

Stratford-upon-Avon: Evaluation of Additional Road Capacity

Executive Summary

August 2016

Study Context

The Stratford-upon-Avon District Core Strategy was adopted in July 2016 and sets out the spatial vision for the District and establishes the strategic context for development decisions in the period up to 2031. A key element of the Core Strategy is the commitment to build 14,600 houses up to 2031. Without appropriate mitigation, the perceived transport issues in the area and especially in Stratford-upon-Avon are likely to become more acute.

Warwickshire County Council (WCC) commissioned this study to investigate the transport issues in Stratford-upon-Avon and evaluate the high level impacts of the provision of additional highway capacity in the area. This allowed the costs and benefits of the options to be determined.

This study has been split into a number of discrete stages as detailed below:



Stage 1, 4, 6 and 8 were undertaken by Atkins. Stage 3, 5 and 7 were undertaken by Vectos, whilst Stage 2 was undertaken by Warwickshire County Council. The purpose of this Executive Summary is to draw together the key findings from each of the stages of the Study.

Key Findings

The key findings from each element of this study are summarised in this section.

Stage 1 Evidence Review (undertaken by Atkins)

Stratford-upon-Avon frequently suffers from severe congestion and delays, both during the peak commuting periods and during holiday periods due to the volume of visitors. The issue is compounded because **there are only two road crossings over the River Avon in the Town Centre**. One of which is the Grade 1 listed Clopton Bridge.

Dependency on the car for travel within Stratford-upon-Avon is above the national average. A high proportion of residents travel to work by car, whilst **the proportion of residents using sustainable modes is relatively low**.

Stratford-upon-Avon District Council have set an approximate target of at least 14,600 new homes to be built in the next 20 years. Development plans are dispersed over the District, and include new residential and commercial developments. A significant proportion of the development is focused in and around Stratford-upon-Avon, Long Marston Airfield and Lighthorne Heath.

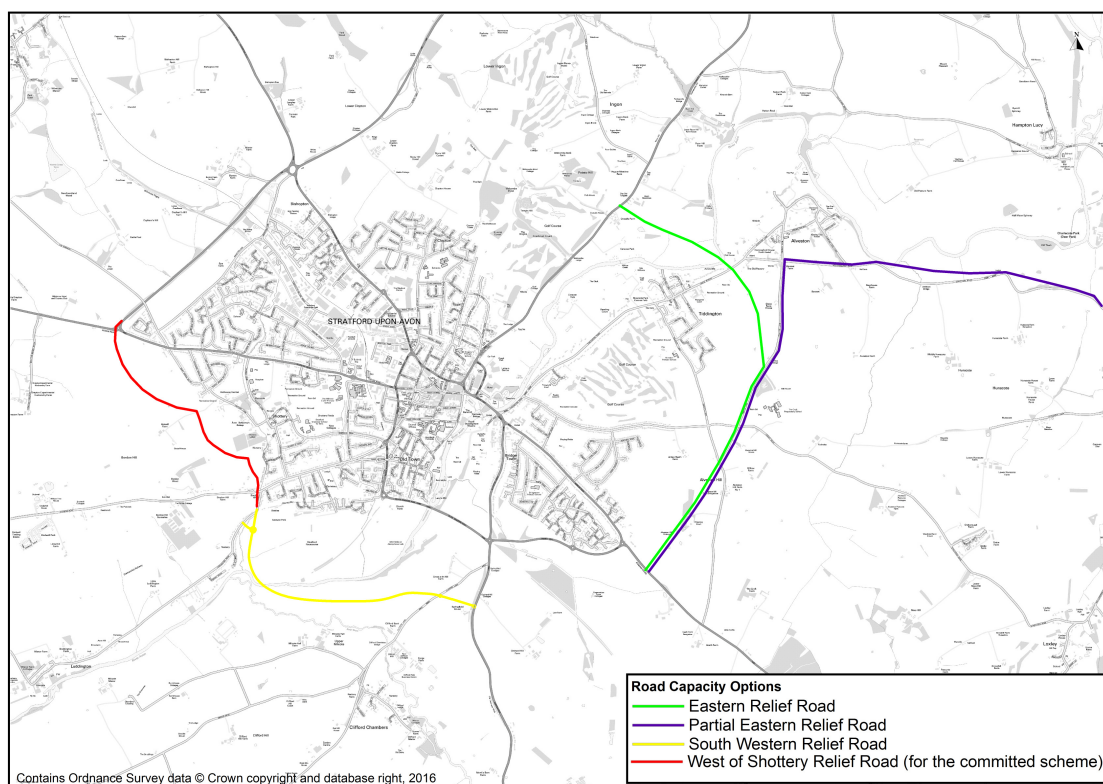
Traffic forecasts show that all development scenarios, irrespective of the housing allocation show considerable levels of traffic growth. Increasing traffic flows will add to the traffic and congestion in the Town Centre and at the existing river crossings.

