropshire. It is an historic market town, which serves as a cultural and commercial centre for Shropshire and a large area of mid-Wales. As shown on Figure 1-1, Shrewsbury lies at the intersection of the A5, A458 and A49 (south) which are all part of the Strategic Road Network (SRN) and the town is also the focal point for other principal roads including the A53 (north) and the A49 (north) which are part of the Major Road Network (MRN) and the A458 (east) the A488 (west). The area surrounding Shrewsbury is rural and sparsely populated.

Figure 1-1 – Local highway network: Shrewsbury and surrounding area



1.2.3. Shrewsbury is a major employment hub, service provider; health, commercial and cultural centre for Shropshire, and for a large rural hinterland of approximately 2.6 million people (including parts of mid-Wales) who live within 1 hour travel time. Shrewsbury has over 660 listed buildings and its defining physical characteristic is an almost complete natural loop of the River Severn, within which the mediaeval town developed. The river loop now encloses the present-day town centre, which has just three main points of entry by road and a largely unaltered mediaeval street pattern.

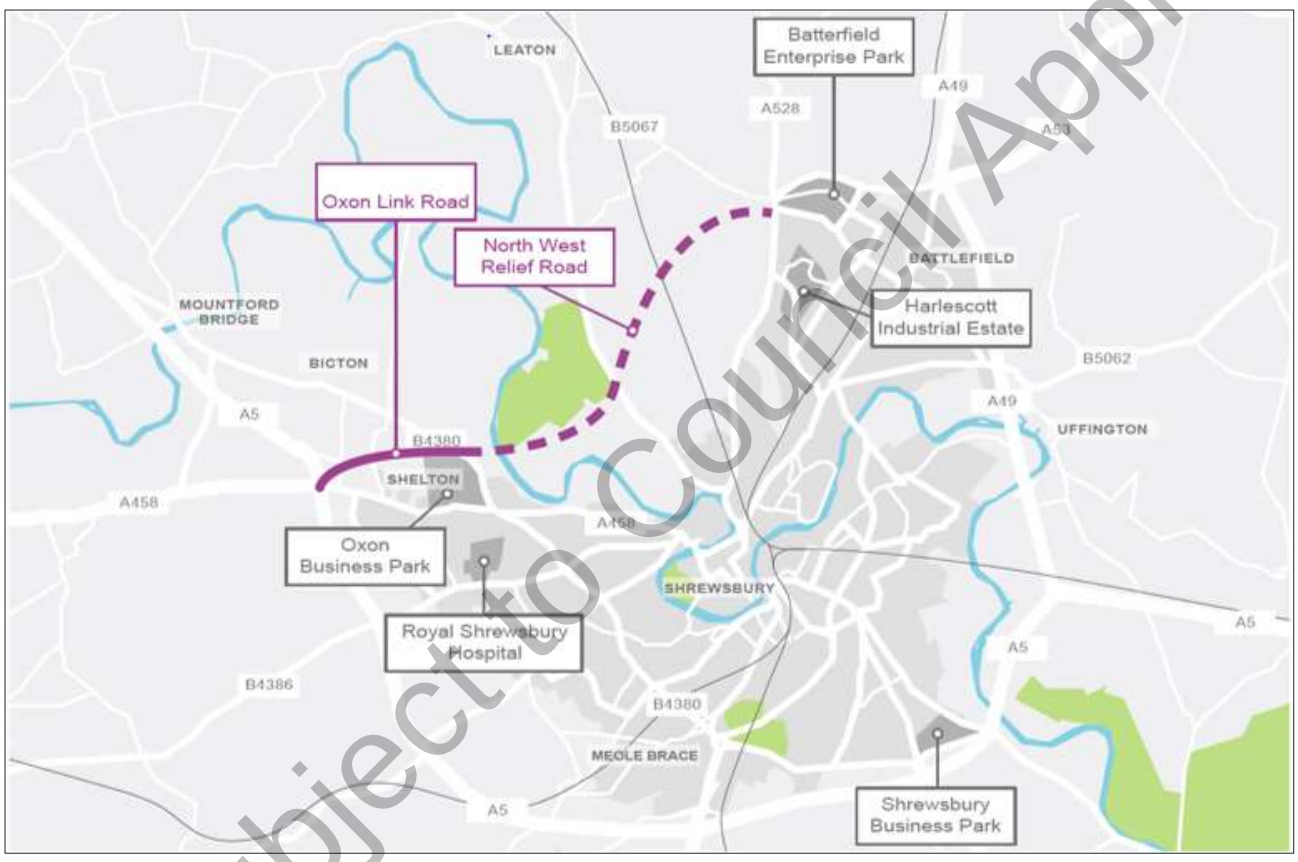
1.2.4. Present day Shrewsbury extends over a much wider area, with suburban development, mainly from the 19th and 20th centuries, extending outward from the river loop. There are out-of-town supermarkets and shopping centres to the north and south. Some traditional industries remain to the north of the town, such as the large Radius Aerospace manufacturing site, and there are newer employment areas at Battlefield to the north and London Road to the south east.

1.2.5. The suburbs of Shrewsbury form a broad crescent from Harlescott in the north to Copthorne and The Mount in the west. Within this crescent lie the main schools, colleges, hospitals, and public and private sector employment areas.

1.2.6. By contrast, the north-west sector of Shrewsbury is generally undeveloped and is mainly comprised of agricultural land. Settlement is sparse, with small, isolated farmsteads and properties scattered through the landscape. The River Severn meanders through this area, with steep wooded valley slopes and extensive floodplains, forming one of the main physical barriers dividing the landscape. The area is crossed by the Shrewsbury to Chester railway line, and by footpaths and other Public Rights of Way (PRoW).

1.2.7. The NWRR scheme is located in the north-west of Shrewsbury, as shown on Figure 1-2.

Figure 1-2 – Proposed NWRR location



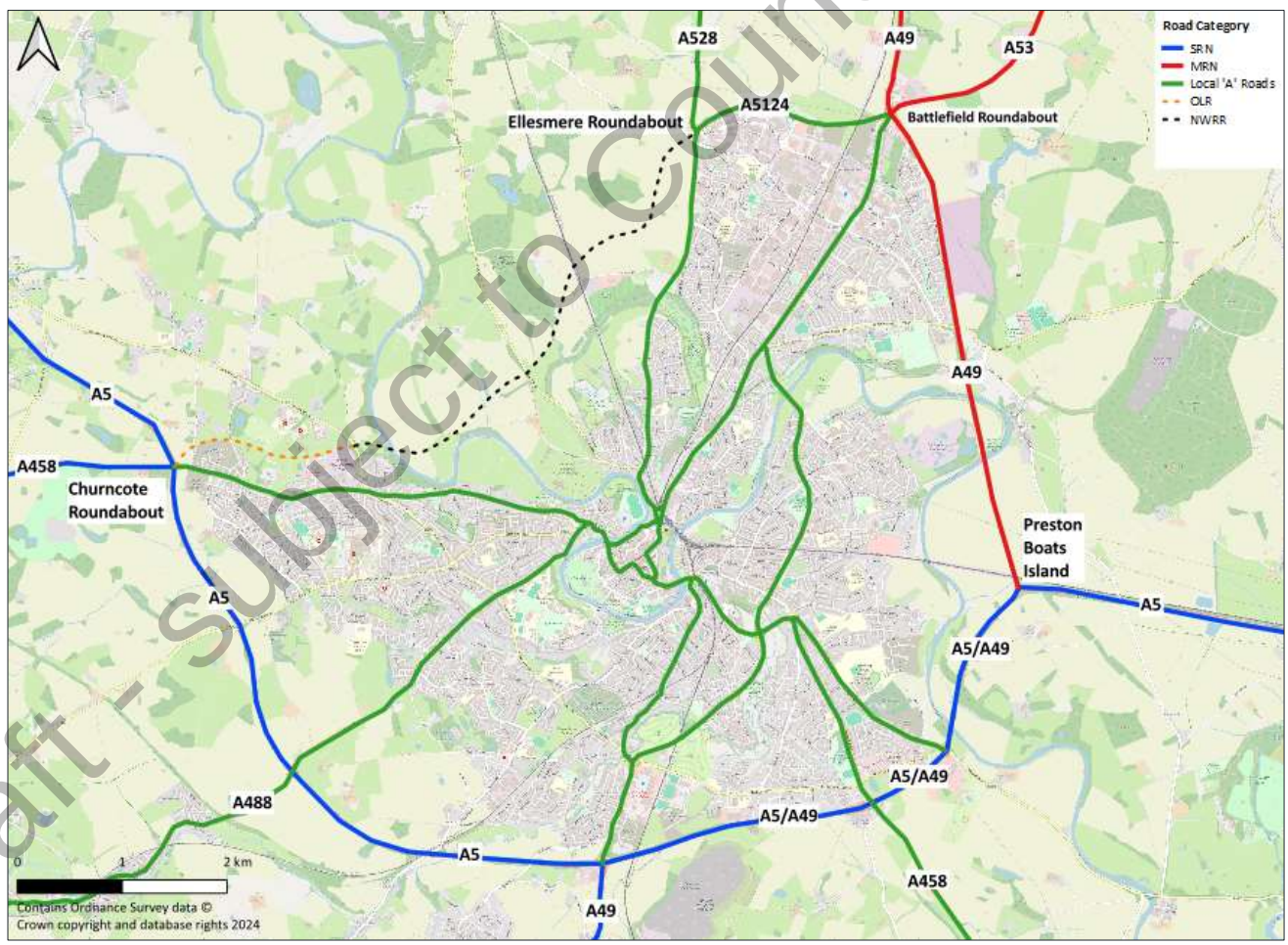
1.2.8. It will comprise the following:

- A 7.3m wide single carriageway all-purpose 4.85km long road with 1.0m margins and a permitted speed limit of 60 mph, located in the north-west of Shrewsbury connecting the eastern end of the proposed Oxon Link Road (OLR) with the western end of the existing A5124 Battlefield Link Road that provides access to the Battlefield Enterprise Park
- The NWRR will include a shared 3m wide footway / cycleway along the length of its southern side, addressing the severance of a number of local roads, footpaths and PRoW
- Construction of a 36.4m long equestrian culvert to divert the existing bridleway just to the east of the B4380 Holyhead Road Roundabout under the NWRR, maintaining connectivity for pedestrians, equestrians, mammals and bats
- A 15.5m wide viaduct, approximately 584m in length, crossing the River Severn and its floodplain
- Two additional flood storage areas will be provided as a result of the works impinging the existing flood plain

- Combined culvert and mammal crossing points at Willow Pool and along the line of both Alkmund Stream and Hencott Stream
- Landscaping, drainage schemes, increased flood storage, planting, and environmental mitigation work including the acquisition of Hencott Pool to enable habitat improvements
- Provision of a new at-grade four arm roundabout located on the B5067 Berwick Road to provide an interface between the NWRR and the B5067 Berwick Road
- A vehicular bridge to carry the NWRR over the Shrewsbury to Chester railway line
- Construction of an overbridge to carry the Marches Way Footpath and Accommodation Track over the NWRR, providing connectivity for a number of public rights of way in the area
- Replacement of the existing at-grade five-arm A528 Ellesmere Road roundabout with two at-grade four-arm roundabouts in a 'dumb-bell' configuration

1.2.9. Figure 1-3 illustrates that together with the A5 and A49 bypasses, the A5124 Battlefield Link Road and the proposed OLR, the NWRR will provide the 'missing link', completing the full ring of the outer bypass of Shrewsbury and providing a new, more direct route between the northern and western parts of Shrewsbury.

Figure 1-3 – NWRR in relation to the existing Shrewsbury road network



1.2.10. Currently, links between the northern and western parts of Shrewsbury are very poor with no direct link. As a result, north-west corridor through traffic has to use one of five main route options involving one of two routes passing through the town centre, using the inner distributor ring road,

using the full length of the existing A5 / A49 outer bypass, or using unsuitable and narrow local roads to the north-west of the town.

1.2.11. With north-west corridor through traffic transferring to the new NWRR, the existing route options will all experience lower flows and congestion levels, and other journeys within and around the town will also be able to transfer to more appropriate routes within the town's road hierarchy.

1.2.12. In addition, with the outer bypass ring complete, all long distance through journeys between the SRN links in the west and the MRN and other local 'A' roads in the north will be able to bypass the town completely and vehicles will have the choice of travelling in either direction around the outer bypass based on their optimal route, helping to smooth flows out during periods of peak demand, reducing congestion levels, improving journey times and enabling the entire transport network to operate more efficiently and reliably.

1.2.13. The NWRR aims to improve the quality of life for people in Shrewsbury through supporting the delivery of the Shrewsbury Big Town Plan[1] and boosting the economic competitiveness of Shrewsbury and Shropshire by providing better connectivity and accessibility for both businesses and communities, complementing the Shrewsbury Moves[2] sustainable transport strategy.

1.2.14. In particular, the transfer of north-west corridor through traffic from routes passing through the town centre to the NWRR will reduce traffic volumes and congestion on both the northern and western approaches to the town centre and on the Station Gyratory and Smithfield Road within the town centre. This in turn will:

- Reduce traffic noise and improve local air quality in areas where people shop, work and live in the town centre and, in particular, within the town's Air Quality Management Area
- Support the delivery of the Shropshire Bus Service Improvement Plan (BSIP) by making bus journeys quicker, more reliable, more commercially viable and more attractive
- Facilitate the potential road space reallocation required to deliver new active mode infrastructure across the town centre, supporting the delivery of Shropshire's Local Cycling and Walking Improvement Plan (LCWIP) and encouraging further modal shift to active modes of travel
- Improve road safety within the town centre
- Increase the attractiveness of Shrewsbury town centre, encouraging further regeneration and inward investment to help Shrewsbury become a better place in which to live, visit and work.

1.2.15. The new river crossing provided as part of the scheme will enhance the resilience and reliability of Shrewsbury's transport network as it will add a flood resistant route to the existing network which is prone to frequent significant flooding events. Not only would the scheme provide a flood resistant route for north-west corridor traffic; by completing the outer bypass it would enable the outer bypass to operate more optimally during times of disruption or planned road maintenance with traffic able to utilise it in either direction to navigate around any blockages within the local road network.

1.2.16. The shared 3m wide footway and cycleway that will be provided adjacent to the southern side of the carriageway will provide a significant new addition to the areas active travel network, opening up

[1] Shrewsbury Big Town Plan, 2018
[2] Shrewsbury Moves, 2024

new journey opportunities and helping to facilitate the increased use of active modes, as well as addressing the severance of a number of local roads, footpaths and PRoW.

1.2.17. The proposed scheme also includes the diversion of the existing Marches Way Footpath and Accommodation Track over the NWRR onto a new overbridge over the carriageway and the diversion of the existing bridleway to the east of the B4380 Holyhead Road Roundabout underneath the new carriageway via an equestrian culvert, maintaining these key active travel links.

Note on the Oxon Link Road:

1.2.18. The proposed OLR involves the construction of a new 7.3m wide single carriageway all-purpose 2.05km long road between Churncote Roundabout and the B4380 Holyhead Road, along with associated infrastructure. It was included in The Marches Local Enterprise Partnership (LEP)[3] £75 million Growth Deal and was regarded by The Marches LEP as a precursor and an enabling project for the NWRR and was awarded £4.2m of Local Growth Deal Funding in 2015.

1.2.19. In July 2018, a detailed planning application was submitted by the Council for the separate proposed OLR scheme (Reference: 18/03166/EIA). However, following a year of standstill pending the DfT announcement of successful Large Local Major (LLM) schemes, on 21 March 2019 the Council received confirmation from the DfT that the NWRR scheme would be entered onto the LLM scheme programme and that DfT would provide a maximum capped funding contribution for the NWRR scheme of up to £54.4 million towards to estimated total scheme cost.

1.2.20. This led to the Council reappraising the relationship between the two schemes and, whilst the OLR application acknowledged the NWRR as a potential future scheme, the DfT's funding allocation for the NWRR offered an opportunity for the two complementary schemes to become more closely aligned.

1.2.21. As a result of the reappraisal, on 30 August 2019, the OLR planning application was formally withdrawn by the Council who had decided to pursue the two previously separate OLR and NWRR schemes as a single project with a combined planning strategy for reasons of economy and speed. Subsequently, on 19 February 2021, the initial detailed planning application for the proposed NWRR scheme (incorporating the OLR) was submitted. Following discussions during the planning application process, a revised detailed planning application was submitted on 26 August 2021 which incorporated some minor changes to the initially proposed scheme, resulting in the final proposed scheme detailed earlier.

1.2.22. The scheme was then subject to very rigorous testing and scrutiny as part an elongated planning process and, in response to requests from statutory consultees including the Environment Agency, Severn Trent Water and Natural England, on 02 February 2023, supplementary environmental

[3] The Marches LEP ceased trading in March 2024, but Herefordshire Council, Monmouthshire County Council, Powys County Council and Shropshire Council have formed the groundbreaking Marches Forward Partnership which has replaced the LEP in tackling cross border interests and boosting investment into the Marches region.

information was submitted to the local planning authority and a further 30-day consultation period commenced on 08 February 2023.

1.2.23. On 31 October 2023, the Council's Northern Planning Committee made a 'Resolution to Approve Planning Permission' for the NWRR, subject to the agreement on the wording of the 63 planning conditions, completion of the required Section 106 agreements from the relevant landowners to deliver off-site mitigation and the compensation strategy. The final wording of the 63 planning conditions was delegated to the Assistant Director of Economy and Place for agreement with statutory consultees and, as such, the wording of the planning conditions was considered and approved at the Council's Northern Planning Committee meeting on 15 February 2024. Work to complete the required Section 106 agreements and discharge the planning conditions is now taking place.

1.2.24. Note that, although the OLR will be delivered at the same time as part of the broader NWRR project, as it is funded separately from the NWRR scheme, it is not included within this FBC or the final proposed NWRR scheme.

1.3 FULL BUSINESS CASE STRUCTURE

1.3.1. The structure of this FBC is as follows:

- Chapter 1 – Introduction
- Chapter 2 – Strategic Dimension
- Chapter 3 – Economic Dimension
- Chapter 4 – Financial Dimension
- Chapter 5 – Commercial Dimension
- Chapter 6 – Management Dimension

2

Strategic Dimension

2 Strategic Dimension

2.1 INTRODUCTION

PURPOSE OF THE STRATEGIC DIMENSION

2.1.1. The Strategic Dimension sets out the case for change and explains why the Shrewsbury North West Relief Road (NWRR) is needed. It demonstrates the extent to which this scheme contributes to place-specific objectives, the DfT's overall business strategy and wider Government ambitions. It makes the case as to why change is necessary through an evidence-based assessment, using balanced information, so that decision-makers can make informed decisions on investments.

2.1.2. The Strategic Dimension describes the problems the scheme will address and sets out the scheme's strategic objectives. It describes how the proposed scheme has been developed based on an assessment of a range of options and in consultation with stakeholders. It demonstrates that the proposed scheme has not been developed in isolation but has been considered as part of a wider strategy for Shrewsbury and its surrounding area, in response to present and future challenges, and with clear aims and objectives.

2.1.3. It explains why the scheme is a key element of the Council's strategy to support growth and development, as it will enable the local road network to operate more efficiently by reducing congestion, improving the predictability of journey times, and providing more capacity for growth.

2.1.4. Investment in this scheme will help to make Shrewsbury a better place in which to live and work, opening up opportunities for active travel in Shrewsbury through the redirecting of traffic away from the town centre. This will allow for the reallocation of road space from highway to cycle lanes, increased footway widths and other similar sustainable travel infrastructure.

2.1.5. The Strategic Dimension is structured in line with Government guidance and covers:

- The local demographic and socio-economic context
- The policy context and business strategy for the scheme
- Existing problems
- Future problems - the impact of not changing
- Business needs and service gaps
- The spending objectives and outcomes of the scheme
- Measures for success
- Strategic benefits
- Interdependencies
- Stakeholders and consultation
- The options considered
- The scope of the proposed scheme
- Constraints
- The expected impacts of the proposed scheme and the achievement of objectives
- The strategic alignment of the scheme under future uncertainty

2.2 LOCAL DEMOGRAPHIC AND SOCIO-ECONOMIC CONTEXT

2.2.1. This section sets out the existing conditions in relation to the local demographic and socio-economic context.

DEMOGRAPHIC CONTEXT

Population growth

2.2.2. As of 2021, when comparing the 30 local authority areas that make up the West Midlands, Shropshire was the second least densely populated. The county town of Shrewsbury occupies a total area of 23km² and, as measured at the last two Censuses, the population of Shrewsbury increased 7.0% from 71,000 in 2011 to 76,000 in 2021.

2.2.3. This 7.0% population growth in Shrewsbury is higher than the 5.7% population growth (306,100 to 323,600) experienced across Shropshire as a whole over the same ten-year period. It is also higher than the 6.2% growth experienced across the West Midlands and the 6.6% growth experienced across England.

2.2.4. Some nearby areas such as Telford and Wrekin and Cheshire West and Chester have seen larger population increases of around 11.4% and 8.4%, respectively, although other nearby areas such as Herefordshire saw a much smaller 2.0% increase over the same ten year period.

2.2.5. Shropshire also has an ageing population with the Council stating that a key driver of change in the local housing market over the coming years is expected to be the growth in the population of older persons[4].

2.2.6. Table 2-1 shows the change in Census population by age group locally, regionally and nationally.

Table 2-1 – Population change (%) between the 2011 and 2021 Census

Population Change	Shropshire	West Midlands	England
Population overall	+5.7%	+6.2%	+6.6%
65 years and over	+29.5%	+17.9%	+20.1%
15 to 64 years	+0.1%	+3.4%	+3.6%
15 years and under	-2.5%	+4.8%	+5.0%

Source: ONS, 2021

2.2.7. Between the 2011 and 2021 Census, Shropshire experienced an increase of 29.5% in people aged 65 years and over, well above the regional average for the West Midlands of 17.9%.and the national average for England of 20.1%.

[4] Shropshire Council Housing Strategy (2020-2025)

2.2.8. The county also experienced a decrease of 2.5% in its 15 years and under population which contrasted against increases of 4.8% and 5.0% regionally and nationally respectively.

2.2.9. Based on the ONS 2018 sub-national population projections, the total population of Shropshire is forecast to rise to 381,400 (19.1%) to 2043. This growth compares with the rise forecast in the national population of 10.3%.

SOCIO-ECONOMIC CONTEXT

2.2.10. A number of socio-economic metrics, as outlined in Table 2-2, have been used to provide a place-based indication of the need to reduce inequalities within the study area. Socio-economic data for Shropshire was compared with other localities within the region and nationally.

Table 2-2 – Place-based impacts: Socio-economic measures

Socio-Economic Measure	Shropshire	Herefordshire	Telford and Wrekin	Regional Average	National Average
Gross weekly earnings	£557 🟡	£520 🔴	£545 🟡	£551	£587
Unemployment rate	3.1% 🟡	2.6% 🟢	3.8% 🟡	4.8%	3.9%
Employment rate	81% 🟡	83% 🟢	77% 🟡	75%	76%
Proportion of population educated to degree level or equivalent	40% 🟡	36% 🟡	28% 🔴	34%	40%
Deprivation ranking out of 317 LADs	174 🟡	152 🟡	86 🔴		

Source: ONS, 2020 (used as part of Levelling Up Trial)

2.2.11. These metrics provide a comparative overview of the socio-economic profile of the targeted area. This provides an indication as to whether the proposed investment is focused on an area which is a priority when tacking inequalities. A red-amber-green (RAG) rating has been used to categorise socio-economic measures, based on a decile ranking, described as follows:

- 🔴 Deciles 1 to 3: area experiencing high levels of disadvantage (1st decile is the most disadvantaged)
- 🟡 Deciles 4 to 7: area experiencing medium levels of disadvantage
- 🟢 Deciles 8 to 10: area experiencing low levels of disadvantage (10th decile is the least disadvantaged)

2.2.12. The table shows that Shropshire experiences ‘medium’ levels of disadvantage in each socio-economic category, performing better than the regional average across all metrics. However, Shropshire has lower gross weekly earnings (a productivity measure) than the national average and its unemployment rate is lower than the national average (3.1% compared to 3.9%). The proportion of the population educated to degree level or equivalent is the same as the national average.

2.2.13. The delivery of the NWRR will complete the outer ring road around the town and provide better connectivity between outlying market towns and settlements, by reducing journey times between them. It will also reduce flows and congestion on the A5 and A49 sections of the Shrewsbury outer bypass, boosting their available capacity, reliability and resilience, and enabling these sections to better serve the strategic longer distance traffic they were intended to serve, thereby creating a more efficient regional road network, enhancing strategic connectivity.

2.2.14. By providing a quick direct link between the north and west of the town, the NWRR will reduce traffic volumes within the town centre, enhancing the attractiveness of public transport through quicker and more reliable journey times, and facilitate the delivery of additional active travel infrastructure.

2.2.15. The new link will also help to unlock planned employment sites, including the Shrewsbury West Sustainable Urban Extension (SUE), enabling Shrewsbury to meet demand for office and other commercial space, creating higher wage, higher skilled jobs and increasing gross value added (GVA). This will support long term investor confidence, positioning Shrewsbury as a high-quality place for people to live, and for businesses to locate and grow.

Skills and educational attainment

2.2.16. The Shropshire labour force is comparatively well skilled in relation to the West Midlands as a whole, with a higher proportion holding at least an NVQ level 3 qualification (58.4% compared with 51.9%) and half as many holding no qualifications at all (5.4% compared with 10.3%). However, despite high and rising qualification levels in Shropshire, skills are not always aligned to the needs of businesses. This is reflected in skills shortage data, which suggests 13% of Shropshire businesses either have skills gaps within their existing workforce, skills shortage vacancies, or both[5]. Shropshire's Economic Growth Strategy aspires to grow and diversify Shropshire's future labour force to support local economic growth.

2.2.17. The number of residents aged 16-25 not in education, employment or training (NEET) is higher in Shropshire in comparison to that across England. In 2019 Shropshire ranked 184th most deprived in terms of education across a total of 317 lower tier authorities in England, with a score of 17.85.

Local economy and employment

2.2.18. Shropshire is an affluent county, generally with lower levels of deprivation and unemployment. Key employment areas include manufacturing, health, education and retail. The local economy is under-represented in the private sector service sector including professional, scientific and technical, and finance and insurance services.

2.2.19. Shropshire primarily supports a small-business economy. Self-employment is high and significant numbers of people work from home or run businesses from home. Comparatively there are few large employers, with employment mainly concentrated in Shrewsbury, and the main market towns of Oswestry, Market Drayton, Whitchurch, Bridgnorth and Ludlow.

2.2.20. Whilst unemployment is low in Shrewsbury and Shropshire, an overrepresentation of low wage, low skilled jobs and low productivity act as a brake to economic growth[6]. GVA per hour worked is an indicator of productivity, and the productivity gap between Shropshire and the national average is demonstrated by ONS data. In Shropshire, GVA of £26.60 per hour worked was generated in 2019 – this is £9.20 (25.7%) less than in the national average and £5.20 (16.4%) less than in the West

[5] Employer Skills Survey, 2017
[6] LUF 2 Bid, 2023

Midlands. Shrewsbury and Oswestry are where GVA generation is primarily concentrated in Shropshire, which reflects the higher level of employment in these areas[7].

2.2.21. Furthermore, Shrewsbury town centre has an over reliance on retail, limited employment sites and a lack of opportunities for commercial office space. There is a lack of availability of suitable development land within the town centre with a river loop that is constraining economic growth. The extensive mediaeval street network in Shrewsbury also constrains connectivity, leading to significant perceived and actual impediments for both commercial, and residential, development interest in the area.

2.2.22. The Economic Growth Strategy for Shropshire outlines the importance of encouraging appropriately located and high-quality new employment development that will contribute to making Shropshire more productive, prosperous and sustainable. The delivery of the NWRR will improve connectivity between the north and west of the town and will enhance the resilience of the local transport network as a whole which will help to support local ambitions for economic growth and development, helping to attract a wider pool of talent and employees by encouraging new employers and employment opportunities to the area and helping existing employers thrive.

2.2.23. The reduction of through traffic in the centre of Shrewsbury as a result of the scheme will create a more conducive environment to attract new business and inward investment. In addition, it will help boost tourism to the town and surrounding areas, named by the Association of British Travel Agents in 2024 as one of the top ten global travel destinations.

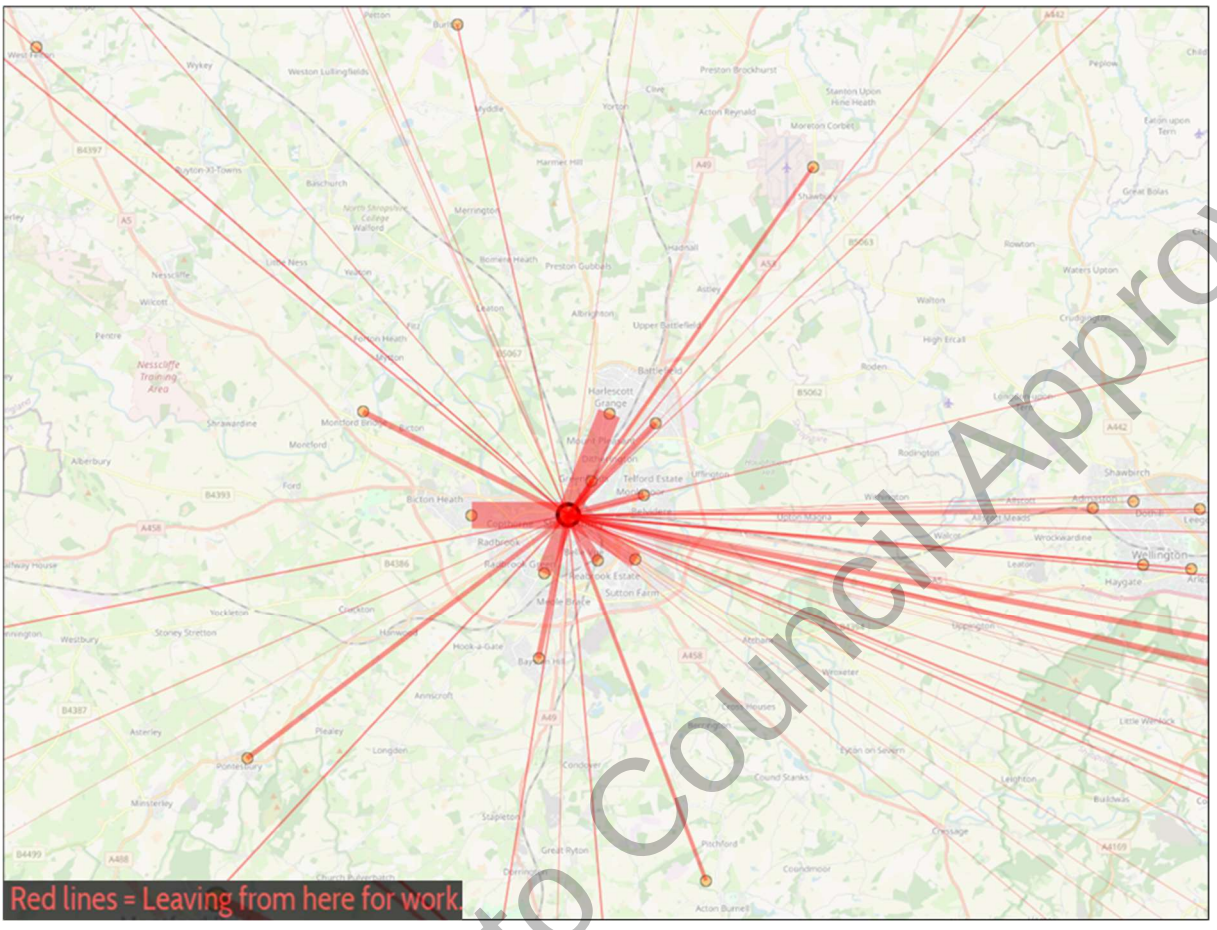
Access to employment areas

2.2.24. Shropshire has more residents than it does jobs, and consequently out commuting is significant within the county, as Shropshire residents take advantage of opportunities at employment attractors in other parts of the West Midland's region. The tendency to out commute is more prevalent among higher earners[8]; the higher qualified a worker in Shropshire, the more likely that the individual is to travel longer distances into work. For example, 16.4% of Shropshire's working residents with at least NVQ level 4 qualifications travel 30km or further to work, compared with an average of 10.8% across all workers in Shropshire.

2.2.25. Despite the wider county trend of out commuting from Shropshire, Shrewsbury is the principal employment centre in Shropshire and is the main location of a number of businesses and jobs in the central part of the county. ONS 2011 Census data, presented in Figure 2-1, shows that a number of Shrewsbury residents commute within the outer bypass (the A5 and A49) and there are a number of key employment hubs including Shrewsbury town centre itself inside the river Severn loop, as well as a number of sizeable business parks and industrial estates, including the Oxon Business Park and Battlefield Enterprise Park within the local area.

[7] Evidence to Support the Economic Growth Strategy 2022-2027, Shropshire Council
[8] Shropshire Economic Profile, 2017

Figure 2-1 – Shrewsbury commuting patterns



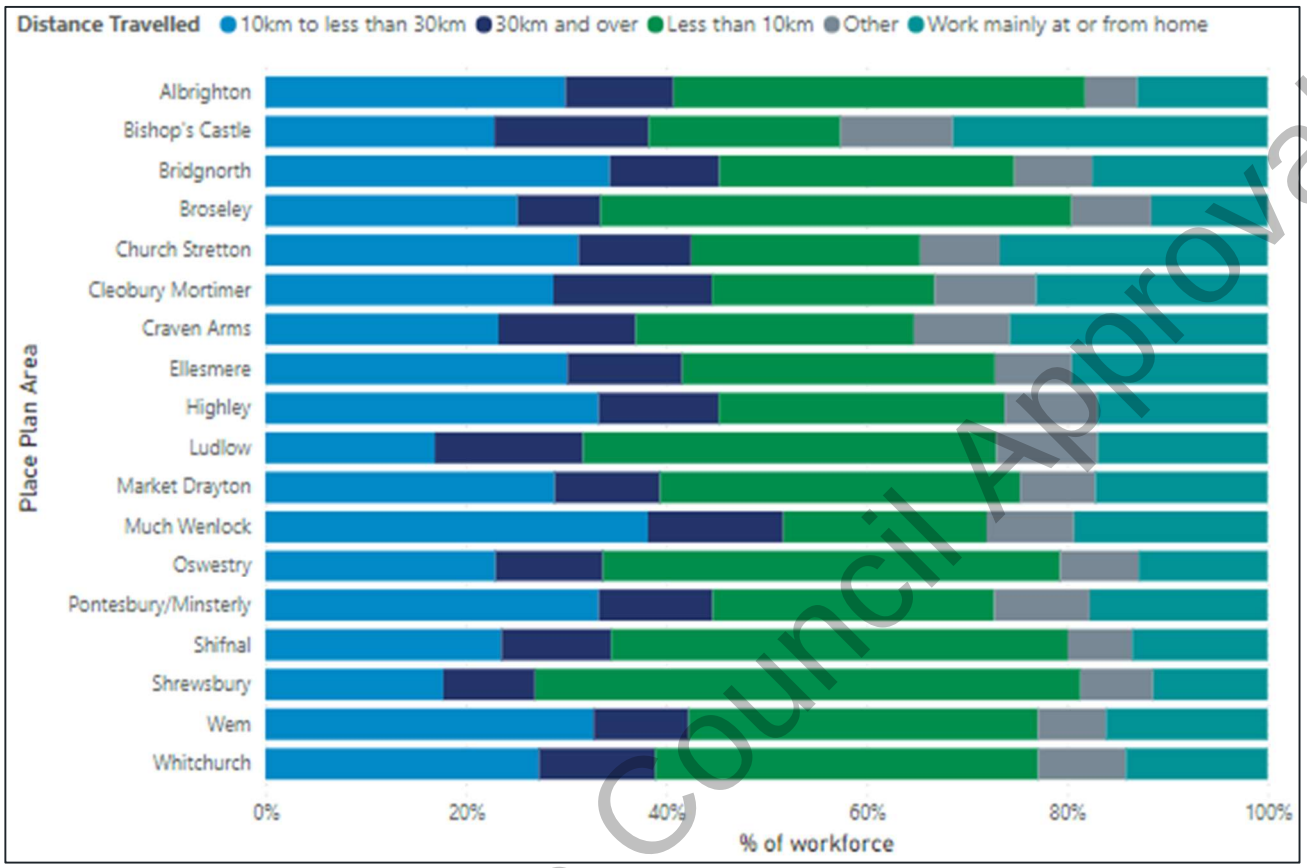
Source: ONS Census 2011

2.2.26. Those living in central Shropshire, especially those in Shrewsbury, have much easier access to employment than their more rural counterparts. Access to larger employment hubs is particularly challenging in the south west of the county.

2.2.27. 2011 Census data, as presented in Figure 2-2, shows the distance travelled to work by % of the workforce. Shrewsbury has the highest proportion of the workforce travelling less than 10km to their workplace (54.42%). Generally, a higher proportion of people living in rural areas work mainly at, or from home. This reflects the higher proportions of self-employment in these areas[9].

[9] Shropshire Council

Figure 2-2 – Percentage of workforce by place plan area and distance travelled



Source: ONS Census 2011

2.2.28. The Economic Growth Strategy for Shropshire has ambitions for stimulating strong economic growth, focusing on increasing availability of jobs, boosting local GVA and ensuring an adequate supply of housing to support this economic growth. As such, the improved connectivity and journey time reliability provided by the NWRR will improve accessibility to training, education and housing, as well as opportunities to engage with all aspects of the economy, boosting productivity and local economic growth.

Car or Van Ownership Levels

2.2.29. Car or van ownership in Shropshire is relatively high in Shropshire, as shown in Table 2-3, with over 86% of households owning at least one car or van, which is almost 10% higher than that for the West Midlands or for England. This indicates a relatively high degree of vehicle dependence.

Table 2-3 – Car ownership

Number of Cars or Vans in Household	**Shropshire**	**West Midlands**	**England**
Zero	13.8%	21.5%	23.5%
One	40.1%	40.6%	41.3%
More than one	46.1%	37.9%	35.2%

Source: ONS Census 2021

Travel to work mode split

2.2.30. The total number of Shropshire people in employment increased marginally between 2011 and 2021. Table 2-4 shows the percentage change in method of travel to work between 2011 and 2021. Given the impact of the COVID-19 pandemic, the 2021 data represents travel behaviour at that time and is a trend that is still evolving, but it does include greater emphasis on working from home.

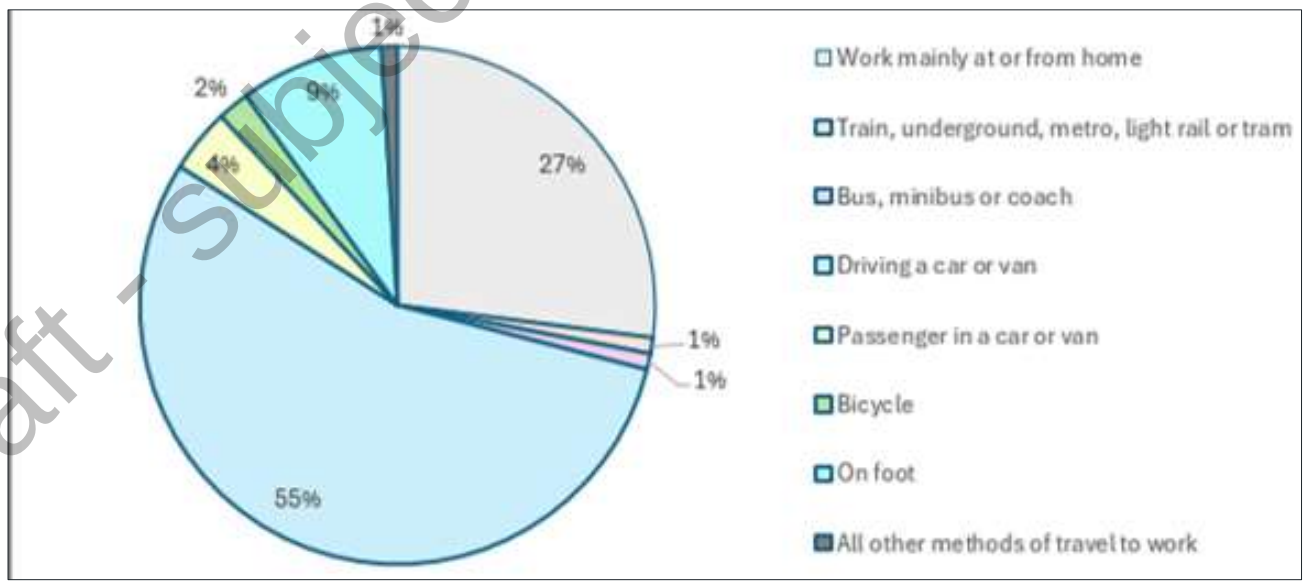
Table 2-4 – Method of travel to work by number of employees

Method of Travel to Work	2011	2021	% Change
Work mainly at or from home	23,567	41,525	+76.2%
Train, underground, metro, light rail or tram	1,852	797	-57.0%
Bus, minibus or coach	2,932	1,110	-62.1%
Driving a car or van	92,722	83,469	-10.0%
Passenger in a car or van	7,655	6,421	-16.1%
Bicycle	4,339	2,926	-32.6%
On foot	17,077	13,662	-20.0%
All other methods of travel to work	2,165	2,512	+16.0%
Total	152,309	152,424	+0.1%

Source: Method of Travel to Work - Summary Bulletin for Shropshire, 2023

2.2.31. Figure 2-3 shows the mode split of travel into work in Shropshire, based on Census 2021 data.

Figure 2-3 – Method of travel to work by number of employees



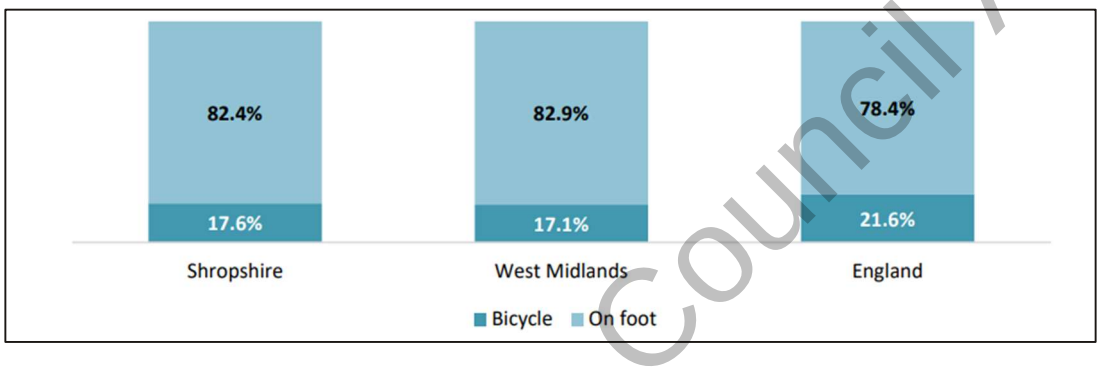
Source: ONS Census 2021

2.2.32. Although the proportion of people working primarily from home was 76.2% higher in Shropshire in 2021 than it had been in 2011, growth is significantly lower than in either the West Midlands (+169.9%) or England (+216.2%).This is primarily due to the key employment sectors in Shropshire being manufacturing, health care and retail, making it more challenging to work at home.

2.2.33. More people travel to work by car or van than by any other form of transport in Shropshire, with 59.0% of those in employment choosing this method in 2021 and 65.9% in 2011. Use of public transport is exceptionally low in Shropshire – the usage rate ranks Shropshire 169th out of 174 upper tier local authorities.

2.2.34. Approximately four times as many Shropshire workers walk to work than cycle, both in 2011 and 2021. The split between walking and cycling is similar in the West Midlands, with cycling taking a slightly larger share across England, as is shown in Figure 2-4.

Figure 2-4 – Mode share: walking and cycling



Source: Census 2021 Travel to Work Bulletin, Shropshire Council, 2023

2.2.35. Walking or cycling to work is often not a viable option for residents in rural Shropshire, with less than 5% of people in some rural areas travelling actively to work. In the main towns including Shrewsbury, Oswestry, Ludlow and Bridgnorth, walking and cycling is a more common option.

2.2.36. By completing the missing link in Shrewsbury's road network, the NWRR will enable those Shropshire residents who live in the outlying market towns and settlements to access employment areas in all parts of Shrewsbury more easily, more directly and more reliably. This is also true for business users wishing to travel between employment locations within Shrewsbury, such as the Oxon Business Park and Battlefield Enterprise Park.

2.2.37. For those travelling to work in Shrewsbury town centre by bus, the completion of the NWRR will reduce traffic volumes on both the northern and western approaches, around the Station Gyratory, and along the Smithfield Road as north-west corridor through traffic will transfer from these routes to use the shorter and more direct NWRR. This will significantly improve the journey time duration and reliability of buses utilising these routes, enhancing the attractiveness and efficiency of the bus network as a whole and making buses more commercially viable as they will spend less time in traffic.

Housing

2.2.38. As stated in the Council's Draft Housing Strategy (2020-2025), around 39% of Shropshire's population live in villages, hamlets and dwellings dispersed throughout the countryside. The rural population comprises a high proportion of older people for example, 58% of residents aged 80 years and over live in rural areas.

2.2.39. The remainder of the county's population live in one of the 17 market towns and key centres. Only Ludlow and Bridgnorth in the south, Oswestry, Whitchurch and Market Drayton in the north, and Shrewsbury, the central county town, have populations in excess of 10,000 people.

2.2.40. As outlined in the emerging Local Plan, around 30,800 new dwellings will be delivered across Shropshire between 2016 and 2038, equating to around 1,400 dwellings per year. Shrewsbury is the strategic centre of Shropshire and the primary focus for new development in the county. Recognising this role and building upon the priority established in the adopted Shrewsbury Big Town Plan to achieve balanced growth, around 8,625 dwellings will be delivered over the same period.

2.2.41. Housing affordability is calculated as a ratio comparing median local house prices and median household income. Table 2-5 shows a comparison of housing affordability and how this has changed over the ten year period from 2013 to 2023 (year ending in September).

Table 2-5 – Housing affordability

Place Plan Area	Median House Price	Median Gross Household Income	Affordability Ratio
Year ending in September 2013			
Shropshire	£171,000	£23,692	7.22
West Midlands	£148,000	£25,328	5.84
England	£185,000	£27,372	6.76
Year ending in September 2023			
Shropshire	£265,000	£31,363	8.45
West Midlands	£237,000	£33,003	7.18
England	£290,000	£35,106	8.26

Source: ONS, 2024

2.2.42. Shropshire's housing affordability ratio has increased from 7.22:1 in 2013 to 8.45:1 in 2023, indicating that houses are becoming less affordable in Shropshire, emphasising the need for an adequate supply of housing, and affordable homes, to meet the needs and aspirations of Shropshire's population and to support local economic growth. Sufficient housing of the right type and in the right location is vital to attract and retain a labour market that can drive the county's economic prosperity.

2.2.43. Shropshire's housing affordability ratio was also higher than the national average and significantly higher than the West Midlands average in both 2013 and 2023, amplifying the above issues.

2.2.44. It is recognised that investment in enhanced transport links and infrastructure is essential to ease the additional pressures and congestion on Shropshire's transport network and unlock future economic and housing growth. The NWRR will enhance access to the Shrewsbury West SUE, assisting in the facilitation of approximately 750 new homes and, by extending the OLR across the River Severn, it will create a more direct link between residential development in the Shrewsbury West SUE and the employment sites to the north of Shrewsbury, such as the Battlefield Enterprise Park.

2.2.45. In addition, delivery of a comprehensive sustainable residential development of 450 dwellings, proposed on land west of Ellesmere Road, cannot come forward without construction of the NWRR.

Deprivation

2.2.46. The Indices of Multiple Deprivation (IMD) measures the relative levels of deprivation in small areas or neighbourhoods, known as Lower-layer Super Output Areas (LSOAs), in England. It is intended to consider a wide range of an individual's living conditions to broadly define deprivation. The IMD is comprised of seven weighted (as shown in brackets) domains of deprivation:

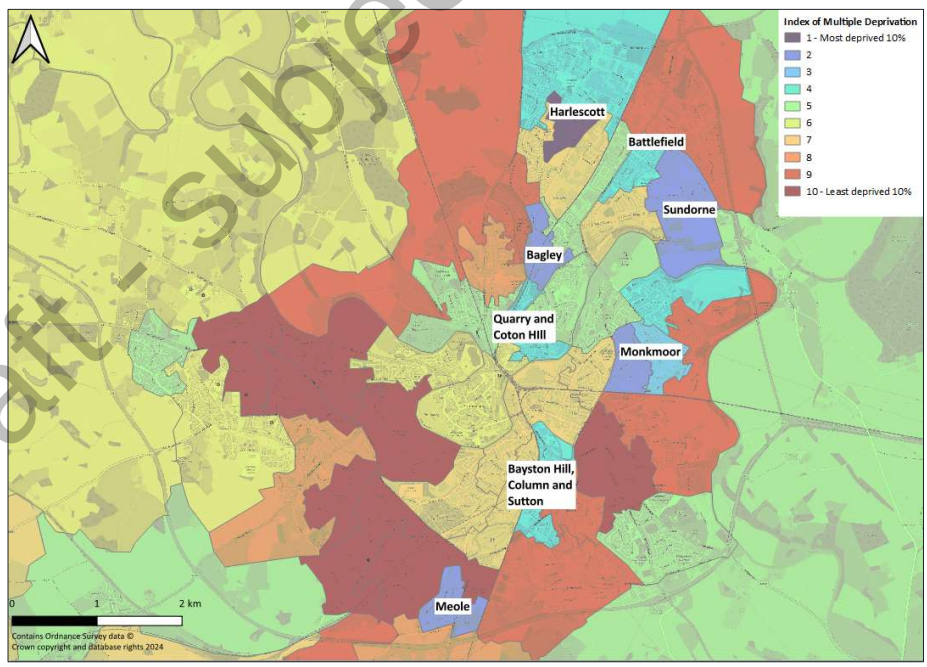
- Income (22.5%)
- Employment (22.5%)
- Health deprivation and disability (13.5%)
- Education, skills and training (13.5%)
- Crime (9.3%)
- Barriers to housing and services (9.3%)
- Living environment (9.3%)

2.2.47. When combined, this gives an overall measure of deprivation experienced by people living in an area. In 2019, Shropshire was ranked the 174th most deprived local authority (a score of 17.15) out of 317 lower tier authorities (1st being the most deprived). This represented a slight increase in overall deprivation compared with 2015 when Shropshire was ranked 185th most deprived out of 326 local authorities, with a score of 16.68.

2.2.48. Harlescott to the north is within the 10% most deprived areas nationally and parts of Sundorne and Bagley to the north, Monkmoor to the east and Meole to the south of the town centre are all in the 20% most deprived areas. In contrast, many areas to the west and south of the Town Centre, such as parts of Copthorne, Porthill and Radbrook fall within the least 10% nationally deprived areas.

2.2.49. Figure 2-5 shows levels of overall deprivation vary considerably across Shrewsbury.

Figure 2-5 – Index of Multiple Deprivation (2019)



2.2.50. The NWRR scheme provides a new shorter and more direct route for north-west corridor through traffic and, as this traffic transfers to the NWRR, existing routes passing through and around the town centre, will all experience reduced traffic volumes and congestion levels. This, in turn, will enable other journeys within and around the town to transfer to more appropriate routes within the town's road hierarchy, resulting in Shrewsbury's transport network operating more efficiently and reliably, improving social and economic mobility, as well as contributing to an increase in accessible opportunities for rural communities, helping to reduce local and regional inequalities.

2.2.51. The improved network efficiency and reliability will also lead to more reliable journey times for those people in these deprived areas who depend on the local bus services to access employment and training opportunities.

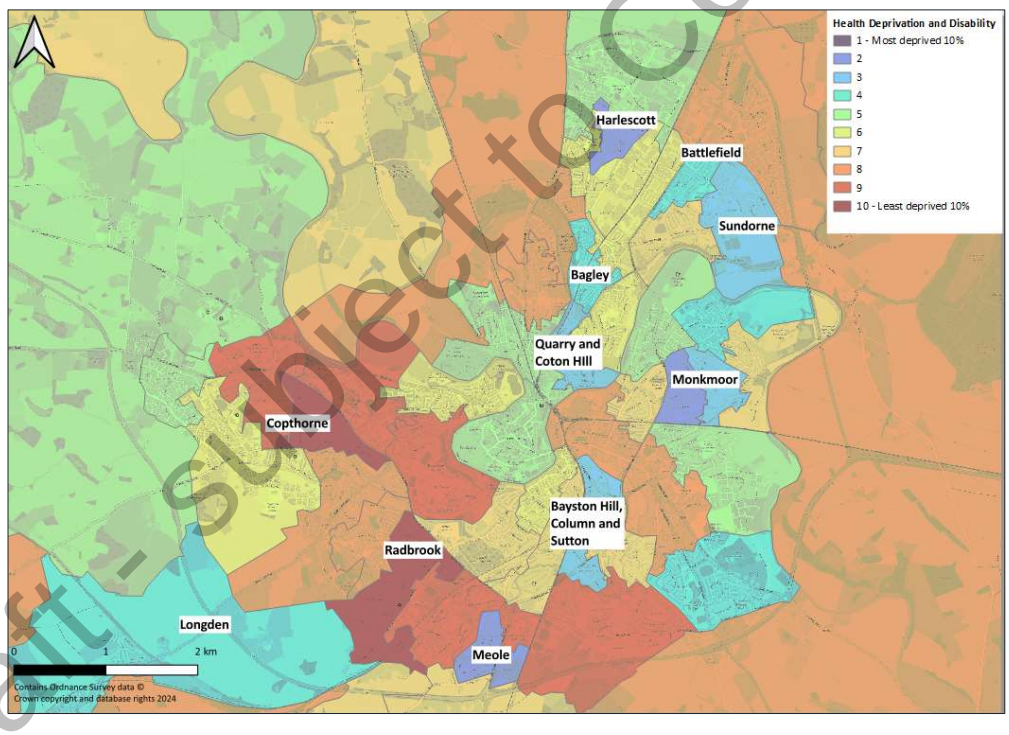
Health deprivation

2.2.52. Life expectancy is 5.4 years lower for men and 2.1 years lower for women in the most deprived areas of Shropshire compared to the least deprived areas, with 64.6% of adults in Shropshire being classed as overweight or obese[10].

2.2.53. The health deprivation and disability domain of the IMD measures the risk of premature death and poor quality of life due to physical or mental health challenges.

2.2.54. Figure 2-6 shows the levels of health deprivation and disability across Shrewsbury.

Figure 2-6 – Health, deprivation and disability- IMD domain (2019)



[10] https://www.shropshire.gov.uk/media/24594/hwbb-strategy-2022-2027.pdf

2.2.55. The levels of health deprivation and disability largely mirror those observed for overall deprivation, with residents in parts of Harlescott, Bagley, Monkmoor and Meole all lying in the 20% most health deprived areas nationally and, as such, are at risk of premature death and poor quality of life due to physical or mental health challenges. As with overall deprivation, areas to the west and south of the Town Centre, such as parts of Copthorne and Radbrook fall within the least 10% health deprived areas nationally.

2.2.56. Understanding deprivation patterns enables an understanding of the potential transport needs and requirements in an area. For example, residents in areas such as Harlescott, Battlefield, Sundorne and Bagley will benefit from improved, reliable connectivity to local health services as the NWRR will reduce traffic volumes and congestion along the key north-west corridor through the town centre, enabling quicker and more reliable journeys between these three areas to the north of Shrewsbury and the Royal Shrewsbury Hospital to the west of Shrewsbury.

2.2.57. The emerging Shropshire Local Plan[11] states the importance of new developments in supporting active and healthy lifestyles while ensuring individual and community wellbeing. The Plan highlights the need to promote safe and well-lit high-quality walking and cycling routes, cycle parking and other appropriate facilities to enable and promote active and healthy lifestyles.

2.2.58. The NWRR will support these Local Plan objectives as it will add to the existing active travel network by delivering a 3m wide combined footway and cycleway along the length of the scheme. This will provide additional opportunities for cycling and walking between the north and west of Shrewsbury, where there is currently a gap in cycling and walking provision, with the only available routes being via congested predominantly on-road routes through the town centre. Access will also be provided and maintained to existing PRoW along the route of the scheme, with a new circular route created, further enhancing active travel links in the area.

2.2.59. In addition, the reduction in north-west corridor traffic passing through the town centre as a result of the scheme will facilitate the potential delivery of additional active travel schemes within the town centre, enhancing the active travel network further.

2.2.60. These new and enhanced active mode facilities are likely to encourage greater uptake of outdoor exercise boosting local health and well-being.

Barriers to housing and services

2.2.61. Shropshire was ranked the 68th most deprived in terms of barriers to housing and services, with this level of deprivation being more prevalent in the more rural areas of Shropshire. With over half of the population living in rural Shropshire, it is vital that rural areas are well connected with economic centres and urban areas, to enable access to jobs and vital services such as healthcare and education. A significant influence over this ranking is geographical barriers, which focuses on the travelling distances by road from selected facilities and services. When considering this index of deprivation, sixty-five LSOAs in Shropshire are ranked within the top 10% most deprived nationally.

[11] Pre-Submission Draft of the Shropshire Local Plan 2016 to 2038, Shropshire Council 2020

2.2.62. The NWRR will address the current very poor connectivity between the north and the west of Shrewsbury for all modes of transport. In addition, routes passing through and around the town centre currently used by north-west corridor through traffic will all experience reduced traffic volumes and congestion levels as this through traffic transfers to use the scheme.

2.2.63. This, in turn, will enable other journeys within and around the town to transfer to more appropriate routes within the town's road hierarchy, resulting in Shrewsbury's transport network operating more efficiently and reliably, improving accessibility for rural communities, helping to reduce local and regional inequalities.

2.3 POLICY CONTEXT AND BUSINESS STRATEGY

OVERVIEW

2.3.1. This section describes the strategic aims and responsibilities of the organisations promoting the scheme and scheme alignment with these business strategies. It then shows how the scheme relates to the government's objectives for the LLM and the criteria for funding.

2.3.2. A Red / Amber / Green (RAG) assessment is used to demonstrate how the NWRR will contribute to strategic objectives using the following classifications:

- **Green** indicates that the scheme proposals are well-aligned
- **Amber** suggests alignment is less direct but still complimentary and
- **Red** demonstrates a potential conflict of aims or priorities

2.3.3. Finally, this section reviews the relevant legislation, policy, plans and strategies at a national, regional and local level, to identify the key themes and priorities.

AIMS AND RESPONSIBILITIES OF ORGANISATIONS PROMOTING THE SCHEME

Shropshire Council

2.3.4. The Shropshire Plan 2022 - 2025, adopted by the Council in 2022, aims to deliver long lasting success across Shropshire. It highlights the inter-dependencies of the health of local people, the economy, and the environment. The plan aims to incorporate local thinking to deliver long lasting success, and its four key priorities are:

- **Healthy people** - tackling inequality, promoting active lifestyles and wellbeing alongside the provision of services to support vulnerable families within the community
- **Healthy economy** - the creation of a prosperous society with access to education and job opportunities. The plan aims to deliver connectivity and infrastructure with an appropriate mix of housing that is well located
- **Healthy environment** - enabling safe, sustainable, diverse and inclusive communities whilst protecting and enhancing the natural and historic environment, allowing for the delivery of the Council's Corporate Climate Change Strategy and Action Plan
- **Healthy organisations -** the promotion of a transparent Council that utilises resources effectively and integrates local community voices. The plan also highlights the need to develop community resilience to shocks and change

2.3.5. Details of how the scheme will contribute to the Shropshire Plan are summarised in Table 2-6.

Table 2-6 – Contribution of the NWRR to the Shropshire Plan

Shropshire Plan Priorities	Contribution of NWRR	RAG
Healthy People	The NWRR will ■ Improve network efficiency, accessibility and connectivity across Shrewsbury and the wider region, helping to tackle inequalities ■ Reduce north-west corridor traffic passing through Shrewsbury town centre enabling road space to be reallocated to active modes ■ Deliver a 3m wide shared footway / cycleway along the length of the southern side of the scheme, promoting active lifestyles by adding to the existing active mode network and opening up new active mode journey possibilities ■ Reduce traffic congestion, particularly within Shrewsbury town centre, which will reduce noise levels, and the health impacts associated with poor air quality	Green
Healthy Economy	The NWRR will: ■ Facilitate the delivery of approximately 750 new homes and 2,885 jobs included in Shrewsbury West SUE Masterplan and, by extending the OLR across the River Severn, will create a more direct link between residential development in the Shrewsbury West SUE and the employment sites to the north of Shrewsbury, such as the Battlefield Enterprise Park ■ Improve connectivity and journey time reliability which will improve accessibility to training, education and housing, as well as opportunities to engage with all aspects of the economy, boosting productivity and local economic growth ■ Reduce traffic flows in the town centre, improving accessibility to and from the main shopping and tourist areas, speeding up journey times of buses and reducing the potential for conflicts between vehicular traffic and active mode users on the narrow pavements	Green
Healthy Environment	The NWRR will: ■ Deliver an additional river crossing between the northern and western parts of Shrewsbury which will reduce congestion and noise and improve air quality in the town centre, including in the vicinity of some of its listed buildings, scheduled monuments and Conservation Area, helping to protect its natural, built and historic environment ■ Include landscaping, drainage schemes, increased flood storage, planting, and environmental mitigation work including the acquisition of Hencott Pool to enable habitat improvements ■ Reduce traffic volumes using town centre roads not designed to modern standards which will help to reduce the number of injury accidents within Shrewsbury, making the town a safer place to live, work and visit ■ Reduce traffic volumes allowing for road space reallocation in the town centre for buses and active travel and this, coupled with the active travel components of the scheme itself, will encourage increased modal shift to sustainable modes, helping to improve air quality	Green
Healthy Organisation	■ As the project has progressed, key milestones have been shared with stakeholders clearly and transparently via various communication channels and through multiple consultations, with feedback taken on board where possible. The Council will continue this approach and build on the relationships that have been developed with local businesses, residents and other interested parties during the delivery phase (this is also a specific requirement under the Main Contractor scope)	Green

2.3.6. Shropshire's Economic Growth Strategy 2022-2027, also adopted by the Council in 2022, was created in response to the 'new normal' as the county recovers from the pandemic. Three key themes are outlined within this Strategy:

- **Supporting local business** - to continue to provide comprehensive business support to new and existing employment markets/sectors, growing and attracting high-value sectors that support the creation of high-value jobs. Enabling resilience planning in all areas and supporting businesses to enhance their workforce's wellbeing and their corporate responsibility
- **Strategic locations -** to be active in identifying and delivering opportunities for targeted investment locations and a "place-based" approach within the market towns. Putting people's needs at the heart of housing, infrastructure, employment and local service provision to create sustainable, prosperous, growing communities
- **Employment and skills** - to retain and develop a skilled workforce where individuals have opportunities to progress in the labour market through up-skilling, re-skilling and developing transferrable skills, through delivering higher level skills to meet the demands of businesses within the local economy

Table 2-7 – Contribution of the NWRR to Shropshire's Economic Growth Strategy

Shropshire's Economic Growth Strategy Priorities	Contribution of NWRR	RAG
Supporting local business	The NWRR will: ■ Encourage inward investment by directly improving the accessibility of the Battlefield Enterprise Park, facilitating the expansion of the Oxon Business Park and maximising the employment development potential of the Shrewsbury West SUE ■ Reduce congestion on surrounding local roads benefitting the Shrewsbury Business Park and the Shrewsbury South SUE (an allocated strategic development site for around 26 hectares of new employment land), encouraging investment and supporting further growth ■ Provide a new river crossing enhancing the resilience and reliability of Shrewsbury's transport network, reducing the disruption to crucial business supply routes during frequent significant flooding events	Green
Strategic locations	The NWRR will ■ Further enhance Shrewsbury's inter-urban connectivity by reducing congestion along the A5, part of the SRN, ensuring faster, more reliable journeys to and from the West Midlands and national motorway network. ■ Provide a new shorter, direct link between the north and west of Shrewsbury, reducing journey times and distances and thereby enhancing strategic connectivity by facilitating more reliable and resilient long-distance journeys within and through Shropshire ■ Reduce through traffic in the centre of Shrewsbury creating a more appealing environment, attracting increased retail and tourist footfall	Green
Employment and skills	The NWRR will: ■ Improve connectivity and journey time reliability which will improve accessibility to training, education and housing, as well as opportunities to engage with all aspects of the economy, boosting productivity and local economic growth ■ Improve network efficiency, accessibility and connectivity across Shrewsbury and the wider region, helping to tackle inequalities	Green

Marches Forward Partnership

2.3.7. In March 2024, The Marches LEP ceased trading, however Herefordshire Council, Monmouthshire County Council, Powys County Council and Shropshire Council have formed the Marches Forward Partnership which has replaced the LEP in tackling cross border interests and boosting investment into the Marches region.

2.3.8. The partnership members all share the common characteristics of low population densities, ageing populations, low levels of productivity, low employment growth and costly and challenging connectivity. Consequently, the work of the partnership is focused on the four key themes of environment, connectivity, social infrastructure and economy.

Table 2-8 – Contribution of the NWRR to the Marches Forward Partnership key themes

Marches Forward Partnership Key Themes	Contribution of NWRR	RAG
Environment	The NWRR will: ■ Deliver a new link between the north and west of the town, reducing congestion and noise and improving air quality in the town centre, including in the vicinity of some of its listed buildings, scheduled monuments and Conservation Area, helping to protect its natural, built and historic environment ■ Include landscaping, drainage schemes, increased flood storage, planting, and environmental mitigation work including the acquisition of Hencott Pool to enable habitat improvements	Green
Connectivity	The NWRR will: ■ Provide a new direct link for all modes between the north and west of Shrewsbury opening up new journey opportunities and reducing journey times for many existing journeys ■ Complete the missing link in Shrewsbury's road network enabling people living in the outlying areas surrounding Shrewsbury to access all parts of the town more easily	Green
Social infrastructure	The NWRR will: ■ Reduce traffic volumes on roads inside the outer ring road, improving access to the Royal Shrewsbury Hospital and educational, leisure and entertainment locations across the town	Green
Economy	The NWRR will: ■ Maximise the delivery potential of the new residential and employment developments at the Shrewsbury West SUE and Shrewsbury South SUE ■ Improve access to Battlefield Enterprise Park and Oxon Business Park ■ Increase the appeal of Shrewsbury town centre to shoppers and visitors alike by reducing traffic volumes and associated noise and improving air quality	Green

Midlands Connect

2.3.9. Midlands Connect researches, develops and progresses transport projects which will provide the biggest possible social, economic and environmental benefits for the Midlands and the rest of the UK.

2.3.10. In 2022, they released their Strategic Transport Plan for the Midlands which seeks to ensure that the region becomes a valuable partner in helping the Government meet its primary challenges of reducing inequalities, decarbonisation and supporting the nation's post COVID-19 recovery. The Plan strives for the region to be fairer (equitable access for all), greener (driving towards net zero and minimising impact of infrastructure development on the local environment) and stronger (growing the economy). It also identifies parts of the SRN most in need of investment, including the nationally and strategically important A5 (the London to Holyhead trunk road).

2.3.11. In 2023, the Strategic Transport Plan was supported by the release of their Strategic Transport Priorities for The Marches document that set out the strategic transport priorities required for growth to ensure a bright future for the Marches region. It highlighted the importance of rail and road links and supported the Union Connectivity Review (UCR) that focused on the importance of the A49 and A5, among other key routes, and the need to support any improvements to the capacity and reliability of these roads.

Table 2-9 – Contribution of the NWRR to the Midlands Connect Strategic Transport Plan and Strategic Transport Priorities for the Marches

Midlands Connect Plan & Policy Aim	Contribution of NWRR	RAG
Investment in the strategically important A5 and A49 routes	Whilst the NWRR scheme does not include direct investment on either the A5 or A49, the NWRR scheme will: ▪ Reduce flows and congestion on the A5 and A49 sections of the Shrewsbury outer bypass, boosting their available capacity and reliability ▪ Significantly improve the resilience of both sections of strategically important road by providing an alternative route when incidents or planned maintenance events occur ▪ Enable the sections of the A5 and A49 around Shrewsbury to better serve the strategic longer distance traffic they were intended for, creating a more efficient regional road network and enhancing strategic connectivity	Amber

Large Local Majors (LLM) Fund

2.3.12. The LLM fund was established in 2016 to cater for the small number of exceptionally large local highway authority transport schemes that could not be funded through the normal routes, such as the Local Growth Fund or other devolved allocations. LLM fund schemes are not limited to roads on the MRN. As with MRN scheme, the Government has set five objectives for LLM fund schemes:

- Reduce congestion
- Support economic growth
- Support housing development
- Support all users and
- Support the SRN

2.3.13. The NWRR will contribute to all five objectives, especially those related to reducing congestion and supporting the SRN, as set out in Table 2-10.

Table 2-10 – Contribution of the NWRR to the LLM Objectives

LLM objectives		Contribution of the NWRR	RAG
Reduce congestion	Alleviating local and regional congestion, reducing traffic jams and bottlenecks	▪ The NWRR will provide a shorter alternative route between the north and west of Shrewsbury, reducing traffic volumes and congestion in the town centre and on many other roads across the town, including the majority of the inner distributor ring road. This in turn makes local and regional journeys faster and more reliable ▪ The outer ring road forms part of the SRN and MRN and it will also see reduced traffic volumes as traffic diverts to the NWRR, leading to reduced delays at key junctions and faster more consistent journey times for strategic longer distance traffic	Green
Support economic growth	Supporting the delivery of the Industrial Strategy, contributing to a positive economic impact that is felt across the regions	The NWRR will ▪ Provide a new shorter direct link between the residential areas in the west and the employment sites in the north of the town ▪ Maximise the delivery potential of the Shrewsbury West and South SUEs and unlock further growth potential at Oxon Business Park and Battlefield Enterprise Park	Green
Support housing development	Unlocking land for new housing developments	The NWRR will maximise the housing growth potential of the Shrewsbury West and South SUE allocated strategic developments sites that are earmarked for the combined delivery of 1,650 new homes by improving the accessibility of both sites through extending the proposed OLR across the river to link the north and west of the town and by reducing flows on the outer ring road in the south of the town	Green
Support all users	Recognising the needs of all users, including public transport users, cyclists, pedestrians and disabled people	▪ Non-motorised users will benefit from a less congested town centre, experiencing less potential for conflicts with vehicles. In addition, they will benefit from the new shared cycleway / footway along the length of the NWRR, opening up new active travel possibilities ▪ Bus services will benefit from faster and more reliable journey times with less traffic ▪ Those accessing the town's railway station by car or bus will benefit from faster and more reliable journey times ▪ Rail passengers will experience less disruption to services due to bridge strikes as large vehicles divert to the NWRR from routes passing under the low bridges close to station ▪ Private and freight vehicles will experience faster journey time with the new shorter route and reduced congestion	Green
Support the SRN	Complementing and supporting the existing SRN by creating a more resilient road network in England	▪ By completing the ring road around Shrewsbury, the resilience of the existing sections of SRN and MRN around the town will be significantly enhanced, as the NWRR will provide an alternative route during any disruption or planned maintenance ▪ By providing a shorter route between the north and west of the town, flows and congestion levels on the SRN and MRN around the town will reduce and so journeys will become quicker, more reliable and more efficient	Green

ALIGNMENT WITH EXISTING STRATEGIES, POLICIES AND PLANS

2.3.14. National, regional and local transport plans, policies and strategies were reviewed to demonstrate how the proposed NWRR scheme will closely align with and support them.

- National Policies
  - National Networks National Policy Statement (DfT, 2024)
  - National Planning Policy Framework (Department for Levelling Up, Housing & Communities, 2023)
  - The Plan for Drivers (DfT, 2023)
  - Strategic Road Network and the Delivery of Sustainable Development (DfT, 2022)
  - Levelling Up the United Kingdom White Paper (HM Government, 2022)
  - Build Back Better: Our Plan for Growth (HM Treasury, 2021)
  - Bus Back Better: National Bus Strategy for England (DfT, 2021)
  - Decarbonising Transport: A Better Greener Britain (DfT, 2021)
  - Net Zero Strategy: Build Back Greener (Department for Business, Energy & Industrial Strategy, 2021)
  - Cycle Infrastructure Design Local Transport Note 1/20 (DfT and Highways Agency, 2020)
  - Gear Change: A Bold Vision For Cycling and Walking (DfT, 2020)
  - National Infrastructure Strategy (HM Treasury, 2020)
  - Road Investment Strategy 2 2020- 2025 (DfT and Highways England, 2020)
- Regional Policies
  - Our Freight Route Map for the Midlands (Midlands Connect, 2022)
  - The Future of Rural Mobility (Midlands Connect, 2022)
  - Decarbonising Transport: The Midlands Challenge (Midlands Connect, 2021)
  - The Marches Local Industrial Strategy (The Marches LEP, 2020)
  - Strategic Economic Plan (The Marches LEP, 2019)
- Local Policies
  - Shrewsbury Moves: A 10-Year Vision and Plan (Shrewsbury Moves, 2024)
  - Shropshire Bus Service Improvement Plan (Shropshire Council, 2024)
  - Shropshire Council Local Cycling and Walking Infrastructure Plan (Shropshire Council, 2023)
  - Shropshire Health and Wellbeing Strategy 2022-2027 (Shropshire Council, 2022)
  - Shropshire Local Transport Plan 2024-2038 (Shropshire Council, 2024)
  - Shrewsbury Big Town Plan Masterplan Vision (Shrewsbury Big Town Plan Partnership, 2021)
  - Zero Carbon Shropshire Plan (Shropshire Climate Action Partnership, 2021)
  - Pre-Submission Draft of the Shropshire Local Plan 2016 to 2038 (Shropshire Council, 2020)
  - Shrewsbury and Surrounding Area Place Plan (Shropshire Council, 2019-2020)
  - Shrewsbury Big Town Plan (Shrewsbury Big Town Plan Partnership, 2018)

NATIONAL POLICY

National Networks National Policy Statement (DfT, 2024)

2.3.15. The National Networks National Policy Statement (NPS) was designated in 2015 and set out the need for development of road, rail and strategic rail freight interchange projects on the national

networks, and the policy against which decisions on major road and rail projects will be made. This revised NPS was laid before parliament in March 2024, and reflects a review of the 2015 NPS that was announced in 2021 in light of the commitments, including the Transport Decarbonisation Plan.

2.3.16. The NPS highlights the importance of the SRN providing long distance traffic with a safe and efficient route, freeing up local roads for genuinely local journeys and active travel, and keeping traffic away from principal centres of population. The NPS also sets out the importance of the SRN in providing critical long distance links between places, offering reliable journey times and enabling connectivity, which in turn supports and stimulates economic growth.

2.3.17. The Statement also sets out the important role of national network infrastructure in supporting decarbonisation but recognises that:

'while all steps should be taken to avoid, and where unavoidable, reduce and mitigate climate change impacts, there will likely be residual emissions from national networks infrastructure, particularly during the economy wide transition to net zero, and potentially beyond'.

2.3.18. The NWRR, Oxon Link Road and Battlefield Link Road together will form a complete route between the A5 trunk road at Churncote Roundabout and the A49 / A53 Battlefield Roundabout, completing the outer bypass of Shrewsbury. In addition to reducing congestion on both local and strategic roads within and around Shrewsbury, the NWRR will add much needed additional capacity and resilience to the local and strategic highway network and ensure traffic is redistributed across the local road hierarchy much more optimally. This will support economic growth, free up local roads for genuinely local journeys and active travel and keeping longer distance traffic away from the town centre, in close alignment with NPS.

2.3.19. The NWRR will also provide a new shorter and more direct route between the north and west of the town, reducing journey times and congestion levels across Shrewsbury.

2.3.20. The reduction in through north-west corridor traffic passing through the town centre as it transfers onto the NWRR will also allow for road space reallocation in the town centre for buses and active travel. This potential provision of additional infrastructure for more sustainable modes, coupled with the provision of a combined 3m wide footway and cycleway adjacent to the NWRR carriageway, will encourage increased modal shift across Shrewsbury.

2.3.21. In line with the NPS, all steps will be taken to avoid, and where unavoidable, reduce and mitigate climate change impacts. The government has determined that the approval of schemes with residual carbon emissions is allowable and can be consistent with meeting net zero, however, if the increase in carbon emissions as a result of a proposed scheme is deemed to have a material impact on the ability of government to achieve statutory carbon budgets, then the Secretary of State should refuse consent.

National Planning Policy Framework (Department for Levelling Up, Housing & Communities, 2023)

2.3.22. The revised National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied. The NPPF advises that planning policies and decisions should play an active role in achieving sustainable development and recognises three interlinked dimensions in achieving this: economic, social and environmental. The policies within the framework seek to help build a strong, responsive and competitive economy, to support strong, vibrant and healthy communities by ensuring a range of homes, accessible services and open

spaces are provided. The framework also seeks to protect and enhance the natural, built and historic environment, mitigating and adapting to climate change.

2.3.23. The NPPF emphasises good design, which is a key aspect of sustainable development and how this should contribute positively to making places better for people and help make development acceptable to communities. Chapter 9 of the NPPF sets out policies to promote sustainable transport, including the expectation that the environmental impacts of traffic and transport infrastructure are identified, assessed, and taken into account. Appropriate opportunities are expected to be taken forward for avoiding and mitigating adverse effects and achieving net environmental gains.

2.3.24. Delivery of the NWRR is aligned to the strategies established in the NPFF as its delivery is intended to contribute to making Shrewsbury a better place for people to live, work and invest. The NWRR will assist in facilitating the delivery of approximately 750 new homes and 2,885 jobs included in Shrewsbury West SUE Masterplan and, by extending the OLR across the River Severn, it will create a more direct link between residential development in the Shrewsbury West SUE and the employment sites to the north of Shrewsbury, such as the Battlefield Enterprise Park.

