

Shropshire Outline Business Case

Oxon Link Road

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1 Introduction

This document is the Outline Business Case (OBC) for the 'Oxon Link Road' (OLR) project. It supports a funding request from Shropshire Council to the Marches Local Enterprise Partnership (LEP).

It has been prepared by Mouchel Ltd under Shropshire Council's 'Partnering Agreement for Engineering Services' Contract.

1.1 Overview of the scheme

The proposal is to provide a new road, shown in Figure 1-1, between the A5 (T) Shrewsbury Bypass and the B4380 Holyhead Road, to enable the development of a Sustainable Urban Extension (SUE) and support economic growth in Shrewsbury.

The OLR will provide a much needed, high quality alternative to the existing A458 Welshpool Road for traffic movements between the A5 trunk road and Shrewsbury town centre. It will completely remove through traffic from Welshpool Road, changing its function and character to serve new and existing development in a way which will visually enhance the town. Improvements will be made for pedestrians and cyclists, and bus services will become more reliable leading to reduced waiting times. Accessibility will be improved for local people.

The OLR is an integral part of the planned Shrewsbury West Sustainable Urban Extension (SUE) which will provide 750 new homes and 2885 jobs including healthcare facilities. As such it is strategically and economically important to the County Town and the Marches area.

In the longer term, the OLR could form part of a Shrewsbury North West Relief Road (NWRR). The NWRR would provide the "missing link" in Shrewsbury's bypass and distributor road network, dramatically improving accessibility in the North and West of the town and removing all long-distance through traffic from the historic centre.

1.2 Location of the scheme

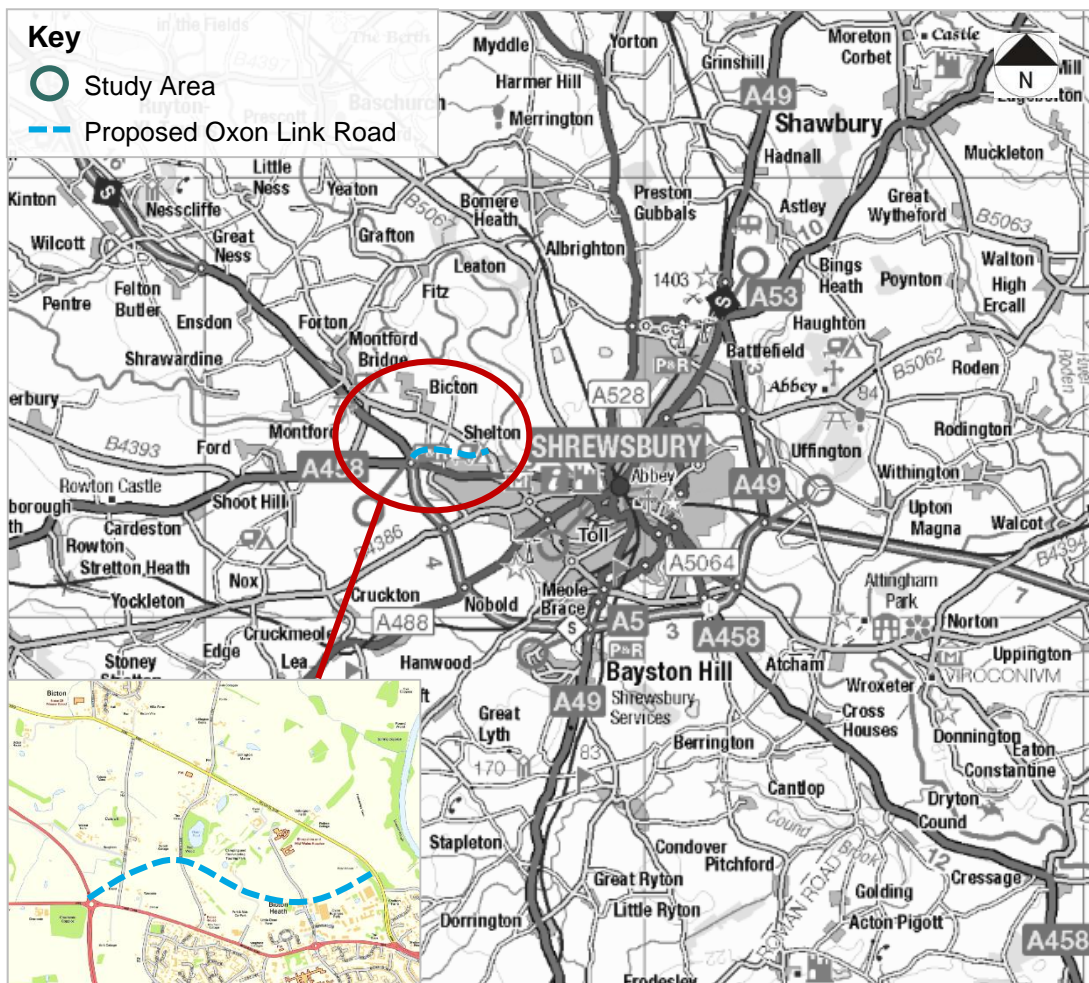


Figure 1-1: Location of the proposed scheme

The scheme is located in the urban fringe on the western side of Shrewsbury, as shown in Figure 1-1. It will run in an east-west direction, for 1.7km, between the B4380 Holyhead Road to the east and the A5 (T) to the west. The proposed route passes through an area of predominantly arable farmland with hedgerows and mature trees, located mainly along field boundaries and lanes.

The A458 Welshpool Road presently provides access to areas of existing residential development, with some frontage accesses, as well as the Oxon Park and Ride site, Oxon Business Park, Bicton Heath Local Centre, a touring caravan park and community facilities including a church and a dental practice.

As shown in Figure 1-2, the proposed new road will form the northern boundary of an area of land which is being safeguarded for Shrewsbury's Sustainable Urban Extension (SUE) West. The A458 Welshpool Road will form the southern boundary. At its eastern end, the new road will pass through a proposed new healthcare and business campus. The route alignment is also crossed by three minor unclassified roads: Shepherd's Lane, Little Oxon Lane and Clayton Way, which are used mainly for local access.



Plan by RPS © Crown Copyright. All rights reserved. Licence number AR 161462 (Not to scale)



Figure 1-2: Site Location Plan (Source: <http://www.shrewsburywest.org/>)

1.3 Description of the scheme

The key features of the scheme are summarised below and illustrated in Figure 1-2.

- The OLR will be a 7.3m single carriageway all-purpose road with at-grade junctions, linking the A5 Shrewsbury Bypass with the B4380 Holyhead Road;
- The OLR will be bounded on both sides by public open space and will include a shared footway / cycleway on its southern side;
- The OLR will have a speed limit of 50 mph, the same as similar sections of Shrewsbury's distributor ring road;
- Bridges and at-grade crossings will be provided for pedestrians and cyclists to maintain connectivity and ensure safety;
- Reconfigure Churncote roundabout to include OLR as a new arm, with the existing Welshpool Road (east) arm functioning as an 'access only' arm, serving SUE West Phase 1 commercial / retail / employment land uses;
- A new roundabout junction will be provided on the B4380 Holyhead Road to accommodate the OLR;
- The existing A458 / B4380 signal controlled junction at Welshpool Road / Shelton Road / Holyhead Road, about 200m south of the new OLR junction, will be reconfigured to accommodate the transfer of through traffic from the A458 to the OLR and B4380;
- Two at-grade junctions will be provided along the length of the OLR. The first junction will be formed by a new access road that will serve the proposed housing development, forming part of Shrewsbury Sustainable Urban Extension (SUE) West Phase 1. The second junction will be formed with Little Oxon Lane. There will be no vehicular access between the OLR and Clayton Way, Calcott Lane and Shepherd's Lane but connections will be provided for pedestrians and cyclists;
- Vehicular connections will be provided to the existing A458 Welshpool Road via the new access road through SUE West Phase 1 residential development and also via Little Oxon Lane, as illustrated;
- The existing A458 Welshpool Road will be severed near its western end, at a point just east of the Churncote employment area. All through traffic will be diverted onto the OLR, but access to Welshpool Road will be retained for pedestrians and cyclists;
- The A458 Welshpool Road will no longer be a through route for vehicles. Instead, it will become a local distributor road, with a new emphasis on sustainable modes of travel;

- Traffic engineering measures and physical alterations will be carried out on Welshpool Road to create a more attractive route for people walking and cycling, and to reduce speeds to a level consistent with 20 mph; and
- It is envisaged that Park and Ride users arriving from the wider strategic routes will benefit from the improved access into the Park and Ride site via OLR, at its proposed junction with the Little Oxon Lane. Buses will access the Park and Ride via Little Oxon Lane at its junction with Welshpool Road. Opportunities for extended bus routes through SUE West development will also be explored as part of the masterplan proposals.

1.4 Cost of the scheme

The estimated cost of the scheme is **£12.93m** at out-turn prices, including an allowance for Quantified Risk. A fixed sum of **£4.2m** is being sought from the Marches LEP Local Growth Fund, which represents 32% of the scheme outturn costs. SUE West developers will contribute 62% of the outturn cost, by way of secured S106 agreements, which amounts to approximately **£8m**. The balance **£0.73m**, which accounts for 6% of the scheme outturn costs, will be funded by Shropshire Council.

The proposed contributions are set out in Table 1-1 below:

Source	Contribution (£)
Shropshire Council (e.g. Community Infrastructure Levy)	£0.73m
SUE West Developer contribution	£8.0m
LEP funding sought	£4.2m
Total	£12.93m

Table 1-1: Breakdown of scheme costs by funding sources

1.5 Timetable for the delivery of the scheme

Construction is programmed to commence in 2019 / 2020 and will be completed in 2020 / 2021. More detail is given in Chapter 6 (The Management Case).

1.6 The Marches Local Enterprise Partnership

The Marches Local Enterprise Partnership (LEP) includes the local authorities and business boards of Herefordshire, Shropshire and Telford & Wrekin. Launched in 2010, during the first tranche of Government-approved partnerships, the Marches LEP aims to improve economic prosperity and sustainable business across the Marches area, stimulating the drivers of such development, such as housing, transport and infrastructure. The LEP submitted its SEP to the Government in March 2014, and a Growth Deal was confirmed in July 2014 delivering an investment portfolio of £75.3 million for the region from the Government's LGF. This substantial input will bring forward at least £20 million of additional investment from the private

sector and local partners for The Marches¹. The LEP will be expected to deliver on all aspects of the Deal document, reflecting the ambition of both its board and the Government in developing sustainable growth through investment in critical transport and infrastructure improvements.

The relationship of the proposed scheme to the SEP and to other local and national strategies is set out in Chapter 2 (The Strategic Case).

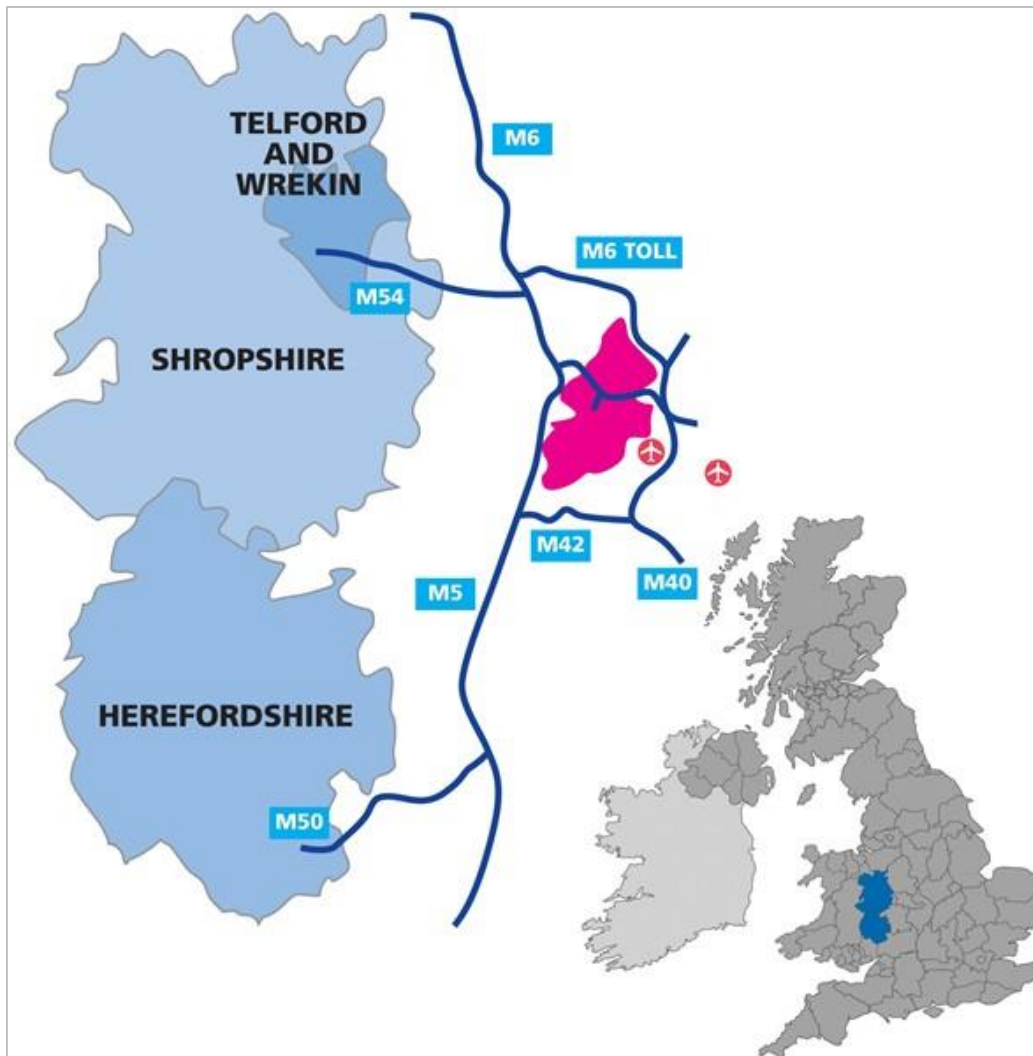


Figure 1-3: The regions under the administration of The Marches LEP (Source: The Marches LTB)

1.7 The Marches Local Transport Board

The Marches LTB is the designated advisory body to the LEP for transport and serves a wide range of roles including ensuring that major transport investment is closely aligned with the wider policy objectives of both the local authorities and the Marches LEP. The LTB was responsible for identifying prioritised lists of major

¹ The Marches Growth Deal, p1, paragraph 4 (2014)

schemes that will have a strategic impact on the transport network in the Marches area².

1.8 Proportional approach

Paragraph 18.3 of the MLTB Draft Assurance Framework states that *‘the business case process will ensure that the time and resources invested in making a decision are proportionate to the size of the investment or intervention’*.

The Marches LTB considers that the assessment and approval process for identifying and selecting major transport schemes for the funding programme, outlined above, was undertaken to a degree of detail that is adequate to continue onto the ‘Outline Business Case’ phase, allowing the shortlisted scheme to be further scrutinised before progressing to a Full Business Case.

The proportionate approach to assessment and scope of this business case were discussed with the LEP’s Independent Transport Advisor in a meeting on 3 December 2014. In line with the advice given, this business case seeks to focus on the things that are most important.

1.9 Overview of the business case for the proposed scheme

This business case is structured in line with the DfT’s Transport Business Case guidance:

- The strategic case;
- The economic case;
- The financial case;
- The commercial case; and
- The management case.

The business case is underpinned by a simplified appraisal of the proposed scheme which follows the guidelines set out in WebTAG.

1.10 Summary of the Strategic Case

The OLR is a fundamental component of the SUE West which itself is central to Shrewsbury’s plans for economic growth. It will unlock up to 21 hectares of employment land, potentially generating 2,885 jobs. It will also allow full build-out of the residential element of the SUE to provide the 750 dwellings proposed in the Masterplan. Failure to deliver the SUE will limit the growth of Shrewsbury within the Local Development Plan period. More crucially, housing targets will not be met and

² The Marches Local Transport Body Assurance Framework, p3, paragraph 4.3 (2014)

the developments could potentially come forward in less optimal locations, from both a planning and transport perspective.

Implementation of the OLR will also provide the opportunity for the delivery of part of the Shrewsbury North West Relief Road (NWRR) which remains a long term aspiration of the Council.

1.11 Summary of the Economic Case

The proposed scheme has been assessed against a “do minimum” option, which would involve realising the full SUE West development without the Oxon Link Road.

The benefit-cost ratio has been calculated using a range of assumptions, related to the extent to which the SUE (West) development is considered to be dependent upon the provision of the OLR. Using a “central” assumption that the development is partly dependent on the OLR, and taking account of the resulting increases in land values the benefit-cost ratio (BCR) is **4.37** representing a **very high** value for money. In total, the SUE (West) and, by association the OLR, will open up employment land sufficient to accommodate 2,885 jobs – and this level of employment is expected to contribute over £1.3 billion to the local economy. Environmental, and social and distributional, impacts have been assessed separately and add to the overall benefits of the proposed scheme. It will also represent a further step towards the long term aspiration of creating a north-west relief road for Shrewsbury.

1.12 Summary of the Financial Case

The estimated cost of the scheme is **£12.93m** at out-turn prices, including an allowance for Quantified Risk. A fixed sum of **£4.2m** is being sought from the Marches LEP Local Growth Fund, which represents 32% of the scheme outturn costs. SUE West developers will contribute 62% of the outturn cost, by way of secured S106 agreements, which amounts to **£8m**. The balance **£0.73m**, which accounts for 6% of the scheme outturn costs, will be funded by the Council. The scheme is affordable, and the necessary funds have already been confirmed to the LEP by the DfT.

1.13 Summary of the Commercial Case

The preferred procurement option is Early Contractor Involvement (ECI) as it is considered that by bringing in the contractor at an early stage the team can identify options, buildability problems and areas of high risk well before the construction phase is undertaken.

In line with the council’s adopted approach, the preference is to procure the works for OLR using NEC3.

The ECI contractor will also manage the planning and statutory process.

1.14 Summary of the Management Case

An appropriate governance structure is essential to the delivery the scheme. Shropshire Council has therefore established a Programme Delivery Board aligned

with best practice guidance on project management. The Programme Delivery Board's primary function is decision-making and review. A Project Delivery Team will be established to deal with day to day planning and delivery of the project.

A project programme has been developed for this Business Case setting out all the key project tasks and their duration and interdependencies, key milestones and gateways. It will act as a live document, with progress being monitored on a weekly basis by the project manager. Construction is programmed to commence in 2019 / 2020 and will be completed in 2020 / 2021.

Key stakeholders have been identified and a stakeholder management plan will be adopted, following the practice used in previous projects. Details of recent experience with the delivery of similar projects is set out in Chapter 6, the Management Case. Whilst there are no major inter-dependencies, some land may have to be acquired. A risk register has been prepared and a quantified risk assessment (QRA) process used to assess the likely financial impact of risk.

1.15 Conclusion

The consequences of not delivering this scheme would be damaging to the local economy, and would undermine aspirations for meeting housing targets, economic recovery and growth. Such an outcome would severely hamper the viability of SUE West, the principle of which has been embodied within the adopted Local Plan. The scheme is a very high priority for Shropshire Council and, as such, this business case demonstrates that it should also be a high priority for receipt of Local Growth Fund support.

2 Strategic Case

The Strategic case is one of the five components of the overall business case, and should be read in conjunction with:

- The Economic Case;
- The Financial Case;
- The Commercial Case; and
- The Management Case.

The Strategic Case is set out in under the following headings:

Business Strategy (Section 2.1) – sets out the wider strategic and policy context against which the proposed scheme has been developed;

Problems identified and impact of not changing (Section 2.2) – describes the problems which the scheme seeks to address, and considers what could happen (or fail to happen) if the scheme is not delivered;

Objectives (Section 2.3) – details what the scheme sets out to achieve;

Measures for success (Section 2.4) – describes how we will determine whether the objectives are being achieved;

Scope (Section 2.5) – what the scheme consists of, and the principles which have informed its development;

Constraints (Section 2.6) – considers factors which could compromise delivery and how they will be dealt with;

Inter-dependencies (Section 2.7) – considers what else affects, or is affected by delivery of the scheme;

Stakeholders (Section 2.8) – identifies the main parties who have an interest in the delivery of the scheme, how they are being involved and how they support the scheme; and

Options (Section 2.9) – describes how the preferred option was identified, after consideration of different solutions, as the best way of meeting the objectives.

The Council's Core Strategy identifies the area of Shrewsbury West for an urban extension to the town, the process for which has been examined in public, and has subsequently been adopted by the council. The Oxon Link Road (OLR) scheme, which will provide a new principal vehicular link between the A5 (T) Shrewsbury

Bypass and the B4380 Holyhead Road, forms an intrinsic part of the Shrewsbury West SUE and its principle is enshrined within the Core Strategy³.

The OLR is a fundamental component of the SUE West, which itself is central to Shrewsbury's plans for economic growth. It will unlock up to 21 hectares of employment land, potentially generating 2,885 jobs. It will also allow full build-out of the residential element of the SUE, from the 400 dwellings currently agreed to the full 750 proposed in the Masterplan. Failure to deliver the SUE will limit the growth of Shrewsbury within the Local Development Plan period. More crucially, housing targets will not be met and the developments could potentially come forward in less optimal locations, from both a planning and transport perspective.

Implementation of the OLR will also provide the opportunity for the delivery of part of the Shrewsbury North West Relief Road (NWRR) which remains a long term strategic aspiration. A previous cost-benefit analysis showed that the NWRR scheme would deliver **very high** value for money.

2.1 Business Strategy

This section sets out the wider strategic and policy context against which the proposed scheme has been developed, and the strategic aims and responsibilities of Shropshire Council as promoter of the scheme.

2.1.1 Government priorities for transport

The government's priorities are reflected in the Local Transport White Paper: 'Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen' (January 2011). They are:

- to help create growth in the economy; and
- to tackle climate change by cutting carbon emissions.

The Eddington Transport Study (2006) reaffirms that a well-functioning transport system is key to continued economic success⁴. Without an efficient transport system, economic prosperity can be hindered by unreliable travel journey times, increased congestion and reduced accessibility⁵, all of which affect productivity and business costs.

The main aim of the proposed link road is to help create growth in the local economy. It will do this by creating an improved arterial route for strategic traffic

³ Policy CS2: Shrewsbury – Development Strategy, Shropshire Local Development Framework: Adopted Core Strategy, page 42

⁴ Towards a Sustainable Transport System (2007) p25, paragraph 2.8

⁵ The Future of Urban Transport (2009) p8 paragraphs 4-6

entering Shrewsbury, whilst also providing excellent access to existing and planned housing, employment and healthcare development at the SUE (West). The existing Welshpool Road is unsuitable for this purpose. The proposed scheme provides a high quality alternative route, allowing the existing route to be transformed into a more attractive route for walking and cycling.

2.1.2 National policies on safety

The Government's Strategic Framework for Road Safety⁶ aims to reduce the relatively high risk of accident posed to cyclists on Britain's roads. Removing barriers to increase cycling and supporting sustainable travel rely heavily on the provision of safe and accessible pathways for cyclists, as these help keep the risk of accident or collision to a minimum.

The proposed scheme will improve cycle safety by providing new cycle facilities on the OLR. These will be linked to existing cycle routes and new cycle routes proposed as part of the Shrewsbury West SUE. Furthermore, by severing Welshpool Road to strategic traffic from the A5, the perceived and actual risk of accidents on Welshpool Road will be reduced, especially for pedestrians and cyclists. OLR in the context of existing formal and advisory cycle route / lanes in Shrewsbury is depicted in Figure 2-1. A detailed map showing OLR in relation to existing and proposed Public Rights of Ways is illustrated under Section 2.5.5.

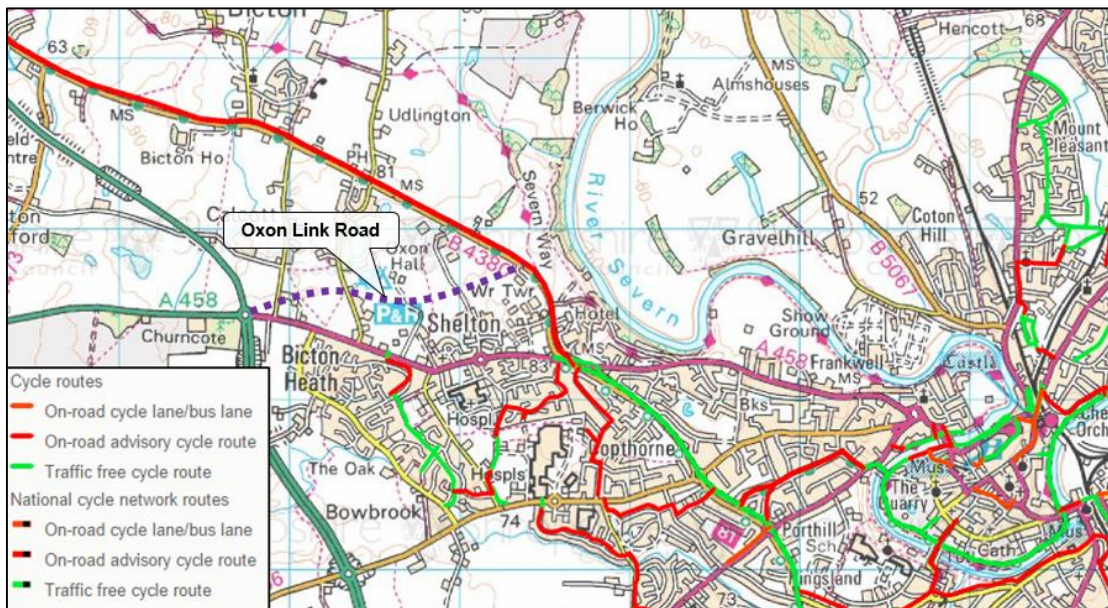


Figure 2-1: Cycle routes in west Shrewsbury

2.1.3 National policies on accessibility

The Equality Act (2010) emphasises the need to make the transport system accessible to all. Providing good walking, cycling and public transport infrastructure

⁶ Strategic Framework for Road Safety (2011) p11, paragraph 15.

widens the choices available for travelling sustainably and encourages use of sustainable alternatives to single occupancy cars.

The proposed scheme will improve accessibility to existing development and provide a high level of accessibility to new development in the SUE (West). It will incorporate a new, off-road shared cycleway / footpath. The removal of through traffic from Welshpool road will create an environment conducive to cycling and walking. Public transport services will be extended to serve the SUE. The area will have excellent links to Shrewsbury's existing sustainable transport networks, increasing the opportunities for walking and cycling in Shrewsbury.

2.1.4 *National policies on environment*

The Climate Change Act (2008) established a long-term framework to reduce the UK's greenhouse gas emissions by at least 80%, compared to the 1990 baseline, by 2050. In accordance with the 2011 Carbon Plan, the Government has enabled funds, through incentives such as the LSTF, to support the development of sustainable infrastructure in order to reduce carbon emissions and promote economic growth.

As already noted, the scheme will extend Shrewsbury's sustainable transport networks, encouraging the use of low-carbon modes of transport.

2.1.5 *National Planning Policy Framework*

The Government's National Planning Policy Framework (NPPF, 2012) emphasises the importance of rebalancing the transport system in favour of sustainable transport modes, whilst encouraging local authorities to plan proactively for the transport infrastructure necessary to support the growth of major generators of travel demand.

At the heart of the NPPF is the presumption in favour of sustainable development which is seen as *'the golden thread running through both plan making and decision taking'*⁷. The Shrewsbury West SUE, including the proposed OLR, is located within a sustainable location as identified in the Core Strategy. The 'sustainable' nature of the site can be ascribed to a number of factors⁸:

- It is within cycling distance of Shrewsbury town centre which is just 2.2 miles (3.5 kilometres) to the east;
- Welshpool Road located on a public transport corridor. Public transport services will be extended through the proposed development with bus routes and stops to serve the entire site effectively;

⁷ National Planning Policy framework, paragraph 14, page 4

⁸ Shrewsbury West Sustainable Urban Extension: Masterplan Document, Adopted 2013

- OLR will provide an improved access to the existing Oxon Park and Ride site for buses and cars. This could improve Park and Ride utilisation⁹ and reduce the number of car trips into Shrewsbury town centre;
- Existing employment and retail areas border the SUE (and the OLR) and further provision of similar uses is included within the SUE proposals. The symbiotic mix of employment, residential and retail land uses offers a degree of self- containment, a key feature of any sustainable development; and
- A significant proportion of the site and land to the north of the OLR will be dedicated to Green Infrastructure (GI) and this will include a SuDs strategy, a mix of new and conserved habitats, and more trees and public open spaces. This will provide valuable benefits, increasing biodiversity.

2.1.6 *Strategic Road Network (SRN)*

The western end of the proposed OLR ties into Churncote Roundabout, one of the key junctions along the Highways England (HE) managed 'Midlands to Wales and Gloucestershire' strategic road. The junction has recently been subject to minor capacity improvement works¹⁰ as part of HE's Local Network Management Schemes (LNMS – pinch point) relevant to the Midlands to Wales and Gloucestershire route¹¹.

⁹ Average utilisation of the Oxon Park and Ride in 2013 was 30% (Source: Shrewsbury Park and Ride Utilisation Surveys, Mouchel, 2013)

¹⁰ The pinch point scheme involved widening of the approach from Welshpool (A458) and widening of the exit towards Oswestry (A5) to allow two lane operation through the roundabout and merging on the north side

¹¹ Midlands to Wales and Gloucestershire Route Strategy: Evidence Report Technical Annex, April 2014

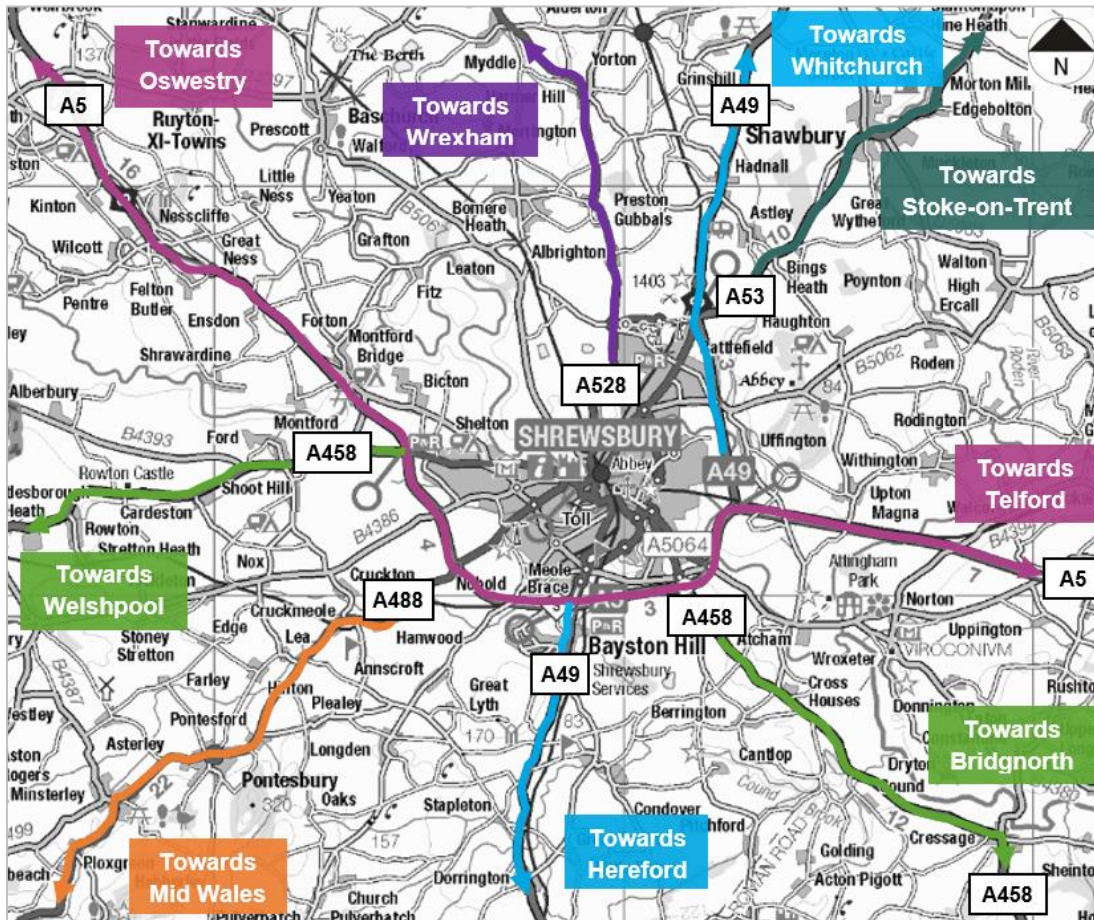


Figure 2-2: The Strategic Road Network bordering Shrewsbury

Shropshire Council and the developers of SUE West Phase 1 have been in discussions with the HA regarding an appropriate layout for the Churncote roundabout, taking the SUE West Master Plan requirements into consideration. The proposal is to reconfigure the roundabout to include OLR as a fifth arm, with the existing Welshpool Road (east) arm functioning as an ‘access only’ arm, serving SUE West Phase 1 commercial / retail / employment land uses. The severance of Welshpool Road means that strategic traffic to and from the A5 will reassign to the OLR.

