

Avon Navigation Scheme (Alveston Weir to Warwick)

Socioeconomic Study

On behalf of



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	Name	Position	Signature	Date
Prepared by:	Kyle Barrie Emma Brown	Senior Economist Economist	KB EB	27/09/18
Reviewed by:	Nick Skelton	Director	NS	27/09/18
Approved by:	Nick Skelton	Director	NS	27/09/18
For and on behalf of Peter Brett Associates LLP				
	Name	Position	Signature	Date
Revisions	Nick Skelton Kyle Barrie	Director Senior Economist	KB EB	11/01/19
For and on behalf of Peter Brett Associates LLP				

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Executive Summary

Stratford-upon-Avon and Warwick are connected to the River Avon and the Midlands Canal system, where the Stratford Canal has a Northern and Southern section. The Northern section runs from the Worcester and Birmingham Canal, at Kings Norton, to join the Grand Union Canal (GUC) at Kingswood. The Southern section connects the GUC, at Kingswood, to the River Avon at Stratford-upon-Avon via the Bancroft Lock. The existing stretch of navigation forms part of the Warwickshire Ring which connects the major towns of Stratford-upon-Avon, Evesham, Tewkesbury, Worcester and the southern outskirts of Birmingham along 116 miles of waterway.

The proposed Avon Navigation Scheme (ANS) extension links the two urban nodes of Warwick and Stratford-upon-Avon. The 14 miles of waterway is not a through navigation and only experienced boaters can reach Alveston Weir when there is sufficient water to do so.

The navigation is identified by the Association of Inland Navigation Authorities (AINA) as 'one of the few missing broad inland navigation links between the estuary of the Severn and other major English estuaries (Mersey, Humber, Thames, Wash)'.

While restoration is technically feasible, desk-based analysis and consultation with stakeholders across the area identifies that restoration will require to address challenges including: ownership; heritage; environmental and engineering constraints.

Navigation, of itself, will help to better connect the sub regional visitor market, completing the Warwickshire Ring and extending the regional boating market.

However, unlike the Avon Navigation between Tewkesbury, Evesham and Stratford, this stretch of the Avon is not recognised or treated as a recreation, visitor or business asset in a consistent way. While there is a case for investment in the River Avon corridor, the benefits of purely restoring navigation would not necessarily fully capture the potential these markets have. The opportunities that would arise from navigation to enjoy the benefits of the corridor more broadly should also be considered by the local authorities.

Headline impacts associated with the Avon Navigation Scheme are presented below, showing:

- The temporary impacts from ANS construction, distinguishing between the two route options: the river only route and; the river with a canal cut at the Barford Loop. Estimated costs are based on CRT figures and presented including optimism bias at 44%. Employment and related GVA effects are estimated at local, regional and national levels; and
- Annual operational impacts generated by expenditure from boat visits along the newly navigable stretch of river. Again, economic effects are estimated at local, regional and national levels. The additional boat movements per annum are presented at three scenarios to show a range of potential benefits which the navigation is anticipated to deliver. The results have been presented to reflect a total of diverted traffic from adjoining waterways (4,275) and additional boats as a result of the enhanced navigation. Sensitivities have been presented showing the impact of an increase in boaters of between 2,500 and 7,000.

The report finds that:

- The ANS will cost between £27.7m - £29.6m to deliver¹, depending on the route chosen;
- It is estimated its construction would potentially support up to 138 additional short-term jobs locally and related GVA of up to £3.9 million;
- Once established, ANS operation is estimated to support a further 161 local tourism jobs per annum, and an additional £3.9m a year in GVA²; and

¹ Including 44% Optimism Bias

² Based on a medium scenario

- Additional active travel and associated infrastructure such as public access to the river and marinas could have the potential to extend this benefit to a wider proportion of the local population.