2.3.25. Through the delivery of an additional river crossing between the northern and western parts of Shrewsbury, air quality will be improved, and congestion and noise will be reduced in the town centre, including in the vicinity of some of its listed buildings, scheduled monuments and Conservation Area, helping to protect its natural, built and historic environment.

2.3.26. The NWRR also promotes sustainable travel by creating new links for pedestrians and cyclists; assisting in separating out strategic / through traffic and local traffic; and providing journey time improvements to a number of bus services on the existing local highway network, including the town's Park and Ride services.

The Plan for Drivers (DfT, 2023)

2.3.27. The long-term plan to back drivers followed the previous Government's updated approach to delivering Net Zero, which included a delay to the date from which no new petrol and diesel vehicles can be sold from 2030 to 2035[12]. The plan makes the clear case that drivers should not be dismissed when it comes to considering the benefits of transport schemes.

2.3.28. The plan sits alongside the continued investment in public transport and active travel, as part of a package of measures designed to help people travel in the best way that works for them. The plan includes a new 30-point plan to support people's freedom to use their cars, with the stated intent to enable: smoother journeys; stopping unfair enforcement; easier parking, encouraging the use of Park and Ride; a crackdown on inconsiderate driving; and the transition to zero emission driving.

2.3.29. The NWRR aligns to the Plan for Drivers by delivering a significant highway improvement for both Shrewsbury and the wider county as a whole. The new link will complete the 'missing link' in Shrewsbury's road network, delivering a reduction in highway congestion and smoother road

[12] However, in its election manifesto, the new Government pledged to restore the ban on the sale of petrol and diesel vehicles from 2030.

journeys across Shrewsbury. By reducing congestion along the existing outer bypass, which forms part of the SRN, the NWRR will also deliver faster, more reliable journeys regionally.

2.3.30. The scheme will also encourage the uptake of active travel through new walking and cycling infrastructure on the southern side of the road, whilst considering the needs of those who rely upon driving as their only mode of transport.

Strategic Road Network and the Delivery of Sustainable Development (DfT, 2022)

2.3.31. This DfT Policy Paper details the importance of the SRN for enabling safe, reliable, predictable, efficient journeys between main population centres, major ports, airports and rail terminals. It also states that, as set out in the Transport Decarbonisation Plan, Gear Change, Bus Back Better and the second Cycling and Walking Investment Strategy, walking, wheeling, cycling and public transport must be the natural first choice for all who can take it.

2.3.32. The scheme will provide an alternative link between the northern and western parts of Shrewsbury, reducing traffic volumes along the A5, which forms part of the SRN. This will help reduce queuing and delays and contribute to more reliable journey times along that section of the A5, which is a key strategic link to the major port of Holyhead in North Wales.

2.3.33. The NWRR would also significantly enhance the resilience of the SRN, particularly when incidents or planned maintenance events occur on either the SRN or the local highway network. Currently, in the event of congestion, traffic may be forced to divert onto local roads through the town centre in order to reach destinations to the north and north-east of the town. Similarly, congestion within the town centre causes traffic which may have otherwise used local roads to reroute onto the SRN in order to reach their destination.

2.3.34. In both instances, the NWRR provides an alternative route which will reduce the burden on both the SRN and the local highway network. It would also allow for temporary diversions to be implemented should maintenance or improvement works need to be carried out on the SRN.

Levelling Up the United Kingdom White Paper (HM Government, 2022)

2.3.35. The Levelling Up the United Kingdom White Paper sets out a new policy regime to address the unequal distribution of opportunity and socio-economic outcomes associated with where people live and work. The paper sets out a broad and long-term programme to address geographical inequality, to transform underperforming places and boost local growth, enabling people everywhere are living longer, healthier and more fulfilling lives.

2.3.36. A number of factors are required to transform places, including better skills and improved transport. Improving transport infrastructure and services is expected to drive economic growth and boost productivity through improved market access.

2.3.37. Related to transport, people, places and the economy, this White Paper seeks to close the inequality gap between the highest and lowest performing areas of the UK by 2030 by:

- Boosting productivity, pay, jobs and living standards especially in those places where they are lagging
- Spread opportunities and improve public services, especially in those places where they are weakest
- Restore a sense of community, local pride and belonging, especially in those places where they have been lost

2.3.38. By delivering the 'missing link' in Shrewsbury's road network, facilitating journey time reductions and reliability enhancements for bus services and supporting active travel infrastructure, the NWRR aligns to the key aims of this White Paper: to boost local growth and productivity through enhanced connectivity, economic competitiveness and access to markets. This is expected to encourage local business investment. In addition, the scheme with offer improved connectivity between outlying market towns and settlements, by reducing journey times between them, helping better spread opportunities across the region.

Build Back Better: Our Plan for Growth (HM Treasury, 2021)

2.3.39. The Plan sets out the Government's plans to support growth through significant investment in infrastructure, skills, and innovation. The Levelling up, Towns Fund and High Street Fund are part of the delivery process for this investment in local areas. This builds on the platform provided by the Industrial Strategy published by the Government in 2017 and the Transport Investment Strategy (2017).

2.3.40. It aims to address long-term problems to deliver growth that creates high-quality jobs across the UK and utilises the strengths of the Union. This will be achieved by building on three core pillars of growth; infrastructure; and skills and innovation. The 'plan for growth' is closely aligned to the priorities of reducing inequalities across the whole of the UK, supporting the transition towards net zero, and supporting the vision for a global Britain.

2.3.41. The NWRR scheme will provide a new, more direct link between the north and west of the town, significantly enhancing the connectivity to and from the Battlefield Enterprise Park, Shrewsbury West SUE and the Royal Shrewsbury Hospital (including inter-site movements for staff and patients between this and the associated Princess Royal Hospital in Telford), unlocking access to both housing and employment opportunities, as well as commercial space, community resources, and health facilities.

2.3.42. The scheme will increase in the capacity and resilience of the local highway network with reduced and more reliable journey times and the reduced levels of congestion will help to improve air quality within Shrewsbury.

2.3.43. This well-developed resilient transport network will allow businesses in the region to grow and expand, enabling them to extend supply chains, deepen labour and product markets, supporting the Government's effort to drive economic recovery.

Bus Back Better: National Bus Strategy for England (DfT, 2021)

2.3.44. The National Bus Strategy sets the vision for the future of local bus services and is key to achieving two of the Government's wider priorities: net zero and reducing inequalities. The strategy aims to make buses greener, more frequent, more reliable, easier to understand and use, better coordinated and cheaper.

2.3.45. To make good bus service ubiquitous across the UK, the Government has committed £25 million to ensure that every local transport authority and bus operator in England entered into a statutory enhanced partnership or franchising agreement by April 2022.

2.3.46. In meeting this requirement, on 01 April 2022 Shropshire Council, along with the members of Shropshire Bus Enhanced Partnership, agreed an Enhanced Partnership Plan and Scheme including a local Bus Passenger Charter.

2.3.47. The National Bus Strategy also notes that lower-density, often rural areas (such as large parts of Shropshire) are not served or barely served by conventional buses and so will require support to develop new forms of DRT provision, using smaller vehicles.

2.3.48. In 2022, the Shropshire Council Cross Party Public Transport Working Group was established to discuss the strategic direction of public transport across Shropshire and this group collaborated together to ensure that Shropshire's Connect On-Demand DRT service was successfully developed and launched.

2.3.49. These actions already taken by Shropshire Council, highlight the Council's focus on public transport and its desire to deliver the ambitions of the National Bus Strategy, further evidenced by the recent refresh of the Shropshire BSIP.

2.3.50. Whilst initially the NWRR is not expected to be served by any bus services, as traffic transfers to the scheme, flows will reduce along the north-west corridor routes passing through the town centre. This is turn will reduce congestion and delays on the northern and western approaches, around the Station Gyratory and also critically along the Smithfield Road which is used by all bus services in the town.

2.3.51. The reduced congestion and delays will in turn reduce bus journey times and increase journey time reliability, making bus services faster, more dependable and reliable for passengers and therefore more attractive to use and driving an upturn in patronage levels, key goals of the National Bus Strategy.

2.3.52. This more reliable and faster bus network will work in conjunction with the NWRR in improving accessibility across the region and improving the attractiveness of Shrewsbury as an economic employment site.

Decarbonising Transport: A Better, Greener Britain (DfT, 2021)

2.3.53. Published following the COVID-19 pandemic, the Transport Decarbonisation Plan sets out the Government's commitments to changing the ways in which we travel to reduce carbon emissions. With transport responsible for 27% of the UK's domestic greenhouse gas emissions, the plan recognises the need for a major shift to more sustainable modes including public transport, walking and cycling and zero emission vehicles.

2.3.54. The Plan recognises that the majority of longer distance journeys will be made by road, and that rural, remote areas depend most heavily on those roads.

2.3.55. The NWRR will provide a new, more direct route between the north and west of the town for these essential longer distance journeys, reducing journey times and congestion levels across Shrewsbury.

2.3.56. The reduction in through north-west corridor traffic passing through the town centre as it transfers onto the NWRR will also allow for road space reallocation in the town centre for buses and active travel. This potential provision of additional infrastructure for more sustainable modes, coupled with the provision of a combined 3m wide footway and cycleway adjacent to the NWRR carriageway, will encourage increased modal shift.

Net Zero Strategy: Build Back Greener (Department for Business, Energy & Industrial Strategy, 2021)

2.3.57. The Net Zero strategy sets out the Government's long-term plan to end the UK's domestic contribution to man-made climate change by 2050. In terms of transport, the strategy presents a number of key policies and proposals to secure greener, faster, and more efficient transport. There is an aim to increase the share of journeys taken by public transport, cycling, and walking. A £3 billion investment to transform bus services and £2 billion for cycling will have a significant impact on local transport systems. Accelerating the decarbonisation of transport will save lives and significantly reduce noise, making urban centres more enjoyable places to live and work.

2.3.58. The NWRR scheme is aligned with the key transport commitments set out in the Net Zero Strategy, as it will reduce the levels of through traffic passing through Shrewsbury town centre and along the existing strategic roads around Shrewsbury, reducing congestion, improving air quality and increasing the reliability of the local public transport network.

2.3.59. It also provides a shorter, more efficient route for those strategic, longer-distance trips between the north and west of the town, thus reducing the overall distance for many of these trips.

2.3.60. In addition, the scheme will deliver a 3m wide combined footway and cycleway alongside the carriageway, encouraging modal shift and helping improve the local community's health and wellbeing, as well as supporting an inclusive travel network.

Cycle Infrastructure Design Local Transport Note 1/20 (DfT and Highways Agency, 2020)

2.3.61. The Local Transport Note (LTN) 1/20, published in July 2020, supports the delivery of high-quality cycle infrastructure to deliver the ambition of making cycling and walking the natural choices for short journeys.

2.3.62. The LTN sets out the five core design principles of networks and routes being 'coherent, direct, safe, comfortable and attractive.' In order for these to be achieved, unnecessary traffic must first be removed from the network, and levels of congestion and rat-running reduced.

2.3.63. The delivery of the NWRR will not only deliver an LTN 1/20 compliant 3m wide combined footway and cycleway, but also facilitate a free-flowing transport environment within the town centre in which the desired standard of cycle infrastructure may be achieved.

Gear Change: A Bold Vision For Cycling and Walking (DfT, 2020)

2.3.64. Gear Change presents the case for a 'step-change in cycling and walking, to transform the role cycling and walking can play in our transport system.' Through this, the following objectives are outlined:

- Healthier, happier and greener communities
- Better streets for cycling and people
- Convenient and accessible travel
- Cycling and walking at the heart of transport, place-making, and health policy

2.3.65. The NWRR will reduce the volumes of traffic 'rat-running' on existing local routes and through Shrewsbury town centre. Together with a 3m wide combined footway and cycleway delivered as

part of the NWRR scheme, this will create a safer and more attractive cycling environment, encouraging modal shift and supporting the health and wellbeing of local people.

National Infrastructure Strategy (HM Treasury, 2020)

2.3.66. The National Infrastructure Strategy, published in November 2020, sets out the Government's plans to transform infrastructure across the UK by 2050 by focusing on four overarching subject matters:

- Boosting growth and productivity by investing in rural areas, towns and cities
- Zero emissions by 2050 – transforming infrastructure to decarbonise the UK's power, heat and transport networks, and adapting to the risks posed by climate change
- Supporting private investment – providing clarity on Government plans to ensure confidence
- Accelerate and improve delivery – reforming the planning system, and improving the way projects are chosen, procured and delivered

2.3.67. The NWRR scheme aligns with the objectives of the National Infrastructure Strategy. Completing the 'missing link' in Shrewsbury's road network will help to support the economic competitiveness and productivity of Shrewsbury and Shropshire through providing better connections for both businesses and communities. These factors will also contribute to the accelerated delivery of the Shrewsbury West SUE and Shrewsbury South SUE. This will help to boost growth and enhance productivity, whilst also encouraging private investment. The reduction in congestion, coupled with the active travel components of the scheme, will also support decarbonisation of the transport network.

Road Investment Strategy 2 2020- 2025 (DfT and National Highways, 2020)

2.3.68. The Government's Road Investment Strategy 2 (RIS2) was reviewed in 2020 following the inaugural RIS1 which saw a £17 billion investment in the SRN. This second strategy sets a long-term strategic vision for what the SRN should be like in 2050 and covers the financial years 2020/21 to 2024/25. During this period, the Government is committed to spending £27.4 billion. Some of this will be used to build new road capacity, but much more will be used to improve the quality and reduce the negative impacts of the existing SRN, so that every part of the country will benefit. The vision seeks a network that supports the economy; is greener, safer and more reliable; and is more integrated and smarter.

2.3.69. The Investment Strategy sets the goal of those living alongside the network to experience less noise, light and air pollution. Congestion and poor network resilience in Shrewsbury's lead to issues of noise, visual intrusion and poor air quality for people in residential areas and the town centre, as well as those walking and cycling.

2.3.70. Delivery of the NWRR will provide a fast, direct connection between the SRN and major local roads north of Shrewsbury. It will help reduce congestion on the SRN by providing an alternative route for north-west corridor through traffic that currently uses the A5 / A49 outer bypass route to travel between the west and north of the town. The scheme will also significantly enhance the resilience of the SRN, particularly when incidents or planned maintenance events occur on either the SRN or the local highway network.

2.3.71. This will create a safer, more reliable, more resilient and better integrated transport network as outlined in the vision of the Roads Investment Strategy. This, in turn, will help to support businesses through providing employees with a more favourable option of travelling to work.

REGIONAL POLICY

Our Freight Routemap for the Midlands (Midlands Connect, 2022)

2.3.72. The Freight Routemap supports the Strategic Transport Plan for the Midlands, creating a strong and clear focus on freight at a strategic level. The Midlands enjoys key competitive advantages in relation to freight, including its central location and existing infrastructure, along with being well served by mainline railways and major motorways for regional freight. The Strategic Transport Plan identifies the key strategic road corridor schemes being developed by Midlands Connect that all support the nationally important freight movements through and within the region.

2.3.73. The Routemap's vision is: 'To ensure that freight and logistics continue to serve the needs of the people and businesses of the region and the UK, supporting and growing the regional and UK economy whilst creating a safe, efficient and sustainable freight sector in the Midlands that also acts as an enabler for freight for the whole of the UK'.

2.3.74. The NWRR scheme will free up additional freight capacity along the A5 and A49, the outer bypass of Shrewsbury, as north-west corridor traffic currently using the outer bypass route will re-route to using the NWRR. This will enable the A5 and A49 to better serve key regional and national freight movements, including those to and from the port of Holyhead.

The Future of Rural Mobility (Midlands Connect, 2022)

2.3.75. The Future of Rural Mobility sets out the need to bring people in rural communities closer to essential services, amenities and networks to reach their potential. The document describes the unique and varied challenges faced by those in rural areas, differing significantly to urban areas, including poor access to services via public transport, a lower concentration of social mobility 'hotpots'[13] and worse productivity. The document highlights the importance of a renewed focus on rural areas and how their mobility challenges can be overcome in order to level up the UK. A number of rural mobility solutions are suggested including multi-modal transport services bringing users closer to leisure and tourism destinations and improved access to technology.

2.3.76. Shropshire is a largely rural county that is sparsely inhabited, with over half of the population living in villages, hamlets and dwellings dispersed throughout the countryside.

2.3.77. The NWRR scheme will provide new connectivity between the outlying market towns and settlements to the west of Shrewsbury and employment sites in the north of the town (such as Battlefield Enterprise Park) and similarly between the outlying market towns and settlements to the north of the town and the employment sites in the west of the town (such as Oxon Business Park). This will help to improve rural productivity and reduce inequalities across the region.

[13] The Index is a tool that examines how geography impacts the likelihood of disadvantaged children doing well at school and getting a good job.

Decarbonising Transport: The Midlands Challenge (Midlands Connect, 2021)

2.3.78. This publication sets a vision with three milestone objectives to positively contribute to the overall 'net zero' target by 2050; ensure resilient networks; and to minimise environmental impacts from delivering new infrastructure.

2.3.79. The plan outlines a number of solutions to decarbonise transport, including reducing the need to travel in highly polluting vehicles and encouraging mode shift. A collaborative approach to decarbonisation is outlined, highlighting the need for local authorities to work together and acknowledge that the emissions associated with their residents can have a wide impact across the Midlands and beyond.

2.3.80. The NWRR would play a key role in increasing the resilience of Shrewsbury's transport network as, not only would it provide a flood resistant route for north-west corridor traffic; by completing the loop it would enable the outer bypass to operate more optimally during times of disruption with traffic able to utilise it in either direction to navigate around any blockages within the local road network.

2.3.81. In addition a Carbon Management Plan (CMP) fully aligned to DfT guidelines and PAS 2080:2023 has been produced detailing how the scheme will manage and minimise carbon emissions across the whole project life cycle. The CMP will be reviewed and then enforced by oversight of the Local Planning Authority through relevant Planning Conditions.

The Marches Local Industrial Strategy (The Marches LEP, 2020)[14]

2.3.82. This Local Industrial Strategy sets out how the Marches is building on recent success and working to ensure a balanced and inclusive economy for the future. The Strategy sets out the actions needed to accelerate the transition to a zero carbon economy through improved productivity, whilst maximising its natural environment, expertise in environmental technology and energy efficiency, and inward investment opportunities. A key aspect highlighted is the importance of improved infrastructure and connectivity in the region for the sustainable future of both rural and urban communities.

2.3.83. The NWRR is outlined in the strategy as a major infrastructure project providing a new, single carriageway road, linking the northern and western parts of Shrewsbury. The delivery of the 'missing link' in Shrewsbury's road network and supporting active travel infrastructure aligns to the key aims of the Strategy by boosting local productivity through improved infrastructure and enhanced connectivity for both urban and rural communities while encouraging inward investment.

Strategic Economic Plan (The Marches LEP, 2019)

2.3.84. The Plan details the vision to become a £23.8 billion economy with 5,200 more businesses and 58,700 new jobs by 2038. The actions in this strategy will put in place the networks, physical and

[14] The Marches LEP ceased trading in March 2024, but Herefordshire Council, Monmouthshire County Council, Powys County Council and Shropshire Council have formed the ground breaking Marches Forward Partnership which has replaced the LEP in tackling cross border interests and boosting investment into the Marches region.

digital connectivity and skills that people and businesses need to adapt and succeed in a rapidly changing world.

2.3.85. The delivery of the Plan's ambitions and meeting the region's economic potential will require growing the size and productivity of the economy. This aims to be achieved through investment in innovation and the business environment, skills, infrastructure and places. This includes continuing to develop the physical and digital networks and connectivity that businesses and people need. These connections will support the sustainable growth of regional towns, rural areas and neighbouring economies by investing in priority schemes and growth corridors.

2.3.86. The Plan outlines the importance of Shrewsbury as one of the Marches three urban centres. The strategic connectivity of the town is highlighted, with The Marches LEP stating their continued commitment to work with key partners to lobby for funding and raise awareness of the economic opportunities associated with the NWRR as it provides an opportunity to unlock capacity and allow for better ease of movement in the town centre.

LOCAL POLICY

Shrewsbury Moves: A 10-Year Vision and Plan (Shrewsbury Moves, 2024)

2.3.87. This sustainable transport strategy is designed to prioritise pedestrians, cyclists, and public transport above private motor vehicles, with the ultimate goal to make Shrewsbury one of the most inclusive, accessible, and economically vibrant towns in the UK. The strategic interventions proposed would be delivered across Shrewsbury to meet the vision of the Big Town Plan. The plan focuses on four key themes:

- **Traffic Management and active travel inside the river loop**: Shifting the focus from private motor vehicle to sustainable, active transport modes
- **Traffic Management and active travel outside the river loop**: Encouraging walking, cycling and public transport for local trips across the town
- **Public Transport and Micromobility**: Establishing a comprehensive network of public transport and micromobility options across Shrewsbury
- **Parking Plus**: Remodelling parking charges within Shrewsbury to make sustainable alternatives more cost effective

2.3.88. Among the key proposals in the strategy are:

- The introduction of traffic loops to reduce the amount of traffic driving through the town centre and lower speed limits
- Prioritising public transport with a two-way bus corridor through the town centre making buses quicker and easier to use
- Incentivising the use of car parks on the edge of the town centre, and the use of an extended and improved Park and Ride service, along with more public bus services.
- The creation of more public spaces, such as creating new town squares and improving the gateways to the town centre

2.3.89. The strategy seeks to encourage activity in the town centre and travel by sustainable modes. Wherever possible and practicable, measures will be implemented in the town centre to reduce car dominance with the aim of reclaiming streets for pedestrians and cyclists, giving priority to public transport and making the town centre more inviting for everyone.

2.3.90. The NWRR directly complements the Shrewsbury Moves sustainable travel strategy by significantly reducing levels of traffic heading into and out of the town centre. This is a crucial part of creating an environment that encourages walking and cycling. The reduced congestion will make bus services, including the Park and Ride, faster and more reliable, which in turn will help to encourage increased patronage levels, boosting service viability.

2.3.91. The NWRR will also see the creation of a new shared footway and cycleway alongside the new road, with links into existing PRoW. This will encourage active transport, promote physical fitness, and provide safer options for pedestrians and cyclists. As part of the wider upgrades proposed to Shrewsbury's transport network in this plan, the Council plan to add new active travel routes throughout the town centre and these will be made safer by a reduction in cars and heavy goods vehicles passing through and around the town centre and in particular across Welsh Bridge.

2.3.92. By creating a more efficient transportation network, the NWRR will reduce travel times for commuters and residents, making your journeys quicker and more convenient. Less traffic travelling through the town centre will also mean more reliable local bus services and more space on the roads for the innovative transport methods proposed by this strategy.

Shropshire Bus Service Improvement Plan (Shropshire Council, 2024)

2.3.93. The refreshed Shropshire BSIP describes the county's bus service as having a pivotal role in the local transport system, providing essential access to services and connectivity for residents, particularly those living in rural areas.

2.3.94. It sets a vision to transform the current bus offer in the county, supporting improved connectivity, inclusive growth and recovering bus patronage to pre-pandemic levels. The Plan states the importance of investment in buses; to make public transport a realistic first choice for residents and visitors for travel in the rural county. It sets out three key phases to ensure a sustainable network for the future; addressing the current bus offer, network improvements and a vision for buses from 2025 and beyond.

2.3.95. Due to the cancellation of the proposed High Speed 2 railway line north of Birmingham, Shropshire were allocated a fund of £1.84 million, that was distributed as BSIP Phase 3 and made available from Summer 2024 until March 2025. The plan outlines how this funding will be used to improve the public transport network through service frequency improvements, fare reductions, improving the image of bus travel and the expansion of Shropshire's Connect On-Demand DRT service.

2.3.96. The plan details feedback from local operators including Arriva, the largest operator of bus services in the town, who state their aim of providing reliable and sustainable services with the objective '*to grow patronage, by operating all registered mileage on time*'. However, they go on to caution that external influences such as '*roadworks, traffic congestion and infrastructure*' challenge these objectives.

2.3.97. At present, Shrewsbury has only one short stretch of bus priority infrastructure and so, for most or all of their journey, buses have to share local roads with general traffic, so when there is congestion, bus services are also delayed. This makes services, including the Park and Ride services, inefficient and unreliable, whilst also being more expensive to operate, further reducing the attractiveness and viability of services. The BSIP highlights the need for further bus priority infrastructure within the town to tackle delays and unreliability caused by congestion and examines potential options and some of their potential benefits.

2.3.98. The NWRR scheme will reduce traffic volumes on both the northern and western approaches, around the Station Gyratory and along the Smithfield Road as through traffic will transfer from these routes to use the NWRR. This will significantly improve bus journey times and service reliability across the town, particularly given all bus services travel along some or all of Smithfield Road.

2.3.99. Through reducing delays and congestion, the NWRR will help to address bus operator concerns highlighted earlier, enabling them to provide a more reliable, efficient and commercially viable service, reducing the revenue burden on the public purse. This in turn will help to boost the image of the local bus services and make them a more attractive option, one of the key objectives of the BSIP.

Shropshire Council Local Cycling and Walking Infrastructure Plan (Shropshire Council, 2023)

2.3.100. The Council's Local Walking and Cycling Improvement Plan (LCWIP) sets out a prioritised list of schemes for delivery over the next ten years that will improve walking and cycling infrastructure for Shropshire residents, workers and visitors alike.

2.3.101. In order to implement schemes with the greatest impact on increasing the numbers of people who chose to walk and cycle, there are five LCWIP outcome-led objectives that are considered: becoming a zero carbon county by 2030, healthier living for local residents, modal shift to reduce congestion and car dependency, an inclusive and safe transport network and sustainable economic growth.

2.3.102. A Walking Route Audit was undertaken as part of the LCWIP, and it recommended the following:

- Reviewing the crossings at the junction at the southern end of Welsh Bridge to make routes through the junction simpler, clearer and higher priority for pedestrians
- Investigating a town centre-wide 20mph speed limit
- Removing conflict with cyclists through provision of cycling infrastructure in the town centre

2.3.103. In addition, proposals were included for a number of primary cycle route enhancement schemes across Shrewsbury, where a high number of people are expected to cycle, linking large or high-density existing or planned residential areas with key destinations. The primary schemes proposed along the north-west corridor include:

- S.27 - Introduction of cycle lane and / or shared path and reallocation of road space along Smithfield Road
- S.19 - Upgraded infrastructure to align with national standards
- S.22 - Upgrade the existing pavement to a segregated cycle lane and pedestrian pavement along Ellesmere Road
- S.17 - Introduction of a segregated cycle lane to connect missing sections of infrastructure along the A5191 south of Heathgates Roundabout
- S.37 - Investigating width / weight limits across Welsh Bridge
- S.26 - Improved provision for cyclists at Frankwell roundabout, including a cycle lane towards Welsh Bridge

2.3.104. The route from Frankwell Roundabout through Frankwell and across Welsh Bridge (included in Schemes S.37 and S.26 above) is made up of narrow roads with narrow pavements barely wide enough for two people, as illustrated in Figure 2-7.

Figure 2-7 – Welsh Bridge

2.3.105. It is used by all vehicles travelling between the western approaches and the town centre and by those wishing to access the Theatre Severn and Frankwell Car Parks. As a result, it experiences high traffic volumes and significant congestion which, coupled with the narrow pavements, makes it very unfriendly for the high volume of cyclists and pedestrians that also use it. In addition, key junctions suffer from issues of poor visibility, increasing the risk of conflicts arising.

2.3.106. The NWRR will help facilitate the Walking Route Audit recommendations and primary cycle route schemes as north-west corridor through traffic will transfer from roads within the town centre to the NWRR, which in turn will:

- Reduce traffic flows through the southern end of Welsh Bridge aiding with any junction simplification and additional provision of pedestrian priority
- Transfer north-west corridor through freight movements from Welsh Bridge to the NWRR, smoothing any implementation of width / weight limits across Welsh Bridge
- Reduce the number of conflict points between cyclists and pedestrians across the town, enhancing perceived and actual safety for both pedestrians and cyclists
- Enhance the potential for introducing a town centre-wide 20mph speed limit as key time-critical north-west corridor through freight movements will be able to use the NWRR and not be subject to slower journey times that could result from the lower town centre speed limit
- Enable the proposed reallocations of road space required for the additional cycle route infrastructure

2.3.107. In addition, the NWRR will deliver a 3m wide shared footway and cycleway alongside the carriageway that will add a new active travel link between the north and west of the town, expanding the existing active travel network and opening up new journey opportunities. This will encourage modal shift, reducing congestion and car dependency and helping to improve the local community's health and wellbeing, closely aligning with the LCWIP objectives.

Shropshire Health and Wellbeing Strategy 2022-2027 (Shropshire Council, 2022)

2.3.108. This strategy sets out the long-term vision for Shropshire, identifying the immediate priority areas for action and how the Health and Wellbeing Board intends to address these. The strategy's Vision is *'For Shropshire people to be healthy and fulfilled'*. It further identifies four strategic priorities of joined up working; improving population health; working with and building strong and vibrant communities; and reducing inequalities. Additionally, it also identifies air quality as a higher-level priority, among others.

2.3.109. The NWRR aims to address several of the issues identified in the Strategy. Specifically, the NWRR will reduce congestion, improve connectivity and add new active travel infrastructure, encouraging modal shift, improving air quality in the town centre and aiding the improvement of residents' health and wellbeing, as well as reducing inequalities.

Shropshire's Emerging Local Transport Plan 2024-2038 (Shropshire Council, 2024)

2.3.110. The emerging Local Transport Plan (LTP) sets a clear vision for the future of transport across Shropshire and outlines the council's long-term strategy for the development, management and maintenance of the local transport network. The plan aims to enhance the local environment, communities and economy through the provision of transport choices that aim for decarbonisation, inclusivity and connectivity.

2.3.111. An integral part of the emerging LTP is to improve the transport network 'for the whole journey,' to contribute towards decarbonisation and improve the quality of life for all, ensuring that inclusion is a key component of the transport network in Shropshire. The plan emphasises the need to improve choice of travel with an emphasis upon providing better alternatives to the car within urban Shropshire. This will contribute to the reduction in traffic congestion and prioritise public and active transport in the county.

2.3.112. The strategic objectives of the NWRR closely align to the vision of the LTP as the NWRR will reduce through traffic in Shrewsbury town centre, creating a safer, more attractive environment for active travel. This will also enable the local road network to operate more efficiently by reducing congestion in the town centre and along the inner distributor ring road, improving the predictability of journey times and providing further capacity for local growth. The delivery of the shared footway and cycleway as part of the NWRR will also add to the existing active travel network, contributing to improved air quality with the increased uptake of active travel.

2.3.113. Another key aspect of the LTP is to support the ambitious growth plans set out in the Shropshire Local Plan, delivering 30,800 new dwellings and around 300 hectares of employment land between 2016 and 2038, through appropriate transport interventions to accommodate the additional transport demand. The NWRR will provide a new link between the western and northern parts of Shrewsbury, providing access to both residents and businesses, supporting the delivery of new homes and investment of businesses by enabling the highway network to better meet the additional demand.

2.3.114. The LTP also states the need to improve strategic connectivity by facilitating reliable and resilient long-distance journeys within and through Shropshire. The NWRR will provide a new flood-resistant, more direct link between the north and west of Shrewsbury that will significantly enhance network resilience, enabling through north-west longer distance traffic to reach their destinations much quicker and easier, as they will no longer have to travel along the congested flood-prone routes through the town centre. Through traffic transferring to the NWRR will also reduce congestion along

the A5 around Shrewsbury, a key link on the SRN to the major port of Holyhead in North Wales, improving journey time reliability for strategically important freight vehicles.

Shrewsbury Big Town Plan Masterplan Vision (Shrewsbury Big Town Plan Partnership, 2021)

2.3.115. The Masterplan Vision is an ambitious and bold realisation of the shared vision and framework plan set out in the Shrewsbury Big Town Plan (2018). The Masterplan is underpinned by a forward thinking Movement Vision for the town centre and its surroundings, identifying key measures to create healthier, friendlier streets and spaces which prioritise pedestrians and cyclists. A core principle of the movement strategy is to reduce through traffic, helping to take traffic out of the town centre and enable the road space to be reallocated to pedestrians and cyclists, new developments or public space. This will create a safer and more attractive town centre environment for active travel while supporting more competitive bus journey times against private car journeys, helping to redress the modal hierarchy in Shrewsbury town centre.

2.3.116. The delivery of the NWRR will lead to the transfer of north-west corridor through traffic from existing routes passing through the town centre to the NWRR, providing an opportunity to 'downgrade' local roads across Shrewsbury and within the town centre. This will help to adjust modal hierarchy on local routes, supporting safer and sustainable active travel and public transport movements in the town centre, supporting the vision of the Big Town Plan.

2.3.117. The lower vehicle flows within the town centre will help to achieve the goals of the Big Town Plan by facilitating the introduction of new traffic management and active travel schemes and helping to make local bus services faster, more reliable, more efficient and more attractive. The reduced traffic volumes and congestion levels in the town centre will help to make the town centre a more attractive place to visit, driving inward investment and boosting local and tourist visitor numbers.

Zero Carbon Shropshire Plan (Shropshire Climate Action Partnership, 2021)

2.3.118. Shropshire Climate Action Partnership (SCAP) is a partnership, by and for Shropshire, established in August 2020 and set up with an initial objective to create a Zero Carbon Shropshire Plan (ZCSP) that achieves net zero carbon by the end of 2030. To achieve this target, the Plan recommends that each year 10% of highways budgets will need to be dedicated to shifting priority from car to active travel with the goal of achieving a 10% reduction of car use each year by modal shift to active travel, public transport and through reduced commuting.

2.3.119. Transport is identified as one of the five areas that makes the greatest contribution to greenhouse gas emissions and biodiversity loss in Shropshire. The Plan outlines that, to reach net zero carbon, Shropshire needs to transition away from the private car through use of sustainable modes of travel, implement zero emission public transport, increase the provision of local cycling and walking infrastructure and introduce low traffic neighbourhoods.

2.3.120. The NWRR will support this Plan as it will provide a shorter and more direct link between the northern and western parts of Shrewsbury and, as north-west corridor through traffic transfers from the existing routes through the town centre onto the NWRR, it will also allow for road space reallocation in the town centre for buses and active travel. This potential provision of additional infrastructure for more sustainable modes, coupled with the provision of a combined 3m wide footway and cycleway adjacent to the NWRR carriageway, contributing to the Plan goal of increased modal shift.

Pre-Submission Draft Shropshire Local Plan 2016 to 2038 (Shropshire Council, 2020)

2.3.121. The Shropshire Local Plan seeks to provide a sustainable pattern of growth, responding to the varying scales, needs and functions of the county's hierarchy of settlements.

2.3.122. The Vision for Shropshire in 2038 is 'In 2038, communities will be safe and healthy as Shropshire moves positively towards a zero carbon economy; all residents will be able to access well-designed, decent and affordable homes in the right location; economic productivity will be maximised through greater investment; and the County's historic and natural environment assets will be protected and enhanced.' This reflects the wide role of the Local Plan to promote all aspects of sustainable development and takes its lead from a range of other strategies it seeks to deliver.

2.3.123. The delivery of the NWRR is stated as being supported in principle under policy S16.1, and paragraph 5.225 of this policy states that, whilst the Local Plan does not pre-determine the outcome of the proposed NWRR, it does consider the benefits of its development.

2.3.124. The Council's Site Allocations and Management Development (SAMDev) Plan sets out proposals for the use of land which is then included as part of the Local Plan. The employment and residential allocations for Shrewsbury are detailed in Table 2-11.

Table 2-11 – Shropshire Local Plan - Key employment and residential land allocations

Reference	Site Allocation	Details
SHR173	Land west of Ellesmere Road	450 dwellings
ELR006, SHREW095 and SHREW115	Land west of Battlefield Road	Employment / Residential land
ELR007	Land east of Battlefield Road	Employment land
SHREW105	Land off Shillingston Drive	Residential land
SHR054a	Land south of Sundorne Road	60 dwellings
SHR166	Land to the west of the A49	45ha of employment land
SHREW027	Land at Weir Hill Farm / Robertsford House, Preston Street and off London Road	Residential land
SHREW001	Land north of London Road	Residential land
SHR145	Land south of Meole Brace Retail Park	150 dwellings
SHREW212	Land west of Longden Road	Residential land
SHR060, SHR158 and SHR161	Land between Mytton Oak Road and Hanwood Road	1500 dwellings and 5ha of employment land
SHREW019, SHREW030/R, SHREW094 and SHREW210/09	Land between Mytton Oak Road and Hanwood Road	Residential land
SHR057 and SHR177	Land North of Mytton Oak Road	400 dwellings

Residential

2.3.125. Within Shrewsbury, new residential development will mainly be delivered through a combination of the SAMDev and the Local Plan residential and mixed-use allocations. This will be complemented by significant opportunities within the Shrewsbury development boundary, and in particular the town centre, consistent with the relevant policies of the Local Plan.

2.3.126. The residential site allocations are mainly located close to the A5 / A49 outer bypass, with the majority being situated to the west of the town. Access from the outer bypass to each of these sites will be enhanced by the NWRR as it will extract any north-west corridor traffic currently using the bypass to avoid congestion within Shrewsbury town centre, resulting in reduced traffic volumes and congestion levels along the outer bypass. This in turn will assist with site viability due to the reduced need for local developer contributions to increase capacity at affected junctions on the SRN.

2.3.127. In addition, 450 dwellings are proposed on the land west of Ellesmere Road (SHR173). This will be a comprehensive sustainable residential development and will be delivered to reflect the objectives of the Shrewsbury Big Town Plan and the Shrewsbury Moves sustainable transport strategy. However, development on this site is not permitted to come forward until the NWRR has been constructed and is operational, as suitable accessibility to the location is dependent on the reduced cross town movements that will result from the NWRR scheme.

Employment

2.3.128. As outlined in the emerging Local Plan, Shropshire aims to deliver 300ha of employment land over the plan period from 2016 to 2038, with 100ha of this employment land being made available for development in Shrewsbury. This reflects Shrewsbury's strategic role as the main centre for employment in the county.

2.3.129. As with residential developments, employment development will primarily be delivered through a combination of the SAMDev and Local Plan allocations, with the majority of the employment site allocations also being located close to the A5 / A49 outer bypass. Site access for employees and suppliers will be enhanced by the NWRR, due to the reduced traffic volumes along the outer bypass.

2.3.130. Local Plan allocations include 45 ha of employment land to the west of the A49 (SHR166). This site will be developed as a key gateway employment site for Shrewsbury and will be of strategic importance, contributing towards the economic growth aspirations of the region. The NWRR will ensure that this site can be accessed from the west of Shrewsbury directly and without adding to existing traffic levels both through the town centre and around the outer bypass.

2.3.131. Policy S16 of the Local Plan also identifies the potential for additional windfall commercial development between the boundary of residential development site proposed on the land west of Ellesmere Road (SHR173) and the NWRR, if the NWRR is constructed.

2.3.132. Opportunities will also be supported by the Council to enhance the existing employment facilities within and on the edge of the town centre and business parks on the periphery of the town, including Battlefield Enterprise Park and Oxon Business Parks. The NWRR scheme will provide a direct link between both business parks without the need to pass through the town centre.

Shrewsbury and Surrounding Area Place Plan (Shropshire Council, 2019-2020)

2.3.133. The Place Plan is one of 18 across Shropshire, supporting the Council and its partners to deliver the infrastructure needs of communities. It highlights a number of key infrastructural issues including

improvements to the local highway network and the development of speed reduction measures for traffic in settlements. It also states the need for improved resilience of Shrewsbury's road network with increasing traffic demand and the adverse impacts that this will have over time on noise and air quality, as well as the increased transport costs to the regional and local economy.

2.3.134. The NWRR has been designated 'Priority A' status by the Place Plan as it will meet the growing needs of the region through delivering a new link across the River Severn, mitigating the current restrictions of the physical landscape and providing a quicker transport link around the town between the western and northern sides of Shrewsbury. The scheme will alleviate current levels of congestion within the town centre and on the inner distributor ring road, improving air quality and reducing noise in and around the town centre.

Shrewsbury Big Town Plan (Shrewsbury Big Town Plan Partnership, 2018)

2.3.135. The Shrewsbury Big Town Plan supports the Local Plan to provide balanced growth over the next two decades. This will be delivered in a way that is centred on people and place, with more attention directed to encouraging development in the town centre, as well as peripheral locations that are in need of new life and purpose. The Plan aims to better connect peripheral areas, giving them identity and character, setting four themes to guide local improvements:

- Creating a place for enterprise
- Improving movement and place
- Nurturing natural Shrewsbury
- Supporting vitality life and mix

2.3.136. The Plan also outlines ten goals for Shrewsbury, the first of which is to make Shrewsbury better for pedestrians and cyclists, especially in the town centre. As part of the Plan, a Movement Vision has been established that seeks to implement a series of measures to reduce private car traffic through the town centre whilst allowing essential movement for service vehicles and disabled users.

2.3.137. In providing a shorter and more direct link between the northern and western parts of Shrewsbury, the NWRR will increase the capacity and resilience of the local highway network while reducing congestion on both local and strategic roads and reducing traffic flows through the town centre. It also will facilitate the proposed reallocation of road space from highway to cycle lanes, increased footway widths and other similar sustainable travel infrastructure in the town centre, supporting the overarching themes of the Big Town Plan and the Movement Vision.

SUMMARY

2.3.138. The Government's vision is for a transport system that supports and promotes economic growth and improves the quality of life for people. A well-functioning transport system is key to continued economic success, and to enable delivery of housing, employment and social infrastructure. The Government invests directly in the Strategic Road Network, providing the capacity and connectivity to support economic activity, combat congestion and connect communities. The Government recognises that local roads are a crucial element of the transport system and provides financial support for key local transport schemes through Growth Deals and the LLM Fund.

2.3.139. Government policy and guidance also emphasises the need for sustainable development, and for a transport system which is greener, safer and improves people's quality of life.

2.3.140. Across Shropshire and its surrounding area, the transport strategies focus on reducing inequalities, driving growth, decarbonisation, connectivity, the importance of freight, and the mobility challenges faced by rural communities.

2.3.141. Within Shrewsbury, transport strategies are guided by the aspirations of the Shrewsbury Big Town Plan which focuses on promoting modal shift through traffic management and enhancements to the active travel network. It also seeks to reimagine the public transport network within the town, supported by the Shropshire BSIP.

2.3.142. The delivery of the NWRR aligns closely with local, regional and national strategic goals as it will complete the 'missing link' in the town's road network, improving connectivity between the north and the west of Shrewsbury and unlocking employment and housing growth across Shrewsbury, helping to level up the town. It will also improve the efficiency and resilience of the local, regional and strategic road network and will directly add to and accommodate further growth in the local active travel network, driving modal shift.

2.3.143. The lower vehicle flows within the town centre will help to achieve the goals of the Big Town Plan by facilitating the introduction of new traffic management and active travel schemes and helping to make local bus services faster, more reliable, more efficient and more attractive. The reduced traffic volumes and congestion levels in the town centre will help to make the town centre a more attractive place to visit, driving inward investment and boosting local and tourist visitor numbers.

2.4 PROBLEM IDENTIFICATION – THE NEED FOR THE SCHEME

2.4.1. The lack of a direct road link between the northern and western parts of the town has been a major source of traffic problems for a very long time. Both the northern and western approaches to the town centre are heavily congested at peak times, and the presence of through traffic in the town centre leads to long queues and delays, blocking back through key junctions. The shortest and quickest routes currently used by north-west corridor traffic are unsuitable, but there are few alternatives for most trips.

2.4.2. Other problems arise directly from this fundamental weakness in Shrewsbury's transport network. Noise, visual intrusion and poor air quality affect people in residential areas and the town centre, as well as people walking and cycling. Accident rates are higher on roads not designed to modern standards. Journeys to work and for business can be slow and unreliable, adding to the cost of transport (including public transport) and discouraging investment.

2.4.3. As Shrewsbury has grown in size, its background traffic has increased. This growth has been accommodated through investment in transport links on the north, east and south sides of the town, including the A5 / A49 bypass, the inner distributor ring road and the A1524 Battlefield Link Road. Active travel infrastructure has been improved, Park and Ride services introduced, and significant enhancements made to the historic centre. By comparison, there has been little to no road investment in the north-west corridor as it would require a new crossing of the River Severn, and so the problems described above remain unresolved.

2.4.4. Shrewsbury continues to grow, and new development is already under way at the Shrewsbury South SUE, and future growth is planned at the Shrewsbury West SUE. As traffic levels return to, and subsequently exceed pre-pandemic levels, the road network is again under strain. One consequence of this is that incidents on one part of the existing road network can quickly lead to traffic backing up, or diverting, causing problems over a wider area. This lack of network resilience is

a concern. As traffic demand increases, we expect to see more traffic using the north-west corridor passing through the town centre, with increased congestion, queuing and delay and associated adverse impacts on noise and air quality, resulting in increased transport costs to the regional and local economy.

2.4.5. There are a number of specific transport related problems in Shrewsbury which are key drivers for the proposed NWRR scheme:

- Poor connectivity between the north and west of Shrewsbury for all modes of transport
- Traffic congestion in Shrewsbury town centre
- Traffic congestion on the northern and western approaches to the town
- Traffic congestion on Shrewsbury's outer bypass and inner distributor ring road
- Unreliable journey times and long delays
- 'Rat-running' traffic on unsuitable rural roads
- Inefficiency of the transport network, especially for buses
- Lack of network resilience
- Road accident and casualty numbers
- Poor air quality in Shrewsbury town centre
- Greenhouse gas impacts

POOR CONNECTIVITY BETWEEN THE NORTH AND WEST OF SHREWSBURY FOR ALL MODES OF TRANSPORT

2.4.6. As Shrewsbury grew in the 19th and 20th centuries, almost all of the development took place in the north-east, south-east and south-west quadrants of the town. Throughout the 20th century, the town's road infrastructure developed to accommodate this growth – again entirely within those three quadrants. At present, there are three road crossings of the meandering River Severn within the town centre, one on the inner distributor ring road and four on the outer bypass. There are also four river crossings for pedestrians within the town centre.

2.4.7. A bypass of the original A5 was completed in 1933 and now forms part of the inner distributor ring road through the western and southern inter-war suburbs. More recently constructed, modern roads, originally part of the A49, extend this partial ring to serve post-war suburbs in the east and north of the town. In the 1980s, the outer bypass was built on the southern and eastern sides of the town, providing a connection between the A5 and A49 and enabling through traffic using these routes to bypass the town centre. As a result, Shrewsbury is well connected to the West Midlands and the national motorway network, and there are good connections into, within and between the north-east and south-east suburbs and the south-east and south-west suburbs.

2.4.8. However, within the north-west quadrant, the picture is completely different as it is neither well connected nor developed. There is also no crossing of the River Severn between Welsh Bridge in the town centre and Montford Bridge on the B4380, which lies 6km further to the north-west. As a result, connectivity across the north-west quadrant is very poor for all modes.

Vehicles

2.4.9. There are no direct routes for north-west corridor vehicular traffic currently and, as a result, the typical north-west corridor journey between Churncote Roundabout to Battlefield Roundabout it is forced to use one of the five main routes shown on Figure 2-8 and summarised in Table 2-12. It

should be further noted that the two town centre routes have an additional constraint of passing under low railway bridges that carry the railway over the Station Gyratory.

Figure 2-8 – Current north-west corridor route options between Churncote Roundabout to Battlefield Roundabout

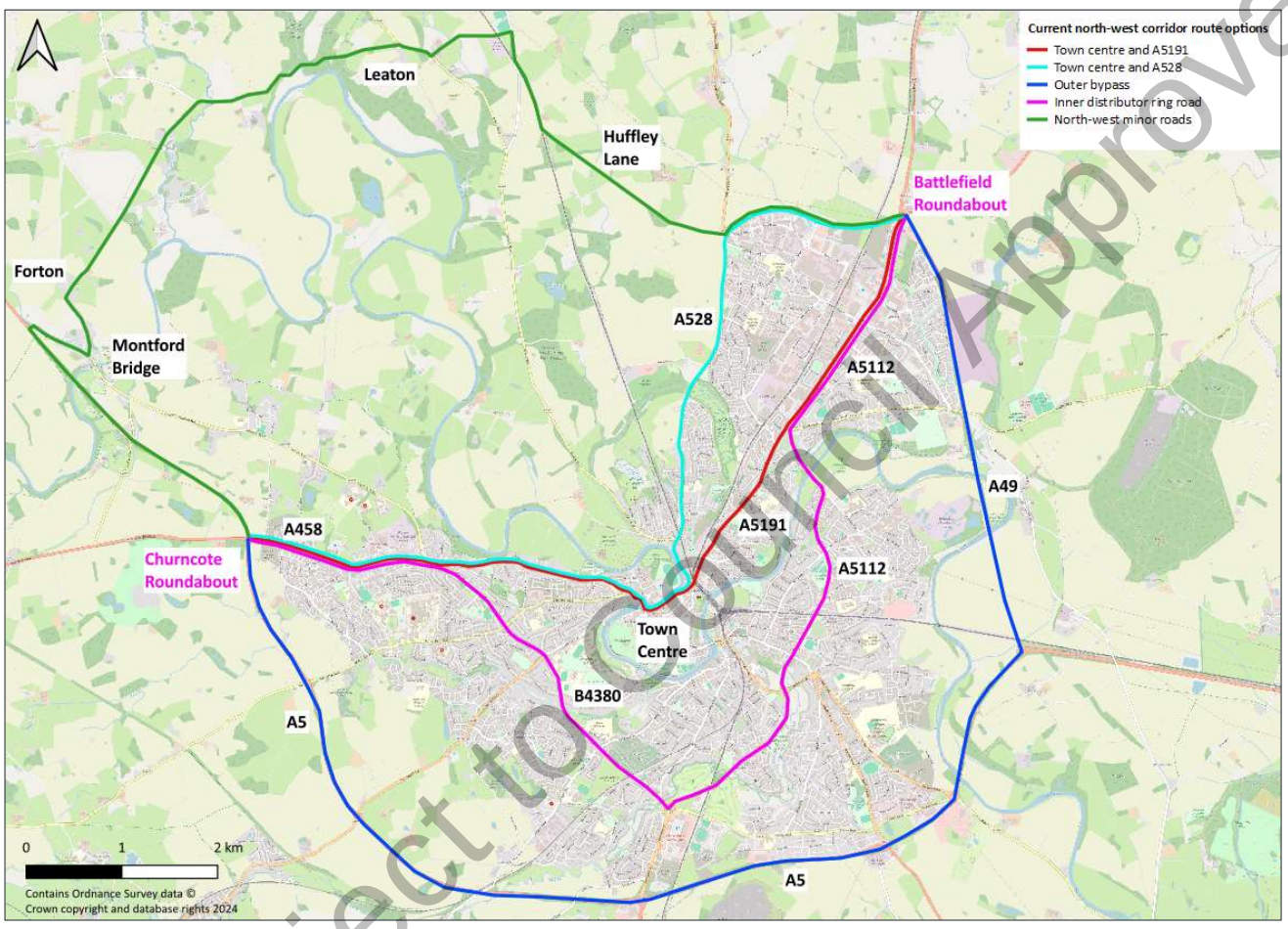


Table 2-12 – Summary of current north-west corridor route options

Route Option	Distance (km)	Description
Town centre and A5191 (shortest route)	9.5	A458 – Frankwell – Welsh Bridge – Smithfield Road – Station Gyratory – A5191 – Heathgates Roundabout – A5112
Town centre and A528 (usual quickest route)	10.8	A458 – Frankwell – Welsh Bridge – Smithfield Road – Station Gyratory – A528 – Ellesmere Roundabout – Battlefield Link Road
Inner distributor ring road (B4380 and A5112)	13.1	A458 – B4380 – A5112 – Heathgates Roundabout – A5112
North-west minor roads ('rat-run')	15.9	A5 – B4380 – Montford Bridge – Forton – Leaton – Huffley Lane – Ellesmere Roundabout – Battlefield Link Road
Outer bypass (A5 and A49)	16.3	A5 – Preston Boats Island – A49

2.4.10. Table 2-13 and Table 2-14 show the current typical journey times, by direction, for each of the five current north-west corridor route options above.

Table 2-13 – Typical journey times from Churncote Roundabout to Battlefield Roundabout

Current Route Option	Journey Distance (km)	Typical Journey Time (minutes)		
		Free Flow	AM peak	PM Peak
Town centre and A5191 (shortest route)	9.5	14	16 - 35	16 - 40
Town centre and A528 (usual quickest route)	10.8	14	14 - 28	14 - 30
Inner distributor ring road (B4380 and A5112)	13.1	16	16 - 35	18 - 40
North-west minor roads ('rat-run')	15.9	16	16 - 24	16 - 30
Outer bypass (A5 and A49)	16.3	14	14 - 35	14 - 30

Source: Google Maps typical Tuesday journey times in January 2024

Table 2-14 – Typical journey times from Battlefield Roundabout to Churncote Roundabout

Current Route Option	Journey Distance (km)	Typical Journey Time (minutes)		
		Free Flow	AM Peak	PM Peak
Town centre and A5191 (shortest route)	9.5	16	16 - 35	18 - 40
Town centre and A528 (usual quickest route)	10.8	14	14 - 30	16 - 35
Inner distributor ring road (B4380 and A5112)	13.1	18	18 - 35	18 - 40
North-west minor roads ('rat-run')	15.9	16	16 - 24	16 – 22
Outer bypass (A5 and A49)	16.3	16	16 - 30	18 - 30

Source: Google Maps typical Tuesday journey times in January 2024

2.4.11. The tables above highlight the lack of connectivity between the north and west of the town as, whilst these two key locations are only 7.6km apart 'as the crow flies', the five current main route options by road between them range from 9.5km up to 16.3km long, more than double the 'crow fly' distance. Journey times are also highly variable and slow with free flow journeys taking between 14 and 18 minutes, but journeys during peak periods taking between 14 and 40 minutes depending on the time of day and the route taken.

2.4.12. The shortest route is described in more detail in Table 2-15. It involves travelling via Shrewsbury town centre using a series of roads which, to varying degrees, are not suitable for heavy through traffic and experience higher than average accident rates as they are not designed to modern standards. Though classified as principal roads, most of these roads are also residential streets with homes that have limited off-street parking and frontages very close to the road.

Table 2-15 – Description of the shortest current route for north-west corridor traffic

Road Section	Description
A458 Welshpool Road (Churncote Roundabout - Shelton)	A two lane road with a 40mph speed limit at both ends. The central section passes through Bicton Heath with a 30mph speed limit as it has fronted by houses, two dental surgeries and local shops. This road also provides access to Oxon Park and Ride, a local caravan park and Oxon Business Park
A458 The Mount (Shelton - Frankwell Roundabout)	A mainly residential, two lane suburban road with a 30mph speed limit. The eastern half of this road has direct frontage access to houses and on-street parking and becomes narrow and hilly with narrow footways
Frankwell Roundabout	A large roundabout where the western approaches to the town converge, with frontage access to houses and local shops, and on-street parking
Welsh Bridge	A two lane stone bridge with a 20mph speed limit, with narrow footways on both sides but no cycle facilities. The bridge has busy signalised junctions at each end. The northern end junction with Frankwell has restricted turning movements and provides access to the Theatre Severn and Frankwell Car Park. The southern end junction with Mardol Quay and Bridge Street provides access to and from the town centre and Riverside, has single lane southbound and westbound approaches and a two lane northbound approach
A458 Smithfield Road	The busiest road in the town centre and served by every bus route in Shrewsbury. It runs along the eastern bank of the River Severn, with two lanes eastbound, one lane westbound and a 30mph speed limit. It is fronted by shops, a garage, pubs, some houses, a health centre and a large hotel. It also provides access to Shrewsbury Bus Station and Raven Meadows Car Park. Despite its river frontage, it is not attractive to pedestrians and cyclists due to the heavy traffic, lack of crossing points and a number of trees restricting the available pavement width in several locations
A528 / A5191 Station Gyratory	The gyratory is traffic signal controlled and restricted by buildings and the low railway bridges which are frequently struck by large vehicles. Despite the heavy traffic, it is fronted by houses, flats, pubs and restaurants, with some on-street parking, and the Gateway Adult and Community Education Centre. It provides access to Shrewsbury's railway station, although egress from the station forecourt is directly onto the gyratory and so is notoriously difficult, with long delays. Despite streetscape improvements, it remains a relatively unattractive area for cyclists and pedestrians
A5191 (Station Gyratory - Heathgates Roundabout)	A two lane urban street with a 30mph speed limit, fronted by flats, terraced houses, small shops, commercial premises and the town's main fire station and postal sorting office. Few houses have private parking and so some on-street parking is provided. Shrewsbury Flaxmill Maltings, an important historic building recently restored under the supervision of Historic England as part of a major regeneration scheme providing over 25,000 square feet of office space, can also be accessed
A5191 / A5112 / B5062 Heathgates Roundabout	A large, very busy roundabout with uncontrolled pedestrian and cycle crossings on each arm. It is fronted by houses and a pub. The two northbound approaches both have three lane flared entries whist the other two approaches both have two lane flared entries

Road Section	Description
A5112 Whitchurch Road (Heathgates Roundabout - Harlescott Crossroads)	A two lane, urban road with some local widening at junctions and a dedicated cycle track on one side. It is subject to a 30mph limit and is fronted by houses, a large supermarket, a DIY centre and shops, along with commercial and employment sites including the large Radius Aerospace premises. For part of its length, it is flanked by a service road giving local access
Harlescott Crossroads	A large four arm, multi lane, signalised junction providing access to Battlefield Enterprise Park, commercial developments including supermarkets and warehouse-type retail outlets and Harlescott Park and Ride
A5112 Battlefield Road (Harlescott Crossroads - Battlefield Roundabout)	Initially an urban road with up to four lanes, it provides access to a range of garages and large commercial premises. Further north, it narrows to one lane in each direction and becomes more suburban / semi-rural in character. It has a 30mph speed limit throughout

2.4.14. The quickest route for north-west corridor through traffic follows the unsuitable series of roads that comprise the shortest route as far as the Station Gyratory, before joining the A528 Ellesmere Road. Like the A5191 on the northern section of the shortest route, the A528 Ellesmere Road as far as Hubert Way is a two lane, urban road subject to a 30mph limit, with houses fronted very close to the road. Beyond Hubert Way, the A528 becomes more rural in nature with no frontages and is subject to a 40mph speed limit. On joining the rural A5124 Battlefield Link Road, the speed limit increases to 60mph. The higher speed limits and reduced delays on these sections often result in faster journey times than are experienced on the northern section of the shortest route, despite the additional route length.

2.4.15. The outer bypass route has higher speed limits and so, despite being almost double the length of the shortest route, the journey time along this route can be similar or faster to that of the shortest route. This route is the most suitable rote for freight vehicles, particularly high sided vehicles that are too tall to pass under the low railway bridges on the Station Gyratory in the town centre. However, this route utilises the A5 which is a key part of the SRN. As such, the north-west corridor through traffic adds to the high existing flows, leading to congestion forming at the southern junctions impacting both the A5 and A49 through traffic.

2.4.16. The inner distributor ring road route lies between the outer bypass and the town centre. Like the outer bypass route, it enables north-west through traffic to bypass the town centre, but it is circuitous and so it is over a third longer in length. However, as it is more rural in nature, speed limits are higher than the routes through the town centre, with the B4380 section to Meole Brace Roundabout being predominantly 40mph and the A5112 section between Meole Brace Roundabout and Heathgates Roundabout being predominantly 50mph. The main function of the inner distributor ring road is to distribute the traffic quickly and easily to and from destinations across the town and so, whilst suitable for north-west corridor through traffic, this through traffic causes additional congestion, preventing the road from undertaking its main function as optimally as it could.

2.4.17. The ‘rat-run’ route, although the second longest route, suffers from the least congestion and so can be attractive to some road users as it offers the least journey time variability and, during periods of disruption, can be recommended by navigation devices. It follows a number of minor roads to the

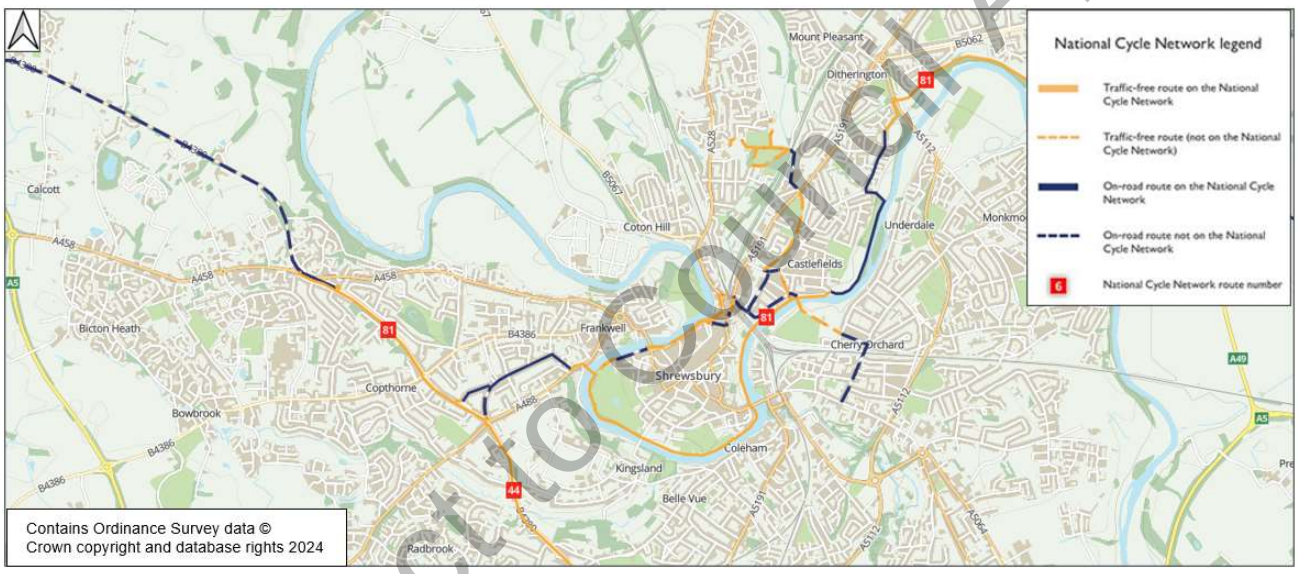
north-west of the town, avoiding the need to cross the River Severn. This route is wholly unsuitable for through north-west corridor traffic, in particular heavy goods vehicles.

Active Modes

2.4.18. Although Shropshire has the third longest Rights of Way network in England, as well as a vast amount of greenspace, like vehicular traffic, there are currently no direct routes between the north and west of Shrewsbury for active modes, with the majority of viable routes involving passing through the town centre as the river acts as a barrier to shorter routes. In addition to the extended route length, sections of possible routes are often unattractive due to a lack of street lighting, disconnected route sections and uneven surfaces.

2.4.19. As shown on Figure 2-9, National Cycle Routes (NCN) 44 and 81 serve Shrewsbury.

Figure 2-9 – Shrewsbury National Cycle Network routes



Source: Sustrans 2024

2.4.20. NCN 81 provides a viable route between the north and the west of the town. However, NCN 81 takes a traffic-free route across the town centre and so is very circuitous as it follows the river. As a result, many cyclists choose to use the more direct route along Smithfield Road.

2.4.21. This more direct route is not part of the NCN and the shared use footway / cycleway along Smithfield Road is used by high numbers of pedestrians and is narrow in many places, particularly on the side closest to the river, due to both road signage and trees.

2.4.22. As a result, there is signage on both shared use footway / cycleways along Smithfield Road, shown in Figure 2-10, advising cyclists to give way to pedestrians due to the conflicts that could potentially arise. This often results in cyclists cycling on the main carriageway along this very busy and congested road, with the increased safety risks that brings.

Figure 2-10 – Conflict warning signage for cyclists along Smithfield Road

2.4.23. The NWRR will include a shared 3m wide footway / cycleway along the length of its southern side, providing a new addition to the Shrewsbury active mode network that offers a short and direct route between the north and the west of the town. This will not only reduce journey times and journey distance, but it will also offer a much safer route as cyclists will not need to share the route with other vehicles. As cyclists transfer to the new route, it will also help to reduce the potential for conflicts between cyclists and both pedestrians and vehicles along Smithfield Road.

TRAFFIC CONGESTION IN SHREWSBURY TOWN CENTRE

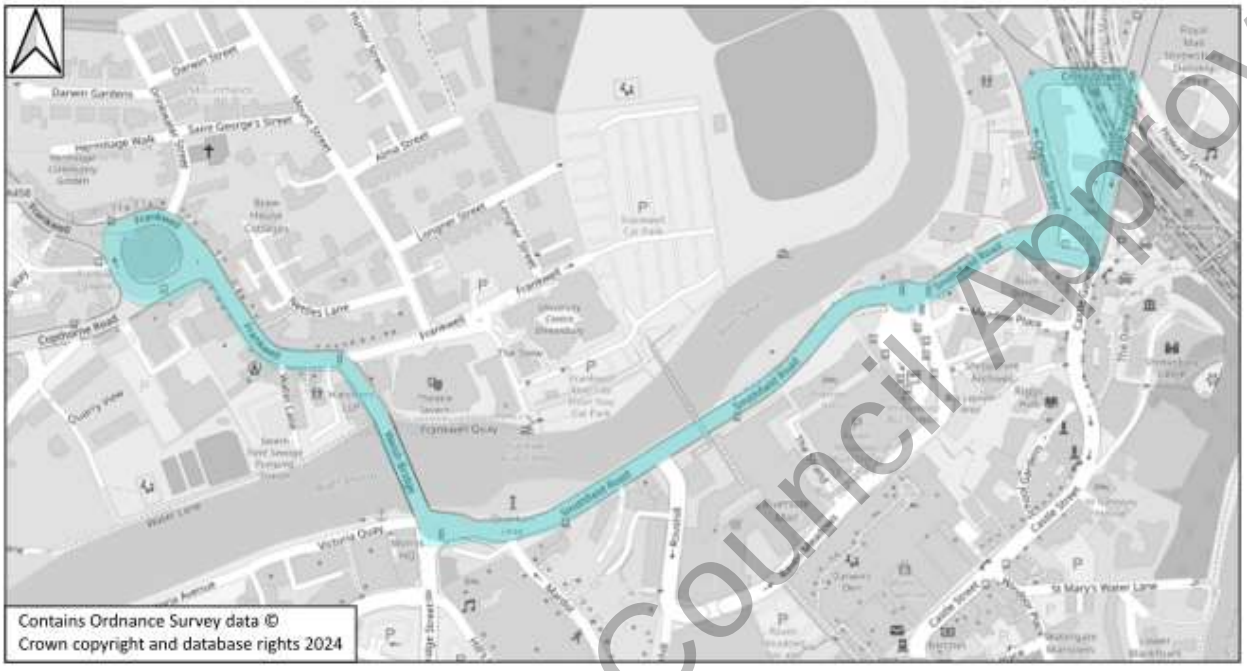
2.4.24. Shrewsbury's town centre is almost completely surrounded by a loop of the River Severn. There are just three main points of entry and a largely unaltered mediaeval street pattern. A toll bridge provides a minor additional point of entry from the southern suburbs.

2.4.25. The main shopping streets (High Street, Castle Street, Pride Hill) do not form part of the north-west corridor, but traffic on these streets has been managed over recent years by a combination of pedestrian priority, traffic calming and enhancement, and by ensuring alternative routes are available for through traffic.

2.4.26. As noted earlier in Table 2-12, north-west corridor through traffic taking either the shortest or usually quickest route passes directly through the town centre using Frankwell, Welsh Bridge, Mardol Quay,

Smithfield Road and the Station Gyratory, highlighted in cyan in Figure 2-11. These roads are all subject to significant congestion in peak periods and also experience some congestion outside peak periods due to the high traffic volumes.

Figure 2-11 – Town centre highway network – north-west corridor



2.4.27. At Frankwell, where the traffic island is bordered by local houses and shops, traffic backs up along the Mount and Copthorne Road and blocks the junction with New Street. Congestion around Frankwell causes delays to both the through north-west corridor traffic and the local traffic.

2.4.28. Welsh Bridge has just one lane in each direction. At its northern end there is a signalised junction with Frankwell that has restricted turning movements and provides access to the Theatre Severn and Frankwell Car Park. At its southern end there is a signalised junction with Mardol Quay and Bridge Street providing access to and from the town centre and the Riverside area. Both these junctions suffer queuing and delays during peak periods, and are a source of frustration to local drivers and those visiting Shrewsbury

2.4.29. Smithfield Road is the busiest road in the town centre and is subject to queueing and delays, particularly at peak periods. This affects local and visiting traffic seeking to access the main town centre car park at Raven Meadows, as well as through traffic on the north-west corridor. With up to 40 buses per hour, it is also a very important road for buses, serving all bus routes including the three Park and Ride services. It also provides the main access to Shrewsbury Bus Station at Meadow Place.

2.4.30. The Station Gyratory is a signal controlled gyratory providing access to Shrewsbury station and between the northern approaches and the town centre. Despite being fronted by houses, flats, pubs and restaurants, and the Gateway Adult and Community Education Centre, it suffers from congestion and delays throughout the day and entry to and exit from the station forecourt is notoriously difficult, with long delays affecting cars and taxis. In addition, the gyratory is severely

constricted by the low railway bridges. Despite improvements, it remains a relatively unattractive area for pedestrians and cyclists.

2.4.31. Table 2-16 shows that flows on Smithfield Road have largely recovered to pre-COVID-19 levels and, in 2023, buses and coaches represented 2.6% of all traffic and the average annual daily traffic (AADT) of motor vehicles was approximately 22,209. The number of HGVs using Smithfield Road has increased slightly between 2019 and 2023 from 259 to 275.

Table 2-16 – AADT (in vehicles) and composition on Smithfield Road

Vehicle Type	2023	2023 (%)	2019	2019 (%)
Car and Taxi	18,235	82.1	18,572	83.5
LGV	2,889	13.0	2,701	12.1
Bus and Coach	579	2.6	565	2.5
HGV	275	1.2	259	1.2
Motorcycles	231	1.0	156	0.7
Pedal Cycles	403	1.8	389	1.7
All Motor Vehicles	22,209		22,253	

Source: Department for Transport traffic counts, count site ID 18556

2.4.32. The Design Manual for Roads and Bridges (DMRB) recommends that two-way daily traffic flows on a typical single carriageway principal road should range between 20,000 and 23,000. On this basis, despite a slight fall in traffic flows post-pandemic, Smithfield Road continues to operate at close to full capacity, with little scope to increase further. It is likely that any increase in demand from north-west corridor through traffic would put pressure on the main alternative routes.

2.4.33. There is little scope for further improvement of these roads due to their historic environment, particularly at Frankwell; the lack of space and proximity of the river to Smithfield Road; and the restrictive railway infrastructure passing over the Station Gyratory. A new road and river crossing is therefore a viable option for improving connectivity and alleviating congestion in the study area.

2.4.34. Representative two-way modelled traffic volumes on sections of the north-west corridor within the town centre are set out in Table 2-17. Forecast traffic on the same sections of road will be examined later in Section 2.15 to demonstrate the expected impact of the proposed NWRR scheme.

Table 2-17 – 2023 two-way modelled traffic volume (in vehicles) within the town centre

Road	AM Peak	PM Peak	AADT
Frankwell	2,020	1,739	21,589
Welsh Bridge	1,899	1,655	20,189
Mardol Quay	2,067	1,873	23,601
Smithfield Road	1,766	1,762	20,956
Chester Street	1,102	979	12,873
Castle Foregate	1,066	931	11,911

TRAFFIC CONGESTION ON THE NORTHERN APPROACHES TO THE TOWN

2.4.36. As noted earlier in Table 2-12, the shortest and usually fastest routes for traffic between the north-east and north-west quadrants of the town is via the town centre river loop. As shown on Figure 2-12, there are two key radial routes approach the town centre from the north:

- A528 Ellesmere Road and Coton Hill
- A5112 / A5191 Battlefield Road, Whitchurch Road, Ditherington Road, Spring Gardens, St Michael's Street and Castle Foregate

Figure 2-12 – Northern approaches to Shrewsbury town centre

2.4.37. Along the A528 approach, to the north of Hubert Way, the road is rural in nature with no frontage development. South of Hubert Way, this character changes to include some limited frontage development which then becomes denser with terrace housing towards the southern end. Coton Hill has residential frontage development, and as it approaches the town centre skirts the river with houses and flats on its northern side.

2.4.38. Along the A5112 / A5191 approach, Battlefield Road is residential at its northern end, giving way to mixed commercial development. South of the Harlescott Lane signalised junction, Whitchurch Road has a mixture of residential frontages, a supermarket and the large Radius Aerospace premises. South of the Heathgates Roundabout, Ditherington is mainly residential with some local retail units.

2.4.39. Spring Gardens provides access to some traditional housing and extensive newer flats and houses constructed on brownfield sites. It also serves the Shrewsbury Flaxmill Maltings, an important historic building recently restored under the supervision of Historic England as part of a major regeneration scheme providing over 25,000 square feet of office space.

2.4.40. St Michael's Street and Castle Foregate have new and Victorian terraced housing along with local shops and business premises and are subject to on-street parking. They also gives access to the town's fire station, postal sorting office and commercial development.

2.4.41. Representative two-way modelled traffic volumes along each section of the two northern approach routes are set out in Table 2-18.

Table 2-18 – 2023 two-way modelled traffic volume (in vehicles) on northern approach routes

Approach	Route Section	AM Peak	PM Peak	AADT
A528	Ellesmere Road (North of Mount Pleasant Road)	1,280	1,274	14,673
	Ellesmere Road (Mount Pleasant Road to Hubert Way)	1,190	1,080	13,107
	Ellesmere Road (South of Hubert Way)	1,120	993	12,066
	Coton Hill	1,314	1,081	13,754
A5112 / A5191	Battlefield Road	506	656	6,941
	Whitchurch Road	1,051	1,004	11,583
	Ditherington Road	1,354	1,399	16,562
	Spring Gardens	1,221	1,281	14,967
	St. Michael's Street	637	712	8,994
	Castle Foregate	791	799	10,669

2.4.42. Based on analysis of Google Maps data from January 2024, typical uncongested speeds on the full 3.8km long A528 northern approach route from Battlefield Link Road to the Station Gyratory average just under 30 mph. However, at the busiest periods, the average southbound speed can fall to just

over 10 mph, adding up to 7 minutes to the journey duration. Coton Hill is subject to the most severe queuing and delays, due to the limited capacity of the Station Gyratory and queuing also extends northwards along Ellesmere Road from the junction with B5067 Coton Hill. Congestion on these sections is not limited to peak periods but can occur at various times of the day.

2.4.43. Typical uncongested speeds on the full 4.4km long A5112 / A5191 northern approach route from Battlefield Roundabout to the Station Gyratory average about 23 mph. However, at busy periods, the average southbound speed can fall to as low as 6 mph, adding up to 19 minutes to a typical journey duration. Castle Foregate and St Michael's Street are subject to the most severe queuing and delays (as highlighted in Figure 2-13), due to the limited capacity of the Station Gyratory, and congestion also occurs on Ditherington and Whitchurch Road associated with the busy Heathgates Roundabout and Harlescott Lane signalised junction. Congestion is not limited to peak periods but can occur at various times of the day.

2.4.44. Both the A528 and the A5112 / A5191 provide routes towards the town centre from the residential and employment areas in north Shrewsbury. Drivers will usually choose the route that appears less congested utilising satellite navigation. When congestion arises at the northern end of the A5112 / A5191 approach, suggested routes will often bypass this section making use of local roads to 'rat run' between the Harlescott Lane junction and Heathgates Roundabout.

2.4.45. Forecast traffic on the same sections of road will be examined later in Section 2.15 to demonstrate the expected impact of the NWRR.

Figure 2-13 – Typical congestion on St Michael's Street and Castle Foregate

TRAFFIC CONGESTION ON THE WESTERN APPROACHES TO THE TOWN

2.4.46. As shown on Figure 2-14 overelaf, there are three radial routes that approach Shrewsbury town centre from the west:

- A458 The Mount
- B4386 Copthorne Road
- A488 New Street

Figure 2-14 – Western approaches to Shrewsbury town centre

2.4.47. All three of these roads are residential, with frontage development along their full length and some on-street parking. The Mount and New Street are flanked by Victorian and Edwardian houses, whilst Copthorne Road serves inter-war housing and the former army barracks. These roads provide indirect access to several schools and to the large estates of inter-war housing between the B4380 Roman Road and Frankwell.

2.4.48. Representative two-way modelled traffic volumes along the western approach routes are set out in Table 2-19.

Table 2-19 – 2023 two-way modelled traffic volume (in vehicles) on western approach routes

Route Section	AM Peak	PM Peak	AADT
A458 The Mount	691	642	7,620
B4386 Copthorne Road	815	735	8,235
A488 Porthill Road	679	559	7,456

2.4.49. Based on analysis of Google Maps data from January 2024, typical uncongested average speeds on these three routes between their junctions with the B4380 and Frankwell Roundabout are 15 to 25 mph. These can typically fall to between 7 and 10 mph at the busiest periods, adding up to 3 or 4 minutes to a typical journey.

2.4.50. The main cause of congestion on these approaches is queuing on the approach to Frankwell Roundabout, where the three radial roads converge before entering the 'river loop' via Welsh Bridge. At busy times, traffic backs up through the roundabout and along Copthorne Road from the signalised junction as the northern end of Welsh Bridge that provides access to the Theatre Severn and Frankwell Car Park. This makes it difficult for traffic from The Mount to enter the roundabout, as this movement has to rely on other drivers giving way.