Strategic traffic on the OLR will have less interference from junctions, pedestrian crossings, bus stops and frontage development, thereby maintaining higher speeds. The OLR would therefore benefit inter-urban commuting, in terms of journey times and journey time reliability, through reduced congestion and increased network resilience.

Business travel and logistics will be assisted by the journey time improvements and will have almost direct access to the trunk road network, with links to north and mid Wales and the West Midlands conurbation.

2.1.7 *Provisional LTP Strategy 2011-2026*

DfT guidance on Local Transport Plans (LTPs) requires local authorities to develop strategies and implement programmes to achieve the five goals originally developed in the DfT's discussion document, 'Towards a Sustainable Transport System':

- Maximising economic growth through competitiveness and productivity;
- Tackling climate change;
- Protecting people's safety, security and health;
- Improving quality of life; and
- Promoting greater equality of opportunity.

Following public consultation, Shropshire Council is finalising the Shropshire Local Transport Plan (LTP) 2011-2026¹². The plan covers all aspects of transport and highways, including walking, cycling, public transport, car-based travel, freight, and the management and maintenance of highways.

The provisional LTP strategy¹³ sets out the strategic transport objectives and policies for the period 2011 to 2026.

The LTP objectives for economy and growth are:

- Improve connectivity and access, particularly by sustainable transport modes;
- Improve journey time reliability and reduce unforeseen delays; and
- Support growth and ensure new housing and employment areas encourage more sustainable travel behaviour.

The proposed scheme, by providing a new Link Road from A5 Churncote Roundabout to B4380 Holyhead Road, will support the growth of the proposed new housing and employment areas in Shrewsbury West and improve journey times for local residents.

LTP3 Policy E6, '*capacity improvements and new roads*' sets out the Council's strategy where demand and network management measures have been proven to be insufficient to deal with network problems. The policy states that '*new road building will be restricted to where all other options have been fully considered, the benefits significantly outweigh the costs (both financial and environmental), and for*

¹² <http://www.shropshire.gov.uk/public-and-passenger-transport/local-transport-plan/>

¹³ Ibid

which funding is available. Schemes would be prioritised on the basis of their cost benefit assessment.'

A viable funding mechanism has been identified whereby 70% of the scheme costs will be sought from third party funding sources through a combination of S106 and Community Infrastructure Levy (CIL) agreements. The balance, 30%, will be sought from the Regional Growth Fund through The Marches LTB, subject to a successful business case submission. The cost-benefit analysis is summarised in Chapter 3.

LTP3 Policies A9 and A10, 'Cycling Infrastructure' and 'Encouraging Cycle Use', strive to realise the potential of cycling and the need to create a physical and cultural environment in which confidence in cycling becomes more apparent. There is also a need to link large urban areas to the wider sub-region, which in Shropshire, is predominantly rural.

As part of the Oxon Link Road (OLR), a new cycle path will be provided between the A5 Churncote Roundabout and the B4380 Holyhead Road. The design of the OLR and the SUE will also facilitate safe and easy pedestrian access between the existing urban edge, the new development, Bicton Village and the countryside north of the development through the provision of formal pedestrian / cycle crossing points across the OLR.

2.1.8 *Growth Point*

Shrewsbury was allocated Growth Point Status in July 2008 as part of the Government's Growth Point initiative. Though not a statutory designation, Growth Point status is a commitment of support from Central Government to Local Authorities and communities who are working towards sustainable growth. It is a long-term partnership between the government and Shropshire Council which, recognises the ambitions for the growth of Shrewsbury and the unique geographical and economic characteristics of the town.

Shrewsbury has a strong record of economic growth. It is the primary retail, office and commercial centre of Shropshire and the County's primary focus for development. However, its potential is constrained by the natural environment, with the meander of the River Severn causing significant access and development issues. As a sub-regional centre, the challenge for Shrewsbury is to achieve economic and physical development within the constraints of the town's unique form and historic character. It is a challenge relished by residential, commercial and employment-related developers and will offer an opportunity to address the issue of the town's location and significantly improve the urban environment.

Local partners' ambitions for the sustainable development of Shrewsbury, in relation to the Growth Point initiative, include:

- 6,500 net additional dwellings by 2026 (3,500 by 2016), to include 100 affordable dwellings per annum;

- 85-95 hectares of additional employment land, including new business park development;
- Two Sustainable Urban Extensions (SUE) in Shrewsbury West and Shrewsbury South;
- Improvements to the town centre, with 20,000m² gross office floor space provision, 80,000m² comparison retail floor space, and street enhancements;
- Implementing a package of transport measures to tackle access, traffic and air quality issues for the town and town centre in particular;
- Tackling water resource, supply and treatment issues;
- Major new educational, cultural and health facilities to meet the needs of the county town and its wider catchment area; and
- Protection, enhancement and extension of the town's green network.

Levels of growth will be subject to comprehensive testing and public consultation through regional and local planning processes to ensure that proposals are sustainable, environmentally-friendly and realistic in infrastructural terms.

Achieving these ambitions will depend on a range of public and private funding programmes. From the public perspective, the Government is committed to working with local partners to achieve sustainable growth and maximise the return on investment and to help overcome obstacles to delivery.

The proposed Oxon Link Road will support the development of the Sustainable Urban Extension (West) and, as such, is an important part of the Growth Point Strategy.

2.1.9 *Shropshire Local Development Framework: Adopted Core Strategy (March 2011)*
The Local Development Framework (LDF) is a set of documents setting out policies relating to the use and development of land in Shropshire. The Core Strategy is the first of these documents to be prepared and sets out how Shropshire is expected to evolve over the period to 2026.

The Core Strategy provides for the regeneration of land in Shrewsbury West including the provision of a new link road at Oxon. Relevant Core Strategy objectives are summarised below:

- **Policy CS1: Strategic Approach**
Shropshire will accommodate investment and new development to contribute to meeting its needs and to make its settlements more sustainable, delivering over the plan period 2006-2026, around 27,500 new homes, of which 9,000 will be “affordable housing”, around 290 hectares of employment land, and accompanying infrastructure across Shropshire;

- Policy CS2: Shrewsbury Development Strategy**
 The development strategy includes major housing development to the north of Welshpool Road, additional employment land, the provision of a new link road connecting Churncote Island on the A5 to Holyhead Road, enhancement of Park and Ride facilities, other sustainable transport improvements, development of additional health and care facilities, and the provision of new community facilities;
- Policy CS7: Communications and Transport**
 A sustainable pattern of development requires the maintenance and improvement of integrated, accessible, attractive, safe and reliable communication and transport infrastructure and services;
- Policy CS8: Facilities, Services and Infrastructure Provision**
 Facilitating the timely provision of additional facilities, services and infrastructure to meet identified needs, as outlined in the LDF Implementation Plan whether arising from new developments or existing community need, in locations that are appropriate and accessible; and
- Policy CS9: Infrastructure Contributions**
 Development that provides additional dwellings or employment premises will help deliver more sustainable communities by making contributions to local infrastructure in proportion to its scale and the sustainability of its location.

The proposed OLR is an important component of the Core Strategy, and aligns with each of the above policies. It is part of the infrastructure which will facilitate new, sustainable and accessible development in Shrewsbury, and at Oxon in particular. The OLR will also improve access to the Oxon Park and Ride facility, reduce traffic on Welshpool Road, and encourage the use of sustainable transport, linking with the existing network of pedestrian and cycle routes to the town centre (Figure 2-1).

2.1.9.1 Delivering new homes through the SUEs

Shrewsbury is required to play a key role in meeting the housing targets, set by Shropshire's Local Development Framework, by delivering approximately 25% of Shropshire's need for new homes, equating to 6,500 new homes for the period 2006-2026¹⁴. To this end, the priority is to bring forward two Sustainable Urban Extensions (SUEs) to the town, one at Shrewsbury South and one at Shrewsbury West. Policy CS2 states that these two SUEs together will provide 25% of the new homes.

Shropshire's adopted Core Strategy identified the locations of these SUEs and set out broad development objectives, which were taken forward into the SAMDev (Site Allocations and Management of Development) Plan under policy direction MD7. The SAMDev Preferred Options consultations (draft) document 2012 confirms that the

¹⁴ Shropshire Local Development Framework: Adopted Core Strategy, page 42

Land Use Plans for the two SUEs (West and South) identified by the Core Strategy are broad indication of land uses proposed for these areas and that the details would be drawn up through the respective masterplan. The SAMDev Revised Preferred Options Draft¹⁵, July 2013 re-emphasised this position and also proposed an increase in the residential capacity of SUE west from 720 to 750 dwellings. It has therefore been established, in principle, that these locations provide the best opportunity for high quality, comprehensively planned, integrated development embracing principles of sustainable development and communities.

This will provide 15% affordable housing, which will be vital as the Shrewsbury housing market becomes buoyant over the period of the LDF. Delivery of the OLR will help deliver the full SUE West allocation, and will contribute towards achieving the affordable housing targets set within the LDF Core Strategy.

2.1.9.2 Delivering new jobs through the SUEs

In Shropshire, productivity (measured as GVA¹⁶) in 2012 was £15,414 per head of population, well below the regional and national averages¹⁷. This is 11.6% lower than in the West Midlands and 29.7% lower than in England. Per capita GVA in Shropshire is also lower than its statistical neighbour¹⁸ average or for the Marches Local Enterprise Partnership. This is evidence that people tend to live in Shropshire but commute to higher paid jobs in other towns and cities. Shrewsbury, the county town, may be characterised as a sub-regional administrative and cultural centre with a moderate standard of living, not much manufacturing industry, very little high-end knowledge based industry and significant out-commuting.

The Local Economic Assessment prepared by Shropshire Council, in 2010, identified a number of issues affecting the economic output of Shropshire¹⁹, including:

¹⁵ Shropshire Council : SAMDev Revised Preferred Options Draft, July 2013, page 9

¹⁶ GVA is a means of measuring the contribution to the economy made by producers or sectors. It is the difference between the value of goods and services produced and the cost of raw materials and other inputs which are used in production

¹⁷ Source: Shropshire Council Research and Intelligence – Productivity, <http://shropshire.gov.uk/media/736680/gva-in-shropshire-2012.pdf>

¹⁸ Includes Herefordshire, Worcestershire, Lincolnshire, Suffolk, Norfolk, Devon, Dorset, Gloucestershire, Somerset and Wiltshire as well as Shropshire

¹⁹ Local Economic Assessment: Shropshire Council, February 2010 – Appendix: Shropshire Local Economic Assessment Issues Paper (November 2009)

- *'There has been a traditional dependence on agriculture and related sectors and a relatively slow up-take in knowledge based sectors*
- *There is a lack of "high level" jobs, leading to significant levels of net out-commuting, a low wage economy and low levels of productivity*
- *There is a rapidly ageing population caused by:*
 - *the out-migration of young people seeking more education choices, greater job opportunities or a "more exciting life style"; and*
 - *the in-migration of both older people looking to retire and those choosing to relocate to the countryside to enjoy a better quality of life.'*

Employment growth in Shrewsbury is integral to the economic vitality of Shropshire in general and the town in particular. In order to help realise Shropshire's vision of promoting economic growth in the region, the Core Strategy has committed 90 hectares of employment land in Shrewsbury. The proposed SUEs, one at Shrewsbury West and the other at Shrewsbury South will together provide 50% of the employment needed for Shrewsbury²⁰.

The Shrewsbury SUE West provides around 12 hectares of employment land in two specific parts. The southern section is an expansion of the existing Oxon Business Park, whilst the northern side is being promoted as a location for office and research and development premises based around the medical industry, drawing upon the close links to local hospitals and health facilities. The result will be an agglomeration of businesses within close proximity of the Royal Shrewsbury Hospital and the research centre at the Robert Jones and Agnes Hunt Orthopaedic Hospital near Oswestry, bringing them within easy commuting distance.

The planned medical focus on part of the business park should lead to an agglomeration of businesses that will thrive on the competition and weight of businesses in this area. This opens up a wider market place for jobs and business opportunities. Businesses in the SUE West will be well placed to reach beyond the Marches LEP area and the West Midlands region, by entering markets in Wales and North West England.

The proposed OLR, will give commuters and business travellers better links to the HE Strategic Route Network.

2.1.9.3 Determining the location for the SUEs

In justifying the location of the two SUEs, Paragraph 4.21 of the Core Strategy states that *"the two strategic locations (SUE West and South) have been selected following*

²⁰ Shropshire Local Development Framework: Adopted Core Strategy, page 42

consideration of the various options because they provide the best opportunities for sustainable and balanced development. Key evidence has included the Shropshire Strategic Housing Land Availability Assessment, the Shrewsbury Employment Areas Assessment, the Shrewsbury Transport and Land Use Development Options Assessment, and the Landscape Character, Capacity and Sensitivity Study.”

There is a need for the continual development of high quality business parks on the edge of the town centre and the periphery of the town¹⁴. Oxon Business Park features amongst the key business parks in Shrewsbury identified as having the scope for enhancement and expansion in future. The synergy between residential and employment land uses will mean more opportunities for living and working within close proximity, one of the key requirements to promote containment and also to encourage the use of sustainable means of travel to work including walking and cycling. Therefore, through the provision of a balanced mix of employment and residential land uses at close quarters, the SUE West seeks to put sustainability at the heart of its ethos.

The LDF process, which has been examined in public, identified the Shrewsbury SUE West as part of the preferred option following SATURN modelling of the town.

The Shropshire Core Strategy is an adopted development plan which has been subject to significant public consultation during its preparation, including the identification of Shrewsbury West SUE as a strategic location for development together with the OLR. The document has also been subject to independent examination and found to be sound, robust and fully justified²¹. In this context, the level of development proposed at this location including the provision of Oxon Link Road, is already enshrined within an adopted development plan, thereby lending significant weight to the scheme in principle. The new road will provide good access to the expanded Oxon Business Park employment area, the healthcare / retirement / leisure campus by removing these traffic from Welshpool Road whilst promoting the visibility and profile of these business areas. The proposed OLR, in conjunction with Shrewsbury West SUE, would help support the economic development of Shrewsbury and would be a catalyst for future investment into the area.

The creation of the SUE with 750 houses will provide a construction workforce of perhaps 50-100 with a regular source of employment for 5-10 years. Together with the other SUE site and further developments it is very likely that the construction industry will have a positive future in Shrewsbury

²¹ Shrewsbury West SUE Masterplan – Consultation Report by RPS Planning & Development, paragraph 4.2, October 2013

2.1.10 Strategic Economic Plan (SEP)

The Marches' SEP, "Accelerating Growth through Opportunity", was submitted to the Government in March 2014. It sets out the strategic priorities for the Marches LEP Work Programme:

- Supporting Business;
- Physical Infrastructure;
- Skills Investment;
- Low Carbon Economy; and
- Social Inclusion.

The SEP presents a vision for a strong, diverse and enterprising business base, operating in an exceptional and connected environment, where innovation, investment and economic growth is fostered.

Transport is acknowledged by the SEP as a barrier to growth in The Marches because of poor accessibility to employment centres. Ageing infrastructure and strategic road networks, public transport difficulties and high levels of congestion are restraints on the growth that could be delivered. Transport is therefore the top priority for cross-LEP working in the West Midlands. The Marches area is at the apex of an extensive national and international transport infrastructure and the LEP is determined to collaborate with its five neighbouring West Midlands LEPs to ensure the region does not become a transport bottleneck.

The proposed OLR is a priority year one scheme in the SEP. It is a key component of the Shrewsbury West Sustainable Urban Extension which will provide more than half of the new jobs required in the Shrewsbury area and a significant proportion of the new homes:

- Shrewsbury Area – 4,500 jobs and 4,200 residential units; and
- Shrewsbury West Sustainable Urban Extension – 2,885 jobs and 750 residential units.

The SEP objectives include:

- a) Help existing and new businesses (especially in the priority sectors) to invest and create jobs, by reducing financial costs that result from congested and unreliable transport networks.*

Shrewsbury West SUE will allow the development of 12 hectares of employment land, expanding the existing Oxon Business Park. The link road itself will provide direct access for new businesses to the A5 (T) and beyond this, the strategic road network towards Wales, North West England and the West Midlands. The link road

will also improve access to the town centre from the strategic road network and this will improve the business competitiveness in the western side of Shrewsbury.

- b) Enable people to live full, independent and economically productive lives, providing links between where they live and where they need to get to (for a range of journey purposes).*

The proposed link road will improve access to jobs. The SUE will provide a balanced development of homes, places of work, local facilities and healthcare.

- c) Help provide enough affordable and high quality houses, which are accessible to jobs and essential services via a range of transport modes.*

The Shrewsbury West SUE will provide at least 110 affordable housing units, which will be part of a wider development offering improved local services and jobs.

- d) Develop socially cohesive and healthy communities where people feel safe to travel by walking, cycling and public transport.*

The link road will offer the new SUE and the existing residential areas of Welshpool Road protection from through traffic whilst still giving the employment land a purpose-built direct link to the strategic road network.

2.1.11 Delivery of Phase 1 of the proposed Shrewsbury North West Relief Road (NWRR)

In addition to its role in providing access to the SUE (West) the Oxon Link Road has the potential to become part of a larger scheme – the Shrewsbury North West Relief Road (NWRR). The NWRR would complete the town's strategic road network by providing the fourth and final arc of the Shrewsbury Bypass. Figure 2-3 shows how the OLR would align with the expected route of the NWRR.

The proposed OLR is analogous to the existing Battlefield Link Road (constructed in 1999) which similarly provides access to an important employment area, whilst also forming part of the potential NWRR.

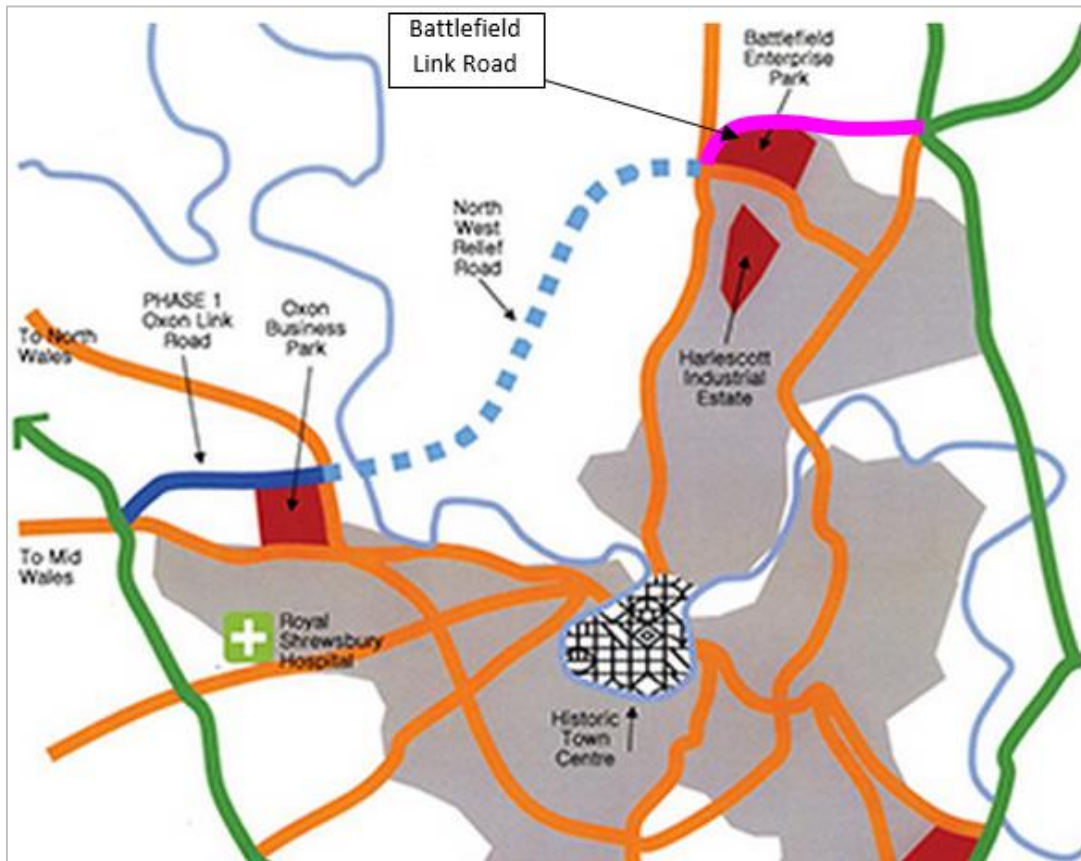


Figure 2-3: Oxon Link Road in the context of the proposed North West Relief Road (NWRR) alignment
 (Source: <http://shropshire.gov.uk/>)

Implementation of the OLR presents another opportunity to deliver part of the NWRR, taking the long term aspiration of the Council one step closer to reality.

The NWRR has been part of the Council's long term vision for several decades – it has long been seen as the key to resolving the physical constraints on Shrewsbury's highway network by removing all through traffic from the town centre "river loop".

Numerous alternative alignments for the NWRR²² had been considered. The western tie-in of the NWRR to the A5 and A458 at Oxon was critical, because of the need to provide relief to Welshpool Road, and the optimum solution for this defines the alignment of the OLR. A preferred route for the North Western Relief Road (NWRR) was adopted by Shropshire Council in January 2007.

Following initial consultation and preliminary design, the NWRR was included in the West Midlands Regional Funding Allocation programme with a programmed

²² NWRR preferred route report (Mouchel Parkman, October 2006)

completion date of late 2016²³. The RFA programme was submitted to government in February 2009, and in July 2009, government responded by inviting business cases from scheme promoters. Shropshire Council began preparing a business case, intended for submission in September 2010. Work was also undertaken towards the appointment of a contractor.

A further round of public consultation was carried out in April / May 2010. In that consultation 59% of those responding agreed or strongly agreed that NWRR should be built²⁴.

In late April 2010, the Department for Transport (DfT) wrote to all scheme promoters advising them that it would not consider business cases for future schemes until after the Government's Comprehensive Spending Review. Because of the uncertainty which this brought, the council decided to complete the consultation but to stop work on both the preparation of the business case and the appointment of a contractor (ibid). A key outcome of the public spending review was the introduction of Single Local Growth Fund, de-centralising funding powers from Whitehall to businesses and local leaders. As a consequence of this strategy, funding for major transport schemers was devolved from the DfT to Local Enterprise Partnerships (LEP).

The NWRR is identified in the Marches SEP as one of six long term infrastructure priorities which would serve the Marches, across both its urban and rural parts. These projects would unlock land to deliver more sites and provide improved transport networks. The SEP states that *"The Oxon Link Road within the Shrewsbury West SUE will provide an incremental step towards the long term provision of the Shrewsbury North West Relief Road, which will have significant economic benefits for the town and the town centre in particular"*. The SEP also states that *"The scheme provides further long term benefits by serving as an enabler to the wider Shrewsbury aspirations of improving and enhancing access in and around this County Town, through the creation of the North West Relief Road (NWRR). This is an inherent part of the wider economic development of Shrewsbury"*. The role of the OLR in keeping open the possibility of a future NWRR is also noted in the provisional Local Transport Plan.

The full NWRR would cost over £100 million, with a very high estimated BCR of 5.4²⁵. At a time when funding for highway infrastructure schemes from the public

²³ Shrewsbury West Sustainable Urban Extension – Welshpool Road: Transport Issues Technical Note, Shropshire Council, October 2010

²⁴ Shrewsbury West Sustainable Urban Extension – Welshpool Road: Transport Issues Technical Note, Shropshire Council, October 2010

²⁵ Source: <http://shropshire.gov.uk/invest-in-shropshire/investment-opportunities/shrewsbury-north-west-relief-road/>

purpose is limited, the SUE West development proposal is considered to significantly bring forward the possibility of the completion of the NWRR²⁶. It is noted in paragraph 6.77 of the Shropshire Core Strategy: Issues and Options – January 2009 that Option B (SUE West) would assist in the delivery of part of the proposed route.

Detailed traffic modelling for the NWRR was undertaken for the draft business case. This showed how the NWRR would allow Shrewsbury to develop by reducing traffic on the heavily congested northern and western approaches to the town centre. By creating a new crossing of the River Severn, Shrewsbury's transport network will become more reliable and efficient for all modes of transport. By removing unnecessary through traffic from these approaches, and from the centre of the town, it will improve the quality of life for people who live and work and shop in the town, as well those who visit for business and recreation. It will help to reduce accidents and carbon emissions, and will improve air quality in areas where people live.

The NWRR has been developed after consideration of a wide range of alternative (or complementary) solutions and detailed examination of alternative routes. It has been subject to extensive public and stakeholder consultation and would provide significant economic benefits by reducing congestion, journey times and accidents.

Whilst the primary role of the OLR is to facilitate development of the SUE West, it has also been designed to allow the possibility of a NWRR being provided in future.

2.2 Problem identified, and impacts of not changing

These two elements are linked together in this business case. The main purpose of the proposed link road is to facilitate development planned for the near future – the SUE West, so the main “problems” are those which would occur if the Council was unable to deliver the OLR and, as a result, failed to deliver the related developments.

There are also a number of existing issues with the A458 Welshpool Road which the OLR would address. They would get worse if the development were to go ahead without the OLR:

- Without the OLR and related package of improvements, conditions on Welshpool Road would deteriorate for local residents, exacerbating existing problems;
- Without the OLR and related package of improvements, traffic growth on Welshpool Road would further reduce its attractiveness to pedestrians and cyclists, exacerbating existing problems;

²⁶ SAMDev Evidence Base EV73: Land at Welshpool Road, Shrewsbury, Delivery Statement, on behalf of Mosaic Estates – Revised July 2010, Appendix 4: Outline Transport Strategy

- Without the OLR the Council would not be able to deliver the employment targets set in the Strategic Economic Plan, with serious consequences for Shrewsbury's economy; and
- Without the OLR the Council would not be able to deliver in full the housing targets set in the Local Development Framework.

2.2.1 *Problems for residents and users of Welshpool Road*

2.2.1.1 **Function and character**

As already noted, the A458 is an important radial route, linking the strategic A5 trunk route to Shrewsbury town centre. It provides access to the existing Oxon Business Park via a recently constructed roundabout, and to the existing Shrewsbury Park and Ride site at Oxon. It provides connections to existing major residential areas, by means of Gains Park Way, with which it forms a priority junction. But it also has direct frontage access to residential properties and provides direct access to a range of community facilities, including a supermarket, dental surgery and parish church.



Figure 2-4: Houses with direct frontage access onto A458 Welshpool Road



Figure 2-5: Houses and dental surgery with direct frontage access onto A458 Welshpool Road



Figure 2-6: Local church with frontage access onto A458 Welshpool Road

A458 Welshpool Road has a variable standard along its length, there is no consistency in width, alignment, footway provision, junction layout or frontage access

over the relatively short length between Churncote and Shelton. It has frontage development in places with newer developments set back. However there are still in excess of 35 properties within 10m of the road, of which over 50% have direct access. This, and the number of side roads along the current link, mean that this is both a built-up street and an arterial road. Parts of it are very rural in character, others clearly suburban. This gives mixed messages to drivers, cyclists, pedestrians and residents, all of whom have different needs and expectations.



Figure 2-7: A458 Welshpool Road transitions from rural to suburban along its length (Source: Google Maps)

2.2.1.2 Forecast increase in traffic on Welshpool Road

Welshpool Road carries approximately 11,000 vehicles per day at present. With the levels of growth currently forecast this will increase to approximately 13,000 vehicles per day by 2026 – an increase of around 18%. Existing and forecast traffic flows at three different locations on Welshpool Road (as illustrated in Figure 2-8) are set out in more detail in Table 2-1.



Figure 2-8: Traffic count locations (Source: Google Maps)

Scenario	Location 1			Location 2			Location 3		
	AM	IP	PM	AM	IP	PM	AM	IP	PM
Base year Do Nothing ("existing")	910	612	970	945	664	1036	826	670	911
Future year Do Minimum (i.e. no OLR)	1071	689	958	953	939	1302	941	903	1091
Future year Do Something (i.e. with OLR)	155	29	243	748	630	870	718	660	866

Table 2-1: Existing and forecast traffic flows on Welshpool Road

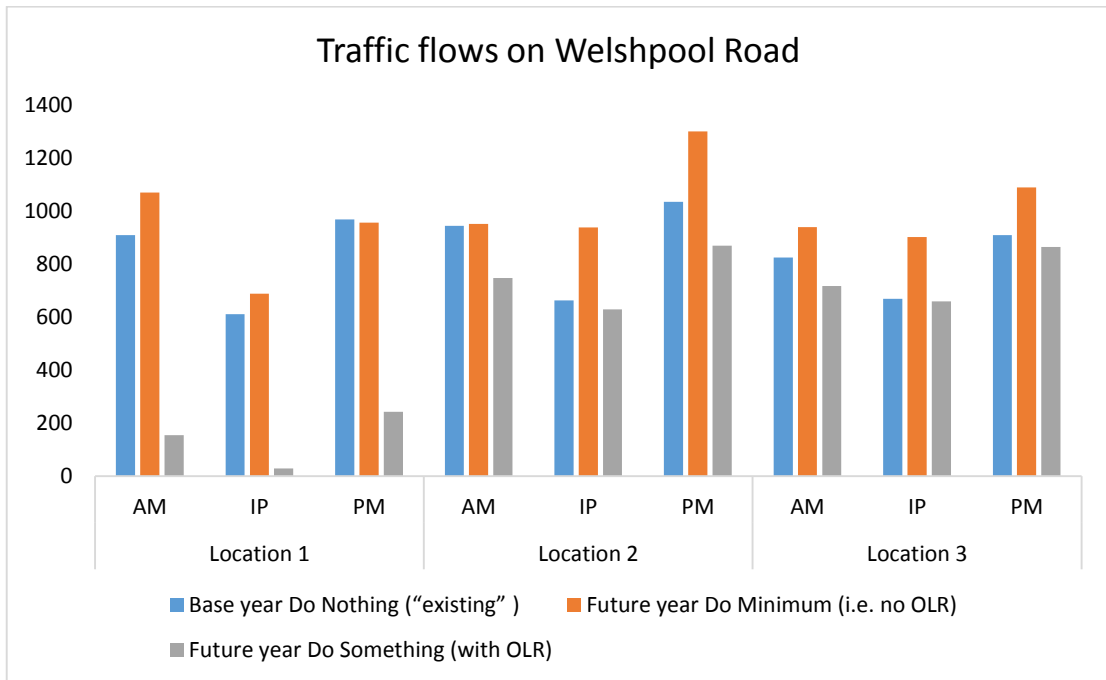


Figure 2-9: Graphical comparison of traffic flows on Welshpool Road

2.2.1.3 Accident risk

Even at existing levels of traffic, there are problems on A458 Welshpool Road related to its physical character and multiple roles. Perceived problems relate particularly to road safety, as there are sections of the road which have narrow footways and, front doors opening directly on to these.