The challenges and evidence presented in the Evidence Review have been used to develop six local transport objectives that are specific for Stratford-upon-Avon:

- Reduce high car dependency for travel to work trips and school trips.
- Reduce Stratford-upon-Avon Town Centre through trips.
- Reduce the negative environmental impacts of transport, particularly on the Stratford-upon-Avon Air Quality Management Area (AQMA).
- Protect the historic urban core of Stratford-upon-Avon and support the visitor economy.
- Provide increased resilience to the transport network with regard to unplanned network incidents including flooding.

Stage 2 Road Capacity Options (undertaken by WCC)

The diagram below shows the options which have been considered:



The **West of Shottery Relief Road** (red route on the map) is a committed scheme and will be delivered as part of housing development in the area.

The **South Western Relief Road** (yellow route on the map) would be formed by extending the West of Shottery Relief Road across the River Avon to form a complete western relief road of the town.

The **Eastern Relief Road** (green route on the map) would run from the A422 Banbury Road, crossing the River Avon at Tiddington and joining the A439 Warwick Road.

The **Partial Eastern Relief Road** (purple route on the map) would run from the A422 Banbury Road to the B4086 Wellesbourne Road. The B4086 would be improved between this point and the A429 at Wellesbourne.

The three options have broadly the same aspirations in terms of purpose and functionality. Both the western and eastern routes will act as a bypass for Stratford-on-Avon, have suitable pedestrian and cyclist routes, and will be designed to the same standard as the A3400. The additional cross river capacity provided would provide an opportunity to downgrade the status of Clopton Bridge and to help reduce the volume of through traffic passing through the town centre.

Stage 3 Assessment of Options (undertaken by Vectos)

A number of options were modelled to test the impact of a third river crossing in Stratford-upon-Avon. These options were tested against a 2031 Core Strategy scenario which contains the Core Strategy aspirations and commitments. These scenarios also include the Stratford Transport Package (STP) which are a series of schemes identified to mitigate the impact of the Core Strategy proposals. This modelled showed that:

- In the scenario **the South Western Relief Road delivers the greatest benefits for traffic** in terms of average speeds and delays.
- The **Partial Eastern Relief Road provides fewer benefits for traffic and less of a reduction in town centre trips than the Eastern and South Western Relief Road options.**
- The modelling results suggest that the South Western Relief Road is critical in terms of mitigating the large residential development at Long Marston Airfield, to the south of Stratford town centre, which is included in the Core Strategy scenario.

Stage 4 Cost Assessment (undertaken by Atkins / Faithful and Gould)

Faithful and Gould prepared a Feasibility Estimate for the three options described in Stage 2. WCC also provided estimated land costs. It is important to note that due to the level of design for these scheme options, a number of assumptions were required. These assumptions are detailed in a separate document and a summary of the costs is shown in the following table:

| Route | | Route Length | Bridge over River Avon | | Estimated investment costs (including indirects ¹ and contingency ²) | Estimated Land Costs ³ | Total estimated investment cost |
|------------------------------------|---|--------------|------------------------|--------------|---|-----------------------------------|---------------------------------|
| South Western Relief Road | | 2.719km | ✓ | Length: 193m | £26.06m | £3.32m | £29.38m |
| Eastern Relief Road | | 4.177km | ✓ | Length: 48m | £25.81m | £9.45m | £35.26m |
| Partial Eastern Relief Road | A422 to the diverge point of Partial Eastern Relief Road | 2.057km | × | N/A | £11.14m | £3.30m | £14.44m |
| | Diverge point of Partial Eastern Relief Road to Loxley Lane | 3.869km | × | N/A | £24.14m | £1.64m | £25.78m |
| | Entire Route | 5.926km | × | N/A | £35.27m | £4.94m | £40.21m |

¹ Indirects include preliminaries (20%), design (10%) and client costs (10%).

² An uplift factor of 30% has been applied for estimating uncertainty due to the level of design of the scheme options.

³ Land costs provided by Warwickshire County Council.

The South Western and Eastern Relief Road have similar build costs. However, the estimated land cost for the Eastern Relief Road is considerably higher, so the South Western Relief Road has the lowest overall costs.

The Partial Eastern Relief Road has been split into two sections in order to give greater clarity as to where the costs are likely to be incurred. The route has been split as follows:

- A422 to Pimlico Lane to the diverge point of the Eastern Route (Full) – i.e. the Southern section.
- Diverge point of the Eastern Route (Full) along B4086 to Loxley Lane – i.e. the Northern section

The entire Eastern Route (Partial) costs more than the Western and Eastern Route (Full) options. Although a river crossing is not included in this option, the route is longer than the other options so more highway works are required.