2.4.51. Similarly, traffic queuing on Copthorne Road blocks the exit from New Street onto Copthorne Road, leading to queuing back along New Street. To try to minimise their delay at this junction, some drivers approaching the town centre along New Street will turn left along Pengwern Road, a residential street linking New Street and Copthorne Road, as the B4386 / Pengwern Road junction can be easier to exit from.

2.4.52. Forecast traffic on the same sections of road will be examined later in Section 2.15 to demonstrate the expected impact of the NWRR.

TRAFFIC CONGESTION ON SHREWSBURY'S OUTER BYPASS AND INNER DISTRIBUTOR RING ROAD

Outer Bypass

2.4.53. The Shrewsbury outer bypass is currently the main route for through north-west corridor traffic wishing to avoid or unable to use routes passing through Shrewsbury town centre due to the low railway bridges on the Station Gyratory. The outer bypass comprises a section of the A5 between the A458 Churncote Roundabout and the A49 Preston Boats Island, together with a section of the A49 from Preston Boats Island to A5112 Battlefield Roundabout. The A5 section forms part of the SRN and acts as a key strategic link to the major port of Holyhead in North Wales.

2.4.54. Representative two-way modelled traffic volumes along each section of the outer bypass are set out in Table 2-20.

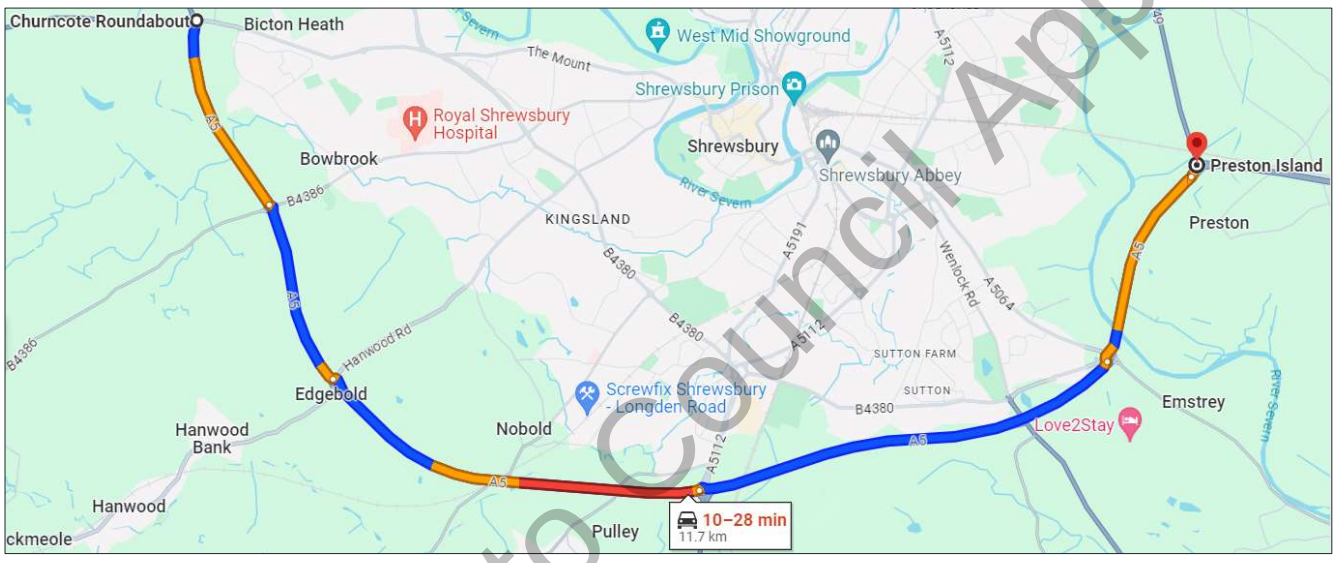
Table 2-20 – 2023 two-way modelled traffic volume (in vehicles) on the A5 / A49 outer bypass

Route Section	AM Peak	PM Peak	AADT
A5 (Montford Bridge to A458 Churncote Roundabout)	1,701	1,647	18,858
A5 (A458 Churncote Roundabout to B3486 Woodcote Roundabout)	2,239	2,349	26,525
A5 (B4386 Woodcote Roundabout to A488 Edgebold Roundabout)	2,854	2,857	31,412
A5 (A488 Edgebold Roundabout to A49 Dobbies Island Roundabout)	3,457	3,418	37,817
A5 (A49 Dobbies Island Roundabout to A458 Weeping Cross)	3,978	4,123	44,713
A5 (A458 Weeping Cross to B4380 Emstrey Island)	3,139	3,261	35,435
A5 (B4380 Emstrey Island to A49 / A5 Preston Boats Island)	3,801	3,860	41,703
A49 (A49 / A5 Preston Boats Island to B5062 Sundorne Roundabout)	2,646	2,749	29,093
A49 (B5062 Sundorne Roundabout to A5112 Battlefield Roundabout)	1,856	1,935	21,460

2.4.55. Based on analysis of Google Maps data from January 2024, typical uncongested speeds on the full 11.7km long A5 section between the A458 Churncote Roundabout and the A49 Preston Boats Island average just under 50 mph. However, at the busiest periods, the average clockwise speed can fall to just under 25 mph, adding up to 9 minutes, doubling the typical uncongested journey time. The average anti-clockwise speed can fall to just over 15 mph, adding up to 18 minutes, tripling the typical uncongested journey time.

2.4.56. Figure 2-15 shows the peak congestion levels experienced along this section of the A5 in the anti-clockwise direction during the morning peak period, when congestion levels are at their worst.

Figure 2-15 – Peak congestion levels on the A5 outer bypass



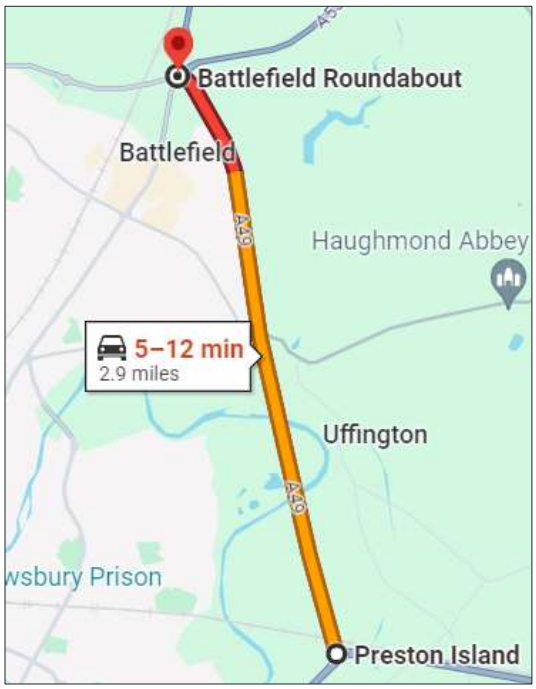
Source: Google Maps peak anti-clockwise congestion levels in January 2024

2.4.57. Figure 2-15 highlights congestion being experienced at each junction along the A5. On the western side, there is slow moving traffic on the approach to the B3486 Woodcote Roundabout. To the south, there is very slow-moving traffic for 1.5km on the approach to the Dobbies Island Roundabout and, to the east, slow moving traffic is experienced on the approach to the A49 Preston Boats Island with traffic blocking back over 1.5km to the previous junction at Emstrey Roundabout.

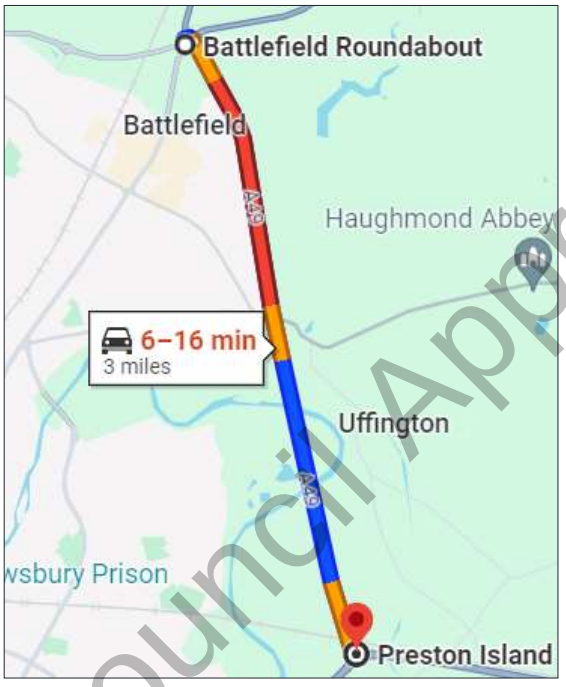
2.4.58. Typical uncongested speeds on the full 4.7km long A49 section between A49 Preston Boats Island and the A5112 Battlefield Roundabout average just under 45 mph. However, at the busiest periods, the average speed can fall to just under 15 mph in the northbound direction and just over 10mph in the southbound direction, adding up to 8 minutes northbound and 12 minutes southbound to the typical 4 minute uncongested journey time, as shown in Figure 2-16.

Figure 2-16 – Peak congestion levels on the A49 outer bypass

Northbound A49



Southbound A49



Source: Google Maps peak congestion levels in January 2024

2.4.59. The congestion experienced along the A5 / A49 outer bypass is exacerbated by the addition of north-west corridor through traffic, including HGVs, using this route due to the lack of suitable alternative routes.

2.4.60. Shrewsbury's outer bypass plays a key role in the town's road network, as it helps to keep unnecessary through traffic away from the historic town centre. Congestion on the outer bypass can lead to additional pressure on the town's inner distributor ring road, and this too can become congested at peak times.

2.4.61. As part of the SRN, the A5 section of the outer bypass also acts as a key strategic link to the major port of Holyhead in North Wales and additional congestion along this section will impact journey times and journey reliability for freight traffic seeking to make time-sensitive connections with the limited frequency ferries to the Republic of Ireland.

2.4.62. Forecast traffic on the same sections of road will be examined later in Section 2.15 to demonstrate the expected impact of the NWRR.

Inner Distributor Ring Road

2.4.63. Representative traffic volumes on the inner distributor ring road are set out in Table 2-21.

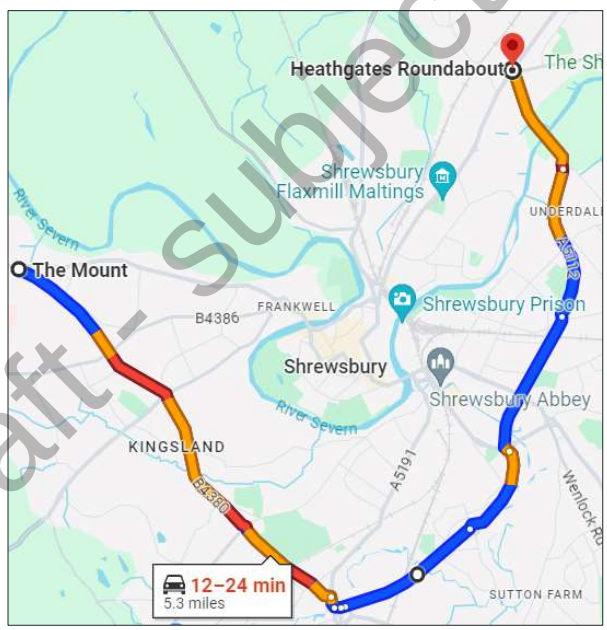
Table 2-21 – 2023 two-way modelled traffic volume (in vehicles) on the inner distributor ring road

Route Section	AM Peak	PM Peak	AADT
B4380 Shelton Road (The Mount to Mytton Oak Road)	1,012	973	9,586
B4380 Shelton Road (Mytton Oak Rd to Radbrook Road)	1,242	1,151	13,403
B4380 Roman Road (Radbrook Road to Longden Road)	1,478	1,450	16,873
B4380 Roman Road (Longden Road to Meole Brace Island)	1,619	1,683	19,394
A5112 Hazledine Way (Meole Brace to Reabrook Roundabout)	1,433	1,446	17,403
A5112 Pritchard Way (Reabrook Roundabout to Old Potts Way)	1,554	1,507	18,011
A5112 Bage Way (Old Potts Way to Crowmere Road)	1,740	1,724	19,920
A5112 Robertson Way (Crowmere Road to Telford Way)	2,036	2,036	23,822
A5112 Telford Way to Heathgates Roundabout	2,545	2,494	30,035

2.4.64. Based on analysis of Google Maps data from January 2024, typical uncongested speeds on the full 8.5km long section of the inner distributor ring road between The Mount and Heathgates Roundabout average just over 30 mph. However, as shown in Figure 2-17, at the busiest periods, the average speed can fall to just under 15 mph, adding up to 12 minutes to the typical 10 minute uncongested journey time.

Figure 2-17 – Peak congestion levels on the inner distributor ring road

Anticlockwise



Clockwise

Source: Google Maps peak congestion levels in January 2024

2.4.65. During peak periods, eastbound traffic is slow moving for up to 3km on the approach to the signalised junction with the A5191 Hereford Road, just prior to Meole Brace Roundabout. Eastbound traffic also queues for up to 1km on the approach to Heathgates roundabout as it waits for gaps to enter the busy roundabout.

2.4.66. Peak period westbound traffic also suffers congestion between Meole Brace Roundabout and Longden Road Roundabout, and then again between the roundabouts at the A488 Porthill Road and the B4386 Copthorne Road.

2.4.67. Forecast traffic on the same sections of road will be examined later in Section 2.15 to demonstrate the expected impact of the NWRR.

UNRELIABLE JOURNEY TIMES AND LONG DELAYS

2.4.68. Along the congested roads and junctions that make up the northern and western approaches, queueing and delays are not uniform but can vary from month to month, day to day, or even within peak periods. For this reason, individual journeys may on occasion be delayed by more than the average amount and queues can build up and reduce rapidly over a short period of time. This can make perceptions of delay worse than average figures suggest and means that journey times will be less reliable than on uncongested routes. People travelling to work, to catch a train or to a fixed appointment, for example, need to allow more time to avoid the risk of being delayed.

2.4.69. The northern and western approaches are also used by bus services and the varying amount of delay experienced along them due to the congestion is also clearly illustrated in bus journey time data for these services, obtained from the Analyse Bus Open Data (ABOD) service for the four-week period between 22 April 2024 and 18 May 2024.

2.4.70. Along the A528 northern approach between Hubert Road and Shrewsbury Bus Station, a distance of approximately 2.3km, the ABOD analysis showed that the average journey time during the four-week period was approximately 12 minutes. As Figure 2-18 shows, journey times generally varied by up to 3 minutes across the day, except on Thursdays where journeys took up to 17 minutes and varied by up to 7 minutes across the day.

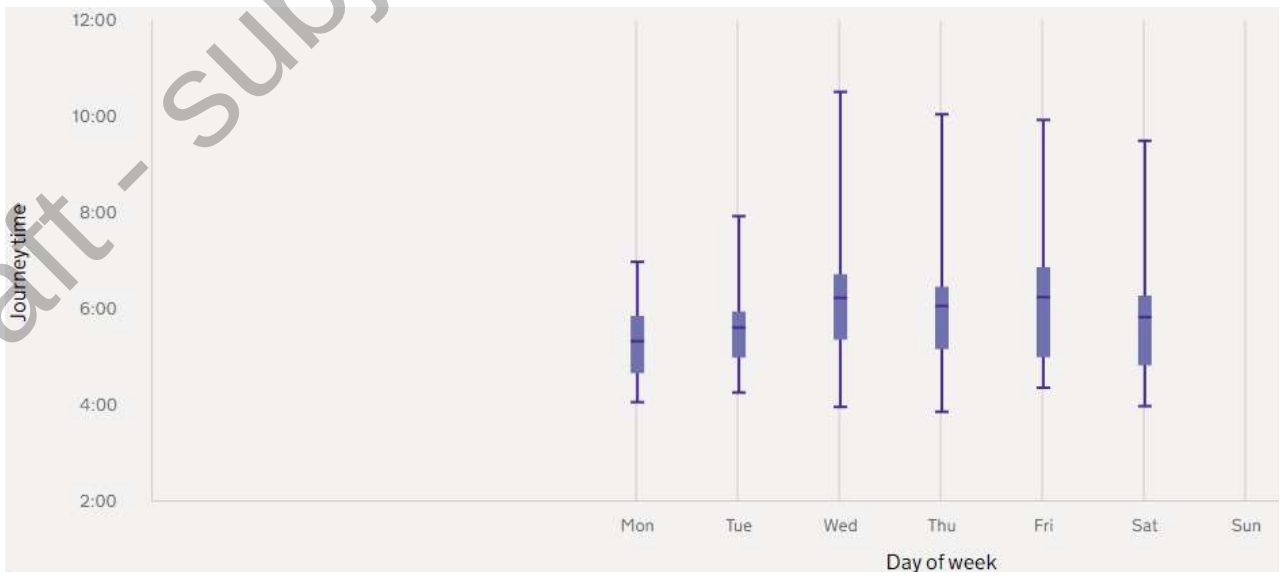
Figure 2-18 – Bus journey time variability along the A528 northern approach

2.4.71. Along the A5112 / A5191 northern approach between Harlescott Crossroads and Shrewsbury Bus Station, a distance of approximately 3.4km, the ABOD analysis showed that the average journey time during the four-week period was approximately 12 minutes with around 50% of journeys each day taking between 9 and 15 minutes. However, as Figure 2-19 shows, there was much greater journey time variability compared with the A528 approach, with Mondays showing the least variability of 12 minutes and Fridays showing the most variability of 23 minutes, with the longest journey taking 31 minutes.

Figure 2-19 – Bus journey time variability along the A5112 / A5191 northern approach

2.4.72. Turning now to the western approaches, along the A458 approach between the B4380 and Shrewsbury Bus Station, a distance of approximately 2.6km, the ABOD analysis showed that the average journey time during the four-week period was approximately 6 minutes. Figure 2-20 shows that there was only small variability in journey times on Mondays and Tuesday but, in the latter half of the week, variability increase with journeys taking between 4 and 11 minutes.

Figure 2-20 – Bus journey time variability along the A458 western approach



2.4.73. Along the B4386 approach between the B4380 and Shrewsbury Bus Station, a distance of approximately 2.2km, the ABOD analysis showed that the average journey time during the four-week period was approximately 7 minutes. Figure 2-21 shows that, whilst average journey times were similar to those on the A458 approach, there was far greater journey time variability, with journey times on Thursdays for example taking between 4 minutes and 28 minutes.

Figure 2-21 – Bus journey time variability along the B4386 western approach

2.4.74. The journey time variability described above highlights that each bus is likely to experience a different level of delay dependent on the day of the week. With the same timetables applying across all five weekdays for operational and passenger convenience, the sometimes significant variability in delays makes timetables difficult to adhere to and plan and adding in extra contingency for the variability due to congestion increases operating costs and makes services less appealing and less economically viable.

2.4.75. Unsurprisingly, the recently updated Shropshire BSIP includes concerns from Arriva, Shrewsbury's biggest bus operator, about traffic congestion impacting their ability to both run all their registered mileage and run all their services on time.

2.4.76. The NWRR will reduce traffic flows and congestion across Shrewsbury, enabling the existing road network to operate more optimally and efficiently as each road is able to better perform the function for which it was intended. This, is turn, will reduce delays and make journeys more reliable and easier to plan.

2.4.77. Whilst the journey time reductions and reliability improvements as a result of the NWRR are unlikely to be sufficient to impact the peak vehicle requirement (PVR) for any bus route, they will decrease the likelihood of future potential PVR increases. In addition, they should reduce the likelihood of an operator needing to deploy additional vehicle and driver resources to cover for significant unforeseen congestion related delays.

2.4.78. This additional schedule robustness will help to provide a more efficient, reliable and commercially viable bus network as a whole, making buses a much more attractive option, encouraging modal shift to this more sustainable mode.

‘RAT-RUNNING’ TRAFFIC ON UNSUITABLE RURAL ROADS

2.4.79. The lack of a purpose-built road between the north and west of Shrewsbury, and the congestion on the routes into and through the town centre, results in some traffic finding it more attractive to use the network of minor roads to the north-west of the town, as illustrated in Figure 2-22.

Figure 2-22 – ‘Rat-run’ options on minor roads to the north-west of Shrewsbury

2.4.80. This has been a longstanding cause for concern amongst local residents and for the Council in terms of the increased maintenance requirements. These routes are, for the most part, unclassified country lanes, but are increasingly being used by HGVs, particularly on the B4397 and B5067 through the villages of Baschurch and Ruyton-XI-Towns, and on the road through Bomere Heath.

2.4.81. Without the NWRR, these routes will continue to provide an attractive, wholly unsuitable, alternative route for through journeys that do not have either origin or destination in the areas affected, including journeys generated by the Battlefield Enterprise Park and Oxon Business Park.

2.4.82. Modelled traffic flows on some of the routes affected are set out in Table 2-22.

Table 2-22 – 2023 two-way modelled traffic volume (in vehicles) on north-west 'rat run' routes

Route Section	AM Peak	PM Peak	AADT
B4473 Preston Montford Lane	154	204	1,730
North of Montford Bridge	410	358	3,713
West of Leaton	344	286	3,058
North of Leaton	504	620	6,062
East of Leaton	627	681	6,748
B5067 Berwick Road, South of Leaton	72	114	996
Huffley Lane	539	635	6,055

2.4.83. Forecast traffic on the same sections of road will be examined later in Section 2.15 to demonstrate the expected impact of the NWRR.

INEFFICIENCY OF THE TRANSPORT NETWORK, ESPECIALLY FOR BUSES

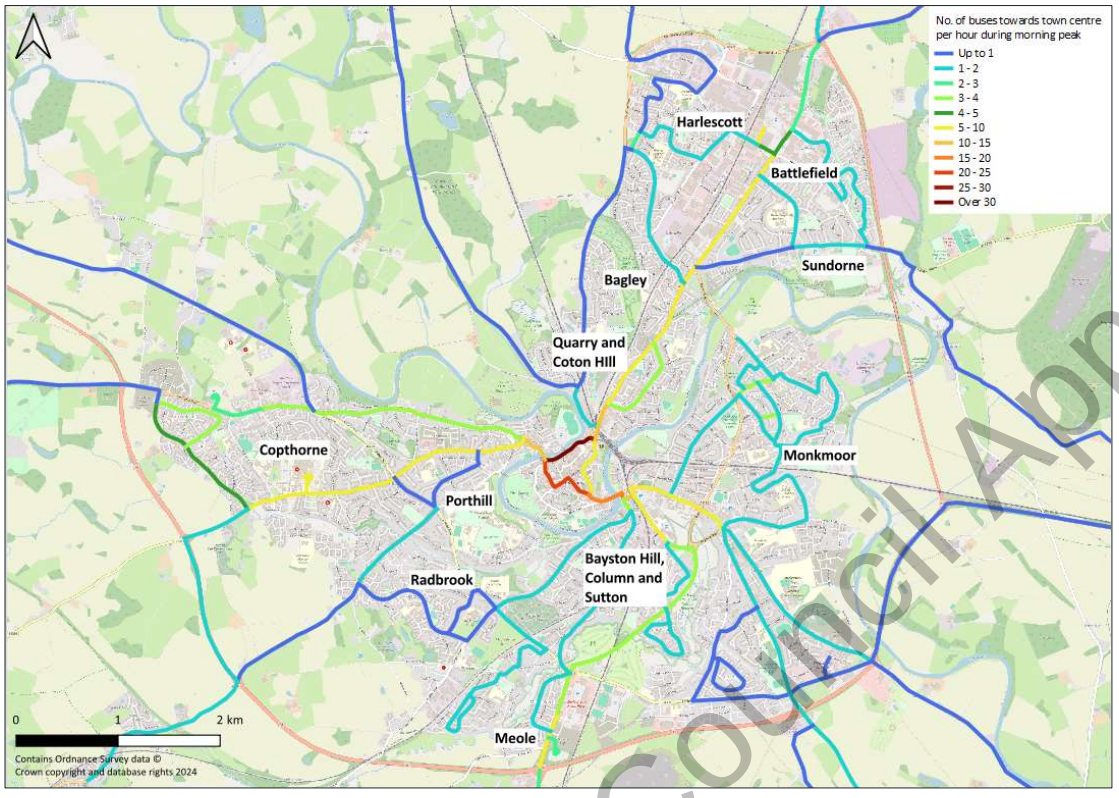
2.4.84. Unpredictable levels of congestion on the northern and western approaches to the town centre, and on Smithfield Road, the town's busiest road, make Shrewsbury's transport network less efficient for all vehicles. It also reduces the accessibility of town's railway station for traffic from all directions and affects people trying to access the town's main car parks at Raven Meadows, off Smithfield Road.

2.4.85. Shrewsbury is served by a relatively comprehensive network of bus services. The main bus operator is Arriva Midlands North. However, services are also provided by Celtic Travel, Lakeside Coaches, Minsterley Motors, Select Bus Services and Tanat Valley Coaches.

2.4.86. Service freqencies vary considerably across the town, with the most frequent services, including the three Park and Ride routes, running up to every 20 minutes. However, other routes are only served by longer distance buses running hourly or less.

2.4.87. Figure 2-23 shows the frequency of fixed route bus services towards the town centre during the weekday AM peak, as of May 2024 and it highlights the heavy use of north-west corridor roads by local buses.

Figure 2-23 – Bus route frequency towards Shrewsbury town centre in the weekday AM peak



2.4.88. The town bus station also lies on the north-west corridor at the north-east end of Smithfield Road, near to the railway station. As a result, all bus routes (including the three Park and Ride services that do not serve the bus station) serve Smithfield Road and so it carries more buses than any other road in Shrewsbury, having a combined two-directional flow of over 40 buses per hour.

2.4.89. Most bus services serving towns and villages to the north and north-east of Shrewsbury are concentrated on the A5112 / A5191 northern approaches to the town. These longer distance services are joined by local services serving the northern suburbs and the Harlescott Park and Ride (BLU) service. Together services 2, 24, 25, 64, 511, 512, 521 and BLU provide a combined frequency of up to ten buses an hour serving all or part of the A5112 / A5191 northern approach.

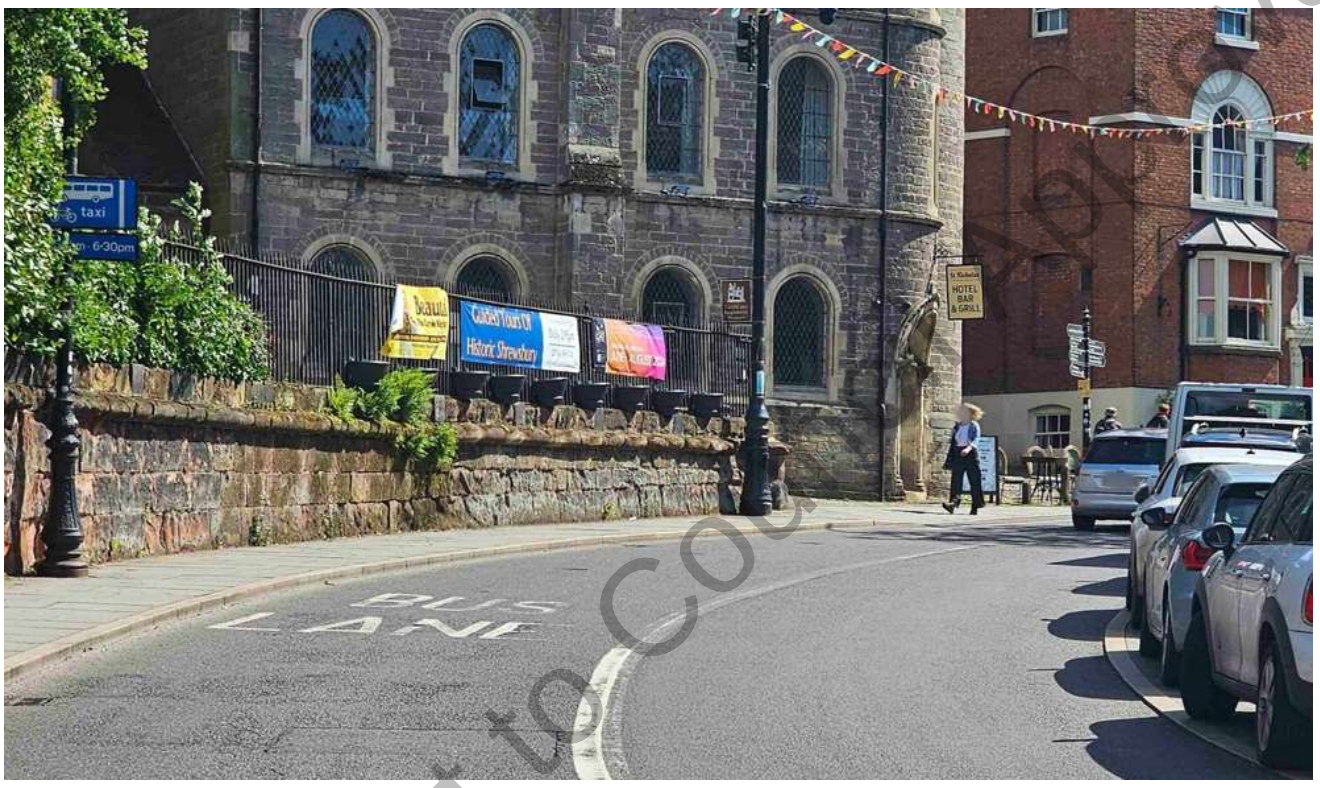
2.4.90. Additionally, the A528 northern approach is served by the 501 and 576 longer distance bus services that provide a combined frequency of up to two buses and hour serving towns and villages to the north-west of Shrewsbury

2.4.91. The western approaches are also well served by buses with services 11, 12, 20, 74, 74A, 552, 553, 558, PINK, X5 and X75 providing a combined frequency of up to 12 buses an hour serving the villages to the west and north-west of Shrewsbury, the western suburbs and the Oxon Park and Ride (PINK) service.

2.4.92. As highlighted earlier, unpredictable congestion along both the northern and western approaches leads to delays for all vehicles, including buses. As bus services have fixed routes, they are unable to divert around pockets of congestion that arise and so are often more adversely impacted than other forms of transport. The analysis detailed in paragraphs 2.4.69 to 2.4.74 highlighted the impact on bus journey times and, in particular, the variability in bus journey times it leads to across the week.

2.4.93. It is often the case that congestion issues experience by bus services are mitigated by the implementation of some form of bus priority measures. However, across Shrewsbury there is only one short section of bus priority up the steep Castle Gates hill between the exit from Shrewsbury station and the town centre, as shown in Figure 2-24.

Figure 2-24 – Shrewsbury town centre bus lane



2.4.94. The lack of bus priority, coupled with the levels of congestion on the northern and western approaches and within the town centre, particularly around the bus station, lead to the town's bus services, including the Park and Ride services, being highly inefficient, unreliable and difficult to connect between, whilst also being more expensive to operate, further reducing the attractiveness of this more sustainable mode of transport.

2.4.95. Bus services in Shrewsbury operate on a hub and spoke type network, with routes radiating out from the town centre and there are no cross town bus services. This means that any journey by bus between two locations not within the same corridor always involves changing to another bus in the town centre, usually at the bus station. This increases journey times and having to change buses makes such journeys unattractive and often more expensive.

2.4.96. Also, delays to services often mean that connections are missed and, with services at best running every 20 to 30 minutes, any missed connections can lead to significant increases in journey duration and so the bus becomes an even less attractive option.

2.4.97. The BSIP highlights the infrequent, unreliable and poorly connected bus network in Shropshire. The reduced congestion levels along the north-west corridor as a result of the NWRR will reduce journey times and delays, improving the efficiency, reliability and financial viability of the town's public transport network as a whole, potentially reducing in the medium to longer term the level of Council

bus subsidy payments and supporting modal shift to public transport which strongly aligns to the desired outcomes of the BSIP.

LACK OF NETWORK RESILIENCE

2.4.98. Resilience in a transport network has been defined[15] as 'the ability to absorb shocks gracefully'. It may be understood in terms of the way different components of the network work complement each other:

- **Redundancy** Different components serving the same function
- **Diversity** Components are functionally different
- **Efficiency** Network performance is optimised
- **Autonomy** Components are able to function separately
- **Strength** Ability to withstand a disruptive event
- **Collaboration** Information and resources shared amongst components
- **Adaptability** Flexible, able to learn from past experiences
- **Mobility** Ability to reach a chosen destination with an acceptable level of service
- **Safety** Exposes fewer users to hazards
- **Recovery** Level of service can be restored quickly

2.4.99. Lack of resilience is a problem if a transport network is unable to cope with disruptive events, such as surges in demand from the large number of local events held at locations in and around the town centre, as well as accidents, extreme weather conditions or road works. The more common the event, the more important it is for the network to be able to recover quickly in order to restore an acceptable level of service and avoid compounding the problem.

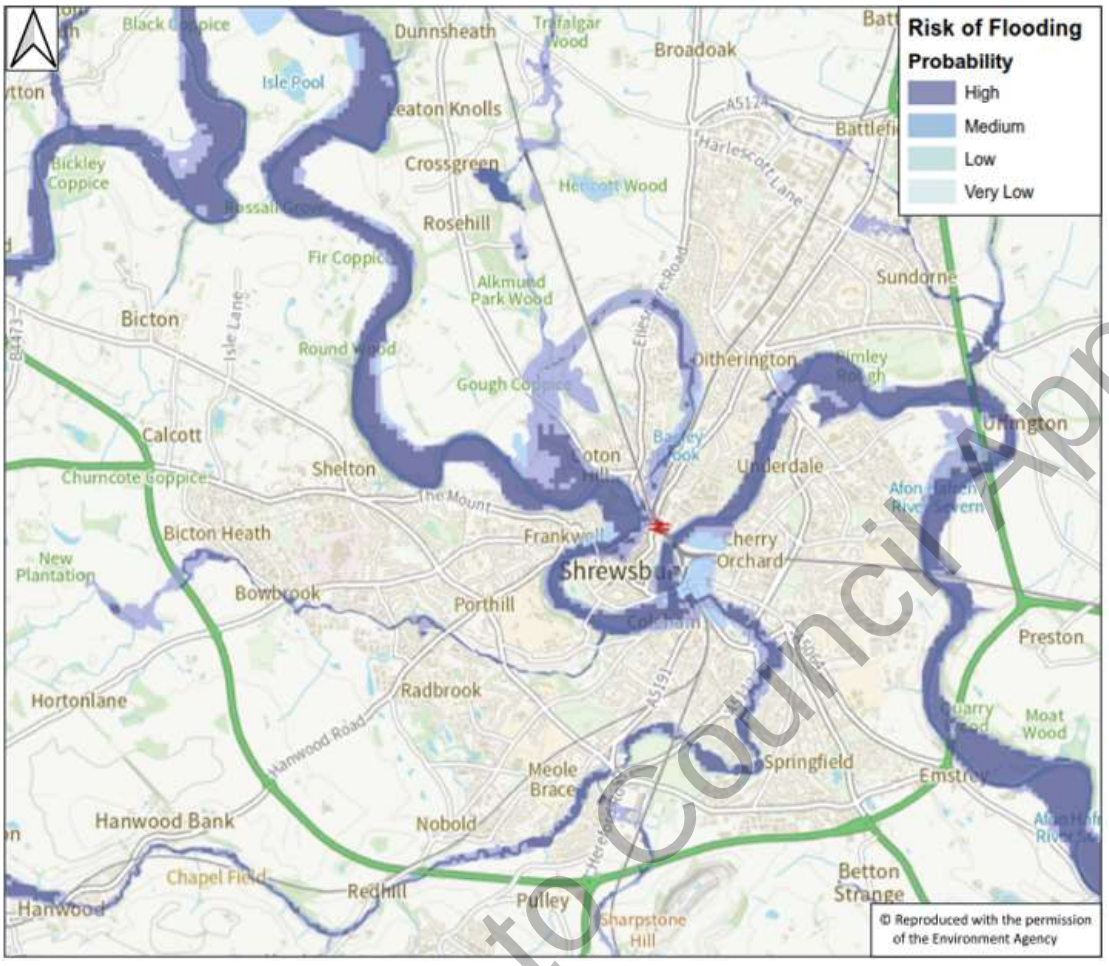
2.4.100. The operation of large vehicles, such as freight and agricultural vehicles, across Shropshire and the Marches cross-border areas has a significant impact on journey times and reliability for all road users. This is due to the largely single carriageway nature of the rural road network, meaning that there are often limited overtaking opportunities, limiting resilience with significant diversions.

2.4.101. Lack of network resilience can be a problem in Shrewsbury because of the lack of viable alternatives for trips between north and west. The shortest and quickest routes are via the town centre and are often congested. The 'rat runs' through rural lanes to the north-west of the town are unacceptable and inefficient. The 'longer ways round' via the inner distributor ring road or outer bypass to the south and east of Shrewsbury use up valuable capacity on these routes and detract from the primary function of these roads. In terms of resilience, there is a lack of redundancy, diversity and efficiency for north-west corridor traffic.

2.4.102. The physical location of Shrewsbury means that the town is very prone to flooding, with the River Severn loop enclosing the town centre. Figure 2-25 shows the likelihood of flooding, which is key to note when assessing how suitable a location is for development or infrastructure improvements.

[15] Resilience Theory and System Evaluation, Verification and Validation of Complex Systems: Human Factor Issues, Vol.110, p35-60, Harold Foster (1993)

Figure 2-25 – Shrewsbury flood risk



2.4.103. The construction of flood defences in 2003 temporarily alleviated the flooding problems that were prevalent across the town centre, resulting in numerous road closures including along Smithfield Road and Frankwell, key links on the existing north-west corridor.

2.4.104. These flood defences generally proved successful in alleviating flooding occurrences within the town centre, although the car parks near the river still flooded, affecting local traffic patterns. However, since 2022, the town has again been subject to a number of flooding events.

2.4.105. The most recent flooding event in January 2024 led to significant flooding across the majority of the low-lying areas close to the river and resulted in the closure of Smithfield Road for two days, with the bus station being closed for three days and car parks close to the river being closed even longer. This caused significant disruption across the town and severed the key north-west corridor route through the town centre, leading to congestion across the town as drivers diverted to routes not affected by flooding. Flooding events such as this affect multi-modal network resilience whereby roads become inaccessible for all users, often resulting in extended journeys via lengthy diversion routes.

2.4.106. The NWRR would play a key role in increasing the resilience of Shrewsbury's transport network as, not only would it provide a flood resistant route for north-west corridor traffic by completing the loop it would enable the outer bypass to operate more optimally during times of disruption with traffic able to utilise it in either direction to navigate around any blockages within the local road network.

2.4.107. In terms of the resilience factors identified above the impact of the NWRR would be:

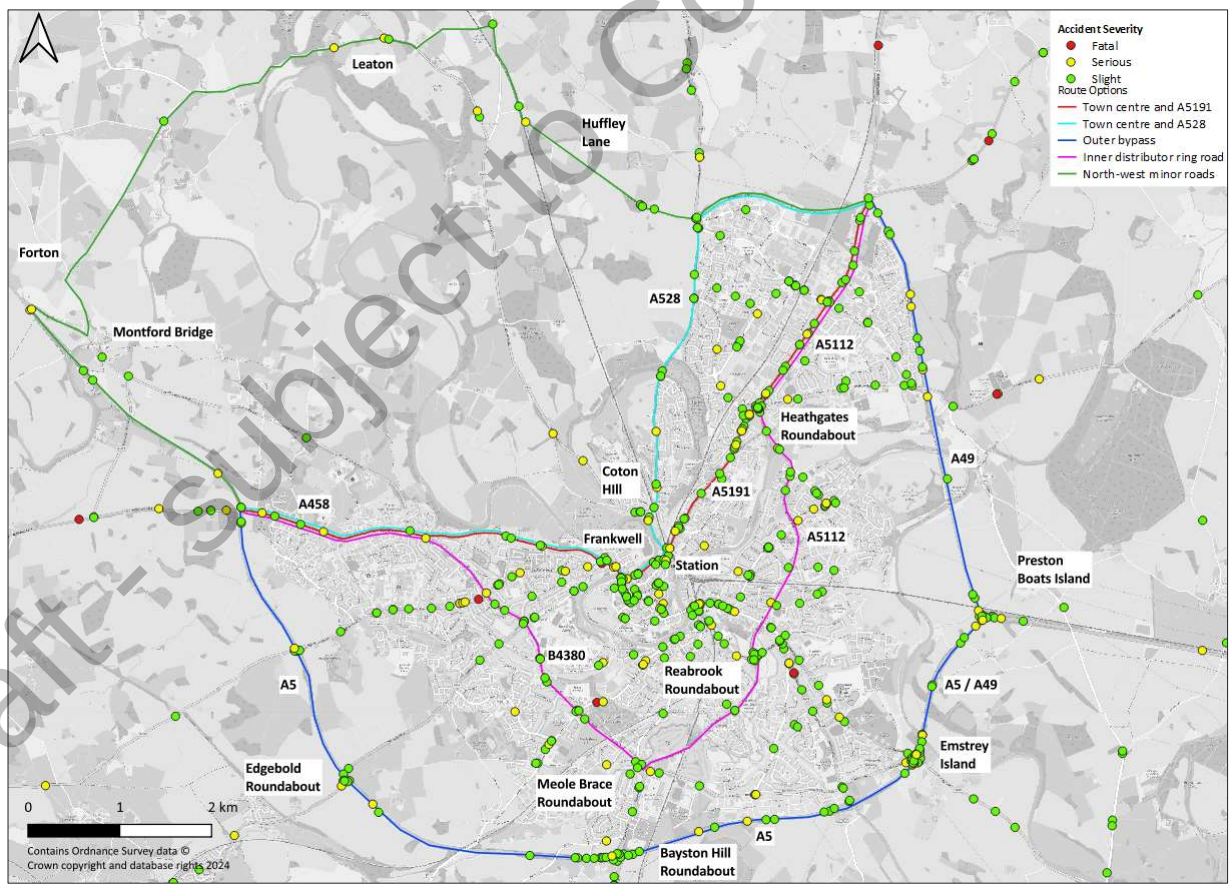
- **Redundancy** An alternative, more direct route is provided between north and west
- **Diversity** A purpose built route with an additional river bridge
- **Efficiency** Shorter, more direct routes for many journeys currently using inefficient routes
- **Autonomy** Outer bypass and inner distributor ring road better fulfil intended functions
- **Strength** Ability to withstand disruptive incidents and events
- **Adaptability** Provision of an alternative route not prone to flooding
- **Mobility** More reliable access to bus and railway stations and town centre car parks
- **Safety** Shorter journeys on a route designed to modern safety standards
- **Recovery** Extra capacity allowing level of service to be resumed quicker after incidents

ROAD ACCIDENT AND CASUALTY NUMBERS

2.4.108. There is no 'acceptable' level of injury accidents and, in accordance with the 1988 Road Traffic Act, local authorities have a statutory duty to undertake studies into road traffic collisions, and to take steps both to reduce and prevent them.

2.4.109. Figure 2-26 plots the location and severity of all personal injury accidents involving vehicles in Shrewsbury over the years 2016 - 2019 and 2022. The years 2020 and 2021 were excluded as they are not considered to be representative of normal traffic conditions due to of the pandemic.

Figure 2-26 – Personal injury accidents involving vehicles in Shrewsbury by severity



2.4.110. Figure 2-26 shows that there is a high concentration of accidents along north-west corridor links at the following locations where there are high vehicle flows and therefore increased potential for vehicle-vehicle, vehicle-pedestrian and vehicle-cyclist conflicts:

- Along the A5112 / A5191 northern approach with clusters around the major junctions at Harlescott Crossroads, Heathgates Roundabout and the junction with Mount Pleasant Road
- Along the B4386 western approach
- At key junctions around the A5 /A9 outer bypass including Edgebold Roundabout, Bayston Hill Roundabout, Emstrey Island and Preston Boats Island
- At key junctions on the inner distributor ring road including Meole Brace Roundabout and Reabrook Roundabout
- In the town centre around the Station Gyratory, along Smithfield Road and around Welsh Bridge and Frankwell

2.4.111. The NWRR is expected to reduce traffic on the north-west corridor through the town centre, and it is reasonable to expect that this will lead to a proportional reduction in collisions on these routes. The NWRR is also expected to attract traffic which currently uses either the outer bypass or the inner distributor ring road to travel between the north and the west, so it is reasonable to expect that this will lead to a proportional reduction in injury accidents on these routes too.

2.4.112. As a purpose built, modern road with separate a combined 3m wide footway and cycleway adjacent to the carriageway, the NWRR is expected to have a lower accident rate than town centre roads not designed to modern standards, helping to reduce the number of accidents within Shrewsbury. It will also be a much shorter route for north-west corridor traffic compared with the outer bypass or inner distributor ring road, so there is expected to be less overall exposure to accident risk and a net reduction in injury accidents, even allowing for accidents on the NWRR itself and the roads leading to and from it.

POOR AIR QUALITY IN SHREWSBURY TOWN CENTRE

2.4.113. Air pollution is associated with a number of adverse health impacts and is also damaging to the environment. The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages[16], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[17].

2.4.114. Traffic on Council managed roads is the primary cause of air pollution in Shrewsbury. Areas of poor air quality tend to be where there are high volumes of stationary traffic, and / or stop-start movements in built up areas where the ability for pollution to disperse is limited, such as adjacent to the station, where train idling is an additional factor. Different vehicles emit different levels of pollutants depending on vehicle and engine size and efficiency, with older, heavier diesel vehicles tend to be the most polluting. For example, one older style diesel bus can emit the same pollution as 40 cars. Improved vehicle technology and reductions in traffic can both improve air quality.

[16] DEFRA Air Quality Appraisal: Damage Cost Guidance, January 2023
[17] Public Health England Estimation of Costs to the NHS and Social Care due to the Health Impacts of Air Pollution: Summary Report, May 2018

2.4.115. Under an EU directive and the 1995 Environment Act, local authorities have a statutory duty to periodically review and assess air quality within their area. This involves considering present and likely future air quality against air quality standards and objectives. Where the results of this 'Review and Assessment' process highlight that the relevant Air Quality Standards and Objectives are not likely to be achieved, the authority is required to declare an Air Quality Management Area (AQMA).

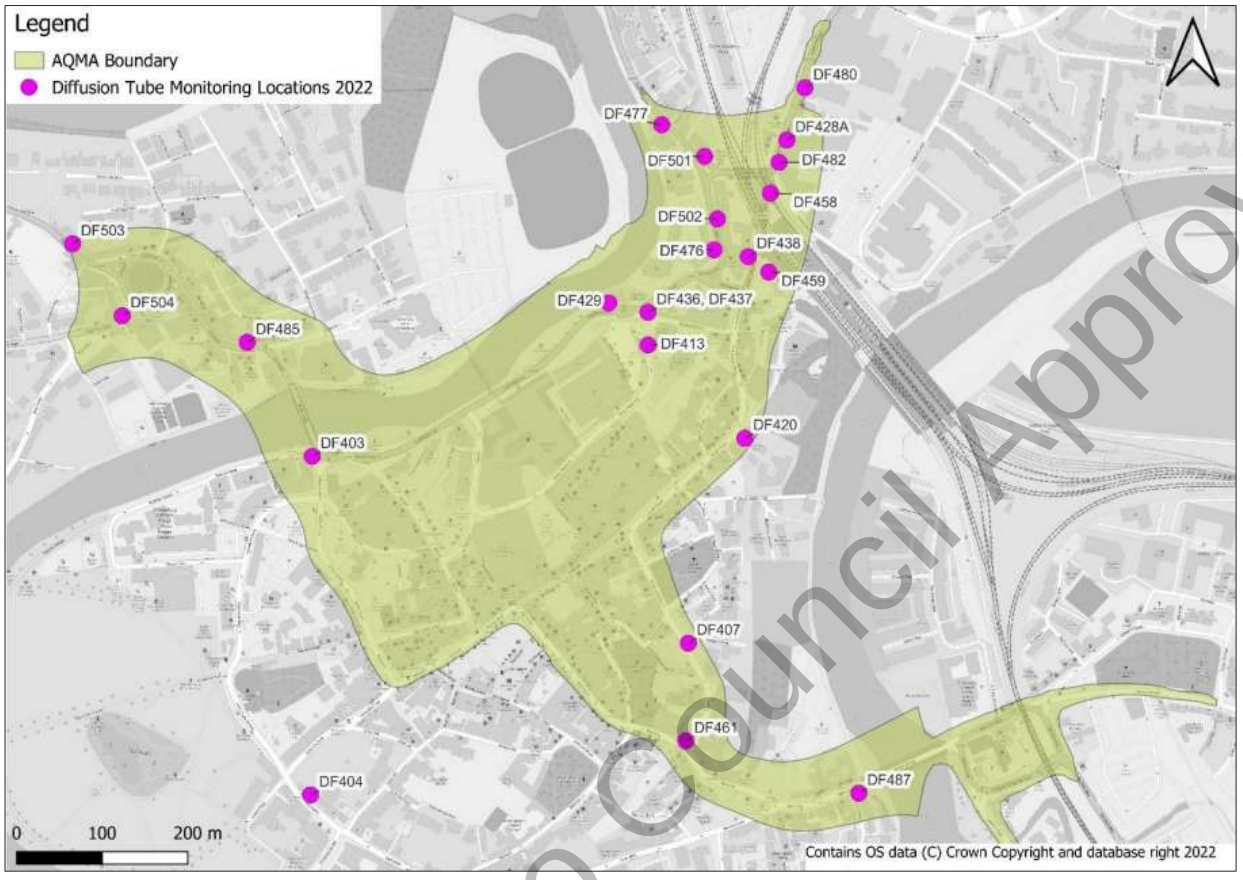
2.4.116. Poor air quality is considered to be "the largest environmental risk to public health in the UK" by the government. In line with World Health Organisation (WHO) guidelines, the UK is likely to enforce more stringent air quality standards. The WHO published Global Air Quality Guidelines in September 2021, providing guidance on thresholds and limits for key air pollutants that pose health risks, including Particulate matter ($PM_{2.5}$ and PM_{10}), ozone, NO_2, sulphur dioxide and carbon monoxide. There is also legislation relating to ambient ai quality at EU level (the "Air Quality Directive"), setting limit values, or parameters that must not be exceeded, for different pollutants and this remains part of UK law[18].

2.4.117. The UK government has been working to align its air quality standards with these updated guidelines, for example The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023/96) sets ambitious targets for reductions to fine particulate matter. In addition, the European Commission's review of the Ambient Air Quality Directives aims to align air quality standards more closely with WHO recommendations and set the European Union back on track to achieving zero air pollution by 2050[19]. This could also influence UK policies.

2.4.118. The Shrewsbury Town Centre AQMA (AQMA No. 3) was declared for exceedances of the annual objective level for NO_2 from traffic emissions. This AQMA was declared in 2003 and covers the area comprising Frankwell, Welsh Bridge and Smithfield Road, the Station Gyratory and adjacent land, extending to encompass most of the Town Centre including High Street, Wyle Cop, English Bridge and Coleham Head Gyratory, as illustrated by the green shaded area in Figure 2-27.

[18] Air quality: policies, proposals and concerns, Research Briefing, 2024
[19] European Commission, Revision of the Ambient Air Quality Directives, 2022

Figure 2-27 – Shrewsbury Town Centre AQMA (AQMA No. 3)



Source: Draft Shrewsbury Air Quality Action Plan – 2024

2.4.119. Post-pandemic, improvements in air quality have continued to be experienced within the Shrewsbury Town Centre AQMA, although two locations on Castle Foregate (DF438 and DF458) remain where exceedances of the national objective NO_2 level were observed.

2.4.120. At monitoring location DF438, located within the Station Gyratory opposite Shrewsbury station on Castle Foregate, a general downward trend in NO_2 levels has been observed, with levels dropping from 76.8 µg/m^3 in 2009 to 53.0 µg/m^3 in 2019 and most recently to 43.4 µg/m^3 in 2022.

2.4.121. At monitoring location DF458, located under the railway bridge on Castle Foregate, NO_2 levels fell from 55.0 µg/m^3 in 2018 to 38.5 µg/m^3 in 2020, but then have risen slightly following the end of the COVID-19 pandemic to 42.6 µg/m^3 in 2022.

2.4.122. The Shrewsbury Big Town Plan sets a comprehensive vision and aspirational plan for place-making in Shrewsbury town centre and beyond. The Plan notes a desire for less traffic movements through the town centre and highlights that air quality is a challenge for the town, linked to transport infrastructure and current movement options.

2.4.123. The NWRR closely aligns with the Shrewsbury Big Town Plan priorities as it will create a new shorter and more direct north-west link offering greater connectivity and removing the need for north-west corridor traffic to pass through the town centre. This through traffic currently utilises the route via Frankwell, Welsh Bridge, Smithfield Road and Station Gyratory. These roads all lie within

the Shrewsbury Town Centre AQMA and all westbound through traffic directly passes the monitoring locations DF438 and DF458 on Castle Foregate, where the only current exceedances are located.

2.4.124. As noted in the Council's 2023 Air Quality Annual Status Report.[20], detailed design and assessment was undertaken during the recent planning application for the NWRR. An air quality impact assessment was submitted and audited in respect of human health impact, and it found that the NWRR will promote better air quality in the hotspot pollution area in Shrewsbury town centre, while creating some increases in areas with headroom below the national objective levels. This balance was considered to be positive in respect of the Local Air Quality Management regime and will be subject to further assessment within the Council's Air Quality Action Plan review.

2.4.125. In addition, upon analysis of the planning application for the NWRR, air quality was highlighted as a key local concern for consideration, particularly in deprived areas of Shropshire. Where air pollution is currently monitored to be the worst, reduced traffic volumes, reduced congestion, and improvements to air quality are expected as a result of the NWRR. An analysis of IMD data, with modelled air quality impacts of the proposed development, showed reductions in pollutants occurring in more deprived areas, such as Castlefields and Ditherington. As such it is deemed that, on balance, the NWRR had no significant effect on human health at worst and could be considered to have an overall beneficial impact[21].

GREENHOUSE GAS IMPACTS

2.4.126. The emission of greenhouse gases (including carbon dioxide, methane, and others, for which 'carbon' is used as shorthand) to the atmosphere is causing the world's climate to change. The global average temperature has already risen 1.3°C[22] from pre-industrial levels, and the frequency and intensity of extreme weather events including heatwaves, floods, droughts, and storms has increased.

2.4.127. The Paris Agreement international treaty on climate change, which the UK is signed up to, came into force on 4 November 2016. Its overarching goal is to limit increases in global average temperatures to well below 2°C above pre-industrial levels, and to pursue efforts to limit the increase to 1.5°C.

2.4.128. The Climate Change Act (2008) had already set a long-term legally binding framework for greenhouse gas reduction in the UK as the Act requires the UK Government to reduce greenhouse gas emissions by at least 34% by 2020 and 80% by 2050 from 1990 levels in the UK. In 2020, the Act was amended to commit the UK to achieving a 100% reduction in greenhouse gas emissions by 2050 and the Government outlined its plan to meet this enhanced commitment in its Net Zero Strategy: Build Back Greener (2021).

2.4.129. In 2019, transport accounted for just over a quarter of the UK's emissions of greenhouse gases[23] and the Net Zero Strategy presents a number of key policies and proposals to secure greener,

[20] https://www.shropshire.gov.uk/media/26948/annual-status-report-air-quality-2023.pdf
[21] Development Management Report, Shropshire Council, 2023
[22] https://www.climatecentral.org/climate-matters/earths-hottest-12-month-streak-2023
[23] https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019

faster, and more efficient transport, with the aim of boosting the number of journeys taken by public transport, cycling and walking.

2.4.130. The reduction in traffic passing through Shrewsbury town centre, due to it re-routing onto the NWRR, will allow for road space reallocation in the town centre for buses and active travel. This potential provision of additional infrastructure for more sustainable modes coupled with the provision of a combined 3m wide footway and cycleway adjacent to the NWRR carriageway is likely to encourage increased modal shift, contributing to a reduction in greenhouse gas emissions from vehicles.

2.4.131. However, the overall whole life carbon impact of the scheme is expected to be a net-increase in carbon emissions over the 60-year appraisal period. This includes a net-increase in carbon emissions due to release of carbon in natural stores due to land use change. The Council, in line with the relevant Planning Condition, has produced a robust CMP and Carbon Assessment Plan that include the identification of local or wider initiatives, as required, to manage the carbon impact of the project to net neutrality. This may include, but is not limited to, initiatives around offsetting, Biochar and carbon credit purchase which will enable the Council to invest in appropriate mitigation measures in an auditable approach, fully aligning with the Councils wider stated Carbon targets. This process will be overseen and evaluated independently by the Local Planning Authority.

2.5 THE IMPACT OF NOT CHANGING

2.5.1. In the future, as Shrewsbury grows and background traffic demand increases, if nothing is done it is expected that all of the above problems will worsen affecting public, private and freight transport, with more congestion, longer and less predictable journey times and reduced network resilience.

2.5.2. Along the outer bypass, existing peak time congestion will worsen to potentially severe levels, particularly at the key A5 / A49 Dobbies Island Roundabout and A5 / A49 Preston Boats Island. This would be a serious problem for Shrewsbury, as the efficiency of the town's transport system depends on each part of the road hierarchy performing its function. Congestion on the outer bypass can push additional traffic on the inner distributor ring road, whilst congestion on the inner distributor ring road can encourage local traffic to use less suitable streets in the historic town centre.

2.5.3. Some of this additional traffic may also divert to the 'rat-runs' around the minor roads to the north-west of the town, adding to the existing through north-west corridor traffic using these routes which are wholly unsuitable, particularly for heavy goods vehicles.

2.5.4. As part of the SRN, the A5 section of the outer bypass, also acts as a key strategic link to the major port of Holyhead in North Wales and additional congestion along this section will further impact journey times and journey reliability for freight traffic seeking to make time-sensitive connections with the limited frequency ferries to the Republic of Ireland.

2.5.5. The potential for severe future congestion at the A5 / A49 Preston Boats Island will also impact the viability of the potential new Shrewsbury Parkway railway station (currently progressing to Strategic Outline Business Case stage), as it is proposed to be located in close proximity to Preston Boats Island. Severe congestion in the area will impact accessibility to the proposed new station, making it unattractive to use.

2.5.6. The chance to add a flagship new link to Shrewsbury's active travel network will be lost, losing the opportunity to encourage modal shift to active modes.

2.5.7. By adding to, instead of reducing through traffic and congestion levels on the northern and western approaches and within the town centre:

- Delivery of the Shrewsbury Big Town Plan Masterplan Vision will be put at risk, as the core principle of its movement strategy is to reduce through traffic, taking traffic out of the town centre and enabling the road space to be reallocated to pedestrians and cyclists, new developments or public space
- A number of interventions within the Shropshire LTP and LCWIP designed to facilitate mode shift away from the use of the private car through improved and more reliable public transport alongside pedestrian and cycle priority are likely to not reach their full potential
- Delivery of Shropshire's BSIP will be compromised, as public transport services will become slower, less reliable and less commercially viable, with access to the existing bus station on Smithfield Road becoming even more congested
- The opportunity to consolidate the benefits of the Shrewsbury Integrated Transport Package (ITP)[24] and further enhance the town as a place in which to live and work will be lost
- Air quality will likely worsen due to the higher volume of stationary or stop/start traffic across the town and, in particular, within the Shrewsbury Town Centre AQMA, harming the towns built and natural environment and making the town less attractive for visitors
- Additional through traffic will use town centre roads not designed to modern standards which could increase the number of personal injury accidents within Shrewsbury
- Additional bridge strikes disrupting rail services are likely on the railway overbridges that are part of the Station Gyratory from the additional high vehicle through traffic diverting through the town to avoid the additional congestion on the outer bypass route
- A comprehensive sustainable residential development of 450 dwellings, proposed on the land west of Ellesmere Road will not be deliverable

2.5.8. In addition, without the more direct north-west link provided by the NWRR, the Shrewsbury West SUE will suffer from poor accessibility from the north, making it less attractive to new development and making it difficult for the OLR to achieve its full potential.

2.6 BUSINESS NEEDS AND SERVICE GAPS

2.6.1. Section 2.3 sets out the key future priorities and business needs of the Council and identifies how delivery of the NWRR is integral to the successful delivery of many of these strategic priorities.

2.6.2. In particular, the scheme supports the key business needs of the Council, which are:

- To successfully deliver the Shropshire Local Plan and Shropshire's Economic Growth Strategy, unlocking growth and development ambitions, helping to reduce inequalities
- To support local strategies such as the Shrewsbury Big Town Plan Masterplan Vision, Shrewsbury Moves and the Shrewsbury and Surrounding Area Place Plan by helping to enable

[24] The ITP is a package of transport measures designed to improve the transport system in Shrewsbury. The ITP included the delivery of public realm improvements across four trafficked streets in Shrewsbury centre and upgrades at four major junctions on the inner distributor ring road, including highway and public realm improvements, traffic management; active travel links and wayfinding.

transformation of Shrewsbury town centre and the delivery of the proposed new Shropshire Parkway station

- To support the delivery of the Shropshire BSIP and the Shropshire LCWIP by reducing congestion and improving air quality in the hotspot air pollution area in Shrewsbury town centre; making bus journeys quicker, more reliable and more attractive; and facilitating the road space reallocation to enable new active mode infrastructure that will encourage further modal shift to active modes.

2.6.3. Throughout the scheme development process, the Council has engaged a number of stakeholders across a range of groups to ensure that the NWRR provides an optimum solution.

2.6.4. This engagement has included five formal public consultations since 2003, with the most recent being in 2020. Each formal public consultation has aimed to reach a target audience including Shrewsbury residents and residents to the west and north of the town, local businesses, key internal and external stakeholders and Shropshire residents who visit, work and / or shop in Shrewsbury.

2.6.5. For both the 2017 and 2020 consultations, over 60 stakeholder groups, in addition to all Parish and Town Councils were invited to take part, including National Highways, The Environment Agency, Natural and Historic England, Sustrans, Severn Trent Water and The Road Haulage Association.

2.6.6. As set out in further detail in Table 2-25, overall support for the NWRR has increased over time. In the 2005 consultation, most people agreed that there were traffic problems in Shrewsbury to be tackled, with 53% of respondents considering a NWRR the best way to solve them. In 2010, 59% agreed or strongly agreed that the NWRR should be built, with 33% disagreeing or strongly disagreeing. 67.5% of respondents were in favour of building the NWRR at the 2017 consultation, representing an increase compared to previous consultations and, in 2020, the proposed realignment to avoid important ecological sites was highly supported by 84% of respondents.

2.6.7. The key external drivers for change identified are:

- The need to effectively manage the forecast growth in traffic across the town
- Public and stakeholder concern about traffic congestion and through traffic in the town centre and on the northern and western approaches
- The need to free up capacity on the existing outer bypass so it can operate efficiently in the future

2.6.8. By engaging each time with both internal and external parties with a different interests, it ensures that the final scheme proposals meet the needs of all users. The Council will continue to engage through construction and delivery in order to mitigate any potential negative impacts.

2.7 SPENDING OBJECTIVES AND OUTCOMES OF THE SCHEME

2.7.1. This section sets out specific objectives and strategic outcomes for the scheme. In line with DfT guidance, these have been developed and updated from those set out in the OBC.

2.7.2. The strategic outcomes define, at a high level, what the scheme aims to achieve, reflecting the strategic aims of the Council, the Government and other organisations. As there may be other factors affecting these outcomes, it may be difficult to directly measure the impact of the scheme.

2.7.3. For this reason, a set of specific objectives has been set. These are directly related to the scheme and achieving them will help to achieve the strategic outcomes.

2.7.4. The primary aim of the NWRR scheme is:

- To improve Shrewsbury as a place in which to live, work, visit and invest, by reducing congestion to help unlock transformational change within the town centre.

2.7.5. The strategic, or high level, outcomes of the scheme are:

- Enhanced local and longer distance connectivity
- Reduced congestion and quicker, more reliable journey times
- Improved local and strategic network capacity, efficiency and resilience
- Supporting the delivery of the Shrewsbury Big Town Plan
- Enhancing the benefits of other transport scheme investment (e.g. the OLR and Shrewsbury ITP)
- Protecting and enhancing Shrewsbury's built and natural environment
- Improved health, wellbeing and quality of life for local communities
- Improved road safety
- Facilitating the delivery of planned housing and economic growth in Shrewsbury and Shropshire

2.7.6. The specific, or intermediate, objectives of the scheme are:

- To improve connectivity and accessibility between the north and west of Shrewsbury for all modes
- To reduce traffic congestion across Shrewsbury
- To improve network efficiency, resilience and journey time reliability
- To reduce rat-running traffic on unsuitable rural roads to the north-west of the town
- To improve facilities for active transport
- To reduce the number of accidents and casualties on roads in Shrewsbury
- To minimise the greenhouse gas impacts associated with the scheme
- To improve local air quality in Shrewsbury town centre
- To support local economic growth and productivity
- To support the delivery of planned local housing growth and development
- To improve the quality of life for people in Shrewsbury

2.7.7. These specific scheme objectives are SMART (Specific-Measurable-Achievable-Realistic-Time defined), as detailed in Table 2-23.

Table 2-23 – SMART scheme objectives

Scheme Objectives	Specific	Measurable	Achievable	Relevant	Time Related
To improve connectivity and accessibility between the north and west of Shrewsbury for all modes	Provision of a new river crossing delivering a fast, direct connection between the north and west of Shrewsbury for all modes through a new road link and its accompanying 3m wide combined footway and cycleway	Significantly reduced journey times between the north and west of Shrewsbury and new journey opportunities opened up The connectivity and accessibility of the Shrewsbury West SUE and Battlefield Enterprise Park are significantly improved	Model of the average speeds and journey time improvements due to the scheme will be considered, with additional consideration given to journeys to and from the Shrewsbury West SUE and Battlefield Enterprise Park	**Council Strategic Priorities**: redistributing traffic movements, improving local transport, enhancing quality of place and improved accessibility **National Policy:** supports Levelling Up, the objectives for Build Back Better, the Net Zero Strategy, and aligns to the ambitions of The Plan for Drivers **Regional Policy:** aligns to the ambitions of Decarbonising Transport - The Midlands Challenge, the Midlands Connect Strategic Transport Plan and Future of Rural Mobility, The Marches LEP Strategic Economic Plan and the Marches and Mid-Wales Freight Strategy **Local Policy**: aligns to the ambitions of the LCWIP and LTP, and supports Shropshire's Economic Growth Strategy, the Shropshire Plan, the key aims of the emerging Local Plan, and the Shrewsbury Moves 10-Year Vision and Plan	Monitoring of impacts 1 and 5 years after the scheme is implemented
To reduce traffic congestion across Shrewsbury	Transfer of existing through north-west corridor traffic to the new link between the north and west of the town, improving traffic flow and reducing congestion into, through and around the outside of town centre	Reduced congestion along the existing north-west corridor links (i.e. within the town centre, on the north and west approaches to the town, and along and at key junctions on the inner distributor ring road and outer bypass)	Model, with and without the scheme, of congestion / queuing and average speeds on the existing north-west corridor links	**Council Strategic Priorities:** redistributing traffic movements, improving air quality and enhancing quality of place **National Policy:** aligns to the ambitions of the Plan for Drivers and the Net Zero Strategy **Regional Policy:** aligns to the ambitions of the Midlands Connect Strategic Transport Plan and Strategic Transport Priorities for The Marches. Aligns to the aims of the Marches and Mid-Wales Freight Strategy and The Marches LEP Strategic Economic Plan **Local Policy**: aligns to the ambitions of the LCWIP, the LTP, the Shrewsbury Town and Rural Area Place Plan and the Shrewsbury Moves 10-Year Vision and Plan	Monitoring of impacts 1 and 5 years after the scheme is implemented
To improve network efficiency, resilience and journey time reliability	Transfer of north-west corridor through traffic to NWRR, enabling the existing roads to better perform the function they were intended for, improving traffic flow, journey times and overall network capacity. More attractive bus services as reduced congestion will speed up journeys and make them more reliable and more financially viable to operate	Traffic experience reduced journey time variability across the day and utilise shorter, more direct routes for many journeys currently using inefficient routes due to congestion issues	Model journey times and the journey routes, with and without the scheme, for key origin and destinations across the town	**Council Strategic Priorities:** redistributing traffic movements and enhancing public transport **National Policy:** aligns to ambitions of the Plan for Drivers, the Draft National Policy Statement for National Networks and the National Infrastructure Strategy **Regional Policy:** supports the key themes of The Marches LEP Strategic Economic Plan and the Marches and Mid-Wales Freight Strategy as well as the ambitions of the Midlands Connect Strategic Transport Plan and Strategic Transport Priorities for The Marches **Local Policy:** supports the aims of the LTP, the Shrewsbury Town and Rural Area Place Plan, the emerging Local Plan and the Shrewsbury Moves 10-Year Vision and Plan	Monitoring of impacts 1 and 5 years after the scheme is implemented
To reduce rat-running traffic on unsuitable rural roads to the north-west of the town	The new fast, direct connection between the north and west of Shrewsbury, coupled with the reduced congestion, improved traffic flow and improved network capacity will remove the perceived need for traffic to use rural roads to the north-west of the town as 'rat-runs'	Reduced rat-running traffic on unsuitable rural roads to the north-west of the town	Model, with and without the scheme, of origins and destinations, flow composition and flow levels on rural roads to the north-west of the town	**Council Strategic Priorities:** redistributing traffic movements, improving air quality and enhancing quality of place **National Policy:** aligns to ambitions of the Plan for Drivers **Regional Policy:** supports the ambitions of the Midlands Connect Strategic Transport Plan **Local Policy**: aligns to ambitions of the LTP and the Shrewsbury Town and Rural Area Place Plan	Monitoring of impacts 1 and 5 years after the scheme is implemented
To improve facilities for active transport	Enhancements to the active travel network in Shrewsbury, encouraging modal shift to active travel through:	Active travel to become the logical first choice for a significantly greater	Measure the change in mode split between car and active travel	**Council Strategic Priorities:** improving active travel, encouraging sustainable travel, improving air quality and supporting health and wellbeing	Monitoring of impacts 1 and 5 years after the

Scheme Objectives	Specific	Measurable	Achievable	Relevant	Time Related
	- Provision of a 3m wide combined footway and cycleway along the length of the scheme providing the first direct active travel link between the north and west of the town - Reduced through north-west corridor traffic flows in the town centre enabling road space reallocation to facilitate new and enhanced active and sustainable transport infrastructure	proportion of local journeys		**National Policy:** supports Levelling Up, Decarbonising Transport and the requirements of LTN 1/20, and aligns to ambitions of Gear Change **Regional Policy:** supports the ambitions of Decarbonising Transport - The Midlands Challenge and the Midlands Connect Strategic Transport Plan **Local Policy**: aligns to ambitions of LCWIP and LTP, supports the Shropshire Plan, the key aims of the emerging Local Plan, the Shrewsbury Town and Rural Area Place Plan, the Shrewsbury Big Town Plan and the Shrewsbury Moves 10-Year Vision and Plan, and aligns with the goals of the Shropshire Health and Wellbeing Strategy	scheme is implemented
To reduce the number of accidents and casualties on roads in Shrewsbury	Reduced number of accidents and casualties as: - The new shorter and more direct link, built to modern standards, between the north and west of the town will reduce traffic volumes using the existing north-west corridor links, in particular, town centre roads not designed to modern standards - Lower flows on roads within the town centre will reduce the potential for conflicts with those choosing to travel by active mode	Reduction in the number of accidents and casualties along the existing north-west corridor links	Assess the change in number of accidents and casualties along the existing north-west corridor links and along the scheme	**Council Strategic Priorities:** reducing the number of accidents and casualties on Shropshire's highway network **National Policy:** aligns to ambitions of Gear Change **Regional Policy:** supports the ambitions of the Midlands Connect Strategic Transport Plan **Local Policy**: aligns to ambitions of the LCWIP, the LTP, the Shrewsbury Big Town Plan and the Shrewsbury Moves 10-Year Vision and Plan	Monitoring of impacts 1 and 5 years after the scheme is implemented
To minimise the greenhouse gas impacts associated with the scheme	Greenhouse gas emissions associated with the scheme will be minimised through implementation of interventions that reduce carbon impact Lower town centre flows facilitate road space reallocation for active modes and buses, encouraging the uptake of more sustainable and healthier modes	Reduced embodied carbon compared with previous assessments, and evidence of implementation of interventions that reduce carbon impact Increased uptake of active travel will improve public health	Model greenhouse gas emissions with and without the scheme and compare the updated assessment with previous assessments Measure the change in mode split between car and active travel	**Council Strategic Priorities:** delivering the Council's Corporate Climate Change Strategy and Action Plan, promoting the means to tackle climate change and reducing the carbon footprint, reducing distances travelled to work, redistributing traffic movements **National Policy:** supports targets of the NPPF, Net Zero Strategy, Environment Act, Decarbonising Transport and the National Infrastructure Strategy **Regional Policy:** supports the ambitions of Decarbonising Transport - The Midlands Challenge and the Midlands Connect Strategic Transport Plan **Local Policy**: aligns to ambitions of LCWIP and LTP, supports the Shropshire Plan and Zero Carbon Shropshire, as well as the key aims of the emerging Local Plan, the Shrewsbury Town and Rural Area Place Plan and the Shropshire Health and Wellbeing Strategy	Monitoring of impacts 1 and 5 years after the scheme is implemented
To improve local air quality in Shrewsbury town centre	Improved air quality in the town centre as the new shorter and more direct link between the north and west of the town will reduce traffic volumes and associated congestion levels on the existing north-west corridor links through the town centre, including the Shrewsbury Town Centre AQMA Lower town centre flows facilitate road space reallocation for active modes and buses and encourage the uptake of more sustainable modes, further improving air quality	Reduced air pollution levels across town centre, including within the Shrewsbury Town Centre AQMA Increased uptake of active travel, as well as improved air quality, will improve public health	Model air quality impacts with and without the scheme and review of receptor data within the Shrewsbury Town Centre AQMA Measure the change in mode split between car and active travel	**Council Strategic Priorities:** improving air quality, enhancing quality of place and supporting local health and wellbeing **National Policy:** supports targets of the NPPF, Environment Act. Aligns to ambitions of the National Infrastructure Strategy **Regional Policy:** supports the ambitions of the Midlands Connect Strategic Transport Plan **Local Policy**: aligns to the ambitions of the LCWIP and LTP, supports the Shropshire Plan, as well as the key aims of the emerging Local Plan, the Shrewsbury Town and Rural Area Place Plan and the Shropshire Health and Wellbeing Strategy	Monitoring, using the model, of impacts 1 and 5 years after the scheme is implemented Annual review of receptor data within the Shrewsbury Town Centre AQMA

Scheme Objectives	Specific	Measurable	Achievable	Relevant	Time Related
To support local economic growth and productivity	Economic growth will be encouraged, and productivity boosted by: - Improved accessibility and connectivity to and between the Shrewsbury West SUE and Battlefield Enterprise Park utilising the new link between them - Reduced congestion on the outer bypass reducing journey times for freight vehicles and improving accessibility to the Shrewsbury Business Park and Shrewsbury South SUE - Improved traffic flow, more reliable journeys and faster public transport expanding the labour pool available to local businesses	Improved journey times, reduced flows and reduced delays around the outer bypass, delivering improved accessibility and connectivity to the economic growth sites	Model, with and without the scheme, of congestion / queuing and average speeds along the outer bypass and at key junctions Measurement of land/deliverable sites for employment unlocked or better connected through the scheme	**Council Strategic Priorities:** strengthening the local economy and enhancing quality of place **National Policy:** supports the NPPF, the Draft National Policy Statement for National Networks, Levelling Up and the objectives for Build Back Better. Aligns to ambitions of the National Infrastructure Strategy **Regional Policy:** aligns to the ambitions of the Midlands Connect Strategic Transport Plan the Freight Routemap for the Midlands, and supports the key themes of The Marches LEP Strategic Economic Plan and the Marches and Mid-Wales Freight Strategy **Local Policy**: supports the Shropshire Plan and the ambitions of Shropshire's Economic Growth Strategy, the Shropshire Plan and Shropshire's Economic Recovery Committee Report	Traffic impacts to be monitored 1 and 5 years after the scheme is implemented Employment growth to be monitored over the Local Plan period to 2038
To support the delivery of planned local housing growth and development	Reduced congestion on the outer bypass will improve accessibility and connectivity at the majority of the residential site allocations proposed within the Local Plan as they are mainly located close to the outer bypass A comprehensive sustainable residential development of 450 dwellings proposed on land west of Ellesmere Road, whose construction is dependent on the new link, will be delivered	Reduced congestion along and at key junctions on the outer bypass close to allocated housing development sites	Model, with and without the scheme, of congestion / queuing and average speeds along the outer bypass and at key junctions close to allocated housing development sites Measurement of land / deliverable sites for housing unlocked or better connected through the scheme	**Council Strategic Priorities:** enhancing quality of place, strengthening the local economy and improving accessibility **National Policy:** supports the NPPF, Levelling Up, aligns to ambitions of the National Infrastructure Strategy **Regional Policy:** supports the ambitions of the Midlands Connect Strategic Transport Plan **Local Policy**: supports the Shropshire Plan and aligns to ambitions of the LTP, the key aims of the emerging Local Plan and the Shrewsbury Town and Rural Area Place Plan	Traffic impacts to be monitored 1 and 5 years after the scheme is implemented Housing growth to be monitored over the Local Plan period to 2038
To improve the quality of life for people in Shrewsbury	The quality of life for local residents will be improved as reduced traffic volumes and congestion through the town centre and around the inner distributor ring road will help to reduce traffic noise; improve air quality; make bus services faster and more reliable; reduce accident risk; and make active travel safer and more appealing	Reduced congestion, journey times, traffic noise and accident risk, accompanied by improvements in air quality and increased active travel uptake across the town	Model, with and without the scheme, of congestion / queuing and average speeds within the town centre and around the inner distributor ring road Assess the change in number of personal injury accidents across the town Model air and noise quality impacts with and without the scheme across the town Measure the change in mode split between car and active travel	**Council Strategic Priorities:** improving active travel and public transport, encouraging sustainable travel, enhancing quality of place and supporting local health and wellbeing **National Policy:** supports the NPPF and the Environment Act, also aligns to ambitions of Gear Change and the National Infrastructure Strategy **Regional Policy:** supports the ambitions of the Midlands Connect Strategic Transport Plan **Local Policy**: aligns to ambitions of the LCWIP, the LTP, the Shrewsbury Big Town Plan and the Shrewsbury Moves 10-Year Vision and Plan. Supports the Shropshire Plan, as well as the key aims of the emerging Local Plan, the Shrewsbury Town and Rural Area Place Plan and the Shropshire Health and Wellbeing Strategy	Traffic impacts to be monitored 1 and 5 years after the scheme is implemented Annual review of receptor data

2.8 MEASURES FOR SUCCESS

2.8.1. It is important to demonstrate that the scheme will deliver the strategic objectives and realise the forecast benefits. The following elements constitute successful delivery:

- The scheme was developed and constructed in line with the scheme programme
- The scheme was constructed within the final outturn costs predicted within the full business case
- The scheme delivered to the quality standards expected
- The delivery of the scheme did not generate any negative impacts over and above those documented and mitigated within the risk register

THEORY OF CHANGE LOGIC MAP

2.8.2. The Theory of Change logic map in Figure 2-28 shows the expected relationship between the inputs, outputs, outcomes and the impacts of the scheme. It is usually easier to measure achievement of the specific objectives (e.g. a change in traffic volume or journey time) than the strategic outcomes (e.g. increased economic growth and rebalancing) because the latter may be affected by factors other than the scheme.