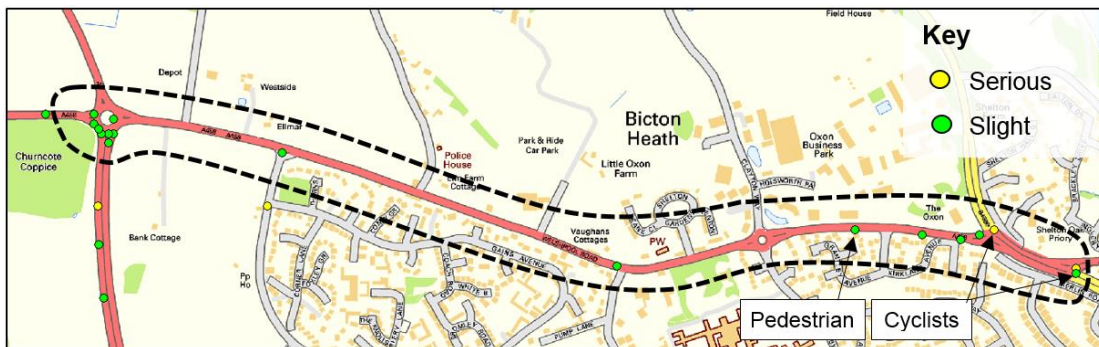


Figure 2-10: Injury accidents on A458 Welshpool Road December 2009 – November 2014

Figure 2-10 shows the locations of injury accidents recorded between December 2009 and November 2014. There were 18 injury accidents in the area studied (which includes the junctions at each end) of which 2 involved serious injury. Excluding the junctions, the highest accident rate is on the eastern section of Welshpool Road, between Shelton traffic signals and the existing Oxon Business Park access.

If new development takes place without provision of OLR and changes to Welshpool Road, the number of accidents would be expected to increase roughly in line with the related traffic growth. The provision of the OLR and severance of Welshpool Road at its western end will move through traffic onto the new road, which is of a much

higher standard. Overall, the OLR scheme will reduce accidents, as set out in Chapter 3 (The Economic Case).

To some extent concern about accidents has been addressed by the recent introduction of a 30 mph speed limit between Oxon Business Park Roundabout and Shepherds Lane. However, the package of measures associated with the OLR and the SUE is likely to include provision of a 20 mph speed limit (subject to statutory consultation and approval) together with other measures to create an environment more conducive to walking and cycling.

2.2.1.4 Local environment and air quality

The increase in traffic that would occur on Welshpool Road if land at the SUE were developed without the OLR would also cause other problems for local residents and users of the Welshpool Road area, including increased levels of noise, dust and emissions. These would impact adversely on health and the overall quality of life.

If the SUE (West) were developed without the OLR, the level of traffic increase in Welshpool Road would exceed the DMRB threshold²⁷ (1,000 AADT or more), for the change in daily traffic flow used to decide whether the local air quality is likely to be affected by the development proposals. The OLR, by reducing traffic on Welshpool Road will improve localised air quality for residents of properties fronting the road.

2.2.2 Problems for pedestrians and cyclists

Shrewsbury has a fairly good network of cycle routes, with a mixture of on and off-road facilities on the main “ring road” – and links to schools, employment areas and the town centre. However, provision is far from comprehensive and there are several missing links where it has been difficult to provide decent facilities.

There are cycle facilities (off road cycle lanes) on B4380 Shelton Road and at the junction with A458 Welshpool Road (cycle lanes and advance stop lines), but no dedicated cycle facilities on Welshpool Road itself – the cycle lanes stop just beyond the junction.

²⁷ DMRB Vol. 11 Section 3, Part 1 HA 207/07, Chapter 2: Air Quality Management in the UK



*Figure 2-11: Shelton traffic signals – the cycle lanes do not continue along A458 Welshpool Road
(Source: Bing Maps)*

As a result, the road space of Welshpool Road is dominated by traffic, and the route is not cycle-friendly, despite being the access to an important employment area (Oxon Business Park) and residential areas.

On some sections of Welshpool Road, the frontage development and narrow footways preclude the construction of off-road cycle lanes, and there are no on-road facilities either, the limited road space being required for vehicular traffic. Cyclists are obliged to mix with general traffic. This feels unsafe and is inhospitable to cycling. A combination of strategic through-traffic from the A5, high speeds²⁸ and narrow footways presents a significant barrier to cycling on Welshpool Road.

²⁸ Weekday average 85th percentile speed on Welshpool Road: Eastbound - 38.94 mph, Westbound – 39.20 mph (source: Mouchel traffic surveys, September/October 2014)



Figure 2-12: Narrow footways on A458 Welshpool Road (Source: Google Maps Street View)

Narrow footways also bring pedestrians dangerously close to fast moving traffic, creating a poor perception of safety for pedestrians along Welshpool Road.

Figure 2-13 shows that annual average daily cycling levels on Welshpool Road have been fairly constant over the last decade, with the exception of a brief spike in usage in 2005.

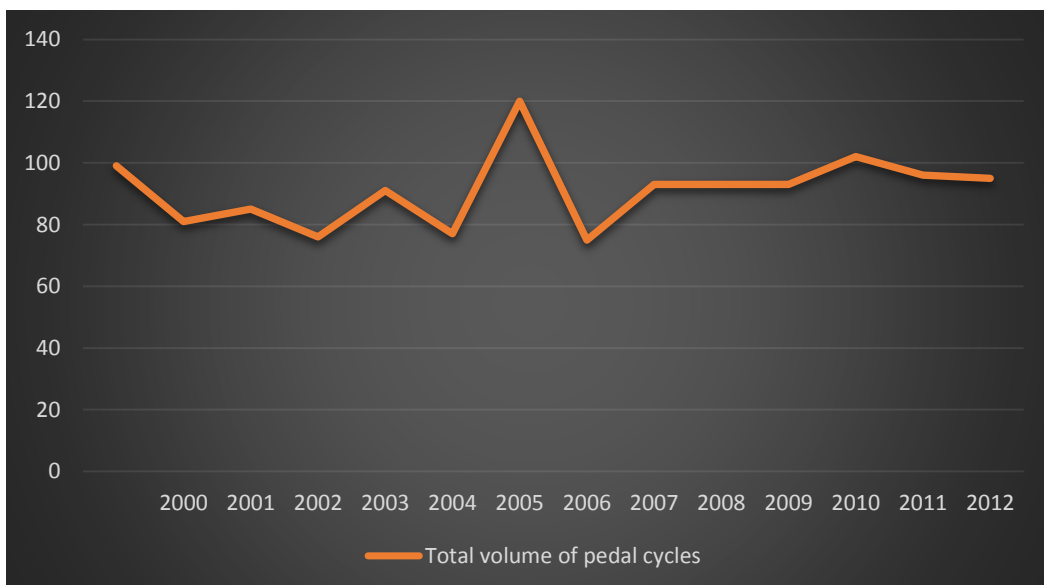


Figure 2-13: Annual average daily cycle usage on Welshpool Road between 2000 and 2012 (Source: <http://www.dft.gov.uk/traffic-counts>)

Forecast traffic growth as a result of development means that conditions for cyclists and pedestrians will get significantly worse, unless something is done. The overall design for the SUE, and specifically the OLR, therefore addresses these issues comprehensively.

As part of the Oxon Link Road (OLR), a cycle path will run along full length of the Link Road between the A5 Churncote Roundabout and the B4380 Holyhead Road. The proposed scheme will facilitate safe and easy pedestrian access between the existing urban edge, the new development, Bicton Village and the countryside through the provision of footbridges and at-grade crossings as appropriate.

The OLR will also remove the existing through traffic movements from Welshpool Road, allowing its function and character to be greatly improved and creating improvements to pedestrian and cyclist facilities and amenity. The potential improvements for Welshpool Road include:

- Introduction of 20 mph zone between Gains Park Way and Calcott Lane;
- Raised tables and crossings at key junctions and crossings and the introduction of different surface materials and new landscaping;
- Downgrading the posted speed limit on other sections of Welshpool Road from 40 mph to 30 mph;
- Introduction of street connections from the proposed housing areas directly onto Welshpool Road;
- Narrowing of the carriageway and the introduction of variations to the alignment or other measures to reduce forward visibility;
- Possible inclusion of on-road cycle lane; and
- Possible inclusion of pedestrian and cycle crossings where appropriate.

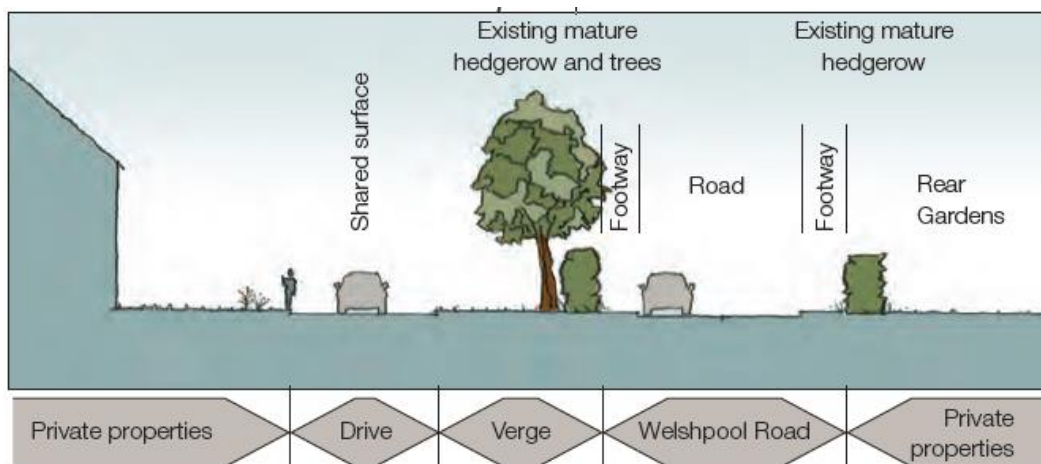


Figure 2-14: Typical proposed cross section on Welshpool Road (Source: SUE West Masterplan)

As the town centre is within 3 miles of Welshpool Road, it is expected that cycle commuting to the town centre will be encouraged through the mitigation of perceived accident risk.

2.2.3 *Failure to deliver employment and housing targets*

Shrewsbury is required to play a key role in meeting the housing targets, set by Shropshire's Local Development Framework, by delivering approximately 25% of Shropshire's need for new homes, equating to 6,500 new homes for the period 2006-2026¹⁴. To this end, the priority is to bring forward two Sustainable Urban Extensions (SUEs) to the town, one at Shrewsbury South and one at Shrewsbury West. Policy CS2 states that these two SUEs together will provide 25% of the new homes.

As demonstrated above, development on the scale proposed for the SUE would, in the absence of the OLR, increase traffic on A458 Welshpool Road, exacerbating the existing problems for cyclists, pedestrians and residents. This would go against the whole principle of creating a Sustainable Urban Extension which seeks to deliver new homes and jobs in a way that enhances the environment and supports sustainable transport. It would be unacceptable and unsupportable.

No part of the development planned for the SUE is completely independent of the OLR, since the road and the development are part of an integrated plan designed to deliver the urban extension in a sustainable and acceptable way. The development will also generate a substantial part of the funding for the OLR, whilst the OLR will allow the development to be delivered without exacerbating existing problems. In this way, the SUE and the OLR are completely inter-dependent.

Figure 2-15 below illustrates the phasing plan for the full SUE, as envisaged in the Masterplan.

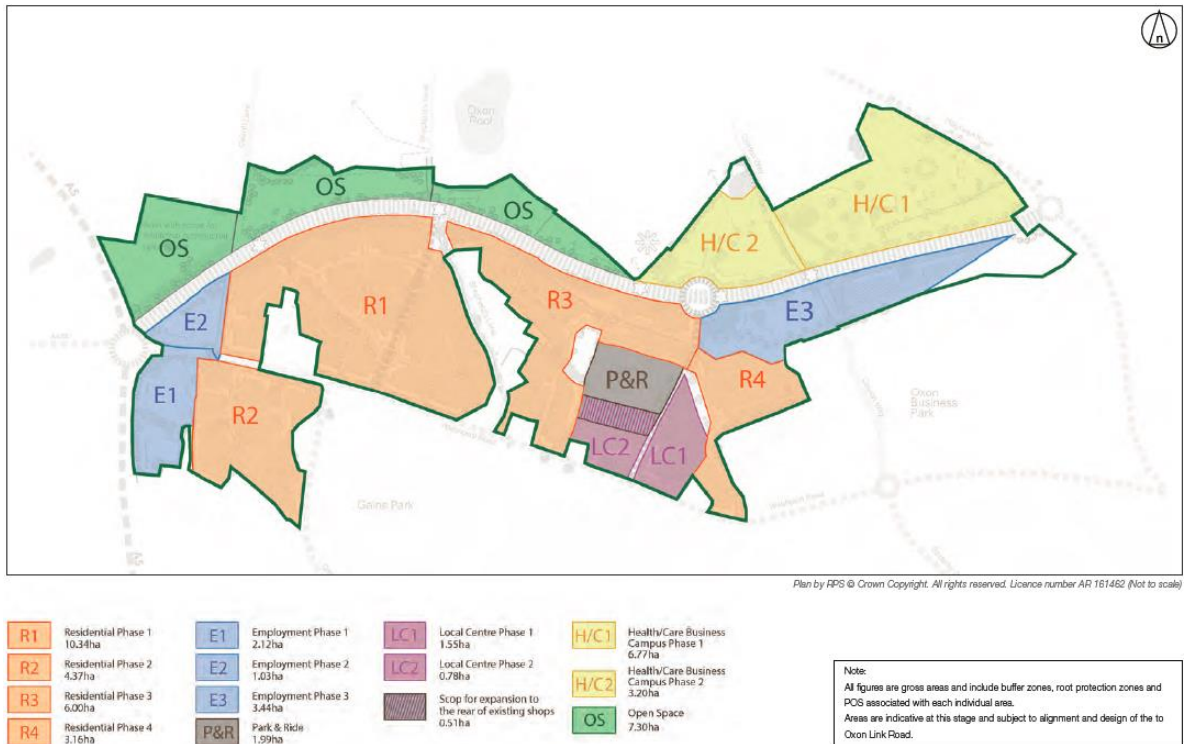


Figure 2-15: SUE West Phasing Plan (Source: SUE West Masterplan)

In full, the SUE comprises:

- 13.5 ha of residential development (approximately 750 houses);
- 6.6 ha of employment land and 9.97 ha of healthcare / business campus (2,885 jobs);
- A local centre (shops etc.); and
- Open space.

The full SUE West will provide 64% of the total job target for Shrewsbury set out in the SEP (4500 jobs) and 12% of the total housing target for Shrewsbury set out in the LDF (6500 houses).

For practical reasons, to kick start the delivery of the SUE and to start generating the developer contributions, which will help fund the OLR, Shropshire Council will permit some of the SUE development to proceed without the OLR in place. Specifically the Council; is considering²⁹ an outline planning application for:

²⁹ Application for the Phase 1 of the Masterplan has been submitted to the Shropshire Council by David Wilson Homes (Mercia) & Jennings Estates and is currently pending consideration – Planning application reference 14/00246/OUT

- Up to 9,800m² of employment development in zones E1 and E2; and
- Up to 300 houses in area R1.

The Council is prepared to permit the above developments to be delivered before the OLR is completed. In total, the Council considers that up to 400 houses could be permitted, with access off Welshpool Road, before the OLR is completed.

This initial phase of development will trigger the first of the developers' contributions which are needed to help deliver the OLR.

The remaining 450 houses, and the balance of the employment development, will only be delivered with the OLR in place.

The adverse economic consequences of a failure to deliver the full employment associated with the SUE and OLR would be significant, as Shrewsbury depends on the SUE West to deliver more than half of the new jobs envisaged in the SEP.

The consequences of a failure to contribute fully to the housing targets for Shrewsbury set out in the LDF would be a net shortfall in the housing needed to support the town's population and attract people of working age, and pressure to develop housing in less suitable, less sustainable locations.

2.3 Scheme objectives

The core objectives of the scheme are:

- **To deliver the Core Strategy housing targets** – The Local Development Framework has been developed to deliver 6500 homes in Shrewsbury by 2026. The OLR will provide the infrastructure needed to complete the housing allocations in the SUE (West) – a total of 750 homes;
- **To open up employment land, creating jobs and supporting economic growth and competitiveness** – The Link Road will facilitate the development of new employment land with expansion of an existing business park and new business premises on both sides of the link road. This will ultimately provide a wide range of jobs, at different social levels and improve the general prosperity of the local residents and the wider community;
- **To improve resilience in the local road network** – Traffic on the OLR will have less interference from junctions, pedestrian crossings, bus stops and frontage development. Journey times will be more reliable and there will be a separation of local and through traffic, reducing congestion;
- **To reduce accidents** – Traffic modelling and COBALT analysis predicts a net reduction in accidents as a result of the OLR

- **To allow the form and function of Welshpool Road to be altered in favour of more sustainable modes of transport** – Removing the through traffic from Welshpool Road, which passes through a residential area, will create a safer and more attractive environment for pedestrians and cyclists and reduce severance for these modes;
- **To facilitate improvement of the existing local centre** – SUE West proposals seek to expand the existing local centre on Welshpool Road by providing a mixture of land uses including:
 - A1 convenience store;
 - Small convenience retail units;
 - Residential uses: Flats / sheltered housing;
 - Community facilities such as a meeting hall;
 - Medical Practice / Crèche / Nursery; and
 - Employment land uses including small offices.

The expanded local centre would create improved amenities and local service provision for existing and future residents, contributing to more self-containment and a reduction in the need to travel;

- **To enable delivery of a North West Relief Road (NWRR) in the longer term** – Implementation of the OLR presents the opportunity for the delivery of part of the NWRR, taking the long term aspiration of the Council one step closer to reality.

2.4 Measures for success

The successful delivery of the scheme will be judged by the following outcomes:

- **Net additional dwellings in Shrewsbury, especially the full SUE West allocation of 750 units** – measured through the Council's Annual Monitoring Reports (AMR);
- **Net additional floor space for employment in Shrewsbury** – measured through the Council's Annual Monitoring Reports (AMR) and also Business Demography Data, which indicates new start-ups and closures of businesses;
- **Increased economic output in Shropshire through increased containment and reduced out-commuting** – measured through GVA headline figures published for Shropshire;
- **Reduced congestion and more reliable journey times** – measured through traffic surveys before and after the scheme implementation;
- **Reduced accidents** – measured using standard accident statistics collected by the police and analysed by Shropshire Council; and

- **An increase in the number of pedestrians and pedal cyclists along Welshpool Road** – measured through traffic surveys before and after the scheme implementation.

2.5 Scope

The Oxon Link Road (OLR) will provide a new principal vehicular link between the A5 (T) Shrewsbury Bypass and the B4380 Holyhead Road, to enable the development of a Sustainable Urban Extension (SUE) and support economic growth in Shrewsbury. Engineering drawings of the OLR are included at Appendix A of this report. Key features of the OLR are schematically represented in Figure 2-16.

The proposed scheme is not being put forward in isolation. Complementary measures designed to enhance and lock in its benefits also form part of this proposal. The following sections set out the scope of works for the OLR and seeks to explain it in the context of wider SUE West Masterplan proposals.

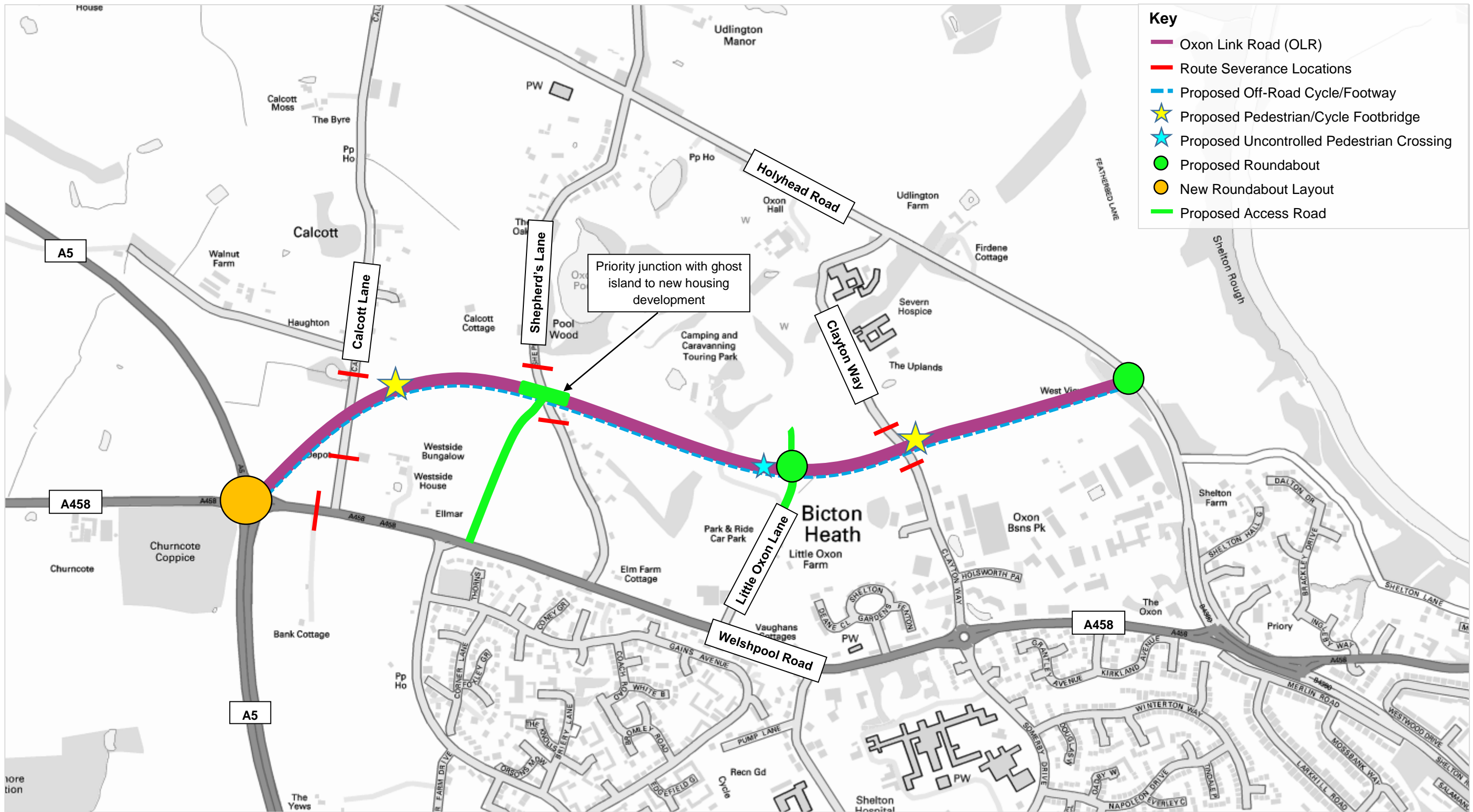


Figure 2-16: Schematic representation of the Oxon Link Road Scheme

2.5.1 Oxon Link Road Design – Key design features

The OLR will be a 7.3m wide single carriageway with 1.0m wide hard strips on either side. As indicated in Figure 2-17, the existing A458 Welshpool Road will be severed at a point to the west of Calcott Lane. The Welshpool Road arm of the Churncote roundabout would effectively function as an ‘access only’ arm to facilitate SUE West Phase 1 employment land use trips. All through traffic will use the new link road.

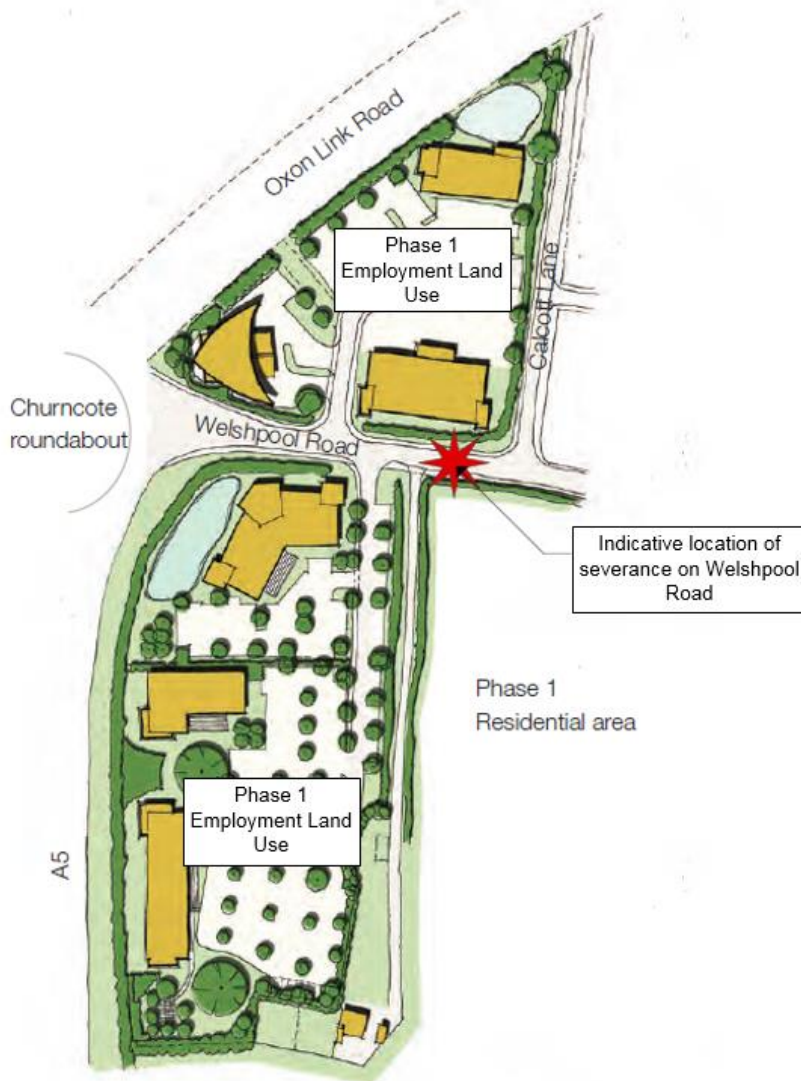


Figure 2-17: Indicative location of the severance on Welshpool Road (Source: SUE West Masterplan)

It is proposed that the Oxon Link road will be limited to 50 mph, consistent with the existing inner bypass around the south and east sides of Shrewsbury town centre, to reduce noise impact on the proposed and existing homes. The link road will be bounded on both sides by public open space and include a 3.5m wide shared footway / cycleway along the southern edge, linking the on-road designated National Cycle Route on Holyhead Road in the east with the A5 (T) Churncote Junction in the west. There will be associated bridge and at-grade crossings at appropriate locations to allow safe pedestrian / cycle access across the OLR (Figure 2-16). A typical cross-section of the proposed OLR is illustrated in Figure 2-18.

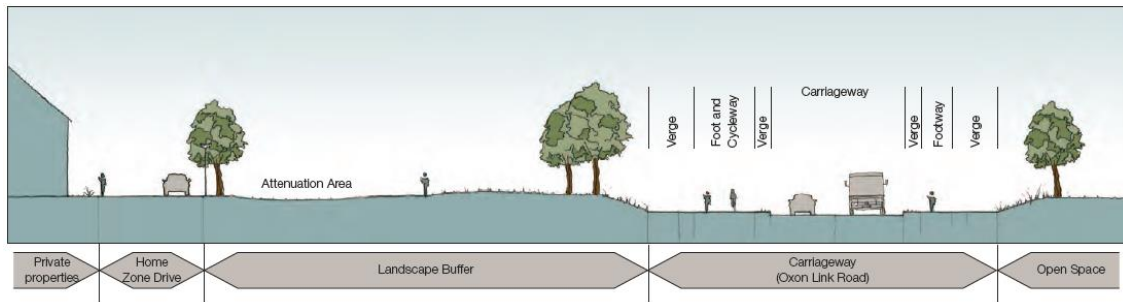


Figure 2-18: Typical cross section on Oxon Link Road (Source: SUE West Masterplan)

The Transport Assessment (TA) prepared in support of the SUE West Phase 1 outline planning application notes that a buffer has been allowed between the redline boundary of the Phase 1 development and the SUE allocation boundary to enable the OLR corridor to significantly deviate from the alignment that is currently depicted in the masterplan³⁰. The TA asserts that the buffer is deliberately provided to enable a 25m wide corridor the OLR together with landscaping and open space. A corridor width of 25m allows for a 7.3m wide carriageway, 1m hard strips on either side, a 3.5m wide combined footway / cycleway, 1.8m wide vegetated drainage channels and earthworks / embankments. The TA also states that the redline boundary of the Phase 1 has been drawn up to accommodate a future junction between the Phase 1 development and the OLR. Through the adequate provision of land for implementing the OLR, SUE West developers have effectively demonstrated their commitment and conviction to facilitate the delivery of the OLR.

2.5.2 Junction arrangements

The OLR will have four junctions along its length, including the Churncote Roundabout at its western end. One of the two intermediate junctions will be formed by a new access road that will serve the proposed housing development, which forms part of SUE West Phase 1, as well as indirectly linking back to Welshpool Road and the adjoining residential areas. The junction will be in the form of a priority junction with a ghost island to facilitate right turning movements into SUE West Phase 1 residential development. The second junction (with Little Oxon Lane), which will be in the form of a roundabout, will serve an expanded local centre, an expanded Oxon Business Park and further employment land north of the OLR, a residential development of 150 units, an existing caravan / leisure park, the Severn Hospice and future care home facility, as well as Welshpool Road and other adjoining residential areas. Further residential developments, as part of SUE West proposals, are also proposed on land accessible from Welshpool Road.

The eastern end of the OLR will form a new three-arm roundabout with the B4380 Holyhead Road, which will be approximately 200m from the existing traffic signals junction at Welshpool Road / Shelton Road / Holyhead Road. This existing signal

³⁰ Land off Welshpool Road, Shrewsbury, Shropshire, Transport Assessment, Volume 1 – Text and Figures, Paragraph 9.3 – 9.8, RPS Group, January 2014

junction will be re-configured to address the changes in traffic demand with the redirection of the principal / strategic route along the OLR.

As noted above, junction arrangements at the Churncote Roundabout are subject to agreement with Highways England. The proposal, as agreed in principle, is to reconfigure the roundabout to include OLR as a fifth arm, with the existing Welshpool Road (east) arm functioning as an 'access only' arm, serving SUE West Phase 1 commercial / retail / employment land uses.

2.5.3 *Connections between OLR and Welshpool Road*

As noted above, a new road between the Oxon Link Road and Welshpool Road would be provided through Phase 1 development west of Shepherd's Lane, with both Shepherd's Lane and Calcott Lane becoming culs-de-sac with access to / from the north only for pedestrians, cyclists and potentially emergency vehicles (Figure 2-16).

Clayton Way would stop being a through route and the land to the north of the OLR would be accessed via the Little Oxon Lane junction and Holyhead Road (Figure 2-16).

2.5.4 *General access arrangements and road hierarchy*

The principles of access and movement of the OLR, within the context of SUE West, is illustrated in Figure 2-19. Key features can be summarised as follows:

- The OLR would serve as the main route for vehicles across the SUE West site. Together with the cycleway along the south side of the OLR, it will be a relatively wide road corridor lined and enclosed by new landscaping;
- By contrast, the new access road through Phase 1 residential land use, Little Oxon Lane and Welshpool Road will form the principal routes through the SUE West site. These would be relatively wide streets lined and enclosed by a more compact arrangement of buildings and landscaping;
- The principal routes will include the Local Centre and potential community facilities and the more formal landscape and public realm spaces. The principal routes will also have the potential to accommodate a public bus route;
- The principal route along Little Oxon Lane will serve as the access conduit between the OLR and the existing Park and Ride; and
- The two employment areas would be served by new road connections off the Oxon Link Road and Churncote Junction. The Oxon Business Park (north) and the healthcare / business campus in the east would be served from the Little Oxon Lane roundabout or directly off Holyhead Road.