Stage 5 Cost Benefit Analysis (undertaken by Vectos)

A high level economic assessment was undertaken using the traffic model outputs with the Core Scenario development allocations included and a number of highway improvement options as follows:

| Scenario | Benefit to Cost Ratio (BCR) |
|--|-----------------------------|
| Core Strategy with South Western Relief Road | 8.04 |
| Core Strategy with Eastern Relief Road | 5.35 |
| Core Strategy with Partial Eastern Relief Road | -0.07 |

This analysis shows that it is clear that **the South Western Relief Road delivers the most favourable BCR**. The Eastern Relief Road also delivers a positive BCR, albeit not as beneficial as the South Western Relief Road. **The Partial Eastern Relief Road delivers a negative BCR and is clearly the least favourable option.**

Stage 6 High Level Environmental Assessment (undertaken by Atkins)

The purpose of this element of the study was to undertake a high level qualitative environmental appraisal of the proposed route options by identifying the potential environmental constraints associated with each. It should be noted that full scheme information is not yet available and a consideration of noise, local air quality and greenhouse gases has not been undertaken at this time. This high level appraisal is solely based on the information available at present and no site surveys have been undertaken. The findings from the high level environmental appraisal are summarised in the following table:

| | South Western Relief Road | Eastern Relief Road | Partial Eastern Relief Road |
|----------------------------------|---|---|---|
| Noise | Sensitive residential receptors are located within the study area. | Sensitive residential receptors are located within the study area. | Sensitive residential receptors are located within the study area. |
| Air Quality | Part of the proposed route is positioned within an AQMA (Air Quality Management Area). Sensitive receptors within the study area include residential properties and Stratford Racecourse SSSI. Sensitive residential receptors are located within the study area. There will be air quality benefits in the town centre as a result of reduced traffic. | Sensitive residential receptors are located within the study area. There will be air quality benefits in the town centre as a result of reduced traffic. | Sensitive residential receptors are located within the study area. |
| Landscape & Townscape | The proposed route would introduce a new linear transport corridor to an open landscape. Sensitive residential receptors are located within immediate vicinity of the route alignment. | The proposed route would introduce a new linear transport corridor to an open landscape. Sensitive residential receptors are located within immediate vicinity of the route alignment. A section of this route will utilize the existing Pimlico Lane. | The proposed route would introduce a new linear corridor to an open landscape. Sensitive residential receptors are located within the study area. A section of this route will utilize the existing Pimlico Lane, B4086 Wellesbourne Road and Stratford Road. |
| Historic Environment | One Grade II listed building is positioned approximately 60m from the proposed route. | Ten Grade II listed buildings are positioned within the study area, of which, the nearest listed building is Hemingford House located approx. 200 m west of the proposed route. The village of Alveston has been designated as a Conservation Area (located approx. 280m away). | Nine Grade II listed buildings are positioned within the study area, of which, the nearest listed buildings, Hemingford House and the west lodge and gate of Charlecote Park are positioned approx. 20m from the proposed route. |
| Biodiversity | Racecourse Meadow, a SSSI is positioned approx. 20m east of the proposed route. Two LWS (Local Wildlife Site) and one pLWS (Proposed Local Wildlife Site) are crossed by the proposed route alignment. | River Avon LWS is crossed by the proposed route alignment. One pLWS is positioned immediately adjacent to proposed route. | |
| Water Environment | The route option crosses the floodplains of Shottery Brook and the River Avon. | The route option crosses the floodplain of the River Avon. There are three groundwater source protection zones within the study area, all of which are designated as Inner zone. | The route option encroaches slightly on the floodplain of the River Avon. There is one groundwater source protection zone within the study area, and it has been designated as Inner Zone. |

Stage 7 Town Centre Benefits (undertaken by Vectos)

Additional modelling work was undertaken which built upon the modelling undertaken in Stage 3 of this study. Given that the Core Strategy has now been adopted, further testing from this point forwards has been on the basis that the Core Strategy scenario represents the most accurate future year scenario. On this basis, the testing of the impact on town centre traffic of delivering a third river crossing has been undertaken using the Core Strategy models. The Partial Eastern Relief Road has not been considered in this analysis because it was the worst performing option in Stage 3 of the study.

The results of the analysis show that the South Western Relief Road is the most effective in reducing through traffic through the town centre. The Eastern Relief Road also results in traffic reduction in the town centre, but to a lesser extent than the South Western Relief Road. This reduction in traffic could provide an opportunity to improve parts of the public realm in the sensitive town centre area.

Stage 8 Recommended Approach (undertaken by Atkins)

The findings from this study show that the **South Western Relief Road performs better than the Eastern Relief Road and Partial Eastern Relief Road** because:

- It provides the most benefits for Stratford-upon-Avon town centre in terms of traffic reduction. This increases the possibilities for potential demand management and associated public realm improvements in the town centre.
- It's the cheapest option to deliver (based on a high level cost estimate).
- It delivers the most economic benefits in terms of journey time / delay savings.
- It therefore has the most favourable BCR which means it will be easier to build a more compelling business case to secure funding.
- Compared to the Eastern Option, it requires the construction of less new carriageway.
- It integrates well with the West of Shottery Relief Road which is a committed scheme and completes a western bypass of the town centre.

It should be noted that **the Eastern Relief Road Option still performs well against the indicators measured in this study. However, it is clear from the work undertaken to date that the South Western Relief Road performs better with the forecast travel demand patterns expected from the Core Strategy housing and employment allocations.** The Eastern Relief Road could be considered at a later date to accommodate any future growth over and above that already committed as part of the Core Strategy.

The Partial Eastern Relief Road does not address the key issue in the Stratford District which is the lack of cross river capacity, thereby limiting its ability to reduce the amount of through trips in Stratford town centre. The length of the route means that it is also likely to be more expensive to construct than the other options.