MONITORING AND EVALUATION

2.8.3. The measure of delivery of the scheme and achieving its objectives will be monitored as part of the post-scheme evaluation. The Monitoring and Evaluation Plan sets out how a programme of monitoring will be established from pre-construction, through scheme construction, and post-opening, to analyse and determine whether the scheme has been successfully delivered, as well as it achieving the objectives described above. Section 6.13 of the Management Dimension provides details of the Council's Monitoring and Evaluation Plan for the proposed NWRR scheme.

2.8.4. In most cases, achievement of the specific objectives will be measured directly by means of:

- Traffic counts
- Journey time surveys
- Accident statistics
- Air quality monitoring

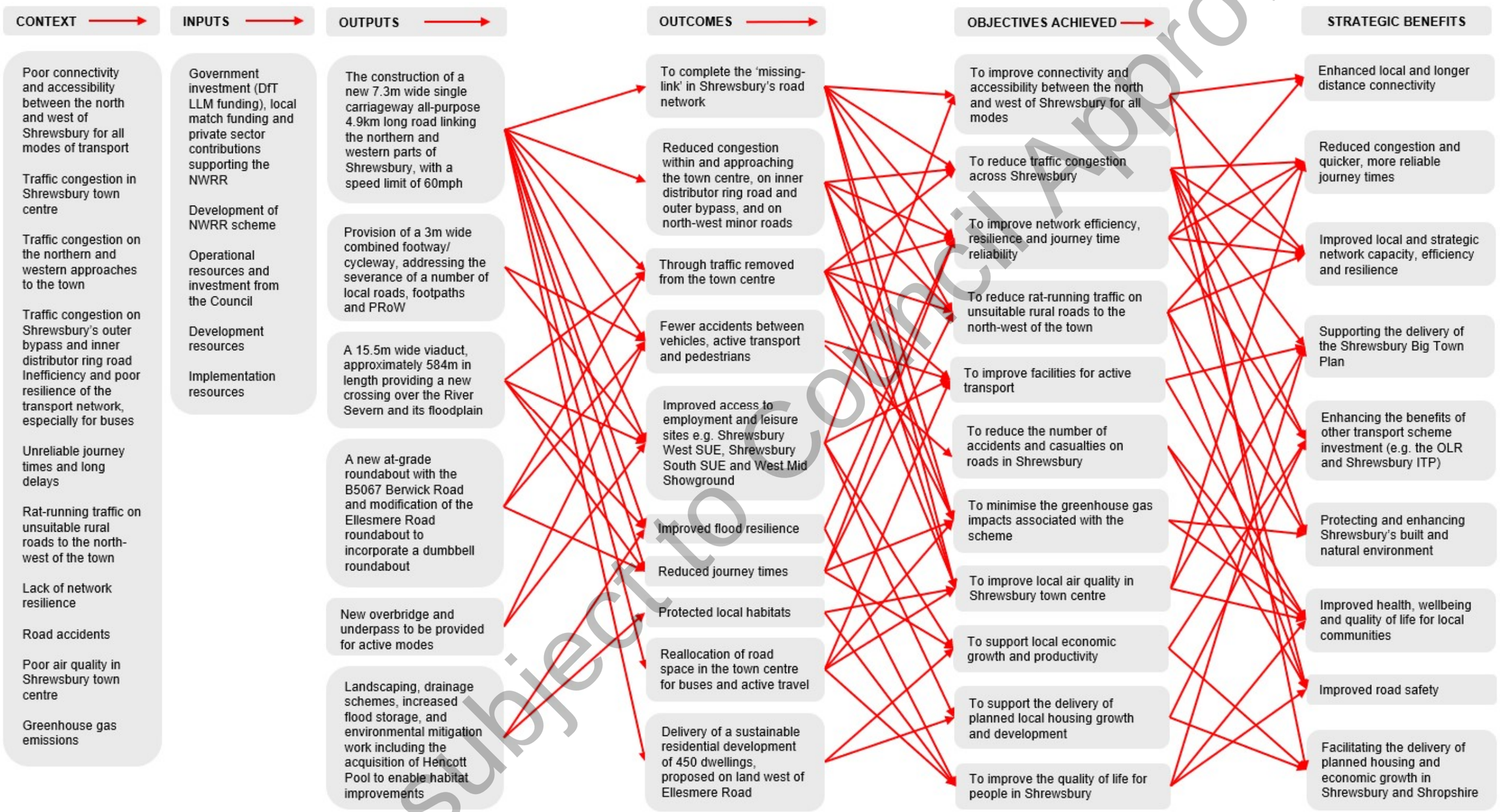
2.8.5. However, some objectives, such as minimising greenhouse gas impacts associated with the scheme and improved journey time reliability, are difficult to measure directly but are predictable consequences of reduced traffic, congestion and delay.

2.8.6. Not all the strategic benefits can be measured directly, but they can all be seen to be logical consequences of achieving the specific objectives. Some objectives, such as supporting local economic growth and productivity, will take time to achieve. Longer-term monitoring of local development, business growth and relocations and employment will continue to take place and will contribute to an understanding of the success of the scheme.

2.8.7. Anecdotal information, especially in relation to perceptions of congestion, reliability and the attractiveness of the town as a place in which to live, also has a supporting role in evidencing the success of the scheme.

2.8.8. The project will be judged successful if it delivers the expected benefits at levels close to, or exceeding, those forecast, without any unforeseen disbenefits.

Figure 2-28 – Theory of Change logic map



2.9 STRATEGIC BENEFITS

2.9.1. The identified strategic benefits of the scheme are shown in the Logic Map in Figure 2-28 and described below:

- **Enhanced local and longer distance connectivity:** The scheme completes the outer ring road around Shrewsbury, providing better connectivity between outlying market towns and settlements, by reducing journey times between them. It also frees up the A5 to better serve the strategic longer distance traffic it is intended to serve, enhancing connectivity to and from the port of Holyhead
- **Reduced congestion and quicker, more reliable journey times:** By providing a new short and direct link between the north and west of Shrewsbury the scheme will significantly reduce journey times for north-west corridor through traffic and, as through north-west corridor traffic diverts to the new link, journey times will reduce across and around the town as the existing roads perform more optimally and congestion levels reduce
- **Increased local and strategic network capacity, efficiency and resilience:** The additional capacity provided by the new link will enable the existing roads perform the functions they were intended to perform more efficiently, creating further capacity. In addition, the new link will not be prone to the flooding episodes that continue to affect routes passing through the town centre, significantly enhancing network resilience
- **Supporting the delivery of the Shrewsbury Big Town Plan:** By creating a new shorter and more direct link between the north and west of the town, the need for north-west corridor through traffic to pass through the town centre is removed. As this traffic transfers to the NWRR, flows in the town centre will reduce, facilitating the reallocation of road space to more sustainable modes, making the town centre a more attractive place to visit and invest in which are key goals of the Big Town Plan
- **Enhancing the benefits of other transport scheme investment (e.g. the OLR and Shrewsbury ITP):** By extending the OLR across the River Severn and providing a direct connection to the employment sites to the north of Shrewsbury, such as the Battlefield Enterprise Park, the scheme will enhance the benefits of the OLR, enabling it to unlock the full potential of the Shrewsbury West SUE. As north-west corridor through traffic transfers from roads through the town centre to the NWRR, the reduced traffic volumes will help to consolidate the benefits of the recently completed Shrewsbury ITP that was designed to improve the transport system in Shrewsbury and stimulate a new period of sustainable economic growth within the town and the surrounding area by acting as an enabler to the Shrewsbury town centre projects in the Riverside area and the Levelling up Fund scheme introducing an active travel corridor and urban realm improvements in the Station Gyratory area
- **Protecting and enhancing Shrewsbury's built and natural environment:** Reduced congestion levels as north-west corridor through traffic transfers from the town centre to the NWRR will lead to reduced improved air quality and reduced noise levels in the town centre. This will help to protect the towns built and natural environment and encourage local people to visit the town centre on a regular basis and attract more tourists
- **Improved health, wellbeing and quality of life for local communities:** The provision of a new overbridge and equestrian culvert to maintain existing PRoW, the inclusion of the shared footway / cycleway along the length of the southern side of the scheme and the facilitation of road space reallocation for more sustainable modes within the town centre will increase levels of active travel with resultant benefits to health, air quality and congestion

- **Improved road safety:** The new shorter, direct link, built to modern standards, between the north and west of the town will reduce traffic volumes using the existing north-west corridor links, in particular, town centre roads not designed to modern standards. This will also help to reduce the number of accidents and casualties within Shrewsbury, making the town a safer place to live, work and visit
- **Facilitating the delivery of planned housing and economic growth in Shrewsbury and Shropshire:** The scheme will improve the accessibility of the Battlefield Enterprise Park, facilitate the expansion of the Oxon Business Park and unlock residential and employment development at the Shrewsbury West SUE. By reducing congestion on surrounding local roads, this will also benefit Shrewsbury Business Park and the Shrewsbury South SUE. Improved connectivity and journey time reliability provided by the scheme will also improve accessibility to training, education and housing, as well as opportunities to engage with all aspects of the economy, boosting productivity and local economic growth

2.10 INTERDEPENDENCIES

2.10.1. The delivery of the NWRR is not dependent upon the delivery of any other scheme, nor is the delivery of any other scheme dependent upon the NWRR. However, the successful delivery of project is dependent upon the receipt of Government Funding, sought from the LLM fund. If the Value for Money, deliverability, and affordability of the scheme cannot be demonstrated, it will not proceed past the gateway point at FBC Stage (Full Approval).

2.10.2. In addition, although Planning Permission was granted by the Council's Northern Planning Committee on 15 February 2024, scheme delivery is dependent on the discharge of the 63 planning conditions and completion of the required Section 106 agreements. This process will be completed by FBC submission, triggering Full Planning Notice issue as a DfT prerequisite.

2.11 STAKEHOLDERS AND CONSULTATION

STAKEHOLDERS

2.11.1. Key stakeholders and their interests in the scheme are summarised in Table 2-24.

Table 2-24 – Key stakeholder groups and interests

Stakeholder Group	Summary of Interests
Accessibility groups	Interested in how the scheme will affect accessibility for people and create positive change
Canal and Rivers Trust and Severn Rivers Trust	Interested in protecting the canals and rivers including the River Severn, securing a sustainable future for waterways
Department for Transport	Interested in how the scheme connects people and places; how it can grow and level up the economy, while minimising the impact on the environment; and how it can improve transport users experience of the transport network
Directly affected landowners and businesses	Interested in the land take and engineering requirements of the scheme and how it will directly or indirectly affect them
Emergency services (Police, Fire, Health)	Interested in how the scheme will impact upon service provision, accessibility and permeability
Environment Agency	Interested in compliance with environmental legislation relevant to construction, improving air quality and helping people and wildlife adapt to climate change and reduce its impacts
Environmental campaign groups	Interested in the impact of the scheme on the local environment
Estate agents and property developers	Interested in the scheme impact on the local and regional property market and supply
Forestry Commission	Interested in increasing the value of woodlands to society and the environment
Groups or individuals opposed to the scheme	Interested in being provided with a clear understanding of all local and regional impacts of the scheme
Historic England	Interested in improving people's lives by championing and protecting the historic environment
Indirectly affected landowners and businesses	Interested in the land take and engineering requirements of the scheme and how it will directly or indirectly affect them
Local educational and religious groups	Interested in the impact of the scheme on local residents
Marches Forward Partnership and Marches Growth Hub	Interested in the impacts of the scheme on growth and investment across the Marches region
Media groups (local, national and trade)	All issues relating to the scheme that may be of public interest
Midlands Connect	Interested in progressing transport schemes that provide the biggest possible social, economic and environmental benefits for the Midlands region
National Highways	Interested in the impact of the scheme on the A5 (part of the SRN) and A49 (part of the MRN) and how the scheme will help to achieve their three company imperatives of enhancing safety on their network, listening and responding to the needs of their customers and upgrading their network
Natural England	Interested in helping to conserve, enhance and manage the natural environment for the benefit of present and future generations, thereby contributing to sustainable development

Stakeholder Group	Summary of Interests
Network Rail	Interested in delivering a safer, more reliable, affordable and sustainable railway for passengers and freight users and, in particular, the implications of the scheme on their existing infrastructure
Passenger transport operators and user groups	Interested in the impact of the scheme on local and regional public transport including service operation, provision, reliability and accessibility
Public Rights of Way (PRoW) interest groups	Focussed on issues surrounding PRoW including reducing severance and enhancing the network for public right of way users
Road user groups (private and freight)	Interested in the impact of the scheme on the local, regional and strategic road network including congestion, accessibility, reliability and network resilience
Shrewsbury Business Improvement District (BID) and Shrewsbury Chamber of Commerce	Interested in the impacts of the scheme on business growth and investment in Shrewsbury
Shrewsbury Civic Society	Interested in providing a forum for studying and discussing issues affecting Shrewsbury's development, including its buildings, roads, transport system and leisure facilities
Shrewsbury Tourism Association	Interested in the impact of the scheme on local tourism
Shropshire Association of Local Councils	Interested in how the bypass directly or indirectly affect the local parishes, town councils and their residents
Shropshire Climate Action Partnership	Interested in ensuring that Shropshire achieves net zero carbon by the end of 2030
Shropshire Councillors and Members of Parliament	Interested in all aspects of the scheme that will have an impact on their respective constituents
Shropshire residents	Interested in all aspects of the scheme, such as noise pollution, traffic implications, traffic management, construction issues, planning issues and procedures, environmental issues, environmental enhancement and design
Shropshire Wildlife Trust	Interested in the protection of the natural environment
Utility companies (including Severn Trent Water)	Interested in the impact of the scheme on utilities and their assets
Walking, wheeling and cycling groups	Interested in better street design and the promotion of active travel infrastructure and safety
West Midlands Combined Authority	Interested in making the West Midlands a better place to live

2.11.2. In addition to the above, the key stakeholder groups included the following town and parish councils and residents' associations most directly affected by the scheme:

- Astley Parish Council
- Atcham Parish Council
- Baschurch Parish Council
- Berrington Parish Council
- Bicton Parish Council
- Bomere Heath and District Parish Council
- Dalton Drive Residents Group

- Great Ness & Little Ness Parish Council
- Hadnall Parish Council
- Kinnerley Parish Council
- Knockin Parish Council
- Leighton and Eaton Constantine Parish Council
- Montford Parish Council
- Myddle, Broughton and Harmer Hill Parish Council
- Oswestry Rural Parish Council
- Ruyton XI Towns Parish Council
- Shawbury Parish Council
- Shrewsbury Town Centre Residents' Association
- Shrewsbury Town Council
- Uffington Parish Council
- West Felton Parish Council

CONSULTATION

2.11.3. The scheme has been the subject of multiple formal public consultations, as detailed in Table 2-25.

Table 2-25 – Summary of consultation activity

Year	Description	Outcome
2003	A major public and stakeholder consultation exercise was undertaken during January and February 2003. Exhibitions were held in five locations, and an information leaflet and questionnaire were made available. The objectives were to: ■ Update on the work undertaken to date and achieve wider public involvement in scheme development ■ Set the NWRR within a wider transport policy context ■ Explore attitudes towards travel and transport in Shrewsbury, and determine the level of support for a NWRR in principle ■ Determine the level of support for the protected alignment and to allow people to suggest alternatives	829 questionnaires and a 331 signature petition were returned showing: ■ People felt the problems were real and solutions were needed, with a majority of in favour of building a NWRR ■ A significant minority did not support building a NWRR ■ Significant support for other transport measures, especially public transport, either as an alternative or in addition to a NWRR ■ No strong evidence of support for the (then) preferred route (Shelton to Ellesmere Road). A longer route, further away from the town with direct connection to the A5, might be considered more acceptable
2005	A second round of public and stakeholder consultation was undertaken in May 2005 with over 50,000 leaflets and questionnaires being distributed describing the scheme Questionnaires were available online and at public exhibitions The objectives were to: ■ Update people on the technical review of the scheme	1,165 questionnaires were returned showing: ■ Very strong feelings both for and against the idea of building a NWRR ■ Most people agreed that there were traffic problems to be tackled, with 53% of respondents considering a NWRR the best way to solve them. However, significant numbers supported other measures, such as walking and cycling and public transport improvements, but technical review showed that these alone could not achieve the same level of traffic benefits as a road scheme

Year	Description	Outcome
	▪ Determine the level of support and/or opposition to the short-listed route options and non-road options	▪ That, although the technical review indicated a congestion charge (in conjunction with better public transport) could, in theory, achieve equivalent levels of traffic reduction to a road scheme, only about a third supported this as an alternative to building a new road ▪ The Blue, Orange and Red (Option 2) routes were least well supported and technically least acceptable and so it was decided that a preferred route should be developed based on the remaining Green, Black and Red (Option 1) routes It was concluded that a NWRR should be taken forward, as part of a wider package of measures
2010	A third round of public and stakeholder consultation was undertaken in March / April 2010, prior to the initial proposed submission of the OBC to DfT. It involved a series of manned exhibitions over seven days at six locations in and around Shrewsbury, using the Council website, and using the approximately 1850 residents comprising the Citizens' Panel. Stakeholder meetings were also held with the Environment Agency, Natural England, English Heritage and others The objectives were to: ▪ Present the preferred scheme and determine the level of public acceptance of it ▪ Determine any changes in public attitude	1,987 questionnaires were returned (1,119 from the public and 878 from the Citizens' Panel) showing: ▪ 74% of respondents considered traffic in Shrewsbury town centre was a problem and 72% considered that traffic on routes in and out of Shrewsbury was a problem ▪ Overall, 59% agreed or strongly agreed that the NWRR should be built, with 33% disagreeing or strongly disagreeing. This showed a slight increase compared to 2005, when 53% of respondents agreed of strongly agreed that the NWRR should be promoted to address problems caused by traffic in the town centre, with 41% disagreeing or strongly disagreeing
2017	As the scheme had been on hold since 2010, the Council undertook a fourth consultation in October / November 2017. Scheme information and questionnaires were distributed to the public via exhibitions held in and around Shrewsbury, at the Shrewsbury Community Hub, via the Council website, and at the Council office reception The objectives were to: ▪ Remind people about the scheme alignment, objectives, benefits and impacts after so many years ▪ Gauge the current level of support for the scheme and ensure awareness of the proposal to submit a funding bid ▪ Obtain up-to-date information and requirements from key stakeholders and landowners	800 and 1,000 people attended the exhibitions and 633 questionnaires were returned showing: ▪ Local people were aware of the potential benefits and dis-benefits of a NWRR, and many held very strong views with strong feeling that the debate had gone on long enough and a decision needed to be made ▪ Those supporting the scheme believed it was strongly justified due to the expected traffic relief and benefits to the economy, town centre and urban environment ▪ Those against the scheme were not convinced by the traffic relief argument and believed there were alternative, more cost effective, ways of achieving traffic reduction and that both the environmental impacts on the green wedge were too great and the cost could not be justified ▪ 67.5% of respondents were in favour of building the NWRR, an increase compared to previous consultations

Year	Description	Outcome
2020	A fifth round of public and stakeholder consultation was undertaken between February and April 2020, in advance of the formal planning application. Consultation materials were prepared, including a consultation brochure with questionnaire and were shared online. Whilst some events took place, on the advice of the Government (due to the COVID-19 pandemic) others were cancelled The objectives were to: ▪ Share the latest design proposals that incorporated feedback from the 2017 consultation ▪ Provide the opportunity to give feedback on the latest scheme design and expected benefits	There were 3,905 unique visits to the consultation webpages, 516 people attended the exhibitions and 712 questionnaires were returned showing: ▪ More people felt that all the expected benefits of the scheme were important than not, except 'supporting economic growth' where 41% felt it unimportant, compared to 40% feeling it important ▪ Changes in community benefits were strongly supported or supported by at least twice the number that strongly opposed or tended to oppose ▪ The proposed realignment to avoid important ecological sites was highly supported by 84% ▪ 43% thought it likely or very likely that the proposed NWRR would improve their journeys, 5% thought it neither likely nor unlikely, and 51% thought it unlikely or very unlikely
2021 - 2023	The initial detailed planning application was submitted on 19 February 2021. However, following discussions during the initial planning application process, a revised detailed planning application was submitted on 26 August 2021, incorporating some minor design changes. The final scheme was subject to very rigorous testing and scrutiny as part an elongated planning process and, in response to requests from statutory consultees including Severn Trent Water, the Environment Agency and Natural England, on 02 February 2023, supplementary environmental information was submitted to the local planning authority and a further 30-day consultation period commenced six days later	On 31 October 2023, the Council's Northern Planning Committee made a 'Resolution to Approve Planning Permission' for the scheme, subject to the agreement on the wording of the 63 planning conditions, completion of the required Section 106 agreements from the relevant landowners to deliver off-site mitigation and the compensation strategy. The wording of the 63 planning conditions was subsequently ratified at the Council's Northern Planning Committee on 15 February 2024

2.11.4. Further detail on the consultation exercises outlined above, up to and including 2017, can be found in the OBC. A more detailed summary of the 2020 consultation can be found in the 2020 North West Relief Road Statement of Community Involvement provided in Appendix D.

2.11.5. Following the approval of the wording of the planning conditions on 15 February 2024, weekly scheme facilitation meetings were initiated with Network Rail to address the NWRR scheme implications on existing Network Rail infrastructure that will require permanently buying land from Network Rail to build the bridge abutments and temporarily leasing land from Network Rail to facilitate access, space for construction and to maintain access.

2.11.6. The discussions to date have centred around:

- Agreeing details of a basic asset protection agreement between Network Rail and the Council.
- Network Rail internal business and technical clearance of the scheme
- Approval of the structures design by Network Rail's infrastructure team

- Land purchase / lease discussion

2.11.7. Details of how Shropshire Council will manage future stakeholder engagement are outlined in Section 6.7 of the Management Dimension.

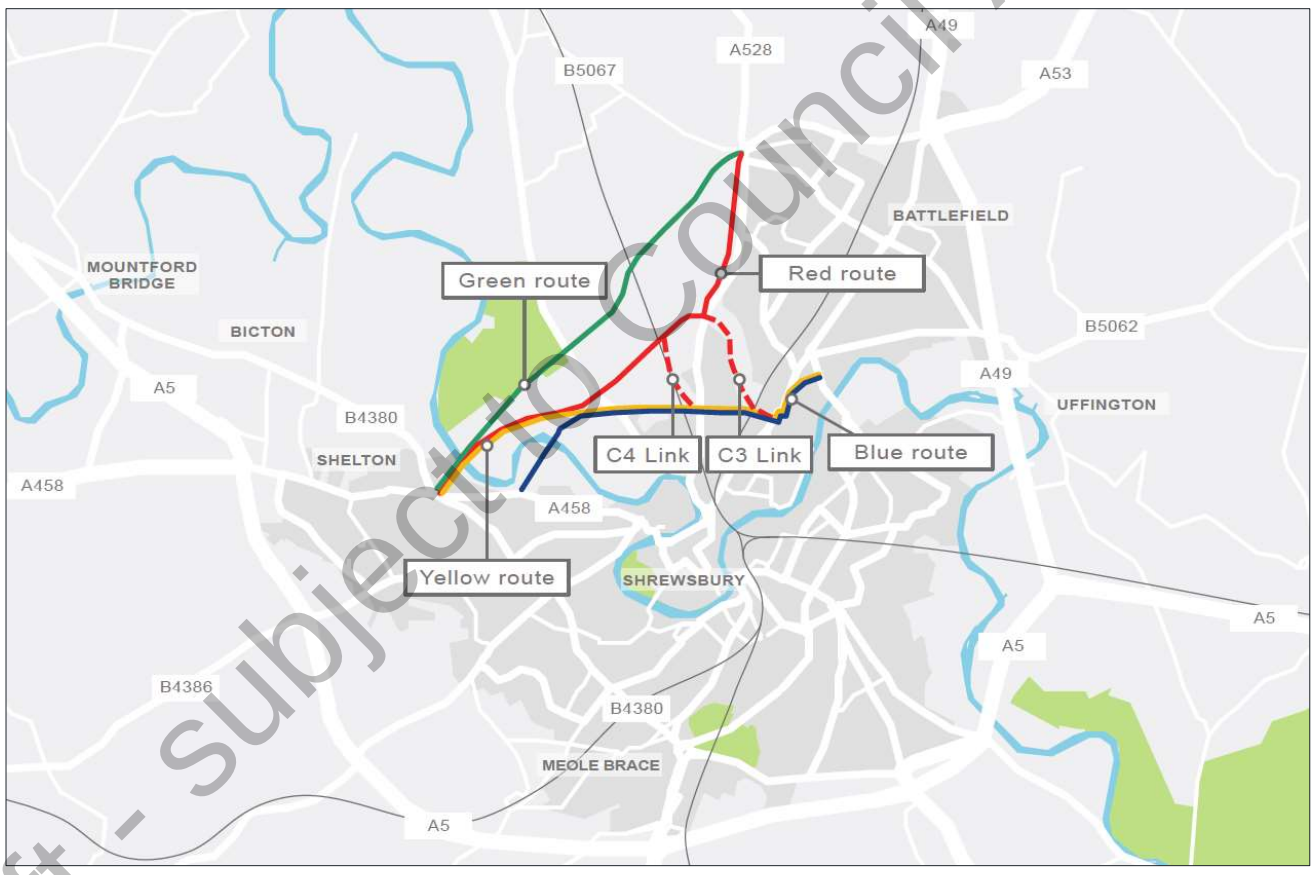
2.12 OPTIONS CONSIDERED

2.12.1. The issues arising from the lack of a river crossing in the north-west sector of Shrewsbury have been a concern for the Council for many years, with detailed investigations beginning in the mid-1980s. This section provides an overview of the options considered for a NWRR.

INITIAL ROUTE OPTIONS

2.12.2. In 1988, the Council identified a number of route options, as shown in Figure 2-29 and then described below.

Figure 2-29 – Initial route options (1988)



- Green route – a new road between the A5 / A458 at Shelton and the A528 Ellesmere Road near Harlescott Lane
- Red route – a new road between the A5 / A458 at Shelton and the A528 Ellesmere Road, closer to the town centre, and an online improvement of A528 Ellesmere Road to Harlescott Lane
- Red route + C3 – as above, but with a link between A528 Ellesmere Road and Spring Gardens following the line of the old river bed and bridging the Shrewsbury-Crewe railway line

- Red route + C4 – as Red, but with the addition of a link between the NWRR and Spring Gardens, having a junction with A528 Ellesmere Road, and crossing the Shrewsbury Crewe railway line, on a more southerly alignment
- Yellow route – a new road between the A5 / A458 at Shelton and Spring Gardens, having a junction with A528 Ellesmere Road, and crossing the railway line, on a more southerly alignment
- Blue route – as above, but starting from a point on The Mount, east of Shelton

2.12.3. A cost-benefit analysis was undertaken on each route option, using the traffic model available at that time, and it was concluded that the Red route + C3 option offered the best Benefit-Cost Ratio (BCR).

2.12.4. In 1992, new bypasses for the A5 and A49 trunk roads were opened to the south and west of Shrewsbury and an updated cost-benefit analysis in January 1997, using the traffic model available at that time, showed that including the C3 link (between the A528 Ellesmere Road and Spring Gardens) would reduce the overall BCR and so a corridor for the NWRR scheme, based solely on the Red route option, was protected in the Shrewsbury and Atcham Local Plan, adopted in 2001.

2.12.5. In line with TAG, a wide range of non-car options were also identified, including possible alternatives to a NWRR and the opportunities that might be afforded by a NWRR.

SIFT OF INITIAL ROUTE OPTIONS

2.12.6. In its first Local Transport Plan, the Council made a commitment to review the NWRR scheme by 2006 to determine whether there were any viable alternatives to constructing a NWRR and to identify which routes would be most acceptable to local people and stakeholders.

2.12.7. Due to the passage of time, and the changes that had taken place since the initial appraisal, the Council chose to reconsider all previously rejected route options alongside the protected corridor, additional route options identified by consultees and non-car options.

2.12.8. This review, for the most part, was qualitative and was completed in 2002 concluding that:

- The provision of non-car options alone would be unlikely to provide equivalent benefits to the NWRR proposals
- Demand management packages including road pricing and investment in alternative modes, especially public transport, could have a significant impact and would be worth investigating
- The implementation of a NWRR scheme could itself provide significant opportunities for the delivery of improvements in non-car accessibility.

2.12.9. These conclusions were shared as part of a 2003 consultation and, taking into consideration the 2002 review and the 2003 consultation, the Council concluded that:

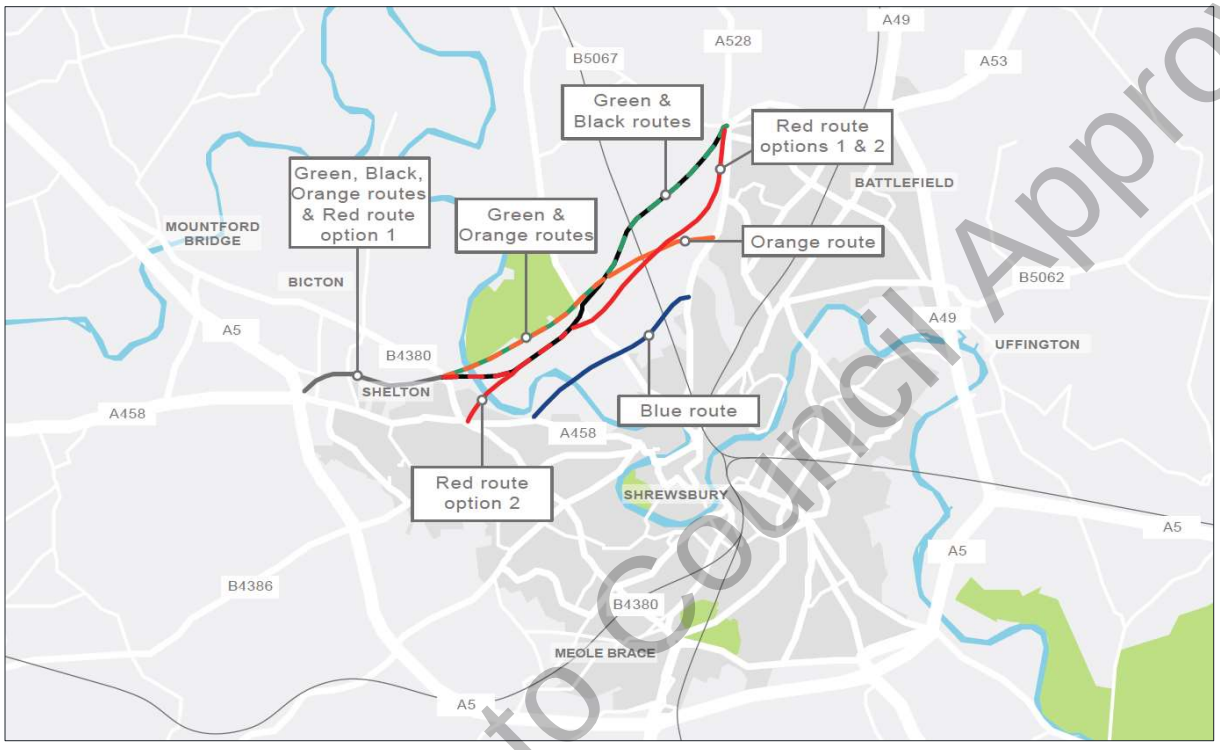
- A shortlist of possible routes should be developed, reflecting the wide range of views and suggestions obtained from consultees and stakeholders
- A range of non-road measures should be developed, including public transport initiatives, road user charging and a package of investment in non-car options on the A5 / A458 corridor
- The road and non-road options should be assessed in more detail, including traffic, economic and environmental assessments and subject to further public and stakeholder consultation

2.12.10. In 2004, the very large number of route options suggested by consultees, in addition to those previously considered, were rationalised into six representative route options for further assessment.

2.12.11. As illustrated in Figure 2-30, the routes fell into two distinct groups:

- Blue and Red (Option 2) were shorter routes which relied on parts of the existing road network.
- Green, Black, Orange and Red (Option 1) were longer routes which provided a completely new road starting from the A5 / A458 Churncote Roundabout, reflecting the public view, expressed in the 2003 consultation that the A458 Welshpool Road should be relieved of through traffic

Figure 2-30 – NWRR route options for assessment in 2004



OPTION DEVELOPMENT AND ASSESSMENT

2.12.12. A detailed engineering assessment was undertaken for each route that confirmed all six shortlisted route options were feasible using normal construction techniques and had no engineering issues.

2.12.13. A Stage 2 Environmental Assessment identified a number of issues where further investigation was recommended to determine a preferred route.

2.12.14. A traffic impact assessment was undertaken and showed that all route options were forecast to produce very large flow reductions on north-west corridor routes through the town centre. Other impacts varied by route option, but the Blue and Red (Option 2) routes were considered less attractive as they produced greater increases on the radial routes leading towards them.

2.12.15. The economic assessment of each route option showed that all options produced BCRs above 4, indicating benefits significantly in excess of their costs.

2.12.16. In addition to the assessment of the route options, a workshop was held to clarify the non-road options for further assessment. It concluded that only road user charging was capable of resulting in a level of traffic reduction comparable with the provision of a NWRR. The assessment indicated that road charging would need to be introduced as part of a package of measures to provide efficient and economic means of access, such as improved public transport and other measures.

2.12.17. These assessment results fed into the 2005 consultation where it was concluded that the Blue, Orange and Red (Option 2) routes were least well supported and technically least acceptable and so a preferred route should be developed based on the Green, Black and Red (Option 1) routes.

IDENTIFICATION OF THE PREFERRED ROUTE OPTION

2.12.18. The environmental impacts of the three shortlisted route options were further considered and it was concluded that:

- The traffic, air quality and groundwater impacts of each route option were similar
- Each route option would have a large adverse impact on landscape, but the Black route would be least damaging and most susceptible to mitigation
- Each route option would seriously affect components of the Berwick cropmark complex, but the Red (Option 1) route may have slightly less impact on this and on the built heritage
- With mitigation the Black route would have the least impact upon biodiversity, flood risk and drainage, but the Green route was unlikely to be acceptable

2.12.19. A slightly modified version of the Black route, whilst most expensive, was subsequently chosen as the preferred route as it was better able to deal with the key local issues.

2.12.20. In 2007, a Transport Innovation Fund (TIF) study examined the feasibility of road pricing as an alternative to, or in conjunction with, the preferred Black route NWRR scheme and its outcomes led the Council to conclude that:

- road pricing was not a viable alternative to a NWRR
- road pricing in combination with a NWRR would not be financially viable
- the preferred NWRR scheme should be progressed, alongside a broader package of measures (excluding pricing) to reduce congestion and encourage sustainable transport

2.12.21. The last of the above conclusions led to the development of the Shrewsbury ITP which was the subject of a successful bid for Growth Deal funding in 2016 and has now been implemented.

2.12.22. The preferred option was consulted on in 2010 and, following a period where the project was paused, it was consulted on again in 2017 prior to the planned submission of the OBC to the DfT.

SCHEME DEVELOPMENT SINCE OBC SUBMISSION

2.12.23. On 22 December 2017, the OBC was submitted to DfT for approval. There then followed a lengthy 15-month standstill period, pending the DfT announcement of successful LLM schemes. During this period, in July 2018, the Council also submitted a detailed planning application for the then separately proposed OLR scheme.

2.12.24. On 21 March 2019, the Council received confirmation from the DfT that the NWRR scheme would be entered onto the LLM scheme programme. This confirmation from DfT, coupled with the fact that the outcome of the OLR detailed planning application was yet to be determined, led to the Council reappraise the relationship between the two schemes as, although the OLR application acknowledged the NWRR as a potential future scheme, the DfT's funding allocation for the NWRR offered an opportunity for the two complementary schemes to become more closely aligned.

2.12.25. Therefore, on 30 August 2019, the OLR planning application was formally withdrawn by the Council as it had decided to pursue the two previously separate OLR and NWRR schemes as a single project with a combined planning strategy for reasons of economy and speed.

2.12.26. Taking into consideration the outcome of the 2017 consultation, the following changes were made to the preferred NWRR scheme that had been proposed at OBC stage, in part to address resident concerns around mitigation of environmental impacts:

- Amendments to the alignment of the road to reduce the environmental impact on wildlife, including ancient and veteran trees
- Changes to provision for non-motorised users
- The viaduct length was shortened from 670m to approximately 584m and the eastern embankment lengthened
- Incorporation of a dumb-bell roundabout at the junctions with Huffley Lane and the A528 Ellesmere Road
- Better access was provided to the West Mid Showground site to improve event day traffic flows
- Detailed Groundwater Abstraction and Flood Plain impact assessments were undertaken to help identify appropriate mitigation measures
- PRoW were altered, including the creation of a new circular route
- Reduced land take at two locations
- Dual purpose water and wildlife culverts were introduced following ecology and hydrology assessments
- A newt mitigation area was created

2.12.27. During the preliminary design stage of the combined NWRR and OLR scheme, the route and certain design elements of the preferred NWRR scheme were subject to further changes, which were influenced by environmental constraints and opportunities as well as engineering and operational/maintenance requirements.

2.12.28. Following extensive consultation with the Environment Agency and the River Severn Partnership, it was agreed that the NWRR scheme could include an extended raised embankment into the floodplain of the River Severn for a distance of 300m to support the Environment Agency's aspiration to deliver a flood alleviation and water management scheme north of Shrewsbury.

2.12.29. However, incorporating the Environment Agency scheme concept into the NWRR scheme took longer to progress than originally anticipated and, as a result, put the NWRR scheme funding at increased risk, therefore it was decided to progress the NWRR scheme without incorporating the Environment Agency scheme.

2.12.30. Prior to submitting the combined NWRR and OLR scheme planning application, a further round of public and stakeholder consultation was undertaken which showed support for the proposed environmental and ecological mitigation measures.

2.12.31. On 19 February 2021, the initial detailed planning application for the combined NWRR and OLR scheme was submitted.

2.12.32. Following discussions during the planning application process, a revised detailed planning application was submitted on 26 August 2021 which incorporated some minor changes to the initially proposed scheme. These included:

- The removal of the climbing lane from the viaduct and the inclusion of an extended earthwork embankment into the floodplain, enabling a shorter viaduct (584m rather than 670m) which in turn reduces the carbon impact from construction by 31% (equivalent to 22,200 tonnes of carbon)

- The area that would store water in the event that the River Severn floods located east of the River Severn, was increased due to the additional bridge structures within the floodplain
- An increased flood storage area and to accommodate new access routes as well as additional planting to support wildlife
- The viaduct sides or parapets were changed from concrete to steel and the viaduct height was reduced slightly on the north side

2.12.33. The scheme was then subject to very rigorous testing and scrutiny as part an elongated planning process and, in response to requests from statutory consultees including the Environment Agency, Severn Trent Water and Natural England, on 02 February 2023, supplementary environmental information was submitted to the local planning authority and a further 30-day consultation period commenced on 08 February 2023.

2.12.34. On 31 October 2023, the Council's Northern Planning Committee made a 'Resolution to Approve Planning Permission' for the combined NWRR and OLR scheme, subject to the agreement on the wording of the 63 planning conditions, completion of the required Section 106 agreements from the relevant landowners to deliver off-site mitigation and the compensation strategy. The final wording of the 63 planning conditions was delegated to the Assistant Director of Economy and Place for agreement with statutory consultees and, as such, the wording of the planning conditions was considered and approved at the Council's Northern Planning Committee meeting on 15 February 2024. Work to complete the required Section 106 agreements and discharge the planning conditions is now taking place.

2.12.35. The scope of the final proposed scheme, incorporating all the changes outlined above, is set out in Section 2.13.

2.12.36. Note that, although the OLR will be delivered at the same time as part of the broader NWRR project, as it is funded separately from the NWRR, it is not included within this FBC or the final proposed NWRR scheme, as described in Section 2.13.

2.12.37. Full details of the scheme option development and appraisal process up to OBC submission in 2017 are set out within the OBC. Further details on the development of the NWRR scheme since the OBC submission are provided in an update to the original Options Assessment Report that can be found in Appendix B.

2.13 SCOPE OF THE FINAL PROPOSED SCHEME

IN SCOPE

2.13.1. The NWRR scheme is located in the north-west of Shrewsbury. It will provide a new shorter and more direct link between the northern and western parts of Shrewsbury that are currently very poorly linked due to a lack of available highway infrastructure. As summarised in Section 1.2, the final proposed NWRR scheme comprises:

- A 7.3m wide single carriageway all-purpose 4.85km long road with 1.0m margins and a permitted speed limit of 60 mph, located in the north-west of Shrewsbury connecting the eastern end of the proposed Oxon Link Road (OLR) with the western end of the existing Battlefield Link Road that provides access to the Battlefield Enterprise Park
- The NWRR will include a shared 3m wide footway / cycleway along the length of its southern side, addressing the severance of a number of local roads, footpaths and PRoW

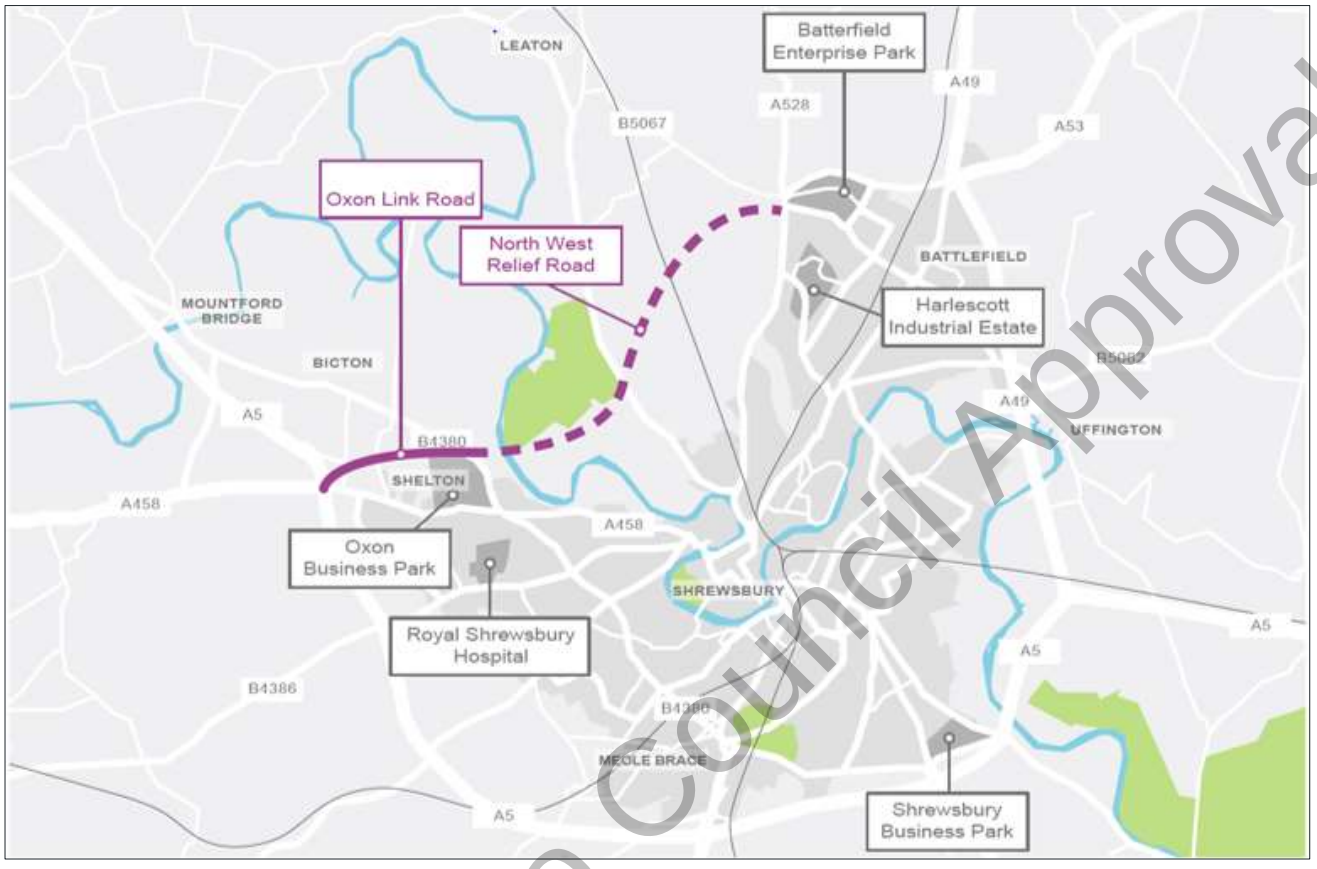
- Construction of a 36.4m long equestrian culvert to divert the existing bridleway just to the east of the B4380 Holyhead Road Roundabout under the NWRR, maintaining connectivity for pedestrians, equestrians, mammals and bats
- A 15.5m wide viaduct, approximately 584m in length, crossing the River Severn and its floodplain
- Two additional flood storage areas will be provided as a result of the works impinging the existing flood plain
- Combined culvert and mammal crossing points at Willow Pool and along the line of both Alkmund Stream and Hencott Stream
- Landscaping, drainage schemes, increased flood storage, planting, and environmental mitigation work including the acquisition of Hencott Pool to enable habitat improvements
- Provision of a new at-grade four arm roundabout located on the B5067 Berwick Road to provide an interface between the NWRR and the B5067 Berwick Road
- A vehicular bridge to carry the NWRR over the Shrewsbury to Chester railway line
- Construction of an overbridge to carry the Marches Way Footpath and Accommodation Track over the NWRR, providing connectivity for a number of public rights of way in the area
- Replacement of the existing at-grade five-arm A528 Ellesmere Road roundabout with two at-grade four-arm roundabouts in a 'dumb-bell' configuration

2.13.2. The above description of the scope of the scheme refers to the final proposed scheme, as proposed in this Business Case and the planning permission was formally approved on 15 February 2024, subject to additional conditions and the final wording of conditions being delegated to the Assistant Director of Economy and Place for agreement with statutory consultees and a signed Section 106 obligation from the relevant landowners to deliver off-site mitigation and the compensation strategy.

2.13.3. At the outset of the appraisal process however, a wider range of alternative solutions to the identified problems were considered to be 'in scope'. These included alternative routes in the north west sector of Shrewsbury as well as non-road options. These alternatives were only set aside after appropriate investigation and appraisal, as described later in the Strategic Dimension and in the Options Assessment Report (OAR).

2.13.4. Figure 2-31 shows the location of the NWRR scheme. Detailed scheme drawings can be found in Appendix A.

Figure 2-31 – Proposed NWRR location



2.13.5. Together with the A5 and A49 bypasses, the Battlefield Link Road and the planned OLR, the NWRR will provide the 'missing link', completing the full ring of the outer bypass of Shrewsbury.

2.13.6. As north-west corridor through traffic transfers to this new route, the existing north-west corridor through route options will all experience lower flows and congestion levels, and other journeys within and around the town will also be able to transfer to more appropriate routes within the town's road hierarchy, reducing journey times and increasing the capacity and resilience of the local and strategic highway network.

2.13.7. The NWRR aims to improve the quality of life for people in Shrewsbury through supporting the delivery of the Shrewsbury Big Town Plan[25] and boosting the economic competitiveness of Shrewsbury and Shropshire by providing better connectivity and accessibility for both businesses and communities. The NWRR will reduce congestion and delays; improve network efficiency and resilience; encourage modal shift to more sustainable modes of transport; improve road safety; and unlock and support residential and economic development.

[25] Shrewsbury Big Town Plan, 2018

2.13.8. The NWRR scheme will reduce traffic volumes on both the northern and western approaches, around the Station Gyratory and along the Smithfield Road as north-west corridor through traffic will transfer from these routes to use the NWRR. This will significantly improve the journey times and reliability of buses utilising these routes which will improve the efficiency of the bus network as a whole and make buses a much more attractive option, addressing the key concern of the BSIP and supporting its delivery.

2.13.9. The NWRR will also facilitate the road space reallocation required to deliver new active mode infrastructure, supporting the delivery Shropshire's LCWIP and encouraging further modal shift to active modes of travel.

OUT OF SCOPE

2.13.10. The revised detailed planning application for the proposed NWRR scheme, submitted in August 2021, incorporated the OLR scheme, however, although the OLR scheme (including its enhancements to Welshpool Road) will be delivered at the same time as part of the broader NWRR project, as it is funded separately from the NWRR, it is not included within this FBC or within the scope of the final proposed NWRR scheme described above.

2.13.11. The proposed NWRR scheme also does not include physical improvements, enhancements or traffic management in other streets or areas of Shrewsbury or the provision of public transport facilities or services.

2.14 CONSTRAINTS

2.14.1. The following types of constraint have been taken into account in developing the scheme:

- Physical
- Environmental
- Financial
- Contractual
- Public acceptability

2.14.2. These are summarised below. It is evident that there are no insurmountable constraints on the construction of the NWRR. However, as explained in the Option Assessment Report and summarised in Section 2.12 above, detailed consideration of the physical, environmental, and public acceptability constraints has been critical in the identification of the final proposed scheme route.

Physical Constraints

2.14.3. The north-west sector of Shrewsbury is generally undeveloped, comprising mainly agricultural land and sparse settlements. The River Severn meanders through this area, with steep wooded valley slopes and extensive floodplains, forming one of the main physical barriers dividing the landscape. The area is also crossed by the Shrewsbury to Chester railway line, by footpaths and other PRoW.

2.14.4. The main physical constraints to the NWRR are the need to:

- Construct a new crossing of the River Severn and its floodplain
- Cross the Shrewsbury to Chester railway line
- Cross the Marches Way long-distance footpath and other ProW
- Tie in with the existing and planned road network – the A5 and OLR in the west, the B5067 Berwick Road, and the A528 Ellesmere Road and Battlefield Link Road in the north

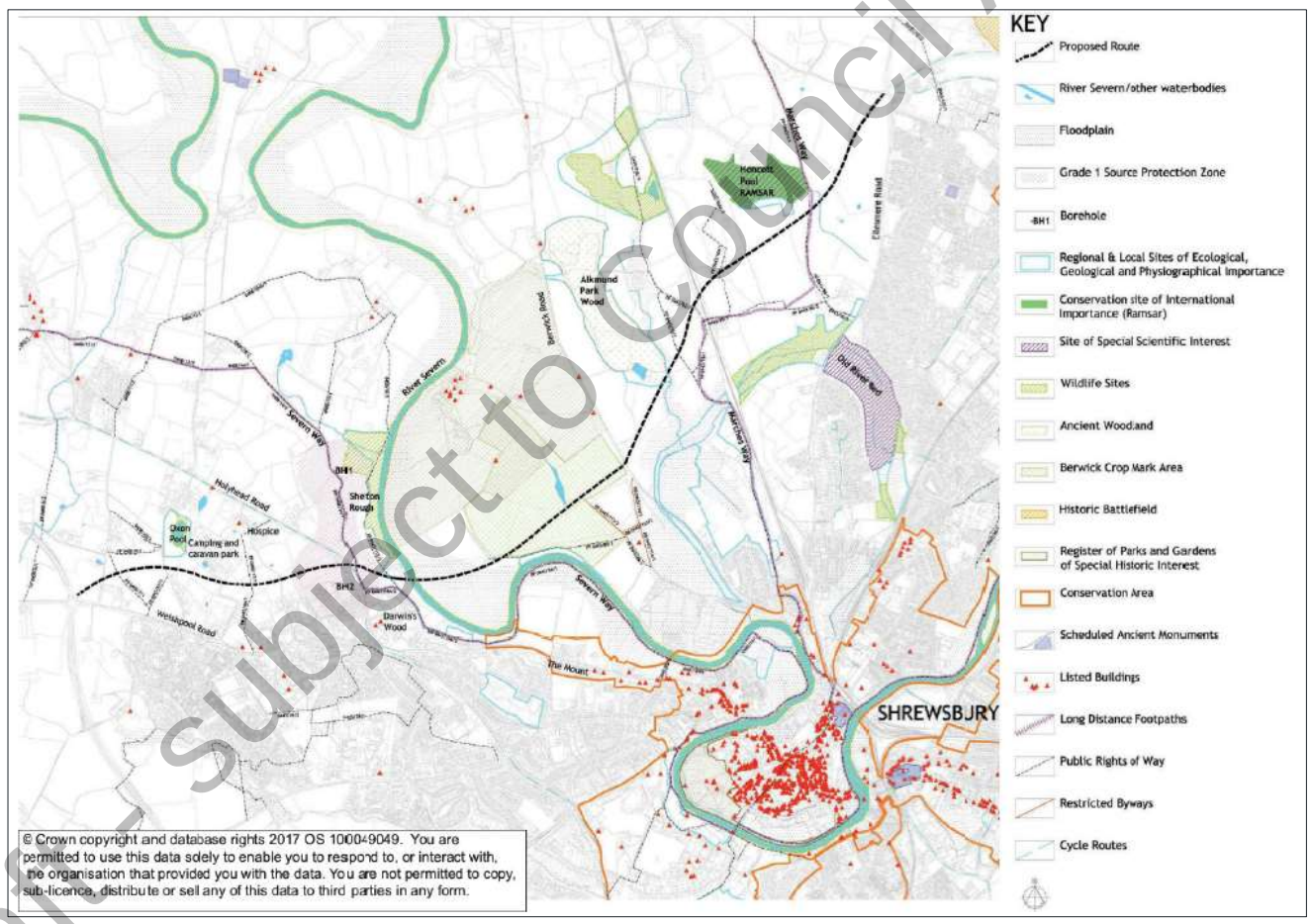
- To acquire land for the construction of the scheme

2.14.5. As such, there are considered to be no insurmountable physical constraints on the construction of the NWRR.

Environmental Constraints

2.14.6. Whilst there are relatively few physical constraints in the north-west sector of Shrewsbury, the undeveloped nature of the area means that there are significant environmental constraints which need to be considered in the design and in the appraisal of the scheme. The NWRR Preferred Route Report[26] (January 2007) stated that 'the area to the north-west of Shrewsbury is relatively rich in environmental constraints however, very few of these would be directly affected by the options under consideration'. The main environmental constraints that have been identified are illustrated in Figure 2-32.

Figure 2-32 – Environmental constraints



[26] Shrewsbury NWRR Preferred Route Report (Mouchel Parkman for SCC, January 2007)

2.14.7. In considering the forecast impacts of the NWRR on the specific road sections highlighted earlier in the Strategic Dimension, a number of additional environmental constraints were identified to include:

- The River Severn (wildlife site) and its floodplain
- The Shelton boreholes (for extraction of drinking water) and related Source Protection Zone (SPZ)
- Other water bodies: Willow Pool, Alkmund Park Pool, a pond in Alkmund Park Wood and Cot Brook
- The Hencott Pool Conservation Site of International Importance (Ramsar site)
- The 'old river bed' – an ancient course of the River Severn comprising a wildlife site to the west of Ellesmere Road and a Site of Special Scientific Interest (SSSI) to the east of Ellesmere Road
- Alkmund Park Wood (wildlife site) – an area of ancient woodland
- Shelton Rough (wildlife site), adjacent to the River Severn
- Archaeology, principally the Berwick Cropmark Complex
- Shrewsbury conservation area, which extends along part of The Mount
- Listed buildings
- Registered park and garden of special historic interest (Berwick Hall)
- Footpaths, cycle routes and other ProW

2.14.8. A Stage 2 Environmental Assessment[27] was undertaken in 2005, as part of the consideration of a range of six possible options for a NWRR. It considered the impacts of each option on a number of environmental factors such as noise, air quality, landscape and townscape and biodiversity. A supplementary study[28] of geology, including contaminated ground, was undertaken in 2006. The results of the assessment are summarised in the NWRR Preferred Route Report (2007).

2.14.9. A further review of the environmental impacts was undertaken in 2017 and considered the preferred route at the time, in connection with the OBC. It was recognised that the scheme required significant mitigation of environmental impacts, and further surveys and investigations were undertaken in 2018. A thorough examination of the environmental constraints were consequently considered as part of the NWRR planning application submitted in February 2021[29].

Air Quality

2.14.10. Upon analysis of the planning application, air quality was highlighted as a key concern, with traffic and congestion increases modelled in some local areas. However, air quality modelling has been undertaken for the proposed NWRR, predicting that that the future "Do Something" scenario creates betterments at the five locations which historically were expected to potentially exceed national objective levels for NO_2.

2.14.11. Where currently monitored air pollution is worst, reduced traffic volumes, reduced congestion and improvements to air quality are expected as a result of the NWRR. An analysis of modelled air quality impacts of the NWRR, showed reductions in pollutants occurring in more deprived areas,

[27] Shrewsbury NWRR Stage 2 Environmental Assessment Report (Mouchel Parkman for SCC, May 2005)
[28] Geology and Soils Impact Assessment (Mouchel Parkman for SCC, 2006)
[29] Development Management Report, Shropshire Council, 2023

such as Castlefields and Ditherington. As such, Regulatory Services recommended to the local planning authority that the proposal, on balance, had no significant effect on human health at worst, and could be considered to have an overall beneficial impact.

2.14.12. Construction vehicle emissions were also noted as a potential constraint to the delivery of the NWRR, as the proposed development is in close proximity to a number of air quality receptors. However, it has been confirmed that the construction phase of the NWRR will be less than two years and, as such, exempt from detailed assessment under the Design Manual for Roads and Bridges. A Construction Environmental Management (CEMP) has been submitted, providing what are considered to be comprehensive mitigation methods to reduce dust soiling and PM_{10} creation and dispersal to nearby receptors. No demolition or construction work for the NWRR shall commence until the relevant CEMP has been submitted and approved, as well as the means to protect the nearby highly sensitive environmental receptors[30].

Carbon

2.14.13. Carbon is also a key constraint to the delivery of the NWRR. As highlighted by many objectors, the Council declared a climate emergency in May 2019, with an ambition to be carbon neutral as an authority by 2030.

2.14.14. The overall whole life carbon impact of the scheme is expected to be a net-increase in carbon emissions over the 60-year appraisal period, including a net-increase in carbon emissions due to release of carbon in natural stores due to land use change. However, the Council, in line with the relevant Planning Condition, has produced a robust CMP and Carbon Assessment Plan that include the identification of local or wider initiatives, as required, to manage the carbon impact of the project to net neutrality. This may include, but is not limited to, initiatives around offsetting, Biochar and carbon credit purchase which will enable the Council to invest in appropriate mitigation measures in an auditable approach, fully aligning with the Councils wider stated Carbon targets. This process will be overseen and evaluated independently by the Local Planning Authority.

Arboriculture

2.14.15. In reaching its decision to approve the planning application for the NWRR, the Council's Northern Planning Committee also took account of the importance, value and significance of the nine veteran trees, as well as other trees and woodland affected by the scheme. Since approval, the Council have received requests from the public to make a Tree Preservation Order (TPO) on the nine veteran trees to be removed to enable construction of the NWRR, although it should be noted that two of the nine trees are already protected under existing TPOs.

2.14.16. Currently, as part of the Compensation Strategy for the NWRR, it is proposed that 84 new trees will be planted, replacing the nine veteran trees to be lost, and 14 others remaining but affected by the scheme. In addition, 4 hectares of new native woodland is also to be planted, and bespoke veteran tree and woodland management plans will also be put in place to for sites affected by the

[30] Shropshire Council, 2023

operational impacts of the NWRR[31]. The Final Compensation Strategy, including planting and maintenance plans, will need to be submitted and approved ahead of development.

2.14.17. As such, it is considered that there are no insurmountable environmental constraints on the construction of the NWRR. The appraisal of environmental impacts is discussed further in the Economic Dimension and the results of the updated appraisal are summarised in the Appraisal Summary Table (AST).

Financial Constraints

2.14.18. The Council does not have the resources to deliver the NWRR without funding support from the Government and so the delivery of the scheme is dependent upon receipt of the Government funding contribution from the DfT's LLM schemes fund. Delivery is also dependent upon the accepted tender price being ratified at Full Council on 12 December 2024 and the approval by Government of the FBC.

2.14.19. The anticipated programme for financial approval is:

- March 2019: DfT confirm approval of the OBC and enter scheme on LLM Scheme Programme, agreeing a maximum capped £54.4 million funding contribution
- March 2024: The Council invite tenders for construction of the scheme
- December 2024: Full Business Case submission to DfT
- March 2025: DfT agrees to release funds for construction

2.14.20. The Council anticipates contributing 64.8% of the capital cost of the scheme up to a maximum of £109m, including previous expenditure on land acquisition and scheme preparation. The Council will fund in full any costs in excess of the approved DfT funding and will also fund the future operating and maintenance costs of the scheme.

2.14.21. Subject to this, it is considered that there are no insurmountable financial constraints on the construction of the NWRR. Further details are given in the Financial Dimension.

Contractual Constraints

2.14.22. The Commercial Dimension sets out the proposed contract type and the key contractual arrangements for the NWRR. There are no contractual constraints which the council considers would inhibit delivery of the scheme.

Public Acceptability Constraints

2.14.23. Throughout the development of the scheme, and the selection of a preferred route, the Council has consulted local people and stakeholders repeatedly about the principle of a NWRR, possible alternatives, and the route the road should take if built. The views of local people and stakeholders were given significant weight in the route selection process, and the council is confident that the selected route is, on balance, the most acceptable of those considered.

[31] Shrewsbury NWRR Overview, Shropshire Council, 2024

2.14.24. Five separate public consultations on the NWRR have been undertaken in 2003, 2005, 2010, 2017 and 2020. The general outcome of these consultations has indicated that a majority of local people believe that a NWRR would benefit Shrewsbury, and they would therefore like to see it built. However, the same consultations have also indicated that a significant number of people do not think a NWRR should be built, and / or that other measures should be given more priority.

2.14.25. The public consultation in 2017, held in connection with the preparation of OBC, gave people the opportunity to state their views on the route option proposed. Overall, the majority of the 633 local people and stakeholders who responded were in favour of building the NWRR and that support, at 67.5% had increased since the previous consultations.

2.14.26. As a result of the 2017 consultation several changes were made to the proposed scheme, including alterations to the route alignment and one of the junctions, changes to provision for non-motorised users, and access improvements to the West Mid Showground. Adjustments were also made to mitigate environmental impacts, following concerns expressed by some residents.

2.14.27. In August 2019, the Council withdrew its planning application for the OLR scheme as, following a reappraisal of the two previously separate OLR and NWRR schemes, the Council had decided to pursue the two schemes as a single project with a combined planning strategy for reasons of economy and speed. Incorporating the previously separate OLR scheme within the NWRR also enabled the two schemes to become more closely aligned.

2.14.28. During the preliminary design stage of the newly combined NWRR scheme, the route and certain design elements of the scheme were subject to changes, which were influenced by environmental constraints and opportunities as well as engineering, operational and maintenance requirements.

2.14.29. Prior to submitting the detailed NWRR planning application, a further round of public and stakeholder consultation was undertaken in 2020 to give an opportunity for people to comment on the combined scheme. This consultation received 712 responses from all parts of the town, as well as the wider area and some of the key findings were:

- Regarding the expected benefits of the NWRR, more people felt they were important than those indicating they were not important, with the exception of *supporting economic growth,* where more (41%) felt it was unimportant versus those that felt it was important (40%)
- 43% of respondents believed the proposed NWRR would improve their journeys, 5% thought it neither likely nor unlikely and 51% thought it unlikely or very unlikely to improve their journeys
- Alterations to the Ellesmere Road Roundabout to incorporate a dumbbell roundabout were supported by 35%, with 20% opposing
- The alterations to ProW were supported by 50% and 23% opposed

2.14.30. Following the 2020 consultation, the detailed planning application for the proposed NWRR scheme (incorporating the OLR) was submitted in February 2021. In response to discussions during the planning application process, some further minor changes were made to the initially proposed scheme, resulting in the final proposed scheme, as described in Section 2.13. As such, there are no public acceptability constraints which the council considers would inhibit delivery of the scheme.

2.15 EXPECTED IMPACTS OF THE PROPOSED SCHEME AND ACHIEVEMENT OF OBJECTIVES

2.15.1. Each of the five Dimensions present just one aspect of the case for building a NWRR; the overall business case depends on all of them. Whilst the Economic Dimension demonstrates that the

NWRR offers Value for Money, and other dimensions demonstrate that it is affordable, deliverable and commercially viable, the Strategic Dimension rests upon the extent to which the NWRR will address the problems identified (Section 2.4) and achieve the scheme's objectives (Section 2.7).

2.15.2. The Theory of Change logic map, set out previously in Figure 2-28, shows how and why the Council believes the proposed NWRR will contribute towards the achievement of objectives.

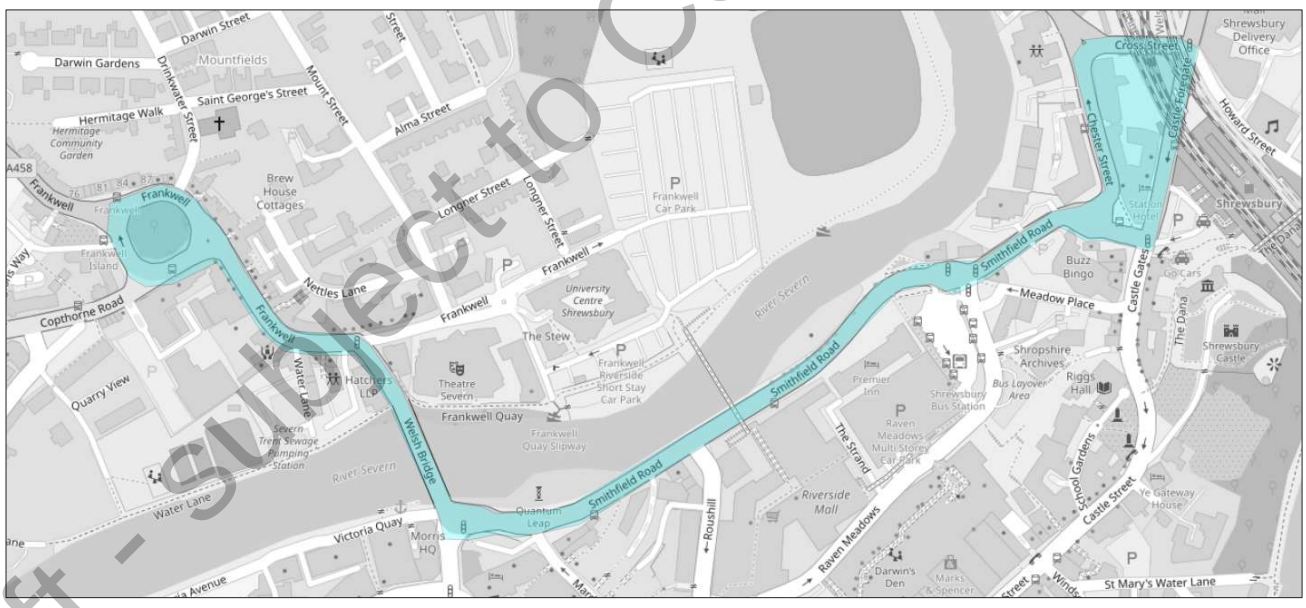
2.15.3. All of the expected positive impacts of the NWRR will be a consequence of changes in the pattern of traffic movement, wherever they occur on the local road network. These changes have been forecast by the Shrewsbury Traffic Model and can therefore be examined to help understand how effective the NWRR will be in delivering its objectives. This is complementary to the use of the model to calculate the economic benefits of the scheme.

2.15.4. The following sections describe in more detail the forecast impacts of the NWRR on the specific sections of road, highlighted earlier in the Strategic Dimension. The 'flow change due to the NWRR' figures in each table represent the change in flows between the 2050 with and without NWRR modelled scenarios.

TRAFFIC IMPACT ON TOWN CENTRE ROADS

2.15.5. North-west corridor through traffic passes directly through the town centre using Frankwell, Welsh Bridge, Mardol Quay, Smithfield Road and the Station Gyratory, highlighted in cyan in Figure 2-33.

Figure 2-33 – Town centre highway network – north-west corridor



2.15.6. The forecast impact of the NWRR on traffic levels on Welsh Bridge, Mardol Quay, Smithfield Road, Chester Street and Castle Gates is set out in Table 2-26 and Table 2-27.

Table 2-26 – Two-way modelled traffic volume (in vehicles) within the town centre

Road	AM Peak				PM Peak			
	2023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR	2023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
Frankwell	2,020	2,053	1,696	-17%	1,739	1,837	1,352	-26%
Welsh Bridge	1,899	1,934	1,559	-19%	1,655	1,729	1,254	-28%
Mardol Quay	2,067	2,081	1,789	-14%	1,873	1,922	1,476	-23%
Smithfield Road	1,766	1,827	1,396	-24%	1,762	1,804	1,333	-26%
Chester Street	1,102	1,137	918	-19%	979	1,029	876	-15%
Castle Foregate	1,066	1,111	942	-15%	931	1,012	899	-11%

Table 2-27 – Two-way modelled AADT (in vehicles) within the town centre

Road	2023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
Frankwell	21,589	22,912	17,665	-23%
Welsh Bridge	20,189	21,284	16,033	-25%
Mardol Quay	23,601	24,304	19,608	-19%
Smithfield Road	20,956	21,771	16,423	-25%
Chester Street	12,873	13,790	11,577	-16%
Castle Foregate	11,911	12,586	11,018	-12%

2.15.7. The tables demonstrate that, along all six roads, peak flows and AADT are not forecast to significantly change between 2023 and 2050, without the NWRR and so the current issues will not see any improvement and if anything will get marginally worse. However, with the NWRR in place, 2050 peak flows and AADT are forecast to decrease significantly from 2023 levels. On Smithfield Road peak flows and AADT in 2050 are both forecast to drop circa 25% with NWRR in place and across Welsh Bridge peak flows are forecast to drop 19% in the AM peak and 28% in the PM peak, whilst AADT is forecast to drop 25%.

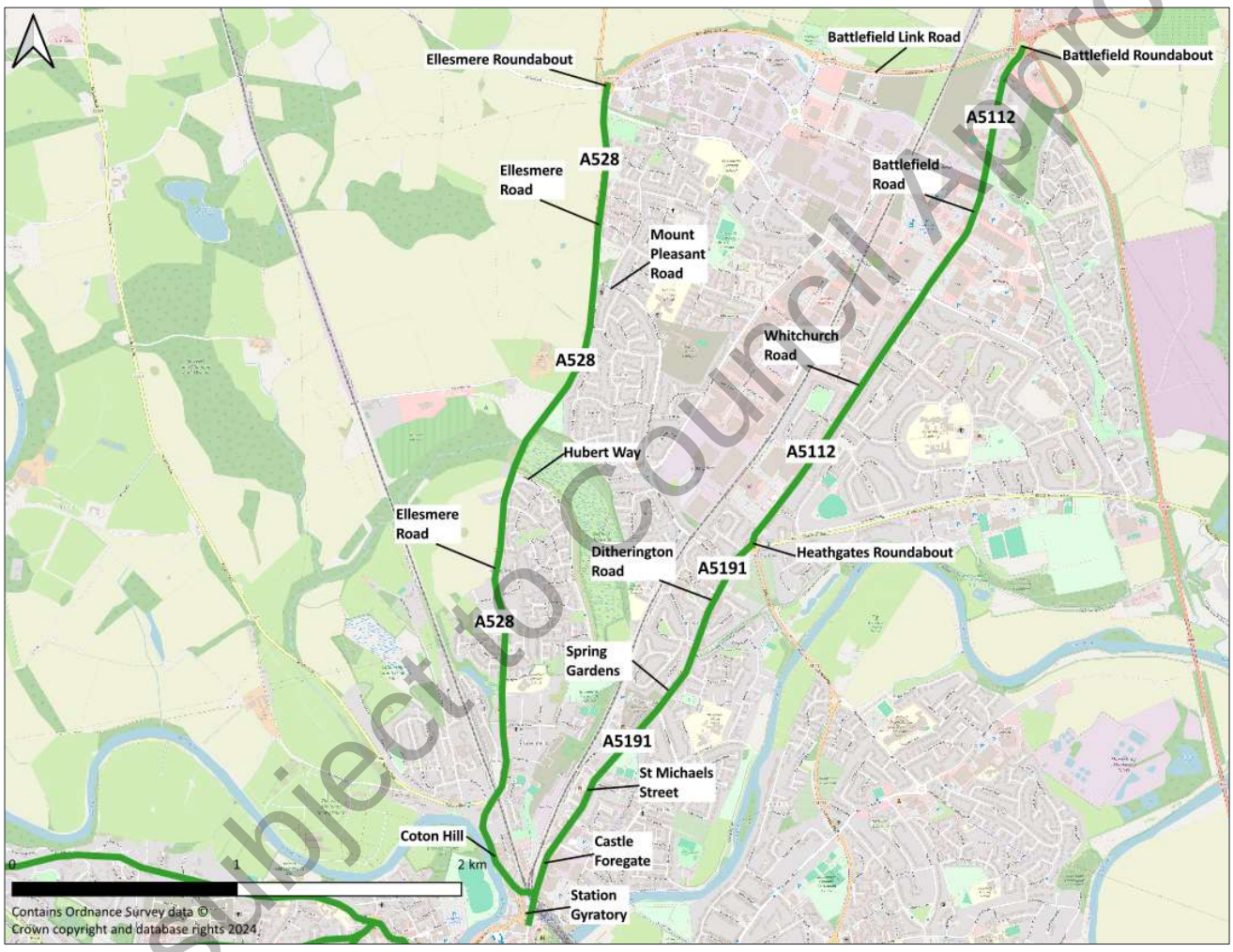
2.15.8. With the NWRR in place, the AADT on all six roads in 2050 is forecast to be lower than modelled 2023 levels, with Frankwell, Welsh Bridge, Mardol Quay and Smithfield Road each forecast to experience substantial drops of 300 to 400 vehicles in AM peak, 400 to 500 vehicles in PM peak and over 4,500 vehicles on average daily compared to 2023.

TRAFFIC IMPACT ON NORTHERN APPROACHES TO THE TOWN CENTRE

2.15.9. As shown on Figure 2-34, two key radial routes approach the town centre from the north:

- A528 Ellesmere Road and Coton Hill
- A5112 / A5191 Battlefield Road, Whitchurch Road, Ditherington Road, Spring Gardens, St Michael's Street and Castle Foregate

Figure 2-34 – Northern approaches to Shrewsbury town centre



2.15.10. The forecast impact of the NWRR on traffic levels on the two northern approach routes to the town centre is set out in Table 2-28 and Table 2-29.

Table 2-28 – Two-way modelled traffic volume (in vehicles) on northern approach routes

		AM Peak				PM Peak			
Approach	**Route Section**	**2,023**	**2050 without NWRR**	**2050 with NWRR**	**Flow Change due to NWRR**	**2,023**	**2050 without NWRR**	**2050 with NWRR**	**Flow Change due to NWRR**
A528	Ellesmere Road (North of Mount Pleasant Road)	1,280	1,474	1,206	-18%	1,274	1,582	1,264	-20%
	Ellesmere Road (Mount Pleasant Road to Hubert Way)	1,190	1,307	854	-35%	1,080	1,249	821	-34%
	Ellesmere Road (South of Hubert Way)	1,120	1,204	799	-34%	993	1,146	749	-35%
	Coton Hill	1,314	1,373	1,064	-23%	1,081	1,146	985	-14%
A5112 / A5191	Battlefield Road	506	660	596	-10%	656	866	734	-15%
	Whitchurch Road	1,051	1,250	1,087	-13%	1,004	1,186	949	-20%
	Ditherington Road	1,354	1,576	1,455	-8%	1,399	1,562	1,521	-3%
	Spring Gardens	1,221	1,425	1,318	-8%	1,281	1,458	1,405	-4%
	St. Michael's Street	637	700	690	-1%	712	767	710	-7%
	Castle Foregate	791	857	887	4%	799	850	792	-7%

Table 2-29 – Two-way modelled AADT (in vehicles) on northern approach routes

Approach	Route Section	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A528	Ellesmere Road (North of Mount Pleasant Road)	14,673	17,919	14,867	-17%
	Ellesmere Road (Mount Pleasant Road to Hubert Way)	13,107	14,960	9,877	-34%
	Ellesmere Road (South of Hubert Way)	12,066	13,678	8,779	-36%
	Coton Hill	13,754	14,715	11,764	-20%
A5112 / A5191	Battlefield Road	6,941	9,263	7,861	-15%
	Whitchurch Road	11,583	13,822	11,027	-20%
	Ditherington Road	16,562	18,851	18,174	-4%
	Spring Gardens	14,967	17,184	16,556	-4%
	St. Michael's Street	8,994	9,652	9,400	-3%
	Castle Foregate	10,669	11,284	11,179	-1%

2.15.11. The tables show peak hour and AADT flow increases are forecast for all northern approach route sections between 2023 and 2050, without the NWRR in place.