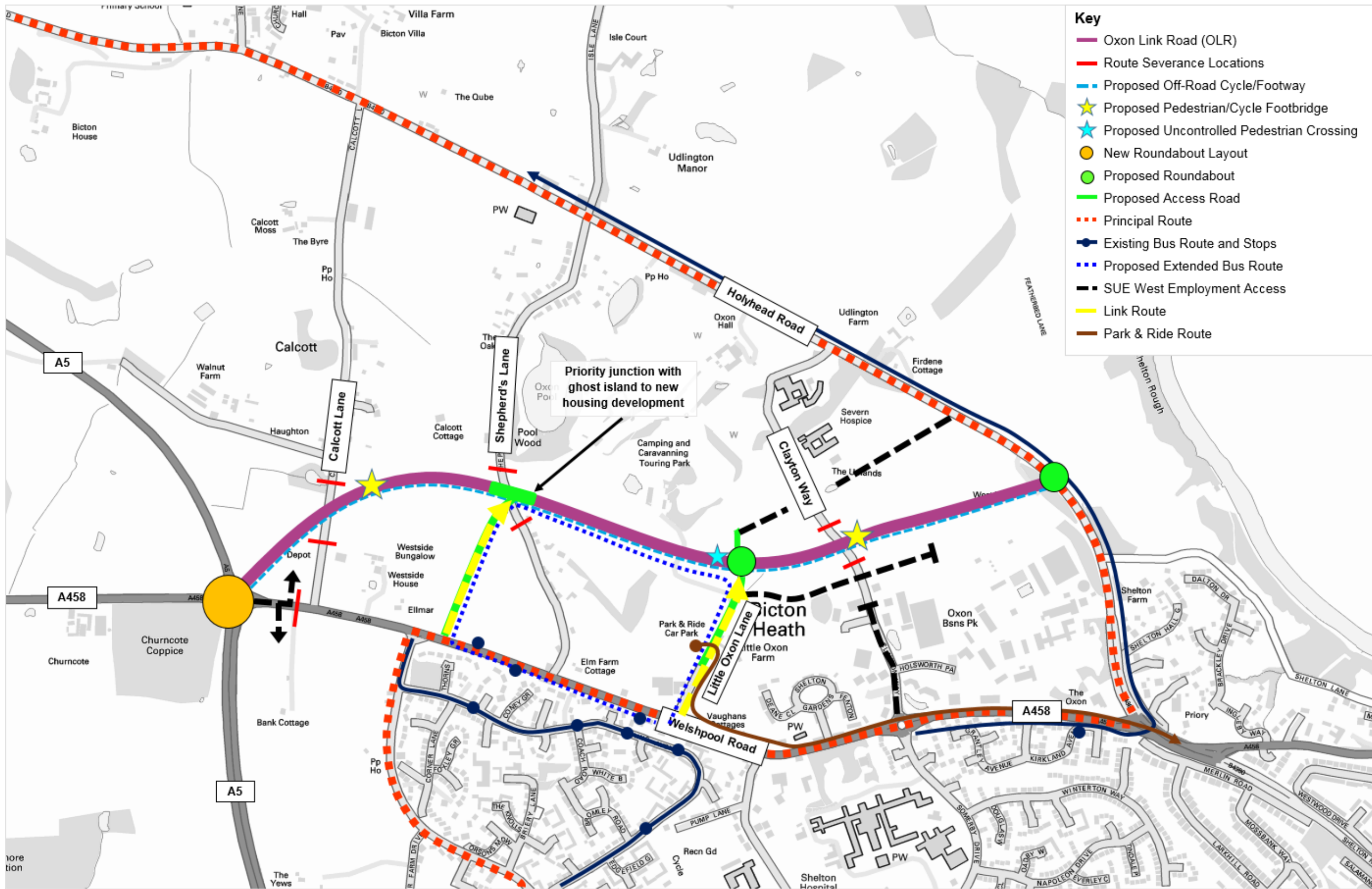


Figure 2-19: SUE West Movement and Access Plan – Vehicles (Source: Adapted from SUE West Masterplan)

2.5.5 *Footpath crossings and connectivity with foot / cycle way / PROWs*

As illustrated in Figure 2-20, the OLR will be criss-crossed by two existing footpaths / PROW. It is expected that existing public rights of way will be kept where feasible and diverted to connect with the proposed crossing points.

There will be at least two crossing points via footbridges across the OLR. A segregated crossing is proposed across Clayton Way will provide a safe and convenient crossing point between the health / retirement / leisure campus area and the urban extension and employment areas to the south. A second cycle / footbridge is proposed at a location to the east of Calcott Lane.

A third footpath links Welshpool Road to Shepherd's Lane and would most likely now be provided through the new internal streets.

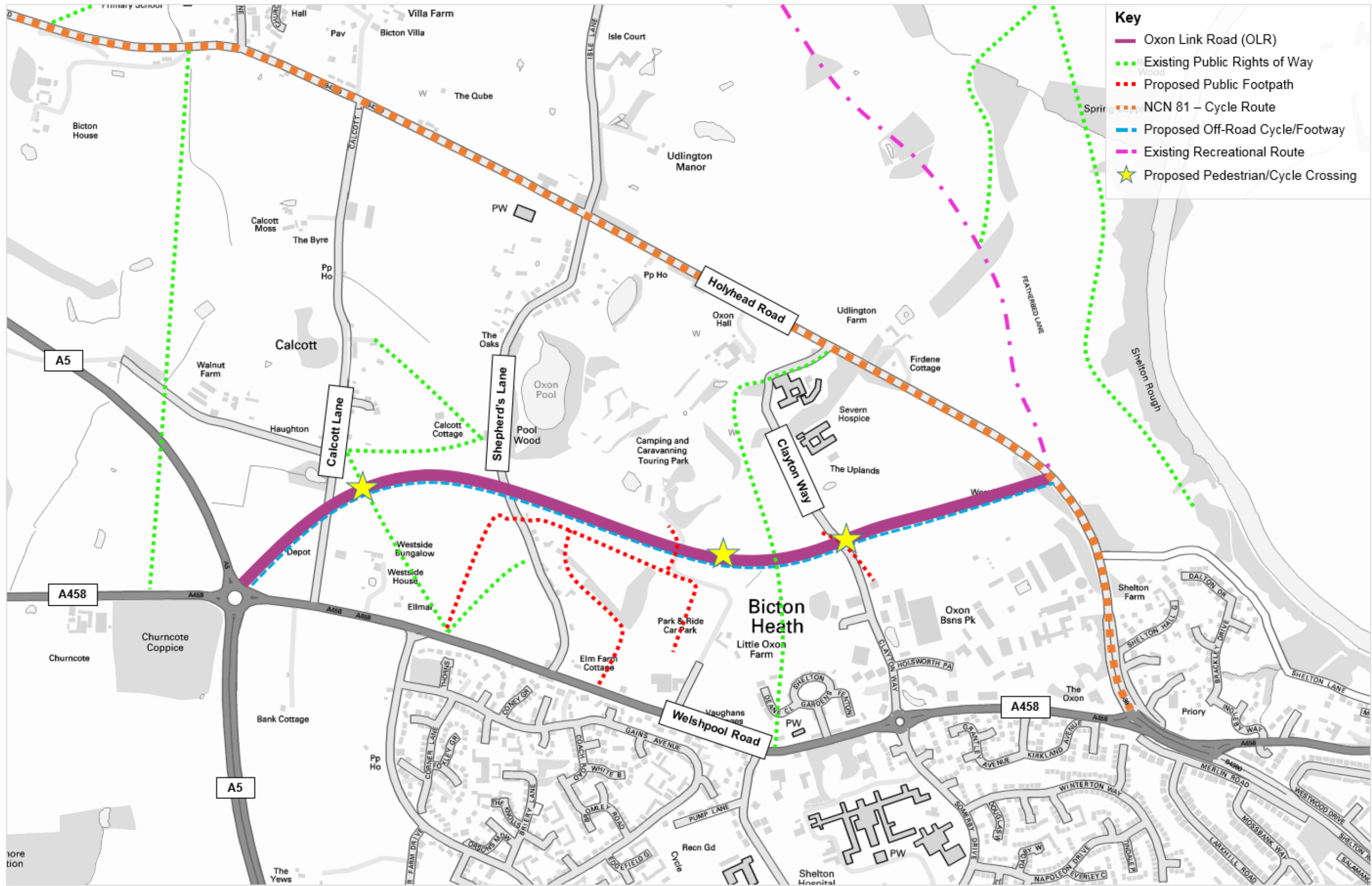


Figure 2-20: OLR in the context of existing and proposed PROWs, foot paths, cycle ways / routes

2.5.6 Treatment of Welshpool Road

The existing Welshpool Road will form the southern boundary of the SUE. It will no longer carry strategic through traffic. Together with the OLR, it will provide local access to new and existing housing and employment areas.

An indicative cross-section of Welshpool Road in relation to the new development is shown below:

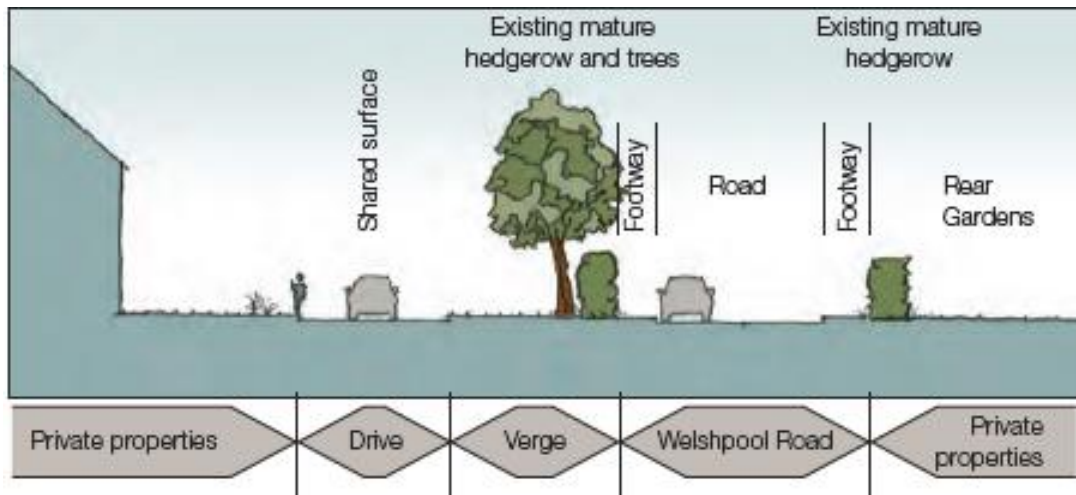


Figure 2-21: An indicative cross-section of Welshpool Road

The SUE Masterplan³¹ states that:

“The Masterplan would seek to conserve the various better quality townscape characteristics along the site’s southern boundary with this road corridor and seek to improve the townscape character where it is considered poorer quality and improve the natural surveillance through good urban design.”

“Generally houses are set back behind high mature hedgerows or fences with small pockets of short terraces fronting directly onto the road most notably at Vaughan’s Cottages and the Old Post Office Cottage at the Shepherd’s Lane junction. Here a reduction in the carriageway width or change in road surface to reduce vehicle speeds in these locations could help with place making and the perception of safety.”

“Proposals to be adopted would potentially include:

- *Narrowing of the carriageway and the introduction of variations to the alignment or other measures to reduce forward visibility;*
- *Inclusion of on-road cycle lane;*

³¹ Shrewsbury West Sustainable Urban Extension: Masterplan, prepared by RPS on behalf of Shropshire Council, section 6.2, page 60

- *Inclusion of pedestrian and cycle crossings;*
- *Inclusion of raised tables and crossings at key junctions and crossings and the introduction of different surface materials and new landscaping; and*
- *Introduction of street connections from the proposed housing areas directly onto Welshpool Road.*

The SUE West development has the potential to contribute towards the enhancement of existing public transport routes serving the area, as well as extended through the proposed development with bus routes and stops to effectively serve the entire site.”

It is anticipated that the speed limits on Welshpool Road would be further reduced from 40 mph / 30 mph to 30 mph / 20 mph with the SUE developments.

2.6 Constraints

No major constraints have been identified that would affect the viability or deliverability of the scheme proposals. The land for the Oxon Link Road is under the ownership of the SUE consortium and therefore no land issues are likely to arise. Technically, the road is designed to be relatively straightforward, without any innovative building techniques. This approach provides stronger confidence in the completion to timescale of the project, and with it the delivery of the employment land and additional 450 dwellings.

However, a number of less significant physical and practical constraints have been identified that could potentially impact upon the delivery of this scheme, and have therefore been factored into the quantified risk assessment. These are described below.

2.6.1 *Objection from the general public and environmental groups*

Whilst the plan for the SUE has been consulted on separately, and the LDF was examined in public, there is still likely to be some opposition to the scheme, including from environmental groups, based on objections to the principle of a North West Relief Road (NWRR). Whilst the OLR scheme generally follows the alignment proposed for the NWRR, it is being brought forward as a modified strategic road with a 50 mph design speed. The detail of the OLR has also been modified from that of the NWRR, with reduced earthworks, and will have reduced impact on the local environment³².

³² The section of NWRR between Churncote Roundabout and Holyhead Road would have been constructed in significant open cutting bisecting the employment land and limiting the developable areas

Whilst objections are likely to be made to the principle of SUE development at this location, including the quantum of development and the provision of the link road, the level of development proposed at this location including the provision of Oxon Link Road, is already enshrined within an adopted development plan, thereby lending significant weight to the scheme in principle.

The adopted Shropshire Core Strategy has been subject to significant public consultation during its preparation, including the identification of Shrewsbury West SUE as a strategic location for development, and the OLR as the vital highway infrastructure required to support and deliver the full SUE West allocation. The document has also been subject to independent examination and found to be sound, robust and fully justified³³. The principle of the scheme has therefore been crystallised and will remain unchanged. By incorporating good design principles, promoting sustainability, and administering adequate mitigation measures, it is expected that majority of the objections or concerns raised by interested parties can be addressed.

2.6.2 *Traffic management and diversions during construction*

Given the offline nature of the link road, it is expected the construction work will not significantly impact upon the local transport network. However, construction activities in general will require the use of heavy works vehicles and machines which would create a restrictive and potentially dangerous working environment. Ensuring the safety of pedestrians, cyclists and passing vehicles will be of paramount importance and would inevitably take priority over traffic delays and disruption. An appropriate traffic management plan and a traffic diversion route will be drawn up to ensure that traffic delays and disruption are minimal.

2.6.3 *Environmental Implications*

The study area is not subject to any environmental designations or national / international conservation directives. The site is predominantly farmland with mature trees and hedgerows located mainly along field boundaries and lanes. The Delivery Statement³⁴ for SUE West prepared in support of the SAMDev evidence base notes that the area identified for SUE West, which includes the OLR alignment, “*lacks any significant ecological value*”. It is also stated that “*the Agricultural Land Classification for the area shows the land as Grade 3³⁵ in contrast with a large swathe of Grade 2*”

³³ Shrewsbury West SUE Masterplan – Consultation Report by RPS Planning & Development, paragraph 4.2, October 2013

³⁴ SAMDev Evidence Base Reference EV73: Land at Welshpool Road, Shrewsbury – Delivery Statement on Behalf of Mosaic Estates, by RPS Planning, Revised July 2010

³⁵ Grade 3 – Good to moderate quality agricultural land, Grade 2 – Very good quality agricultural land (Source: Ministry of Agriculture, Fisheries and Food: Agricultural Land

quality land at Oteley Road (Shrewsbury South strategic location)". Therefore, no major constraints to the scheme are envisaged from an environmental and ecological perspective.

Oxon Pool to the north of the site is a County Wildlife Site and a UK BAP priority habitat (Ponds and Wet Woodland). The margin of the pool lies less than 100m from the closest field boundary and ecological impacts could arise if there was a hydrological connection³⁶.

Mature trees and ribbons of hedgerows spread across the site support a limited diversity of species. As part of the SUE West Masterplan preparation, a wide range of ecological surveys and desk-based studies have been undertaken along the proposed alignment of the OLR to gain an in depth understanding of the ecological constraints in the area. A summary of the various studies is presented in the following sections. A comprehensive ecology plan and a landscape analysis plan, covering the study area, are attached at Appendix B.

2.6.3.1 Great Crested Newts

An assessment of the ponds within 250m of the proposed Oxon Link Road was carried out to determine the presence / absence of great crested newt breeding populations³⁷. The work comprised two main elements:

- Assessment of the suitability of ponds as breeding habitat for great crested newts (GCN) where located within 500m of the anticipated working for the construction of the road; and
- Presence / likely absence of great crested newts in suitable ponds.

The survey confirmed that only one of the ponds in the vicinity of the proposed Oxon Link Road supports great crested newts. Given the number of field ponds and wooded ponds located within 250m and 500m from the anticipated working area, the surveys demonstrated that all but one of the ponds do not support breeding great crested newt and that the overall value of the ponds for amphibians is generally low.

The study concluded that although the construction of the section of the link road within 250m of the breeding pond will primarily result in the loss of arable land, there

Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land, October 1988 (Archived))

³⁶ Shrewsbury West Sustainable Urban Extension: Master Plan Document, RPS on behalf of Shropshire Council, Chapter 3.3

³⁷ Great Crested Newt Survey Report: Oxon Link Road, Shrewsbury SUE, by RPS on behalf of Shropshire Council, August 2014

will be some dissection of hedgerows and impacts on the associated grassy hedge margins. These latter habitats have the potential to be used for shelter and foraging by great crested newts and any below ground cavity features would have potential value for hibernating animals (ibid).

Where habitats with the potential to support great crested newts will be affected, then the development must be covered by a European Protected Species (EPS) Mitigation Licence to be lawful (ibid). The study recommended that a legally binding method statement will need to be attached to the licence application. This will define the impacts on great crested newts, the species protection measures, mitigation / compensation to maintain the status of the population alongside development and the fixed programme for implementation in advance of and alongside the construction of the road.

2.6.3.2 Bat Roosts

Species-rich hedgerows and mature trees found across the site are considered to be of higher value for wildlife. The mature trees on site are likely to support a range of invertebrate species and the trees and hedgerows provide good nesting bird habitats. They are also considered to offer good foraging bat habitats (ibid).

In order to establish bat roosting potential along the proposed Oxon Link Road alignment, a day-time tree inspection was carried out on 25th April and 1st May 2014³⁸. Within the area of influence of the OLR foot print, only one tree was identified as being under Category 1* i.e. the highest score for potential bat roosting. A further 7 trees were classified as Category 1, having features with the potential to be used by individual roosting bats. Those trees under Categories 1* and 1 will be subject to further inspections and appropriate mitigation measures will be put in place to minimise disturbance from the construction of the road.

2.6.3.3 Badger survey

Badgers are protected under the Protection of Badgers Act 1992. Under this legislation, a person is guilty of an offence if, except as permitted by or under this Act, he or she interferes with a badger sett³⁹.

A badger survey was carried out in June 2014 to establish the presence of badger setts (active or disused) and record field signs, and evidence of badger activity along the proposed Oxon Link Road alignment, and three adjoining parcels of land identified within SUE West.

³⁸ Tree Inspection – Bat Roost Potential, Oxon Link Road, Shrewsbury SUE, by RPS on behalf of Shropshire Council, June 2014

³⁹ Badger Survey – Oxon Link Road, Shrewsbury, by RPS on behalf of Shropshire Council, July 2014

The study noted that a single active badger sett lies in the survey area, located approximately 100m south of the proposed link road. The report that presented the findings of the survey noted that Badger sett tunnels may extend up to 20m from the entrances but due to the distance of the road from the sett there will be no tunnels within or close to the working area for the link road. The report also noted that the sett is located to the south of the proposed link road route with the latrines and badger path located to the north of the route, indicating the possibility of an overlap in the territory of a second badger social group. The road therefore has the potential to create a barrier to the movement of badgers. The report made a number of recommendations to mitigate the impact of construction on badger activity in the area, these include:

- Should access routes for site vehicles pass within 50m of the sett then a 30m standoff should be physically marked out on the ground with appropriate signage to avoid site activities close to the sett;
- The relationship between the latrines to the north of the road and the sett to the south of the road to be confirmed through a bait marking survey. The survey to take place during key badger activity period of February to April;
- Presence of additional adjoining territories (if present) to be identified; and
- Design of the road to incorporate measures such as a badger crossing, as appropriate, to mitigate territory severance.

2.6.3.4 Water, drainage and flood risk

The alignment of the OLR falls outside of the existing areas of flood risk and the extents of Oxon Pool⁴⁰. Whilst there may be no direct impact in relation to flood risk, the highway design proposals will need to carefully manage the discharge of water, especially the carriageway surface water run-off, in a sustainable manner.

The site is also, in part, protected by Ground Water Protection Zones 1 and 2 (Figure 2-22). The highway design proposals should therefore have due regard for these Ground Water Protection Zones in bringing forward the scheme proposal.

⁴⁰ Shrewsbury West Sustainable Urban Extension: Master Plan Document, RPS on behalf of Shropshire Council, Chapter 3.5

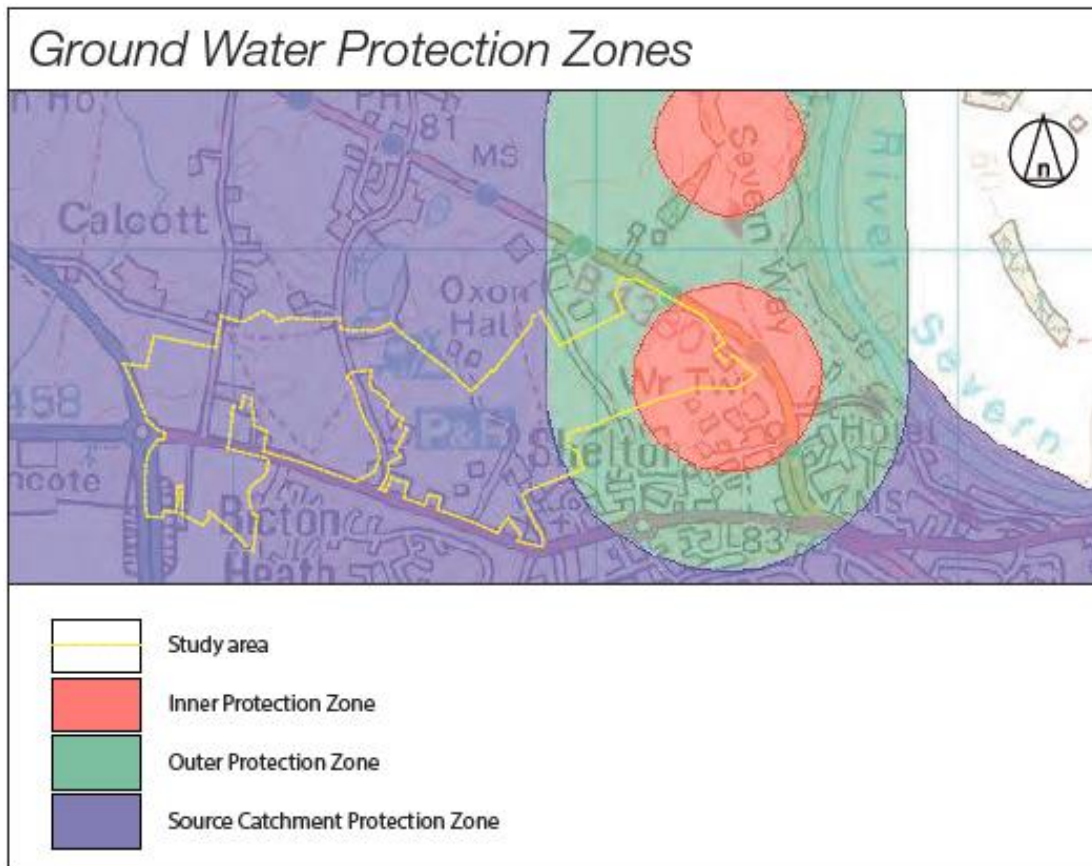


Figure 2-22: Ground water protection zones (Source: SUE West Masterplan)

2.7 Inter-dependencies

There are several major inter-dependencies on this project which will require works / tasks to be completed in sequence to enable the successful completion of the project. These are described below.

2.7.1 Completion of SUE West Phase 1 development

Figure 2-15 illustrates the phasing plan for the SUE West proposal in its entirety. An outline planning application for Phase 1, comprising a total of up to 300 residential units (R1 in Figure 2-15) and employment land uses (E1 and E2 in Figure 2-15) not exceeding 9,800 sqm, has been submitted to the Shropshire Council and is currently pending consideration⁴¹. Completion of Phase 1 of the SUE West is perhaps the biggest interdependency in relation to the scheme proposals both from a timing as well as funding perspective. Funding contribution by SUE West developers will be triggered by the Phase 1 development and the related land sales that will enable the OLR to proceed. The first phase of residential development would therefore be started prior to the construction of the OLR using existing capacity along Welshpool

⁴¹ Application for the Phase 1 of the Masterplan has been submitted to the Shropshire Council by David Wilson Homes (Mercia) & Jennings Estates and is currently pending consideration - Planning application reference 14/00246/OUT

Road. The Council considers that up to 400 dwellings could be permitted with access off Welshpool Road in advance of the OLR.

The Council is seeking S106 and CIL contributions to support the overall package of highway and transport improvements and traffic management measures. As the availability of such funding may affect the timing of the construction of the OLR, the council is prepared to match fund these contributions ahead of triggers, to remove risks associated with obtaining 3rd party funds.

2.7.2 *Planning approval*

The delivery of the scheme is contingent on securing the necessary planning approvals. Full planning permission will be sought once the final detailed design is completed. The scheme has not only been established, in principle, through the LDF process, but has also been subject to a significant degree of public consultation as part of the SUE West Masterplan process.

2.7.3 *Land-take requirements*

The SUE West Delivery Statement⁴² submitted in support of SAMDev evidence base notes that the Welshpool Road area controlled by Mosaic Estates and Shropshire Council has capacity for some 720 dwellings (*SAMDev Revised Preferred Options Draft document, July 2013, has since revised the total allocation to 750 dwellings*) and associated landscaping and open space (25.6 ha (28 dpha) gross), with capacity for 'Gateway' commercial uses of some 3.2 ha at the A5 (T) junction. The statement also notes that aforementioned uses can be complemented by an allocation of some 4.7 ha employment land in the east of the area on Council owned land north of Welshpool Road, adjacent to the existing Oxon Business Park and south of the proposed SNWRR, which excludes land owned by Severn Trent Water for expansion of their operation (further 1.2 ha). The Delivery Statement also notes that the proposed alignment of the OLR does not require the purchase of any third party land at Holyhead Road for the provision of a proposed three arm roundabout. Requirement for a CPO process is therefore considered unlikely since land for the Oxon Link Road is under the ownership of the SUE consortium formed by Mosaic Estates, Shropshire Council and SUE West Developers.

2.7.4 *Securing licenses for road closures, diversions and traffic management*

One of the key inter-dependencies for this project is the requirement to secure licenses for road closures to undertake the construction work. Traffic Regulation Orders (TRO) for the reduced speed limits on Welshpool Road will be sought as and when required, with only a 6-week consultation period. It is expected that with the Welshpool Road link to Churncote severed, there would be no issues with regards to

⁴² SAMDev Evidence Base Reference EV73: Land at Welshpool Road, Shrewsbury – Delivery Statement on Behalf of Mosaic Estates, by RPS Planning, Revised July 2010, paragraph 2.19

reducing the existing 40 mph to 30 mph, reflecting the urban environment as buildings are completed.

2.7.5 *Obtaining necessary environmental consents*

Whilst the study area is not subject to any environmental designations or national / international conservation directives, environmental consents will need to be obtained with regards to specific ecological constraints identified within the study area.

The construction of the proposed Link Road could impact upon habitats that have the potential to be used for shelter and foraging by great crested newts³⁷. Where habitats with the potential to support great crested newts will be affected, the development must be covered by a European Protected Species (EPS) Mitigation Licence to be lawful.

Having established badger activity in the area, early consultations with Natural England will be required to discuss and incorporate appropriate mitigation measures within the highway designs for the Oxon Link Road. This would ensure compliance with Protection of Badgers Act 1992.

The developers proceeding with the SUE Masterplan have already had discussions with all of the required environmental bodies and discussions will continue until final consents and agreements are completed.

2.8 Stakeholders

Key stakeholders in the delivery of the scheme include:

- Shropshire Council Environmental Team;
- Shropshire Council Planning Department / Development Services Department;
- Shrewsbury Town Council;
- Bicton Parish Council;
- Shrewsbury Business Improvement District;
- Highways England;
- Environment Agency;
- Amphibian and Reptile Conservation Trust;
- Campaign to Protect Rural England (C.P.R.E.);
- Natural England;

- English Heritage;
- Shrewsbury Friends of the Earth;
- Transition Town Shrewsbury;
- Shropshire Wildlife Trust;
- Shropshire Playing Fields Association;
- SUE West Developers;
- Land owners;
- Local ward members;
- Statutory Undertakers;
- Shrewsbury Civic Trust;
- Shrewsbury Chamber of Commerce;
- Police (and / or other emergency services);
- Road Haulage Association;
- Sustrans; and
- Cyclists Touring Club.

2.8.1 *Consultation*

By virtue of being part of the SUE West Masterplan, the proposed OLR has been afforded significant consultation to date. The draft Shrewsbury West SUE Masterplan underwent public consultation in July 2013⁴³. Two public exhibitions were held at the Oxon with Shelton Christ Church Hall on the 4th July, and at the Grapes Inn on the 18th July. The exhibition boards were also displayed in the foyer of Bicton Village Hall on the 6th and 7th July, and the Co-op Store on Welshpool Road from the 8th to 14th July. The exhibition boards were then displayed in Bicton Hall for the period 24th July to 6th September.

⁴³ SUE West Masterplan Document – Adopted by Shropshire Council, December 2013, chapter 5.2

The material was also presented at the Bicton Parish Council meeting on the 9th July. Additionally, details of the proposal were provided on a web site, www.shrewsburywest.org, dedicated for the consultation.

The consultation included options with regard to junctions and connections of existing lanes and crossing points on / over the proposed Oxon Link Road.

Responses to the consultations have been received in a variety of formats over the 9 week consultation period. Comments were received from the public on the proposal, and the Masterplan has been reviewed taking on board these comments which has resulted in the production of the final Masterplan proposal.

Responses to the draft Masterplan have been mixed, with people commenting both on amount of the development at Shrewsbury West SUE and on the content of the Masterplan. During the consultation, many people used the form as an opportunity to object to the very principle of development at Shrewsbury West and the allocation, citing their opinion on the lack of local infrastructure and questioning the overall need for development at this location²¹.

Full details of the consultation are included in the Shrewsbury West SUE website⁴⁴ and consultation report⁴⁵.

Specific comments on the proposed link road include:

- Need to screen the link road with mature trees;
- Link road should be an express route, with no junctions linking to Welshpool Road;
- Bridges needed for pedestrians and cyclists;
- Various comments on which (if any) side roads should have junctions with OLR, and on the types of junctions required;
- Concerns about the closure of Welshpool Road east of Churncote; and
- Concern about extra traffic if development starts before OLR provided.

⁴⁴ <http://www.shrewsburywest.org/>

⁴⁵ <http://www.shrewsburywest.org/pdfs/Consultation%20Report.pdf>

2.9 Options

The alignment of the OLR is based on a critical section of the proposed route of the North West Relief Road (NWRR), which was subject to a detailed optioneering exercise⁴⁶ before a preferred route was finalised. In addition, this is the only option that provides a link to the residential and employment land. No formal option assessment study has therefore been undertaken for this scheme in isolation. Whilst OLR is derived from the alignment of the NWRR, this road is being brought forward as a strategic road with a single carriageway 50 mph design speed.

The revised road design integrates the employment land, by removing the extensive cuttings, and providing appropriate access and crossing opportunities. Capacity for the strategic element of the road use has been maintained by reducing the design speeds. This in turn has reduced the road width through this section and subsequent land-take ensuring a reduction in overall construction costs.