2.15.12. However, the significant impact of the NWRR is demonstrated on the A528 Ellesmere Road northern approach which is forecast even higher flow decreases than are forecast within the town centre, with 2050 peak flows and AADT along the southern parts of the A528 approach forecast to be circa 35% lower in 2050 with the NWRR in place than without it. 2050 peak flows and ADDT on the A528, with the NWRR in place, are also below 2023 levels on all sections with a maximum peak hour flow decrease of 322 vehicles and a maximum AADT decrease of 3,287 vehicles.

2.15.13. Along the A5112/A5191 approach, smaller reductions are forecast as a result of the NWRR being in place, with decreases in peak flow and AADT of up to a 20% in 2050 at the northern end and more modest decreases at the southern end of this approach.

2.15.14. It appears likely that this apparent anomaly is because a large reduction in traffic on the A528 approach to the Station Gyratory would create more capacity for traffic entering the gyratory on the A5112/A5191 approach. Therefore, some traffic that was previously using Battlefield Link Road and

the A528 to avoid congestion on the A5112/A5191, could now transfer back to the A5112/A5191 approach.

2.15.15. As the Station Gyratory is traffic signal controlled, there would be scope, if required, for signal timing re-adjustments to optimise traffic flows on each approach route. So, it is perhaps more important to note that the peak hour and AADT combined flows on the A528 and A5112/A5191 northern approaches entering the Station Gyratory are forecast to reduce significantly by circa 12%, as a result of the NWRR, as a result of the NWRR, as shown in Table 2-30 and Table 2-31.

Table 2-30 – Two-way modelled traffic volume (in vehicles) approaching the Station Gyratory

Road	AM Peak				PM Peak			
	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A528 Coton Hill	1,314	1,373	1,064	-23%	1,081	1,146	985	-14%
A5191 Castle Foregate	791	857	887	4%	799	850	792	-7%
Combined Northern Approach Flow	**2,105**	**2,229**	**1,951**	**-13%**	**1,880**	**1,997**	**1,777**	**-11%**

Table 2-31 – Two-way modelled AADT (in vehicles) approaching the Station Gyratory

Road	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A528 Coton Hill	13,754	14,715	11,764	-20%
A5191 Castle Foregate	10,669	11,284	11,179	-1%
Combined Northern Approach Flow	**24,423**	**26,000**	**22,943**	**-12%**

TRAFFIC IMPACT ON WESTERN APPROACHES TO THE TOWN CENTRE

2.15.16. As shown on Figure 2-35, there are three radial routes that approach Shrewsbury town centre from the west:

- A458 The Mount
- B4386 Copthorne Road
- A488 New Street

Figure 2-35 – Western approaches to Shrewsbury town centre

2.15.17. The forecast impact of a NWRR on traffic levels on the three western approaches to the town centre individually and combined is set out in Table 2-32 and Table 2-33.

Table 2-32 – Two-way modelled traffic volume (in vehicles) on western approach routes

Road	AM Peak				PM Peak			
	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A458 The Mount	691	797	573	-28%	642	649	480	-26%
B4386 Copthorne Road	815	851	630	-26%	735	764	475	-38%
A488 Porthill Road	679	695	724	4%	559	659	670	2%
Combined Western Approach Flow	**2,185**	**2,343**	**1,927**	**-18%**	**1,936**	**2,072**	**1,625**	**-22%**

Table 2-33 – Two-way modelled AADT (in vehicles) on western approach routes

Road	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A458 The Mount	7,620	8,840	6,515	-26%
B4386 Copthorne Road	8,235	8,297	5,901	-29%
A488 Porthill Road	7,456	8,447	8,309	-2%
Combined Western Approach Flow	**23,311**	**25,584**	**20,725**	**-19%**

2.15.18. The tables show peak hour and AADT flow increases are forecast for all western approaches between 2023 and 2050, without the NWRR in place.

2.15.19. However, with the NWRR in place, 2050 peak flows and AADT on the A458 and the B4386 approaches are forecast experience very large decreases of between 26% and 38%, falling significantly below 2023 levels.

2.15.20. Along the A488 approach, minimal increases in 2050 peak flows of 2% and 4% are forecast as a result of the NWRR being in place, although the 2050 AADT level is forecast to decrease by 2%. The reduced impact of the NWRR on the A488 approach, however, can be attributed to the removal of congestion at the priority junction where the A488 joins the B4386, since there will be much less traffic on the B4386, making it easier to turn out of A488. Therefore, some A488 traffic which, at present diverts via the B4386 to avoid existing delays at this junction, would return to using the A488.

2.15.21. Overall, the NWRR is forecast to reduce 2050 peak flows and AADT across the western approaches combined by between 18% and 22%, with the combined approach peak flow and AADT forecast to be below 2023 levels.

TRAFFIC IMPACTS ON SHREWSBURY'S OUTER BYPASS

2.15.22. By providing an additional link in the north-west sector of the town, the NWRR is forecast to attract traffic which would otherwise use the existing outer bypass, reducing pressure on key junctions.

2.15.23. The forecast scale of these reductions is shown in Table 2-34 and Table 2-35.

Table 2-34 – Two-way modelled traffic volume (in vehicles) on the outer bypass

Road	AM Peak				PM Peak			
	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A5 (Montford Bridge to A458 Churncote Roundabout)	1,701	2,115	2,084	-1%	1,647	2,184	2,215	1%
A5 (A458 Churncote Roundabout to B3486 Woodcote Roundabout)	2,239	2,934	3,709	26%	2,349	2,911	3,789	30%
A5 (B4386 Woodcote Roundabout to A488 Edgebold Roundabout)	2,854	3,536	3,494	-1%	2,857	3,475	3,605	4%
A5 (A488 Edgebold Roundabout to A49 Dobbies Island Roundabout)	3,457	4,023	3,769	-6%	3,418	3,975	3,835	-4%
A5 (A49 Dobbies Island Roundabout to A458 Weeping Cross)	3,978	4,751	4,380	-8%	4,123	4,989	4,642	-7%
A5 (A458 Weeping Cross to B4380 Emstrey Island)	3,139	3,496	3,156	-10%	3,261	3,871	3,508	-9%
A5 (B4380 Emstrey Island to A49 / A5 Preston Boats Island)	3,801	4,279	3,807	-11%	3,860	4,263	3,937	-8%
A49 (A49 / A5 Preston Boats Island to B5062 Sundorne Roundabout)	2,646	3,053	2,644	-13%	2,749	3,256	3,037	-7%
A49 (B5062 Sundorne Roundabout to A5112 Battlefield Roundabout)	1,856	2,157	2,053	-5%	1,935	2,223	2,118	-5%

Table 2-35 – Two-way modelled AADT (in vehicles) on the outer bypass

Road	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
A5 (Montford Bridge to A458 Churncote Roundabout)	18,858	24,682	24,834	1%
A5 (A458 Churncote Roundabout to B3486 Woodcote Roundabout)	26,525	34,630	43,380	25%
A5 (B4386 Woodcote Roundabout to A488 Edgebold Roundabout)	31,412	40,681	39,589	-3%
A5 (A488 Edgebold Roundabout to A49 Dobbies Island Roundabout)	37,817	48,021	43,599	-9%
A5 (A49 Dobbies Island Roundabout to A458 Weeping Cross)	44,713	58,671	52,965	-10%
A5 (A458 Weeping Cross to B4380 Emstrey Island)	35,435	44,977	39,641	-12%
A5 (B4380 Emstrey Island to A49 / A5 Preston Boats Island)	41,703	51,810	46,176	-11%
A49 (A49 / A5 Preston Boats Island to B5062 Sundorne Roundabout)	29,093	37,172	32,520	-13%
A49 (B5062 Sundorne Roundabout to A5112 Battlefield Roundabout)	21,460	25,963	24,556	-5%

2.15.24. The forecasts show that in 2050 the NWRR will generally reduce traffic on the A5 and A49 trunk road bypasses, except on the sections closest to the NWRR itself, where traffic would, as expected, increase.

2.15.25. Of particular significance are the forecast reductions on those sections of the A5 trunk road adjacent to the A5/A49 Dobbies Island Roundabout, and the section which carries both A5 and A49 traffic between the Emstrey and Preston Boats roundabouts. By removing traffic from these busy sections of trunk road, the NWRR is expected to help reduce congestion on the SRN.

2.15.26. In effect, the addition of the NWRR will give Shrewsbury a complete ring of high standard, purpose built roads. This will allow drivers to choose the most appropriate route for longer distance journeys, maximising the efficiency of the network and adding resilience.

TRAFFIC IMPACT OF NWRR ON SHREWSBURY'S INNER DISTRIBUTOR RING ROAD

2.15.27. Shrewsbury's inner distributor ring road has a very important role for local traffic, as it links key residential and employment areas, as well as schools, hospitals and other key destinations. As noted earlier, it is of varying standard and parts of it have frontage access. The inner distributor ring road has been added to and improved over a number of years, with the aim of ensuring it functions efficiently as a corridor for movement by both motorised and non-motorised traffic, yet does not itself become a barrier to movement, especially by pedestrians and cyclists. Maintaining this balance has been a key element of Shrewsbury's transport strategy for a long time.

2.15.28. The NWRR will provide an alternative route for some of the traffic using the inner distributor ring road, leading to traffic reductions on several sections of the route. The forecast impacts are detailed in Table 2-36 and Table 2-37.

Table 2-36 – Two-way modelled traffic volume (in vehicles) on the inner distributor ring road

Road	AM Peak				PM Peak			
	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
B4380 Shelton Road (The Mount to Mytton Oak Rd)	1,012	1,173	1,388	18%	973	1,072	1,287	20%
B4380 Shelton Road (Mytton Oak Rd to Radbrook Road)	1,242	1,402	1,434	2%	1,151	1,253	1,310	5%
B4380 Roman Road (Radbrook Road to Longden Road)	1,478	1,799	1,868	4%	1,450	1,851	1,902	3%
B4380 Roman Road (Longden Road to Meole Brace Island)	1,619	1,889	1,778	-6%	1,683	1,955	1,821	-7%
A5112 Hazledine Way (Meole Brace to Reabrook Roundabout)	1,433	1,749	1,513	-13%	1,446	1,701	1,430	-16%
A5112 Pritchard Way (Reabrook Roundabout to Old Potts Way)	1,554	1,874	1,652	-12%	1,507	1,774	1,517	-15%
A5112 Bage Way (Old Potts Wy to Crowmere Rd)	1,740	2,036	1,797	-12%	1,724	2,000	1,701	-15%
A5112 Robertson Way (Crowmere Road to Telford Way)	2,036	2,325	2,107	-9%	2,036	2,345	2,006	-14%
A5112 Telford Way to Heathgates Roundabout	2,545	2,898	2,610	-10%	2,494	2,878	2,469	-14%

Table 2-37 – Two-way modelled AADT (in vehicles) on the inner distributor ring road

Road	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
B4380 Shelton Road (The Mount to Mytton Oak Rd)	9,586	11,189	15,336	37%
B4380 Shelton Road (Mytton Oak Rd to Radbrook Road)	13,403	14,809	15,981	8%
B4380 Roman Road (Radbrook Road to Longden Road)	16,873	21,226	21,779	3%
B4380 Roman Road (Longden Road to Meole Brace Island)	19,394	22,693	20,726	-9%
A5112 Hazledine Way (Meole Brace to Reabrook Roundabout)	17,403	20,605	17,712	-14%
A5112 Pritchard Way (Reabrook Roundabout to Old Potts Way)	18,011	21,314	18,531	-13%
A5112 Bage Way (Old Potts Wy to Crowmere Rd)	19,920	24,029	20,401	-15%
A5112 Robertson Way (Crowmere Road to Telford Way)	23,822	27,708	24,453	-12%
A5112 Telford Way to Heathgates Roundabout	30,035	35,157	30,652	-13%

2.15.29. The forecasts show that most parts of the inner distributor ring road (between Longden Road Roundabout and Heathgates Roundabout) will experience significant reductions in peak hour flows and AADT of between 6% and 16% in 2050 as a result of the NWRR, and this is expected to reduce congestion at peak times.

2.15.30. The section of the inner distributor ring road between The Mount and Mytton Oak Road, which is nearest to the NWRR, will experience a significant increase in traffic. However, although residential, this section, has very little frontage development, as almost all the properties along it are set back and accessed from service roads.

TRAFFIC IMPACT OF NWRR ON MINOR ROADS (RAT-RUNS)

2.15.31. By providing a new, purpose built link between the north and west of the town, the NWRR is forecast to attract some traffic which would otherwise use the network of rural roads and lanes to the north-west of the town. The general impact can be seen in Table 2-38 and Table 2-39.

Table 2-38 – Two-way modelled traffic volume (in vehicles) on north-west rural roads

Road	AM Peak				PM Peak			
	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
B4473 Preston Montford Lane	154	475	159	-66%	204	327	84	-74%
North of Montford Bridge	410	666	74	-89%	358	519	77	-85%
West of Leaton	344	593	3	-99%	286	434	9	-98%
North of Leaton	504	711	563	-21%	620	644	538	-16%
East of Leaton	627	894	457	-49%	681	783	478	-39%
B5067 Berwick Road, South of Leaton	72	121	258	114%	114	136	139	2%
Huffley Lane	539	743	379	-49%	635	710	431	-39%

Table 2-39 – Two-way modelled AADT (in vehicles) on north-west rural roads

Road	2,023	2050 without NWRR	2050 with NWRR	Flow Change due to NWRR
B4473 Preston Montford Lane	1,730	3,518	988	-72%
North of Montford Bridge	3,713	5,634	749	-87%
West of Leaton	3,058	4,859	40	-99%
North of Leaton	6,062	7,583	5,406	-29%
East of Leaton	6,748	8,933	5,296	-41%
B5067 Berwick Road, South of Leaton	996	1,472	1,713	16%
Huffley Lane	6,055	7,732	4,456	-42%

2.15.32. It is important to note that in absolute terms, the volumes of traffic (and the changes in volume) are fairly small, so the percentage changes due to the NWRR must be taken as indicative only. However the picture is very clear; by 2050, with the NWRR in place, the incentive to use these minor roads as a rat run in the north-west sector will be completely removed, and traffic levels will be significantly reduced on most of them.

2.15.33. Berwick Road will have a direct connection to the NWRR, and the model forecasts that traffic would increase, albeit by a small volume in absolute terms with AADT increasing under 250 vehicles.

2.15.34. Peak flows and AADT in 2050 are forecast to be significantly lower on Huffley Lane, with the scheme in place and below 2023 levels.

TRAFFIC IMPACT – SUMMARY

2.15.35. In simple terms, the traffic forecasts show that the NWRR will address all of the traffic problems identified. It will lead to a general reduction in traffic volumes, and hence congestion, over a wide area including:

- On busy roads in the town centre (Frankwell. Welsh Bridge, Mardol Quay, Smithfield Road, and the Station Gyratory)
- On the western and northern approaches to the town
- On the outer, trunk road bypasses
- On much of the inner distributor ring road
- On rural lanes which currently form rat runs

2.15.36. There are a few places where the NWRR will increase traffic, including Battlefield Link Road, the Oxon Link Road and on roads leading to and from the NWRR.

2.15.37. The scale of these benefits can be judged from the detailed forecasts set out above.

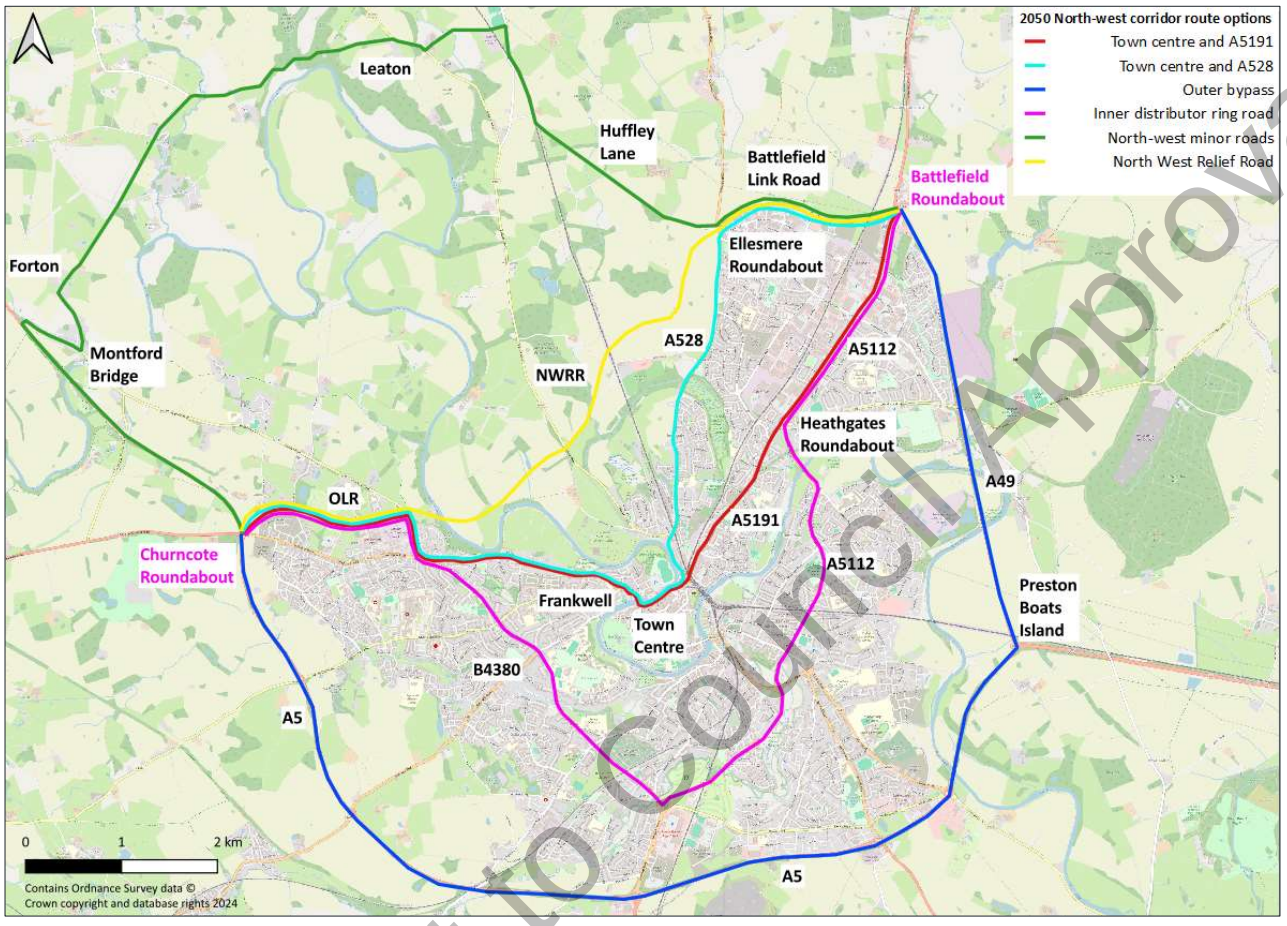
JOURNEY TIME IMPACT OF THE NWRR

2.15.38. To understand the impact of the NWRR on journey times, the typical north-west corridor journey between Churncote Roundabout and Battlefield Roundabout, examined earlier in Section 2.4, was again analysed using the 2050 model outputs. With the OLR and NWRR both open, there are now six main routes, as summarised in Table 2-40 and shown on Figure 2-36.

Table 2-40 – Summary of north-west corridor route options

Route Option	Distance (km)	Description
Town centre and A5191 (shortest route)	10.1	OLR – B4380 – A458 – Frankwell – Welsh Bridge – Smithfield Road – Station Gyratory – A5191 – Heathgates Roundabout – A5112
Town centre and A528 (usual quickest route)	11.4	OLR – B4380 – A458 – Frankwell – Welsh Bridge – Smithfield Road – Station Gyratory – A528 – Ellesmere Roundabout – Battlefield Link Road
Inner distributor ring road (B4380 and A5112)	13.7	OLR – B4380 – A5112 – Heathgates Roundabout – A5112
North-west minor roads ('rat-run')	15.9	A5 – B4380 – Montford Bridge – Forton – Leaton – Huffley Lane – Ellesmere Roundabout – Battlefield Link Road
Outer bypass (A5 and A49)	16.3	A5 – Preston Boats Island – A49
NWRR	8.7	OLR – NWRR – Battlefield Link Road

Figure 2-36 – 2050 north-west corridor route options between Churncote Roundabout to Battlefield Roundabout



2.15.39. Table 2-41 and Table 2-42 show the forecast journey times in 2050, by direction, for each of the six north-west corridor route options above.

Table 2-41 – 2050 forecast journey times - Churncote Roundabout to Battlefield Roundabout

2050 Route Option	2050 Modelled Journey Time (minutes)					
	AM Peak			PM Peak		
	Without NWRR	With NWRR	Time Saving	Without NWRR	With NWRR	Time Saving
Town centre and A5191	24.42	21.87	2.55	23.20	21.91	1.29
Town centre and A528	20.20	17.68	2.53	17.66	17.47	0.19
Inner distributor ring road (B4380 and A5112)	23.95	23.70	0.25	22.78	22.64	0.14
North-west minor roads ('rat-run')	17.44	16.93	0.51	16.46	16.66	-0.20
Outer bypass (A5 and A49)	18.17	16.78	1.39	16.28	14.64	1.64
NWRR	n/a	8.95	n/a	n/a	5.60	n/a

Table 2-42 – 2050 forecast journey times - Battlefield Roundabout to Churncote Roundabout

2050 Route Option	2050 Modelled Journey Time (minutes)					
	AM Peak			PM Peak		
	Without NWRR	With NWRR	Time Saving	Without NWRR	With NWRR	Time Saving
Town centre and A5191	23.46	21.29	2.17	24.46	21.12	3.34
Town centre and A528	22.84	19.56	3.28	23.82	19.92	3.90
Inner distributor ring road (B4380 and A5112)	23.74	23.17	0.57	24.15	22.70	1.45
North-west minor roads ('rat-run')	16.94	16.70	0.24	17.98	17.24	0.74
Outer bypass (A5 and A49)	17.15	16.54	0.61	18.86	15.64	3.22
NWRR	n/a	8.01	n/a	n/a	7.03	n/a

2.15.40. The above results demonstrate that the forecast journey time between Churncote Roundabout to Battlefield Roundabout in both directions will be dramatically quicker by using the NWRR.

2.15.41. Travelling via the NWRR, the journey in 2050 is forecast to take around 6 to 9 minutes depending on direction and time of day. However, without the NWRR in place, journeys in 2050 are forecast to take around 16 to 19 minutes using the outer bypass or the north-west minor 'rat run' roads, and around 18 to 24 minutes using either the inner distributor ring road or one of the two town centre routes.

2.15.42. In all cases, the 2050 journey time without the NWRR in place is forecast to be, at best, almost twice as long as an identical journey using the NWRR and during the PM peak, some 2050 north-west corridor journey time routes are forecast to take more than four times longer than an identical journey using the NWRR.

2.15.43. Comparing the 2050 forecast journey time on the slowest route option without the NWRR (in most cases the 'town centre and A5191' route) with the 2050 forecast journey time using the NWRR, the minimum potential 2050 journey time saving is forecast to be 8.5 minutes with the maximum being 17.6 minutes.

2.15.44. These very significant journey time savings cannot be achieved in any other way and represent the most direct benefit of the NWRR.

2.15.45. The tables also highlight that, with the NWRR in place, nearly all of the existing routes will experience some reduction in journey times. The biggest reductions (between 2.2 and 3.9 minutes) are forecast in 2050 on the two town centre routes from Battlefield Roundabout to Churncote Roundabout. Journey times also fall to a lesser extent in the other direction with reductions of up to 2.5 minutes.

2.15.46. On the three north-west corridor routes that do not pass directly through the town centre, the forecast 2050 journey time savings are generally more modest, although the 'outer bypass' route is forecast to experience a 3.2 minute saving from Battlefield Roundabout to Churncote Roundabout during the PM peak.

2.15.47. Although the forecast journey time savings are smaller than those experienced on the two town centre routes, they are still significant because the benefits experienced are available to all users of these roads and therefore will impact a greater number of road users than just those using the NWRR. These time savings, spread over a wider area and a larger number of trips, are an important indirect benefit of the NWRR.

2.15.48. It is clear from the 2050 forecast journey times, that provision of the NWRR will deliver reduced journey times for both users and non-users of the scheme. For all road users that transfer from the existing north-west corridor routes to the NWRR there will be very significant time savings, with some journey times being dramatically reduced.

ROAD SAFETY IMPACT OF THE NWRR

2.15.49. To appraise the safety impact of the scheme DfT's COBALT (Cost and Benefit to Accidents Light Touch) accident appraisal software (v2.7 - June 2024) was used. The COBALT appraisal (as detailed in the Economic Dimension) forecasts that 256.5 personal injury accidents (PIA) will be saved over 60 years as a result of the scheme, as shown in Table 2-43.

Table 2-43 – Personal injury accidents over 60 years

PIA Without NWRR	PIA With NWRR	Reduction in PIA
35,613.4	35,356.9	256.5

2.15.50. As shown in Table 2-44, COBALT also forecasts that 274.8 casualties will be saved over 60 years as a result of the scheme.

Table 2-44 – Casualties over 60 years

Casualty Severity	Number Without NWRR	Number With NWRR	Reduction in Casualties
Fatal	671.0	674.1	-3.1
Serious	5,157.3	5,139.4	17.9
Slight	47,345.1	47,085.1	260.0
Total	**53,173.4**	**52,898.6**	**274.8**

ACHIEVEMENT OF OBJECTIVES

2.15.51. Table 2-45 and Table 2-46 describe how the NWRR will achieve its stated objectives.

Table 2-45 – Achievement of strategic objectives

Strategic Objective	Achieved	Rationale
Enhanced local and longer distance connectivity	Yes	The NWRR is forecast to reduce all journeys times between Churncote and Battlefield Roundabouts by almost 50%, with some journeys being over 75% quicker compared to the existing routes (see Table 2-41 and Table 2-42). These routes are also used by buses. The NWRR includes a shared 3m wide footway / cycleway along the length of its southern side, enhancing the existing active travel network and supporting mode shift
Reduced congestion and quicker, more reliable journey times	Yes	The NWRR is forecast to reduce traffic on routes which currently suffer congestion, including the northern and western approaches, as set out in Table 2-28 to Table 2-33. This will improve journey time reliability, with reduced journey times on existing north-west corridor routes and dramatically quicker journeys for users transferring to use the NWRR, as shown in Table 2-41 and Table 2-42
Improved local and strategic network capacity, efficiency and resilience	Yes	Flows and congestion on north-west corridor routes are predominantly forecast to fall significantly, enabling the existing road network to operate more optimally and efficiently as each road is able to better perform the function for which it was intended. This in turn will improve network capacity. The NWRR also provide an additional river crossing adding to overall network resilience and further adding to network capacity
Supporting the delivery of the Shrewsbury Big Town Plan	Yes	The NWRR is forecast to reduce through traffic through the town centre, as shown in Table 2-26 and Table 2-27, allowing for reallocation of road space to sustainable modes, making the town centre a more attractive place to visit and invest
Enhancing the benefits of other transport scheme investment (e.g. the OLR and Shrewsbury ITP)	Yes	The NWRR extends the OLR across the River Severn, unlocking the full potential of Shrewsbury West SUE. It is also forecast to reduce traffic flows through the town centre and around the inner distributor ring road which will help consolidate benefits of the Shrewsbury ITP and enable the town centre projects in the Riverside area and the Levelling Up Fund scheme introducing an active travel corridor and urban realm improvements in the Station Gyratory area
Protecting and enhancing Shrewsbury's built and natural environment	Yes	The NWRR delivers an additional river crossing between the northern and western parts of Shrewsbury which is forecast to reduce congestion and noise and improve air quality in the town centre, including in the vicinity of some of its listed buildings, scheduled monuments and Conservation Area, helping to protect its natural, built and historic environment
Improved health, wellbeing and quality of life for local communities	Yes	The NWRR is forecast to reduce congestion in the town centre, on its northern and western approaches and on most parts of the distributor ring road, leading to improved air quality and faster, more reliable journeys for all modes. The shared footway / cycleway along the length of the scheme will enhance the existing active travel network encouraging further uptake of active modes
Improved road safety	Yes	Over 60 years, the NWRR is forecast to save an estimated 256.5 personal injury accidents (Table 2-43) and 274.8 casualties (Table 2-44)
Facilitating the delivery of planned housing and economic growth in Shrewsbury and Shropshire	Yes	The NWRR will improve accessibility to, and help unlock, residential and employment opportunities, including supporting the proposed delivery of a sustainable residential development of 450 dwellings on land west of Ellesmere Road. The improved connectivity and journey time reliability will also boost productivity and local economic growth

Table 2-46 – Achievement of specific objectives

Specific Objective	Achieved	Rationale
To improve connectivity and accessibility between the north and west of Shrewsbury for all modes	Yes	▪ The NWRR is forecast to reduce all journeys times between Churncote and Battlefield Roundabouts by almost 50%, with some journeys being over 75% quicker compared to the existing routes (see Table 2-41 and Table 2-42). These existing routes are also used by buses ▪ The NWRR includes a shared 3m wide footway / cycleway along the length of its southern side, enhancing the existing active travel network and supporting mode shift ▪ The NWRR completes the outer ring road around Shrewsbury, providing better connectivity between outlying market towns and settlements, by reducing journey times between them. By better connecting the north and west of Shrewsbury, the scheme will also improve access to services
To reduce traffic congestion across Shrewsbury	Yes	The NWRR is forecast to reduce traffic on routes which currently suffer congestion, including the northern and western approaches, as set out in Table 2-28 to Table 2-33. This will improve journey time reliability, with reduced journey times on existing north-west corridor routes and dramatically quicker journeys for users transferring to use the NWRR, as shown in Table 2-41 and Table 2-42
To improve network efficiency, resilience and journey time reliability	Yes	▪ Flows and congestion on north-west corridor routes are predominantly forecast to fall significantly due to the NWRR, as detailed in Table 2-28 to Table 2-39, enabling more optimal and efficient network operation as each road is able to better perform the function for which it was intended. This in turn will improve network capacity ▪ Traffic will experience reduced journey time variability across the day and can utilise shorter, more direct routes as a result of the scheme ▪ The NWRR will provide an additional river crossing and will not be prone to flooding, unlike many existing links, adding to overall network resilience and further adding to network capacity
To reduce rat-running traffic on unsuitable rural roads to the north-west of the town	Yes	The NWRR is forecast to reduce rat running as it will attract the majority of traffic that would otherwise use the rural roads to the north-west of the town, as shown in Table 2-38 and Table 2-39
To improve facilities for active transport	Yes	▪ The NWRR includes a shared 3m wide footway / cycleway along the length of its southern side, enhancing the existing active travel network and supporting mode shift ▪ The Active Mode Appraisal forecast the scheme would generate an active mode benefit of £1,281,375 over the 40-year appraisal period
To reduce the number of accidents and casualties on roads in Shrewsbury	Yes	▪ There will be a reduction in the number of accidents and casualties along the existing north-west corridor links, with the NWRR providing a new shorter, direct link, built to modern standards. This will also help to reduce the number of accidents and casualties within Shrewsbury town centre ▪ Over 60 years, the NWRR is forecast to save an estimated 256.5 personal injury accidents (Table 2-43) and 274.8 casualties (Table 2-44)
To minimise the greenhouse gas impacts associated with the scheme	Yes	▪ A Carbon Management Plan has been developed for the scheme that supports low carbon infrastructure planning and delivery and seeks to manage and reduce GHG emissions over the project lifecycle ▪ As a result of measures implemented, a 26% reduction in infrastructure carbon impact has been achieved since the baseline impact was estimated in February 2021 (paragraph 6.9.5)
To improve local air quality in Shrewsbury town centre	Yes	The Shrewsbury Town Centre AQMA is declared for an exceedance of the long term NO_2 air quality objective. The construction of the NWRR is expected to improve air quality within the Shrewsbury Town Centre AQMA

To support local economic growth and productivity	Yes	The NWRR will provide improved connectivity and journey time reliability to training, education, housing and employment areas. This will boost productivity and growth
To support the delivery of planned local housing growth and development	Yes	▪ The NWRR will unlock residential development at Shrewsbury West SUE and support the proposed delivery of a sustainable residential development of 450 dwellings on land west of Ellesmere Road ▪ The scheme will also assist with site viability as the reduced flows around the outer bypass will reduce the need for local developer contributions to fund capacity increases at key junctions
To improve the quality of life for people in Shrewsbury	Yes	▪ Flows and congestion on north-west corridor routes are predominantly forecast to fall significantly due to the NWRR, leading to reduced accident risk, improved air quality and faster, more reliable journeys for all modes ▪ The scheme also adds to the existing active travel network encouraging modal shift

2.15.52. By achieving the above objectives, the Council believes that the NWRR will deliver its primary aim: to improve Shrewsbury as a place in which to live, work, visit and invest, by reducing congestion to help unlock transformational change within the town centre.

2.16 STRATEGIC ALIGNMENT UNDER FUTURE UNCERTAINTY

2.16.1. In May 2022, the DfT announced changes to TAG, which have implications for how forecast demand in traffic models should be derived, ensuring that a greater appreciation and consideration of uncertainty is included. In particular, the Uncertainty Toolkit released as TAG Supplementary Guidance outlined the release of a set of Common Analytical Scenarios (CAS). The Uncertainty Toolkit states that uncertainty should be considered, 'holistically across the strategic and economic cases and throughout the business case planning process'.

2.16.2. This section provides an assessment of scheme impacts against each of the CAS strategic objectives. This assessment of the impacts will provide an understanding of the risks and opportunities for the scheme. The strategic alignment under future uncertainty assesses whether future outcomes of the scheme are 'improved' or diminished' for the CAS compared to the core scenario, providing a standardised process for assessing future uncertainty.

2.16.3. The DfT's Uncertainty Toolkit states that forecast travel demand is a key driver of benefits across transport schemes, and that there is a potential need to consider seven standard CAS as part of the development of a scheme. The seven scenarios are described in Table 2-47..

Table 2-47 – Uncertainty Toolkit CAS descriptions

CAS Scenario	Characteristics. This scenario captures a future where…	Core Features or Components of this Scenario
High Economy	… productivity growth returns to its long-term trend, and people become richer than we currently expect. Migration, and population in general, increases above official forecasts	**GDP** – 10% higher in 2050 relative to core assumptions **Population** - GB total reaches 77.7m by 2050 **Employment** - 12% higher in 2050 relative to core assumptions
Low Economy	… productivity growth fails to return to historic levels and inwards migration is subdued, causing low levels of total population growth	**GDP** – 31% lower in 2050 relative to core assumptions **Population** - GB total reaches 64.6m by 2050 **Employment** - 7% lower in 2050 relative to core assumptions
Regional	…people leave London, the South East and the East of England in search of more affordable housing. As a result, there is lower employment and population growth in these regions relative to the rest of the country. Areas outside of the South increase their relative level of competitiveness through an increase in productivity	**Population/ Households/ Employment** – core redistributed, so that regions outside London, the South East and the East of England grow at least at the growth rate of the whole country, if not already higher. London the South East and the East of England are then adjusted downwards, so that the whole country's growth rate is maintained
Behavioural Change	… people embrace new ways of working, shopping and travelling Important behavioural trends which have emerged in recent years accelerate, in part because of the COVID-19 pandemic, which include changes in the travel behaviour of young people, increased flexible working and increased online shopping	**Trip Rates** - extrapolation of existing trip rate trends by purpose, meaning overall trips continue to fall, although some purposes do increase **Licence Holding** - reduced rates among younger cohorts throughout forecast period **LGV (Light Goods Vehicles, vans) trips** - increased, reflecting reductions in shopping trips and an increase in deliveries from online shopping
Technology	.. road travel becomes far more attractive and accessible to road users because of a high take-up of connected autonomous vehicles (CAVs), which enter the fleet in the 2020s and make up to 50% of it by 2047	**Trip Rates** – elderly trips rates increase after 2031 **Licence Holding** – rates increase after 2031 to over 92% by 2061, reflecting improved accessibility due to availability of CAVs **Electric Vehicles** – high uptake **Value of Time** – perceived time cost of travel falls **Car Occupancy** – reduced to account for zero occupancy (empty running) trips

CAS Scenario	Characteristics. This scenario captures a future where…	Core Features or Components of this Scenario
Vehicle-led Decarbonisation	…there is a high take up of electric and zero-emission vehicles (ZEVs). Tailpipe emissions fall. There is no intervention by Government to increase electric vehicle costs, resulting in increasing road traffic	**Electric Vehicles** – high uptake for both cars and freight, with no adjustment made to current costs **Public Transport** – reduced as electric vehicles have a cost advantage
Mode-balanced Decarbonisation	…there is a high take up of electric and zero-emission vehicles (ZEVs). Tailpipe emissions fall. An unspecified intervention leads to electric vehicle costs being equalised with petrol and diesel costs, so that public transport modal share is maintained	**Electric Vehicles** - high uptake for both cars and freight, with running costs (fuel and non-fuel) equalised to internal combustion engine vehicles compared with the core scenario **Public Transport** - modal share higher (it is odd that it says PT mode share is higher here, as it says in previous column that PT mode share is maintained , not increasing)

2.16.4. As the NWRR scheme cost will be over £50 million but under £500 million, following Table 1 of the Uncertainty Toolkit, it is considered to be a medium impact project, and the requirement is to run critical CAS, alongside any relevant local scenarios to understand the impact of alternative growth scenarios.

2.16.5. Table 2-48 provides details for each CAS of the decision taken on its inclusion and the rationale behind that decision. Outputs from the CAS scenario assessments are reported within the Economic Dimension.

Table 2-48 – CAS inclusion or exclusion and rationale

CAS Scenario	Decision / Rationale
High Economy	**Included** as, in this scenario, population employment and GDP would all see higher levels of growth than the core scenario. This would increase travel demand and incomes. Higher incomes would increase people's value of time. In this scenario the benefits of the scheme in journey time savings would be higher than the core scenario through more scheme beneficiaries, worse conditions in the Do Minimum scenario (more traffic) and increased valuation of time savings. Higher population and higher earnings would increase the demand and peoples' willingness-to-pay' (WTP) for active travel improvements, thereby increasing the benefits of the cycling and pedestrian infrastructure delivered as part of the scheme. This scenario will increase the level of benefit the scheme delivers compared to the core scenario
Low Economy	**Included** as, in this scenario, population, employment and GDP all experience lower levels of growth than the core scenario. This would reduce travel demand and incomes compared to the core scenario. Lower incomes would result in a lower value of time. In this scenario the benefits of the scheme in terms of journey time savings would be lower than in the core scenario through less scheme beneficiaries, better conditions in the DM scenario (less traffic) and reduced valuation of time savings. Lower population growth and lower earnings would reduce the demand and peoples' willingness-to-pay (WTP) for active travel improvements, thereby reducing the benefits of the cycling and pedestrian infrastructure delivered as part of the scheme. This scenario will reduce the level of benefit the scheme delivers compared to the core scenario

CAS Scenario	Decision / Rationale
Regional	**Included** as, in this scenario, there would be redistribution of national economic growth, with out-migration from London, the South-East and the East of England, leading to increased economic growth across the rest of the country. In Shropshire this would mean an increase in resident population as people moved into the area, particularly within Shrewsbury. Over time employment opportunities would also relocate to where the working age population are, and the economic performance of the area would increase compared to the core scenario. This will increase travel demand in both the Do Minimum and Do Something and increase the number of beneficiaries of the scheme in the Do Something, increasing the benefits of the scheme
Behavioural Change	**Excluded.** This scenario is the only scenario to explicitly incorporate the COVID-19 pandemic. It assumes a world in which people embrace new ways of working, shopping and travelling. Trends, such as flexible and remote working, and online shopping, which emerged in the past decades and were accelerated by the pandemic. As a result, people travel less and for different reasons. However, the recent traffic trends suggest that the traffic levels are recovering to pre-pandemic levels, hence this scenario has been excluded
Technology	**Excluded** as this scenario assumes that there would be a high uptake of connected autonomous vehicles (CAVs). However, CAV infrastructure is poor within the West Midlands and specifically Shropshire and expected to be similar in the near future. Electric vehicle (EV) ownership / use is also among the lowest within the West Midlands, and in comparison to other UK regions (i.e. London, South East, South West, East of England) according to latest the licensing statistics (https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2021/vehicle-licensing-statistics-2021), hence excluded
Vehicle-led Decarbonisation	**Excluded.** as this scenario assumes that there would be a high uptake of EVs for both private cars and freight, with no adjustment to increase the current costs of electric vehicles. However, EV infrastructure is poor within the West Midlands and specifically Shropshire, and this is not expected to change in the near future. Electric vehicle (EV) ownership / use is also among the lowest within the West Midlands, and in comparison to other UK regions (i.e. London, South East, South West, East of England) according to latest the licensing statistics (https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2021/vehicle-licensing-statistics-2021), hence excluded
Mode-balanced Decarbonisation	**Excluded.** as this scenario assumes that there would be a high uptake of EVs for both private cars and freight with running costs of electric vehicles being equalised with internal combustion engine vehicles. However, EV infrastructure is poor within the West Midlands and specifically Shropshire, and this is not expected to change in the near future. Electric vehicle (EV) ownership / use is also among the lowest within the West Midlands, and in comparison to other UK regions (i.e. London, South East, South West, East of England) according to latest the licensing statistics (https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2021/vehicle-licensing-statistics-2021), hence excluded

2.17 SUMMARY OF STRATEGIC DIMENSION

STRATEGIC FIT

2.17.1. The proposed NWWR scheme contributes to all five of the Government's LLM objectives as it reduces congestion across Shrewsbury and on sections of the MRN and SRN around Shrewsbury, impacting local regional and strategically important long distance trips; maximises the economic and residential growth potential of several key sites across Shrewsbury; and supports all users by adding

to the active travel network, reducing the potential for rail disruption, improving bus journey times and reliability and significantly reducing journey times and distances for north-west corridor traffic by providing a shorter route between the north and west of the town.

2.17.2. It also has a very good strategic fit with current national plans and policies, including the National Networks National Policy Statement, the National Planning Policy Framework, the Plan for Drivers, National Infrastructure Strategy, Build Back Better and Bus Back Better.

2.17.3. At a regional level, through enabling the A5 and A49 to better serve the strategic longer distance traffic they were intended to serve, the scheme supports a variety of Midlands Connect strategies and policies including their Strategic Transport Plan and Strategic Transport Priorities for the Marches.

2.17.4. More locally, the scheme also supports the four key areas of focus of the newly formed Marches Forward Partnership by reducing noise and improving air quality within the town centre, boosting connectivity around Shrewsbury, improving access to key social infrastructure, and facilitating further employment growth

2.17.5. The scheme also aligns closely with the priorities of both the Shropshire Plan and Shropshire's Economic Growth Strategy by supporting business, enhancing access to employment opportunities, maximising the employment and residential growth potential of strategic development sites, and protecting the natural built and historic environment. By enhancing overall network performance and resilience, it also supports the aims of the emerging Shropshire Local Transport Plan. By reducing congestion and traffic volumes within the town centre, the scheme will enable road space allocation to more sustainable modes and improve bus service viability through reduced delays to services, aligning with Shrewsbury Moves, the Shropshire LCWIP and the Shropshire BSIP.

PROBLEMS AND NEED FOR INTERVENTION

2.17.6. There are a number of specific transport related problems in Shrewsbury which are key drivers for the proposed NWRR scheme:

- Poor connectivity between the north and west of Shrewsbury for all modes of transport
- Traffic congestion in Shrewsbury town centre
- Traffic congestion on the northern and western approaches to the town
- Traffic congestion on Shrewsbury's outer bypass and inner distributor ring road
- Unreliable journey times and long delays
- 'Rat-running' traffic on unsuitable rural roads
- Inefficiency of the transport network, especially for buses
- Lack of network resilience
- Road accident and casualty numbers
- Poor air quality in Shrewsbury town centre
- Greenhouse gas impacts

AIMS AND OBJECTIVES

2.17.7. The primary aim of the Shrewsbury North West Relief Road scheme is:

- To improve Shrewsbury as a place in which to live, work, visit and invest, by reducing congestion to help unlock transformational change within the town centre.

2.17.8. The strategic, or high level, outcomes of the scheme are:

- Enhanced local and longer distance connectivity
- Reduced congestion and quicker, more reliable journey times
- Improved local and strategic network capacity, efficiency and resilience
- Supporting the delivery of the Shrewsbury Big Town Plan
- Enhancing the benefits of other transport scheme investment (e.g. the OLR and Shrewsbury ITP)
- Protecting and enhancing Shrewsbury's built and natural environment
- Improved health, wellbeing and quality of life for local communities
- Improved road safety
- Facilitating the delivery of planned housing and economic growth in Shrewsbury and Shropshire

2.17.9. The specific, or intermediate, objectives of the scheme are:

- To improve connectivity and accessibility between the north and west of Shrewsbury for all modes
- To reduce traffic congestion across Shrewsbury
- To improve network efficiency, resilience and journey time reliability
- To reduce rat-running traffic on unsuitable rural roads to the north-west of the town
- To improve facilities for active transport
- To reduce the number of accidents and casualties on roads in Shrewsbury
- To minimise the greenhouse gas impacts associated with the scheme
- To improve local air quality in Shrewsbury town centre
- To support local economic growth and productivity
- To support the delivery of planned local housing growth and development
- To improve the quality of life for people in Shrewsbury

CONSTRAINTS

2.17.10. In developing the scheme, account has been taken of physical, environmental, financial, contractual and public acceptability constraints.

SUPPORT FOR THE SCHEME

2.17.11. Throughout the development of the scheme, and the selection of a preferred route, the Council has consulted local people and stakeholders repeatedly about the principle of a NWRR, possible alternatives, and the route the road should take if built. The views of local people and stakeholders were given significant weight in the route selection process, and the Council is confident that the selected route is, on balance, the most acceptable of those considered.

2.17.12. Five separate public consultations on the NWRR have been undertaken in 2003, 2005, 2010, 2017 and 2020. The general outcome of these consultations has indicated that a majority of local people believe that a NWRR would benefit Shrewsbury, and they would therefore like to see it built.

2.17.13. Overall, the scheme addresses identified problems, has a strong strategic fit with national, regional and local policy, and has strong public support.

3

Economic Dimension

3 Economic Dimension

3.1 INTRODUCTION

3.1.1. The Economic Dimension sets out the impacts of the scheme, for the purposes of the economic appraisal. The impacts considered are not limited to those directly impacting the economy, nor only those that can be monetised. The economic, environmental and social impacts of the scheme are all examined, using qualitative, quantitative and monetised information that is reflective of the stage of development of the scheme. In line with the DfT Value for Money (VfM) Framework[32], in assessing VfM, all of these impacts are consolidated to determine the extent to which the scheme's benefits outweigh the costs.

3.2 OVERVIEW OF ECONOMIC APPRAISAL

3.2.1. The economic appraisal identifies and appraises the impacts of the scheme to determine the overall VfM. It takes account of the costs of developing, building, operating and maintaining the scheme.

3.2.2. This chapter has been developed following the relevant guidance from DfT's Value for Money Framework (July 2017, updated 2021) and the following DfT Transport Analysis Guidance (TAG) Units:

- TAG Unit A1-1 (November 2023): Cost-Benefit Analysis
- TAG Unit A1-2 (May 2024): Scheme Costs
- TAG Unit A1-3 (May 2022): User and Provider Impacts
- TAG Unit A2-1 (May 2019): Wider Economic Impacts Appraisal
- TAG Unit A3 (May 2024): Environmental Impact Appraisal
- TAG Unit A4-1 (November 2022): Social Impact Appraisal
- TAG Unit A4-2 (May 2024): Distributional Impact Appraisal
- TAG Unit A4-3 (November 2022): Place-Based Analysis
- TAG Unit A5-1 (November 2022): Active Mode Appraisal
- TAG Unit M4 (November 2023): Forecasting and Uncertainty

3.2.3. The DfT's Value for Money Framework sets out three levels of impacts of a transport proposal:

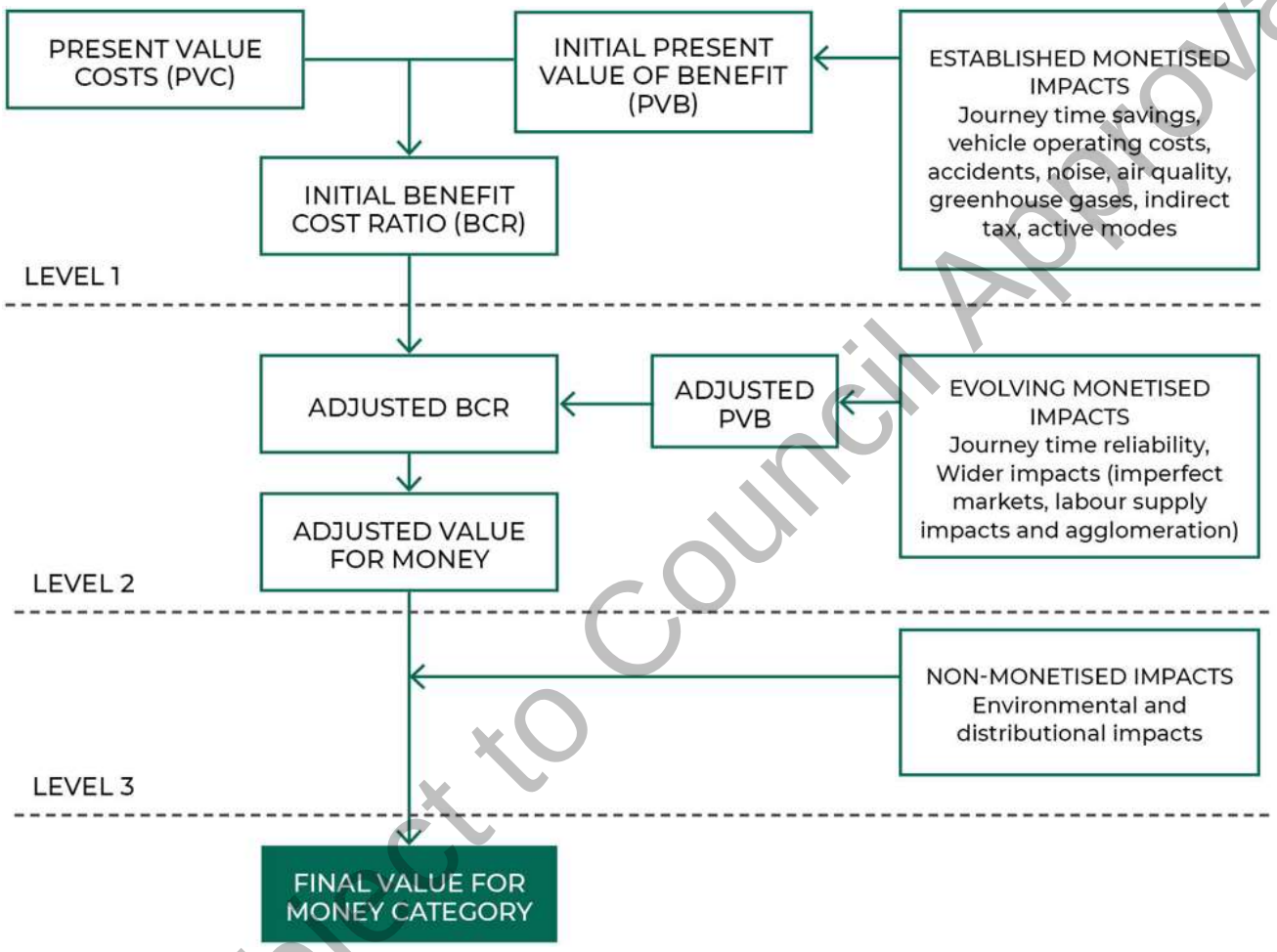
- Level 1 - Established Monetised Impacts - The method used for estimating the impact and its monetary value is accepted, well-researched, and tried-and-tested. These impacts form the initial Benefit Cost Ratio (BCR)
- Level 2 - Evolving Monetised Impacts - Some evidence exists to support the estimation of a monetary value, but this is less widely-accepted, well-researched or tried-and-tested. These impacts form the adjusted BCR
- Level 3 - Indicative Monetised Impacts (not applicable to this scheme) and Non-Monetised Impacts - Monetary valuation methods are not considered sufficiently widely-accepted, well-researched or tried-and-tested to be definitive. The estimated magnitude of the impact is

[32] Value for Money Framework, Department for Transport, 2017 (updated 2021)

assessed on a seven-point scale. These impacts were used to determine their potential to alter the VfM categorisation (known as 'switching value' analysis).

3.2.4. An overview of the appraisal process for the scheme is shown in Figure 3-1.

Figure 3-1 – Process to derive BCR and Value for Money category



3.2.5. This Economic Dimension is structured in line with these three levels of impact and the appraisal method used to appraise each scheme impact is shown in Table 3-1.

Table 3-1 – Impacts appraised

Analysis Level	Scheme Impacts	Selected Appraisal Method
Level 1 - Initial BCR	Journey times and vehicle operating costs	Monetised – Using Transport Users Benefit Appraisal (TUBA) software
	Greenhouse gas emissions	Monetised – Using TAG Unit A3 method
	Noise	Monetised – Using TAG Unit A3 method
	Air quality	Monetised – Using TAG Unit A3 method
	Government tax revenues	Monetised – Using TUBA software
	Accidents	Monetised – Using COBALT software
	Active mode benefits from walking and cycling	Monetised – Using Active Mode Appraisal Toolkit (AMAT)
Level 2 - Adjusted BCR	Wider Benefits	Monetised – Using Wider Impacts in Transport Appraisal (WITA) toolkit emulator
	Reliability Impacts	Monetised – Using 'Urban Roads' method
Level 3 – Non-monetised impacts	Environment	Qualitative – Using TAG Unit A3 methods to assess changes in impacts directly related to the scheme
	Social	Qualitative – Using TAG Unit A4-1 methods to assess changes in impacts directly related to the scheme

3.2.6. Within the appraisal, benefits have been considered over an appraisal period from scheme opening in 2027, and design and construction costs prior to scheme opening are considered, excluding any non-recoverable costs spent to date (sunk costs). The appraisal period reflects the asset life of the infrastructure, so for the highway elements of the scheme this was assumed to be 60-years and for the active mode measures a shorter appraisal period of 40-years was used, based on guidance from DfT and Active Travel England (ATE) appropriate for dedicated, high quality cycling and walking infrastructure.

3.2.7. A number of tools have been used to estimate the benefits associated with the scheme and these are discussed in the sections below. All costs and benefits within the appraisal are presented in the DfT's appraisal base year (2010) Present Values (PV) and in market prices in line with TAG Unit A1-1. Monetised impacts have been rebased to 2010 prices using Gross Domestic Product (GDP) Deflator forecasts from the TAG Data Book v1.23 (May 2024). Impacts have been converted to PV using social or health discount rates as set out in the TAG Data Book. Where required, impacts have been adjusted to market prices from the factor unit of account using the adjustment factor in the TAG Data Book.

3.2.8. This economic assessment is covered in greater detail in the Transport Benefit Analysis Technical Note, provided in Appendix E.

3.2.9. Distributional Impact analysis has been undertaken to support the economic assessment of the scheme. A Distributional Impact Report has been produced and is included in Appendix J.

3.3 OPTIONS APPRAISED

3.3.1. The scheme is comprised of a single carriageway all-purpose 4.85km long road, providing the 'missing' link between the north and west of Shrewsbury. Elements of the scheme include a shared new footway / cycleway along the length of the scheme; a 584m long viaduct; a new at-grade four arm roundabout; replacement of an existing five-arm roundabout with two four-arm roundabouts in a 'dumb-bell' configuration; a bridge to carry the scheme over the railway line; and new infrastructure to maintain and create new links for non-motorised users.

3.3.2. The options development and appraisal process is summarised in Section 2.12, and detailed in the Options Appraisal Report provided in Appendix B.

3.3.3. The final preferred highway option has been appraised using the tools and methods set out within the Appraisal Specification Report (ASR) provided in Appendix G and summarised in Sections 3.4 and 3.5.

3.4 OVERVIEW OF TRANSPORT MODELLING

3.4.1. This section provides an overview of the transport modelling approach used to appraise the scheme for the FBC. The Local Model Validation Report and Forecasting Report (see Appendix H and Appendix I) provide further detail of the approach and outputs of the transport modelling.

3.4.2. The Shrewsbury transport modelling suite was developed for Shropshire Council by WSP to support the OBC for the NWRR and consists of a SATURN highway assignment model combined with a Variable Demand Model in CUBE and has a base validation year of 2017.

3.4.3. The modelling undertaken at FBC uses the same transport modelling suite that was created at OBC stage with updated forecasts, using the latest National Trip End Model (NTEM) forecasts, updated planning assumptions (from an updated uncertainty log) and the latest scheme programme.

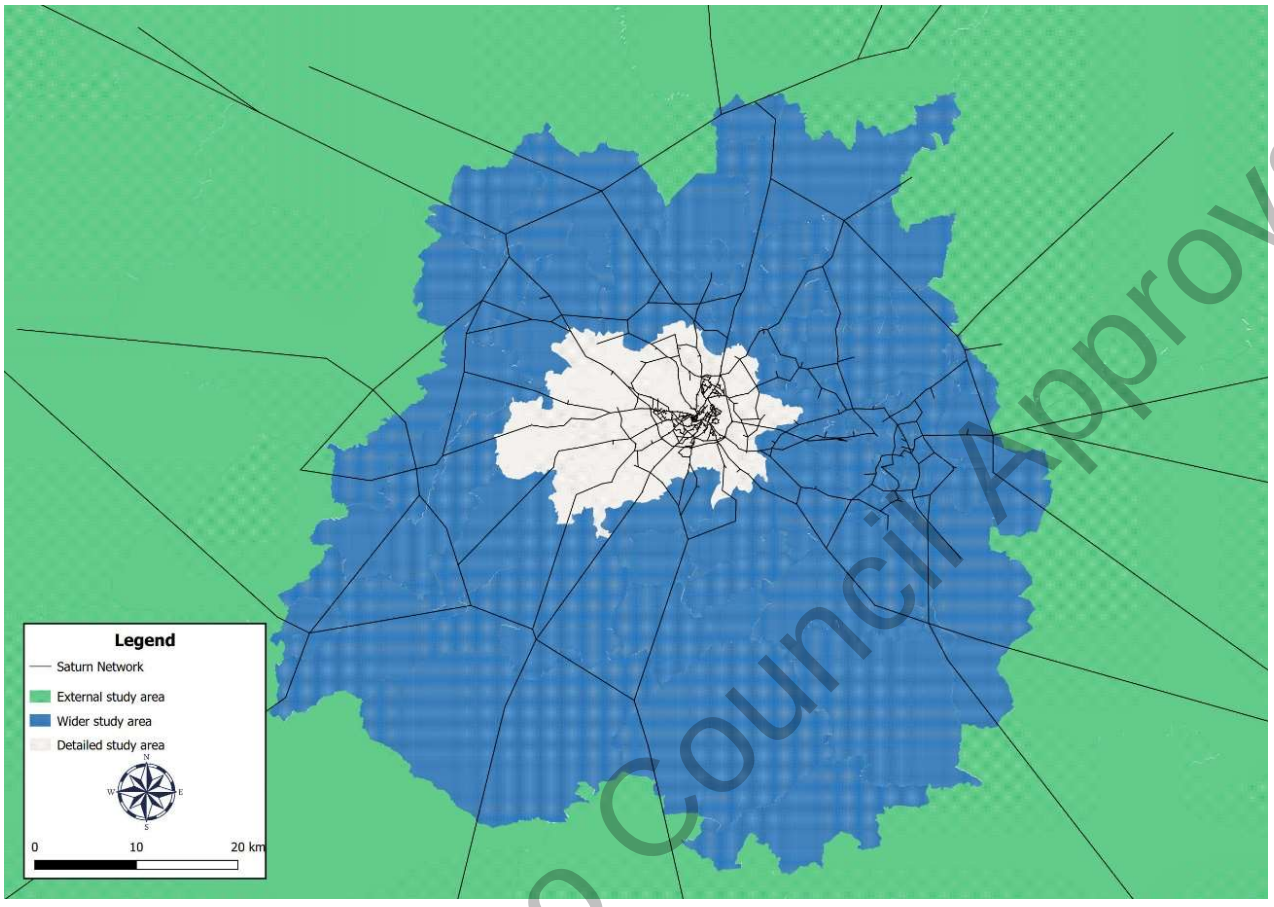
MODEL COVERAGE

3.4.4. Figure 3-2 shows the geographical coverage of the model. For the purpose of the assessment of the scheme, the area of detailed modelling (shown in white) was identified, over which significant impacts of the scheme are expected. The wider study area for the scheme (shown in blue) covers the remainder of the County of Shropshire, along with Welshpool and Telford in a reduced level of detail, with the principal strategic routes being modelled and capacity restraint achieved using speed/flow curves and strategically important junctions.

3.4.5. The detailed and wider study areas combine to form the fully modelled (simulation) area which is considered large enough to capture the biggest impacts expected due to the scheme and includes areas where impacts are quite likely but are not expected to be large.

3.4.6. The external study area covers the remainder of England, Wales and Scotland and includes a simplified network allowing traffic to enter the fully modelled area at the correct location without capacity restraint. It includes a skeletal network of buffer links with approximate distances to allow the demand model to capture the full trip length.

Figure 3-2 – Model extent



MODEL SPECIFICATION

User Classes

3.4.7. Five user classes were defined within the SATURN model:

- Car - Employers Business
- Car - Journey between home and work ("Commute")
- Car - Other trip purposes
- Light Goods Vehicle (Personal and Freight)
- Heavy Goods Vehicle (OGV1 and OGV2)

Time Periods

3.4.8. Base year trip matrices were developed for 2017. Three time periods were modelled in order to replicate trip patterns over a typical weekday:

- AM peak hour (08:00 - 09:00), representing the AM peak period (07:00 - 10:00)
- Interpeak average hour (10:00 - 16:00)
- PM peak hour (17:00 - 18:00), representing the PM peak period (16:00 - 19:00)

3.4.9. The peak hours for both the AM and PM peak periods were established by reviewing daily traffic flow profiles. These were based on average Monday to Friday flows obtained from Automatic Traffic Counts (ATCs), undertaken as part of the 2017 survey programme, and 2017 WebTRIS data, with count sites selected in order to provide a spread across the model study area.

2024 Model Verification

3.4.10. In 2024, a model verification was undertaken as part of the continuous monitoring and assessment of the existing NWRR traffic model performance. The 2017 base demand was updated to 2023 using the latest NTEM version 8.0 and the latest 2022 National Road Traffic Projections and a Do-Minimum network was developed from 2017 base using the forecasting assumptions applicable in March 2024.

3.4.11. This updated 2023 forecast model was compared to observed traffic data gathered from the Shrewsbury Annual 2023 traffic survey. This exercise verified the model's robustness as a forecasting tool and confirmed that it would provide a good representation and baseline for assessing the impact of the NWRR on traffic patterns and the economic impact of introducing the scheme.

Annualisation

3.4.12. Within TUBA, annualisation factors were used to expand from modelled time periods to represent the full appraisal period across the whole year. The annualisation factors were recalculated for the FBC and were derived from the analysis of 2023 traffic flow data from various count sites around Shrewsbury, for which traffic flow data was available for all 12 months.

3.4.13. The modelled AM and PM peak hours were expanded using the relationships between the observed average three-hour period flows and the single peak hour flows, for the AM and PM peak. The modelled interpeak hour represents an average hour in the 6-hour interpeak period and, therefore, was expanded appropriately using a factor of 6.

3.4.14. To convert to annual factors, the daily factors were multiplied by 253, reflecting the 253 working days per calendar year.

3.4.15. The factors are shown in Table 3-2.

Table 3-2 – Annualisation factors

Time Period	Annualisation Factor
AM peak (07:00 – 10:00)	651
Interpeak (10:00 – 16:00)	1,550
PM peak (16:00 – 19:00)	667

3.4.16. It should be noted evenings and weekends have not been modelled, and as such the impacts during these times have not been captured.

FORECASTING METHODOLOGY

Forecast Years

3.4.17. The forecast model was re-run based on the following forecast years:

- 2027 - Opening year
- 2042 - First forecast year (15 years after opening)
- 2050 - Second forecast year

3.4.18. The scheme opening year has been set to 2027 based on the current scheme delivery timelines. The first forecast year of 2042 has been produced as this covers 15 years after the scheme has opened. The second forecast year of 2050 is aligned with the Government's net zero target.

Forecast Demand

3.4.19. In line with the DfT's Uncertainty Toolkit (November 2023),the scheme has been assumed to be in the Medium Impact category as its cost is in the £50m to £500m range and there is a limited corporate risk.

3.4.20. For a Medium impact scheme at FBC stage, the recommended scenarios to be run are the critical CAS. Analysis has been carried out to understand the impact of alternative growth outcomes provided by the different CAS and further details can be found within the Forecasting Report in Appendix I.

3.4.21. For the purposes of the FBC the following CAS have been considered:

- **Low Economy** - where population, employment and GDP all experience lower levels of growth than the core scenario
- **High Economy** - where population employment and GDP would all see higher levels of growth than the core scenario
- **Regional** - where there would be redistribution of national economic growth, with out-migration from London, the South-East and the East of England, leading to increased economic growth across the rest of the country

SCHEME OPERATION (MAINTENANCE AND RENEWAL)

3.4.22. Over a 60-year period, the scheme operation will require the following:

- Routine annual maintenance - including signage and bollard cleaning and landscaping
- Capital renewal - including works to pavements, structures, footpaths, kerbing, drainage, road markings and fencing

3.4.23. Routine annual maintenance is expected to be undertaken with minimal disruption to traffic and so its disbenefits have not been considered in this assessment.

3.4.24. Capital renewal works will occur less frequently and not all the capital renewal works are expected to cause significant impact to traffic. However, the pavement and structural renewals are expected to involve significant disruption.

3.4.25. The following works regime has been assumed for the pavement and structural renewal works, based on previous experience within the Council:

- Years 12, 32 and 52 after opening – Surface dressing of the pavement requiring a 1 week full closure of the affected road section in both directions, followed by 20mph running for 2 further weeks, in both directions on the affected road section
- Year 20 – Full pavement resurfacing requiring a 3 week closure of the affected road section in both directions
- Year 40 – Full pavement resurfacing and a structural intervention requiring a 6 to 8 week closure of the affected road section in both directions

3.4.26. When undertaking these pavement and structural renewal works it has been assumed that the NWRR will be split into two sections, Holyhead Road to Berwick Road and Berwick Road to

Ellesmere Roundabout, with one section remaining open whilst the other affected road section is being renewed.

3.4.27. To assess the impact of these works, future year models have been built for each of the five years above and, as with scheme benefits, the disbenefits to road users of these pavement and structural renewal works were forecast using the TUBA software.

3.5 ACTIVE MODES

3.5.1. The NWRR will include a shared 3m wide footway / cycleway along the length of its southern side, providing a new active travel link between north and west of the town that adds to the existing active travel network and addresses the severance of a number of local roads, footpaths and ProW.

3.5.2. In line with TAG Unit 5-1, the DfT's Active Mode Appraisal Toolkit (AMAT) has been used to assess the benefits and costs of these proposed walking and cycling infrastructure improvements. The AMAT captures the impacts of the scheme in terms of journey quality to active mode users, health impacts from more people travelling by cycling or walking and decongestion impacts associated with modal shift from private car. Active mode impacts have been considered over a 40-year period from scheme opening year in 2027, in line with Table 2 of TAG Unit A1.1.

3.5.3. The AMAT requires inputs in terms of existing and scheme induced demand, as well as changes in infrastructure provision as a result of the scheme. It combines the benefits linked to the active mode interventions with a set of assumptions from the National Travel Survey (NTS) concerning travel distance, travel speed, distribution of travel purposes, and factors affecting the diversion from other modes. It then estimates the benefits based upon a comparison of the existing infrastructure and the proposed infrastructure.

EXISTING AND SCHEME INDUCED DEMAND

3.5.4. To estimate the potential existing demand for the scheme, three different data sources were considered:

- Propensity to Cycle Tool (PCT) data for faster and quiet routes
- PCT data for straight lines
- DfT traffic count point data

3.5.5. Given the scheme represents a new piece of active travel infrastructure that provides a new link in the active travel network, the PCT straight line data was selected as the most appropriate data source as it considers the origin and destination (OD) rather than the existing route taken by each trip.

3.5.6. An assessment of the OD trips that have the highest probability of using the scheme identified a total likely 2011 commuting demand of 16 cycle trips and no pedestrian trips.

3.5.7. PCT commuting demand data is based on 2011 ONS Census data from the main mode of travel to work (commuting demand), and so data from the most recently available NTS (undertaken in 2023) was utilised to uplift the 2011 PCT demands to 2023, resulting in a 2.94% uplift for cycle trips and 17.09% uplift for pedestrian trips.

3.5.8. These 2023 commuting demands were then converted to the two-way demand by all trip purposes again utilising the NTS data. This conversion involved multiplying the 2023 commuting demands by 6 (2 x 3) for cyclist trips and 32 (2 x 16) for pedestrian trips, giving final estimated 2023 all trip purpose demands of 99 cyclist trips and no pedestrian trips.

3.5.9. Based on the type of intervention, and the location of the scheme, the appraisal has identified case study evidence from the Shrewsbury Cycling City and Town Programme, which recorded a 15% increase in townwide cycling between 2007 and 2017. Consistent with this study, a 15% uplift in demand has been assumed to be induced as a result of scheme implementation, which equates to an uplift of 15 cyclist trips and no pedestrian trips.

3.5.10. Therefore, the estimated scheme induced all trip purpose demands are 114 cyclist trips and no pedestrian trips.

3.5.11. Further details can be found in the Transport Benefit Analysis Technical Note in Appendix E.

3.6 SCHEME PREPARATION AND CONSTRUCTION COSTS

3.6.1. The cost of the proposed scheme has been estimated at 2024 prices, as set out in the Financial Dimension. It includes all capital investment costs (associated with scheme preparation and construction) and all whole life operating costs (associated with scheme maintenance, renewal and operation), in line with the DfT Cost Pro-forma (see Appendix K).

3.6.2. The costs have been estimated in line with TAG A1.2 Scheme Costs (May 2024), which uses the following methodology:

- Estimation of a base costs
- Incorporation of a real cost increases
- Application of risk-cost / optimism bias adjustment
- Rebase and discount costs to DfT base year before conversion into market prices

ESTIMATION OF BASE CAPITAL COSTS

3.6.3. The base capital investment cost estimate of the scheme is **£109.867m** in 2024:Q3 prices, as shown in Table 3-3.

Table 3-3 – Base capital investment cost estimate

Cost Type	Cost (£'000s) in 2024:Q3 Prices
Construction contracts	93,741
Statutory undertakers works [33]	6,056
Design investigations, surveys, procurement, supervision and client costs [34]	6,691
Land-related expenses	3,379
Total	**109,867**

[33] Costs of £8,602 have been removed as a sunk cost accrued prior to September 2024.
[34] Costs of £25,687,838 have been removed as a sunk cost accrued prior to September 2024.

3.6.4. In line with TAG Unit A1.2 Scheme Costs (May 2024), non-recoverable costs incurred to date have been considered as sunk costs and were not included in the base capital investment cost estimate, as these are costs that represent expenditure prior to the economic appraisal and are unretrievable.

ESTIMATION OF BASE WHOLE LIFE OPERATING COSTS

3.6.5. The base whole life operating costs of the scheme have also been estimated, based on the works regime and assumptions outlined earlier in Section 3.4. These are shown in Table 3-4.

Table 3-4 – Base whole life operating cost estimate

Cost Type	Cost (£'000s) in 2024:Q3 Prices
Annual maintenance	1,612
Capital renewal	31,504
Total	**33,116**

INCORPORATION OF REAL COST INCREASES

3.6.6. To incorporate real cost increases into the base capital cost estimate, inflation is first applied based on different forecasts depending on the base capital cost line item. For construction contracts and statutory undertakers works, the latest Building Cost Information Service (BCIS) All-in Tender Price Index (TPI) forecast from September 2024 has been used and, for all other costs, general inflation as provided in the TAG Databook v1.23 (May 2024) has been used.

3.6.7. The total inflation-adjusted capital cost estimate for each financial year was then divided by the rate of general inflation to obtain the capital cost estimate in real prices.

3.6.8. The real adjusted capital investment costs are shown in Table 3-5.

Table 3-5 – Real adjusted capital investment costs

Costs (£'000s)	2024/25	2025/26	2026/27	2027/28	Total
Base capital investment cost	4,021	41,090	44,398	20,358	**109,867**
Inflation	0	1,451	3,316	2,345	7,112
Base capital investment cost adjusted for inflation	**4,021**	**42,541**	**47,715**	**22,703**	**116,980**
General inflation adjustment factor	1.000	1.012	1.029	1.048	
Capital investment cost in real prices	**4,021**	**42,046**	**46,383**	**21,667**	**114,117**

3.6.9. The whole life operating costs have been assumed to be subject to general inflation in future years and, therefore, are subject to zero real cost inflation over the appraisal period.

APPLICATION OF RISK / OPTIMISM BIAS ADJUSTMENT

3.6.10. The process of capturing and quantifying risk for the scheme is presented in Section 6.10 of the Management Dimension. A Quantified Risk Assessment (QRA) was undertaken on the base capital investment costs that provided a weighted average of all risk outcomes and probabilities. Using the P_{80} probability, the QRA process calculated a total quantified capital investment cost risk of **£18.78m** in 2024:Q3 prices or **16.06%**.

3.6.11. In line with TAG Unit A1.2, an optimism bias adjustment of 20% is recommended to be applied to base capital investment costs at FBC stage for all roads projects, which equates to **£22.82m** in 2024:Q3 prices.

3.6.12. As the optimism bias value was higher than the total quantified risk, and in line with TAG Unit A1.2, the optimism bias of 20% was applied to the capital investment costs, not the 16.06% quantified risk adjustment.

Table 3-6 – Optimism bias adjusted capital investment costs

Costs (£'000s)	2024/25	2025/26	2026/27	2027/28	Total
Capital investment cost in real prices (without optimism bias)	4,021	42,046	46,383	21,667	114,117
Capital investment cost optimism bias in real prices	804	8,409	9,277	4,333	22,823
Capital investment cost in real prices (adjusted for optimism bias)	**4,826**	**50,455**	**55,659**	**26,001**	**136,941**

3.6.13. A 20% optimism bias adjustment of £6.623m was also applied to the whole life operating costs.

REBASING AND DISCOUNTING OF COSTS WITH CONVERSION TO MARKET PRICES

3.6.14. For appraisal purposes, all capital and whole life costs should be presented in DfT's base year, 2010. Costs are deflated to the correct price base by multiplying them by the ratio of the inflation index in the desired base year to the inflation index in the year currently being used.

3.6.15. Costs have been adjusted to 2010 prices using the TAG Data Book v1.23 (May 2024) values as set out in Table 3-7. As costs were in 2024:Q3 prices, to rebase them to 2010 prices, they have been divided by 140.29 / 100.00 = 1.403.

Table 3-7 – Adjustment to 2010 prices

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
GDP deflator	100.00	102.19	103.76	105.96	107.35	108.06	110.18	112.23	114.39
Year	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GDP deflator	116.81	123.00	122.61	128.91	138.18	140.29	141.94	144.32	146.99

3.6.16. As well as rebasing, a discount factor is applied to all capital investment and whole life operating costs, based on HM Treasury Green Book, to adjust costs occurring in different years to Present Values (PV) in the DfT base year of 2010. A discount rate of 3.5% per year was applied for years

2010 until 2053 (30 years after the year of this appraisal). A lower rate of 3% per year was applied for the remainder of the appraisal period (between 2054 and 2086) to reflect the lower weighting placed on costs (and benefits) incurred at a future date compared to those incurred closer to the present.

3.6.17. For example, costs that occur in 2025 were discounted to 2010 values by multiplying the cost by $1 / (1.035)^{15} = 0.62$.

3.6.18. The last stage was to convert all capital investment and whole life operating costs to the market price unit of account. This adjustment was carried out using the indirect tax correction factor of 1.190, as set out in the TAG Data Book v1.23 (May 2024).

3.6.19. Table 3-8 shows the present value of capital investment and whole life operating costs (PVC) after the rebasing, discounting and conversion to market price was completed.

Table 3-8 – Present Value of Costs

Costs (£'000s)	Capital Investment Costs	Whole Life Operating Costs	Total
Total cost in real prices	114,117	33,116	147,233
Optimism bias / risk adjustment in real prices	22,823	6,623	29,447
Total cost in real prices (including optimism bias)	136,941	39,739	176,680
Total cost in 2010 prices (including optimism bias)	97,615	28,327	125,942
Total cost in 2010 PV (including optimism bias)	56,801	5,844	62,644
Total cost in 2010 PV market prices (including optimism bias)	**67,593**	**6,954**	**74,547**

3.7 LEVEL 1 IMPACTS – ESTABLISHED MONETISED IMPACTS

3.7.1. This section sets out the methodology and resultant outputs when considering the established monetised impacts of the scheme (level 1 Impacts). These informed the initial Benefit to Cost Ratio.

3.7.2. The following impacts have been quantified and monetised within the appraisal:

- Transport user benefits
  - Journey time impacts
  - Vehicle operating cost impacts
- Indirect tax impacts
- Environmental impacts
  - Noise
  - Air quality
  - Greenhouse gases

- Social impacts
  - Physical activity
  - Journey quality
  - Accidents

3.7.3. Note that, as the NWRR will be largely constructed offline, the construction impacts of the scheme have not been appraised.

TRANSPORT USER BENEFITS

3.7.4. The principles behind the valuation of transport user benefits have been based upon monetising the changes in:

- Journey time impacts for users
- Vehicle operating costs met by the users

Journey Time Impacts

Journey Time Impact of the Scheme for Highway Users

3.7.5. The DfT's TUBA software has been used to monetise changes in highway user journey times as a result of the scheme, over the 60-year appraisal period. The appraisal has utilised the latest version of TUBA available at the time of undertaking the appraisal. This utilises the economic parameter file version 1.9.23.0 based on TAG Data Book v1.23 (May 2024).

3.7.6. In comparing journey times in the 'without scheme' scenario to those in the 'with scheme' scenario for each time period, TUBA calculates the benefits of journey time savings. These time savings are then assigned financial valuations (Values of Time (VOT)) to determine the monetary benefits.

Journey Time Impact of the Scheme Maintenance Regime for Highway Users

3.7.7. The DfT's TUBA software has again been used to monetise changes in highway user journey times as a result of the scheme maintenance regime. Following the same methodology as above, journey times in the 'without scheme maintenance' scenario have been compared to those in the 'with scheme maintenance' scenario for each of the two road sections, during each time period and for the prescribed number of weeks in each year pavement or structural renewals are forecast to be undertaken, as set out in the works regime.

Journey Time Impact of the Scheme for Active Mode Users

3.7.8. The DfT's AMAT has been used to forecast the decongestion impact due to modal shift from private car to active modes as a result of the scheme. As outlined earlier, this appraisal has been undertaken over a shorter 40-year appraisal period, based on guidance from DfT and Active Travel England (ATE) appropriate for dedicated, high quality cycling and walking infrastructure.

Overall Journey Time Impact

3.7.9. Table 3-9 shows the journey time impacts, over the respective appraisal periods.

Table 3-9 – Journey time impacts

Journey Time Impact Type	£'000s, 2010 PV over Appraisal Period
Impact of scheme for highway users (TUBA)	206,754
Impact of scheme maintenance regime for highway users (TUBA)	-2,176
Impact of scheme for active mode users (AMAT)	3
Overall impact	**204,581**

3.7.10. Table 3-10 shows the breakdown of journey time benefits captured in the two TUBA assessments by time period, and Table 3-11 shows the disaggregation by user class.

Table 3-10 – Journey time benefits by time period

Journey Time Benefit (TUBA)	£'000s, 2010 PV over Appraisal Period
AM peak	66,758
Interpeak	75,033
PM peak	62,787
Overall impact	**204,578**

Table 3-11 – Journey time benefits by user class

Journey Time Benefit (TUBA)	£'000s, 2010 PV over Appraisal Period
Car - Business	30,706
Car – Commuting	55,716
Car – Other	88,345
LGV personal – Other	1,386
LGV freight – Business	23,672
OGV1 – Business	2,091
OGV2 - Business	2,662
Overall impact	**204,578**

3.7.11. The Forecasting Report includes further detail of the spatial disaggregation of the impacts of the scheme, and this is also considered within the Place-Based Analysis discussed in paragraph 3.12.9.

Vehicle Operating Costs

3.7.12. The changes in Vehicle Operating Costs (VOCs) are as a result of variations in the costs related to fuel, maintenance, and wear and tear. These are influenced by alterations in speed and distance

due to the scheme or scheme maintenance and are assessed using TUBA, following the same methodology outline above for the journey time impacts.

3.7.13. Table 3-12 sets out the VOC impacts over the 60-year appraisal period.

Table 3-12 – VOC impacts

	VOC Impact	£'000s, 2010 PV over Appraisal Period
Impact of scheme for highway users (TUBA)	Fuel	7,521
	Non-fuel	2,643
Impact of scheme maintenance regime for highway users (TUBA)	Fuel	-64
	Non-fuel	-59
Overall impact	**Fuel**	**7,457**
	Non-fuel	**2,584**

INDIRECT TAX

3.7.14. The change in indirect tax revenues to central Government have been captured within the appraisal. This considers the changes in tax revenues generated through changes in fuel and non-fuel vehicle usage by highway users.

3.7.15. TUBA has been used to estimate the change in indirect tax revenues to central Government generated through changes in fuel and non-fuel vehicle usage by highway users as a result of the scheme and the scheme maintenance regime. The AMAT has been used to capture the indirect tax impact of mode shift from private car to active modes.

3.7.16. Table 3-13 shows the indirect tax impacts, over the respective appraisal periods.

Table 3-13 – Indirect tax impacts

Indirect Tax Impact Type	£'000s, 2010 PV over Appraisal Period
Impact of scheme for highway users (TUBA)	-1,380
Impact of scheme maintenance regime for highway users (TUBA)	24
Impact of scheme for active mode users (AMAT)	Negligible
Overall impact	**-1,356**

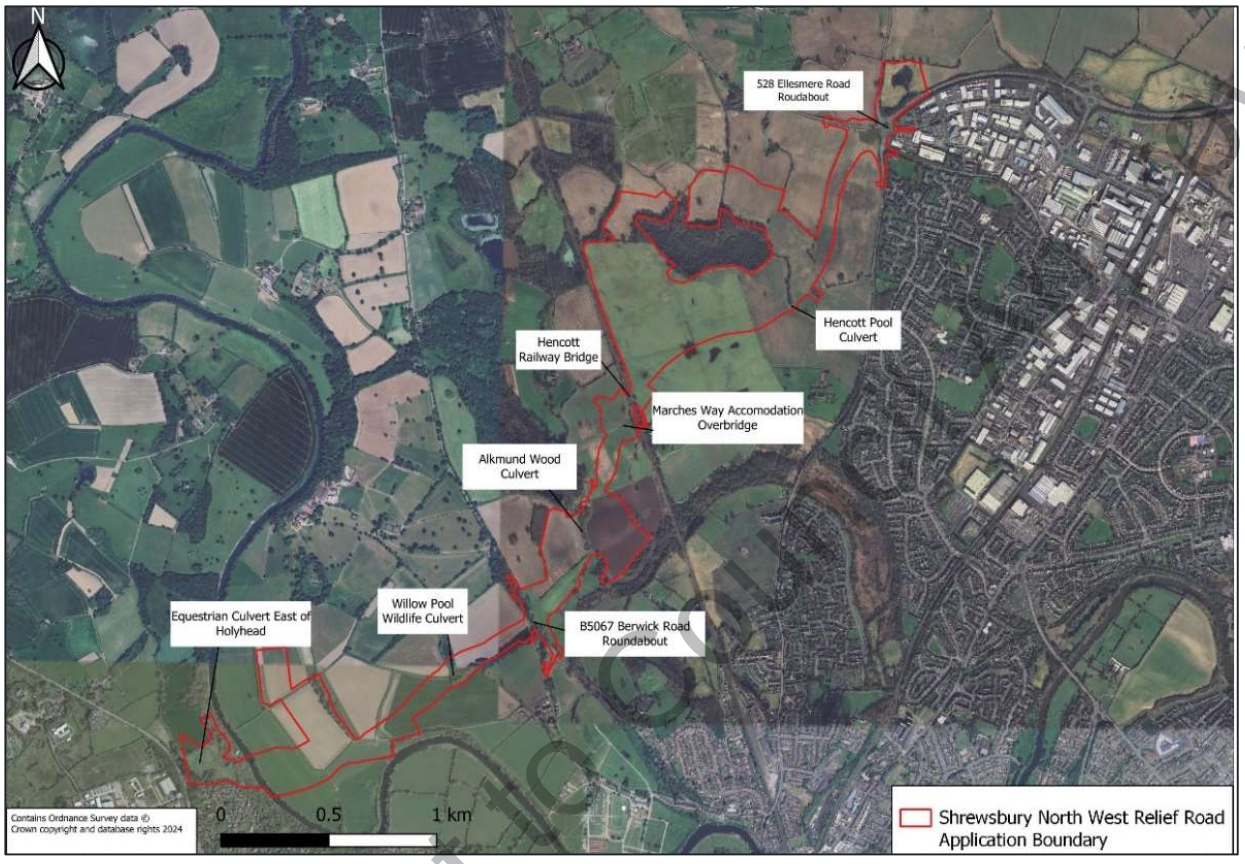
ENVIRONMENTAL IMPACTS

3.7.17. The environmental appraisal of the scheme as part of this FBC has been undertaken in line with TAG Unit A3.

3.7.18. The planning application boundary for the scheme, hereby referred to as 'the Application Boundary', is presented in Figure 3-3. The Application Boundary encompasses the scheme and additional

elements related to the development such as flood storage area, environmental mitigation and construction areas etc.

Figure 3-3 – NWRR application boundary



Air Quality

3.7.19. This appraisal follows the Impact Pathways Approach (I-PA) outlined in the TAG A3 guidance to derive a monetary value from the air quality impacts resulting from the construction of the NWRR.

3.7.20. In accordance with the TAG A3 Guidance this appraisal will follow a four-step approach to quantify the monetary air quality impact. This appraisal will feature:

- Scoping
- Quantification
- Assessment of impacts
- Monetary valuation of changes in air quality

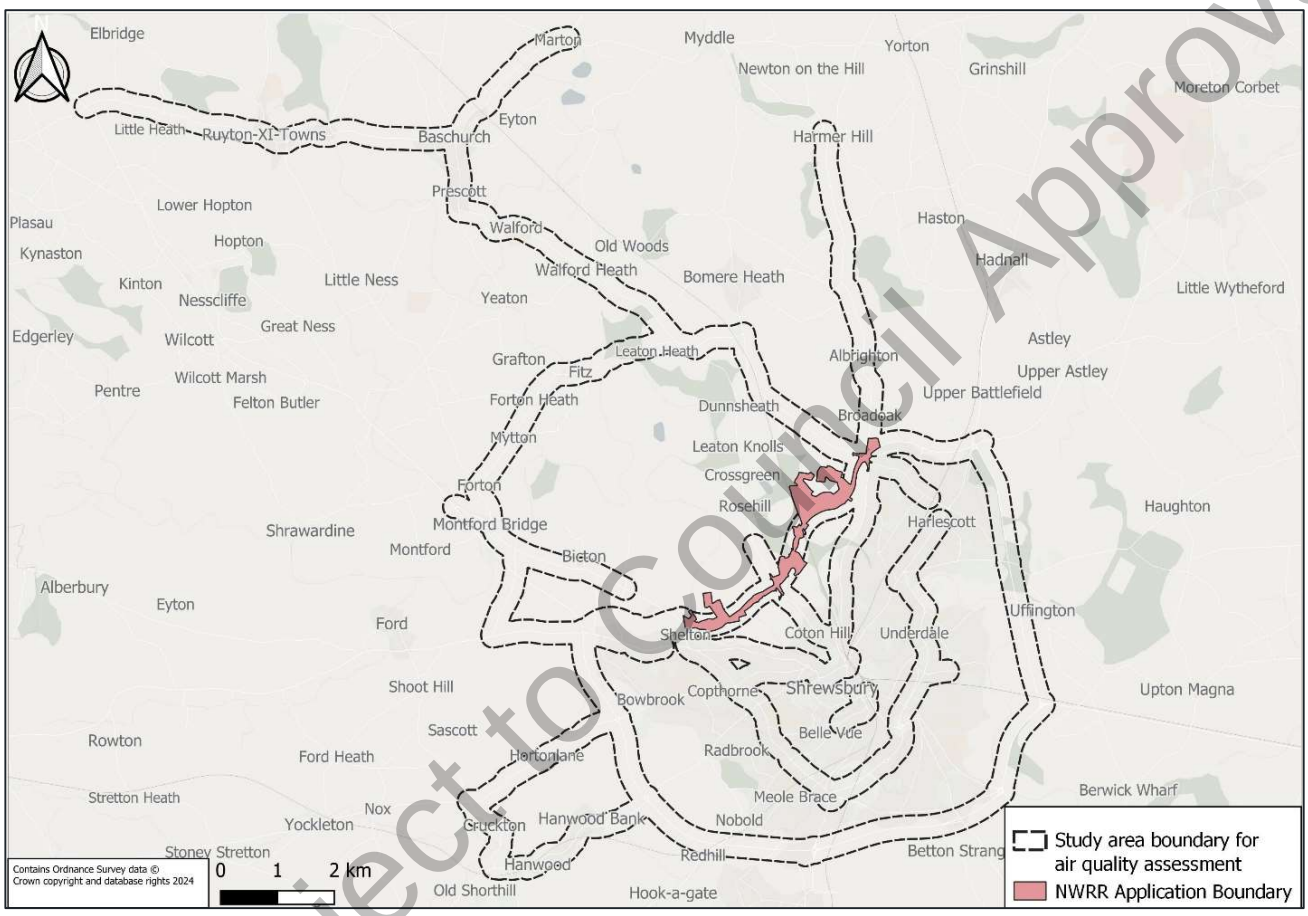
3.7.21. This appraisal uses the scoping criteria defined in Design Manual for Roads and Bridges, LA 105, Air Quality (DMRB LA 105) as the scope for this appraisal. This approach identifies affected links where there has been a change in traffic between with-project (do something) and without-project (do minimum) that meets any of the criteria outlined below:

- Annual average daily traffic (AADT) >= 1,000, or
- Heavy duty vehicle (HDV) AADT >= 200, or
- A change in speed band, or
- A change in carriageway alignment by >= 5m

3.7.22. Using the criteria above, the affected links for the air quality assessment consist of most of the main thoroughfares through and around the town centre, as well as arterial routes to the north west of Shrewsbury.

3.7.23. Figure 3-4 shows the extent of the study area as 200m from the centreline of all affected links.

Figure 3-4 – Air quality study area



3.7.24. Sensitive human receptors that require assessment include residential properties, schools and hospitals and such locations where assessment against the annual mean air quality objective applies.

3.7.25. The overall air quality impact at receptors has been modelled using ADMS Roads. The model was used to simulate the emission and subsequent dispersion of NO_x and $PM_{2.5}$, providing concentrations at selected receptors. NO_x concentrations were converted to NO_2 in post processing to provide ambient pollution concentrations of NO_2 and $PM_{2.5}$ at select receptors.

3.7.26. The modelled NO_x concentrations will be subject to a verification factor before the overall link score is calculated. The verification factor will be dependent on the location of the receptor in question, with receptors located on steep hills having a separate model verification factor applied. NO_x concentrations modelled at receptors not located on steep hills will be subject to the standard model verification factor. This is in keeping with the legacy modelling approach.

3.7.27. All sensitive human receptors within 200m of an affected link will be scoped into the appraisal and modelled using individual receptors to represent each property. The modelled NO_2 and $PM_{2.5}$

concentrations at all qualifying locations along a qualifying link were used to inform the overall link scores for each affected road network (ARN) link.

3.7.28. A total score was calculated from the sum of the scores across all identified ARN links to derive a net change in air quality at sensitive human receptors over the entire model network.

3.7.29. The total score was used to inform the TAG workbook air quality valuation worksheet (May 2024), which, in combination with the total change in NO_2 emissions in tonnes, generated an overall monetary valuation of the air quality impacts arising from the proposed development of the NWRR.

3.7.30. This assessment uses data obtained from the following sources to inform the air quality modelling:

- Traffic data generated by WSP traffic modellers
- AddressBase receptor information obtained from the ordinance survey website
- 2017 meteorological data from RAF Shawbury, in keeping with the legacy and verification modelling for the scheme
- Background pollutant concentrations obtained from the Department for Environment Food and Rural Affairs (Defra) 2018 based background maps
- NO_x to NO_2 conversion done using the Defra's NO_x to NO_2 calculator v7.1
- Emissions factors calculated using Defra's Emissions Factors Toolkit 12.0.1 in accordance with legacy model runs

3.7.31. The NWRR is proposed to open in 2027, with 2042 as the modelled forecast year. Using AddressBase data, this assessment has identified 16,761 qualifying sensitive receptors within 200m of an affected link. Table 3-14 summarises the count of receptors within each distance band from an affected link.

Table 3-14 – Count of receptors by distance from an affected link

	Distance From Affected Link (m)				
	0 - 50	**50 - 100**	**100 - 150**	**150 - 200**	**0 - 200**
Count of receptors	4,013	4,894	4,787	3,067	16,761

3.7.32. The net exposure to sensitive human receptors has been calculated as an overall score for the with and without scheme scenarios for the opening and forecast years. The NO_2 score is summarised in Table 3-15 and the $PM_{2.5}$ score is summarised in Table 3-17.

Table 3-15 – NO_2 assessment score for opening year and future year

Year	NO_2 Score		
	Without Scheme	**With Scheme**	**Change**
2027	123,168	120,116	-3,052
2042	85,759	84,928	-831

3.7.33. The with scheme scenario results in an overall reduction of exposure to NO_2 at sensitive receptors across the model network. This impact is greatest in the opening year where vehicular emissions of

NO_x are predicted to be highest. In 2042, the scheme still contributes to a reduction in exposure to NO_2 at sensitive human receptors, albeit to a lesser extent.

3.7.34. For both NO_2 and $PM_{2.5}$, impacts below 1% of the relevant long term air quality objective are considered imperceptible, i.e. no change. Adverse impacts above 1% are considered a worsening and reductions in concentrations below 1% are considered an improvement.

3.7.35. Table 3-16 summarises the count of receptor that experiences a perceivable change in NO_2 concentrations, which is defined as a change of +/- 0.4 µg/m^3 (1% of the long term NO_2 air quality objective of 40 µg/m^3).

Table 3-16 – Count of receptors with an improvement or worsening in annual mean NO_2 concentrations

Year	Count of Receptors with a Change in NO_2 Concentration		
	Improvement	Worsening	No Change
2027	2,984	1,015	12,762
2042	343	119	16,299

3.7.36. Initially, the construction of the NWRR will result in an improvement in NO_2 concentrations at 2,984 receptors in the opening year. A total of 1,015 receptors will experience a worsening in air quality due to the scheme. By the forecast year, this has reduced to 343 receptors experiencing an improvement and 119 experiencing a worsening above 1% of the long term NO_2 objective.

3.7.37. The maximum modelled NO_2 concentration with the construction of the NWRR is 26.0 µg/m^3, which reduces to a maximum of 11.5 µg/m^3 in the 2042 forecast year. Both maximum concentrations are well below the long term NO_2 air quality objective of 40 µg/m^3, and do not suggest any risk of potential exceedance.

3.7.38. Similarly to NO_2, as shown in Table 3-17, the construction of the NWRR contributes towards an overall reduction of exposure to $PM_{2.5}$ at sensitive receptors across the model network in the opening and forecast years. The $PM_{2.5}$ assessment scores are similar for 2027 and 2042. This is because predicted $PM_{2.5}$ emission rates per vehicle will remain relatively constant between opening and forecast years and not mirror the predicted reduction in NO_x emissions.

Table 3-17 – $PM_{2.5}$ assessment score for opening year and future year

Year	$PM_{2.5}$ Score		
	Without Scheme	With Scheme	Change
2027	112,044	111,884	-160
2042	111,443	111,290	-153

3.7.39. Table 3-18 summarises the count of receptors that experiences a perceivable change in air quality, which is defined as a change of +/- 0.15 µg/m^3 (1% of the interim long term $PM_{2.5}$ air quality objective of 15 µg/m^3).

Table 3-18 – Count of receptors with an improvement or worsening in annual mean $PM_{2.5}$ concentrations

Year	Count of Receptors with a Change in $PM_{2.5}$ Concentration		
	Improvement	Worsening	No Change
2027	22	2	16,737
2042	20	9	16,732

3.7.40. In the opening year, the NWRR will result in a net improvement in $PM_{2.5}$ concentrations at 20 receptors. A reduction in $PM_{2.5}$ concentrations was modelled at 22 receptors whilst an increase in $PM_{2.5}$ was modelled at 2 receptors. In the 2042 forecast year, a reduction in $PM_{2.5}$ was modelled at 20 receptors and an increase in $PM_{2.5}$ was modelled at 9 receptors. A slight increase in traffic flow on some routes adjacent to the NWRR when compared with 2027 traffic flows is sufficient to increase $PM_{2.5}$ concentrations at 7 affected receptors by 0.01- 0.02 $\mu g/m^3$. This contribution compounds on an increase of 0.14 - 0.15 $\mu g/m^3$ at each receptor in the 2027 opening year scenario. This is sufficient to take the change in modelled 2042 $PM_{2.5}$ concentrations above 1% of the interim long term $PM_{2.5}$ air quality objective.

3.7.41. The maximum modelled $PM_{2.5}$ concentration with the construction of the NWRR is 7.6 $\mu g/m^3$, which reduces to a maximum of 7.5 $\mu g/m^3$ in the 2042 forecast year. Both maximum concentrations are well below the interim long term $PM_{2.5}$ air quality objective of 15 $\mu g/m^3$, and below the proposed air quality objective of 10 $\mu g/m^3$, due to be implemented by 2040. Neither maximum concentration indicates a risk of a potential exceedance of these objectives.

3.7.42. The Shrewsbury Town Centre AQMA is declared for an exceedance of the long term NO_2 air quality objective. The construction of the NWRR is expected to improve air quality within the Shrewsbury Town Centre AQMA. The air quality study area captures part of the Shrewsbury AQMA including the area within 200m from A458, A528 and A5191 (north of Shrewsbury station). The air quality study area captures 680 sensitive receptors within the Shrewsbury Town Centre AQMA. Table 3-19 shows the count of sensitive receptors within the AQMA that experience a change in NO_2 concentrations because of the NWRR.

Table 3-19 – Count of receptors with a change in NO_2 concentration in the AQMA

Year	Count of Receptors with a Change in NO_2 Concentration in the AQMA		
	Improvement	Worsening	No Change
2027	399	0	281
2042	205	0	475

3.7.43. In the opening year, the construction of the NWRR will contribute to a reduction of annual mean NO_2 of at least 0.4 $\mu g/m^3$ at 399 receptors. No receptors in the AQMA were modelled to experience a perceptible increase in NO_2 because of the scheme. By 2042, 281 receptors in the AQMA will still benefit from reduced NO_2 concentrations due to the construction of the NWRR.

3.7.44. Although the Shrewsbury AQMA is not declared for an exceedance of any $PM_{2.5}$ air quality objective, Table 3-20 shows the count of sensitive receptors within the AQMA that experience a change in $PM_{2.5}$ concentrations due to the construction of the NWRR.

Table 3-20 – Count of receptors with a change in $PM_{2.5}$ concentration in the AQMA

Year	Count of Receptors with a Change in $PM_{2.5}$ Concentration in the AQMA		
	Improvement	Worsening	No Change
2027	21	0	659
2042	19	0	661

3.7.45. In the opening year, the construction of the NWRR is expected to reduce $PM_{2.5}$ concentrations at 21 receptors within the Shrewsbury Town Centre AQMA. By 2042, 19 receptors experience a reduction in $PM_{2.5}$ concentrations as a result of the construction of the NWRR. No receptors are modelled to experience an increase in $PM_{2.5}$ concentrations greater than 1% of the long term air quality objective in either the opening or future years.

3.7.46. Reductions in NO_2 and $PM_{2.5}$ are modelled at receptors throughout Shrewsbury town centre and at receptors close to primary thoroughfares through, or to the east, of the town; specifically, the A5, A49, A528 Ellesmere Road and A5112 Bage Way. This is due to traffic opting to use the NWRR rather than travelling through, or using the alternative routes around, Shrewsbury. The scheme results in an increase in pollutant concentrations at receptors near the NWRR alignment and along the connecting routes such as the OLR, A458, A5124 and A528 Shrewsbury Road. The worsening air quality in these areas is offset by the wider improvements in air quality across Shrewsbury town centre and AQMA, see Table 3-19.

3.7.47. It is expected that NWRR will generate additional trips throughout the local road network. Consequently, this will contribute to an increase in total NO_x emissions across the air quality study area. Whilst these NO_x emissions mostly occur in rural, less densely populated areas and have a lower overall impact on human health in the with scheme scenario, the additional NO_x emissions are likely to contribute towards increased ecological harm. This is considered in the TAG A3 methodology through the calculation of mass of NO_x and reflected in the overall valuation outcome. The cost appraisal of the total NO_x emissions is listed in Table 3-22 under 'Other impacts (NO_x)'.

3.7.48. The increase of NO_x emissions in tonnes per annum is summarised in Table 3-21.

Table 3-21 – Change in overall NO_x emissions across the model area

Year	Total NO_x Emissions (tonnes pa)		
	Without Scheme	With Scheme	Change
2027	999	1,007	8
2042	331	336	5

3.7.49. The NWRR contributes towards an additional 8 tonnes of NOx in the opening year, falling to 5 tonnes of NOx by the 2042 forecast year largely due to reductions in emissions per vehicle over time.

3.7.50. Table 3-22 collates the information discussed above into an overall valuation outcome for the construction of the NWRR following the impact pathways approach.

Table 3-22 – Final air quality valuation table

I-PA (Concentrations)	£'000s, 2010 PV over Appraisal Period
Present value of change in NO_2 concentrations:	**-81**
Concentration costs:	166
Other impacts (NOx):	-248
Present value of change in $PM_{2.5}$ concentrations:	**154**
Concentration costs:	154
Total value of change in air quality	**72**
*positive value reflects a **net benefit** (i.e. air quality improvement) *due to rounding, totals do not match	

3.7.51. Over the 60-year appraisal period the monetised air quality impact is estimated to be **£72,488 (2010 PV)**. The detailed TAG Worksheet for air quality is included in Appendix M.

3.7.52. Impacts from proposed walking and cycling infrastructure are quantified using the AMAT, which captures changes to local air quality from a reduction in car kilometres. The overall scheme impact is valued at **£25 (2010 PV)** from improvements in local air quality and a reduction in the amount of pollutants emitted. Table 3-23 shows the air quality impacts of the scheme.

Table 3-23 – Air quality impacts

	£'000s, 2010 PV over Appraisal Period
Air quality impact (Model)	72
Air quality impact (AMAT)	Negligible
Overall impact	**72**

Noise

3.7.53. The noise appraisal has been completed in line with the TAG Unit A3 Environmental Impact Appraisal guidance for Noise Impacts. The methodology references the Design Manual for Roads and Bridges (DMRB) LA 111 Noise and vibration guidance.

3.7.54. Regarding noise impacts, the TAG Unit A3 impact appraisal focuses on the link between environmental noise and health outcomes. Department for Environment, Food and Rural Affairs (Defra) has produced guidance on transport-related noise using an 'impact pathway' approach to include:

- Annoyance
- Sleep disturbance
- Health impact, including heart disease (acute myocardial infarction, or AMI), stress and dementia

3.7.55. These impact pathways are reflected in the TAG workbook, with financial values assigned to each based on the noise levels predicted with and without the scheme. The TAG A3 methodology includes five steps as follows:

- Scoping
- Quantification of noise impacts
- Estimation of the affected population
- Monetary valuation of changes in noise impact
- Consideration of the distributional impacts of changes in noise

3.7.56. The key stage is the quantification of noise impacts, whereby noise levels are predicted at each receptor in the study area (further details of which are set out below). The opening year of the scheme is 2027. The future year for TAG assessments is typically 15 years after the opening year, therefore the adopted future year is 2042.

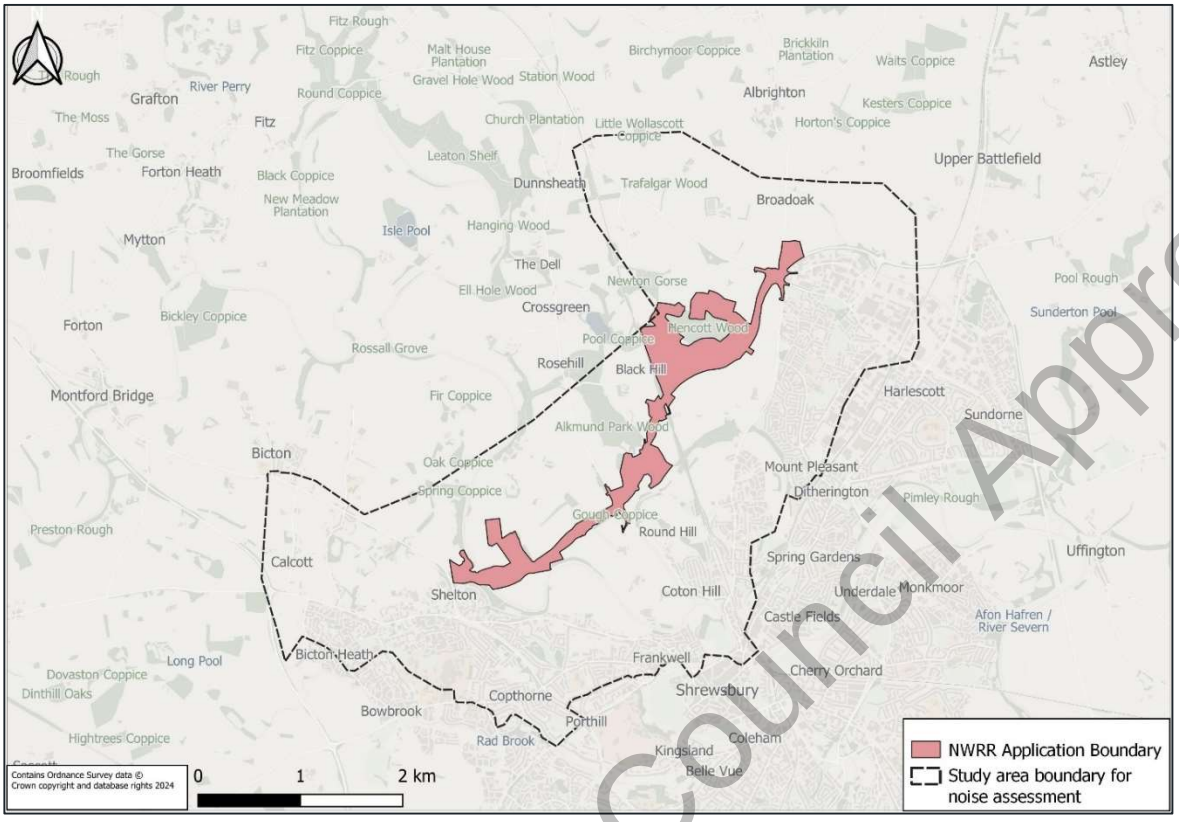
3.7.57. In order to quantify the noise level changes at each property, receptor specific noise level calculations have been undertaken for the following scenarios:

- Do-minimum 2027 without the scheme
- Do-something 2027 with the scheme
- Do-minimum 2042 without the scheme
- Do-something 2042 with the scheme

3.7.58. Noise levels are calculated at every façade of each residential building in the study area. The façade subject to the greatest magnitude of change has been used in the analysis in line with the guidance in DMRB LA 111. Noise levels have been calculated in the 3D modelling software CadnaA adopting the methodology set out within the Calculation of Road Traffic Noise (CRTN) document.

3.7.59. The study area, shown in Figure 3-5, has been derived based on guidance within DMRB LA 111 to be an area 600m from the edge of roads altered by the scheme design. Existing residential receptors within the study area have been identified using OS AddressBase® data. In total, there are 8,580 residential properties in the noise study area, with an estimated population of 19,734 (2.3 people per household).

Figure 3-5 – Noise study area



3.7.60. The 'with scheme' scenarios are based on the current 3D highway alignment drawings. The scheme includes Low Noise Road Surfacing (LNRS) and environmental barriers at targeted locations.

3.7.61. The CRTN calculation methodology is only valid for roads with a traffic flow of over 1,000 vehicles (18 hour average annual weekday traffic). However, roads with a flow below this can still be calculated in the CadnaA software using the CRTN methodology. As a large number of roads within the study area have a flow below 1,000, including those within the scheme extents, these roads have been included in the noise modelling in this case as removing these roads could have meant that positive or negative impacts were not accounted for.

3.7.62. The results of the noise appraisal are summarised below. These have been generated by analysing data for each residential receptor based on the façade with the greatest magnitude of noise change:

- In the forecast year, 1,335 households would experience an increase in daytime noise, whilst 426 households would experience a decrease in daytime noise based on the TAG noise level bandings
- In the forecast year, 237 households would experience an increase in night-time noise, whilst 308 households would experience a decrease in night-time noise based on the TAG noise level bandings
- The overall appraisal indicates that the operation of the scheme is likely to generate a beneficial noise impact and that the 'net present value of change in noise' is calculated to be **£478,300 (2010 PV).**
- The impact pathways described earlier in this section have been assessed, and the scheme is likely to generate a beneficial effect for two pathways, sleep disturbance and AMI. The effects on amenity, stroke and dementia are predicted to be adverse.

3.7.63. The following net present values have been calculated:

- Sleep disturbance: £654,300
- Amenity: -£252,378
- AMI: £224,631
- Stroke: -£58,835
- Dementia: -£89,418.

3.7.64. Paragraph 2.2.7 of TAG Unit A3 states "As well as through the monetisation process described in step three below, night noise impacts should be assessed by determining the number of households where the WHO Interim Night Noise Target of 55 dB L_{night} noise level is exceeded for the last forecast year in the with and without scheme cases". In the without scheme forecast year 852 receptors are predicted to exceed the target value of 55 dB L_{night}. In the with scheme forecast year, 888 receptors are predicted to exceed the target value of 55 dB L_{night}.

3.7.65. The scheme introduces a new road to the north-west of Shrewsbury through some comparatively quiet rural areas. Consequently, significant adverse noise effects occur at receptors close to the scheme carriageways.

3.7.66. The scheme will reduce noise levels on some existing roads, as vehicles are rerouted to the NWRR. Consequently, significant beneficial noise effects occur at receptors close to those existing roads, these are at dwelling receptors on the A458 (The Mount and south of the Frankwell roundabout); the B4386 Copthorne Road; and A528 Ellesmere Road.

3.7.67. The scheme has an overall net benefit with a positive net present value of change in noise.

3.7.68. The scheme also includes a shared 3m wide footway / cycleway along the length of its southern side. Noise impacts from this additional walking and cycling infrastructure were quantified using the AMAT, which captures noise impacts from a reduction in car kilometres as a result of modal shift to active modes. The overall impact of the active mode measures is valued at **£33 (2010 PV)**.

3.7.69. Table 3-24 shows the noise impacts of the scheme. The detailed TAG Worksheet for noise is included in Appendix M.

Table 3-24 – Noise impacts

	£'000s, 2010 PV over Appraisal Period
Noise impact (Model)	478
Noise impact (AMAT)	Negligible
Overall impact	**478**

Greenhouse Gases

3.7.70. The assessment of Greenhouse Gases (GHG), hereafter referred to as carbon, has considered carbon emissions over the whole lifecycle of the scheme. This includes user carbon (emissions associated with scheme users, such as changes in emissions due to network alterations or modal-shift), capital carbon (emissions associated with scheme construction) and operational carbon (emissions associated with scheme operation and maintenance). The approach to the quantification and monetisation of carbon is in line with the May 2024 TAG Unit A3.

3.7.71. The impact of the scheme on carbon is dependent on changes in traffic flows, fleet composition, speeds and distance travelled. Any increase in the traffic (and subsequent increases in fuel consumption) from the scheme will result in a net increase in carbon emissions.

3.7.72. Whole-life carbon impacts have been calculated using outputs from the Emissions Factor Toolkit (EFT) in accordance with DfT guidance on EFT issued in January 2024. The workings and results have been collated within WSP's Carbon Zero Appraisal Framework and a Carbon Zero Summary Report has also been produced.

3.7.73. The impact from modal shift to active modes as a result of the shared footway/ cycleway along the southern side of the NWRR has also been quantified using AMAT outputs (change in vehicle-km) and TAG Databook values for emission calculations.

3.7.74. For the purposes of the FBC, the DfT Greenhouse Gases Workbook was used to assess carbon impacts over the 60-year appraisal period, plus the 2-year construction period, in line with latest TAG Unit A3 expectations. This calculates and evaluates the changes in tonnes of carbon emissions for non-traded (e.g. petrol, diesel and fuel oil) and traded (e.g. electricity) fuel consumption. As defined by the Intergovernmental Panel on Climate Change, GHG emissions are expressed as tonnes of carbon dioxide equivalent (tCO2e), which were used for the purposes of this appraisal.

3.7.75. Table 3-25 shows the net carbon emissions over the 60+2-year appraisal period.

Table 3-25 – Carbon emissions over appraisal period

Emissions Class	Whole Life Carbon (tCO_2e)
Non-traded	91,251
Traded	3,206
Total	**94,457**

3.7.76. The carbon impacts within each statutory carbon budget period have also been reported and are shown in Table 3-26.

Table 3-26 – Change in tCO_2e by carbon budget period

	Carbon Budget 1	Carbon Budget 2	Carbon Budget 3	Carbon Budget 4	Carbon Budget 5	Carbon Budget 6
Non-traded	0	0	0	42,025	3,483	3,777
Traded	0	0	0	50	296	327
Total	**0**	**0**	**0**	**42,075**	**3,780**	**4,104**

3.7.77. The carbon impacts from construction start date (2025) to 2050 have also been reported and are shown in Table 3-27. Approximately 66% of carbon emissions over the 60+2-year appraisal period are expected to occur in this initial 26-year period.

Table 3-27 – Carbon emissions to 2050

Emissions Class	Carbon to 2050 (tCO_2e)
Non-traded	60,821
Traded	1,423
Total	**62,244**

3.7.78. Values from the TAG Data Book v1.23 (May 2024) were used to monetise the change in carbon emissions. Across the 60+2-year appraisal period of the scheme, the change in traded and non-traded carbon emissions would equate to a carbon impact of **-£10,680,977 (2010 PV)**. It should be noted that the central carbon values from the TAG Data Book have been used, with lower and upper values considered as part of sensitivity analysis showing a carbon impact of between **-£5,322,080** and **-£16,046,415 (2010 PV)**.

3.7.79. Table 3-28 shows the scheme impact on carbon.

Table 3-28 – Carbon impacts

	£'000s, 2010 PV over Appraisal Period
Carbon impact	-£10,681

3.7.80. As part of the development of the FBC, a CMP has been produced. This has been prepared to demonstrate alignment with DfT's decarbonisation policies and commitments, and with PAS 2080:2023 Carbon Management in Buildings and Infrastructure. The CMP, which can be found in Appendix R, also includes a more detailed breakdown of carbon impacts of the scheme, and assessment methodology.

3.7.81. The CMP is a live document and details how the scheme will manage and minimise carbon emissions across the whole project life cycle. It is intended that the CMP will be adopted during project implementation, with carbon being reported and tracked across project delivery to provide visibility of the effectiveness of embedded carbon management practices. The Management Dimension includes further details of the CMP and the opportunities for carbon management and mitigation actions.

SOCIAL IMPACTS

3.7.82. The social impacts assessment for the scheme has been undertaken in line with DfT TAG Unit A4-1.

Physical Activity

3.7.83. A shared use path, providing segregation for pedestrians and cyclists, will be delivered as part of the scheme. This will promote the use of active modes, resulting in health benefits to local residents who use the path for some or all of their journey.

3.7.84. The Active Mode Appraisal User Guide (May 2022) sets out the benefits from increased physical activity attributable to active travel. This involves the estimation of reduced risk of premature death resulting from changes to the number of individuals that walk and cycle, as well as the improvement in general health of users that reduces the number of 'sick days' and increase economic activity.

3.7.85. The economic appraisal of physical activity captures the health benefits of any change in the number of people travelling by active modes and the ensuing benefits resulting from modal shift. These benefits are based on additional users linked directly to scheme induced demand estimated in paragraph 3.5.9. Over the 40-year appraisal period, the health benefits for the scheme associated with absenteeism and reduced premature deaths were estimated by the AMAT at approximately **£165,888 (2010 PV)**. The AMAT is provided in Appendix M.

3.7.86. Overall, the physical activity impact has been assessed as **Slight Beneficial**.

Journey Quality

3.7.87. Journey quality refers to the real and perceived improvement in the physical and social environment while travelling. Journey ambience benefits relate to a perception of improved safety and/or environmental conditions that will accrue to new users whilst using new walking and cycling infrastructure.

3.7.88. For vehicles, the scheme is expected have minimal impact of aspects of traveller care. However, those vehicles transferring to the NWRR will experience quicker and smoother journeys, reducing frustration levels. They will also no longer use the local narrow residential roads in the town centre that are not designed to modern standards and often given rise to potential conflicts with the high number of active mode users.

3.7.89. In addition, the segregated path for active modes and the additional infrastructure taking several existing ProW over or under the NWRR further reduces the potential for conflict with other modes.

3.7.90. The road hierarchy is also expected to operate more optimally once the scheme has opened and so, across the town, the road network is expected to operate more efficiently reducing driver frustration levels even for those drivers not using the scheme. As the network efficiency improves, route choice is expected to less impacted by congestion levels and so become more logical for drivers.

3.7.91. The overall journey quality impact on vehicles has been assessed as **Large Beneficial**.

3.7.92. Over the 40-year appraisal period for the scheme, improvements to journey quality were estimated by the AMAT to be approximately **£1,110,532 (2010 PV)** for active mode users. This is driven by inclusion of the shared use path which results in increased segregation between vehicles and active modes and helps to reduce potential conflicts.

3.7.93. The provision of the new shared-use path will provide a clean, well-lit, high quality addition to the local active travel network, where users can enjoy their journey and the environment it passes through far more than many of the existing routes through the town centre, which require heightened awareness to avoid potential conflicts with vehicles or other active mode users.

3.7.94. This new path will also be supported by the additional infrastructure linking to and/or expanding existing ProW, further enhancing the active mode network and route options available.

3.7.95. As traffic transfers to the scheme, it will lead to flow reductions in the town centre which is expected to lead to less conflicts with vehicles. The lower flows will also facilitate the delivery of additional active travel infrastructure within the town, helping to reduce overcrowding and the potential for conflicts between the different active modes.

3.7.96. The overall journey quality impact on active modes has been assessed conservatively as **Slight Beneficial**.

Accidents

3.7.97. To appraise the safety impact of the scheme DfT's COBALT (v2.7 - June 2024) accident appraisal software has been used, in line with TAG. COBALT compares the predicted numbers of accidents with and without the scheme and converts them into monetary values by multiplying the numbers of accidents by their monetised costs. The benefits for each year are discounted to 2010 and summed over the 60-year appraisal period.

3.7.98. Observed STATS19 Personal Injury Accident data was extracted from the Government website for 2016, 2017, 2018, 2019 and 2022 (the latest five years available, excluding the COVID-19 pandemic affected years of 2020 and 2021) and assigned to the appropriate links or junctions across the SATURN traffic model network.

3.7.99. Any accidents included in STATS19 database during one of the five year assessment years that occurred at locations not represented within the SATURN model network, were omitted from the assessment.

3.7.100. The final COBALT assessment network included only roads where the SATURN traffic model predicted a significant change in flow (taken to be a change in flow of 10% or more). Local accident data was utilised, where available, and default accident rates (national average) provided in TAG Data Book v1.23 (May 2024) were used.

3.7.101. The safety benefits of the scheme were calculated by comparing the cost of accidents over the 60-year appraisal period between the 'with scheme' and 'without scheme' scenarios. The results of this are presented in Table 3-29.

Table 3-29 – Accident impacts

	Number of Accidents	£'000s, 2010 PV over Appraisal Period
Accident impact without scheme	35,613	1,614,440
Accident impact with scheme	35,357	1,609,735
Accident benefit of the scheme	**256**	**4,705**

3.7.102. Additionally, the AMAT has been used to quantify the safety impacts associated with modal shift away from cars and taxis to walking and cycling as a result of additional walking and cycling infrastructure the scheme provides. This quantification is based on a reduction in distance travelled by motorised transport and the impact on accidents from this lower car usage and it is not considered to double count those estimated in COBALT, as the SATURN model does not account for modal shift to active modes and the wider impacts of this shift.

3.7.103. In line with TAG, the appraisal utilising the AMAT was undertaken over a 40-year appraisal period, and it forecast to be a small net accident benefit of **£611 (2010 PV)**.

3.8 INITIAL BENEFIT COST RATIO

3.8.1. The initial Benefit-Cost Ratio (BCR) is calculated by dividing the Present Value of Benefits (PVB) by the Present Value of Costs (PVC). In line with TAG. Value for Money categories are as follows:

- Very Poor - if BCR is less than or equal to 0
- Poor VfM - if BCR is below 1.0

- Low VfM - if the BCR is between 1.0 and 1.5
- Medium VfM - if the BCR is between 1.5 and 2
- High VfM - if the BCR is between 2.0 and 4.0
- Very High VfM - if the BCR is greater than or equal to 4.0

3.8.2. The initial BCR has been calculated based on the Level 1 Established Monetised Impacts. This includes the impacts in terms of journey times, VOCs, indirect tax, noise, air quality, greenhouse gases, physical activity, journey quality and accidents and the capital expenditure and whole life maintenance and renewal costs of the scheme.

3.8.3. Table 3-30 provides the Analysis of Monetised Costs and Benefits table. It shows that the initial BCR of the scheme is **2.81** which represents **High** Value for Money.

Table 3-30 – Analysis of Monetised Costs and Benefits

	£'000s, 2010 PV over Appraisal Period
Local Air quality	72
Noise	478
Greenhouse gases	-10,681
Journey quality	1,111
Physical activity	166
Accidents	4,705
Economic efficiency: Consumer users (commuting)	56,844
Economic efficiency: Consumer users (other)	91,865
Economic efficiency: Business users and providers	65,912
Wider public finances (Indirect taxation revenues)	-1,356
Present Value of Benefits (PVB)	**209,116**
Investment costs	67,593
Maintenance and renewal costs	6,954
Present Value of Costs (PVC)	**74,547**
Net Present Value (NPV)	**134,569**
Initial BCR	**2.81**

3.9 LEVEL 2 IMPACTS – EVOLVING MONETISED IMPACTS

INTRODUCTION

3.9.1. This chapter focuses on the following elements, which address the evolving impacts of the scheme:

- Wider economic impacts; using WSP's Wider Impacts Transport Appraisal (WITA) tool
- Reliability assessment; using urban roads assessment

WIDER ECONOMIC IMPACTS

Methodology

3.9.2. Transport investments such as the NWRR are likely to affect the wider economy beyond the direct transport impacts, affecting economic performance.

3.9.3. TAG Unit A2-4 highlights that productivity impacts are most likely to occur when schemes are located within or neighbouring a Functional Urban Region (FUR) as these regions contain a high density of economic activity that could benefit from improved connectivity and clustering.

3.9.4. As the NWRR lies in the hinterland, and so is a neighbour, of the FUR that encompasses Shrewsbury town centre and the three neighbouring Middle layer Super Output Areas (MSOA) to its north and west, the scheme is expected to enable the businesses to cluster more closely together, allowing them to better connect with each other, increasing interaction and knowledge sharing levels. This in turn is expected to boost productivity levels, which is key as Shropshire currently lags behind the regional and national productivity levels.

3.9.5. The methodology used to calculate these 'wider benefits' is set out in TAG Unit A2.1 to A2.4. The following components have been appraised:

- **Agglomeration** - the concentration of economic activity in an area can be improved by transport schemes as accessibility between businesses and workers is improved by reduced journey times, thus generating productivity benefits from the 'closer' proximity of economic activity
- **Changes to tax revenues arising from labour market impacts** - the labour supply (workers) can move to more productive jobs as locations further afield become more accessible because of a more efficient road network, or because businesses choose to locate in more productive locations. The changes in tax revenues associated with these impacts are not captured within commuter user benefits
- **Output change in imperfectly competitive markets** – a reduction in transport costs (for business and freight) allows businesses to profitably increase their output (goods and services) that require the use of transport in their production

3.9.6. To assess the wider economic impacts for the scheme, WSP's Wider Impacts Transport Appraisal (WITA) tool has been used. The WSP tool uses the same methodology as the WITA 2.2 tool, to assess the impacts described above[35]. The economic appraisal was undertaken over a 60-year period from 2027 (opening year). The WITA calculations used the TAG Data Book v1.23 (May 2024) and Version 4 of DfT's Wider Impacts dataset (May 2024), which were the latest available datasets at the time.

[35] The WSP WITA tool has been used on a number of successful MRN / LLM schemes and considered acceptable during the DfT scrutiny process.

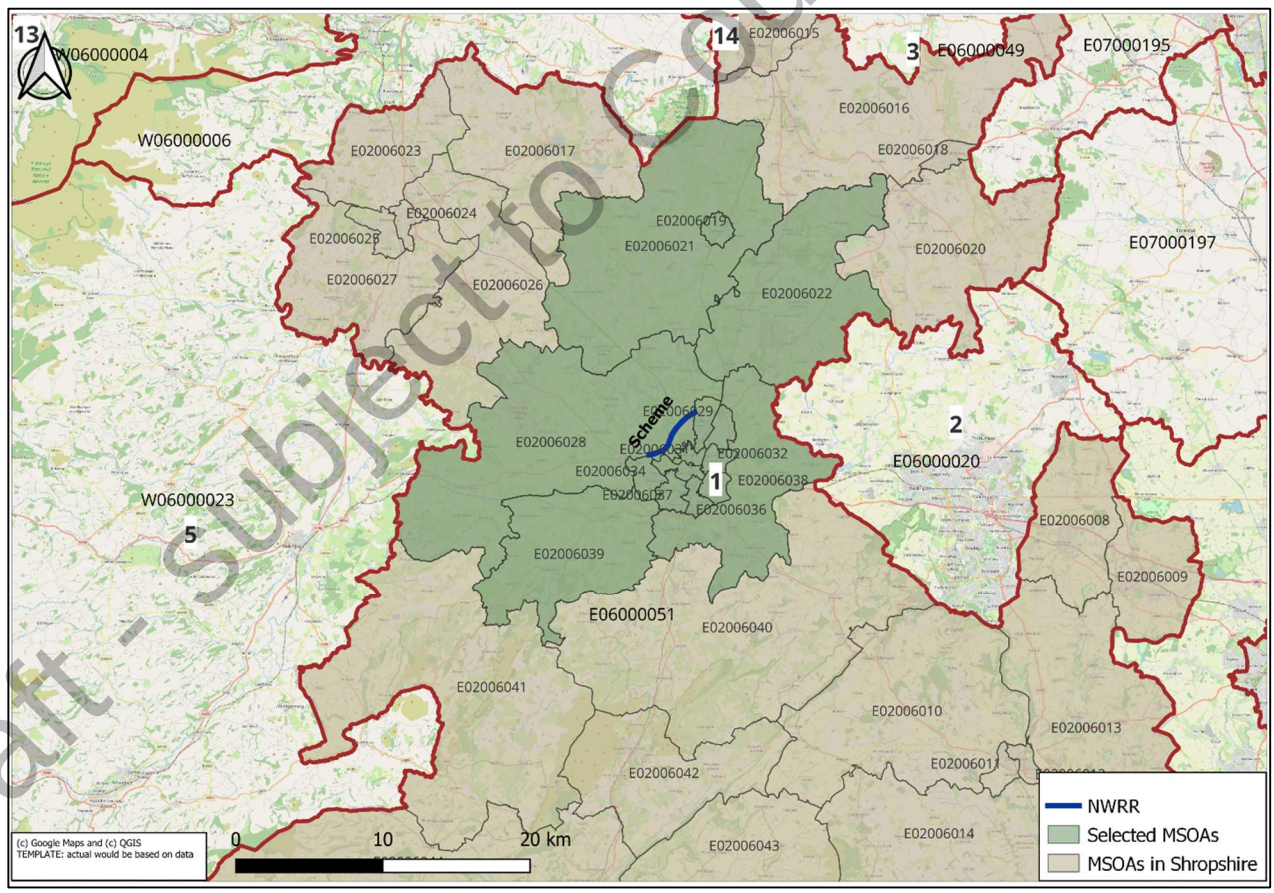
3.9.7. To ensure that the wider impacts are not exaggerated, trips from and to the external transport model / WITA zones have been excluded. The remaining trips were analysed at Local Authority District (LAD) level, and movements to, from or between LADs that are not expected to be affected by the scheme were also excluded from the agglomeration benefit calculation, using a population proportion approach. Additionally, agglomeration impacts have also been adjusted for other modes of transport in line with TAG Unit A2.4.

Appraisal Results

Agglomeration Impacts

3.9.8. The Shropshire (E0600051) LAD covers the scheme area and is the largest within the modelled area of the scheme, with a total population of 323,547. Following a review of the initial agglomeration assessment, certain MSOAs within the Shropshire LAD that are not expected to not be directly impacted by the scheme have been excluded from the agglomeration calculations. The remaining MSOAs selected for inclusion in the agglomeration assessment are shown in dark green in Figure 3-6 and accounted for a population of 122,969, or 38% of the total Shropshire LAD population. Therefore, only 38% of the total agglomeration benefit experienced by the Shropshire LAD is considered to be attributable to the scheme.

Figure 3-6 – MSOAs selected for agglomeration benefits within the Shropshire LAD



3.9.9. In addition, TAG Unit A2.4 guidance recommends including transport model data for two modes (private and public transport), segmented by both business and commuting. As the traffic model is a purely car-based model, the wider impacts analysis does not include walking, cycling and public

transport. Without these other modes, it is likely that the agglomeration benefits will be exaggerated slightly. Therefore, an allowance within the average cost calculations has been made to account for their impact, with adjustment factors being applied for each LAD considered in WITA, based on the proportion of car driver trips compared to the total number of trips obtained for the year 2024 from the TEMPRO 8.1 database.

3.9.10. Table 3-31 presents the agglomeration impacts across the manufacturing, construction, consumer services and producer services.

Table 3-31 – Agglomeration impacts

	£'000s, 2010 PV over Appraisal Period
Manufacturing	5,076
Construction	2,989
Consumer Services	9,676
Producer Services	37,752
Total	**55,493**

3.9.11. The agglomeration impacts are **£55.493m (2010 PV)** representing approximately 26% of the scheme Transport Economic Efficiency (TEE) impacts, which is considered proportional to the size of the project and location of the scheme.

Labour Supply Impacts

3.9.12. Taxes arising from labour supply impacts have been calculated for all forecast years. Table 3-32 presents the labour supply impacts for the scheme.

Table 3-32 – Labour supply impacts

	£'000s 2010 PV over Appraisal Period
Labour supply impacts	1,465

3.9.13. The total benefits arising due to labour supply impacts over the appraisal period are approximately **£1.465m (2010 PV)**. These impacts are considered to be very minor as the analysis only considers the increased tax revenues associated with changes in the labour supply to be additional at UK level. Calculations for this element are based on the link between the cost of commuting and the increase in labour supply.

Output Change in Imperfectly Competitive Markets

3.9.14. Table 3-33 presents the impacts of the output change in imperfectly competitive markets.

Table 3-33 – Output change in imperfectly competitive markets

	£'000s, 2010 PV over Appraisal Period
Output change in imperfectly competitive markets	6,659

3.9.15. The total additional benefits arising due to output change in imperfectly competitive markets are approximately **£6.659m (2010 PV)**, assuming that benefits are incurred across all time periods. This suggests that business users benefit most from the improved accessibility and connectivity within the Shrewsbury area and the subsequent reduction in congestion brought about by the scheme.

Summary

3.9.16. The overall wider economic impact of the scheme is presented in Table 3-34.

Table 3-34 – Overall wider economic impact

	£'000s, 2010 PV over Appraisal Period
Agglomeration impacts	55,493
Labour supply impacts	1,465
Output change in imperfectly competitive markets	6,659
Overall wider impact	**63,616**

3.9.17. The WITA analysis shows that the scheme is expected to deliver approximately **£63.616m (2010 PV)** of wider economic impacts. The highest contribution comes from agglomeration impacts. This suggests that business users are the main beneficiaries from the enhanced connectivity and consequent congestion reductions brought about by the scheme.

3.9.18. The impacts are positive for all categories, which suggests that the scheme has a positive outcome on non-transport markets, contributing to an increase in productivity and Government income.

RELIABILITY IMPACTS

3.9.19. Journey time reliability refers to the day-to-day variation in journey times that individual travellers are unable to predict (also known as journey time variability). Such variation could come from recurring congestion at the same period each day (where the level of delay changes day on day) or from non-recurring events, such as incidents. It excludes predictable variation relating to varying levels of demand by time of day, day of week, and seasonal effects which travellers are assumed to be aware of.

3.9.20. Journey time reliability impacts all users, and impacts travel efficiency, for example, causing problems with delivery schedules or leading to travellers including more contingency time in their journeys to account for potential impacts.

3.9.21. As highlighted in the previous section, the scheme lies in the hinterland of the FUR that encompasses Shrewsbury town centre and the three neighbouring MSOAs to its north and west. Given the range of route choice on the road network in the area, an urban roads reliability assessment has been undertaken, in line with the process and guidance set out in TAG Unit A1-3, Section 6.3.

3.9.22. The process uses outputs from the SATURN model to estimate the reliability impact for urban roads as a result of transport schemes. This provides an estimate of the change in the level of journey time variability depending on the change in average journey time for each origin/destination pair due to a scheme and the demand and distance between each pair.

Reliability benefit $= -\sum \Delta\sigma_{ij} \left(\frac{T_{ij2}+T_{ij1}}{2}\right) \times 0.4 \times VOT$

Where: $\Delta = 0.0018\left(\left(t_{ij2}\right)^{2.02} - \left(t_{ij1}\right)^{2.02}\right) d_{ij}{}^{-1.41}$

VOT = value of time (£/sec)

t_{ij1} and t_{ij2} = the journey times, before and after the change, from i to j (seconds)

d_{ij} = the journey distance from i to j (km)

3.9.23. No benefits are counted for journeys of less than 1km distance and no masking has been applied in the assessment.

3.9.24. Over the 60-year appraisal period the reliability impacts are estimated to be **£16.361m (2010 PV)**.

3.9.25. The details of the reliability calculations, assumptions and resultant outputs are provided within Appendix E.

3.10 ADJUSTED BENEFIT COST RATIO

3.10.1. The Adjusted BCR includes all monetised benefits associated with journey time and vehicle operating costs, active modes, accident, greenhouse gas, noise, air quality and indirect taxation impacts including benefits accruing from wider impacts and reliability. The calculation of the Adjusted BCR is set out in Table 3-35.

Table 3-35 – Adjusted BCR calculation

	£'000s, 2010 PV over Appraisal Period
Initial PVB	**209,116**
Wider economic impacts	63,616
Reliability impacts	16,361
Adjusted PVB	**289,094**
PVC	**74,547**
Adjusted NPV	**214,547**
Adjusted BCR	**3.88**

3.10.2. The standard DfT appraisal output tables are included in Appendix N.

3.11 LEVEL 3 IMPACTS - NON-MONETISED IMPACTS

ENVIRONMENTAL APPRAISAL

3.11.1. An Environmental Impact Appraisal in line with TAG Unit A3 has been undertaken as part of the economic appraisal of the scheme. The following qualitative or non-monetised impacts were appraised:

- Landscape

- Historic Environment
- Biodiversity
- Water Environment

3.11.2. In line with the DfT Value for Money Framework (and the appraisal methodology specified in Figure 3-1), the following environmental impacts were appraised qualitatively using the 7-point scoring system set out below:

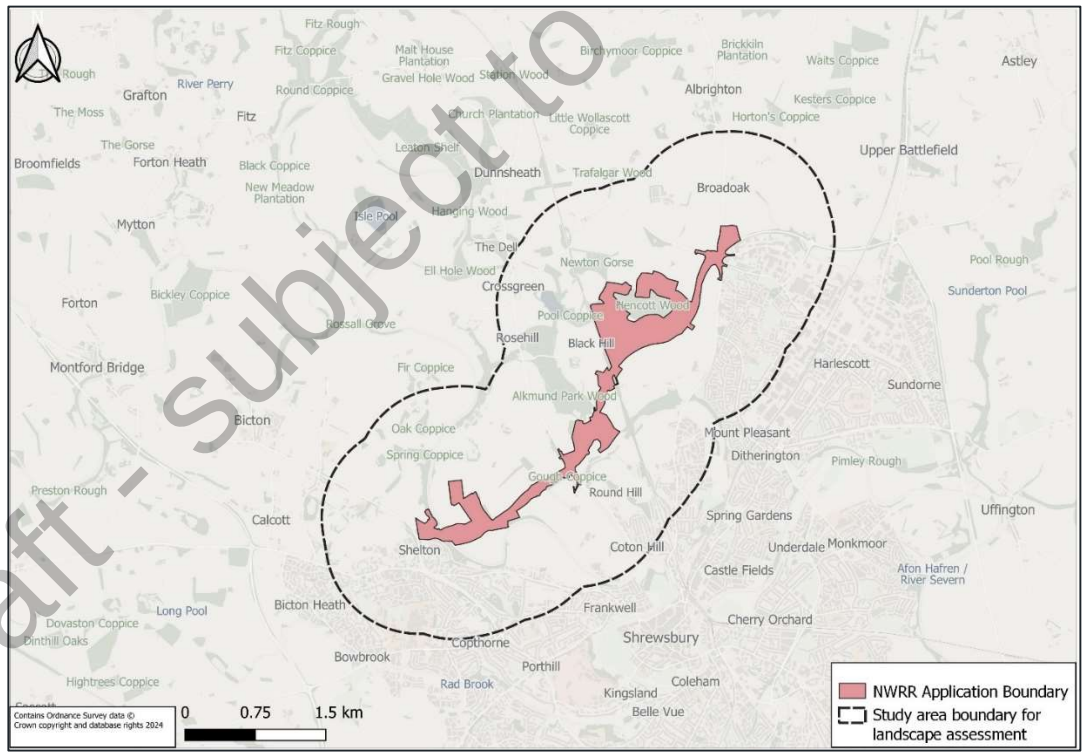
- Large beneficial
- Moderate beneficial
- Slight beneficial
- Neutral
- Slight adverse
- Moderate adverse
- Large adverse

Landscape

3.11.3. The potential impacts of the NWRR on the landscape and character of the study area have been assessed in accordance with TAG Guidance (Unit A3.6 Impacts on Landscape, DfT, May 2024).

3.11.4. The TAG comprises a desk-based qualitative assessment of the impacts of the scheme upon the landscape as a resource and on people's views and their visual amenity. The study area is shown in Figure 3-7.

Figure 3-7 – Landscape study area



3.11.5. The assessment of landscape and visual effects has established that essential mitigation measures are required. This includes replacement and screen planting along the scheme where there would be views of the new road and in order to best integrate it with local landscape character.

3.11.6. There are some significant residual visual effects due to the visual receptor's proximity to the NWRR, where proposed mitigation would partially screen a portion of the scheme.

3.11.7. The landscape is typical of the wider area, demonstrating landscape features that are common throughout Shropshire and which within the medium to long term are relatively easily replaced. There would be some loss of existing landscape features and disruption to landscape pattern and land cover. Visually the scheme corridor would be relatively well contained and localised due to the tree cover along field boundaries and rolling topography, which limits long distance views. The crossing of the River Severn is likely to be a highly conspicuous element of the scheme.

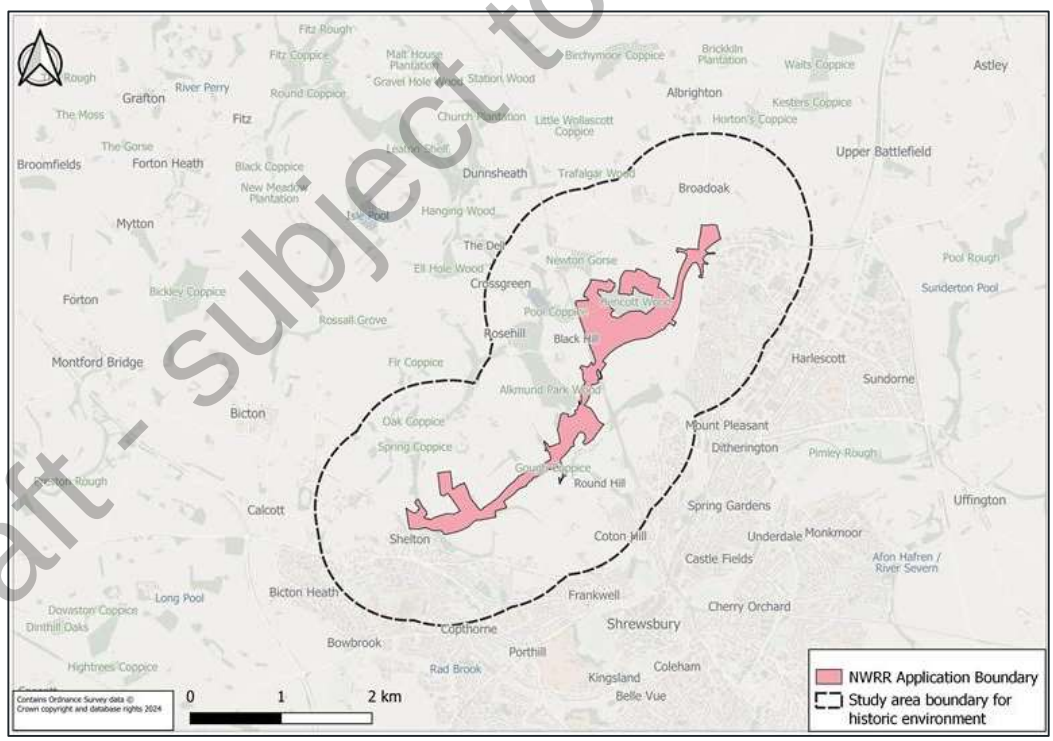
3.11.8. The overall character of the landscape will be noticeably and permanently impacted by the scheme. Locally there would be significant change within the landscape, resulting in a **Moderate Adverse** impact. The TAG Environmental Impacts Worksheet for landscape is provided in Appendix M.

Historic Environment

3.11.9. The potential impacts of the scheme on the Historic Environment of the study area have been assessed in accordance with TAG Guidance (Unit A3.8 Impacts on Historic Environment, DfT, May 2024). The TAG comprises a desk-based qualitative assessment of the impacts of the scheme upon the Historic Environment as a resource.

3.11.10. The spatial scope of the TAG assessment includes the site (NWRR) Application Boundary for physical and setting impacts on designated and non-designated heritage assets, and a 1km buffer zone for setting impacts to designated and non-designated above ground assets. This is shown in Figure 3-8.

Figure 3-8 – Historic environment study area



3.11.11. Desk-based study and detailed assessments, including an Environmental Statement, have been undertaken. In addition, a programme of non-intrusive and intrusive evaluation surveys have also

been undertaken to ascertain the nature and extent of buried heritage assets across the entire scheme. Consequently, the location of remaining in-situ archaeology is precisely understood and further mitigation measures to preserve through record prior to the commencement of construction have been set out in an LPA approved Written Scope of Investigation (WSI) (WSP 2022; 2023).

3.11.12. The scheme may have potential physical impacts on non-designated buried heritage assets, such as Iron Age/ Romano-British structural/masonry remains, if present, as a consequence of construction. These assets will be preserved through record following the implementation of further mitigation measures detailed in the WSI produced by WSP in 2023.

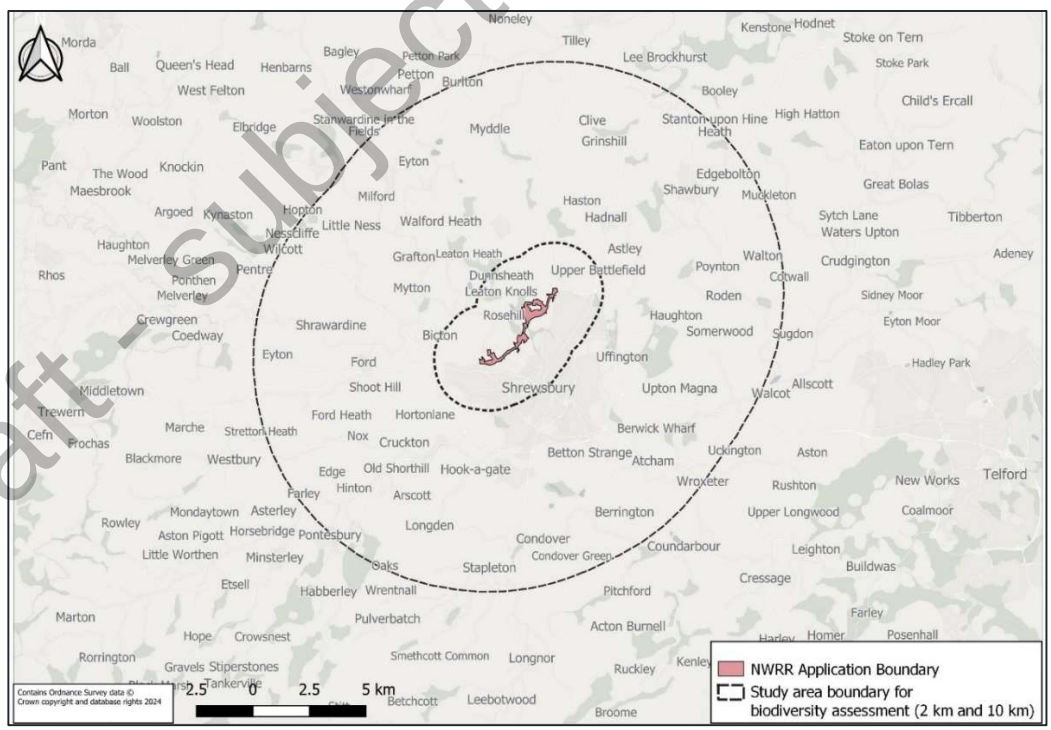
3.11.13. One designated heritage asset, Berwick Park Grade II Registered Park and Gardens (NHLE 1001706) is partially located within the Application Boundary; however, the scheme will not impact the area. Consequently, impacts to all identified designated and non-designated above ground heritage assets would be to their setting only.

3.11.14. The overall assessment score is **Slight Adverse.** The TAG Environmental Impacts Worksheet for historic environment is provided in Appendix M.

Biodiversity

3.11.15. The methodology set out in TAG Unit A3 was employed to provide an appraisal of biodiversity impacts from the scheme. The results of the appraisal are reported in the TAG Biodiversity Worksheet, provided in Appendix M. An ecological desktop study was completed for the appraisal that adopted prevailing best practice such as that published by the Chartered Institute for Ecology and Environmental Management. The overall effect on biodiversity considered likely from the scheme was based on the standard seven-point scale of magnitude (slight, moderate or large beneficial or adverse, plus neutral), drawing on evidence and analysis from the qualitative assessment.

Figure 3-9 – Biodiversity study area



3.11.16. The scope of the biodiversity appraisal includes the following:

- All European Sites within 10km or any distance where there are hydrological linkages between the scheme and a European site
- SSSIs, National Nature Reserves, Local Nature Reserves within 2km
- Non-statutory designated sites (Local Wildlife Sites) within 2km
- Protected Species within 2km

3.11.17. The following features were identified from the assessment:

- Midland Meres and Mosses Phase 2 Ramsar (Hencott Pool) situated 0.21km north of the scheme at the nearest point and 0.1km from the Application Boundary
- Two nationally designated sites:
  - Hencott Pool SSSI, situated 0.21km north of the scheme and 0.1km from the Application Boundary,
  - Old River Bed, Shrewsbury SSSI, located 0.85km south-east of the Application Boundary
- Seven ancient woodland sites were identified within 2km of the Application Boundary
- Four Local Wildlife Sites (LWS) are situated within 2km of the Application Boundary
- Broadleaved semi-natural woodland, mixed semi-natural woodland, running water and hedgerows were scoped in as Habitats of Principle Importance
- Foraging and roosting bats, breeding birds, Great Crested Newts (GCN), otters, badgers and other priority species were also scoped in

3.11.18. The scheme would have a moderate adverse effect on Shelton Rough LWS owing to land-take in the construction/operational phase and may adversely affect the integrity of the key environmental resource, along with indirect impacts from an additional contribution of nitrogen deposition and ammonia caused by the scheme.

3.11.19. Thirteen other features that have been assigned slight adverse effects have specific mitigation measures scoped into the design stage which are detailed in Environmental Statement (ES) Feb 21 Chapter 8: Biodiversity, Supplementary Environmental Statement Addendum Aug 21 Chapter 8: Biodiversity and associated appendices.

3.11.20. An overall assessment score of **Moderate Adverse** has been assigned which has applied professional judgement and accounts for the cumulative effect of moderate adverse effects upon one feature, slight adverse effects upon 13 features, neutral affects upon six features and slight beneficial affects upon two features. In Section 5.3 of the TAG Unit A3 Environmental Impact Appraisal Guidance it states that “a scheme as a whole should be assessed according to the most adverse assessment of the key environmental resources affected.”

3.11.21. The scheme does not negatively effect, directly or indirectly, any Natura 2000 sites or SSSIs. The scheme has a slight beneficial indirect impact on the Old River Bed SSSI site as it will divert traffic to other roads and thereby reducing associated vehicular emissions in proximity to the SSSI. No direct or indirect impact is expected on the Hencott Pool SSSI site.

3.11.22. The scheme will indirectly impact Alkmund Park Wood, Woodcote Coppice and Horton Lane Coppice Ancient woodland sites owing to the additional contribution of nitrogen deposition and ammonia caused by the scheme resulting in an overall impact of slight adverse. No direct or indirect impacts are expected on the remaining Ancient woodland sites owing to their distance from the scheme.

3.11.23. The scheme will have a 'Moderate adverse' impact on the Shelton Rough LWS as the scheme will directly impact the LWS owing to land-take in the construction/operational phase and may adversely affect the integrity of the key environmental resource. Shelton Rough LWS is also indirectly effected by contribution of nitrogen and ammonia deposition caused by the scheme. Old River Bed LWS has been assigned a 'Slight beneficial' impact owing to traffic transferring to the scheme from existing roads close to the Old River Bed LWS, thereby reducing associated vehicular emissions in proximity to the LWS. Oxon Pool and River Severn (Montford Shrewsbury) LWS will be indirectly impacted by the scheme owing to the additional contribution of nitrogen and ammonia deposition caused by the scheme resulting in an overall impact of 'Slight adverse'.

3.11.24. Direct and indirect impacts to bats, otters, badger, breeding birds, GCN, Priority species, important hedgerows and HPIs from the scheme owing to the removal of woodland, individual trees, shrubs and hedgerows, alongside construction noise, vibration and lighting have the potential to disturb bats, as part of the proposed work, has been assigned an overall 'Slight adverse' score. The overall score has been assigned taking into account the proposed and costed mitigation works to be implemented to ensure moderate to severe adverse effects on features are highly likely to be avoided.

Water Environment

3.11.25. Both potential impacts and actual effects due to the NWRR on the Water Environment have been assessed in accordance with TAG Guidance (Unit A3.10 Impacts on the Water Environment, DfT, May 2024).

3.11.26. The TAG comprises a desk-based qualitative assessment of the impacts of the scheme upon various features of the water environment. This draws on the preceding Environmental Statements and Supplementary Environmental Reporting which covers the scheme.

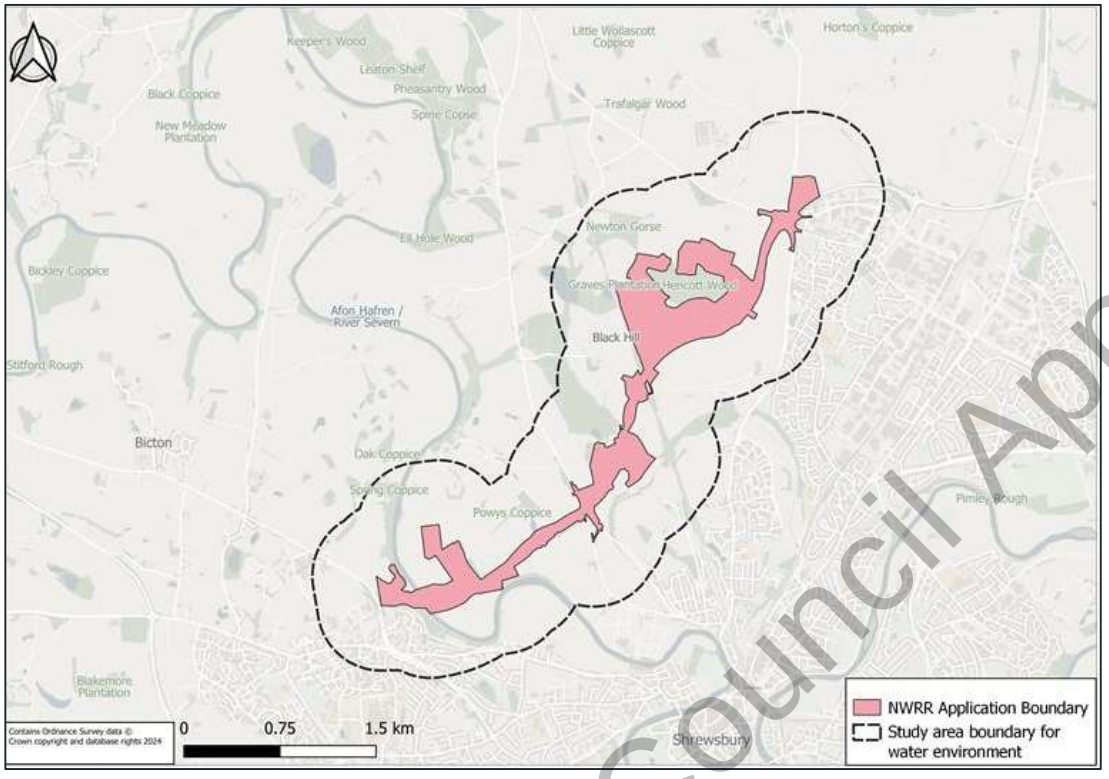
3.11.27. The assessment focused on surface water and groundwater features located within approximately 500m of the Application Boundary for the NWRR and/or the features that are hydraulically connected. These included, River Severn, Alkmund Park Stream, Bagley Brook West, Battlefield Brook, Hencott Stream, associated floodplains, and groundwaters.