⁴⁶ Shrewsbury North West Relief Road Preferred Route Report, Second Draft, Moore Environment on behalf of Shropshire (2006)

3 The Economic Case

3.1 Introduction

This chapter sets out the economic case for the Oxon Link Road. Its purpose is to demonstrate that the proposed scheme will be beneficial to the economy, relative to its costs. The economic case follows the guidance set out in the DfT's WebTAG documents, which sets out how transport schemes should meet the requirements of HM Treasury's Green Book⁴⁷.

The scope of the assessment was agreed with Shropshire Council, in line with the Assurance Framework agreed by the Marches Local Transport Body.

3.2 Overall approach to assessment

All of the impacts of a "do something" scheme are assessed against those of a "do minimum" scenario which represents the conditions considered most likely to occur if the scheme is not delivered. The benefits and costs are all calculated in terms of changes to the "do minimum" scenario. In this way, the assessment takes account of all foreseeable impacts of the proposed scheme. By setting these against the predicted costs of delivering the scheme, an assessment is then made of the value for money. This makes it possible to compare different schemes in a fair and objective way.

The expected impacts of the scheme have been assessed and, where possible, expressed in monetary terms. These include:

- Construction costs;
- Whole life costs (maintenance, capital renewal etc.);
- Road user time (the effects of congestion, delay and route availability);
- Vehicle operating costs (fuel etc.);
- Accident costs;
- Value of health and other benefits from use of active travel modes; and
- Planning gain from increased land values.

Impacts that cannot be expressed completely in monetary terms include:

- Wider economic benefits;

⁴⁷ The Green Book: appraisal and evaluation in central government (updated 2014)

- Environmental impacts; and
- Social and distributional impacts.

Wherever possible, these have been quantified. Impacts that cannot be quantified have been described in qualitative terms.

3.3 Traffic forecasting

3.3.1 Overall approach

The proposed scheme has been assessed using a SATURN highway traffic model which covers the whole of Shrewsbury's road network. Building and calibrating the traffic model is described in the Local Model Validation Report (LMVR), a separate document to the Outline Business Case. A technical note on Shrewsbury highway traffic model validation procedures is attached in Appendix C. The model was calibrated and validated at 2014 levels.

SATURN has been used to model the following networks:

- Do minimum; and
- Do something;

and the following demand scenarios:

- Forecast demand (2026); and
- Forecast demand (2036).

3.3.2 Modelled networks

The **Do Minimum network** includes the following committed (or completed) schemes:

- Improvements to the B4380 Emstrey Roundabout and A5 / A49 Preston Boats roundabout (completed 2015);
- Closure of Harlescote Lane level crossing;
- Minor improvements to A5 / A458 Churncote Roundabout; and
- Speed limit on Welshpool Road to remain as per existing arrangements i.e. 30 mph speed limit between Gains Park Way and Calcott Lane, 40 mph speed limit on the remaining section of Welshpool Road.

The **Do Something network** includes the following changes to the Do Minimum network:

- Construction of the Oxon Link Road (OLR), as a 7.3m single carriageway all-purpose road, linking A5 Shrewsbury Bypass with B4380 Holyhead Road, having a 50 mph. speed limit, including a new junction with Little Oxon Lane;
- Enlargement of the existing A5 / A458 Churncote roundabout on the A5(T) Shrewsbury Bypass to accommodate the OLR, with existing Welshpool Road arm becoming an access to the Phase 1 residential development only;
- Provision of a new roundabout on the B4380 Holyhead Road to accommodate the OLR;
- Reconfiguration of the A458 / B4380 signal controlled junction at Welshpool Road / Shelton Road / Holyhead Road to accommodate the transfer of through traffic from the A458 to the OLR and B4380;
- Severance of A458 Welshpool Road as shown in Figure 1-2;
- Provision of an access road connecting Welshpool Road to the OLR via the Phase 1 residential development; and
- Introduction of a 20 mph speed limit on Welshpool Road between Gains Park Way and Calcott Lane and a 30 mph limit on the remaining section of Welshpool Road.

The Oxon Link Road will be opened to traffic in 2020 / 21. Full details of the delivery of the scheme are set out in Chapter 6 (The Management Case).

The Do Minimum and Do Something scenarios are represented diagrammatically in Figure 3-1 and Figure 3-2.

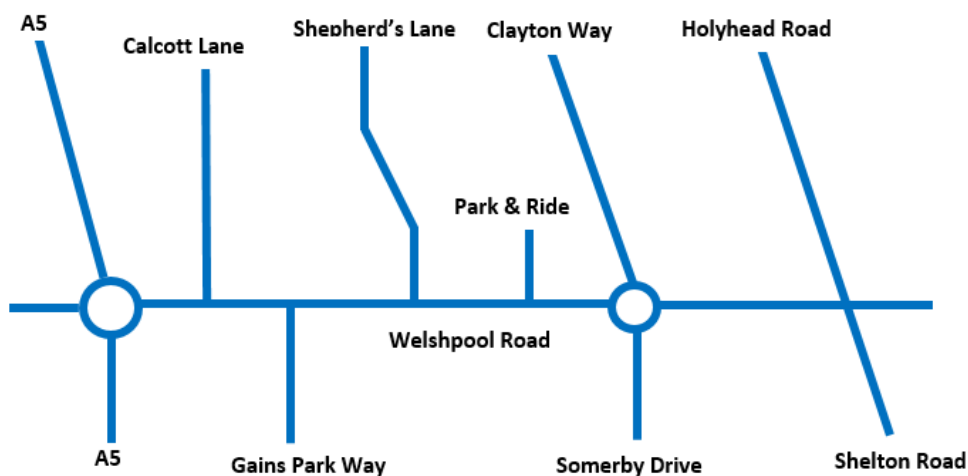


Figure 3-1: 'Do minimum' network local to scheme (diagrammatic)

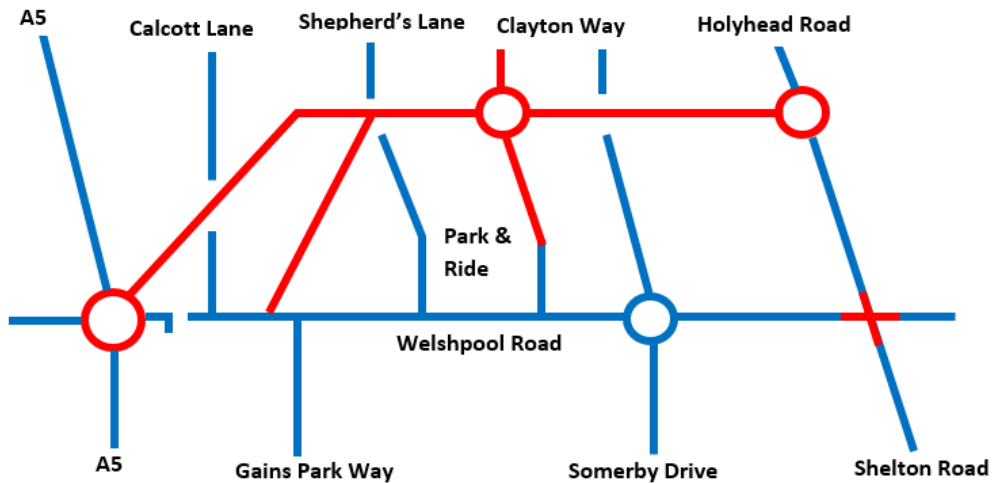


Figure 3-2: 'Do something' network local to scheme (diagrammatic)

3.3.3 Modelled demand

The traffic model covers the AM peak, Inter-peak and PM peak. The **forecast demand** is based upon forecast growth up to 2026 and 2036 and includes trips expected to be generated by committed development, including the two Shrewsbury SUE developments. Overall growth is constrained to TEMPRO growth forecasts.

3.4 Presentation of the cost-benefit analysis

In order to show clearly how the final benefit cost ratio (BCR) is derived, the results of the cost-benefit analysis are presented as follows:

- An initial Present Value of Benefits (PVB_i) is calculated using the outputs from TUBA, COBALT and an Active Mode Appraisal;
- An initial Present Value of Costs (PVC_i) is calculated from the construction, maintenance and renewal costs;
- A basic Benefit Cost Ratio (BCR_i) is calculated as PVB_i / PVC_i ;
- The final PVB is calculated by subtracting the developers' contributions from the initial PVB_i, representing the cost to developers;
- The final PVC is calculated by subtracting the developers' contributions from the initial PVC_i, representing the saving to the scheme promoters;
- The final BCR is calculated as PVB / PVC ;
- The expected Planning Gain is calculated separately on the basis of the areas of land to be developed at SUE (West); and
- Expected increases in GVA are calculated separately on the basis of the number of jobs expected to be created at SUE (West).

This process is set out in Figure 3-3 below.

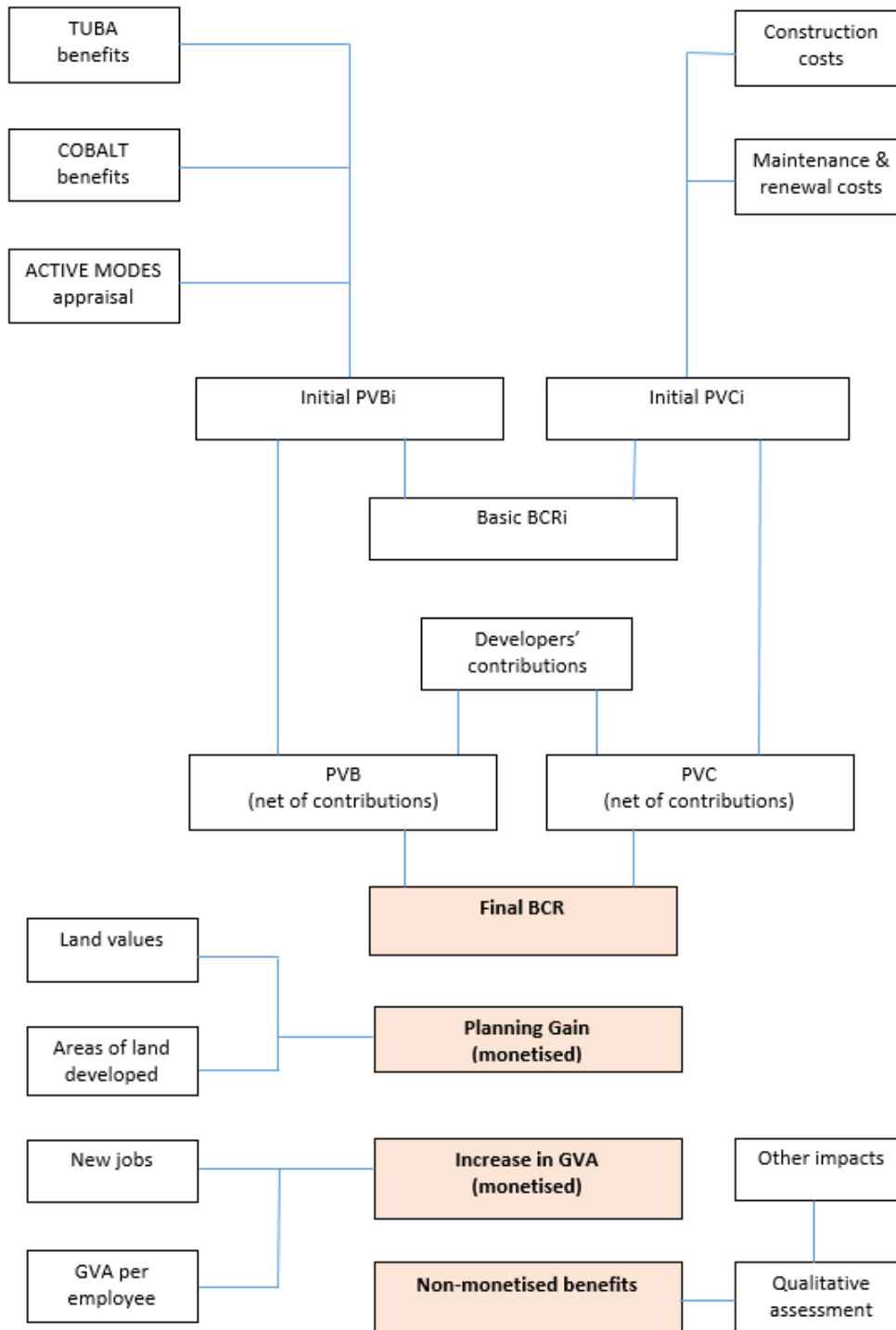


Figure 3-3: Value for money process (Source: DfT Value for Money advice note)

A summary of the monetised information is presented in the Analysis of Monetised Costs and Benefits (AMCB) Table. This combines information from the Transport Economic Efficiency (TEE), Public Accounts (PA) tables with monetised estimates of other impacts such as accidents, greenhouse gases and benefits from the Active

Mode Appraisal. The TEE, PA and the AMCB are presented in Appendix D of this report.

3.5 Initial Economic Assessment – Benefits

The “initial” economic assessment is based on WebTAG guidance in *TAG Unit A1.1: Cost-Benefit Analysis*. It uses TUBA to calculate discounted benefits over a 60 year period from the scheme’s opening date (2021), and COBALT to calculate accident savings and the resulting benefits over the same period.

3.5.1 TUBA modelling

Forecast matrices produced by the SATURN model have been used as inputs to the DfT approved TUBA program (Transport Users Benefit Appraisal), a standard method of assessing benefits from transport schemes. This calculates the benefits related to:

- journey time savings;
- vehicle operating cost savings;
- carbon emissions; and
- fuel tax revenue.

TUBA interpolates between forecast years, and assumes that demand will continue to increase until 2080, 60 years after the opening of the scheme in 2021. Benefits are assessed over a 60 year period. The results of the TUBA modelling give initial discounted present value of benefits as set out below:

TUBA results (transport users)	Transport User Benefits (2010 prices discounted to 2010)
Greenhouse Gases	-£331,000
Economic Efficiency: Consumer Users (Commuting)	£6,041,000
Economic Efficiency: Consumer Users (Other)	£9,802,000
Economic Efficiency: Business Users and Providers	£453,000
Wider Public Finances (Indirect Taxation Revenues)	£782,000
Sub-total – Transport User Benefits	£16,747,000

Table 3-1: TUBA results

3.5.2 COBALT modelling

The assessment of the accident benefits was undertaken separately using COBALT, the DfT’s cost benefit analysis program for accident savings. This was run in combined link and junction accident mode using assignment results from the traffic model as inputs.

COBALT forecasts accident reductions as a result of the scheme. The economic value of these accident savings is set out in Table 3-2:

COBALT results (accidents)	Accident Benefits (2010 prices discounted to 2010)
Accident savings	£7,316,300
Sub-total – Accident Benefits	£7,316,300

Table 3-2: COBALT results

3.5.3 Active mode appraisal

The Oxon Link Road scheme will deliver improved facilities for pedestrians and cyclists. Therefore an active mode appraisal has been undertaken in compliance with guidance provided in *TAG Unit A5-1: Active Mode Appraisal*. This enabled the quantification of monetary impacts on active modes in and around the area identified for SUE West as a result of delivering those facilities as part of the Oxon Link Road. It includes an assessment of:

- Physical activity (including health and absenteeism);
- Journey quality; and
- Journey time.

Appendix E contains a technical note on the methodology adopted, and the assumptions and values which inform the appraisal for each assessment.

The economic value of these benefits related to active modes is set out in Table 3-3:

Active Modes Appraisal	Active Modes Benefits (2010 prices discounted to 2010)
Physical Activity (Active Modes Appraisal)	£2,260,232
Sub-total - Active Modes Benefits	£2,260,232

Table 3-3: Active Modes Appraisal results

The “initial” monetised value of the scheme benefits is therefore as set out Table 3-4:

Basic benefits	Benefits (2010 prices discounted to 2010)
Transport User benefits	£16,747,000
Accident benefits	£7,316,300
Active modes benefits	£2,260,232
Initial PVBi	£26,323,532

Table 3-4: Initial PVBi calculation

On this basis, the “initial” Present Value of Benefits (PVBi) is **£26.32 million**.

3.6 Initial economic assessment – Scheme costs

The cost of delivering the scheme is set out in detail in Chapter 4 (The Financial Case). The Economic Assessment. For the economic assessment, the costs include:

- Cost of construction (including risk and optimism bias); and
- Costs of maintenance and renewal

The initial discounted cost of the scheme is as set out in Table 3-5:

Initial costs	Costs (2010 prices discounted to 2010)
Construction costs	£9,908,926
Maintenance and renewal costs	£329,928
Initial PVCi	£10,238,854

Table 3-5: Initial PVCi calculation

The PVCi comprises three main elements namely ‘base cost’, ‘risk allowance’ and ‘optimum bias’. A brief explanation of how each of these three components were assessed is set out below.

- Base Costs – The base costs for the Oxon Link Road include construction, land, preparation and supervision costs, all at Q1:2015 prices. These are presented in Chapter 4 (The Financial Case);
- Risk Allowance – A quantified risk assessment (QRA) was undertaken for the Oxon Link Road from which an appropriate risk allowance has been estimated. These are presented in Chapter 6 (The Management Case); and
- Optimum Bias – As per the guidance provided in TAG Unit A1.2, the recommended optimum bias for road schemes that are at stage 2 (conditional approval) of the scheme development is 15%. To reflect a more robust scenario, an optimum bias of 20% has been applied to the cost estimates.

3.7 Basic benefit-cost ratio (BCRi)

At this most basic level, the cost benefit analysis shows that the monetised benefits of the scheme (PVBi) at £26.32 million are greater than the costs (PVCi) at £10.24 million. The basic benefit-cost ratio BCRi is **2.57**.

3.8 Developer contributions

The full cost of the scheme will not, however, be met from the public purse. Because the scheme is a pre-requisite for the development of the SUE, private sector (developer) contributions will offset approximately half of the cost of delivery. The effect on the final PVC is as set out in Table 3-6.

Cost (net of developer contributions)	Costs (2010 prices discounted to 2010)
Gross scheme cost	£10,238,854
Developers' contributions	-£5,466,003
Final PVC	£4,772,851

Table 3-6: PVC (net of developers' contributions)

As can be seen, the developer contributions reduce the costs to the public by more than half. However, the developers' contribution is also treated as a reduction in the scheme benefits, since it represents expenditure paid out by the developers. This has the effect of reducing the scheme benefits as set out in Table 3-7.

PVB (net of developer contributions)	Benefits (2010 prices discounted to 2010)
Initial PVB	£26,323,532
Developers' contributions	-£5,466,003
Final PVB	£20,857,529

Table 3-7: PVB (net of developers' contributions)

The result of this adjustment is that the inclusion of the developers' contribution further increases the BCR, which becomes:

$$\text{PVB} / \text{PVC} = £20,857,529 / £4,772,851 = \mathbf{4.37}$$

This figure does not fully reflect the benefits of the scheme, or its value for money, because it does not take into account of the financial benefits of the scheme in opening up land for development, and in generating additional value to the local economy by creating jobs. These are dealt with in the following sections.

3.9 Benefits associated with dependent development

Two further important and beneficial consequences of the OLR need to be taking into consideration:

- It will lead to an increase in the value of land, currently in agricultural use, as housing or employment land for of the SUE; and
- It will enable the creation of new jobs in the SUE, leading to increased GVA to the local economy.

There is no doubt that these benefits are real – land values do increase when land is opened up for development; there will be new jobs at the SUE (West) and they will add value to the economy. The benefits can also be quantified using established methods and locally determined values. It is also quite clear that these benefits would not be realised without the provision of the OLR, since this is an intrinsic component of the SUE.

These benefits are potentially very large, compared with simple transport-only benefits considered so far, so it is important that they are taken fully into account.

What is less clear, however, is exactly how these benefits should be incorporated into the rest of the cost-benefit analysis. WebTAG guidance is primarily designed for use with schemes for which transport benefits are the main *raison d'être*, whereas the main purpose of the OLR is to facilitate development of the SUE. Before describing the evaluation of these benefits, it is therefore necessary to outline the approach we have taken on the impacts of dependent development.

3.10 Dependent development

The proposed SUE (West) development is illustrated in Figure 3-4.

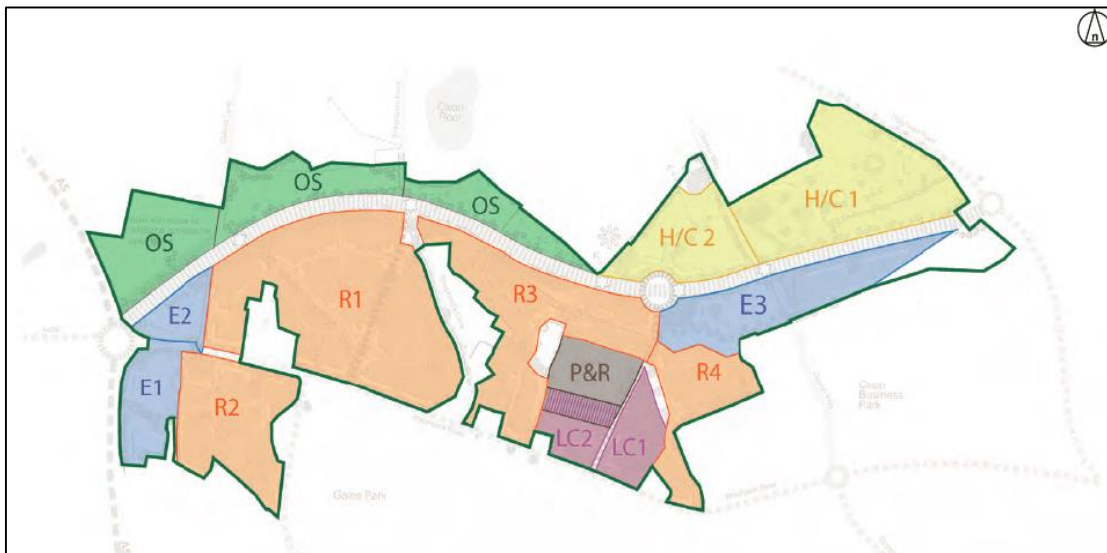


Figure 3-4: SUE West Phasing Plan (Source: RPS)

In terms of housing and employment, the SUE comprises:

- 23.87 ha of residential development (approximately 750 houses); and
- 6.6 ha of employment land and 9.97 ha of healthcare / business campus (approximately 2,885 jobs).

The amount of development in each zone of the SUE is detailed in Table 3-8.

Ref.	Description	Area	Detail
R1	Residential Phase 1	10.34 ha	300 dwellings
R2	Residential Phase 2	4.37 ha	450 dwellings
R3	Residential Phase 3	6.00 ha	
R4	Residential Phase 4	3.16 ha	
E1	Employment Phase 1	2.12 ha	Class B1 / mixed commercial use
E2	Employment Phase 2	1.03 ha	
E3	Employment Phase 3	3.44 ha	Class B1, B2 and B8 use
LC1	Local Centre Phase 1	1.55 ha	A1 convenience store, Small convenience retail units, Residential uses: Flats / sheltered housing, Community Facilities (Meeting Hall), Medical Practice / Crèche / Nursery, and offices.
LC2	Local Centre Phase 2	0.78 ha	
H/C1	Healthcare / Business Campus Phase 1	6.77 ha	Including Class B1 use and development and health-related employment uses
H/C2	Healthcare / Business Campus Phase 2	3.20 ha	

Table 3-8: Development in SUE (West)

The extent to which the development planned for the SUE is dependent on the provision of the OLR can be understood in a number of different ways, depending upon the viewpoint taken:

- Case A.** In the simplest terms, the whole of the SUE (West) is dependent upon provision of the OLR. The road scheme is an integral part of the design and development of the SUE Masterplan. Without the prospect of the OLR it is unlikely that the developments could have been brought forward. The principle of providing the OLR has been established through Policy CS2 of the Shropshire LDF Core Strategy, along with the allocation of land off Welshpool Road as a means of bringing forward the SUE West in its entirety. The ability to configure the road and development together is one of the factors that makes this site appropriate for such major development. Through the adoption of the Core Strategy, there is a 'de facto' dependency on the link road of the full SUE West allocation including 750 homes and 9-12 hectares of additional employment land. Evidence for this dependency is that the stream of developers' contributions towards the cost of the OLR will commence with the very first developments in the area, even though these will be delivered in advance of the OLR.
- Case B.** This reflects the expected phasing of the SUE and OLR. As already noted, for practical reasons, to kick start the delivery of the SUE and to start generating the developer contributions which will help fund the OLR,

Shropshire Council will permit some of the SUE development to proceed without the OLR in place. Specifically the Council is considering an outline planning application for up to 9,800 m² of employment development in zones E1 and E2 (3.15 ha) and up to 300 houses in area R1. The Council is prepared to permit the above developments to be delivered before the OLR is completed. In total, the Council considers that up to 400 houses could be permitted, with access off Welshpool Road, before the OLR is completed.

From this viewpoint, only the remaining development (450 houses and all of the employment land beyond the initial 3.15 ha) would be considered as dependent upon delivery of the OLR.

- **Case C.** WebTAG⁴⁸ suggests a more limited definition of dependency. From this viewpoint, *“new housing is dependent on the provision of some form of transport scheme if, with the new housing, but in the absence of any transport scheme, the transport network would not provide a ‘reasonable level’ of service to existing and / or new users”*. The guidance proposes using the results of traffic modelling to determine this. However, it also notes that it is not practical to define specific thresholds for dependency, stating that: *“It should be possible to form an opinion on whether or not a ‘reasonable level’ is being met, based on readily available network characteristics”*. Therefore this guidance is not prescriptive, but relies on the application of judgement supported by evidence.

In practice this test is very difficult to apply. The practical issues encountered were the subject of a recent technical paper⁴⁹ presented by Mott MacDonald at the 2014 European Transport Conference. This highlighted inadequacies in the dependency test when applied in complex networks⁵⁰, as well as the

⁴⁸ TAG Unit A2.3 Transport Appraisal in the Context of Dependent Development

⁴⁹ How can a very high value for money transport scheme have a negative benefit cost ratio (BCR) ?, Chris White and Sansaka Sirivadidurage, Mott Macdonald, Association for European Transport, 2014

⁵⁰ The tests to determine whether development is dependent on a transport scheme in WebTAG compare model output on network performance between one scenario (without the housing development and without any form of transport scheme) and another (with the housing development but without any form of transport scheme). Since model runs for both scenarios are constrained to TEMPRO, the comparison of outputs may not highlight the changes expected in the guidance. The WebTAG guidance suggests that sharp changes in journey times or junction delays with the dependant development added may be taken as evidence of dependency, but in complex networks, the new development trips may displace existing trips in the assignment process making it difficult to firmly establish this evidence

risk of producing a misleading [i.e. too low] BCR by excluding dependent traffic from “do something” scenarios⁵¹. The purpose of the WebTAG approach is to avoid unrealistically *high* BCRs by including in the future demand a level of development that overwhelms the Do Minimum networks. This situation was not found to occur with the modelling of the OLR; therefore the full development was included in the future demand matrices.

From this theoretical viewpoint, none of the development would be treated as dependent. For the reasons given, we do not consider this realistic. However for comparison purposes, Case C assumes no dependency.

Therefore, for reasons of transparency, the benefits arising from increases in land values, will be presented with the three different assumptions about dependent development detailed above:

- **Case A** – Assumes the whole of the SUE is dependent on OLR;
- **Case B** – Assumes the SUE, excluding preliminary phases, depends on OLR; and
- **Case C** – Assumes none of the SUE is dependent on OLR.

The effect of planning gain and impacts of new jobs on GVA will be presented in terms of their present values alongside – but not as part of - the final BCR.

3.11 Planning gain

In a simplified version of the WebTAG approach, the planning gain is calculated by subtracting the value of each area of land in its current use (agricultural) from its estimated value as developable land. The following values have been used:

from the model runs. (White & Sirivadiurage, Association for European Transport Conference, 2014)

⁵¹ The procedure assesses the impact of the transport intervention on existing users (i.e. users without the dependent new development). This is irrational in cases where the transport scheme is promoted and required to serve the dependent development rather than as a means to improve conditions for existing users (ibid). WebTAG requires the Benefit Cost Ratio (BCR) to be calculated on this basis, but the benefits do not include any benefits for new development trips for which purpose the transport scheme is proposed. The resulting BCR could be misleading as it excludes all benefits related to the development trips. (White & Sirivadiurage, Association for European Transport Conference, 2014)

Land Use Category	Value at 2015 Q1 Prices
Agricultural land	£24,700 per hectare
Housing land	£1,350,000 per hectare
Employment land	£370,500 per hectare

Table 3-9: Assumed land values

These values are assumed to be net of non-transport infrastructure costs of the development. Transport external costs of development are not included separately, as all development-related trips (and their impacts) are already included in the future year models.

Planning gain is calculated at 2010 prices, and discounted to 2010, assuming that the benefits are realised in 2026. On this basis, the planning gain for each dependency case is set out in Table 3-10.

Case	Planning gain
Case A – all development dependent on OLR	£19,699,872
Case B – all except preliminary phase dependent	£11,899,897
Case C – no dependency assumed	0

Table 3-10: Dependent development – alternative assumptions

As can be seen, the impact of planning gain, where development is considered to be dependent on the OLR, is large compared with the developers' contributions (£5,466,003) and the transport benefits.

3.12 Increase in GVA

The Oxon Link Road is a prioritised scheme in The Marches region and the scheme will help to unlock the creation of 2,885 new jobs in the Shrewsbury area, as noted within the LEP Strategic Economic Plan.

Each job will contribute to the value of Shropshire's economy. This is conventionally measured in terms of Gross Value Added⁵² or GVA. The average GVA per employee for Shropshire is £42,306 per annum.

On this basis the annual increase in GVA associated with the new jobs created in the SUE (West) is £122,052,800 at 2012 prices. At 2010 prices, discounted to 2010 over

⁵² GVA is a means of measuring the contribution to the economy made by producers or sectors. It is the difference between the value of goods and services produced and the cost of raw materials and other inputs which are used in production

a 30 year assessment period between 2022 and 2050 gives a total GVA of 1,306,484,600 – i.e. over **£1.3 billion**.

Although GVA is easy to calculate, it is much harder to determine how much of this gain is attributable solely to the development of the SUE. To do this would require an assessment of whether the jobs are completely new, or whether they would have been created elsewhere in the town, region or country had the SUE not been delivered. It is still harder to determine with any degree of confidence how much of the GVA increase can be directly attributed to the OLR.

For these reasons, it is not appropriate to include the GVA increase in the BCR calculations. However, it is reasonable to say that:

- The SUE (West) and, by association the OLR, will open up employment land sufficient to accommodate 2,885 jobs – and this level of employment is expected to contribute over **£1.3 billion** to the local economy.

Even if only 1% of these new jobs were considered to be directly attributable to the OLR, this would add over **£13 million** to the economic benefits of the scheme.

3.13 Other benefits of the scheme

The proposed scheme will also produce benefits which cannot be included in a conventional cost-benefit analysis. Despite this, they can still be an important part of the overall business case for the scheme. These impacts and benefits are described briefly below. Where possible, within a proportional appraisal, they have been quantified; otherwise they are expressed in qualitative terms with supporting evidence where available.

3.14 Environmental Impacts

This section considers, where applicable, the environmental impacts of the proposed scheme. As noted before, the study area is not subject to any environmental designations or national / international conservation directives. The site is predominantly farmland with mature trees and hedgerows located mainly along field boundaries and lanes. In response to SUE West Phase 1 developer's request for a screening opinion for a full Environmental Impact Assessment (EIA), Shropshire Council acknowledged⁵³ that "*an initial appraisal of the issues likely to be material to the determination of the application has not revealed any matters that are likely to have more than localised impacts. The Environment Agency have advised that the site is sensitive in terms of controlled waters, however they do not consider it requires a full Environmental Statement to be submitted. Natural England have also*

⁵³ Planning Support Statement for residential and commercial development of Land at Churncote, Shrewsbury West, on behalf of David Wilson Homes Mercia and Jennings Estates Ltd, by RPS, January 2014, Appendix 2

advised that with regard to statutory designated sites, landscapes and protected species an EIA is not required".

In keeping with the proportionality approach adopted in relation to the business case, detailed air quality assessment of the scheme in isolation was considered outside the scope of this outline business case. For the purpose of this business case, it was therefore not deemed necessary to undertake a detailed EIA.

A qualitative assessment has therefore been undertaken, although it generally covers the impacts set out in TAG Unit A3: Environmental Impact Appraisal. This is considered to be proportionate in view of the scale of the scheme. The following impacts are considered:

- Noise;
- Air quality;
- Emissions of carbon dioxide and other greenhouse gases;
- Landscape and the natural environment;
- Biodiversity;
- Water environment;
- Heritage of historic resources; and
- Townscape and the urban environment.

Noise – Noise will be reduced to the immediate residential frontages on Welshpool Road as a result of the transfer of strategic traffic to the OLR. The remaining local traffic will be restricted to 20 mph and 30 mph speed limits, a reduction from the current 40 mph limit in place on Welshpool Road. The new residential development, proposed as part of Phase 1 of SUE West and to the north of Welshpool Road, will be protected as far as possibly from the OLR through the use of landscaping and vegetation, which would absorb a proportion of noise pollution.

Impact on noise – *Slight beneficial*

Air quality and greenhouse gases – On completion, there is not expected to be any significant difference in traffic flows as a result of the scheme, when compared to a situation without the scheme. This is considering that the scheme could be, to a certain degree, viewed as a new link road replacing the Welshpool Road, re-assigning a significant amount of traffic from one link to the other. Whilst there may be an improvement in local air quality along Welshpool Road, as a result of its severance to strategic traffic to and from the A5 and the A458, the overall impact of the scheme is likely to be *slight adverse*. This is on the basis of increased greenhouse gases predicted by TUBA, with the scheme in place, potentially as a

result of slightly longer journey times, despite efficiencies in travel speed on the OLR.

In order to gauge the overall impact of the scheme on air quality, reference has been made to the Shrewsbury West Air Quality Assessment⁵⁴ undertaken to support the planning application for Phase 1 of the SUE West development. The key objectives of the air quality assessment were to evaluate:

- **Construction effects:** to evaluate the effects from fugitive dust and exhaust emissions associated with construction activities;
- **Operational effects:** to describe the significance of potential air quality effects resulting from changes in traffic flow characteristics on the local road network due to the operation of the Proposed Development with due regard for the potential air quality effects on the town centre AQMA; and
- **Site suitability:** to establish the environmental suitability of the proposed development site in air quality terms, for its proposed uses.

Although the air quality assessment was undertaken specifically in support of Phase 1 development, consideration of operational effects of the study included a scenario that predicted pollutant concentrations associated with Shrewsbury West, the Oxon Link Road and the rest of the SUE. The study, however, did not compare pollutant predictions with a 'without' development scenario.

The air quality effects associated with the changes in traffic flow characteristics on the local road network was undertaken using ADMS-Roads, a version of the Atmospheric Dispersion Modelling System (ADMS), which is a model representing dispersion of pollutants from industrial and road traffic sources. This is a formally validated model, developed in the United Kingdom by Cambridge Environmental Research Consultants Ltd (CERC) (ibid).

A summary of the NO₂, PM₁₀ and PM_{2.5} predictions at the façades of existing receptors⁵⁵ for the entire SUE, including the Shrewsbury West development, the Oxon Link Road and other ancillary developments, in 2026 is set out in Table 3-11:

⁵⁴ Shrewsbury West: Air Quality report – Residential and Commercial Development: Land off Welshpool Road, Shrewsbury, by RPS on behalf of David Wilson Homes Mercia and Jennings Estate Ltd, August 2013

⁵⁵ Existing receptors identified in the report include Corner of Shepherd's Lane, 9 Thorns Grove, Old Post Office Cottage, The Orchards, House on Welshpool Road, House on Shepherd's Lane, Shrewsbury and Mid Wales Hospice, Shrewsbury & Telford Hospital, gains Avenue, Shelton Gardens, Nr Grantley Avenue, Shelton Hall Gardens and Nr Winterton way

Pollutant	Predicted annual mean concentration (range)	Air Quality Standard (AQS) Objective
NO ₂	13.1 to 14.8 µg.m ⁻³	40 µg.m ⁻³
PM ₁₀	14.5 to 15.3 µg.m ⁻³	40 µg.m ⁻³
PM _{2.5}	9.1 to 9.6 µg.m ⁻³	25 µg.m ⁻³

Table 3-11: Air quality assessment summary

Table 3-11 demonstrates that the predicted annual-mean pollutant concentrations with the full SUE West allocation and Oxon Link Road are well below the Air Quality Standard (AQS) objectives. The air quality assessment report concluded that *'using professional judgement, within the framework of published guidance, the overall significance of effects (for the entire SUE, including the Shrewsbury West development, the Oxon Link Road and other ancillary developments, in 2026) is considered to be negligible.'*

Air quality and greenhouse gases impact – *Slight adverse*

Landscape and the natural environment and Biodiversity – The development of the OLR is not expected to impact upon local biodiversity. The study area is not subject to any environmental designations or national / international conservation directives. The site is predominantly farmland with mature trees and hedgerows located mainly along field boundaries and lanes. In addition to conserving these mature trees and hedgerows, a significant proportion of the SUE West development site and land to the north of the OLR will be dedicated to Green Infrastructure (GI) and this will include a SuDs strategy, a mix of new and conserved habitats, trees and public open spaces. This will provide valuable benefits, including increasing the biodiversity across the site. Section 2.6.3 outlines the potential impacts upon great newted crests, bat roosts and badger setts that construction of the OLR may bring, however, suitable mitigation measures will be implemented in advance of any structural works related to the OLR.

The scheme will ensure that important biodiversity assets and landscape characteristics, including the rural lanes, are protected and managed in a positive way and that wildlife corridors across the landscape are enhanced.

Impact on landscape and natural environment, biodiversity – *Neutral*

Water environment – Land close to the proposed junction of the OLR and the B4380 Holyhead Road is protected by Groundwater Source Protection Zones 1 and 2. Oxon Pool to the north of the OLR alignment is a County Wildlife Site and a UK BAP priority habitat (Ponds and Wet Woodland). The margin of the pool lies less than 100m from the closest field boundary and ecological impacts could arise if there was a hydrological connection. The drainage strategy for SUE West developments in general and the OLR in particular involves incorporating SuDs features into the

scheme via a number of large ponds in locations adjacent to OLR. Consequently, there will also be no direct impact upon Oxon Pool Local Wildlife Site. The location of the ponds will be dependent on the requirements of Severn Trent Water and the Environmental Agency.

Impact on water environment – *Neutral*

Heritage of historic resources – Townscape and heritage influences are less immediately obvious within the SUE West site, given the rurality of the location and largely undeveloped nature of the site. There will be no impact upon the heritage of historic resources.

Impact on heritage of historic resources – *Neutral*

Townscape and the urban environment – The OLR will have minimal effects on the townscape and urban environment, primarily because of the rural nature of the location. The use of landscaping and vegetation buffer between SUE West developments and the OLR is expected to minimise visual and noise impacts on the buildings located closest (approximately 100m) to the new road.

Impact on heritage of townscape and the urban environment – *Neutral*

3.15 **Social and Distributional Impacts**

This section considers, where applicable, the social impacts of the proposed scheme. This is a qualitative assessment, although it generally covers the impacts set out in TAG Unit A4.1: Social Impact Appraisal. It also considers, in more general terms, distributional impacts in line with TAG Unit A4.2: Distributional Impact Appraisal. A Stage 1 distributional impact screening was undertaken (**Appendix K**) which indicated that it would not be necessary to undertake more detailed appraisal. This bespoke approach is considered to be proportionate in view of the scale of the scheme. It considers the following impacts:

- Accident impacts;
- Physical activity impacts;
- Security impacts;
- Severance impacts;
- Option values and non-use values;
- Accessibility impacts; and
- Personal affordability impacts.

Accidents. The calculation of accident benefits for the scheme was undertaken using COBALT. The COBALT network was based on the SATURN network.

Information was entered into the programme for combined links and junctions. Five years of accident data (September 2009 to August 2014) were input for the Shrewsbury Area. Default accident rates were used for the remainder of the network.

COBALT compares the predicted number of accidents with the proposed scheme with those that would occur in the Do Minimum scenario. The difference gives the casualty savings attributable to the scheme, over the 60 year assessment period:

Category	Reduction in casualties (over 60 years)
Fatal	0
Serious	14
Slight	118
Total Casualties	132

Table 3-12: Accident savings by severity (over the 60 year assessment period)

Impact on accidents – *Moderate beneficial*

Physical activity. The inclusion of a safe, segregated shared-use pathway on the southern margin of the OLR and public space on the northern margin, and the severing of Welshpool Road to strategic traffic will provide more conducive environments for pedestrians and cyclists and therefore, will encourage improvements to physical activity through a modal shift away from the private car, for short trips to the town centre, travel-to-work and daily recreation.

Severing Welshpool Road to through traffic will present an opportunity to change its character and function to encourage its use by 'active' travel modes such as walking and cycling. This will primarily be achieved by introducing a 20 mph speed limit between Gains Park Way and Clayton Way and by reducing the speed limit of the remaining section Welshpool Road from 40 mph to 30 mph. In addition, complementary features such as on-road cycle lanes and new pedestrian and cycle crossings will promote active travel, with positive impacts for long-term health.

Impact on physical activity – *Slight beneficial*

Security. Cyclists will be provided with an off-road shared-use pathway for journeys into and out of the town centre, improving their security.

Impact on security – *Slight beneficial*

Severance. Removal of strategic traffic on Welshpool Road, and lowering its posted speed limit, will reduce severance issues for pedestrians and cyclists between the major housing developments to the south of the road and the local centre to the north. The scheme will result in the severance of Calcott lane, Shepherd's Lane and Clayton Way. Both Calcott lane and Shepherd's Lane are essentially narrow country lanes serving a limited number of residential homes. This may present a marginal increase journey times for those residents affected by the scheme.

Impact on severance – *Neutral*

Option values and non-use values. Improvements to facilities for sustainable modes will provide alternative travel options to single occupancy car trips.

Impact on option values and non-use values – *Slight beneficial*

Accessibility. It is envisaged that Park and Ride users arriving from the wider strategic routes will benefit from the improved access into the Park and Ride site via OLR, at its proposed junction with the Little Oxon Lane. Buses will access the Park and Ride via Little Oxon Lane at its junction with Welshpool Road. Opportunities for extended bus routes through SUE West development will also be explored as part of the masterplan proposals. The expanded local centre would also give existing and future residents enhanced access to a wide range of amenities.

Impact on accessibility – *Slight beneficial*

Personal affordability. Consumers will benefit from savings in vehicle operating costs through decreased journey times and reduced congestion. Improved cycling infrastructure could make travel-to-work cycling a cheaper alternative to single occupancy car trips.

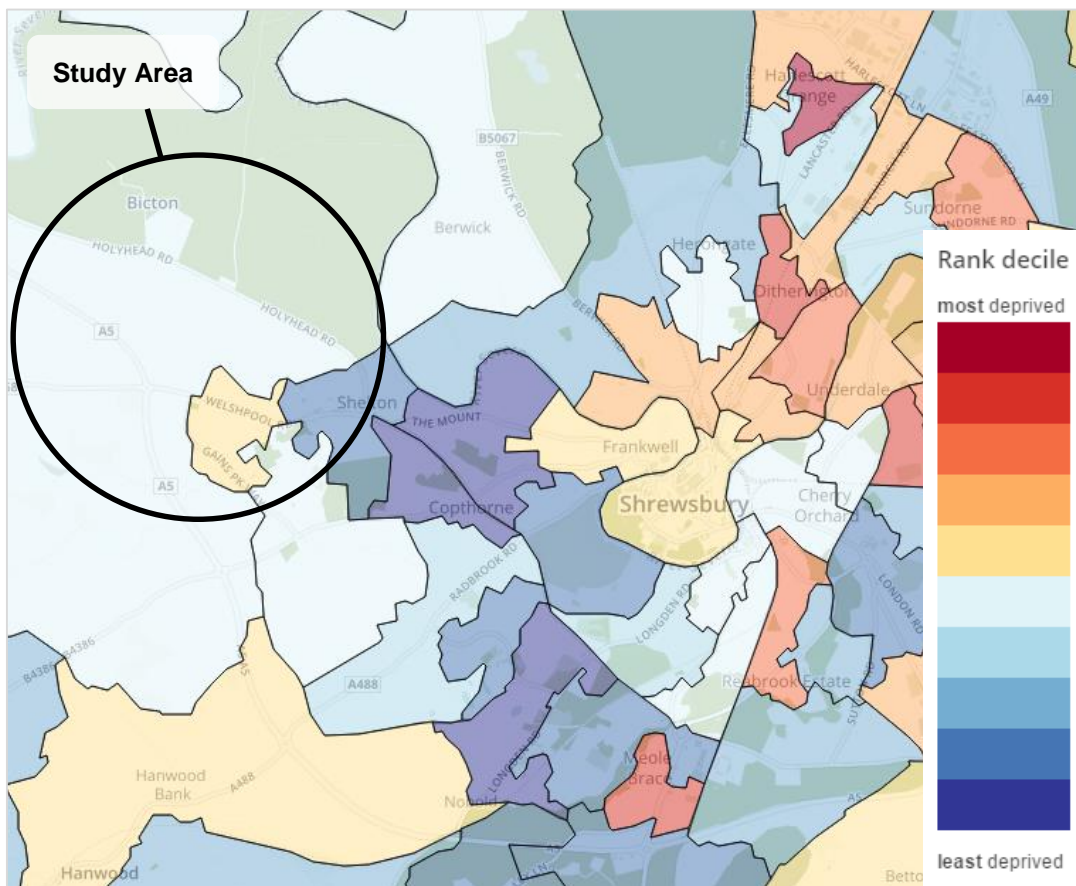


Figure 3-5: Overall Index of Multiple Deprivation 2010, in Shrewsbury (Source: Open Data Communities, 2015)

According to Indices of Multiple Deprivation, released by the Department of Communities and Local Government in 2010, Shrewsbury has one Super Output Area (SOA) which falls within the 10% most deprived in England. This is located in Harlescott Ward (E957), north of the town centre. Figure 3-5 illustrates the deprivation of SOAs in various rank deciles, and considers all seven key Indices of Multiple Deprivation. Overall, the figure suggests that, in a wider context, the SOAs covering the location area of the OLR project (E943 and E970) are ranked relatively average, in terms of deprivation.

A review of the 'barriers to housing and services' and 'health and disability' deprivation indices has revealed that the SOA covering Welshpool Road (E943) is highly deprived in terms of health and disability, and barriers to housing and services, and is categorised under the second highest decile of deprivation. This SOA would be expected to benefit from OLR project. Shrewsbury SUE West will also include an expanded local centre, which is likely to provide the local community with a range of new services, such as a General Practice Surgery and other amenities. This will reduce accessibility issues with regards to the availability of local services. The OLR will bring forward the full development of housing within SUE West. This will reduce geographical barriers to housing currently affecting Shrewsbury to the west.

Impact on personal affordability – *Slight beneficial*

3.16 Impact of the Scheme on Resilience and Journey Reliability

The OLR will become the new strategic route between the A5 and Shrewsbury town centre and therefore, will have significant importance for vehicular traffic accessing the town from the west. The new route is expected to improve highway network resilience and journey reliability on this western region. The following sections detail these expected improvements.

Resilience. The local highway network will become more resilient, even with severing of Welshpool Road to strategic traffic. The 50 mph design speed proposed for the OLR will allow for more optimised and efficient travel into the town centre from the west and fewer junctions (than on Welshpool Road) will result in less delays due to turning traffic. Local traffic on Welshpool Road will also continue to have access towards the town centre and route choice is enhanced for active mode travel, with safe pedestrian and cycle facilities available on both the OLR and Welshpool Road.

Impact on resilience – *Moderate beneficial*

Reliability. Strategic traffic, composed of business users, transport providers, commuters and recreational users, will experience less interference from junctions, crossings and frontage development on the OLR, than on Welshpool Road, and therefore, will be able to maintain higher speeds between the A5 and the town centre. Consequently, significant journey time savings are anticipated on this key western route in Shrewsbury. Improvements to pedestrian and cycle facilities will

complement the changes proposed to the highway network for active travel modes. Any scenario in which the scheme is not implemented will most likely result in the persistence of peak hour congestion and therefore, unreliable journey times.

Impact on reliability – *Moderate beneficial*

3.17 Value for Money Statement

The above economic assessment demonstrates that construction of the OLR as part of the SUE (West) development offers a **'very high'** value for money. It offers:

- A present value of benefits (PVB) of **£20,857,529**;
- A present value of costs (PVC) of **£4,772,851**, including an allowance for risk and an Optimism Bias of 20%; and
- A benefit-cost ratio (BCR) of **4.37**.

The scheme will also:

- Generate a planning gain of up to **£19,699,872**;
- Help create **2,885 new jobs** and help grow the local economy, as measured by GVA;
- Improve reliability and local highway network resilience; and
- Improve accessibility.

3.18 Appraisal Summary Table

The Appraisal Summary Table (AST) for the overall scheme is provided in Appendix F. The AST presents a brief and consistent summary of the expected qualitative, quantitative and monetised impacts.

3.19 Summary of the Economic Case

The proposed scheme has been assessed against a “do minimum” option, which would involve realising the full SUE West development without the Oxon Link Road. The benefit-cost ratio (BCR) for the scheme has been calculated to be **4.37** representing a **very high** value for money. In total, the SUE West and, by association the OLR, will produce an increase in land values (planning gain) of up to £19,699,872. It will open up employment land sufficient to accommodate 2,885 jobs – and this level of employment is expected to contribute over £1.3 billion to the local economy. Environmental, and social and distributional, impacts have been assessed separately and add to the overall benefits of the proposed scheme. It will also represent a further step towards the long term aspiration of creating a north-west relief road for Shrewsbury.

4 The Financial Case

4.1 Introduction

This chapter sets out the financial case for the proposed scheme.

- It describes how much the proposed scheme is expected to cost, and explains how this has been worked out;
- It identifies risks that could affect the cost of the scheme;
- It explains how the scheme will be paid for and by whom, and shows that it is affordable; and
- It sets out the anticipated profile of expenditure over time, and describes the monetary impact of this on the Council's balance sheet.

This chapter deals with costs and accounting issues. The question of value for money is dealt with separately in the Economic Case (Chapter 3), including a calculation of the present value of costs (PVC).

4.2 Costs

The estimated cost of the scheme, at out-turn prices, but excluding future inflation, client costs and non-recoverable VAT, is **£12,934,222**. The build-up of the cost estimate is demonstrated in Table 4-1.

Scheme Element	Total Cost at 2015 Q1 prices (£)	Spend Profile by Financial Year					
		2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Road works	£5,344,188	£0	£0	£0	£0	£1,603,256	£3,740,931
Structures	£327,398	£0	£0	£0	£0	£98,220	£229,179
Sub-Total	£5,671,586	£0	£0	£0	£0	£1,701,476	£3,970,110
Contractors Detailed Design, Traffic Management and Preliminaries	£2,438,782	£0	£731,635	£975,513	£731,635	£0	£0
Land	£1,687,150	£84,358	£421,788	£1,181,005	£0	£0	£0
Agent Preparation and Supervision Costs	£964,170	£48,208	£48,208	£96,417	£192,834	£289,251	£289,251
Total Cost (Excluding quantified risk and optimum bias)	£10,761,688	£132,566	£1,201,631	£2,252,935	£924,469	£1,990,727	£4,259,361
Quantified Risk (mean value)	£1,323,836	£16,307	£147,817	£277,142	£113,722	£244,887	£523,960
Risk-adjusted total Cost (Excluding optimum bias)	£12,085,524	£148,873	£1,349,448	£2,530,077	£1,038,191	£2,235,614	£4,783,321
Adjustment to out-turn	£848,698	£1,191	£24,290	£94,478	£60,307	£178,356	£490,075
Scheme Cost (out-turn prices)	£12,934,222	£150,064	£1,373,738	£2,624,555	£1,098,498	£2,413,970	£5,273,397

Table 4-1: Breakdown of scheme costs for the Oxon Link Road Development

4.2.1 *Scheme preparation and construction*

The cost of scheme preparation and construction has been estimated by Shropshire Council and assumes that the scheme will be delivered via Early Contractor Involvement (ECI).

4.2.2 *Risk*

The cost of delivering the scheme will not be known until the detailed design has been completed, land purchased, and tender prices have been received. To reflect the uncertainty associated with known risks, a quantified risk assessment (QRA) has been undertaken⁵⁶. Details of the QRA is presented in Section 6.6.

4.2.3 *Spend profile*

The assumed annual profile of expenditure is shown below.

Scheme Element	Annual Spend Profile by Financial Year					
	15-16	16-17	17-18	18-19	19-20	20-21
Road works	0%	0%	0%	0%	30%	70%
Structures	0%	0%	0%	0%	30%	70%
Contractors Detailed Design	0%	30%	40%	30%	0%	0%
Land	5%	25%	70%	0%	0%	0%
Agent preparation and supervision costs	5%	5%	10%	20%	30%	30%

Table 4-2: Annual spend profile

4.2.4 *Out-turn price adjustment*

The cost estimates assume a price base of 2015 Q1. An allowance is therefore made for expected inflation between the date of the estimate and the date when the expenditure is expected to occur. This depends on the profile of expenditure, as set out in Table 4-2. The uplift factors⁵⁷ to reflect price inflation have been estimated based on the GDP deflator methodology recommended by WebTAG.

4.3 **Budgets / Funding Cover**

4.3.1 *Funding*

In principle, funding will be triggered by the Phase 1 development and the related land sales that will enable the OLR to proceed. The first phase of residential development would therefore be started prior to the construction of the OLR. Although the availability of such funding may affect the timing of the construction of

⁵⁶ Risk allowance is a factor applied to project costs to act as a contingency for unforeseen circumstances. At the concept stage the risks of being able to accurately assess cost is deemed high, and this reduces throughout the Scheme's lifecycle

⁵⁷ WebTAG Data book - <https://www.gov.uk/government/publications/webtag-tag-data-book-november-2014>

the OLR, the council is prepared to match funding of the S106 and Local Growth Funding ahead of triggers to remove risks associated with obtaining 3rd party funds.

4.3.2 Budgetary Impact

An estimated budgetary impact summary outlined in Table 4-3 split by the respective financial year. Of an estimated cost of £12.93m, a fixed sum of £4.2m is being sought from the Marches LEP Local Growth Fund. The developers of SUE West will contribute a fixed funding of £8m via a S106 agreement, which is currently in draft but is expected to be finalised later this year. The remaining £0.73m will be funded by the Shropshire Council. Whilst the exact source of this funding is yet to be confirmed, the Council is currently exploring various options including the use of Community Infrastructure Levy (CIL), New Homes Bonus and Local Transport Capital Block Funding.

An estimated funding profile is outlined in Table 4-3, split by the financial year. The assumed LGF spend profile aligns with the drawdown profile agreed with Marches LEP. The profile ensures that LGF funds will be spent by March 2019, in compliance with the Marches LEP draft assurance framework. Overall, the local contribution is expected to fund 6% of the scheme outturn costs, with 32% sought from the LGF and developer contributions funding the remaining 62%.

	Budgetary Impact Summary						
	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
LGF Funding	-	£600,000	£1,300,000	£400,000	£1,900,000	-	£4,200,000
SC Contribution	£8,519	£77,981	£148,985	£62,357	£137,031	£299,349	£734,222
S106 Contribution	£141,546	£695,756	£1,175,570	£636,141	£376,939	£4,974,048	£8,000,000
Total	£150,064	£1,373,738	£2,624,555	£1,098,498	£2,413,970	£5,273,397	£12,934,222

Table 4-3: Budgetary Impact Summary

The overall funding package for the scheme can be summarised as:

- Estimated scheme cost **£12,934,222**
- Developer contribution **£8,000,000**
- Local Growth Fund **£4,200,000**
- Balance funded by the Shropshire Council **£734,222**

4.4 Whole Life Costs

The OLR scheme will give rise to additional revenue liabilities for capital renewals and maintenance, when compared to a future scenario in which the OLR does not exist. All maintenance obligations will fall under the purview of Shropshire Council and, as such, will be fulfilled as part of the maintenance regime operated by the

council. The maintenance responsibility for Churncote roundabout will fall under the remit of Highways England. The following allowances will need to be made by the Council towards maintaining the OLR.

4.4.1 *Capital Renewal Costs*

£0.940 million (at 2015 prices) for resurfacing / renewal of the new highway infrastructure over a 60 year period. It is anticipated that the surface and binder courses would need to be replaced every 15 and 30 years after scheme opening, followed by a full depth reconstruction after 45 years.

4.4.2 *Annual Maintenance Costs*

Approximately £7,850 will be needed to meet annual maintenance liabilities including drainage clearance, lighting operation, infrastructural and safety inspections.

The whole life costs identified above have been factored into the economic appraisal and have therefore had an impact on the estimated BCR and NPV. In financial assessment terms, these costs would be covered by the Shropshire Council's annual maintenance budget.

4.5 **Accounting Implications: Cash Flow Statement**

The preferred option is expected to have the following implications on public accounts:

- Devolved funding is sought to fund £4,200,000 (32%) of the scheme implementation costs, with majority of the funds being spent during the financial years 2017-19;
- A local contribution of £734,222 (6%) of the scheme implementation costs is required;
- The maintenance costs for the scheme are expected to average £7,850 per annum, the funding for which will be sourced from the annual maintenance budget; and
- Capital renewal costs over 60 years are expected to be approximately £0.940 million, at 2015 prices, with expenditure on capital renewal works taking place every 15 years. Funding for the works will be ring-fenced from the maintenance budget.

As a commitment of support, Shropshire Council's Section 151 Officer has provided a Letter of Intent (LOI) to reinstate and reinforce the Council's financial obligations in ensuring compliance with the Marches Assurance Framework requirements and the Growth Deal requirements (see Appendix G).

4.6 **Summary of the Financial Case**

The estimated cost of the scheme is **£12.93m** at out-turn prices, including an allowance for Quantified Risk. A fixed sum of **£4.2m** is being sought from the

Marches LEP Local Growth Fund, which represents 32% of the scheme outturn costs. SUE West developers will contribute 62% of the outturn cost, by way of secured S106 agreements, which amounts to **£8m**. The balance **£0.73m**, which accounts for 6% of the scheme outturn costs, will be funded by Shropshire Council. The scheme is affordable, and the necessary funds have already been confirmed to the LEP by the DfT.

5 The Commercial Case

This chapter outlines the commercial viability of the scheme, and the procurement strategy which will be used to engage the market, including a discussion on the financial implications of the proposed strategy.

It provides evidence for risk allocation and transfer, contract and implementation timescales as well as the details on the capability and technical expertise of the team delivering the project.

5.1 Introduction

The engineering services required to build the scheme will need to be procured through an engineering contractor as Shropshire Council do not have 'in-house' capability. OLR being Phase 1 of the NWRR, any procurement strategy proposed for the OLR should ideally align with the procurement principles identified for the NWRR. In considering the most appropriate procurement strategy for the Oxon Link Road (OLR), reference has therefore been made to various procurement options⁵⁸ appraised in support of the North West Relief Road (NWRR). The report is included at Appendix H of this report.

The level of risk that Shropshire Council is willing to accept will inevitably have a bearing on the choice of procurement. The three main criteria for risk are namely:

- a) Time – Determines the speed or certainty of completion date;
- b) Cost – Price level or cost certainty; and
- c) Quality – Functionality and performance.

Whilst time and cost will be directly influenced by the procurement strategy chosen, quality will be partly addressed through the tendering process. A chosen list of pre-qualified contractors or a bespoke pre-qualification process, based on the prior experience, references and evidence of competence, will ensure that appropriate companies are selected that demonstrate the necessary skills and experience to undertake the work.

5.2 Procurement Strategy – Options

Procurement strategy options for the OLR considered the following options:

1. Traditional contract;

⁵⁸ Shrewsbury North West Relief Road: Procurement Strategy Report, 755633/R.001rvec, February 2009

- 2. Design and Build;**
- 3. Term contractor – Under existing framework; and**
- 4. Early Contractor Involvement (ECI).**

5.2.1 *Traditional Contract*

Traditional contracts are the most commonly used method of procurement and are suitable for complex projects where functionality is a prime objective, especially those that require specialist services for design and construction. This method provides time predictability and cost certainty, although it is not always suitable for fast track projects where time is a key consideration.

Traditional contracts typically require certainty of detailed design input, which inevitably warrants the allocation of adequate time to provide the contractor with sufficient buildable design information. Efficacy of this tendering approach is therefore dependant on full design documentation being in place before the contractor can be invited to tender.

5.2.2 *Design and Build*

This method of procurement involves the contractor being responsible for the design as well as construction. It can be suitable for cost certainty and fast track construction. This approach is not suitable where the client brief is developing or for very complex projects. The main contractor takes responsibility for both design and construction and will use either in-house designers or employ consultants to carry out the design. The main contractor has a direct influence over the design process and as such takes on the associated risks.

Although it is not necessary for full documentation (including the design) to be in place before the contractor can be invited to tender, for carrying out the work, it is important that the client's brief and requirements are clearly set out.

5.2.3 *Term contractor – Under existing framework*

Shropshire Council currently has a term contractor who undertakes all civil engineering works below £150,000. Works above this threshold are subject to competitive tendering which includes engineering contractors who have already demonstrated their technical, commercial and financial quality in a process of pre-qualification and tendering.

5.2.4 *Early Contractor Involvement*

Early contractor involvement (ECI) is a derivative of design and build but is used when engaging the contractor at an earlier time.

This form of contract allows supplier engagement at an early stage of a project in order to draw in industry experience at the design and preparation stages. ECI contracts remain an option for major highways schemes where there is significant scope for input from the supply chain. Suppliers' engagement will be on a partnering

basis. Their knowledge and abilities to influence project decisions will have maximum impact in terms of project timing, quality and cost.

The timing of the appointment of the contractor in the project development is important; the design should be sufficiently developed to enable estimates and assumptions to be prepared and the client brief sufficiently developed.

An ECI contract is generally split into two phases. Phase 1 is the planning and design development, through the Statutory Planning process up to Notice to Proceed to Construction. Phase 1 is further divided into two sub-phases:

- Phase 1A – design development up to publication of Draft Orders, or submission of Planning Application; and
- Phase 1B – the project team would take the scheme through the Statutory Process, including Public Inquiry if necessary.

Phase 2 is from the Notice to Proceed to Construction through detail design, construction of the Scheme through to and including the aftercare and maintenance. Phase 2 is further divided into three sections:

- Section 1 – is the Detail Design development similar to that of a Design and Build form of Contract;
- Section 2 – comprises the Construction stage. Detail design will have been programmed at a much earlier time to enable fast and efficient construction to commence; and
- Section 3 – is the landscaping and general aftercare stage of the project delivery.

5.3 Procurement Option Assessment

To compare the four procurement options, levels of cost, time and quality certainty have been considered and rated as high, medium or low for the scheme.

Procurement Option	Level of Certainty		
	Cost	Time	Quality
Traditional contract	Medium	High	High
Design and Build	Medium	High	Medium
Existing Term contractor	Low	Medium	Medium
Early Contractor Involvement	Medium	High	High

Table 5-1: Procurement assessment

Table 5-1 demonstrates that both 'Traditional Contract' and 'Early Contractor Involvement' would offer the best level of certainty in terms of cost, time and quality would therefore be suitable as viable procurement options for the OLR.

Award of works under the existing contract has been discounted on the basis that the total value of the contracts exceeds the threshold set out under the terms of the contract.