3.11.28. The groundwaters include:

- Shropshire Middle Severn – Permo-Triassic Sandstone (a Primary/Major bedrock aquifer underling the entire alignment of the NWRR with WFD water body ref, GB40901G300100)
- Overlying drift (secondary) aquifer present along much of the alignment of the NWRR

3.11.29. The study area (as shown in Figure 3-10) includes the scheme boundary, as well as a 500m buffer zone and includes all surface water and groundwater features included within this boundary, as well as any notable hydraulically connected features.

Figure 3-10 – Water environment study area



3.11.30. The most significant outcomes are mediated via the Permo Triassic Sandstone (a major aquifer) and relate to potential:

- Construction related pollution of the major aquifer;
- Operationally related pollution of the major aquifer from an extreme accident; and
- Related pollution of groundwater sourced public water supply operations abstracted from the same major aquifer.

3.11.31. All the above give rise to significant outcomes (moderate adverse) though this assessment is influenced by the low (or very low) risk likelihood of such pollution event/s occurring.

3.11.32. Further mitigation is afforded to the above issues giving rise to significant outcomes via the ongoing formulation and planned discharge of Conditions as indicated and this aims to reduce respective outcomes to low significance .

3.11.33. The scheme has potential permanent impacts that may affect the hydromorphological quality of water features associated with works within or in close proximity to water features such as:

- Installation of culverts and bridges
- Increased pollution risk to surface water features
- Increased flood risk associated with impact to flow conveyance and floodplain conveyance/storage

3.11.34. The overall assessment shows that the anticipated effect on the water environment is **Moderate Adverse**. The TAG Environmental Impacts Worksheet for water environment is provided in Appendix M.

Summary

3.11.35. Table 3-36 summarises the environmental appraisal of the scheme, including the transport scheme and dependent development impacts.

Table 3-36 – Environmental appraisal summary

Environmental Impact	Assessment
Landscape	Moderate Adverse
Historic environment	Slight Adverse
Biodiversity	Moderate Adverse
Water environment	Moderate Adverse

SOCIAL APPRAISAL

3.11.36. Social impacts consider the overall impact of a scheme on different indicators outlined in TAG Unit A4-1. They cover the human experience of transport and its impact on social factors that are not considered as part of the economic and environmental impacts. The assessment is a constituent part of the AST. Both beneficial and/or adverse effects of the scheme are considered in the social impact appraisal.

3.11.37. The distributional impact (DI) appraisal in Section 3.12 follows the approach set out in TAG Unit A4-2 and considers the variance of overall impacts on different social groups. The indicators considered for social and distributional impacts arising from the scheme are shown in Table 3-37.

3.11.38. Specific social indicators for which there are established techniques to quantify and monetise the impacts e.g. accidents, physical activity, and journey quality impacts, are included within Section 3.7. For the remainder of social indicators outlined in Table 3-37, a proportionate approach has been undertaken to consider the impacts qualitatively.

Table 3-37 – Indicators considered for social and distributional impacts

Indicator	Social Impact	Distributional Impact
User benefits		✓
Personal affordability		✓
Noise		✓
Air quality		✓
Accidents	✓	✓
Severance	✓	✓
Physical activity	✓	
Journey quality	✓	
Security	✓	
Accessibility	✓	
Option values and non-use values	✓	

Severance

3.11.39. Community severance is defined in TAG Unit 4-1 as the separation of residents from facilities and services they use within their community because of significant changes in transport infrastructure or by changes in traffic flow.

3.11.40. Together with the A5 and A49 bypasses, the A5124 Battlefield Link Road and the planned OLR, the NWRR will provide the 'missing link', completing the full ring of the outer bypass of Shrewsbury and providing a new, more direct route between the northern and western parts of Shrewsbury. With the outer bypass ring complete, all long distance through journeys will be able to bypass the town centre, reducing flows and congestion levels within the town centre, thereby reducing severance for pedestrians.

3.11.41. In particular, the Theatre Severn and Frankwell Car Park see high volumes of pedestrian flow and are accessed via narrow footpaths, along the narrow roads within Frankwell. The main junctions in this area also have poor visibility for pedestrians crossing. Therefore, as traffic transfers to the scheme and flows decrease, levels of severance experienced in this area will fall significantly.

3.11.42. Also, with the north and west of the town now linked by a shorter more direct route, movement between existing and planned residential and employment areas in the north and west will be much easier, reducing the level of severance.

3.11.43. Based on the severance criteria in TAG A4.1, although there will be a significant fall in severance in parts of the town centre, such as Frankwell, across the remainder of the impact area of the scheme, severance levels will be impacted to a far lesser extent and so the overall severance impact is considered to be **Moderate Beneficial**.

Security

3.11.44. TAG Unit A4-1 identifies six indicators which should be considered as part of the security appraisal, including:

- Site perimeters, entrances and exits
- Formal surveillance
- Informal surveillance
- Landscaping
- Lighting and visibility
- Emergency call

3.11.45. The scheme includes additional planting and landscaping, and street lighting will be provided along its length. However, the overall impact on security of the scheme is expected to be **Neutral**.

Access to Services

3.11.46. By better connecting the north and west of Shrewsbury, the scheme will improve access to services. In particular, accessibility to the Royal Shrewsbury Hospital will be enhanced with the new faster more direct route providing shorter journeys from the north of the town for ambulances, patients and visitors. For those whose fastest route to access the hospital will continue to be via the town centre, journey times will become faster and more reliable due to reduced congestion levels as traffic transfers to the scheme.

3.11.47. The reduced congestion within the town centre will also reduce journey times for those wishing to access the many services and facilities located within the town centre, including the Theatre Severn.

3.11.48. The scheme will also enhance the active travel network, thereby improving accessibility by active travel. Overall, the impact has been qualitatively assessed as **Slight Beneficial**.

Option and Non-Use Values

3.11.49. TAG Unit 4-1 requires that option and non-use values be assessed if the scheme being appraised includes measures that substantially change the availability of transport services within the study area. As the scheme includes no changes to any public transport routes or services provided in the area, and no specific changes are currently being proposed to transport services after scheme opening, this impact has been assessed as **Neutral**.

Summary

3.11.50. Table 3-38 summarises the social appraisal of the scheme.

Table 3-38 – Social appraisal summary

Social Impact	Assessment
Severance	Moderate beneficial
Security	Neutral
Accessibility	Slight beneficial
Option and non-use values	Neutral

3.12 DISTRIBUTIONAL IMPACTS

3.12.1. In accordance with TAG Unit A4-2 Distributional Impact Appraisal, a distributional impact analysis has been undertaken to determine whether the scheme unduly favours or disadvantages particular social groups. The assessment is mandatory in the appraisal process and is a component part of the AST.

3.12.2. The Distributional Impacts (DI) appraisal considers the variance of impact across different social groups, to understand whether vulnerable groups are disproportionately affected.

3.12.3. The DI appraisal follows a three-step approach to identify the likely impacts of the scheme on different social groups. This involves an initial screening process to identify the likely impact of the scheme in relation to the following social, environmental and economic outcomes:

- Transport user benefits
- Noise
- Air quality
- Accidents
- Security
- Severance
- Accessibility
- Personal Affordability

3.12.4. The results of the screening process are summarised in Appendix B of the Social and Distributional Impact Report in Appendix J. The screening exercise identified that six of the eight indicators require further assessment.

3.12.5. Accessibility and security did not proceed to the DI assessment and appraisal stage on the basis that there are no planned changes to public transport waiting or interchange facilities as a result of the scheme.

Appraisal of Impacts

3.12.6. The DI appraisal for the scheme combines the information on the geographic extent of the impact area, the identification of social groups and amenities in the impact area and the magnitude of the effect for each social group under consideration.

3.12.7. The approach for the grading of DIs for each of the identified social groups is outlined in TAG Unit A4-2 and is shown in Table 3-39, showing the thresholds for each of the scores on the seven-point scale (Large, Moderate and Slight Beneficial or Adverse, or Neutral). This is combined with the assessment of the proportion of vulnerable groups within the impact area, to ascertain which groups may be affected disproportionately from scheme implementation.

Table 3-39 – Approach for grading DIs for each of the identified social groups

Impact	Assessment
Beneficial and the population impacted is significantly greater than the proportion of the group in the total population	Large Beneficial ✓✓✓
Beneficial and the population impacted is broadly in line with the proportion of the group in the total population	Moderate Beneficial ✓✓
Beneficial and the population impacted is smaller than the proportion of the group in the total population	Slight Beneficial ✓
There are no significant benefits or disbenefits experienced by the group	Neutral
Adverse and the population impacted is smaller than the proportion of the population of the group in the total population	Slight Adverse ✗
Adverse and the population impacted is broadly in line with the proportion of the population of the group in the total population	Moderate Adverse ✗✗
Adverse and the population impacted is significantly greater than the proportion of the group in the total population	Large Adverse ✗✗✗

3.12.8. A full appraisal of DIs of the scheme is contained in the DI appraisal matrix shown in Table 3-40.

Table 3-40 – Distributional impact appraisal matrix

	Distributional Impact of Income Deprivation					Are the Impacts Distributed Evenly?	Key Impacts - Qualitative Statements
	0-20%	20-40%	40-60%	60-80%	80-100%		
User benefits	✓✓	✓✓	✓	✓	✓✓✓	No	User benefits are distributed unevenly across quintiles. Quintile 5 (least deprived) and Quintile 1 (most deprived) receive the highest shares, at 33% and 26%, respectively, while the other three quintiles receive 11-15% each. Quintile 2, with the smallest population, gets the lowest benefits. Benefits are not proportional to population size—Quintile 4, despite having the largest population, receives the second-lowest benefits, whereas Quintile 5 has the highest benefits but ranks third in population size
Noise	××	×××	×	×	×××	No	Quintile 1, representing 10% of households, has a Moderate Adverse impact as net losses align with its population share (12%). Quintiles 2 (9%) and 5 (31%) face Large Adverse impacts due to disproportionately higher net losses (15% and 42%). Quintiles 3 (18%) and 4 (13%) experience Slight Adverse impacts, with net losses lower than their household shares (32% and 19%)
Air quality	✓✓	✓	✓✓✓	Neutral	✓	No	For PM2.5, Quintile 3 receives the highest benefits in both 2027 and 2042. The 4th quintile transitions from a slight adverse impact to a large adverse impact, while the 1st, 2nd, and 5th quintiles remain neutral For NO2, Quintile 3 again shows significant benefits in both years. However, the 1st quintile shifts from moderate benefit in 2027 to neutral in 2042. The 2nd and 5th quintiles transition from slight benefits to moderate adverse and slight adverse impacts, respectively
Affordability	×	✓✓✓	✓✓	✓	✓✓✓	No	Personal affordability benefits are unevenly distributed. Quintile 5 (least deprived) receives the highest share of benefits (49%), followed by Quintiles 2 (24%), 3 (17%), and 4 (12%). Quintile 1 incurs a slight disbenefit. The distribution is not proportional to population size, with Quintile 2 receiving high benefits despite a small population, and Quintile 4 receiving low benefits despite the largest population. Quintile 5, with the third-largest population, receives the most benefits, while Quintile 1, with the second-largest population, experiences disbenefits
Accessibility	N/A	N/A	N/A	N/A	N/A	N/A	N/A

AST Entry											
Impact	**Social groups**						**User groups**				**Qualitative Statement (Including Any Impact on Residential Population and Identified Amenities)**
	Children & Young People	**Older people**	**Carers**	**Women**	**Disabled**	**Black Minority Ethnic**	**Pedestrians**	**Cyclists**	**Motor-cyclists**	**Young Male Drivers**	
Noise	××	××									Quintile 4 has the highest proportion of children, followed by Quintiles 3 and 5, while Quintile 2 has the lowest. Given the range of impacts from slight to significantly adverse, it can be concluded that the scheme will moderately disadvantage the overall child population
Air quality	✓✓										The majority of children are in the 1st and 2nd quintiles, which experience significant benefits from the scheme. The remaining quintiles have a relatively similar share of the child population. Considering that the average impact across quintiles ranges from slight to significant benefits, it can be concluded that children overall will experience moderate benefits from the scheme
Accidents	✓✓	✓✓					✓	✓✓	✓✓	✓✓	The forecast change in accidents from DM to DS shows a mixed impact on the vulnerable groups. Overall, the new scheme will reduce the number of accidents impacting, consequently reducing the impact of accidents on all the vulnerable groups. The impact on various vulnerable groups ranges from neutral to slight and moderate beneficial impact for all the selected links
Security	N/A	N/A		N/A	N/A	N/A					N/A
Severance	✓✓	✓✓✓	N/A		✓✓						The level of severance experienced by the vulnerable groups in the 4 chosen locations ranges from neutral to moderate and large beneficial. Majorly the change in AADT shows a beneficial impact on the overall impact area which helps in reducing the severance for these groups
Accessibility	N/A	N/A	N/A	N/A	N/A	N/A					N/A

3.12.9. The overall assessment score for each DI is recorded in the AST, along with qualitative statements to understand the full impacts of the scheme on different groups of people.

3.12.10. Further details on the assessment and appraisal stages of the distributional impact assessment for the scheme are provided in the Social and Distributional Impact Report in Appendix J.

3.13 PLACE-BASED ANALYSIS

3.13.1. DfT released TAG Unit A4-3 in November 2022, setting out the need to undertake place-based analysis as part of the appraisal of a scheme. Place-based analysis considers the spatial distribution of a scheme's impacts, whereas DI analysis considers the impacts on different social groups within an area.

3.13.2. Place-based analysis has been undertaken for transport user benefits, the scheme impacts and social and environmental impacts. Table 3-41 summarises the findings of the place-based analysis with the detailed outputs included within the Place-Based Analysis Report in Appendix L.

Table 3-41 – Place-based analysis summary

Impact	Place-Based Analysis Findings
Transport user impacts	▪ The scheme is projected to deliver significant user benefits, totalling £136.3 million (2010 PV), with all LSOAs within the study area experiencing benefits ▪ In general, the level of benefits received decrease further away from the scheme, with the largest benefits being experienced close to either end of the scheme in LSOAs covering Bicton, Shelton, Montford Bridge, Radbrook and Edgebold in the west and Battlefield and northern parts of Harlescott in the north ▪ LSOAs covering Coton Hill, the southern part of Greenfields, the eastern part of Sundorne, and the area around Shrewsbury Station also received high levels of user benefits
Wider economic impacts (WEIs)	▪ The scheme overall is expected to deliver approximately £63.6 million (2010 PV) of wider economic impacts, with the highest contribution coming from agglomeration impacts. This implies that business users are the main beneficiaries from the enhanced connectivity and consequent congestion reductions brought about by the scheme ▪ The sector including the scheme (Zone 1) receives the highest benefit as the scheme enhances the connectivity between the north and west of the town for local trips which will increase the level of interaction of people in Zone 1 by enhancing their productivity levels ▪ An increase in productivity levels, to a lesser extent, is also felt in Zones 3 and 5, immediately to the south-west and north-east of the scheme, as longer distance trips transfer to the scheme and enjoy enhanced connectivity and congestion reductions from the scheme
Accidents	The safety benefits of the scheme were calculated by comparing the cost of accidents over the 60-year appraisal period with and without the scheme in place. The net accident benefit is £4.705m (2010 PV). The greatest benefits are experienced in the vicinity of the scheme and there are also significant accident benefits experienced to the south and east of the scheme. However, to the west of the scheme, there are significant accident disbenefits
Affordability	▪ The overall impact of Vehicle Operating Costs (VOC) on existing users within the study area is estimated at £4.47 million (2010 PV), indicating that the overall impacts will be positive in terms of affordability ▪ The largest benefits are experienced close to either end of the scheme in LSOAs covering Bicton, Montford Bridge, Radbrook and Edgebold in the west and Battlefield and north-west parts of Harlescott in the north as journeys transfer to the shorter and less congested scheme

Impact	Place-Based Analysis Findings
	▪ The disbenefits in the sparsely populated south-western part of the study area, including the settlements of Pulverbatch, Dorrington and Condover, are likely due to longer distance through traffic from this area changing from its existing routes to instead use the longer A49, OLR and NWRR route option which has a faster and more reliable journey time, despite the extra distance
Severance	Severance predominantly concerns those using non-motorised modes of transport, particularly pedestrians. This is measured by AADT. Majorly all the lanes in the Shrewsbury town centre shows a decrease in the traffic due to the introduction of the scheme including Ellesmere Road, A49, A5, A5191/A5112, and A488. B4380 Shelton road, B5062 Sundorne Road, A53, A49 – Shrewsbury Road, A5 Holyhead Road shows an increase in the traffic due to the scheme. The places having negative impact due to the increase in AADT are Montford, Alberbury, Yockleton, Pontesbury, Condover and Dorrington. Amongst the locations chosen for the severance assessment, Harlescott Crossroads, Meole Brace Retail Park shows a moderate beneficial impact, whereas Shrewsbury Bus station reflects large beneficial impact from the decrease in AADT due to the introduction of the scheme.
Noise	Noise impact results show that 8% of households in the study area will experience a decrease in noise from scheme implementation, compared with 55% of households that will experience an increase in noise levels. 38% of households within the study area will experience no change in noise levels
Air quality	The total value of the change in air quality has been monetised at £72,488 (2010, PV) over the 60-year appraisal period. It is expected the scheme will generate additional trips across the modelled network and so its construction will contribute to an overall increase in the total vehicle-km travelled and total NO_2 emissions across the modelled network. Whilst these additional NO_2 emissions mostly occur in rural, less densely populated areas and have a lower overall impact on human health with the scheme in place, the additional NO_2 emissions are likely to contribute towards increased ecological harm. Benefits are observed in terms of concentration of $PM_{2.5}$ as the scheme would reduce the existing congestion of few routes resulting in a **slight beneficial** impact on the study area.
Landscape	The scheme is located within a rural estate farmland that is reflective of the wider landscape type. Gently rolling topography with medium to large irregular fields bounded by established hedgerows and mature oaks. Small, isolated farmsteads are scattered through the landscape. The scheme will introduce a noticeable feature on the irregular pattern landscape. The proposed viaduct over the River Severn would also introduce a strong linear presence into the landscape, locally changing the landscape pattern. However, there is an existing linear presence as a result of the train line within the landscape and whilst the scheme would only affect a small part of a much larger landscape type, it would be significant at the local level. Overall, the character of the landscape will be noticeably and permanently impacted by the scheme and will result in a **Moderate Adverse** impact
Historic environment	There are 6 designated heritage assets, 2 non-designated above ground and a few buried heritage assets within the impact area. Though the scheme is anticipated not to impact the designated heritage sites, tree removal, excavation, tree planning might impact the non-designated assets resulting in a **Slight Adverse** impact.
Biodiversity	The study area has Hencott Pool, Part of Midland Meres & Mosses Phase 2 Ramsar and Old River Bed, Shrewsbury SSSI. This site predominantly consists of lesser pond-sedge Carex acutiformis. Other areas are dominated by common reed Phragmites australis, great reedmace Typha latifolia or water horsetail Equisetum fluviatile. Other species include meadowsweet Filipendula ulmaria, soft rush Juncus effusus and sharp-flowered rush J.

Impact	Place-Based Analysis Findings
	acutiflorus. A total of 61 species of birds and few priority species were recorded within the survey area. Even though the scheme will have indirect impact on Ramsar sites, other aspects of biodiversity can be impacted by a decrease in both nitrogen deposition and ammonia by the scheme. Overall, the scheme will have a **Slight Adverse** impact.
Water environment	Major rivers and water bodies within the impact area of the scheme include the River Severn, Alkmund Park Stream, Bagley Brook West, Battlefield Brook, Hencott Stream, a few lakes and ponds, floodplains and ground water sources. Pollution due to construction and operation might impact the aquifer and ground water. This will have a **Moderate Adverse** impact though there is low (or very low) risk likelihood of such pollution event/s occurring.

3.14 VALUE FOR MONEY STATEMENT

3.14.1. In line with the guidance in the DfT's Value for Money Framework, the overall VfM assessment has been based on the consideration of three levels of impacts and the way in which these should be considered within the appraisal metrics.

3.14.2. The initial BCR has been calculated based on the established monetised impacts. This includes the impacts in terms of journey times, VOCs, indirect tax, noise, air quality, greenhouse gases, physical activity, journey quality and accidents and the capital expenditure and ongoing maintenance and renewal costs of the scheme.

3.14.3. As shown in Table 3-42, based on only the Level 1 impacts, the initial BCR of the scheme is 2.81, indicating that the scheme offers **High** VfM. Taking into consideration the Level 2 impacts, namely wider economic impacts and reliability, the adjusted BCR of the scheme is 3.88, also indicating that the scheme offers **High** VfM. The adjusted Present Value of Benefits (PVB) is £289.1m which consists of:

- Transport user benefits & environmental benefits of approximately £203.1m
- Active mode benefits of £1.3m
- Accident benefit of £4.7m
- Wider economic impacts of £63.6m
- Reliability impacts £16.4m

3.14.4. The PVC is £74.5m which accounts for the capital expenditure and ongoing maintenance and renewal costs of the scheme and includes an optimism bias of 20%, in line with TAG Unit A1.2 for a road scheme at FBC stage.

3.14.5. Therefore, it is anticipated that the scheme will deliver significant quantified and non-quantified benefits, providing VfM for public sector expenditure.

Table 3-42 – Analysis of Monetised Costs and Benefits

	£'000s, 2010 PV over Appraisal Period
Local Air quality	72
Noise	478
Greenhouse gases	-10,681
Journey quality	1,111
Physical activity	166
Accidents	4,705
Economic efficiency: Consumer users (commuting)	56,844
Economic efficiency: Consumer users (other)	91,865
Economic efficiency: Business users and providers	65,912
Wider public finances (Indirect taxation revenues)	-1,356
Present Value of Benefits (PVB)	**209,116**
Investment costs	67,593
Maintenance and renewal costs	6,954
Present Value of Costs (PVC)	**74,547**
Net Present Value (NPV)	**134,569**
Initial BCR	**2.81**
Wider economic impacts	63,616
Reliability impacts	16,361
Adjusted PVB	**289,094**
Adjusted NPV	**214,547**
Adjusted BCR	**3.88**

SPENDING OBJECTIVE ANALYSIS

3.14.6. The aim of the spending objective analysis is to ensure consistency between the Strategic and the Economic Dimensions of the FBC. Table 3-43 sets out the SMART specific spending objectives identified in Section 2.7, the corresponding measurements by which the performance of the scheme has been assessed and a summary of the NWRR benefits, as set out in Table 2-46 of the Strategic Dimension and detailed above within the Economic Dimension.

Table 3-43 – Spending objective analysis

Objective	Measurement	Summary of Benefits Referenced in the Strategic Dimension	Summary of Benefits Over Appraisal Period Referenced in the Economic Dimension
To improve connectivity and accessibility between the north and west of Shrewsbury for all modes	Modelled journey times TAG seven-point scale - access to services	▪ The NWRR is forecast to reduce all journeys times between Churncote and Battlefield Roundabouts by almost 50%, with some journeys being over 75% quicker compared to the existing routes (see Table 2-41 and Table 2-42). These existing routes are also used by buses ▪ The NWRR includes a shared 3m wide footway / cycleway along the length of its southern side, enhancing the existing active travel network and supporting mode shift ▪ The NWRR completes the outer ring road around Shrewsbury, providing better connectivity between outlying market towns and settlements, by reducing journey times between them. By better connecting the north and west of Shrewsbury, the scheme will also improve access to services	▪ Paragraph 3.11.43 indicates that the overall severance impact of the scheme is considered to be moderate beneficial ▪ Paragraph 3.11.48 indicates that the overall accessibility impact of the scheme is considered to be slight beneficial
To reduce traffic congestion across Shrewsbury	Monetised TAG transport user benefits and reliability impacts	▪ The NWRR is forecast to reduce traffic on routes which currently suffer congestion, including the northern and western approaches, as set out in Table 2-28 to Table 2-33. This will improve journey time reliability, with reduced journey times on existing north-west corridor routes and dramatically quicker journeys for users transferring to use the NWRR, as shown in Table 2-41 and Table 2-42	▪ Table 3-9 shows a significant monetised journey time benefit of £204.6m. Table 3-10 and Table 3-11 demonstrate these journey time benefits are experienced across all time periods and by all user classes ▪ Paragraph 3.9.24 indicates that the scheme will generate £16.4m reliability benefits
To improve network efficiency, resilience and journey time reliability	Monetised TAG transport user benefits and reliability impacts	▪ Flows and congestion on north-west corridor routes are predominantly forecast to fall significantly due to the NWRR, as detailed in Table 2-28 to Table 2-39, enabling more optimal and efficient network operation as each road is able to better perform the function for which it was intended. This in turn will improve network capacity ▪ Traffic will experience reduced journey time variability across the day and can utilise shorter, more direct routes as a result of the scheme	▪ Table 3-9 shows a significant monetised journey time benefit of £204.6m. Table 3-10 and Table 3-11 demonstrate these journey time benefits are experienced across all time periods and by all user classes ▪ Paragraph 3.9.24 indicates that the scheme will generate £16.4m reliability benefits

Objective	Measurement	Summary of Benefits Referenced in the Strategic Dimension	Summary of Benefits Over Appraisal Period Referenced in the Economic Dimension
		▪ The NWRR will provide an additional river crossing and will not be prone to flooding, unlike many existing links, adding to overall network resilience and further adding to network capacity	
To reduce rat-running traffic on unsuitable rural roads to the north-west of the town	Modelled flows on key north-west rural roads	▪ The NWRR is forecast to reduce rat running as it will attract the majority of traffic that would otherwise use the rural roads to the north-west of the town, as shown in Table 2-38 and Table 2-39	▪ N/A
To improve facilities for active transport	DfT's AMAT - health benefits associated with absenteeism and reduced premature deaths TAG seven-point scale - access to services	▪ The NWRR includes a shared 3m wide footway / cycleway along the length of its southern side, enhancing the existing active travel network and supporting mode shift ▪ The Active Mode Appraisal forecast the scheme would generate an active mode benefit of £1,281,375 over the 40-year appraisal period	▪ Paragraph 3.7.92 indicates that the AMAT assessment forecasts a monetised journey quality benefit of £1.1m, driven by the shared path providing increased segregation between vehicles and active modes ▪ Paragraph 3.11.48 indicates that the overall accessibility impact of the scheme is considered to be slight beneficial due to the enhancements to the active travel network
To reduce the number of accidents and casualties on roads in Shrewsbury	Monetised TAG accident impact - using DfT's COBALT and AMAT	▪ There will be a reduction in the number of accidents and casualties along the existing north-west corridor links, with the NWRR providing a new shorter, direct link, built to modern standards. This will also help to reduce the number of accidents and casualties within Shrewsbury town centre ▪ Over 60 years, the NWRR is forecast to save an estimated 256.5 personal injury accidents (Table 2-43) and 274.8 casualties (Table 2-44)	▪ Table 3-29 shows the COBALT results that forecast that the scheme will reduce the number of accidents by 256, with a monetised benefit of £4.7m ▪ Paragraph 3.7.103 details the result of the AMAT assessment that forecast a small, monetised accident benefit of £611, due to modal shift ▪ As set out in Section 3.5 of the SDI, the overall score for accidents is assessed to be Moderate Beneficial ▪ Paragraph 4.2.7 of the PBA shows that the greatest accident benefits are experienced in the vicinity of the scheme. There are also significant accident benefits experienced to the south and east of the scheme
To minimise the greenhouse gas impacts associated with the scheme	Monetised TAG greenhouse gas (carbon) impact Whole-life carbon calculated using the	▪ A Carbon Management Plan has been developed for the scheme that supports low carbon infrastructure planning and delivery and seeks to manage and reduce GHG emissions over the project lifecycle	▪ N/A

Objective	Measurement	Summary of Benefits Referenced in the Strategic Dimension	Summary of Benefits Over Appraisal Period Referenced in the Economic Dimension
	Emissions Factor Toolkit	▪ As a result of measures implemented, a 26% reduction in infrastructure carbon impact has been achieved since the baseline impact was estimated in February 2021 (paragraph 6.9.5)	
To improve local air quality in Shrewsbury town centre	Monetised TAG air quality impact	▪ The Shrewsbury Town Centre AQMA was declared for an exceedance of the long term NO_2 air quality objective. The scheme is expected to improve air quality within the AQMA	▪ As detailed in Table 3-23, the monetised air quality benefit is estimated to be £73k ▪ As detailed in paragraph 5.3.10 in the PBA, overall the construction of the NWRR results in a Slight Beneficial impact to air quality. This is due to a broad reduction in exposure to both NO_2 and $PM_{2.5}$ at sensitive human receptors
To support local economic growth and productivity	Monetised TAG wider economic impacts	▪ The NWRR will provide improved connectivity and journey time reliability to training, education, housing and employment areas. This will boost productivity and growth	▪ Table 3-34 shows that the overall wider impact benefit of the scheme is £63.6m which includes benefits in each of agglomeration, labour supply and output change in imperfectly competitive markets
To support the delivery of planned local housing growth and development	Monetised TAG wider economic impacts	▪ The NWRR will unlock residential development at Shrewsbury West SUE and support the proposed delivery of a sustainable residential development of 450 dwellings on land west of Ellesmere Road ▪ The scheme will also assist with site viability as the reduced flows around the outer bypass will reduce the need for local developer contributions to fund capacity increases at key junctions, as evidenced by the flow reductions shown in Table 2-34 and Table 2-35	▪ Table 3-34 shows that the overall wider impact benefit of the scheme is £63.6m which includes benefits in each of agglomeration, labour supply and output change in imperfectly competitive markets
To improve the quality of life for people in Shrewsbury	Monetised TAG air quality impact Monetised TAG noise and accident impact - using DfT's COBALT and AMAT DfT's AMAT- journey quality and health	▪ Flows and congestion on north-west corridor routes are predominantly forecast to fall significantly due to the NWRR, leading to reduced accident risk, improved air quality and faster, more reliable journeys for all modes ▪ The scheme also adds to the existing active travel network encouraging modal shift	▪ As detailed in Table 3-23 and Table 3-24, the monetised air quality and noise benefits are estimated to be £73k and £478k respectively ▪ Paragraph 3.7.85 indicates that the AMAT assessment forecasts a monetised physical activity benefit of £166k ▪ Paragraph 3.7.92 indicates that the AMAT assessment forecasts a monetised journey quality benefit of £1.1m, driven by the shared path providing increased segregation between vehicles and active modes

Objective	Measurement	Summary of Benefits Referenced in the Strategic Dimension	Summary of Benefits Over Appraisal Period Referenced in the Economic Dimension
	TAG seven-point scale – security, access to services, severance and journey quality		■ Table 3-29 shows the COBALT results that forecast that the scheme will reduce the number of accidents by 256, with a monetised benefit of £4.7m ■ Paragraph 3.7.103 details the result of the AMAT assessment that forecast a small, monetised accident benefit of £611, due to modal shift ■ Paragraph 3.11.43 indicates that the overall severance impact of the scheme is considered to be moderate beneficial ■ Paragraph 3.11.48 indicates that the overall accessibility impact of the scheme is considered to be slight beneficial ■ As detailed in the SDI, paragraph 3.4.21, NO_2 concentrations generally remain neutral or beneficial across the deprivation quintiles ■ As detailed in the PBA paragraph 5.2.5, as vehicles transfer from the existing north-west corridor links to the scheme, these existing links will see a flow reduction and therefore, some households on these links will experience a decrease in noise levels. Paragraph 5.3.5 also sets out that benefits are observed in terms of concentration of $PM_{2.5}$ as the scheme reduces the existing congestion of few routes

3.15 SWITCHING VALUE ANALYSIS

3.15.1. Switching value analysis has been undertaken as part of the appraisal to determine how a change in costs or benefits would affect the scheme's Value for Money category.

3.15.2. Table 3-44 and Table 3-45 show the changes that would be required, either in scheme costs or benefits, for the scheme to shift from the High VfM category (as indicated by its adjusted BCR) to the Medium and Very High VfM categories.

Table 3-44 – Changing the Adjusted BCR to Medium

Factor	Appraisal Methodology (High to Medium)
Benefits	Benefits would need to decrease by £177.3m or 61.3%
Costs	Costs would need to increase by £118.2m or 58.5%

3.15.3. If the costs were to remain the same, benefits would need to decrease by 61.3% to move the scheme from High VfM category to Medium VfM category.

3.15.4. Alternatively, if benefits were to remain the same, cost would need to increase by 58.5% to move the scheme from High VfM category to Medium VfM category. A cost increase such as that would be extremely unlikely given contractor costs are fixed.

Table 3-45 – Changing the Adjusted BCR to Very High

Factor	Appraisal Methodology (High to Very High)
Benefits	Benefits would need to increase by £9.1m or 3.1%
Costs	Costs would need to decrease by £2.3m or 3.0%

3.15.5. To switch the scheme from the High VfM category into the Very High VfM category, if the costs were to remain the same, benefits would need to increase by only 3.1%.

3.15.6. If benefits were to stay the same, cost would need to decrease by just £2.3m to switch the scheme from the High VfM category into the Very High VfM category.

3.16 UNCERTAINTY ANALYSIS

3.16.1. Sensitivity tests have been undertaken considering appraisal inputs/assumptions linked to scheme costs and the input assumptions that ultimately drive the VfM for the scheme.

3.16.2. In May 2022, the DfT announced changes to TAG, which have implications for how forecast demand in traffic models should be derived, ensuring that a greater appreciation and consideration of uncertainty is included. In particular, the Uncertainty Toolkit released as TAG Supplementary Guidance outlined a set of Common Analytical Scenarios (CAS).

3.16.3. The DfT's Uncertainty Toolkit sets out that forecast travel demand is a key driver of benefits across transport schemes, and that there is a need to consider the standard CAS as part of the development of a scheme.

3.16.4. As set out in Table 2-48, three CAS scenarios have been considered as part of the sensitivity tests: Low Economy, High Economy and Regional.

3.16.5. Table 3-46 shows the impact of these scenarios on the PVB, PVC and VfM category of each of these tests compared to the Core scenario.

Table 3-46 – Sensitivity tests

	£'000s, 2010 PV over Appraisal Period		
Test	**PVB**	**PVC**	**VfM Category**
Core scenario	*289,094*	*74,547*	*High*
Low Economy	255,879	74,547	High
High Economy	346,451	74,547	Very High
Regional	291,476	74,547	High

3.16.6. The Low Economy test shows a decrease in PVB. This is attributed to subdued productivity growth, which fails to return to historic levels, coupled with low inward migration resulting in limited population growth in the area. Consequently, the network experiences lower capacity utilization compared to the core scenario. However, the Value for Money (VfM) category remains classified as High.

3.16.7. Conversely, the High Economy test shows an increase in PVB, driven by productivity growth returning to its long-term trend and an improvement in wealth levels beyond current projections. Higher migration rates and population growth exceeding official forecasts lead to more effective utilization of the network compared to the core scenario. As a result, the VfM category improves to Very High.

3.16.8. The Regional test shows little change in PVB and the VfM category remains High.

3.17 APPRAISAL SUMMARY TABLE (AST)

3.17.1. The Appraisal Summary Table (AST) presents all the evidence from the economic appraisal a single table. It records all the impacts which have been assessed and described above – economic, fiscal and environmental impacts – assessed using monetised, quantitative or qualitative information as appropriate. The AST for the scheme, in line with TAG requirements, is included in Appendix M.

3.18 SUMMARY OF THE ECONOMIC DIMENSION

3.18.1. The Economic Dimension identifies and assesses all the impacts of the scheme to determine its overall Value for Money. It takes account of the costs of developing, building, operating and maintaining the scheme, and a full range of its impacts, including those impacts which can be monetised.

BENEFIT COST RATIO

3.18.2. The initial BCR is **2.81,** representing a **High** Value for Money according to the DfT Value for Money Framework. The adjusted BCR is **3.88**, which also represents **High** Value for Money.

SENSITIVITY TESTING

3.18.3. The results of the sensitivity analysis indicate that the Value for Money category remains as **High** for the Low Economy and Regional tests but increases to **Very High** for the High Economy test.

4

Financial Dimension

4 Financial Dimension

4.1 INTRODUCTION

4.1.1. The Financial Dimension considers the affordability of the proposed scheme. It presents the costs of the scheme and the proposed funding sources. This Financial Dimension has been developed in line with guidance from the DfT TAG Unit A1-2.

4.2 SCHEME COSTS

4.2.1. The estimated cost of the scheme, at out-turn prices excluding non-recoverable VAT, is **£163.41m**. Table 4-1 shows the breakdown of scheme costs and provides details on the build-up and profile of the total scheme costs (excluding inflation). To convert to outturn costs, inflation was added as detailed in paragraphs 4.2.5 to 4.2.6.

Table 4-1 – NWRR scheme cost profile

Cost (£m)	Spend to Date[36]	2024/25[37]	2025/26	2026/27	2027/28	Total
Construction contracts	0.00	0.00	32.81	42.18	18.75	93.74
Statutory undertakers works	0.08	0.00	4.24	1.21	0.61	6.13
Design investigations, surveys, procurement, supervision and client costs	27.57	3.35	1.34	1.00	1.00	34.26
Land-related expenses	0.00	0.68	2.70	0.00	0.00	3.38
Total cost (excluding risk and inflation)	**27.65**	**4.02**	**41.09**	**44.40**	**20.36**	**137.51**
Risk	0.00	0.00	7.29	7.88	3.61	18.78
Total cost @2024:Q3 prices	**27.65**	**4.02**	**48.38**	**52.28**	**23.97**	**156.30**
Adjustment to out-turn (inflation)	0.00	0.00	1.45	3.32	2.35	7.11
Scheme cost (out-turn prices)	**27.65**	**4.02**	**49.83**	**55.59**	**26.32**	**163.41**

SCHEME PREPARATION AND CONSTRUCTION

4.2.2. The costs of scheme preparation and construction have been provided by the Contractor as part of the tender process and the detailed breakdown by scheme element and line item is provided in Appendix N.

[36] Includes spent up to October 2024
[37] Includes spend from November 2024 for remainder of 2024/25

SPEND PROFILE

4.2.3. The annual profile of expenditure is shown in Table 4-2.

Table 4-2 – Annual spend profile

Scheme Element	Spend to Date[38]	2024/25[39]	2025/26	2026/27	2027/28
Construction contracts	0%	0%	35%	45%	20%
Statutory undertakers works	1%	0%	69%	20%	10%
Design investigations, surveys, procurement, supervision and client costs	80%	10%	4%	3%	3%
Land-related expenses	0%	20%	80%	0%	0%

RISK BUDGET

4.2.4. In line with TAG Unit A1.2 all project related risks that may impact on the scheme costs have been identified and quantified in the scheme risk register. To reflect the uncertainty associated with known risks, a Quantified Risk Assessment (QRA) using a scheme risk register and Monte Carlo analysis software @RISK has been undertaken to produce a risk-adjusted cost estimate. Further detail of the methodology applied to generate this risk-adjusted cost is contained within the Management Case. The QRA analysis estimated a risk-adjustment of **£18.78m**, equivalent to **16.06%** of total future scheme costs from 2024-25 to 2027-28.

OUT-TURN PRICE ADJUSTMENT

4.2.5. To convert the 2024:Q3 cost estimate to outturn costs, inflation has been applied based on different forecasts depending on the cost line item. For construction and statutory undertakers works, the latest Building Cost Information Service (BCIS) All-in Tender Price Index (TPI) forecast from September 2024 has been used and, for all other costs, general inflation as provided in the TAG Databook v1.23 (May 2024) has been used.

4.2.6. Table 4-3 summarises the inflation levels applied.

Table 4-3 – Inflation forecasts

	2024/25	2025/26	2026/27	2027/28
BCIS All in TPI (cumulative)	-	3.20%	7.22%	11.35%
GDP (cumulative)	-	1.18%	2.87%	4.78%

[38] Includes spend up to October 2024
[39] Includes spend from November 2024 for remainder of 2024/25

4.3 BUDGET / FUNDING COVER

4.3.1. An estimated funding profile split by financial year is outlined in Table 4-4.

Table 4-4 – Cost profile by funding sources (£m, nominal)

	Spend to Date[40]	2024/25[41]	2025/26	2026/27	2027/28	Total
Shropshire Council	10.83	0.44	15.83	55.59	26.32	109.00
DfT	16.82	3.58	34.00	0.00	0.00	54.41
Total	**27.65**	**4.02**	**49.83**	**55.59**	**26.32**	**163.41**

4.3.2. The overall funding package for the scheme (in nominal prices) can be summarised as:

Total estimated scheme cost **£163.41m**

Shropshire Council contribution: (64.84%) **£109.00m**

DfT LLM Funding (35.16%) **£54.41m**[42]

4.3.3. The profile programmes that the LLM funds will be spent by 2025-26. The Shropshire Council contribution is comprised of the following elements:

- £0.17m of revenue budget
- £19.85m of capital receipts
- £88.98m of Local Transport Fund (LTF) allocation

4.4 WHOLE LIFE COSTS

4.4.1. The scheme will give rise to additional revenue liabilities for capital renewals and maintenance, when compared to a future scenario in which the NWRR does not exist. All maintenance obligations will fall under the purview of the Council and, as such, will be fulfilled as part of their maintenance regime. The following allowances will need to be made by the Council towards maintaining the NWRR.

4.4.2. Approximately **£33.12m** (at current 2024:Q3 price base) will be required for the total whole life maintenance costs (over the 60-year appraisal period). This assumes the following expenditure breakdown:

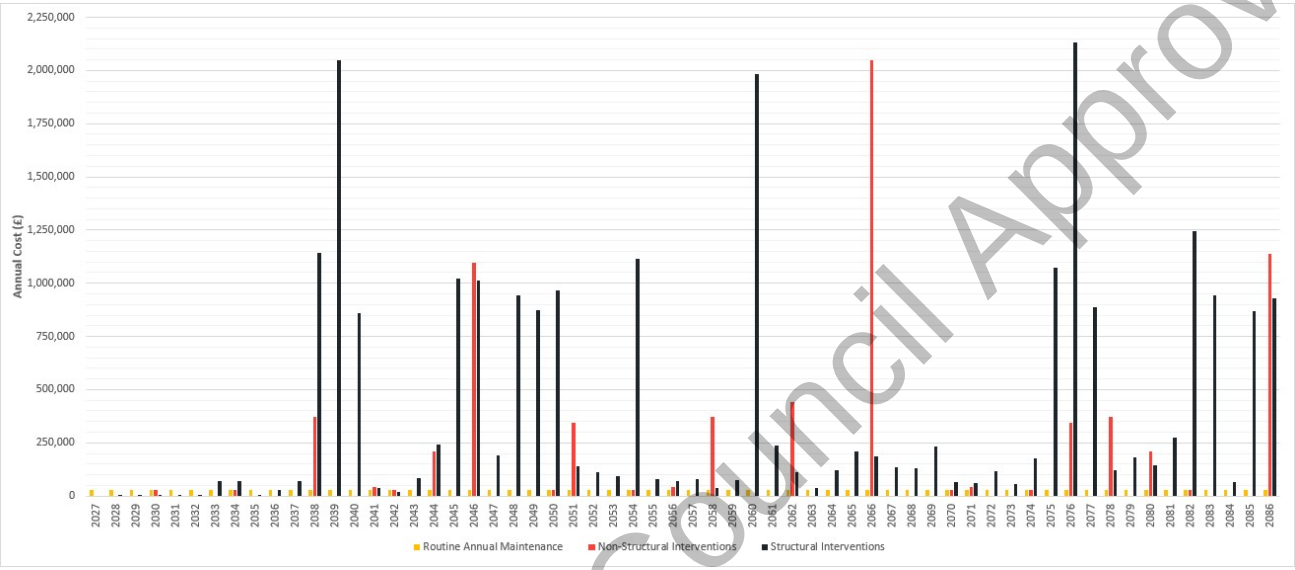
- £1.61m on routine annual maintenance during this period such as signage and bollard cleaning and landscaping

[40] Includes spend up to October 2024
[41] Includes spend from November 2024 for remainder of 2024/25
[42] The Government committed to increasing the funding contribution for existing LLM schemes to 100% as part of Network North. However, the previously agreed DfT commitment at Programme Entry stage (acceptance of the OBC) has been used in this calculation because the full details of the additional Government contribution have not yet been confirmed.

- £31.51m for capital renewal works to structures, pavements, footpaths and kerbing, waterproofing, drainage, road markings and fencing

4.4.3. The maintenance and renewal expenditure profile over a 60-year appraisal period is illustrated in Figure 4-1.

Figure 4-1 – Maintenance and renewal expenditure profile (2024:Q3 prices)



4.5 ACCOUNTING IMPLICATIONS: CASH FLOW STATEMENT

4.5.1. The scheme is expected to have the following implications on public accounts:

- Central government / DfT LLM funding of £54.41m (33.00%) is sought to deliver the scheme, with the remaining LLM funds being spent during the 2025-2026 financial year.
- The remaining £109.00m (67.00%) of the scheme delivery costs are to be contributed by the Council, with £0.17m from their revenue budget, £19.85m from capital receipts and £88.98m from their LTF allocation.
- The whole life maintenance costs for the scheme are expected to cost £33.12m, the funding for which will be sourced from the Council's annual maintenance budget. These comprise £1.61m for routine maintenance, £7.30m for non-structural maintenance interventions and £24.21m for structural maintenance interventions.

4.5.2. As a commitment of support, the Council's Section 151 Officer has provided a Letter of Intent to confirm the Council's financial obligations toward the scheme (See Appendix O).

5

Commercial Dimension

5 Commercial Dimension

5.1 INTRODUCTION

5.1.1. The Commercial Dimension provides evidence of the commercial viability of the NWRR and describes the procurement strategy that was used to engage the market. It describes the approach to risk allocation and transfer, outlines the contract and implementation timescales and the approach to managing the contract.

5.2 OUTPUT-BASED SPECIFICATION

5.2.1. The Commercial Dimension is based on strategic infrastructure outputs, against which alternative procurement and contractual options were assessed. These infrastructure outputs are set out in the Strategic Dimension Theory of Change logic map (see Figure 2-28) and the full output based specification for the scheme is given below:

- A new 7.3m wide single carriageway all-purpose 4.85m long road with a permitted speed of 60mph, beginning at the back of the splitter island on the B4380 Holyhead Road roundabout and running to the existing A528 Ellesmere Road roundabout
- As a result of the severance of a number of local roads, footpaths and public rights of way (ProW), a 3m wide combined footway and cycleway will be provided, adjacent to the carriageway, with linkages to existing non-motorised user routes.
- An equestrian culvert is located at a point 45m to the east of the back of the splitter island on the B4380 Holyhead Road roundabout (grid reference 346573, 313704). This multi-purpose underpass will maintain connectivity for pedestrians, equestrians, mammals and bats. The 36.4m long structure will comprise a single span, precast concrete box structure, with wingwalls at each corner. The box segment has internal dimensions of 4.0m wide x 3.95m high. The culvert will be lit by day
- An attenuation basin, lined with an impermeable lining, is located to the south of the carriageway 100m to the west of the River Severn. A maintenance access is to be provided from U3940/20 Shelton Lane via B4380 Holyhead Road
- A 584m long, 15.5m wide viaduct will carry the bypass over the River Severn and its floodplain (grid reference 346851, 313642). The structure consists of ten spans, a western abutment, 9 piers and an eastern abutment. The existing Severn Trent Water access track is to be diverted around pier 1 and will be used as a maintenance access for this pier. To the east of the river a maintenance access track is provided for piers 2 to 9 and the eastern abutment, this will tie into an existing access track to Gravel Hill Farm
- Two flood compensation storage areas are located to the north and south of the eastern abutment. The areas include excavating below ground level with a side slope gradient of 1v in 3h
- An attenuated basin, lined with an impermeable lining, is located to the south of the bypass 250m northeast of the eastern abutment. A maintenance access track will tie into an existing access track to Gravel Hill Farm
- A culvert is located at Willow Pool (grid reference 347774, 314121). The culvert will convey Willow Pool watercourse and wildlife via mammal shelves. The 29m long structure will comprise a single span, precast reinforced concrete box structure with wingwalls provided at each corner. The box segment has internal dimensions of 3.0m wide x 2.53m high

- A new at-grade four arm roundabout is located on B5067 Berwick Road to provide an interface between the bypass and B5067 Berwick Road (grid reference 348146, 314356)
- An attenuation basin is located to the west of the bypass 400m to the northeast of the B5067 Berwick Road roundabout. A maintenance access track is to be provided from B5067 Berwick Road approximately 100m north of the roundabout
- A culvert is located 500m to the northeast of the B5067 Berwick Road roundabout, where the bypass crosses an existing natural drainage ditch close to Alkmund Park Wood (grid reference 348396, 314736). It will act as a wildlife corridor for mammals. The 66m long structure will comprise a single span, precast reinforced concrete box structure with wingwalls provided at each corner. The box segment has internal dimensions of 3.9m wide x 2.9m high. The culvert will incorporate 500m wide raised wildlife shelves on both sides
- An accommodation bridge located approximately 100m southwest of the Shrewsbury to Chester railway line (grid reference 348530, 315205) will carry the Marches Way Footpath and Accommodation Track over the bypass. This structure is a single span integral steel/concrete composite bridge, with a clear span of 42m and will provide connectivity for a number of public rights of way in the area
- A vehicular bridge carries the bypass over the Shrewsbury to Chester railway line (grid reference 348594, 315351). The structure is a simply supported highway bridge, constructed to Network Rail's required standards, comprising a composite steam beam and reinforced concrete deck slab
- An attenuated basin, lined with an impermeable lining, is located to the west of Hencott Pool ditch. A maintenance access track is to be provided directly from the bypass that will also act as a private means of access to the adjacent land parcel
- A culvert is located where the bypass crosses Hencott Pool ditch (grid reference 349338, 315811). It will act as a wildlife corridor for mammals. The 30m long structure will comprise a single span, precast reinforced concrete box structure with wingwalls provided at each corner. The box segment has internal dimensions of 2.8m wide x 2.45m high. The culvert will incorporate 500mm wide raised wildlife shelves on both sides
- A new at-grade four arm roundabout is located approximately 100m southwest of the existing A528 Ellesmere Road roundabout (grid reference 349689, 316561). The roundabout will be the connection between the bypass itself, a realigned A528 Ellesmere Road and a realigned C7112/15 Huffley Lane, with an arm linking to the existing A528 Ellesmere Road roundabout
- A528 Ellesmere Road will be realigned from approximately 250m south of the existing A528 Ellesmere Road roundabout
- C7130/11 Harlescott Lane will be realigned to form a give way junction with the newly aligned to form A528 Ellesmere Road
- C7112/15 Huffley Lane will be realigned from approximately 260m west of the existing A528 Ellesmere Road roundabout
- The existing at-grade five arm roundabout is to be reconfigured to form a ‘dumb-bell’ arrangement with the new roundabout that is sited 100m to the southwest. The roundabout will become a four arm roundabout, no changes are to be made to the A528 Ellesmere Road northern arm, the A5124 or U3563/10 Knights Way. The C7112/15 Huffley Lane and A528 southern arm will no longer have an interface with this roundabout. A new arm will form the ‘dumb-bell’ arrangement linking to the bypass
- An infiltration basin is located to the west of the A528 Ellesmere Road roundabout. A maintenance access track is to be provided off the realigned C7112/15 Huffley Lane
- New and alternative accesses to serve remaining arable land parcels and private residences

- The scheme will include associated ancillary elements such as road markings, signage, non-motorised user facilities, necessary modifications of the local road network, kerbing, new access tracks and maintenance bays, landscaping, planting and provision of environmental mitigation measures
- In addition to the drainage basins, the drainage systems make use of further sustainable drainage features and positive drainage systems, these include carrier and filter drains, kerb drains, gullies, chambers, ditches and swales, headwalls, bypass separators, and flow control devices
- New road lighting circuits are provided at the B5067 Berwick Road roundabout. Additional road lighting is provided at the A528 Ellesmere Road roundabout

5.3 PROCUREMENT ROUTE

5.3.1. The following procurement route options were considered for the scheme:

- Utilising a framework – The Scape Civil Engineering and Infrastructure Framework
- Undertaking a competitive process utilising the new UK 'Find a Tender Service (FTS) – previously OJEU Competitive Tender Process

5.3.2. Initially at OBC stage, the preferred procurement approach followed a traditional route using the OJEU Restricted Procedure (FTS was not replaced until 1 January 2021).

5.3.3. Following engagement with the Contractor market, there was a strong preference for use of the FTS (the replacement for the OJEU process) and it became clear that FTS would result in a greater number of Contractors tendering for the contract, which would provide increased competition and likely better value for money to the Council than would be achieved using the SCAPE Framework procurement route. As a result of the market engagement with suppliers, it was decided to utilise the FTS with a Competitive Procedure with Negotiation (CPN) to appoint a main Contractor.

5.3.4. Under CPN, the Council may award the contract following review of the bidders' initial tenders. However, it may also conduct the procurement process in successive stages and carry out negotiations on the initial and any subsequent tenders. CPN was considered appropriate as:

5.3.5. If required, CPN will allow for helpful negotiations about price and other parts of the offers to obtain improved bids ultimately helping the Council demonstrate value for money for the project

5.3.6. CPN is broadly capable of being aligned with the timescales set

5.3.7. CPN could be of greater interest to bidders as it is generally less expensive and time consuming compared to Competitive Dialogue.

5.4 MARKET ENGAGEMENT

5.4.1. A Prior Information Notice (PIN), Ref. FTS 037575-2023, was issued to the market on the In Tend portal on Wednesday 20 December 2023 for Contractors to register their interest. With the issuance of the PIN there was commencement of consultation with Contractors. In line with the PIN notice Contractors could request a meeting up to one hour long with the Council NWRR Bypass team to discuss the scheme. A total of 14 companies requested a meeting however, due to time constraints, only twelve meetings could be accommodated.

5.4.2. The procurement process was designed to ensure the maximum number of appropriate qualified bidders tendered for the scheme, to ensure value for money for the Council.

5.4.3. The Council had previously engaged with potential bidders and likely supply chain partners at OBC stage. The output of this engagement was advice/ information that supported the procurement process and encouraged construction industry interest in the scheme.

5.5 TYPE OF CONTRACT

TYPE OF CONTRACT DISCUSSION

5.5.1. Two contract types were considered for this scheme:

- Traditional contract where a single stage consultant develops the design in partnership with the Client before competitive tenders are invited and before the main works contract is let. A Contractor is appointed to deliver the works (possibly including some level of Contractor design post-award) under a re-measurable contract
- Design and Build contract where the main Contractor is appointed to design and construct the works. They act as a single point of responsibility for delivering the project. Either a single-stage or two-stage tender process can be used to procure and appoint

Traditional Contract

5.5.2. A traditional contact offered the following advantages:

- The principles have been developed over many years and are widely understood
- The Client (Shropshire Council) develops the specification for the scheme
- Risk is managed by the Client
- Client retains control and flexibility to change the scheme specification
- Award of contract on the lowest price basis will demonstrate Value for Money

5.5.3. The disadvantages of a traditional contract were as follows:

- Client retains risk of delivery on time and to budget
- Less incentive for a Contractor to innovate
- No link between design and construction, with Contractor unable to help improve the buildability of the design
- The nature of all risks are not fully realised at the point of award resulting in the potential for an increase in outturn cost and delays with completion

Design and Build Contract

5.5.4. A Design and Build contact offered the following advantages:

- Integration of design and construction leads to efficiencies in cost and time
- Single point of responsibility for the Client resulting in lower risk
- Risks are clearly identified and allocated during the procurement phase
- Stimulates innovation, reducing cost
- Allows the Contractor to review the buildability of the design

5.5.5. The disadvantages of a Design and Build contract were as follows:

- Reduced competition with fewer companies interested
- Contractor takes on greater risk and prices risk into the estimate (increasing scheme costs)
- Lack of flexibility to change the specification
- Quality may be overridden by cost efficiency

- Delay to the delivery programme to allow for Contractor design development

PREFERRED TYPE OF CONTRACT

Construction Contract

5.5.6. The preferred type of contract selected was the traditional contract with a single stage approach and some Contractor designed elements (e.g. precast concrete, steel beams, earthworks and construction of the viaduct). This approach was adopted because WSP, as the Council's Built Environment Consultancy Contract (BECC) provider, confirmed the availability of necessary resources and expertise to support the delivery of the detailed design.

5.5.7. WSP has significant experience in taking large infrastructure schemes through the planning process. In 2023, WSP were awarded the council's new five-year BECC, extending the previous highway and transport engineering consultancy contract, which has been held by WSP since April 2015. This experience of supporting the delivery of major schemes within Shropshire has enabled WSP to understand the Council's requirements. WSP was familiar with the details contained within the scheme scope documentation and local standards that the Council require to be incorporated in the scheme design. WSP will have responsibility for managing the design, planning and construction supervision.

5.5.8. The traditional contract was also identified as the preferred option when the Council previously engaged with several major Contractors capable and interested in delivering the NWRR, as outlined earlier in paragraph 5.3.1.

Single Stage Approach to Procurement

5.5.9. With the detailed design provided by WSP, the single stage approach to procurement of the Contractor for the construction stage became the logical option. This was considered to be the quickest way to progress the scheme as it negated any need for a design procurement in the short term, allowing the Council scheme team to concentrate on developing the Contractor procurement whilst the detailed design was developed.

Term Service Contract

5.5.10. In 2018, the Council awarded [redacted]s their Term Service Contract. Since then, the [redacted] multi-disciplinary Highways team have been responsible for delivering highway capital projects, street lighting and highway, bridge, grounds and winter maintenance schemes across Shropshire. Under the Term Service Contract, [redacted] were engaged by the Council to deliver some of the advanced works for the scheme including ground penetrating radar surveys, stakeholder engagement with all utility companies, advanced utility diversions, the test pile, noise and vibration monitoring, environmental surveys and archaeological works.

5.6 FORM OF PROCUREMENT

5.6.1. The preferred form of procurement for the scheme was the option that best achieved the specific procurement objectives and accommodated the other scheme constraints. The Council assessed the relative importance of the following considerations to inform its preference:

- Time – time for overall delivery, time for procurement, consideration of key milestones
- Complexity of arrangements – dependency on third parties, separate contracts and subcontractors

- Complexity and scope of the scheme – extent of unique or unusual features, scale of the scheme
- Potential for change – fixity of design achievable prior to procurement
- Cost certainty – requirement for cost certainty and most economically advantageous delivery
- Design responsibility – expertise and capacity for design delivery existing within different parties
- Risk appetite – appetite to retain risk or incentivise Contractor to manage project risk
- Control – desire to retain control over the final scheme details
- Specialist supply chain – requirement to use a specialist supply chain for precast concrete, steel beams, earthworks and construction of the viaduct

5.6.2. At the point of procurement selection choice, the Council selected a traditional form of procurement to deliver the scheme. The Council retained design responsibility and had significant control over the final scheme design. Whilst the Council retained more risk to the point of contract award, than in a Design and Build procurement, the risk of change post-contract award was significantly reduced. A traditional model offered increased cost certainty compared to a Design and Build form of procurement.

5.6.3. A Design and Build model would also have caused difficulties with the timing of the procurement, as the Contractor could not be requested to assume additional responsibility for the design as this would negatively impact programme timescales. In addition, the scheme contract would not be awarded early enough to enable the planning risk to be passed to the Contractor. A late award would negate the benefits of the Design and Build form of procurement as the Council would have had to accept the risk of change stemming from the planning process. This would have undermined the rationale for using a Design and Build delivery approach.

5.6.4. Therefore, the traditional form of procurement was chosen for the delivery of the scheme which was also more compatible with the condensed programme. This option did not offer some of the potential benefits of the Design and Build model but provided greater cost and programme certainty at the point of procuring the main works. The Council's existing in-house BECC provider, WSP, provided the Council with access to the necessary skills and experience to produce the detailed design required for a traditional procurement.

5.6.5. Given the advanced development of the project design at the OBC stage of the scheme, the benefits of a Design and Build approach were reduced, making a traditional contract with better time and cost predictability the preferred form of procurement for the scheme.

5.7 FORM OF CONTRACT

5.7.1. The Government Construction Board recommends that public sector organisations use the New Engineering and Construction (NEC) Contract suite of contracts, in particular the NEC4 contracts where appropriate when procuring construction. Standardising use of this comprehensive suite of contracts is expected to deliver efficiencies across the public sector and promote behaviours in line with the principles of the Government Construction Strategy.

NEC4 ENGINEERING AND CONSTRUCTION CONTRACT

5.7.2. The NEC4 is a modern-day suite of contracts that facilitates the implementation of sound project management principles and practices as defining legal relationships. They were developed to make improvements to more traditional forms of contract by:

- Enhancing flexibility as they can be used in a wide variety of commercial situations for procuring a diverse range of works, services and supply in any location.
- Providing greater clarity and simplicity as they are written in ordinary language using words which are in common use to promote understanding.
- Stimulating good management as they are designed so that their implementation contributes to rather than detracts from the effectiveness of the management of the work.

5.7.3. For single one-off complex engineering and construction projects, the NEC4 Engineering and Construction Contract (ECC) is usually selected as it provides a contract which offers a variety of options with different approaches to pricing, risk management, payment and delivery. The NEC4 ECC has six main payment options which are detailed, together with their advantages and disadvantages, in Table 5-1.

Table 5-1 – NEC4 ECC main options

Main Option	When to use it	Advantages	Disadvantages
Option A – Priced contract with activity schedule	▪ This option is suited to projects where the scope is well defined, and a Contractor can price detailed activities ▪ The Contractor bares the financial and delivery risk of providing the works in accordance with the Scope	▪ Greater price predictability ▪ Simpler to administer ▪ Quantity and price risks borne by Contractor	▪ Contractor incentivised to do minimum / cut corners at the expense of quality ▪ Contractor's price likely to include high contingency / risk ▪ Adversarial relationship more likely to develop ▪ Less commercial transparency around compensation events
Option B – Priced contract with bill of quantities	▪ This option is suited to projects where the scope is well-defined, and a Contractor can price detailed activities ▪ It includes a remeasurement payment mechanism to assess the price of work completed where the Scope included the scope of work but does not include detailed quantities ▪ The Contractor bares the financial and delivery risk of providing the works in accordance with the Works Information and the agreed rates ▪ The Client bares the financial risk of fluctuations in quantities of work completed	▪ Greater price predictability ▪ Bill of Quantities could lead to cost savings when the scheme is well defined, and Client is able to list out the activities and approximate quantities ▪ Simpler to administer	▪ Similar negatives to A however greater levels of risk taken on by the Client over Option A ▪ Any risks/omissions in the Bill of Quantities will be a Client risk and treated as compensation events ▪ Less commercial transparency around compensation events

Main Option	When to use it	Advantages	Disadvantages
Option C – Target cost contract with activity schedule	▪ This option is used where the extent of the work to be done is not completely defined and/or where uncertainty and high levels of delivery risk are present ▪ Option C is a target contract designed to encourage efficient management of the works by offering a financial incentive to a contractor who is able to complete the works for less than a target price. Equally, there is a disincentive for incurring more than the target price ▪ Both the Client and Contractor share the financial risk in an agreed proportion ▪ During the course of the works, the Contractor is paid by reference to Price for Work Done to Date ("PWDD") which refers to an assessment by the Project Manager of what he considers is due to the Contractor	▪ More incentive on the Contractor to innovate to achieve a better outturn cost ▪ Contractor commercially rewarded for performance and equally there is a financial disincentive for poor performance ▪ Contractor encouraged to identify supply chain efficiency to benefit of both Contractor and Client ▪ Collaborative behaviour incentivised ▪ Commercial transparency	▪ Particularly tight scheme controls needed ▪ Reduced cost predictability ▪ Reliant on audit accuracy ▪ Administratively burdensome
Option D – Target cost contract with bill of quantities	▪ This option is used where the extent of the work to be done is not completely defined and where uncertainty and high levels of delivery risk are present. ▪ Both the Client and Contractor share the financial risk ▪ Payment is based on a re-measurable bill of quantities	▪ Advantages are similar to Option C	▪ Target cost contracts are not typically tendered with a bill of quantity
Option E – Cost reimbursable	▪ This option is used when the works required cannot be defined sufficiently to inform even a target price ▪ The Client bares the financial risk as the scope is not clearly defined prior to commencing the contract ▪ The Contractor is paid their 'Defined Cost' plus fee	▪ Effective where the scope of the work to be carried out cannot be properly defined at the outset, and the risks associated with the works are high, such as emergency work	▪ Places maximum risk with the Client in term of delivery ▪ Very little incentive for the Contractor to deliver works efficiently ▪ Not an appropriate strategy for schemes such as this one
Option F – Management contract	▪ This option is used when a management contracting approach is required ▪ The Contractor is paid a fee based on the work completed by subcontractors and bares the risk of subcontractor's delivery in line with the Scope	▪ Responsibility for procuring and managing works lies with the management Contractor	▪ Client accepts almost all the financial risk

Adapted from NEC4 Establishing a Procurement and Contract Strategy – Volume 1

PREFERRED FORM OF CONTRACT

5.7.4. The NEC suite of contracts provides a robust contracting framework through which the NWRR will be delivered. There is a proven track record of successful delivery of infrastructure schemes using the NEC suite within the UK civil engineering industry. The Council have also adopted the NEC for tendered civil engineering, maintenance and professional services contracts. The additional flexibility and existing in-house familiarity with the NEC suite make it the preferred option for scheme delivery.

5.7.5. The NEC4 suite of contracts was being introduced during 2017 and so, at OBC stage, the Council considered that it was too early to determine whether the NEC4 suite offered specific additional benefits compared to the NEC3 suite. As a result the NEC3 ECC Option A, with the benefit of increased price and programme certainty, was the preferred contract strategy and delivery mechanism for the NWRR at OBC stage.

5.7.6. However, prior to making the final decision on which NEC4 ECC Option to pursue at FBC stage, the Council engaged with the market and discussed the overall risks inherent with the project. These risks included working on the floodplain, ground water contamination and working over the railway line. Whilst the scheme design was well developed and clearly defined with good quality works information, there were still risks present within the project that could not be eliminated. As a result of this Contractor engagement, it was agreed that NEC4 ECC Option C – Target Cost Contract with Activity Schedule offered the best opportunity for collaboration to mitigate these risks, achieve efficient project delivery and provide the best value money.

5.7.7. The form of contract includes an option (W2) for resolving and avoiding disputes, the following Secondary Options and amendments by way of Z clauses:

- X1: Price adjustment for inflation - provides the means for adjusting the price of works
  - The (Civil Engineering) 1990 Series index, prepared by BCIS online, will be used with the base date for indices being 23 July 2024
- X2: Changes in the law - allowance for a compensation event, should a change in law occur after the Contract Date (only to the extent the effects of such changes were not foreseeable prior to the Contract Date)
- X4: Ultimate holding company guarantee - used as a guarantee to the Client of the Contractor's performance when the Contractor is a subsidiary of another company
- X5: Sectional Completion - used when completion of works may mean a section of works, rather than the whole of the works
  - The NWRR scheme will be delivered in a single section, but this Option is included in the contract as the construction contract also covers the OLR which will be delivered in two sections. The three sections are as follows:
    - Section 1: The full OLR scheme, excluding traffic management measures along Welshpool Road will be delivered by September 2027
    - Section 2: The full NWRR scheme will also be delivered by November 2027
    - Section 3: Welshpool Road traffic management measures will be delivered by February 2028
- X7: Delay damages - monetary disincentive for Contractor finishing late

- X8: Undertakings to the Client or Others – inserts a collateral warranty regime for the benefit of the Council and Others (e.g., Network Rail or any funders)
- X13: Performance bond – acts as a guarantee for the Client against Contractor failing to meet contract obligations or its insolvency
- X15: The Contractor's design - used when the Contractor is carrying out their own design
  X16: Retention – acts as insurance for the Client against work defects
- X18: Limitation of Liability - this clause gives grounds for the limitation of Contractor's liability to the Client for certain events which cause loss to the Client
- Y(UK) 2: The Housing, Grants, Construction and Regeneration Act 1996

DISPUTE RESOLUTION

5.7.8. As the Construction Act applies, the Council has used dispute resolution option W2.

OTHER COMMERCIAL CONSIDERATIONS

5.7.9. Other commercial considerations are shown in Table 5-2. The Contractor will be required to comply with the contents of the Manual of Contract Documents for Highway Works (MHCW).

Table 5-2 – Other commercial considerations

Issue	Approach	Rationale
Specification	Based on the Manual of Contract Documents for Highway Works (MHCW) suite of specification documents (DfT Specification)	The DfT specification is the industry standard and is an integrated system including the standards for the works
Ultimate holding company guarantee	The Council will require an ultimate holding company guarantee	An ultimate holding company guarantee protects the Council against a Contractor avoiding its liabilities by winding up the company that would otherwise be liable
Delay damages	The Council will apply delay damages of £6,000 per day to cover the cost of keeping the scheme delivery team mobilised for any delay period	A delay in completing the scheme does not have a direct monetary impact on the authority, other than the cost of its scheme team
Performance bond	The Council will require a performance bond of 10% of the total contract price	Although the premium for a performance bond can be significant and would be passed on to the authority, it provides some protection to the Council in case the Contractor fails to meet contract obligations or enters into insolvency
Retention	The Council will retain 1.5% of the total amount due up to a maximum of £1million	Protects the Council after the contract is complete in the evet any defects arise that require remedial action by the Contractor

5.8 PAYMENT MECHANISMS

5.8.1. The Contractor has been appointed using an NEC4 ECC Option C – Target Cost Contract with Activity Schedule with payment being made to the Contractor by monthly valuation with a BACS payment within 30 days after the due date for payment.

5.8.2. The payment mechanism (including a pain / gain share mechanism), in conjunction with delay damages, will drive efficiency and programme delivery. No additional contract performance / availability mechanisms are written into the contract.

5.9 PRICING FRAMEWORK AND CHARGING MECHANISMS

5.9.1. The design of the scheme was carried out through the Council's BECC provider WSP using a lump sum payment mechanism. This guided directly to a traditional contract with a single stage approach, as discussed in the preferred procurement strategy (Section 5.4). A traditional contract enabled a collaborative approach with the Contractor who, whilst not involved in the development of the scheme, have accepted the design and Scope of works at tender stage.

5.9.2. An NEC4 ECC Option C – Target Cost with Activity Schedule contract has been selected for construction services. The NEC4 ECC Option C uses an activity schedule as its pricing framework. The Target Cost was developed throughout the pre-construction phase and includes a range of lump sums against specific works activities. During the course of the works, the Contractor is paid by reference PWDD which refers to an assessment by the Project Manager of what he considers is due to the Contractor. Assessments are made monthly.

5.9.3. The contract provides for specified list of compensation events which, should they occur, may increase / decrease the Target Cost.

5.9.4. The contract includes a pain / gain share mechanism to incentivise the Contractor to deliver the project below the Target Cost. Conversely, the pain / gain share mechanism also shares any overspend between the Contractor and Client, ultimately reducing the Contractor's risk.

5.9.5. The Contractor's share of the difference between the Total of the Prices (Target Cost) and the Price for Work Done to Date (Actual Cost) will be assessed in line with the share range and share percentage outlined in Table 5-3.

Table 5-3 – NEC4 ECC Option C – Contractor's share percentage and share range

Share Range	Contractor's Share Percentage
Less than 90%	0%
From 90% to 100%	50%
From 100% to 110%	50%
Greater than 110%	100%

5.9.6. The Council has increased the frequency of the reconciliations under the pain / gain share mechanism with assessments occurring on a quarterly basis in order to better manage the cashflow of both the Council and the Contractor. Interim and final payments to the Contractor will be paid on the basis of its costs as defined in clauses 11.2(31) and 11.2(32) of the Contract Documents.

5.9.7. The NEC4 ECC also includes a further incentivisation for the Contractor to propose clause 16 Contractor Proposals, where the Contractor can propose that the scope is changed to reduce the prices. On acceptance of these proposals, a compensation event is instructed which can reduce the Defined Cost but not the Prices, thereby increasing the potential gain share for the Client and Contractor.

5.10 RISK ALLOCATION AND TRANSFER

5.10.1. The scheme management and governance structure for delivery of the scheme follows an established structure that has been used by the Council to successful deliver previous schemes. The Council recognises that in order to successfully deliver the scheme, effective risk management is vital.

5.10.2. Risks for this scheme have been identified and entered into a risk register by specialists in highways and structural engineering, geotechnics, transport planning, quantity surveying, environmental disciplines, procurement, risk assessment, planning, legal orders and construction. By being risk aware, reviewing its risk appetite and tolerance, the Council was better placed to both take advantage of opportunities and manage threats.

5.10.3. As discussed in Section 5.7 above, whilst the scheme design was well developed and clearly defined with good quality works information, there were risks still present within the project that could not be eliminated. Following Contractor engagement, it was agreed that NEC4 ECC Option C – Target Cost Contract with Activity Schedule offered the best opportunity for collaboration to mitigate these risks, achieve efficient project delivery and provide the best value money.

5.10.4. The general principle of risk allocation is that risks should be passed to the party best able to manage them, subject to value for money considerations. A detailed review of risk allocation was undertaken as part of the contract development, to which the Council applied the lessons learnt from the recent Oswestry Innovation Park enabling and Oswestry A5 Mile End junction improvement schemes.

5.10.5. Following the award of the construction contract, risk allocation was then completed. With completion of the procurement process and through the use of NEC4 ECC Option C, some of the risk will be shared with the Contractor and details this allocation of risk between the Council and the Contractor are provided in Table 5-4.

Table 5-4 – Risk allocation

Risk Category	Allocation - Council	Allocation - Contractor
Design risk	The Council retains design responsibility, other than in respect of elements to be designed by the Contractor as stated in the Scope (clause 21.1)	Contractor retains design responsibility for elements to be designed by the Contractor as stated in the Scope (e.g. precast concrete, steel beams, earthworks and construction of the viaduct). Any Scope provided by the Contractor during the works becomes Scope provided by the Contractor for its design
Construction risk	The standard risk allocation defined by the NEC4 ECC contract, Option C has been adopted with the key risk being allocated as follows: ▪ Ground condition risk retained by the Council. However, in judging physical conditions (i.e., ground conditions) for the purpose of assessing a compensation event, the Contractor is assumed to have taken into account "including any physical, ecological or environmental constraints or similar matters and / or any ground risk, flood risk, pollution risk, water contamination risk or risk associated with piling operations referred to in the Site Information or ascertainable from any report or document set out in or referred to in the Site Information". This may result in a reduction in the assessment of a compensation event if robust and comprehensive information has been shared with the Contractor. In addition, physical conditions now excludes physical conditions which are "caused by weather conditions". This seeks to pass the risk of flooding due to weather conditions onto the Contractor ▪ Weather event risk follows the standard, with the Council being liable for events greater than the 1-in-10-year 'average' and the risk of event less than the 1-in-10-year 'average' being shared due to the selection of Option C ▪ Inflation (X1) applied monthly, due to the short duration of the scheme and market volatility. The (Civil Engineering) 1990 Series index, prepared by BCIS online, will be used with the base date for indices being 23 July 2024 ▪ Diversion of statutory undertakers' apparatus in advance of the access date retained by the Council, with the Contractor being responsible for programming diversions to be carried out during construction	
Transition and implementation risk	Risks associated with design vehicle traffic flow are retained by the Council	Successful establishment of the landscape planting is a Contractor risk, unless established to be a design issue
Operating risk	Operating risk is retained by the Council	
Termination risks	The standard NEC4 ECC termination position applies with Council and Contractor termination procedures and associated amounts due determined using the Termination Table provided within the contract documents. The following additional grounds for termination also apply to the contract: • The Parties are unable to either resolve a conflict of interest or to reduce its damaging effect to a reasonably acceptable level • If paragraph 73(1) of The Public Contracts Regulations 2015 applies i.e., there has been a substantial modification to the contract which would have required a new procurement procedure or the Contractor was at the time of contract award in one of the situations referred to in regulation 57(1) (e.g., conspiracy, bribery, corruption, etc.)	

Risk Category	Allocation - Council	Allocation - Contractor
	• If any existing or pending funding arrangement (e.g. DfT funding) is changed or cancelled which affects the viability of the project • If the Contractor fails to improve and maintain its Social Value Performance following warning from the Project Manager that Shropshire Council may terminate the contract if it fails to improve its Social Value Performance None of these additional grounds for termination entitle the Contractor to a loss of profit payment	
Technology and obsolescence risks	The Council takes the obsolescence risk during the highway's operational life	
Residual value risks	Residual value risks are retained by the Council	
Financing risks	Financing risks is largely retained by the Council. There is some private sector risk (in the form of cost overruns)	NEC4 Option C is a Target Cost contract wherein the parties share cost overruns within certain parameters. At present, the Council's liability for cost overruns is limited to 105% of the total of the Prices. Thereafter, the Contractor absorbs the risk of cost overruns. This is subject to the compensation event mechanism. If a compensation event applies, broadly, the Contractor benefits from cost increases which are not subject to the pain/gain mechanism as the target cost generally moves up in tandem with the cost increases
Legislative risks	As option X2 applies, the Council would take risk associated with changes in legislation. However, X2 has been amended, so that Shropshire Council does not take the risk of changes in the law if the effects of the change of the law could reasonably have been anticipated by the Contractor prior to the Contract Date e.g. if a Bill was passed through Parliament prior to the Contract Date	The Contractor takes the risks associated with changes in the law which were foreseeable prior to the Contract Date

5.11 CONTRACT LENGTH

5.11.1. The main construction works for the NWRR is expected to commence in May 2025 and the whole of the works are expected to be completed by November 2027.

5.11.2. The contract programme is considered in further detail within the Management Dimension.

5.12 HUMAN RESOURCE ISSUES

5.12.1. No significant human resources issues have been identified that could affect the deliverability of the project. No Transfer of Undertakings Protection of Employment (TUPE) issues are expected. Further details of the required capabilities and assigned resources are set out in the Management Dimension.

5.13 CONTRACT MANAGEMENT

5.13.1. The form of contract selected provides the Council with a suitable contract at construction to manage and minimise risk.