The 'Design and Build' option has been disregarded on the basis that the Council will have less control and influence over design matters. This inflexibility would mean that there is only limited scope for the client to make changes to their requirements once the contractor's proposals have been agreed.

Preliminary design drawings have been prepared for the OLR, detailing the extent of the work, alignment and proposed drainage system, thereby ensuring a degree of cost certainty to the delivery of the scheme. Further work will be required before Full Business Case submission to develop the option to detailed design including site investigation, environmental surveys, and detailed drainage design.

5.4 Preferred Procurement Strategy

5.4.1 Preferred procurement option

The Council considers that the Early Contractor Involvement (ECI) is the most appropriate procurement route in delivering the proposed OLR. By bringing in the contractor at an early stage the team can identify options, buildability problems and areas of high risk well before the construction phase is undertaken. This allows for risks to be better understood and priced. However there are significant start-up costs that are often forgotten about and are unnecessary if the scheme has little if any opportunity for innovation.

Whilst a Traditional Contract would also offer a viable alternative to ECI, the appointment of a Contractor / Designer close to the commencement of the construction of the project would not leave sufficient time for the designer to become fully conversant with the client's aspirations for the project. There would be a real risk therefore that the contractor, whilst meeting the Employer's Requirements, would not deliver the quality of project that the client was seeking. The Contractor would also not have had sufficient time to understand and manage out or mitigate contractual risk on the project with the result that each risk item is likely to be fully priced by the contractor.

5.4.2 Preferred form of contract

For civil engineering works in the UK, there are two main forms of contract: the traditional Institution of Civil Engineers Conditions of Contract (ICE); or the modern Engineering and Construction Contract NEC3 suite of contracts. In line with the council's adopted approach, the preference is to procure the works for OLR using NEC3.

5.4.3 Design organisation

For ECI, there are two alternatives regarding ownership of the design:

- a) Appoint a consultant who acts as client's representative from the early conceptual stages of the scheme through to the end of the construction

phase. The consultant undertakes an illustrative design, but is not the main designer. The client's representative prepares the Works Information, which forms the basis of the design requirements. The successful contractor then takes ownership of the design and employs his own designer throughout, taking the scheme through publication of orders and the Statutory / Planning process if necessary; and

- b) The second alternative is for the employer to retain ownership of the design throughout, which is either undertaken by themselves or by their representative. The contractor is still engaged to input his expertise into the design, covering such aspects as materials availability and handling, construction methods, maintenance requirements, risk management, cost certainty, and time certainty. In this instance the contractor has no ownership of the design.

For the OLR, it is considered that option (a) will form the basis for design organisation whereby the appointed contractor seeks the services of a design partner who has significant experience of public enquiries relating to highways in environmentally sensitive areas. The ECI contractor will also manage the planning and statutory process.

Shropshire Council, through the services of Mouchel, has developed the scheme through to preferred route stage and is currently preparing the Outline Business Case for submission in early 2015. It is normal practice in major road schemes for the parties involved in preparing the planning application and the draft Orders (Compulsory Purchase, Side Road and Stopping-Up Orders) to continue with the preparation for the expected Public Inquiry. This ensures continuity of approach and that the invested knowledge of the scheme produces the most robust defence against objectors at the inquiry.

5.4.4 *Preferred tendering approach – Two envelope bids*

In order to introduce a quality element to the tender process, tenderers are required to submit the tender in two parts – a Quality Statement (Envelope a Quality) and a Financial Statement (Envelope B Financial).

The quality envelope provides the opportunity to ask tenderers for information about their bid. Typical items of information to be requested are:

- approach to the contract and methodology to be employed;
- design proposals;
- details of tenderers previous experience of similar works;
- outline programme of resources for each activity;
- names, CV's of senior personnel – site and design;

- employees to hold National Vocational Qualifications under the Construction Skills Certification Scheme;
- list of subcontractors; and
- proposals for customer care, public relations and liaison procedures with Project Manager, Employer, adjacent highway authorities, emergency services, statutory undertakers.

Each tender submission is assessed by arriving at a score out of 100 for both the quality and the financial envelopes. The percentage quality / financial split (typically 70% quality / 30% price) is multiplied by the respective scores, with the aggregate of the two providing the final mark.

A final assessment is often undertaken by inviting the top two or three tenderers to make a presentation and answer questions, usually based on the quality aspect of their submission, by a tender assessment panel.

5.4.5 *Payment mechanism*

Control of costs throughout the scheme development will be achieved via various payment options available under the NEC3 suite of contracts. The most appropriate Option for a given stage of the scheme delivery is dependent on the level of costs and programme certainty and which party is best placed to manage risks.

During Phase 1A, the ECI Contractor and their consultant will develop the scheme through to submission of the Planning Application. During this stage, there is scope to refine the scheme and develop value engineering options but the ultimate objective is clearly defined and process clearly set out. The appropriate payment mechanism should therefore provide flexibility to explore alternatives but incentivise the Contractor to deliver the ultimate objective in as efficient way as possible. For the planning and development phase of the scheme, Option C is therefore the most appropriate payment mechanism.

Phase 1B carries a greater degree of uncertainty as the extent of work required to take the scheme through the statutory process, which could possibly include a Public Inquiry, varies considerably from scheme to scheme. In this circumstance, a significant risk allowance would be made by ECI Contractor and their consultant if the phase was delivered as either fixed cost or target cost. The risk is therefore more appropriately managed by Shropshire Council and a time based payment mechanism, Option E, is recommended.

During the construction stage, and with the benefit of being involved through the Phase 1, the ECI Contractor will be best place to evaluate and manage the scheme risks. At this stage, Shropshire Council also requires increased cost certainty and therefore a fix cost, lump sum mechanism is appropriate. By adopting Option A the cost and risk of producing a bill of quantities is also avoided.

The following payment mechanisms have therefore been proposed for different phases of the ECI:

- ECI Phase 1A – NEC3 PSC Option C (Target cost): Under this payment mechanism, prices in the activity schedule will be the target cost. The contractor / consultant aims to complete the work at or below the target cost and the target cost will only change if there is a compensation event;
- Phase 1B – NEC3 PSC Option E (Time based): The contractor / consultant is paid for by the hours worked at the appropriate staff rates agreed; and
- Phase 2 – NEC3 ECC Option A (Priced contract with activity schedule): This is essentially a lump sum contract, where the contractor splits the scope of work into activities and provides prices for each activity.

5.4.6 *Procurement timescale*

The procurement of an ECI Contractor is included within the Outline Delivery Programme included in Appendix I. In order to maximise the benefit of an ECI approach, the Contractor will be appointed in advance of the planning application and will be responsible for the statutory process. The timescale for appointing the ECI Contractor is 8 months with the Contractor appointed in February 2017.

5.5 **Risk Allocation and Transfer**

Shropshire Council will seek tenders for a construction contract. This will facilitate the transfer to the contractor of some risk associated with costs increasing above those predicted in the financial case. The scheme costs currently include optimism bias and contingency associated with risk, following the risk assessment. The risk of costs being higher than currently predicted remains until the tendering process is complete.

The preferred payment mechanism for Phase 2, NEC3 ECC Option A, largely transfers the risk of carrying out the work at the agreed prices to the contractor. The Option A mechanism could potentially lead to higher tender returns reflecting the transfer of risk to the contractor. However, by engaging the contractor early in the scheme development the contractor will have greater visibility of the risks and be able to develop appropriate mitigation measures. This should result in increased cost certainty during the construction phase.

5.6 **Contract Length**

The tender invitations will assume a construction period of six months. It is however possible that tender submissions will propose a shorter period than this, as the programme contains elements of contingency following the risk assessment.

The contract programme is considered in further detail within the Management Case, Section 6.3. The key contract dates are included in Table 5-2.

Programme Activity	Start Date	End Date
Prequalification period	04/07/16	19/08/16
Tender period	14/10/16	09/12/16
SC approve award of Contract (Preferred Bidder)	06/01/17	27/01/17
Appointment of ECI Contractor	13/02/17	13/02/17
Detailed design	07/05/18	27/08/18
SC give Contractor Notice to Proceed to Construction	21/01/19	21/01/19
Construction period including construction completion period	01/07/19	16/11/20
Road Opening	07/09/20	14/09/20

Table 5-2: Key Contract Dates

5.7 Human Resource Issues

No significant human resources issues have been identified that could affect the deliverability of the project. Further details of the required capabilities and assigned resources are set out in the Management Case (Chapter 6).

5.8 Contract Management

Design, procurement, and construction supervision will be managed by Shropshire Council's Consultants Mouchel. The Consultant has experience in delivering major schemes including Hodnet Bypass (as discussed in Section 6.8). Andy Savage will be the client Project Manager.

As Project Manager, Andy Savage will be named within Contract Data as the individual who will administer the contract on behalf of the Employer. The Project Manager will have the designated authority to issue all instructions, notifications and other communications required under the contract. As well as providing general management support and advice to the Project Manager, Mouchel will undertake the role of Supervisor under the contract with responsibility to check for compliance to the Works Information. Under the contract the responsibilities of the Project Manager or the Supervisor may be delegated but this is not anticipated at this stage.

5.9 Summary of the Commercial Case

The preferred procurement option is Early Contractor Involvement (ECI) as it is considered that by bringing in the contractor at an early stage the team can identify options, buildability problems and areas of high risk well before the construction phase is undertaken.

In line with the council's adopted approach, the preference is to procure the works for OLR using NEC3.

For the OLR the appointed contractor seeks the services of a design partner who has significant experience of public enquiries relating to highways in environmentally

sensitive areas. The ECI contractor will also manage the planning and statutory process.

6 The Management Case

6.1 Introduction

This chapter is the management case for the Oxon Link Road scheme. It describes how it will be delivered through project management best practice.

It sets out:

- the governance structure (management framework);
- the scheme / project scheduling (development of the project programme, and the process for monitoring progress against the milestones within the programme);
- the stakeholder management process (how stakeholders have been identified, and their influence on the project managed);
- the risk management process; and
- how the benefits set out in the economic case will be monitored and realised.

6.2 Project Governance, Organisational Structure and Roles

An appropriate governance structure is essential to the delivery the scheme. The Shropshire Council has therefore established a Programme Delivery Board aligned with best practice guidance on project management. The Programme Delivery Board's primary function is decision-making and review. The Board will effectively 'own' this Business Case and be responsible for:

- Managing the scheme and ensuring its successful delivery;
- Keeping track of the overall project programme to ensure that the scheme is delivered within the constraints of time and budget;
- Facilitating communication to aid the decision-making process;
- Providing guidance and support to the Project Manager;
- Authorising necessary funds and spending;
- Ensuring a stakeholder management framework is in place and stakeholders are being managed; and
- Managing risks.

Figure 6-1 illustrates a high-level governance structure, depicting how the Programme Delivery Board fits within the overall delivery framework, and the inter-

relationship between various entities and their strategic roles in the delivery of the scheme.

The Marches LEP (Local Enterprise Partnership) includes the local authorities and business boards of Herefordshire, Shropshire and Telford & Wrekin. The Marches LEP will provide a decision making function within the Project Governance structure ensuring that the project remains consistent with the LEP's strategic goals and other local and national strategies as set out in Chapter 2 (The Strategic Case). The Marches LEP will review the scheme Business Case and authorise funds and spending sought from the Marches LEP.

The Marches LTB (Local Transport Body) is the designated advisory body to the LEP for transport and will ensure that investment is closely aligned with the wider policy objectives of both the local authorities and the Marches LEP.

Project reporting to the Programme Delivery 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 Delivery Team in advance of the Programme Delivery 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.

Key

- Decision Making
- Delivery
- Advisory

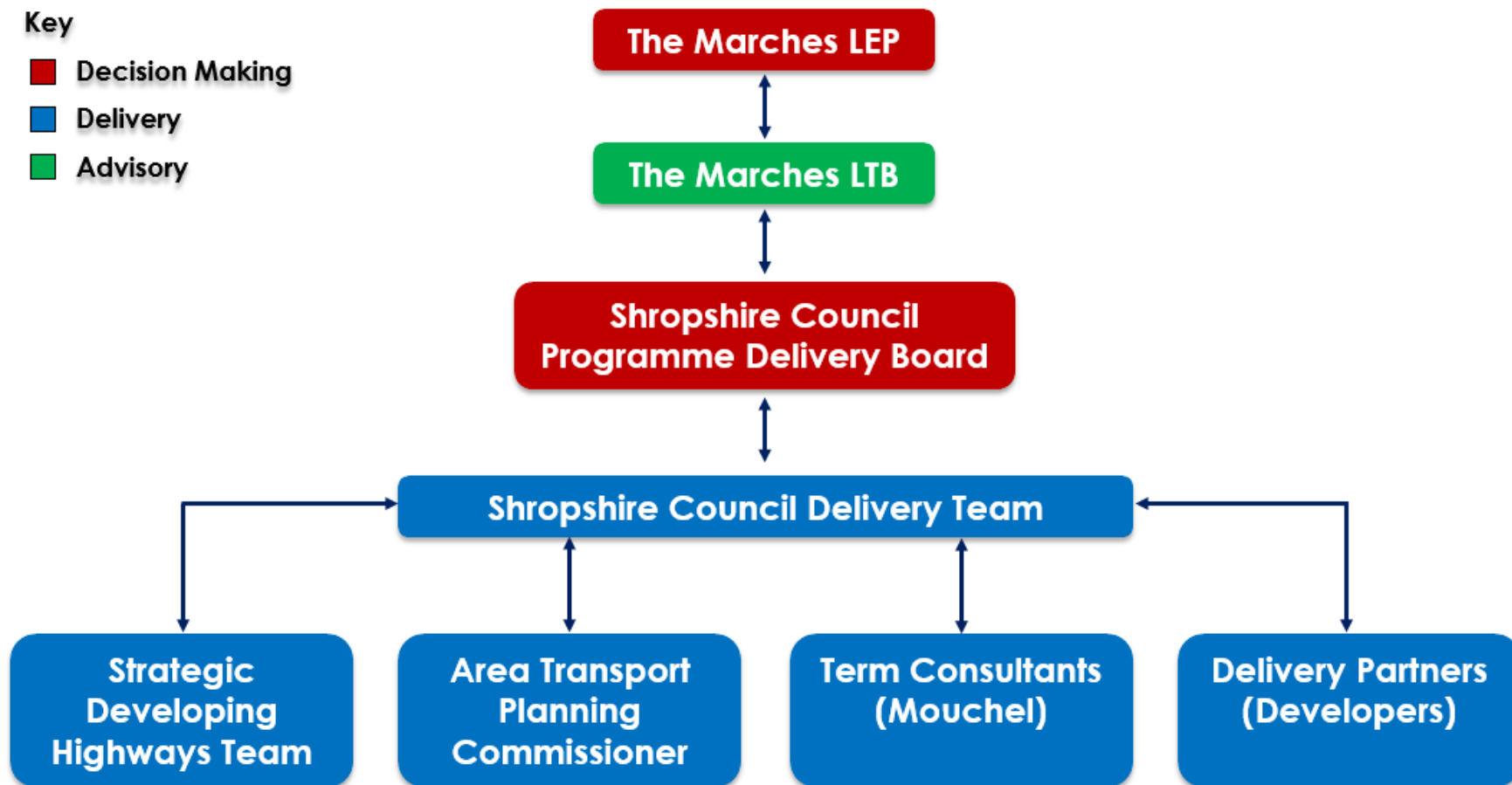


Figure 6-1: High level governance structure

6.2.1 Programme Delivery Board

The Senior Responsible Officer (SRO) will be Claire Wild, Cabinet Member for Transport. The SRO will be responsible for chairing meetings and providing guidance and support to the Project Manager as required. The SRO will ensure that the scheme is progressing in line with the originally envisaged project programme and that key deliverables and milestones agreed by the Programme Delivery Board are achieved. The Programme Delivery Board will consist of key Shropshire Council staff: the Project Director, Andrew Evans; the Project Manager, Andy Savage; and Victoria Merrill, providing the transport policy context. The governance structure and roles are summarised in Table 6-1.

Programme Delivery Board	Key Roles & Responsibilities	Role within Shropshire Council
Claire Wild	Senior Responsible Officer representing the public interests within the Council	Cabinet Member for Transport
Andrew Evans	Project Director. Responsible for delivery of the overall programme	Head of Economic Development
Andy Savage	Project Manager. Responsible for updating Programme Delivery Board on scheme progress. Will provide guidance and support to the Project Director	Commissioner for Strategic Transport
Victoria Merrill	Represent the views of SC Transport Policy	Area Transport Planning Commissioner (South)

Table 6-1: The Programme Delivery Board

Profiles of those members on the Programme Delivery Board are described below.

- **Claire Wild**, Cabinet Member for Transport at Shropshire Council, will represent public interests during the delivery of the project;
- **Andrew Evans**, Head of Economic Development for Shropshire Council, will be the Project Director, responsible for strategic division making on behalf of Shropshire Council, and overall delivery of the project; and
- **Andy Savage**, Commissioner for Strategic Transport for Shropshire Council, will be the Project Manager responsible for updating the Programme Delivery Board on scheme progress (through the project programme), risks (through the risk register), cost management (including funding allocation and spend), procurement activities and stakeholder discussions and impacts (via the stakeholder management plan).

The Programme Delivery Board will meet on a regular basis, to review project progress against the programme, identifying if milestones have been met, make decisions at gateway review points, and to review project risks and opportunities.

6.2.2 Project Delivery Team

The Project Delivery Team will be tasked with delivering the Outline Business Case and the scheme to completion. This will involve negotiating with the key stakeholders and partners in the development and maintaining key lines of communication between the promoter, stakeholders and The Marches LEP / LTB. The Project Delivery Team responsible for the delivery of this project is set out in Table 6-2.

Project Delivery Team	Name	Role
Strategic Development Highways Team for Shropshire Council	Andrew Evans	Representing Shropshire Council and providing strategic economic development input
	Andy Savage	Representing Shropshire Council and providing strategic infrastructure development input
	Victoria Merrill	Representing Shropshire Council and providing transport planning and policy input
Term Consultants (Mouchel)	Frank Beech	Project Director
	Ian Baker	Project Manager
Engineering Design Team (Mouchel)	TBC	Highways engineers Drainage engineers Lighting engineers Quantity Surveys Traffic engineers Transport modelling consultants Air quality consultants Stakeholder management consultants

Table 6-2: Project Delivery Team

6.3 Project Programme

A project programme has been developed for this Outline Business Case setting out all the key project tasks and their duration, the interdependencies between each of the tasks, with key milestones and gateways also recorded. 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).

The programme will act as a live document, with progress on planned task completion being monitored against actual progress on a weekly basis by the project manager.

Construction is programmed to commence in 2019 / 2020 and will be completed in 2020 / 2021. The programme key stages, developed in MS Project is illustrated in Table 6-3. The full draft working programme can be found in Appendix I, whilst a summary is provided in Figure 6-2.

Programme Activity	Start Date	End Date
Prepare Full MSBC for (Stage 3) Conditional Approval	24/08/15	25/09/17
Prequalification period	04/07/16	19/08/16
Tender period	14/10/16	09/12/16
SC approve award of Contract (Preferred Bidder)	06/01/17	27/01/17
Appointment of ECI Contractor	13/02/17	13/02/17
Planning period	21/07/17	15/09/17
Review and submit Full MSBC for Conditional Approval of Funding (Stage 3)	25/09/17	23/10/17
Publish Draft Orders	13/10/17	27/10/17
Obtain all Relevant Consents from SC Consent to Publish Orders	19/01/18	02/02/18
SoS publishes intention to hold PI	29/01/18	26/02/18
LEP Confirm Conditional Funding Approval	09/04/18	07/05/18
Detailed design	07/05/18	27/08/18
Obtain approval to proceed from SC Cabinet for Full Approval	28/08/18	04/09/18
Finalise Full MSBC document for (Stage 4) approval	04/09/18	18/09/18
Review and submit MSBC for Final Approval of Funding (Stage 4)	08/10/18	19/11/18
LEP & SC Approval to proceed	10/12/18	17/12/18
SC give Contractor Notice to Proceed to Construction	21/01/19	21/01/19
Construction period including construction completion period	01/07/19	16/11/20
Road Opening	07/09/20	14/09/20
OGC Gateway Reviews – Review 3 – Investment Decision	21/05/18	21/05/18
OGC Gateway Reviews – Review 4 – Readiness for Service	19/10/20	19/10/20
OGC Gateway Reviews – Review 5 – Operations Review & benefits Realisation	16/11/21	16/11/21

Table 6-3: Programme Summary

6.4 Project Dependencies

Completion of Phase 1 of the SUE West is perhaps the biggest interdependency in relation to the scheme proposals. Funding will be triggered by the Phase 1 development and the related land sales that will enable the OLR to proceed. Although the availability of such funding may affect the timing of the construction of the OLR, the council is Prepared to match funding of the S106 contributions, and other funding sources currently being explored, ahead of triggers to remove risks associated with obtaining 3rd party funds. The scheme could therefore be considered as a stand-alone scheme, with no other future projects or commissions depending upon it.

The scheme is however dependent upon a number of other activities (outlined within Section 2.7 and in the Project Programme above), stakeholders (summarised within the stakeholder management plan below) and subject to risks (set out with the risk register).

6.5 Communications and Stakeholder Management Plan

The Shropshire Council's approach to developing and maintaining the active support and commitment of stakeholders and the community, to facilitate the timely and successful implementation of the project, is described below.

A stakeholder management methodology, as set out in the Office of Government Commerce (OGC) paper 'Category Management Toolkit – Stakeholder Management Plan' will be adopted. This involves the systematic identification and mapping of stakeholders; assessing stakeholder impacts; and managing any negative influences and impacts.

The stakeholder management plan is closely linked with the risk management strategy outlined within Section 6.6.

6.5.1 Stakeholder identification

The following stakeholders, have the potential to influence the outcome of the scheme, the project programme or project costs, and were identified at project inception.

Stakeholders to consider include:

- Shropshire Council Environmental Team;
- Shropshire Council Planning Department / Development Services Department;
- Shrewsbury Town Council;
- Bicton Parish Council;
- Shrewsbury Business Improvement District;

- Highways England;
- Environment Agency;
- Amphibian and Reptile Conservation Trust;
- Campaign to Protect Rural England (C.P.R.E.);
- Natural England;
- English Heritage;
- Shrewsbury Friends of the Earth;
- Transition Town Shrewsbury;
- Shropshire Wildlife Trust;
- Shropshire Playing Fields Association;
- SUE West Developers;
- Land owners;
- Local ward members;
- Statutory Undertakers;
- Shrewsbury Civic Trust;
- Shrewsbury Chamber of Commerce;
- Police (and / or other emergency services);
- Road Haulage Association;
- Sustrans; and
- Cyclists Touring Club.

Using the stakeholder list a 'stakeholders map' has been developed and is presented in Table 6-4. This was used to assess the impact of the scheme on each of the stakeholder group, establish their stance on the scheme, highlight their concerns and draw up an action plan to mitigate any concerns they may have.

Stakeholders	Concerns	Risks to Project	Actions / Mitigation
Shropshire Council Environment Services Team	The presence of locally important flora / fauna, badgers, newts and bat roosts could be negatively impacted during the construction process	Delays to project programme Increased costs associated with relevant mitigation	Regular updates and maintaining a two-way dialogue to provide feedback on consultation responses etc. to convey key design changes Ongoing engagement that will inform the Team about the current situation of the works at particular points in time
Shropshire Council Planning Department/Development Services Department	Potential system users and will influence extent of development by providing planning permission	A scale-down of the full SUE West development Changes to project programme	Regular updates and maintaining a two-way dialogue to provide feedback on consultation responses etc. to convey key design changes Ongoing engagement that will inform the Team about the current situation of the works at particular points in time
Shrewsbury Town Council	None identified	No key risks identified	None identified
Bicton Parish Council	Severing Welshpool Road from Churncote Roundabout could result in longer journey times for Bicton Heath residents Establishment of Shrewsbury SUE West could increase traffic volumes, noise and air pollution in the Bicton Parish	Delays to project programme Increased costs associated with design changes	Early and ongoing consultation / engagement to meet the needs of local residents and maintain Council support

Stakeholders	Concerns	Risks to Project	Actions / Mitigation
Highways England	<p>Design requirements for the Churncote roundabout.</p> <p>Potential construction delays on the Highways England strategic network.</p>	Delays to project programme	<p>Early engagement with Highways England to reach consensus on an appropriate roundabout design.</p> <p>Early consultation / engagement with Highways England Route Managers will define emergency diversion routes and develop a plan for the duration of road works</p>
<p>Various environmental groups (e.g. <i>Environment Agency, Amphibian and Reptile Conservation Trust, Shropshire Wildlife Trust, Shrewsbury Friends of the Earth</i>)</p>	<p>Locally important flora/fauna, badgers, newts and bat roosts could be harmed during the construction phases of the project</p> <p>The creation of a new road link could have negative consequences for local air and noise pollution</p>	<p>Potential to prevent scheme approval</p> <p>Delays to the project programme</p> <p>Increased scheme costs (associated with mitigation)</p>	<p>Early consultation / engagement</p> <p>Obtain various statutory environmental assents in advance to demonstrate compliance with best practice guidance on environmentally friendly construction and demolition methods</p>
Campaign to Protect Rural England (C.P.R.E.)	Damage to landscapes and wildlife. The road will increase traffic levels and not reduce CO ₂ .	<p>Potential to prevent scheme approval</p> <p>Delays to the project programme</p> <p>Increased scheme costs (associated with mitigation)</p>	<p>Early consultation / engagement</p> <p>Obtain various statutory environmental assents in advance to demonstrate compliance with best practice guidance on environmentally friendly construction and demolition methods</p>

Stakeholders	Concerns	Risks to Project	Actions / Mitigation
Transition Town Shrewsbury	None identified	No key risks to project identified	Early consultation / engagement
Residents Groups	The development of the full allocation of SUE West could have negative impacts on the local area – increased congestion, increased noise and air pollution and reduction in rural space	Delays to project programme	Early consultation / engagement to decipher local residents views and provide appropriate response e.g. design change
Shropshire Playing Fields Association	Loss of available playing fields due to Shrewsbury SUE West development	Delays to project programme	Early consultation / engagement to agree satisfactory outcomes for all involved parties
SUE West Developers	The full allocation of residential and employment land development cannot be delivered without the Oxon Link Road Increase in traffic volumes forecasted without a new link road	Delays to project programme Increased costs due to design changes	Early consultation / engagement to decipher relevant planning applications and implement appropriate, if any, changes to scheme designs
Landowners	Land is sold for a lower price due to infliction of a CPO	Delays to project programme	Early consultation / engagement
Local Ward Members	None identified	No key risks to project identified	None identified
Statutory Undertakers	None identified	No key risks to project identified	None identified

Stakeholders	Concerns	Risks to Project	Actions / Mitigation
Shrewsbury Civic Society	None identified	No key risks to project identified	None identified
Shropshire Chamber of Commerce	Shrewsbury will economically stagnate without the implementation of SUE West and its employment opportunities	No key risks to project identified	None identified
Police (and/or other emergency services)	Severance of Welshpool Road from Churncote Roundabout could increase journey times into and out of the Shrewsbury West	No key risks to project identified	<p>Early consultation / engagement is necessary to determine key diversion routes for emergency services which seek to minimise disruption as much as possible during works</p> <p>Effective communication throughout the duration of works enables the services plan around any changes to project programme</p>
Road Haulage Association	None identified	No key risks to project identified	<p>The key will be to ensure that any disruption is communicated to both the local residential and business community and also the wider users likely to be affected by disruption associated with the works</p> <p>Effective communication should reduce the level of disruption as advance notice enables people to make decisions about their route choice or travel mode in advance</p>
Sustrans	None identified	No key risks to project identified	None identified

Stakeholders	Concerns	Risks to Project	Actions / Mitigation
Cyclists Touring Club	None identified	No key risks to project identified	Early consultation / engagement to determine temporary diversion route, if required, around construction sites

Table 6-4: Stakeholder identification and mapping

6.5.2 Stakeholder engagement

As mentioned in Section 2.8, by virtue of being part of the SUE West Masterplan, the proposed OLR has been afforded extensive public consultation to date. The draft Shrewsbury West SUE Masterplan underwent public consultation in July 2013.

Responses to the draft Masterplan have been mixed, with people commenting both on amount of the development at Shrewsbury West SUE and on the content of the Masterplan. During the consultation, many people used the form as an opportunity to object to the very principle of development at Shrewsbury West and the allocation, citing their opinion on the lack of local infrastructure and questioning the overall need for development at this location.

Consultation responses to the proposed OLR, as part of the NWRR, are documented in the NWRR Consultation Report, June 2010. The consultation views are considered further in Section 2.6.

In addition to the public consultation, the following statutory and non-statutory stakeholders were consulted upon in the lead up to the submission of this Outline Business Case. A brief summary of the stakeholder engagement activities to date is presented in Table 6-5.

Stakeholder	Nature of consultation	Outcome
The Marches Local Enterprise Partnership	Discussion with ITE regarding preparation of outline business case	Ongoing
Highways England	Churncote Roundabout – HA will become the asset owners for the revised Churncote Roundabout	Ongoing
Various environment groups (e.g. Environment Agency, Rea Valley Environmental Network)	Consultations with the Environment Agency in relation to SUE West Phase 1 development	The EA had advised that the site is sensitive in terms of controlled waters, however they do not consider it necessary to submit a full Environmental Statement. Further consultations planned
Natural England	Screening opinion sought in relation to SUE West Phase 1 development	Natural England advised that with regard to statutory designated sites, landscapes and protected species an EIA is not required
SUE West Developers	Consultations regarding the S106 agreement	Ongoing
Local ward Councillors	Full Council meeting to discuss funding for scheme	Determined funding streams for the scheme

Table 6-5: Stakeholder engagement activities

6.5.3 *Resources*

The communication activities for this scheme will be resourced by the Council's Corporate Communications Team. A Communication Plan will identify the programme and form of scheme communications. The contractor will be expected to lead on communications once the scheme enters the delivery phase.

6.5.4 *Communication Protocols*

All communications regarding the scheme will be approved by the Council's Corporate Communications Team.

6.5.5 *Notice of works*

All requirements for the advance notice of works will be led by the contractor. The contractor will be required to identify all of the communication activities necessary to support a proposed start of works date and ongoing construction milestones.

6.5.6 *Statutory Powers and Consents*

The creation of the OLR and the works to the various side roads affected by the scheme will be facilitated through Statutory Powers held by Shropshire Council as the Highway Authority under the Highways Act 1980. It will be necessary to prepare and publish the appropriate Orders to enact these powers. Details of the timescales associated with obtaining the consents and publishing orders are contained in the Project Programme included in Appendix I.

Traffic Regulation Orders for the reduced speed limits on Welshpool Road will be sought as and when required, with only a 6-week consultation period.

It is considered unlikely that Compulsory Purchase Orders will be necessary as land for the OLR is under the ownership of the SUE consortium formed by Mosaic Estates, Shropshire Council and SUE West Developers.

Environmental consents will need to be obtained with regards to specific ecological constraints identified within the scheme area. All environmental consents will be sought at the earliest stage in the scheme development. This will be assisted by engaging the ECI Contractor early in the planning stages of the scheme.

6.6 Risk Management Strategy

Risk management is methodical approach to identifying, quantifying and managing risks that occur during the lifecycle of a project. Key to effectively mitigating risks is to develop a series of well-defined steps to support better decision-making through an in-depth comprehension of the potential risks inherent in a scheme and their likely impact. Annex 4 of Treasure Green Book emphasises that “*effective risk management helps the achievement of wider aims, such as: effective change management; the efficient use of resources; better project management; minimising waste and fraud; and supporting innovation*”.

The HM Treasury Green Book recommends a four-stage process which is broadly cyclical (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 strategy is illustrated in Figure 6-3.

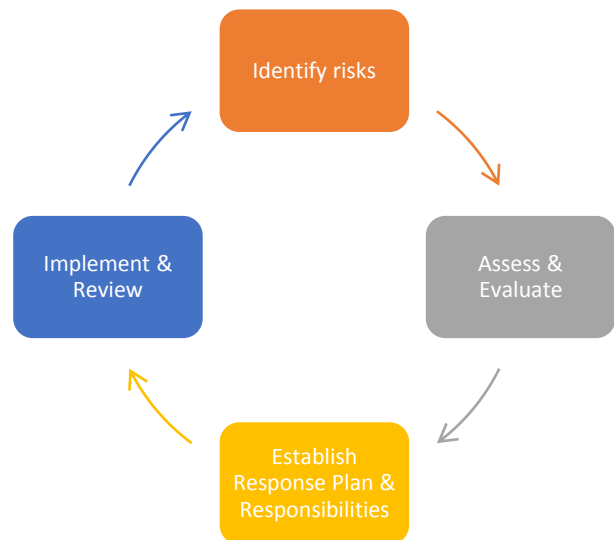


Figure 6-3: Risk Management Strategy

6.6.1 Risk management process

Risk management is seen as a key process underpinning good scheme governance and achievement of scheme objectives in a cost effective manner. TAG Unit A.1.2 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 cost estimate. Whilst the QRA process is deemed as mandatory for schemes over £5m, the DfT encourages the use of QRA for smaller schemes in order to robustly adjust the base costs for identifiable risks⁵⁹. DfT also places emphasis on a proportional approach to ensure that the time and resources afforded to the risk assessment process is of a scale that is appropriate for the size of the scheme.

The outcome of the QRA process is the prediction of an ‘expected’ value which is the average of all risk outcomes, factoring in the various probabilities of these outcomes materialising. This ‘expected’ value effectively becomes the risk adjusted cost estimate’. The risk assessment has been undertaken using the following four-stage process:

- Risk identification;

⁵⁹ TAG Unit A1.2 – Scheme Costs, p4

- Risk quantification;
 - Assessing the impacts of risk;
 - Assessing the likelihood of risk; and
- Managing risk.

This process is described below.

6.6.2 *Risk identification*

For this scheme, risks have been identified during multi-disciplinary discussions, including inputs from technical experts in engineering, planning, transport planning and environmental disciplines. These risks have been catalogued within a risk register, which is contained within Appendix J.

The original risk register was developed for the North West Relief Road and amended to incorporate the Shrewsbury Oxon Link Road section. During the development of North West Relief Road, Risk Workshops were held on 5th June 2007 and 29th September 2009. The workshops identified key risks and assigned potential likelihood and impact of each risk to the project in terms of its possible monetary and programme effects. Owners have been assigned to each risk, based on the type of risk and the team member best placed to manage the risk as the project is developed. The risk register has since been maintained as a live document with regular updates during project design review meetings.

The scheme risks can largely be grouped into the following categories:

- Risks to the project programme;
- Risks to scheme cost;
- Risks to scheme funding;
- Risks to the operation of the transport network;
- Design and information risks;
- Health and safety risks;
- Reputational risks; and
- The risk to impact on existing highway network.

6.6.3 Quantification of risks

6.6.3.1 Assessing the impact of risk (costs)

Each risk has been evaluated in terms of the cost outcomes of the risk. Whilst DfT recommends⁶⁰ 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. At this stage, the cost range associated with the consequences of each risk was estimated, where the mean is the most likely value. The estimates have been derived following consultation with the Project Manager and scheme team technical specialists, to ensure estimates of cost (and probability, discussed within the next section) are complete, accurate, and consistent with the base cost estimate.

6.6.3.2 Estimating the likelihood of the outcomes occurring

Having estimated the likely impact (in cost terms), the likelihood (probability) of the risk occurring also needs to be estimated.

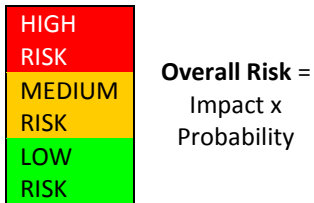
The Risk Matrix										
						PROBABILITY →				
						Negligible	Unlikely	Possible	Probable	Almost Certain
						Very Low	Low	Medium	High	Very High
						<5%	6-20%	21-50%	51-80%	>80%
						①	②	③	④	⑤
IMPACT ↑	> 5%	> 20%	Major	Very High / Showstopper	⑤	5	10	15	20	25
	3 to 5%	10 to 20%	Large	High	④	4	8	12	16	20
	1 to 3%	5 to 10%	Moderate	Medium	③	3	6	9	12	15
	0.5 to 1%	1 to 5%	Minor	Low	②	2	4	6	8	10
	< 0.5%	< 1%	Minimal	Very Low	①	1	2	3	4	5
	Cost as % of Project cost (not just fees)	Time	Quality	Overall IMPACT	Score	Cost / time and quality may be affected differently by a single risk. If overall risk is required, use the most severe affected component or give consideration to managing each separately.				

Table 6-6: Impact / Probability Matrix

⁶⁰ TAG Unit A1.2, p8, para 3.2.10

Assigning probabilities is not an exact science⁶¹ and therefore the scheme team technical specialists, including Quantity Surveyors, have had to apply a degree of judgement based experience gained from working on other projects of a similar scale (as noted within Section 6.8 below).

Once the 'impacts' and 'probabilities' have been estimated, the risks are mapped onto a 5-point risk matrix (see Table 6-6) to generate an overall 'risk score'.

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'.

6.6.3.3 Deriving the probability distribution for the costs of the scheme

As mentioned above, outcome of the QRA process is the prediction of an 'expected' value which is the average of all risk outcomes, weighted by the various probabilities of these outcomes materialising. It is to this 'expected' value, also known as the 'mean' or 'unbiased' risk adjusted outcome that the optimism bias has been applied. A probability distribution around the costs of the scheme has been derived using @Risk v6.3⁶². The total risk cost distribution is illustrated in Figure 6-4 and Figure 6-5.

These graphs provide the following values of risk. The mean cost has been used in the preparation of the overall scheme cost as it is the 'expected value' which represents the weighted average of all outcomes and probabilities⁶³.

- Mean cost – £1,323,836
- 50th percentile cost – £1,261,832
- 85th percentile cost – £1,959,237

⁶¹ TAG Unit A1.2 Scheme Costs, p8, para 3.2.14

⁶² @Risk v6.3 is a proprietary software that performs risk analysis using Monte Carlo simulation. The software carries out 10,000 iterations per run, randomly creates simulations of differing risk occurrence scenarios and estimates a range of risk costs.

⁶³ TAG Unit A1.2, paragraph 3.2.18

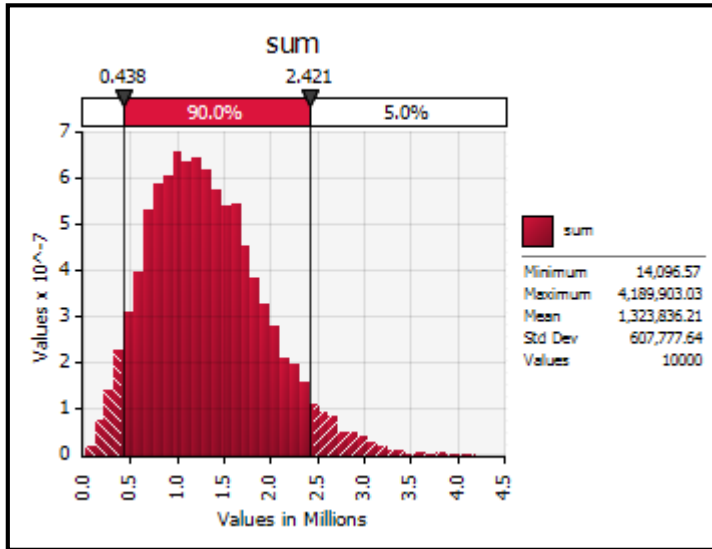


Figure 6-4: Distribution of total risk cost – 1

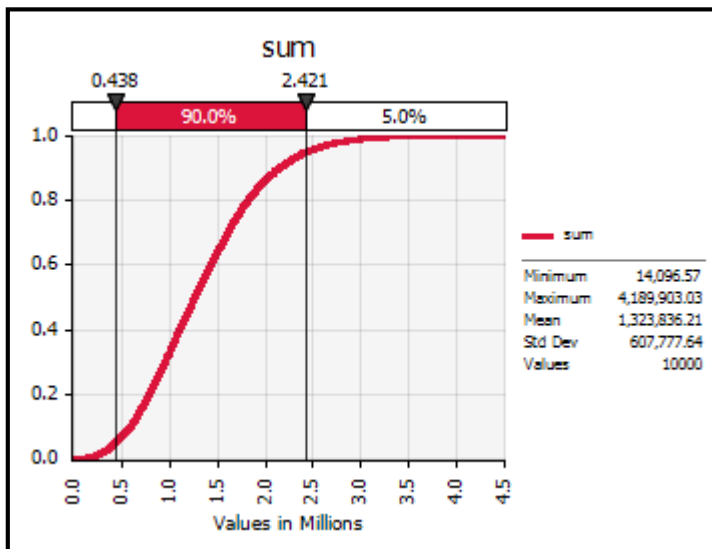


Figure 6-5: Distribution of total risk cost – 2

6.6.4 Managing risks (response plans and mitigation)

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 6.2. One of the following four strategies is been 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 controls⁶⁴;
- **Transferring** the risk – Risks could be transferred to a third party e.g. insurer; and
- **Terminating** the activity that gives rise to the risk.

Development of the response plans to manage risks have been undertaken only where the likelihood and of occurrence and impact can be risks can be cost effectively managed.

The key risks identified during multi-disciplinary discussions are catalogued within a risk register contained within Appendix J and are summarised in Table 6-7 **Error! Reference source not found.** with proposed mitigation measures.

Risk Reference	Risk Description	Mitigation Measure
2.3	Insufficient Land estimate	Complete comprehensive Ground Investigation and topographical survey in advance of preparing planning application to inform design and establishing "red line boundary".
3.8	None compliance with CDM2007 (now CDM2015)	All staff training in CDM to be up to date. A CDM advisor to be included within the project team to advise and carry out project reviews.
8.2	Unexpected archaeological find	Geophysical surveys to be completed in support of archaeology section of the Environmental Statement. Further necessary investigation to be carried out in parallel to orders, final approvals and detailed design so as to minimise impact on the construction period and allow sufficient time for further mitigation planning.
8.3	EA maintain objection re Groundwater Source Protection Zones (SPZ)	Liaison with Environment Agency ahead of the planning application to inform drainage strategy. Adapt drainage strategy to address EA concerns.
8.4	Major groundwater protection works needed at Oxon Pool	Liaison with Environment Agency ahead of the planning application to inform drainage strategy. Develop strategy to mitigate impacts on Oxon Pool
8.6	Objections to preparation of ES and planning submission	Develop a robust planning submission and Environmental Statement through regular liaison with Statutory Consultees and Council Departments. Where possible source early stakeholder comments on draft documents.

⁶⁴ The Orange Book, HM Treasury, 2004

10.3	Seasonal constraints on construction	Engage an ECI Contractor to inform construction programme phasing and where appropriate undertake advanced works.
11.1	General construction risks	Increase cost certainty through engaging an ECI Contractor to inform planning and scheme development. During Stage 2 engage the Contractor under an NEC3 Option A contract with appropriate risk transfer to the Contractor.

Table 6-7: Summary of key risks and mitigation

6.6.5 Implementation and review

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 weekly progress meetings during progression of detailed design and the construction period. All key risks will be formally reviewed at key decision points in the scheme lifecycle.

6.7 Monitoring and Evaluation Plan

The HM Treasury Magenta Book provides the following definition of Monitoring and Evaluation⁶⁵:

- **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; and
- **Evaluation** – is the assessment of the initiatives 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.

The DfT has also published a document entitled ‘Monitoring and Evaluation for Local Authority Major Schemes’, 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; and
- Fuller evaluation.

⁶⁵ The Magenta Book, HM Treasury (2011)

All schemes are required to conduct the 'standard monitoring' approach, whereas 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. As the Oxon Link Road will have an expected outturn cost of below £50 million, it will follow the DfT's standard monitoring guidance.

The Monitoring and Evaluation Plan for the Oxon Link Road is set out below.

6.7.1 *Scheme objectives*

The scheme objectives, summarised from Section 2.3 are:

- To deliver the Core Strategy housing targets;
- To open up employment land, creating jobs and supporting economic growth and competitiveness;
- To improve resilience in the local road network;
- To reduce accidents;
- To allow the form and function of Welshpool Road to be altered in favour of more sustainable modes of transport;
- To facilitate improvement of the existing local centre; and
- To enable delivery of a North West Relief Road (NWRR) in the longer term.

6.7.2 *Measures for success*

The key measures for success, summarised from Section 2.4 are:

- **Net additional dwellings in Shrewsbury, especially the full SUE West allocation of 750 units** – measured through the Council's Annual Monitoring Reports (AMR);
- **Net additional floor space for employment in Shrewsbury** – measured through the Council's Annual Monitoring Reports (AMR) and also Business Demography Data, which indicates new start-ups and closures of businesses;
- **Increased economic output in Shropshire through increased containment and reduced out-commuting** – measured through GVA headline figures published for Shropshire;
- **Reduced congestion and more reliable journey times** – measured through traffic surveys before and after the scheme implementation; and
- **Reduced accidents** – measured using standard accident statistics collected by the police and analysed by Shropshire Council.

6.7.3 Scheme evaluation

Before and after scheme monitoring will be undertaken to evaluate the schemes effectiveness against stated objectives. Traffic and cycle count data will be collected and collated, and journey time data evaluated. Existing traffic count data as well as updated survey data will be used to establish the baseline for the scheme prior to its construction. Monitoring (data collection) will also take place at regular intervals before and after the scheme has opened at one year and five years after opening. This will allow a full before and after comparison to be made and allow judgment of whether the scheme has met its objectives.

A simplified logic model setting out the key post-opening objectives, outcomes and indicators, in relation to the project, is illustrated in Figure 6-6.

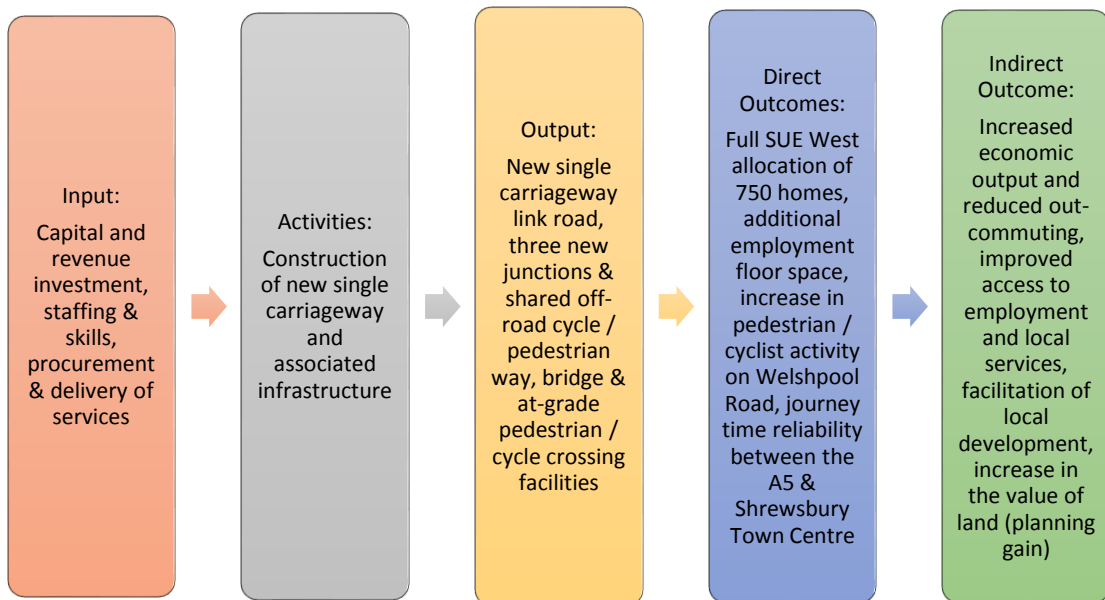


Figure 6-6: Logic model illustrating the input, output, activities, output and outcomes of the scheme

A causal chain diagram is set out in Figure 6-7, describing in more detail how the various elements of the scheme are expected to deliver the stated objectives. It also shows how the achievement of these outcomes will be monitored in line with key measures for success.

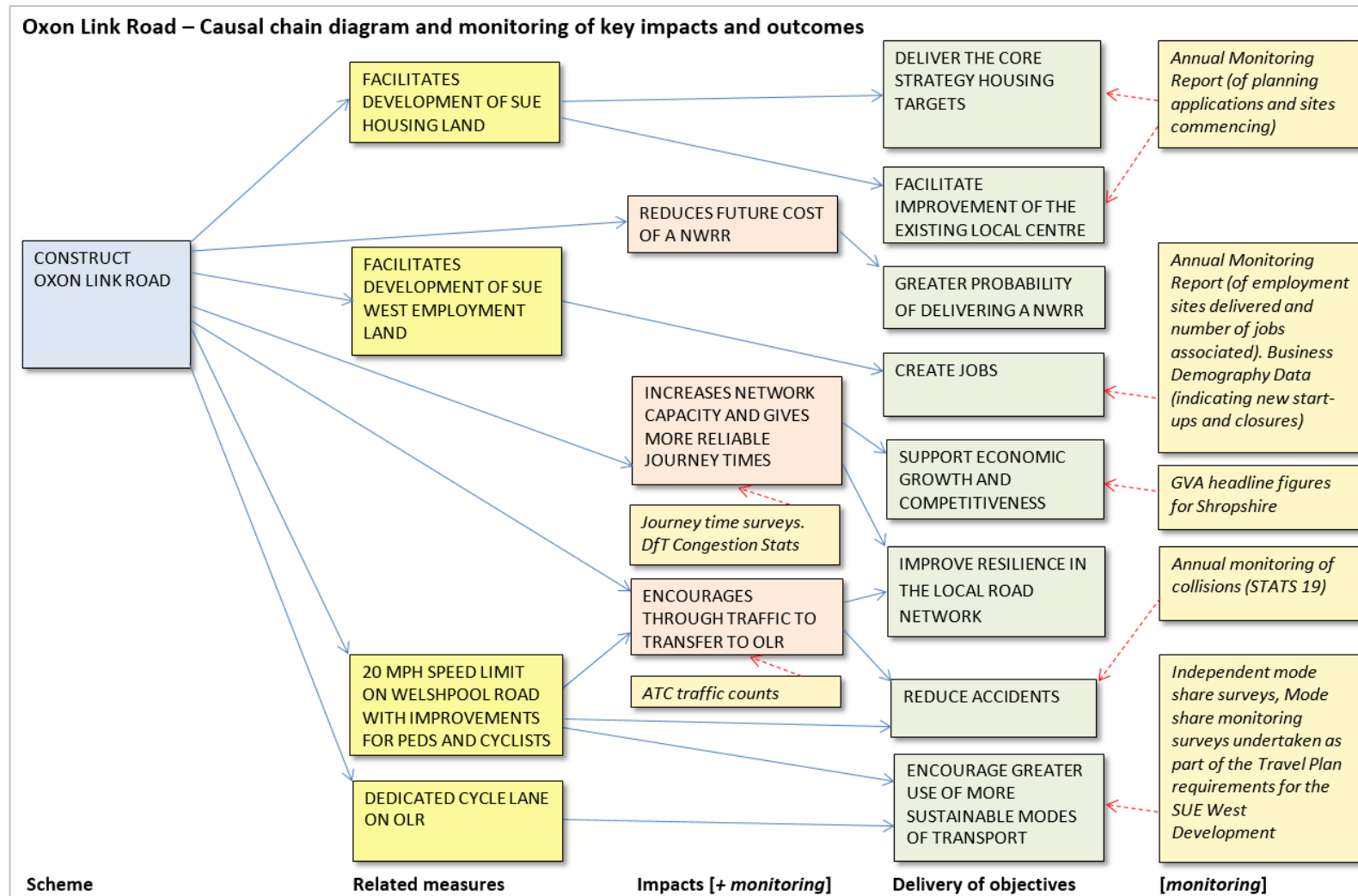


Figure 6-7: Causal chain diagram

6.7.4 Data requirements (detail)

The metrics proposed for the Oxon Link Road, associated data collection requirements and frequency of data collection are set out in Table 6-8.

These include additional metrics – for example measurement of air quality – as well as metrics related to the key “measures of success” given above.

Metric	Frequency	Data
INPUTS		
Expenditure	Post Opening	Financial monitoring of project.
Funding Breakdown	Post Opening	Financial monitoring of project
In kind resources provided	During delivery	Monitoring of resources delivering the project (use of project diary).
OUTPUTS		
Delivered scheme	Post Opening	Full description of implemented scheme outputs including design changes post funding approval with reasons for such changes, post scheme as built drawings of works completed.
OUTCOMES		
Jobs Connected to the intervention	Years 1 and 5 post opening	Annual Monitoring Report (of employment sites delivered and number of jobs associated). GVA headline figures for Shropshire.
Commercial floor space constructed	Years 1 and 5 post opening	Annual Monitoring Report (of planning applications and sites commencing), Business Demography Data (indicating new start-ups and closures).
Housing unit starts	Years 1 and 5 post opening	Annual Monitoring Report (of planning applications and sites commencing).
Housing units completed	Years 1 and 5 post opening	Annual Monitoring Report (of planning applications and sites commencing).
Follow-on investment at site	Years 1 and 5 post opening	Information to be collected through Estates & Investment Team
Commercial floor space occupied	Years 1 and 5 post opening	Annual Monitoring Report (of planning applications and sites commencing).
Land values	Years 1 and 5 post opening	Land Registry - ‘Price Paid Data’

Metric	Frequency	Data
Average daily traffic and by peak / non-peak periods	Pre-construction, Years 1 and 5 post opening	Annual ATCs and turning counts, collected at junctions where interventions are and wider ATCs across the network.
Average AM and PM peak journey time on key routes (journey time measurement)	Pre-construction, Years 1 and 5 post opening	Journey time surveys between A5 and Shrewsbury town centre via OLR and ATC's, DfT Congestion Statistics on LA A Roads.
Cycling and walking usage on Welshpool Road & the new shared pedestrian / cycle way	Pre-construction (Welshpool Road), Years 1 and 5 post opening	Independent mode share surveys, Mode share monitoring surveys undertaken as part of the Travel Plan requirements for the SUE West Development.
Accident rate	Pre-construction, Years 1 and 5 post opening	Annual monitoring of collisions (STATS 19)
Air quality	Pre-construction Years 1 and 5 post opening	Non-continuous air quality monitors on Welshpool Road

Table 6-8: Data Requirements

6.7.5 Data sources

The following surveys will be undertaken by the Council:

- Journey Times;
- ATCs;
- Turning Counts; and
- Mode share.

Other data will be collected by the Council on an annual basis including accident (STATS19), financial and planning data (e.g. Annual Monitoring Report, GVA headline figures, Business demography Data).

6.7.6 Resourcing

The monitoring and evaluation for the Oxon Link Road will be undertaken by Shropshire Council. The surveys will cost approximately £50,000 and will be funded through Shropshire Council's monitoring budget.

6.7.7 Timing

Prior to starting on site, any gaps in the required baseline evidence will be collected, which include journey time surveys. A baseline evidence report will be completed by

February 2020. Regular monitoring reports will be provided on a quarterly basis to the LEP in terms of progress against programme, costs and risks. In addition, an annual monitoring summary will be undertaken. Principles of monitoring and evaluation will be in line with Highway Agency’s (HA) Post Opening Project Evaluation (POPE) requirements.

POPE for the scheme will use baseline data to be collected from 2016, which will include journey times, traffic flows, traffic speeds and accidents alongside planning data. Data will then be collected one year and five years post opening (2022 and 2026), which will be compared against the baseline data to quantify the extent of benefits realised. ‘1 year after’ and ‘5 year after’ evaluation reports will be produced, which contains the results of a meta-analysis of all scheme evaluations carried out so far, highlighting any interesting and emerging trends. It is, however, anticipated that wider economic benefits may take longer time frames to manifest and will depend on SUE West delivery timescales for various phases. This would invariably have a bearing on the timing of surveys and subsequent reporting.

6.7.8 Responsibilities

Details of the individual responsible for implementing the monitoring and evaluation plan, at Shropshire Council, are set out in Table 6-9 below.

Name	Andy Savage
Address	The Shirehall, Abbey Foregate, Shrewsbury, SY2 6ND
Telephone	0345 678 9000
Email	andy.savage@shropshire.gov.uk

Table 6-9: Details of the individual responsible for the monitoring and evaluation plan

6.7.9 Summary of analysis

The monitoring and evaluation will be used to answer the following key questions:

1. Have the anticipated outcomes and impacts been achieved?
 - To what extent are the observed changes additional to what would have happened in the absence of the intervention?
 - Were there any unanticipated impacts / displacement effects?
 - Which elements of the scheme were particularly influential in achieving the overall goals?
 - What lessons can be learnt for future scheme / policy development?
 - What is the contribution of the policy to the LEPs strategic goals?
2. To what extent did the anticipated costs and benefits match the actual outcome?

3. Has the scheme been successful? If not, why not?

The evaluation of the scheme will:

- Measure the level of traffic congestion on the existing network;
- Measure the level of traffic congestion arising from new developments;
- Measure the level of traffic congestion on the improved network;
- Measure the levels of accidents on the existing and improved network; and
- Monitor the delivery of new employment and housing sites in relation to the intervention.

The initial one year impact assessment will be used to understand the impact mainly on journey times and travel patterns. There may be some evidence at this stage of the scheme impact in terms of developments and jobs. The 5 year assessment will look at longer term benefits including accidents, travel patterns and jobs / additional investment.

6.7.10 *Uses of the evaluation*

With such emphasis on economic impact, the Monitoring and Evaluation will have to consider attribution of outcomes to the intervention and whether a clear link between the delivery of the scheme and the wider economic benefits can be achieved. As such, Shropshire Council partners will work with the LEP and DfT to consider any additional longer term evaluation work to undertake case studies or meta-analysis in order to further understand the economic benefits arising from the OLR, subject to availability of resources.

6.7.11 *Gateway reviews*

Shropshire Council has a Gateway process to enable projects to be assessed at critical stages in its lifecycle prior to commencing the next stage. Project appraisals will be produced as part of the gateway process.

6.8 **Evidence of Similar Projects**

The delivery of the scheme will build upon the experiences from a number of major highways schemes undertaken by Shropshire Council in recent times. A selection of key schemes have been listed in Table 6-10, summarising the scope of works, capital costs, time scales for implementation and the procurement strategy employed. Opportunities will be taken, wherever possible, to improve delivery processes, through acting upon lessons learnt.

No.	Contract	Description	Works Date	Form of Contract	Approximate Value	Comments
1	A53 Hodnet Bypass	Single carriageway bypass, 4 miles with two structures over the River Tern and two roundabouts	April 2002 – September 2003	Design and Build	£14,000,000	Construction by Alfred McAlpine and Parkman acted as Employers Agent
2	Shrewsbury Northern Gateway	Signalised Gyratory improvement, pedestrian/cycleway enhancements	November 2012 – March 2013	NEC 2 Option B	£1,200,000	IHE Award Winner 2014
3	A525 Redbrook, Whitchurch	Carriageway re-alignment	April – September 2006	NEC 2 Option B	£1,500,000	-
4	A41 Cosford	Signalised junction with highway and footway improvements	July – November 2014	NEC 2 Option B	£450,000	-
5	A458 Harley Bank	Carriageway re-alignment and rock face remediation	July 2008	NEC 2 Option B	£400,000	-
6	Fiveways, Whitchurch	Signalised junction with highway and footway improvements	July – October 2014	NEC 2 Option B	£370,000	-
7	Raven Meadows, Shrewsbury	Signalised junction with highway, footway and cycleway improv	September 2012 – February 2013	NEC 2 Option B	£350,000	-
8	Ludford Bridge, Ludlow	Pedestrian crossing and carriageway re-alignment	August – October 2013	Shropshire Council Term Contract	£85,000	ICE Small Safety & Innovation Winner 2014
9	Shrewsbury Town Centre Enhancement	New carriageway surfacing and footway improvements	April – August 2008	NEC 2 Option B	£2,300,000	
10	Harlescott Crossroads	Signalised junction upgrade, highway, pedestrian and drainage improvements, inc STATS diversion	April – September 2010	NEC 2 Option B	£2,200,000	Award winner CIHT Small Scheme of the Year 2011
11	Cleobury Mortimer Town Centre Regeneration	New carriageway surfacing and footway improvements	March – September 2009	NEC2 Option B	£800,000	CIHT Urban Design 2010 Commended

Table 6-10: Evidence of similar projects

6.9 Summary of the Management Case

Scheme governance will follow best practice project management guidelines with a Programme Delivery Board led by Claire Wild, Cabinet Member for Transport, who will also be the Senior Responsible Officer (SRO). The Programme Delivery Board will also include representatives of Shropshire Council's Senior Management Board. A technical team will be set up with the appropriate expertise, and a detailed project programme has been developed – this will be a live document and progress will be monitored continually by the Consultant's Project Manager. Construction is programmed to commence in 2019 / 2020 and the scheme will be completed and opened by 2020 /2021. Key stakeholders have been identified and a stakeholder management plan will be adopted, following the practice used in previous projects. The scheme is a stand-alone scheme, with no other future projects or commissions depending upon it. A risk register has been prepared and a quantified risk assessment (QRA) process used to assess the likely financial impact of risk.

7 Conclusion

This business case has set out in some detail the reasons why Shropshire Council needs support from the Local Growth Fund for the provision of the Oxon Link Road.

The Link Road will provide benefits for local residents and transport users in general, by creating a high standard alternative to the existing A458 Welshpool Road. However its main function is to enable the planned Shrewsbury (West) Sustainable Urban Extension to be delivered in accordance with established and tested policies and plans, including the Local Transport Plan, Local Development Framework Core Strategy and the Strategic Economic Plan.

The SUE (West) will deliver 750 new homes – a significant contribution to current targets – and up to 21 hectares of employment land which will provide for 2,885 jobs. These jobs are absolutely critical to Shrewsbury's growth and prosperity and would make a very significant contribution of the local economy, as measured by GVA.

The Oxon Link Road and associated improvements will enable this essential growth to take place in a more sustainable and environmentally acceptable way with properly planned access for all modes of transport. It will protect residents of Welshpool Road from the adverse impacts of extra traffic, and help create the conditions which will encourage sustainable modes of travel, especially walking and cycling. Bus services will also be extended and access to Park and Ride will be improved.

The £12.93 million cost of the scheme takes full account of risk. It will largely be funded by the developers of the SUE, together with other Council funding. A contribution of £4.2 million (32%) is being sought from the Local Growth Fund. SUE West developers will contribute £8 million (62%), by way of secured S106 agreements. The remaining £0.73 million will be funded by the Council.

The Council expects to procure the scheme using Early Contractor Involvement to minimise risk and ensure timely delivery. Governance arrangements are being established in line with current best practice and recent experience with similar projects. Construction is programmed to commence in 2019 / 2020 and will be completed in 2020 / 2021.

The Oxon Link Road will be an important part of Shrewsbury's transport network in its own right, and will enable the delivery of major developments that will create economic growth in a sustainable, well managed way. The scheme has also been future-proofed, in that it could in future be a part of a strategic north-west relief road for Shrewsbury, a longer term aspiration of the Strategic Economic Plan, providing significant additional transport and economic benefits.

The Oxon Link Road is therefore a very high priority for Shropshire Council and the Marches Local Enterprise Partnership, and this business case demonstrates that it should be a high priority for receipt of Local Growth Fund support.

Appendices

Appendix A – Scheme Drawings

Appendix B – Ecology Plans

Appendix C – LMVR Technical Note

Appendix D – TEE, PA and AMCB Tables

Appendix E – Active Mode Appraisal

Appendix F – Appraisal Summary Table

Appendix G – Letter of Intent

Appendix H – North West Relief Road Procurement Strategy

Appendix I – Detailed Project Programme

Appendix J – Risk Register

Appendix K – SDI Screening Proforma