5.13.2. Design, planning, procurement and construction supervision will be managed by the Council's BECC provider WSP. The delivery of the scheme will build upon the experiences the Council and WSP have gained from delivering other major highways schemes in recent times, including the Oswestry A5 Mile End junction improvements and Shrewsbury Integrated Transport Package.

5.13.3. A selection of key schemes providing evidence of the Council's ability to successfully deliver high quality highways schemes have also been provided in Table 6-1 of the Management Dimension.

5.13.4. The NEC Project Manager, known as the NWRR Project Manager, will administer the contract on behalf of the Council and will have the designated authority to issue all instructions, notifications and other communications required under the contract.

5.13.5. As well as providing general management support and advice to the NWRR Project Manager, the Council will undertake the role of Supervisor under the contract with responsibility to check for compliance to the Scope.

5.13.6. Under the contract, the responsibilities of the NWRR Project Manager or the Supervisor may be delegated, but this is not anticipated at this stage.

5.13.7. This site team will be supported by a Commercial Manager, a Programme Engineer and a small team of Quantity Surveyors.

5.13.8. The proposed implementation timescales are set out in Section 5.11.

5.14 COMMERCIAL VIABILITY

5.14.1. The information presented in this Commercial Dimension provides evidence that the scheme is commercially viable, with a robust contracting and procurement strategy. The Council has confidence that the contractual and commercial arrangements are appropriate and workable.

5.14.2. The 'Find a Tender' process was considered a robust delivery mechanism for the NWRR. The procurement route has included risk management as a core principle, using strategies of risk allocation and transfer to the Contractor. It included the use of disincentives, delay damages for programme overruns or missing key milestones to achieve delivery on time and to the required quality. The completed scheme design has provided greater confidence on key elements of the procurement process including timescales for remaining tasks, statutory orders, and funding position, which enabled the Council to issue the construction work Contract.

5.14.3. The timelines for procurement and contract award are shown in Table 5-5.

Table 5-5 – Procurement timescales

Activity	Dates
Publish Prior Information Notice (PIN) in FTS	Wednesday 20 December 2023
Deadline to request meeting with Shropshire Council	Friday 12 January 2024
Meetings held with twelve interested Contractors	Wednesday 17 and Thursday 18 January 2024
Publication of Pre-Qualification Questionnaire (PQQ) / Selection Questionnaire (SQ)	March 2024
Return of PQQ / SQ	April 2024
Evaluation of PQQ / SQ and shortlist 4 bidders	April 2024
Inform unsuccessful applicants	April 2024
Invitation to Submit Initial Tenders (ISIT)	May 2024
ISIT clarifications closed	Tuesday 30 July 2024
Initial tender submission	Tuesday 6 August 2024
Commencement of negotiation period	Wednesday 21 August 2024
Negotiation meetings (risk transfer and price)	Tuesday 27 August 2024 and Wednesday 28 August 2024
Conclusion of negotiation period and Invitation to Submit Final Tenders (ISFT)	Wednesday 28 August 2024
Written feedback provided for responses to the 8 technical quality questions	Thursday 5 September 2024
Negotiation meetings (technical quality questions)	Monday 16 September 2024
Conclusion of negotiation period and Invitation to Submit Final Tenders (ISFT)	Wednesday 18 September 2024
ISFT clarifications close	Monday 7 October 2024
Final tender submission	Monday 14 October 2024
Contract award notification to all tenderers	Monday 11 November 2024
Standstill stage elapses	Thursday 21 November 2024
Contract award notification	Thursday 21 November 2024
Shropshire Council submit FBC to DfT (subject to completion of Section 106 agreements and issue of planning notice)	December 2024
DfT decision on funding expected	March 2025

Activity	Dates
Contract signature	April 2025
Main construction works commence	May 2025
Scheme open to public	November 2027

5.15 SUMMARY OF THE COMMERCIAL DIMENSION

5.15.1. The scheme has used the traditional contract form of procurement which was reviewed to ensure the contract terms and details aligned with the scheme requirements, and to ensure the procurement process would be delivered competitively.

5.15.2. The preferred procurement option was a traditional construction contract as this offers increased cost and programme certainty. The programme constraints and the limited scope for innovation reduced the benefits of a Design and Build model. The Council had ready access, including through its term consultant, to the design resources necessary to procure the scheme under a traditional model.

5.15.3. The selected competitive tender process facilitates (if required) a period of negotiation in order to optimise bids.

5.15.4. In line with the Council's adopted single stage traditional contract approach, the scheme was procured using NEC4 Option C – Target Cost Contract with Activity Schedule.

5.15.5. The Commercial Dimension has demonstrated that the scheme is commercially viable, with a robust contracting and procurement strategy.

6

Management Dimension

6 Management Dimension

6.1 INTRODUCTION

6.1.1. The Management Dimension describes how the scheme will be delivered through project management, best practice, confirming that the timescales are realistic, and demonstrating that an appropriate governance structure is in place to oversee the project. This dimension considers the following structure in line with 'the Transport Business Case: assessment and process procedures' guidance from the DfT and sets out:

- Evidence of similar, large scale projects that have been successfully delivered
- Project scope, dependencies and constraints
- Governance arrangements that have been put in place to oversee delivery
- The key work packages and the programme plan for delivery
- The assurance regime for the project
- The stakeholder management process
- Project reporting arrangements
- The Carbon Management Plan
- The strategy for identifying and managing programme risks and issues
- How lessons learned will be fed back through the project
- The Benefits Realisation Plan
- The Monitoring and Evaluation Plan
- How critical systems and data will be maintained safely and securely
- Project closure arrangements once all deliverables have been met

6.2 EVIDENCE OF SIMILAR PROJECTS

6.2.1. The delivery of the scheme will build upon the experiences from a number of major highways schemes undertaken by the Council in recent times, and also current schemes that WSP (the delivery team) have secured Large Local Majors Funding for and are taking through the planning process.

6.2.2. Table 6-1 provides evidence of the Council's ability to successfully deliver high quality highways schemes. Opportunities will be taken, wherever possible, to improve delivery processes by acting upon lessons learnt from recent schemes. For example:

- Maintaining good stakeholder consultation and engagement, including developing statements of common ground wherever possible during design development and construction phases of the project
- Finalising design work before moving to the construction phase as any change to the design during the construction phase will be disruptive
- Early engagement with utility providers as part of the detailed design phase including using trial holes to establish the location of apparatus on site
- Early procurement of the main Contractor and engagement with subcontractors to obtain value engineering advice during the detailed design
- Aiming to carry out as much utility diversion work as possible prior to the start of the main construction works, with works being split across direct delivery by the Utility Companies themselves, and [redacted], where appropriate and more cost effective

Table 6-1 – Evidence of similar projects delivered

Contract	Description	Works Date	Contract Form	Approx. Value	Comments
Levelling Up Fund (Round 2): Shrewsbury Gyratory	Public realm improvement and the introduction of active travel corridor	2024	NEC4 ECC Option B	£4m	-
Oswestry Innovation Park Enabling: Access and Utilities	Construction of new service roads and utility infrastructure works for the proposed Oswestry Innovation Park development.	2024	NEC4 ECC Option B	£6.5m	-
Oswestry Innovation Park Enabling: Oswestry A5 Mile End Pedestrian and Cycle Bridge	Construction, including fabrication, of a stell truss overbridge crossing the A5 to the north of the new Mile End junction	2023 - 2024	NEC4 ECC Option A	£6m	-
Oswestry A5 Mile End Junction	Major junction upgrade on the SRN, including the creation of a new dumbbell roundabout	2021 - 2022	SCAPE Framework - NEC 4 ECC Option A	£10m	CIHT West Midlands Awards: Highly Commended
Shifnal Town Centre Improvement Scheme	Public realm improvements, capacity improvements and realignment of key junctions	2021 - 2022	NEC3 Option B	£2.45m	-
A529 DfT Safer Roads Fund improvement scheme between Hinstock to Audlem	Package of twelve safety improvement and maintenance schemes including junction and visibility improvements, reduced speed limits, and enhanced road markings and signage	2019 - 2024	Shropshire Council Term	£3.88m	Commended by DfT for contribution to receipt of 2023 Safer Roads Fund Prince Michael Internation Road Safety Award
A529 Mount Pleasant Crossroads	Junction improvement scheme at high collision cluster site	2019	Shropshire Council Term	£0.25m	No collisions since scheme installed 2022 IHE Best Small Scheme:

Contract	Description	Works Date	Contract Form	Approx. Value	Comments
					Shortlisted
Shrewsbury Integrated Transport Package 2: Public Realm	Public realm improvements across four high trafficked streets in Shrewsbury town centre	2018 - 2021	NEC3 ECC Option B	£4m	2022 CIHT West Midlands Awards: Highly Commended 2022 CECA Midlands Awards: Commended
Shrewsbury Integrated Transport Package 1: Key Junctions (including Meole Brace Roundabout)	Junction upgrades at four major junctions on the inner distributor ring road, including highway and public realm improvements, traffic management; active travel links and wayfinding	2016 - 2017	NEC3 ECC Option B	£4m	Meole Brace Roundabout: 2018 CIHT West Midlands Best Small Project: Winner 2018 IHE West Mercia Best Major Scheme: Merit
A41 Cosford	Signalised junction with highway and footway improvements	2014	NEC2 Option B	£0.45m	-
Fiveways, Whitchurch	Signalised junction with highway and footway improvements	2014	NEC2 Option B	£0.37m	-
Ludford Bridge, Ludlow	Pedestrian crossing and carriageway re-alignment	2013	Shropshire Council Term	£0.09m	2014 ICE Small Safety & Innovation: Winner
Shrewsbury Northern Gateway	Signalised gyratory improvement and pedestrian / cycleway enhancements	2012 - 2013	NEC2 Option B	£1.2m	2014 IHE Awards: Winner
Raven Meadows, Shrewsbury	Signalised junction with highway, footway and cycleway improvements	2012 - 2013	NEC2 Option B	£0.35m	-
Harlescott Crossroads	Signalised junction upgrade, highway, pedestrian and drainage improvements, including STATS diversion	2010	NEC2 Option B	£2.2m	2011 CIHT Small Scheme of the Year: Winner

CONSULTANT TEAM EXPERIENCE

6.2.3. In 2023, the Council's awarded the new five-year Built Environment Consultancy Contract (BECC) to WSP, extending the previous highway and transport engineering consultancy contract, which had been held by WSP since April 2015.

6.2.4. The WSP team comprises highways and structures designers, urban designers and landscape architects, planners and transport planners, environmental consultants, land references, and a dedicated project management team responsible for ensuring the technical delivery team hit key milestones and programme tasks to achieve timely delivery.

6.2.5. WSP has experience and expertise in developing business cases for the MRN and LLM programme. Recent projects currently under construction include the Great Yarmouth Third River Crossing for Norfolk County Council and Lake Lothing (Lowestoft) Third Crossing for Suffolk County Council. WSP is also one of the UK's leading providers of support services to the statutory procedures required to plan, deliver and maintain infrastructure projects, providing land referencing, stakeholder engagement and consultation service, and order management.

CONTRACTOR EXPERIENCE

6.2.6. A Contractor with significant experience in delivering similar large-scale highway projects has been selected to construct the scheme. The selection and procurement of the Contractor is summarised in the Commercial Dimension, and the management of the Contractor is considered in the project governance section below.

6.3 PROJECT SCOPE, DEPENDENCIES AND CONSTRAINTS

PROJECT SCOPE

6.3.1. The scope of the scheme includes the planning, design, delivery, and operation of a new 7.3m wide single carriageway all-purpose 4.85km long road linking the northern and western parts of Shrewsbury to complete the full ring of the outer bypass of Shrewsbury.

6.3.2. The scheme includes a viaduct, approximately 584m in length, over the River Severn and its floodplain, a vehicular bridge over the Shrewsbury to Chester railway line, a new at-grade four arm roundabout located on the B5067 Berwick Road, replacement of the existing at-grade five-arm A528 Ellesmere Road roundabout with two at-grade four-arm roundabouts in a 'dumb-bell' configuration, and an overbridge and equestrian culvert to maintain existing PRoW.

6.3.3. Additionally, a shared 3m wide footway/ cycleway will be provided along the length of the southern side of the new road to encourage active mode uptake and reduce severance.

6.3.4. The scheme will improve connectivity and accessibility between the north and west of Shrewsbury, reduce congestion and delays; improve network efficiency and resilience; reduce rat-running traffic on unsuitable rural roads, improve local air quality in Shrewsbury town centre, encourage modal shift to more sustainable modes of transport; improve road safety; and unlock and support residential and economic development.

6.3.5. Further details of the scheme's scope are outlined in Section 2.13 of the Strategic Dimension.

PROJECT DEPENDENCIES

6.3.6. The delivery of the NWRR is not dependent upon the delivery of any other scheme, nor is the delivery of any other scheme dependent upon the NWRR.

6.3.7. However, the successful delivery of project is dependent upon the receipt of Government Funding, sought from the LLM fund. If the Value for Money, deliverability, and affordability of the scheme cannot be demonstrated, it will not proceed past the gateway point at FBC Stage (Full Approval).

6.3.8. In addition, although Planning Permission was granted by the Council's Northern Planning Committee on 15 February 2024, scheme delivery is dependent on the discharge of the 63 planning conditions and completion of the required Section 106 agreements.

6.3.9. A number of projects and schemes will be supported by the delivery of the NWRR, and these are set out in Table 6-2.

Table 6-2 – Linked projects

Dependency	Details
Oxon Link Road	The NWRR, in the form now proposed, will be delivered at the same time as the Oxon Link Road. The Oxon Link Road is being funded separately by Local Growth Deal and Shrewsbury West SUE developer funding and, like the NWRR, is expected to be completed by September 2027 (except for the Welshpool Road traffic management measures that will be delivered by February 2028)
Shrewsbury Big Town Plan	Wherever possible and practicable, the Big Town Plan seeks to implement measures in the town centre to reduce non-essential car journeys. The NWRR is key to the success of the Plan as it will reduce north-west corridor through traffic volumes in the town centre which will support reduced journey times for bus services, increasing their attractiveness and viability. The lower traffic flows will enable road space realocation within the town centre to support enhancements to the active mode network, further supporting modal shift
North East Shrewsbury Improvement Scheme	The North East Shrewsbury Improvement Scheme aims to create a more efficient and high quality network, supporting movement across the town and improving links to employment and residential settlements through the delivery of capacity enhancements at five roundabouts and active travel corridors. The scheme will complement the NWRR scheme by providing additional capacity at the Enterprise and Battlefield Roundabouts that lie on the A5124 Battlefield Link Road that directly connects with the NWRR at Ellesmere Roundabout and provides direct access between the NWRR and the A49 and A53 to the north of Shrewsbury
LUF- Town Centre Regeneration	The successful LUF bid involves delivering two complementary infrastructure and public realm projects. Among other objectives, the two projects aim to create a connected and accessible town centre for all modes of transport. The NWRR will complement the LUF investment as it will reduce noise and improve air quality across the area, making it even more attractive for active travel users, encouraging higher modal shift to active modes and further supporting the regeneration of both areas, helping to level up Shrewsbury

Dependency	Details
Safer Roads Fund Scheme	In September 2022, a Safer Road Fund Scheme for the A5191 in Shrewsbury was listed on the Government's Growth Plan issued by the Treasury. The scheme is located between Heathgates Roundabout to the north of the town and Wyle Cop to the south (including part of the north-west corridor route). The NWRR will complement this scheme as it will further enhance safety along the A5191 by reducing traffic volumes, congestion and the number of through freight movements using this section
Royal Shrewsbury Hospital Redevelopment	The redevelopment will see the Royal Shrewsbury Hospital, located to the west of Shrewsbury town centre, become the centre for critical, emergency care. The NWRR will enhance the accessibility of the hospital site and help reduce ambulance response times to and from areas to the north of the town by providing a faster, more direct route. For those whose fastest route to access the hospital will continue to be via the town centre and Welsh Bridge, journey times will become faster and more reliable with the transfer of through north-west corridor traffic on this route to the NWRR. The scheme will also enhance connectivity and improve inter-site movements for staff and patients between this and the associated Princess Royal Hospital in Telford
Shrewsbury Parkway Station	The currently proposed location for this new station is close to Preston Boats Island at the key A5 / A49 junction to the east of the town. Much of the traffic between the north and west of Shrewsbury that currently chooses not to travel via the town centre, travels around the outer bypass passing through the A5 / A49 junction at Preston Boats Island. The NWRR will attract existing through traffic away from this route as it provides a new shorter and more direct route, reducing traffic volumes through the A5 / A49 Preston Boats junction. This in turn will help to facilitate the delivery of the new station (currently progressing to Strategic Outline Business Case stage)

PROJECT CONSTRAINTS

6.3.14. The following types of constraint have been taken into account in developing the scheme:

- Physical
- Environmental
- Financial
- Contractual
- Public acceptability

6.3.15. Further details of the constraints are outlined in Section 2.14 of the Strategic Dimension.

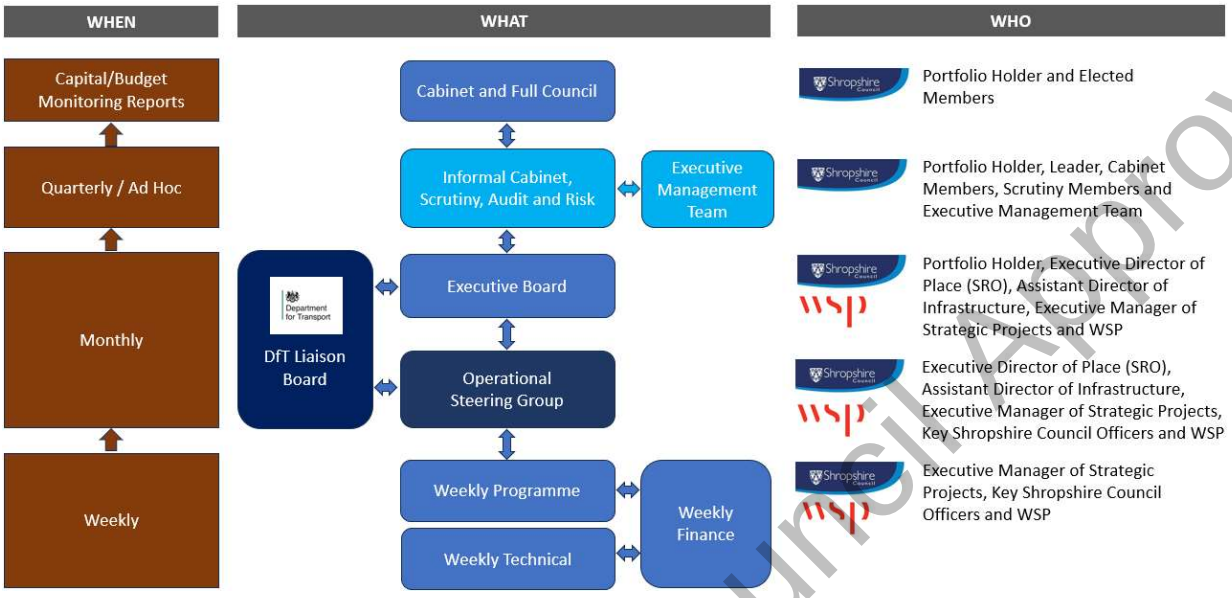
6.4 PROJECT GOVERNANCE, ORGANISATIONAL STRUCTURE AND ROLES

6.4.1. The governance structure for the scheme follows an established structure that has been used by the Council for successful delivery of previous schemes. To ensure successful delivery of the scheme, the Council has established and will continue to resource the following bodies:

- Executive Board
- Operational Steering Group
- Project Delivery Team

6.4.2. The organisational and governance structure is illustrated in Figure 6-1 and shows the essential lines of accountability and responsibility.

Figure 6-1 – Project governance structure



EXECUTIVE BOARD

6.4.3. At the heart of project governance is the Executive Board, which is the decision-making body for the project. Its primary functions are decision taking and review and it is responsible for:

- Approval of project / scheme objectives and scope
- Authorisation of expenditure on the project in line with the Project Plan, within the existing delegations from Cabinet/ Full Council
- Briefing senior officials and other executives on the status of the project
- Communication of information about the project to other parts of the Council and key stakeholder groups
- Project assurance
- Signing off any changes to the Project Plan, Business Case or project budget
- Monitoring quality control
- Managing key risks highlighted in the Risk Register
- Signing off key stages of the project and approval to proceed to the next phase
- Monitoring the project as it develops to ensure that it meets the scheme objectives

6.4.4. The Executive Board will meet monthly until the project has been completed, after which it will make arrangements for ongoing oversight and reporting of monitoring and evaluation.

6.4.5. Project reporting to the Executive Board will include the necessary detail to inform the Board's primary function of decision-making and review. The reporting will be delivered through the Project Delivery Team in advance of the Executive Board meetings. The reporting will provide updates on scheme progress including programme review, financial matters, Health and Safety, environmental issues, risks and opportunities, partnering and consultation. Particular emphasis will be given to change controls and highlighting any key decision or actions required by the Board.

6.4.6. The members of the Executive Board are shown in Table 6-3.

Table 6-3 – Executive Board membership

Role	Responsibility	Name	Position
Portfolio Holder	Chair of Executive Board	Cllr Dan Morris	Shropshire Council – Portfolio Holder for Highways
Project Sponsor / Senior Responsible Officer	Responsible for the successful delivery of the project, ensuring that it meets its objectives and delivers its intended benefits	Mark Barrow	Shropshire Council – Executive Director of Place
Project Director	Chair of Operational Steering Group	Andy Wilde	Shropshire Council – Assistant Director of Infrastructure
Project Manager	Managing the project to ensure that it delivers the required products within the agreed constraints. Coordinating the work of the delivery team.	Matt Johnson	Shropshire Council – Executive Manager of Strategic Projects Highways and Transportation
Capital Finance Partner	Responsible for financial monitoring and reporting	Donna Payne	Shropshire Council- Capital Business Partner
Lead Consultant / WSP Project Director	Represents those who are designing, developing, facilitating, procuring and implementing the scheme. Verifies the quality of products delivered by suppliers, resolves supplier conflicts, and monitors and manages supplier-related risks	[redacted]	WSP – Technical Director

6.4.7. The Project Sponsor and Senior Responsible Officer (SRO) for the Council is Mark Barrow who is currently Executive Director of Place.

6.4.8. The Project Director for the Council is Andy Wilde who is currently Assistant Director of Infrastructure.

6.4.9. The Project Manager for the Council is Matt Johnson who is currently Executive Manager of Strategic Projects Highways and Transportation. Matt leads on Major Strategic Infrastructure Projects for the Council, developing road and rail policy, and is also involved in regional and cross Welsh border initiatives such as Midlands Connect, The Marches Forward Partnership and the governance of the West Midlands Rail devolved rail franchise. Matt has been with the Council for 20 years and, in that time, has led on a number of key service area developments including the local subsidised rural bus network review, the development of the Community Transport sector and a Community Transport Consortium, and the design of the innovative and National Transport Award winning “ShropshireLink” demand responsive Local Bus network. For the last 9 years, Matt has taken the lead client role for Shropshire Council in managing externally funded major highway infrastructure projects. Such projects deliver new key infrastructure within Shropshire but are also closely aligned to the Council’s wider Economic Growth ambitions. Two successful bids to the Growth Deal Round 2 have resulted in the completion of the £12m Shrewsbury Integrated Transport Package, and the £12.5m OLR project, which is now in delivery. Matt also led on the OBC development process, Planning Application, and latterly the FBC preparation for the NWRR. Matt

and Shropshire Council continue to work successfully on these initiatives in partnership with their term consultants WSP.

OPERATIONAL STEERING GROUP

6.4.10. The role of the Operational Steering Group is for members to provide input to project based on their direct experience on similar projects. The group will meet monthly during the course of a project and is a key body within the governance structure with responsibility for providing political input and overview of the project delivery. The current membership of the Operational Steering Group is shown in Table 6-4.

Table 6-4 – Operational Steering Group membership

Role	Responsibility	Name	Position
Project Sponsor / Senior Responsible Officer	Responsible for the successful delivery of the project, ensuring that it meets its objectives and delivers its intended benefits	Mark Barrow	Shropshire Council – Executive Director of Place
Project Director	Chair of Operational Steering Group	Andy Wilde	Shropshire Council – Assistant Director of Infrastructure
Project Manager	Managing the project to ensure that it delivers the required products within the agreed constraints. Coordinating the work of the delivery team.	Matt Johnson	Shropshire Council – Executive Manager of Strategic Projects Highways and Transportation
Capital Finance Partner	Responsible for financial monitoring and reporting	Donna Payne	Shropshire Council – Capital Business Partner
Risk Management	Ensuring a robust risk management process is in place and providing assurance to the Executive Board	Saskia Richardson	Shropshire Council – Risk & Business Continuity Manager
Legal Services	Commission of external legal support in order to deliver the scheme.	[redacted]	[redacted] - Externally appointed Legal Adviser to the project
Estates	Responsible for all property related matters, including acquisitions, management and disposals	Steve Law	Shropshire Council – Head of Property and Development
Project Director - WSP	Represents those who are designing, developing, facilitating, procuring and implementing the scheme. Verifies the quality of products delivered by suppliers, resolves supplier conflicts, and monitors and manages supplier-related risks	[redacted]	WSP – Technical Director

PROJECT DELIVERY TEAM

6.4.11. The Council has established a Project Delivery Team for the scheme. The team will be led by the Project Manager (Matt Johnson) and includes representatives of the various disciplines and work streams involved in delivering the project to completion. The Project Delivery Team will meet weekly, or as required, and the Project Manager will be responsible for determining which disciplines or work streams need to be represented at any particular meeting.

6.4.12. The Project Delivery Team approach runs from 'cradle to grave', right through the design, statutory planning processes, procurement and construction stages. Each work stream will have an individual, detailed, agreed action plan to meet the target milestones for the coming year and beyond. This ensures coordination of activities and is a forum for discussing issues / problems as they arise.

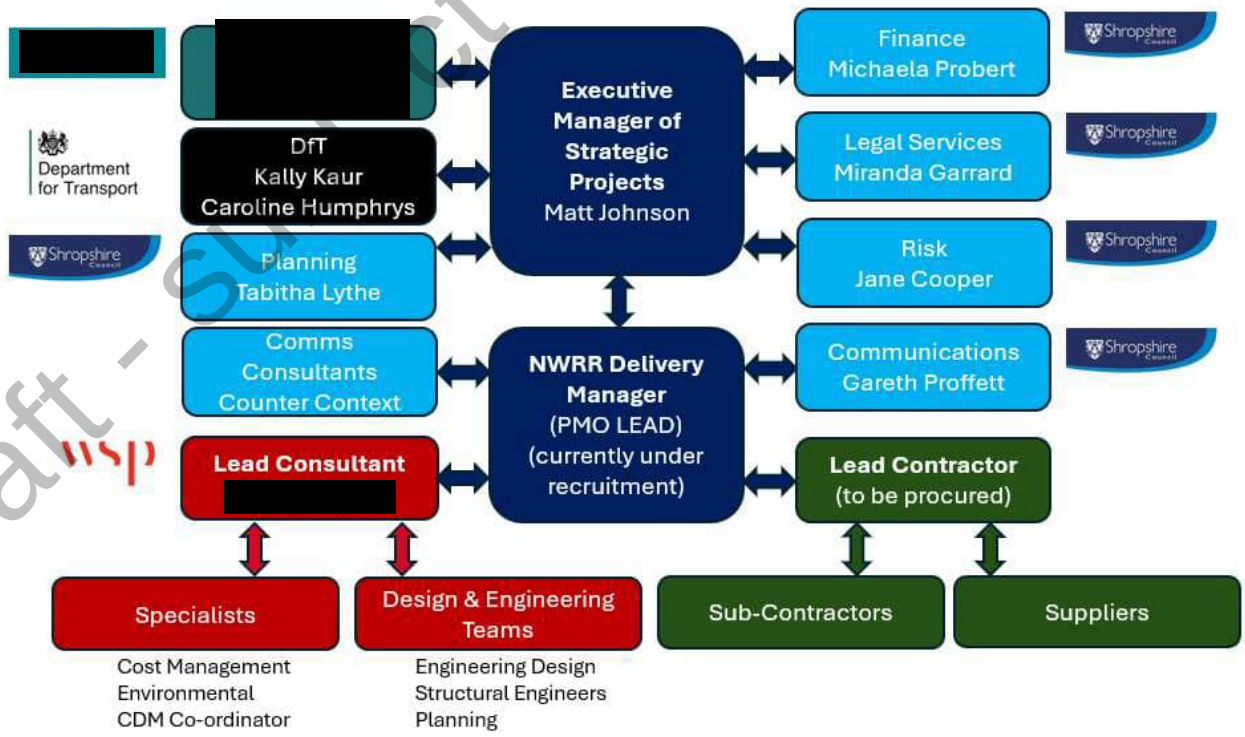
6.4.13. The main responsibilities of the Project Delivery Team are to:

- Coordinate the different activities which make up the project
- Provide direction to the technical delivery of the project
- Undertake monthly reviews of progress against targets, including budget and programme
- Undertake monthly review of the risk register, and initiate corrective action where appropriate
- Provide monthly progress reports for the Executive Board who will consider any matters of a strategic nature and give advice accordingly

6.4.14. Costs are monitored and presented to the Executive Board monthly. The Project Manager maintains the system, with the support of the Council's Capital Finance Partner, and takes account of any known committed costs in updating forecast outturn.

6.4.15. The current Project Delivery Team is shown in Figure 6-2. However, with the start of construction activities, the size and roles of the team members are subject to change.

Figure 6-2 – Project delivery team



6.4.16. The key roles within the WSP team are set out in Table 6-5.

Table 6-5 – WSP project delivery team members

Role	Name
Lead Consultant / Project Director	[redacted]
Project Manager / Cost Management Lead	[redacted]
Delivery Lead	[redacted]
Engineering Design Lead (Structures)	[redacted]
Engineering Design Lead (Highways and Drainage)	[redacted]
Geotechnical Lead	[redacted]
Environmental Lead	[redacted]
Transport Lead	[redacted]
Planning Lead	[redacted]
Stakeholder Lead	[redacted]
Street Lighting Lead	[redacted]
Risk Management Lead	[redacted]
CDM Adviser	[redacted]
Land Referencing Lead	[redacted]

6.4.33. The Project Director for WSP is [redacted] who is a Chartered Civil Engineer with over 25 years of experience and is currently based in Shrewsbury. [redacted] and manages a team of 90 plus staff across a range of multi-disciplinary design groups and is a proven Project/Programme Director within both the public and private sectors. He has extensive experience in NEC3 ECC's, and also NEC4 since its introduction and he has been involved on the NWRR project since 2015 and therefore has a good understanding of the scheme history and the challenges that lie-ahead to deliver this major road project to a successful outcome.

6.4.34. The Project Manager for WSP is [redacted] who is a Chartered Member of the Institution of Highways and Transportation with 34 years of wide-ranging experience within the construction industry and is also currently based in Shrewsbury. She specialises in Major Projects with fees up to £22m and has also recently been promoted into the leadership team where she works to provide commercial leadership within the Council Commission.

AVOIDING CONFLICTS OF INTEREST

6.4.35. To avoid conflict of interests between consultants and Council Officers on the promoter side of the scheme, and those Council Officers undertaking statutory duties in assessing the impact on the scheme, such as highway and transport development control officers, or environmental protection officers, the Council will implement an 'organisational wall' to maintain clear separation of roles.

6.4.36. All Council Officers or term contract consultants will be assigned either to the promoter / delivery arm of the scheme, or the assessment / protection arm of the scheme. Individuals working on one side, will not be able to work on the other.

6.5 PROJECT PROGRAMME

6.5.1. A project programme has been developed setting out all the key project tasks and their duration, the interdependencies between each of the tasks, and key milestones and gateways. Certain elements of the programme have built in tolerance / contingency to account for risks identified within the risk register (which could have an impact upon the programme).

6.5.2. The programme will be a live document, with progress on planned task completion being monitored against actual progress on a weekly basis by the Project Manager. The Project Manager will report progress against plan to the Executive Board.

6.5.3. Construction works for the NWRR are programmed to commence in May 2025. The scheme is programmed to be completed in November 2027. The detailed project programme is located in Appendix P.

6.6 ASSURANCE AND APPROVALS PLAN

GATEWAY REVIEWS

6.6.1. It is essential that large, complex and long running projects are monitored effectively. All major transport schemes have to demonstrate that a system for monitoring progress is part of the management structure and plan.

6.6.2. A Gateway Review is an independent, peer-reviewed assessment of a project carried out at crucial stages of its development so as to focus on whether the project can progress successfully to the next stage. It provides assurance and support to the SRO that:

- Suitable skills and experience are deployed on the project
- All stakeholders understand the project status and issues
- There is assurance that the project can progress to the next phase
- Time and cost targets have a realistic basis
- Lessons are learned
- The project team are gaining input from appropriate stakeholders

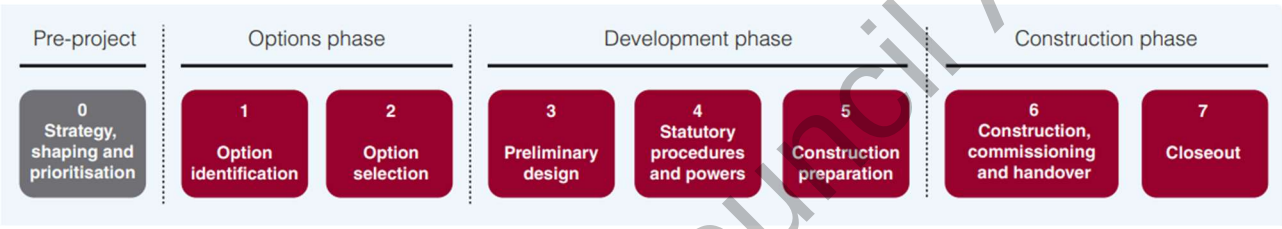
6.6.3. Gateway Reviews were recommended by the former Office for Government Commerce (OGC) for schemes with a total cost of £50 million or more. National Highways also continues to require

gateway reviews as part of their Project Control Framework (PCF)[43] and it is generally considered good practice for large infrastructure schemes seeking Government funding.

6.6.4. Gateway Reviews can be broadly linked to the DfT's three stage approval process with the Gateway 1 and 2 Reviews being carried out between Strategic Outline Business Case (Programme Entry) and Outline Business Case (Conditional Approval) and the Gateway 3 Review being carried out prior to Full Business Case (Full Approval). However, in the case of NWRR, procurement of the contract has resulted in a change from the usual programme of reviews as discussed below.

6.6.5. The Gateway Review process assesses the scheme's viability and the proposed approach for achieving delivery of the scheme objectives. This approach allows review to assure the SRO, and ultimately the Executive Board, that the selected delivery approach is appropriate. Figure 6-3 shows the usual lifecycle of a major project.

Figure 6-3 – Major Projects Lifecycle



6.6.6. Herefordshire County Council have agreed to act as an independent Gateway reviewer for the project.

6.6.7. Gateway reviews are held at key development stages of a project and for the NWRR the timings of proposed gateway reviews are shown in

[43] Project Control Framework, National Highways, 2018

6.6.8. Table 6-6.

Table 6-6 – Gateway Review Stage timings

Stage	Project Timing	Anticipated Date
1	Business justification ▪ Entry to the options phase (undertaken on behalf of DfT) (Option identification stage)	Carried out previously
2	Delivery Strategy ▪ Entry to the development phase (Preliminary design stage)	Carried out previously
3a	Investment decision ▪ Entry to the statutory procedures and powers stage	December 2024
3b	Investment decision ▪ End of the construction preparation stage	March 2025
4	Readiness for service ▪ Prior to open for traffic or consent to operate	November 2027
5a	Operational review and benefits realisation ▪ Following handover into operations and before the end of the defects period	May 2028
5b	Operational review and benefits realisation ▪ A further operational benefits review may need to be undertaken. The timing is at the discretion of the SRO	May 2029

FUNDING ASSURANCE

6.6.9. The Council's Section 151 Officer has confirmed a maximum local contribution value of £109 million. The LLM fund cover sheet / application form the Section 151 Officer also declares that the Council accepts responsibility for meeting any costs of delivering the scheme over and above the DfT contribution requested, including potential cost overruns, and the underwriting of any third party contributions. The Section 151 Officer will approve the release of local funding, when satisfied and appropriate to do so. The local funding contribution is discussed further within the Financial Dimension.

6.7 COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT

6.7.1. A Communication and Engagement Strategy has been developed which identifies stakeholders, describes the communication objectives and specifies the key messages, frequency of engagement and communication methods to be used when engaging with these groups about the scheme. This is provided in Appendix Q.

6.7.2. The communication objectives must support the project objectives and the effective delivery of the NWRR and are to:

- Raise awareness of the NWRR, the scheme's development and its expected benefits through the provision of a consistent narrative
- Instil widespread confidence in the project by providing up-to-date information, regular updates and opportunities to ask questions and comment, promoting consultations and importance of being involved

- Encourage independent advocacy by providing targeted information to key stakeholders

6.7.3. All stakeholders are important to the scheme's success, and communications with each group of stakeholders will continue to be tailored to their specific needs and interests. The Council's Communications team with support from the Council's consultants, will continue to make use of a wide range of targeted and general communications channels, including the project website (www.shropshire.gov.uk/roads-and-highways/shrewsbury-north-west-relief-road), the Council Newsroom, social media, mailings, face-to-face meetings and workshops to engage with stakeholders.

6.7.4. The key objectives of the scheme's stakeholder engagement process are to:

- Keep stakeholders aware of the scheme's progress and provide an opportunity for feedback to help gain scheme support
- Give an opportunity for stakeholders to provide views and recommendations for improvements so that the scheme meets stakeholder requirements as far as is practical
- Meet statutory requirements
- Increase public and stakeholder awareness of the scheme
- Provide consistent, clear and regular information to those affected by the scheme, including the nature of any scheme-related impacts and when and how it will affect people or groups both during delivery and once operational
- Address perceptions of the scheme where these are inconsistent with the scheme objectives and forecast outcomes

6.7.5. A summary of the approach adopted by the Council to engage with key stakeholder groups is shown in Table 6-7.

Table 6-7 – Engagement approach with key stakeholder groups

Key Group	Approach to Stakeholder Communication and Engagement
Political	▪ Continuing to set out a clear case with key information sharing with local MPs as to why the NWRR is essential to the growth of the area and how it can accelerate financial investment ▪ Reassurance to political members that processes are inclusive ▪ Continued high level engagement with local MPs, delivering updates on scheme delivery
Businesses	▪ Reassurance that the NWRR is sensitive to the needs of local businesses, highlighting that the economic growth the scheme will help generate will not only bring new business in to the area, but also benefit businesses already in the area ▪ Providing regular information to key businesses on the progress of the scheme ▪ Liaising closely with the businesses directly and indirectly affected by the scheme ▪ Specially targeted consultation events and one to one meetings with key businesses
Residents	▪ Reassurance that the Council are working on the NWRR to ensure that sustainable economic growth that works in the best interests of local people ▪ Engaging residents on the progress, design and delivery of the scheme through a number of public engagement events throughout the development of the scheme

6.7.6. This engagement approach includes well established protocols to ensure that enquiries from the press, members of the public, elected councillors, stakeholders and other interested parties are dealt with in the right way as it is essential that the information provided is accurate, timely and informative. This function is also now cascaded into the Main Contractor scope as tendered.

6.7.7. The engagement process to date has provided evidence of the strong local and political support for a NWRR, with letters from a range of stakeholders who support the scheme are provided in Appendix C.

6.7.8. As the project progresses in terms of key milestones of the programme being achieved, further updates will be shared with stakeholders, together with information about the wider infrastructure improvements and investment being planned for Shrewsbury.

6.7.9. The Council have also selected 'Counter Context', an external specialist public relations and engagement company, to support with future scheme press releases.

6.7.10. The Council will build upon the stakeholder engagement undertaken for the OBC, and on the relationships developed with businesses, residents and all other interested parties and stakeholders will continue to be involved throughout the delivery phase. The plan for future communication with stakeholders is set out in Table 6-8.

Table 6-8 – Future communication methods

Audience	Type of Communication	Frequency	Responsibility
General public	Formal consultation and regular updates on project progress on the Council NWRR project webpages and Newsroom	As required	Council Communications team
Shropshire Council	Project workshops and meetings	As required	Project Manager
Shrewsbury Town Council	Project meetings	As required	Project Manager
Network Rail	Scheme facilitation discussions	Weekly	Project Manager and WSP
Other key stakeholders	Ad hoc workshops and meetings	As required	Project Manager
General correspondence	Letters, emails, social media	As required	Project Manager and Council Communications team

The Communication and Engagement Strategy will be updated regularly by the Council Communications team to reflect changes to the project programme and emerging details. Approval for significant updates to the strategy will be sought from the Executive Board, with Operational Steering Group support where appropriate. The Council Communications team will lead on the delivery of the strategy, including seeking approval for communications as appropriate. Members of the project team, the Council Communications team, and senior councillors and officers will also contribute to the plan's delivery, as detailed in

6.7.11. Table 6-9.

Table 6-9 – Stakeholder communication and management – roles and responsibilities

Role / Responsibility	Name
Senior Oversight	Dan Morris (Shropshire Council – Portfolio Holder for Highways) - Final approval of high-profile communications
Senior Responsible Officer	Mark Barrow (Shropshire Council – Executive Director of Place) - Approval of lower-level communications
Project Management	Matt Johnson (Shropshire Council – Executive Manager of Strategic Projects) - Approval of lower-level communications and responsible for factual accuracy of statutory process
Communications and Stakeholder Engagement	Nigel Newman (Shropshire Council – Head Of Communications and Engagement) / Laura Pell (Shropshire Council – Communications Manager) - Lead on the delivery of the Communication Strategy, create and review key communications, main liaison with Contractor communication leads, management of relationships with key stakeholders, media relations lead, provide regular updates to the Executive Board, support the project team in planning for events/consultations, provide direct support for Members (particularly the Portfolio Holder) and senior Officers, and key point of contact with communications leads at partner organisations Counter Context (external specialist public relations / engagement company) - Support the Council with scheme press releases

6.7.12. As set out in more detail in the Section 2.11, engagement for the project has included five formal public consultations since 2003, as summarised below:

- January / February 2003: To set out the work undertaken to date and determine the level of support for a NWRR in principle and in particular for the protected alignment
- May 2005: To update on the technical review of the scheme and determine the level of support for the six shortlisted route options and the non-road solutions
- March / April 2010: To determine the level of public acceptance of the preferred route option and if there had been any changes in public attitude towards the scheme
- October / November 2017: To remind people about the scheme alignment, objectives, benefits and impacts after so many years, gauge the current level of support for the scheme, ensure awareness of the proposal to submit a funding bid to DfT and obtain up-to-date information and requirements from key stakeholders and landowners
- March / April 2020: To share the latest design proposals that incorporated feedback from the 2017 consultation and to provide the opportunity to give feedback on the latest scheme design and expected benefits in advance of the formal planning application

6.7.13. In addition, formal consultation was undertaken at several points during the elongated planning application process between 2021 and 2023.

6.7.14.

6.7.15. Table 6-10 shows the outline schedule of the past and future communications activity since the submission of the OBC. It will be updated to show more detail as a programme of works is defined for the development stage. The schedule is based on the project programme which assumes statutory processes are completed.

Table 6-10 – Communications activity schedule

Dates	Project Activity	Communications Activity	Audience
December 2017	OBC Submission to DfT	Press release and publication of OBC on Council website	▪ Key stakeholders ▪ All Media
July 2018	Detailed planning application submitted for OLR scheme	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
March 2019	DfT confirm approval of OBC and enter scheme on LLM scheme programme, agreeing a maximum capped £54.4 million funding contribution towards scheme cost	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
May 2019	Report on NWRR presented to full Council ratifying Council's Programme Entry into the LLM and outlining NWRR Programme Delivery arrangements	Web/social media updates	▪ Key stakeholders ▪ All Media
June 2019	Governance report on NWRR presented to the Council Scrutiny and Place Overview Committee	Web/social media updates	▪ Key stakeholders ▪ All Media
August 2019	Detailed planning application for OLR scheme withdrawn	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
March and April 2020	Public and stakeholder consultation on updated proposed NWRR scheme (incorporating the OLR)	Release and wider promotion of consultation materials through website, social media, local/virtual events, direct mail and targeted local advertising	▪ Local residents / business affected ▪ Key stakeholders ▪ Local Media
February 2021	Initial detailed planning application for proposed NWRR scheme (incorporating the OLR) submitted	Press Release, web/social media updates, direct communication to key stakeholders	▪ Local residents / business affected ▪ Key stakeholders ▪ Local Media
March to May 2021	Statutory 56-day consultation period on the initial detailed planning application	Release and wider promotion of consultation materials through website, social media, local/virtual events, direct mail and targeted local advertising	▪ Local residents / business affected ▪ Key stakeholders ▪ Local Media
August 2021	Revised detailed planning application for proposed NWRR scheme (incorporating the OLR) submitted	Press Release, web/social media updates, direct communication to key stakeholders	▪ Local residents / business affected ▪ Key stakeholders ▪ Local Media
February 2023	Supplementary environmental information submitted to local planning authority and further 30-day consultation period commenced	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media ▪ Wider Public

Dates	Project Activity	Communications Activity	Audience
October 2023	The Council's Northern Planning Committee made 'Resolution to Approve Planning Permission' for the proposed NWRR scheme (incorporating the OLR), subject to agreement on wording of 63 planning conditions and completion of required Section 106 agreements	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
December 2023	Prior Information Notice (PIN) published in FTS	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ Trade Press ▪ All Media
February 2024	The Council's Northern Planning Committee approved wording of planning conditions and formally approved planning application, subject to Section 106 agreements and discharge of planning conditions	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
March 2024	Construction Contract procurement commenced	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ Trade Press ▪ All Media
November 2024	Construction contract awarded	Press Release, web/social media updates, direct communications to key stakeholders	▪ Key stakeholders ▪ All Media
December 2024	Planning permission granted	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
December 2024	FBC submitted for consideration by the Council	Press release and publication of FBC on Council website	▪ Key stakeholders ▪ All Media
December 2024	FBC submitted to DfT	Press release and publication of FBC on Council website	▪ Key stakeholders ▪ All Media
March 2025	DfT approval of FBC	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
April 2025	Construction contract signed	Press Release, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ All Media
May 2025	Construction works commence	Press Release, Ground-breaking event, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ Media ▪ Wider Public
November 2027	Scheme open to public	Press Release, opening event, web/social media updates, direct communication to key stakeholders	▪ Key stakeholders ▪ Media ▪ Wider Public

6.8 PROJECT REPORTING

6.8.1. Project reporting will be a live process, which will be kept up to date over the life cycle of the project. This relates to reporting of progress, risks and issues. This will involve the following regular actions, as well as additional reporting as and when required:

- The Project Manager will report to the Executive Board at each Executive Board meeting
- The Project Delivery Team leads will report to the Project Manager monthly in advance of the Executive Board meeting and hold “weekly calls” to discuss progress and issues
- All notes, minutes and action logs will continue to be captured on a SharePoint site available to all Council staff involved in the project to allow a “self-service” approach to project updates where they are not directly involved within the governance structure

6.8.2. Progress will be reported to the Council’s Cabinet, which has executive powers. Intervening reports to Cabinet will be prepared if the Executive Board consider these necessary to resolve a specific project delivery matter. The SRO will provide regular updates to the responsible Cabinet Member. This ensures appropriate involvement of the elected members and Operational Steering Group in this project.

6.8.3. In specific circumstances the Cabinet can give powers to the Executive Board to make specific decisions on projects. The SRO reviews the actual and forecast expenditure against budget profiles and reports by exception to the Executive Board.

6.9 CARBON MANAGEMENT PLAN

6.9.1. A CMP is provided as a standalone document in Appendix R. The CMP supports the development and implementation of a carbon management process within the programme which supports low carbon infrastructure planning and delivery.

6.9.2. The CMP has been developed in alignment with the principles of PAS 2080:2023[44], which defines carbon management as the “assessment, reduction and removal of greenhouse gas emissions during the planning, optioneering, design, delivery, operation, use, end of life (and beyond) of new, or the management of existing, assets, networks and/or systems”.

6.9.3. The purpose of the carbon management process is to manage and reduce the GHG (carbon) emissions over the course of the project lifecycle. This can be achieved through taking actions that maximise whole-life emission reduction impacts (e.g., modal-shift) and minimising impacts that increase emissions (e.g., embodied carbon). These actions must be informed by carbon assessments that provide an understanding of the whole-life carbon impact.

6.9.4. The CMP sets out the latest whole life carbon assessment of the NWRR scheme. The estimated whole-life carbon impact is 94,457 tCO_2e over the 60-year appraisal period plus the 2-year construction period. A full breakdown of the key impacts that make up this whole-life impact can be found in Appendix R.

[44] Revised PAS 2080:2023 | BSI (bsigroup.com)

6.9.5. The infrastructure carbon component of this latest assessment is 41,222 tCO2e, compared with the baseline impact of 55,735 tCO2e (the baseline infrastructure carbon impact was estimated to be 73,611 tCO2e at OBC stage in February 2021, and has been adjusted to 55,735 tCO2e to exclude the OLR component). A 26% reduction in infrastructure carbon has therefore been achieved against this adjusted baseline. A carbon reduction target has been set to reduce the infrastructure carbon impact to 30% relative to the baseline. Further details on this carbon reduction target are provided in Appendix R.

6.10 RISK AND ISSUE MANAGEMENT

RISK MANAGEMENT

6.10.1. Risk management is a continual process involving the identification and assessment of risks (including threats and opportunities) and the implementation of actions to mitigate the likelihood of them occurring and the impact if they did. The Operational Steering Group's approach to risk management will be proportionate to the decision being made or the impact of the risk, to enable the programme to manage risks in a consistent manner, at all levels.

6.10.2. The approach to risk management taken on the programme, which is compliant with the approach outlined within the *HM Treasury Green Book*, is a methodical approach, which involves identifying, quantifying and managing risks. It proceeds through a broadly cyclical process (plan-do-review) requiring on-going review and update of risks to ensure that effective controls are implemented during scheme development and delivery. The risk management cycle is illustrated in Figure 6-4.

Figure 6-4 – Risk management cycle

Risk Management Process

6.10.3. Risk management is seen as a key process underpinning good scheme governance and achievement of scheme objectives in a cost effective manner. TAG Unit A1.2 requires all project related risks, which may impact on the scheme costs, to be identified and quantified in a Quantified

Risk Assessment (QRA) to produce a risk-adjusted[45] cost estimate. This will also build on lessons learned from previous similar projects and details of this are outlined in Section 6.11.

6.10.4. A QRA has been undertaken, using the scheme risk register and Monte Carlo analysis software @RISK. The outcome of the QRA process is the prediction of an 'expected' risk value which provides confidence levels of the risk outcomes, factoring in the various probabilities of these risks materialising. The confidence levels are reviewed to notice any trends with the P80 confidence level used here to provide the 'expected' risk value. This effectively informs the 'risk adjusted cost estimate'. The risk assessment has been undertaken using the following process:

- Risk identification
- Risk quantification
- Assessing the impacts of risk
- Assessing the likelihood of risk
- Managing risk

Risk Identification

6.10.5. For this scheme, risks have been identified during multi-disciplinary discussions, including inputs from technical experts in highway and structural engineering, geotechnical, planning, transport planning, quantity surveying and environmental disciplines.

6.10.6. Following the initial 2017 risk workshop, monthly risk reviews have been held since July 2019 to review and align the risks to the latest information available. A risk identification session was also held to ensure new risks were captured and existing risk information was reviewed, ensuring the completeness, integrity and accuracy of data during the review.

6.10.7. The likelihood and impact of each risk to the project were assessed in terms of their possible monetary, programme and reputational effects.

6.10.8. Owners have been assigned to each risk, based on the type of risk. The risk register has been maintained as a live document and the most recent version of the project risk register can be found in Appendix S.

6.10.9. The scheme risks can largely be grouped into the following categories:

- Design / Planning
- Statutory / Legal
- Environmental
- Financial
- Reputational
- Programme
- Political
- Procurement
- Construction

[45] Risk allowance is a factor applied to project costs to act as a contingency for unforeseen circumstances.

- Staff / Resources
- Technical
- Approvals
- General

Quantification of Risks

Assessing the Impact of Risk (Costs)

6.10.10. Each risk has been evaluated in terms of its cost outcomes. Whilst DfT recommends[46] the use of empirical evidence to estimate a range of cost outcomes, wherever possible, it is noted that 'common sense approximations' should be used when such empirical data is not available, rather than aiming for unrealistic levels of accuracy.

6.10.11. At FBC stage, the cost range associated with the consequences of each risk was estimated, where the 80th percentile is the most likely value (the P80). The estimates have been derived following input from each discipline specialist working alongside the Quantity Surveyor and risk management team, to ensure estimates of cost (and probability, discussed within the next section) were complete and accurate, and consistent with the basis of the base cost estimate.

Estimating the Likelihood of the Outcomes Occurring

6.10.12. Having estimated the likely impact (in cost terms), the likelihood (probability) of the risk occurring was also estimated. Assigning probabilities is not an exact science[47] and therefore technical specialists, including Quantity Surveyors, have applied a degree of judgement based experience gained from working on other similar projects.

6.10.13. Once the 'impacts' and 'probabilities' have been estimated, the risks are mapped onto a 5-point risk matrix to generate an overall 'risk score', as set out in Figure 6-5.

6.10.14. Each risk has been assigned a likelihood rating, which is expressed in terms of a percentage. This has been multiplied by the estimated financial value of the risk occurring, to give an expected value. The sum of these expected values forms the total included in the financial case as the 'cost of risks identified in quantified risk assessment'.

[46] TAG Unit A1.2, page 8, paragraph 3.2.10
[47] TAG Unit A1.2 Scheme Costs, p8, paragraph 3.2.14

Figure 6-5 – Risk matrix criteria

Example Risk Matrix	1	2	3	4	5
Likelihood Criteria	Very Unlikely < 5%	Unlikely 5 - 20%	Possibly 21 – 50%	Probable 51 - 80%	Very High > 80%
Impact Criteria	**Very Low**	**Low**	**Moderate**	**High**	**Very High**
Cost	**0 - £250k**	**£250k - £1000k**	**£1000k - £2.5m**	**£2.5m - £5m**	**> £5m**
Schedule	**< 3 weeks**	**3 weeks - 9 weeks**	**9 weeks - 23 weeks**	**23 weeks - 58 weeks**	**> 58 weeks**
Programme / Budget	▪ Negligible impact	▪ Minor fluctuation in project costs ▪ Minor delays not impacting on critical path	▪ Fluctuation in project costs requiring application for further funding ▪ Programme overrun that impacts critical path	▪ Significant and non-recoverable impacts in project cost ▪ Programme overrun	▪ Overrun in Client's budget affecting affordability ▪ Programme overrun that results in significant delays to statutory process ▪ Stakeholder interests severely damaged
Relationship Management	▪ Negligible impact	▪ Relationships with key suppliers, Client or strategic partners are strained at a project discipline level	▪ Relationships with key stakeholders, Client or strategic partners damaged ▪ Damaged relationships escalated by Project level staff	▪ Relationships with key stakeholders, Client or strategic partners is threatened	▪ Relationships with Client officers or Members, key stakeholders or strategic partners breakdown affecting project delivery
Reputation	▪ Negligible impact	▪ Strained Client and stakeholder relationships ▪ Some negative media reporting on project	▪ Client dissatisfaction and damage to stakeholder relationships ▪ Negative effect on the Council / WSP reputation	▪ Threat to core project objectives ▪ Significant impact on the Council / WSP credibility	▪ Threat to project's survival and the Council / WSP credibility ▪ Catastrophic impact on project
SHE	▪ Negligible impact	▪ Minor injury to worker or third party ▪ Environmental impact requiring management response to recover	▪ Major injury to worker or third party ▪ Sensitive combination of operation and location likely to trigger damage and/or complaint of nuisance	▪ Worker / Public fatality ▪ Environmental incident leading to breach ▪ Criminal liability and compensation costs	▪ Multiple fatality ▪ Major environmental incident involving threat to public safety or health ▪ Criminal liability

Managing Risks (Response Plans and Mitigation)

6.10.15. Following the initial assessment of scheme risks, a systematic approach was adopted to respond to risks and allocate responsibility to the most appropriate party in line with governance arrangements set out in Section 6.4. One of the following four strategies is adopted for each risk when developing a suitable response plan.

- Accept or tolerate consequences in the event that the risk occurs – In the event that a) the cost of taking any action exceeds the potential benefit gained; or b) there are no alternative courses of action available
- Treating the risk – Continuing with the activity that caused the risk by employing four different types of control including preventative, corrective, directive and detective controls[48]
- Transferring the risk – Risks could be transferred to a third party e.g. insurer or Contractor
- Terminating the activity that gives rise to the risk

6.10.16. Development of the response plans to manage risks has been undertaken only where the likelihood of risk occurrence and impact can be cost effectively managed.

Implementation and Review

6.10.17. Effectiveness of the response plan is dependent on the proper implementation and review of the residual risk (including any secondary risk associated with implementation). Reviews of the status of scheme risk assessments and their related response plans (as part of project reporting) will be an integral part of progress meetings (and at the Executive Board) during the construction period. All key risks will be formally reviewed at key decision points in the scheme lifecycle.

Significant Project Risks Identified

6.10.18. In line with project reporting, the risk register will be updated on an on-going basis to capture the progress of the scheme and assist the programme management. The project risk register can be found in Appendix S.

6.10.19. A summary of the top project risks is set out in Table 6-11.

[48] The Orange Book, HM Treasury (2004)

Table 6-11 – Top risks

Category	Technical Discipline	Risk Name	Cause	Risk Summary	Consequence	Risk Owner	Proximity	Pre-Mitigation Probability	Mitigation	Post-Mitigation Probability
Stakeholder	Client /PM	Public Inquiry or Judicial Review driven by CPO process (professional services/legal costs only)	- We are advised by Town Council officers that they will object to the application for a Section 19 Certificate. This may influence the Secretary of State in whether or not to hold a public local inquiry but only if a CPO/SRO inquiry is not called. The amount of land required has been reduced to a minimum and this will help to make the case to the Secretary of State that a public local inquiry is not necessary - WSP's lack of sight of the Shropshire Council Brief to [redacted] could risk that the CPO process is delayed - Additional risks associated with National Grid Electricity Distribution Protective Provisions Agreement, Oxon Touring Park judicial review, (or any other party in relation to sharing the traffic model) land take of Hencott Wood for ammonia, Alkmund Wood removal of bird rearing =Delays to completion of the CPO statutory process	Objections to CPO process could lead to a public inquiry or judicial review If the T&T model is shared with 3rd parties this could lead to an increased risk of judicial review	This would potentially lead to a 12 to 18 month delay on the start of works, inflation would impact land prices based on the current indexation rate which would delay the programme with additional legal costs, but only if a CPO/SRO inquiry is not called	[redacted] Shropshire Council	CPO agreed with landowners	50%	- Regular calls are being held between [redacted] and Shropshire Council to try and progress the CPO brief - Ensure a robust CPO submission to avoid inquiry - [redacted] have confirmed that reducing the area of land taken is the most effective mitigation measure and will minimise the chances of the Secretary of State calling a local public inquiry. An application for the Section 19 certificate cannot be made before planning permission, however WSP Land Reference team will ensure the application is prepared and ready to submit as soon as planning permission is obtained. The procurement timetable is now determining the critical path rather than a CPO/SRO enquiries	50%
Programme	Utilities	Delayed start of construction works (parent risk)	This is a parent risk that summarises the cause and impact of the following risks: - 25C: Main Badger Sett delaying utility diversions and construction of the Holyhead Roundabout - 244: Alternative Severn Trent Water diversion route - 282 Drainage design may need to be adjusted to add provision for replacing private drainage or irrigation Delayed agreement of S106 licenses resulting in delayed approval of the planning notice The purpose of this entry in the risk register is to avoid overstating the prolongation element of risks that may delay the start of construction works	The various risks listed under "cause" may delay the start of the main works on site	The project team do not anticipate that any of the risks to commencement of construction works will exceed the length of delay identified in respect of Risk 25C (9 months) which is driven by missing the seasonal window to remove the main badger sett	[redacted] Shropshire Council	Decision notice	80%	- [redacted] has sent above information to continue working on the proposals - C4 proposals were received from Severn Trent Water on 14.07.23 who were happy with settlement rates in the area and no clashes with band drains have been identified - Await confirmation of Severn Trent Water proposals - 01.24: Severn Trent Water have requested the installation of a wash-out pipe for the proposed reservoir extension, with no regard/relationship with the proposed diversions of the existing pipes - 01.24: [redacted] GPR survey results should reduce this risk further. One of the two mains has been picked up by the GPR survey, but the location/depth of the other is yet to be verified - Contractor to inform design team and suitable remedial measures to be provided	80%
Technical	Structures	ECI Design Assumptions may not be realisable	ECI engagement took place with the initial contractor [redacted] however WSP have had to progress this design with no supplier on board to validate design progression Designs have been largely influenced by [redacted] preferences and plant availability, e.g. use of CMC's/pencol columns in earthworks designs, river bluff earthworks designs and use of 1m cased CFA piles for the viaduct design	The Main Works Contractor, once appointed, may identify that a number of the assumptions identified in collaboration with the ECI contractor, and their supply chain may not	- If there was significant design change once the Main Works Contractor was brought on board and reviewed the detailed design this would result in significant delay - Impact depends on which aspects of the design, but any change would be severe	[redacted] Shropshire Council	Contractor appointment	60%	-WSP senior staff engaged during design to ensure that assumptions made are reasonable. Client was advised of the risk associated with this item - Independent ECI advice was obtained to give additional confidence in the approach. The sooner the preferred bidder is chosen, the sooner these discussions can be had	50%

Category	Technical Discipline	Risk Name	Cause	Risk Summary	Consequence	Risk Owner	Proximity	Pre-Mitigation Probability	Mitigation	Post-Mitigation Probability
				be realisable in construction	- Not just redesign but reengagement with stakeholders for review of design revision which could potentially have a major or severe schedule impact - The ECI contractor was a specialist in steel erection and WSP have also been advised by one of the leading market providers so probability should be low					
Technical	Client /PM	Legal Review of CPO, SRO and Land Referencing plans	CPO and SRO processes are ongoing, and we may not be able to agree private land acquisition through voluntary negotiation and may not be able to achieve SRO agreement in line with programme requirements	We may need to acquire private land access via CPO process, and the SROs may not be agreed in line with programme requirement	Programme delay, with associated cost escalation This would also lead to cost escalation in professional fees	[redacted] Shropshire Council	CPO agreed with landowners	80%	Land Referencing are due to discuss with [redacted] to clarify the situation and ultimately agree whatever checks need to be done and who does them. This can now be done in the revised timescale if Shropshire Council cabinet approve CPO process on 15th July 2024 [redacted] have confirmed barrister approval of a number of Compulsory Purchase Order (CPO), Side Roads Order (SRO) and Land Referencing documents have been approved and which still require a legal sign-off. WP2 data has not been reviewed/approved. This has not been received as of August 2024 Changes to the data for WP2 have led to delay of plot by plot review, as there was uncertainty around completeness of the data. This review is being rescheduled.	40%
Project Capital Cost	Client /PM	Construction materials (including structural steel) cost inflation may exceed cost plan provision	Construction Inflation costs exceed the standard rate of inflation.	There is a risk that there will be an increase in the real cost of scheme and variation in material costs. For example, the £3.4m allowance for structural steel may not be sufficient	May result in increases on project with potential delays awaiting approval of increased cost	[redacted] Shropshire Council	Contractor appointment	60%	Engagement with contractors and maintenance of up to date cost estimates by experienced QS team. Additional funding from Shropshire Council corporate resources plus ongoing discussions with DfT	40%

Transfer of Risk to the Contractor

6.10.20. The Commercial Dimension describes how the procurement strategy seeks to place risk with the party best placed to manage or mitigate that risk or manage the consequences should they transpire. Much of the risk will be around working within the floodplain and the programme impact from flooding events. The delivery and programme risk will be split between the Contractor and Shropshire Council.

ISSUE MANAGEMENT

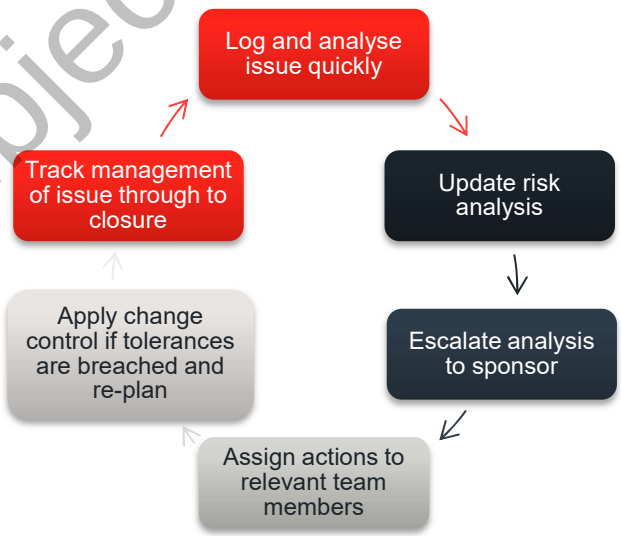
6.10.21. Issue management relates to the exceedance of agreed tolerances for delegated work and requires regular and ongoing support from the Project Manager to resolve identified issues. Issues may relate to scope, quality, time, cost or benefits and usually result in an actual or expected impact on the programme.

6.10.22. The issue management process will include reference to the prescribed NEC4 contract requirements and includes the following steps:

- Log issue in issues register when identified. This will include a quick assessment of the nature of the issue, causation and impact. The issues register will present a prioritised view of the live issues on the programme and will be reviewed on a regular basis.
- Following an initial assessment, issues are escalated to the Project Manager and Executive Board as required.
- The Project Manager and Executive Board will identify actions and ownership. This will ensure a timely resolution of each issue that arises.

6.10.23. Figure 6-6 outlines the key aspects of issue resolution as defined by the Association of Project Management (APM). This process will be adopted by the programme as best practice in issue management and resolution for the scheme.

Figure 6-6 – Key aspects of issue resolution



Source: APM Body of Knowledge 7th Edition

6.10.24. The Executive Board will regularly meet and discuss issues recorded on the issues register. This will assist in reviewing and tracking issues and the progress being made towards their resolution.

6.11 LESSONS MANAGEMENT

6.11.1. Lessons management is a key element of a project approach to enable continuous improvement and commitment to delivery excellence. Learning from experience of previous, similar projects and programmes while harnessing lessons learned makes a significant contribution to successful programme delivery. Ensuring lessons learned from historic or current project successes or failures is therefore paramount to successful programme delivery.

6.11.2. Lessons will be captured, understood, and communicated to the wider project team to inform delivery of the scheme, based on current or past experience. This means:

- Capturing lessons learned throughout delivery of the scheme
- Assessing whether lessons are individual to the project (or programme component), or whether they are likely to be beneficial to other parts of the programme and future projects
- Sharing lessons learned with the wider project and programme teams, including delivery partners and major stakeholders
- Adoption of lessons learned which are deemed applicable and beneficial across other Council programmes.

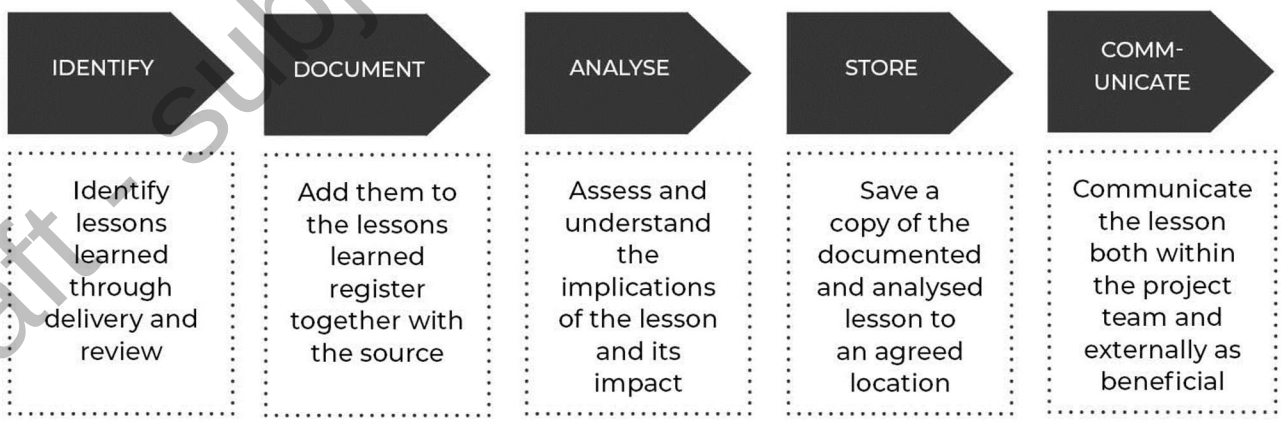
6.11.3. The Project Manager will be responsible for managing the register, with input from individual project managers. Lessons learned will be captured at the following points:

- Ongoing throughout the project to capture day to day innovation and best practice and share with the wider delivery team. Also, consideration of any particular issues which have led to a lesson learned – this will be captured in lessons learned reports and circulated to the project team
- At each point in the stage gate review process
- At the end of the project so that lessons can be fed back into future projects/programmes

6.11.4. This will be shared internally through the established SharePoint facility for cascading throughout the Council. The lesson management process will include several steps outlined in Figure 6-7.

6.11.5. Figure 6-7.

Figure 6-7 – Lessons management process



6.12 BENEFITS REALISATION PLAN

6.12.1. The Benefits Realisation Plan is provided in Appendix T. The plan is designed to enable benefits, and disbenefits, that are expected to be derived from the project, to be planned for, managed,

tracked and realised. The plan will help demonstrate whether the scheme objectives identified are able to generate the desired "measures for success". This can be assessed by tracking and realising the desired outputs and outcomes of the project.

6.13 MONITORING AND EVALUATION

6.13.1. The HM Treasury Magenta Book provides the following definition of Monitoring and Evaluation[49]:

- Monitoring – seeks to check progress against planned targets and can be defined as the formal reporting and evidencing that spend and outputs are successfully delivered, and milestones met
- Evaluation – is the assessment of the initiative's effectiveness and efficiency during and after implementation. It seeks to measure the causal effect of the scheme on planned outcomes and impacts and assessing whether the anticipated benefits have been realised, how this was achieved, or if not, why not.

6.13.2. The DfT has also published a document entitled, 'Monitoring and Evaluation Framework for Local Authority Major Schemes' (2012), designed to make the process as consistent and proportionate as possible. It also aimed to be complementary with the devolution of decision-making. The document sets out three levels of monitoring and evaluation:

- Standard monitoring
- Enhanced monitoring
- Fuller evaluation

6.13.3. All schemes are required to conduct the standard monitoring approach, but schemes costing more than £50 million are expected to follow the enhanced guidance. Only selected schemes, identified by the DfT are expected to conduct fuller evaluation.

6.13.4. The DfT confirmed in July 2021 that a fuller evaluation would be required to be completed for the scheme. Fuller evaluation builds on the evidence generated through standard and enhanced monitoring. It will triangulate this data with bespoke evaluation data collected to demonstrate the casual pathway between the Scheme and observed outcomes and impacts, in a proportional cost-effective manner.

6.13.5. A copy of the Monitoring and Evaluation Plan is provided in Appendix U.

6.14 DATA AND INFORMATION SECURITY

UK General Protection Regulation (UK GDPR)

6.14.1. Regulation (EU) 2016/279 of the European Parliament and the Council of 27 April 2016 on the protection of natural persons regarding the processing of personal data and on the free movement of such data (General Data Protection Regulation), known as the GDPR, came into force on 25 May 2018 alongside the Data Protection Act 2018 (DPA 2018). The DPA 2018 tailored the GDPR in the UK, defining UK specific exemptions and interpretation.

[49] The Magenta Book, HM Treasury (2011)

6.14.2. The GDPR continues to apply in the UK post Brexit; it is retained in English law under the (amended) DPA 2018 as the UK GDPR. The UK GDPR must be read alongside the DPA 2018 which together create a single UK data protection regime.

6.14.3. The UK GDPR sets out seven key principles, which will guide the Programmes approach to processing personal data. These are outlined in the context of actions the Scheme will undertake:

- Lawfulness, fairness, and transparency - Processing Personal Data will be considered from the perspective of the Data Subject
- Purpose limitation - Processing Personal Data will be permitted for the specified purpose only
- Data minimisation – The Scheme will not ask for, retain, or give out more Personal Data than is required for a specified purpose
- Accuracy – The Scheme will ensure Personal Data is up to date and accurate
- Storage limitation – The Scheme will ensure that Personal Data is only kept for as long as the purpose specified to the Data Subject exists
- Integrity and confidentiality (security) – The Scheme will ensure appropriate access controls, confidentiality, and IT security for Personal Data
- Accountability – The Scheme will appoint an individual to take responsibility for UK GDPR compliance

6.14.4. The Scheme will adopt a 'data protection by design and default' approach as recommended by UK Information Commissioner's Office. This will include it approach when adopting a level 2 BIM approach in line with PAS 1192-2 and PAS1192-3 best practice guidance and establishing a Common Data Environment (CDE) in line with PAS 1192 guidance. A robust information management system will support the Council meet its GDPR and information security obligations. This will also cascade into contractual relationships with the Main Contractor and wider supply chain, as prescribed in the contract scope.

6.15 PROJECT CLOSURE

6.15.1. Following completion of the delivery phase activities, the Council will commence the administrative closure of the project. This will include the following steps:

- Formal completion of monitoring and evaluation, documented via a Monitoring and Evaluation Report
- Completion of a Project Closure Report by the Project Manager and SRO, to be delivered to the Executive Board, which includes a summary of the delivery phase and evidence that the project has achieved the required outputs and that these have been accepted and signed off
- The Benefits Management and Evaluation Plan will be finalised and signed off by the SRO confirming that the benefits included in the FBC have or can be realised
- Individual close out reports from all contracts confirming final positions in terms of spend and contract obligations
- Health and Safety File for the completed NWRR Assets
- Register of outstanding or residual risks/issues that will transition into the operational phase of the scheme
- Stakeholder feedback and Lessons Learned will be captured and disseminated in line with the lessons management strategy outlined in Section 6.11.

6.15.2. A robust document archiving exercise will also be completed to ensure that project documentation is available to the scheme operations phase as required.

6.16 SUMMARY OF THE MANAGEMENT DIMENSION

6.16.1. This Management Dimension confirms the NWRR is deliverable. It has provided evidence that the Council and their consultants have delivered similar highway schemes, of similar scale and complexity in the past, using known procurement approaches, governance structures and project management processes, as is proposed here for the NWRR. Where lessons have been learnt from those experiences, these will be used to improve the management and delivery of the NWRR. A Contractor with significant experience in delivering similar large-scale highway schemes has been selected during the procurement process.

6.16.2. The Management Dimension also confirms the scheme is not dependent on any prior schemes or projects and can be delivered independently.

6.16.3. An appropriate governance structure is essential to the delivery the scheme. The Council has therefore established an Executive Board, Operational Steering Group and a Project Delivery Team aligned with best practice guidance on project management. Together these groups will govern the project in accordance with project management best practice.

6.16.4. A project programme has been developed for the scheme. This sets out the key project tasks and their duration and interdependencies, key milestones and gateways. This will act as a live document and will enable the Project Manager to monitor and manage progress.

6.16.5. A CMP has also been prepared to support the development and implementation of a carbon strategy for the NWRR. This strategy outlines how the scheme will track and reduce emissions throughout its development, govern the carbon management process, train and upskill personnel on legislation and finally ensure that it complies with standards, including PAS 2080:2023.

6.16.6. The project includes appropriate assurance and approval processes. The project has progressed through gateway review stages which confirmed suitable skills and experience were deployed on the project. Assurance was undertaken in order for the project to progress to the delivery phase, confirming that time and cost targets were realistic and that lessons have been learned. This gateway review process going forwards will be undertaken independently by Herefordshire County Council.

6.16.7. Key stakeholders have been identified and a Communication and Stakeholder Management plan has been adopted, following best practice used in previous projects. This is a live document that will be updated throughout the delivery of the project to ensure that all stakeholders are identified and that planned interactions are set out and monitored. All details of the plan will be agreed with the Executive Board who will receive regular updates by the project Stakeholder and Engagement Manager and Project Manager.

6.16.8. A robust risk management process is in place for the scheme, along with the reporting processes to support the careful monitoring of both risks and opportunities as well as allowing for the escalations of issues that exceed their tolerance. Lessons learned will be tracked and communicated for the benefit of both ongoing delivery, and future schemes.

6.16.9. A Benefits Realisation Plan and Monitoring and Evaluation Plan have been created and together these plans will ensure the benefits the scheme is expected to deliver are delivered, and the scheme is evaluated post-construction. Finally, this dimension sets out the roles and responsibilities in closing out the programme and a key element of this will be the approval of the SRO of the two plans.

Appendix A

Scheme Drawings

Appendix B

Options Assessment Report

Appendix C

Letters of Support

Appendix D

2020 NWRR Statement of Community Involvement

Appendix E

Transport Benefit Analysis Technical Note

Appendix F

Economic Narrative Report

Appendix G

Appraisal Specification Report

Appendix H

Local Model Validation Report

Appendix I

Forecasting Report

Appendix J

Social and Distributional Impact Report

Appendix K

DfT Cost Proforma

Appendix L

Place Based Analysis Report

Appendix M

DfT Output Tables

Appendix N

Construction Cost Schedule

Appendix O

Section 151 Officer Letter

Appendix P

Project Programme

Appendix Q

Communication and Engagement Strategy

Appendix R

Carbon Management Plan

Appendix S

Project Risk Register

Appendix T

Benefits Realisation Plan

Appendix U

Monitoring and Evaluation Plan

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