Headline Impacts³

	Construction (Temporary Impact)		
	River Only		River with Canal
Estimated Cost ⁴ (£m)	£27.61		£29.60
Gross Construction Jobs	142		152
Net Construction Jobs			
Local Area	128		138
Warwickshire	110		118
England	109		117
GVA (£m)			
Local Area	3.61		3.87
Warwickshire	3.10		3.32
England	3.08		3.30
	Operation (Long Term Annual Impact)		
Boat movements/p. a	Low 7,225	Medium 8,725	High 11,725
Net Operational Jobs ⁵			
Local Area	133	161	217
Warwickshire	50	69	107
England	20	27	42
GVA (£m)			
Local Area	3.2	3.9	5.2
Warwickshire	1.2	1.7	2.6
England	0.5	0.7	1.0

Next steps:

- An incremental approach to the re-establishment of navigation on the Avon is recommended. This recognises existing ownership constraints, the present restrictions and objectives of the development plan, and critically, the fact that the Avon corridor in this location is not recognised or treated as a recreation, visitor or business asset in a consistent way.
- A second but equally significant priority is to establish the area in the eyes of the local population and visitors as a place they would like to visit, recreate in, use or appreciate in other ways, drawing on its outstanding landscape values, its history and its point of connection between Stratford-upon-Avon and Warwick. This would combine two main stages:
 - Preparation of a collaborative Supplementary Planning Document (SPD) that would seek to establish in the first instance, a continuous active travel passage between Stratford-upon-Avon and Warwick encouraging access to the river where possible.

³ The scale of employment and Gross Value Added (GVA) from temporary construction impacts and long term operational impacts

⁴ Including optimism bias

⁵ Number of jobs supported in each spatial area per annum by the increased visitor expenditure.

The SPD will create the initial drive needed to gain better access to the River Avon and a consistent access between the two key nodes; and

- The plan should combine ambitions from each of the key development policies noted in the report, with the view of creating access to open spaces whilst establishing a clear conduit between two tourism hubs. The plan should be sensitive to the design of this access, respecting the conservative development nature of the key nodes along the corridor.
- Additional steps which the ANT can carry out include: Improving the reliability of the existing navigation up to Alveston; progressing the legal work required to manage the extension; and further design work and consultation with the Environment Agency.

1 Introduction

1.1 Project Background

- 1.1.1 In January 2018, Stratford-upon-Avon District Council (SADC) commissioned Peter Brett Associates to prepare a Socioeconomic Study of the Avon Navigation Scheme (Alveston Weir to Warwick). The work has been led by a Steering Group involving representatives from SADC, Warwick District Council (WDC), Avon Navigation Trust (ANT) and the Canal and River Trust (CRT).⁶
- 1.1.2 The study examines the potential socioeconomic and high level environmental effects of the proposed Avon Navigation Scheme (ANS) between Warwick and Alveston Weir. It investigates the relationship between an established navigation and the policy and programme responses it may stimulate.

1.2 Methodology

- 1.2.1 The report starts with a description of the infrastructure and other improvements needed to establish the ANS. Delivery would enable through navigation of the River Avon by powered vessels from Stratford-upon-Avon, through Warwick to connect to the Grand Union Canal (GUC) near the Edmondscote aqueduct.
- 1.2.2 This is followed by a review of the socioeconomic context, providing an understanding of the local economy. The baseline serves as a useful starting point to compare the effects of waterway intervention.
- 1.2.3 The report then describes the policy context, the strategic basis for establishing through navigation. There are a number of governmental, regulatory and statutory organisations whose policy directives directly and indirectly, guide the strategic development of the local area and who have an interest in the development of the River Avon.
- 1.2.4 The report then summarises the findings of stakeholder consultations, vital to an understanding of the anticipated social and economic effects from the proposed navigation scheme. This involved face to face sessions with over 40 stakeholders and review of written submissions from interested parties. A list of key stakeholders involved is attached at **Appendix E**.
- 1.2.5 A high level environmental review has been carried out, assessing likely effects on the surrounding landscape, visual amenity, heritage assets, ecology, water quality and hydrology. The review is attached as a separate report and summarised in this section.
- 1.2.6 Finally, the report presents the economic analysis of the Avon Navigation Scheme. The report also estimates the benefits of potential follow on investment before concluding and identifying next steps.

⁶ The Steering Group also includes representatives for Land Use Consultants (LUC) undertaking the Environmental Impacts aspects of the projects and representatives from PBA.

2 Project Description

2.1 Avon Navigation Scheme (ANS)

- 2.1.1 Navigation of the River Avon between Stratford-upon-Avon and Warwick is presently limited to use by rowing boats, small motor boats and canoeists. The proposed Navigation would allow for navigation beyond the existing navigable length of the river by powered craft. The ANS therefore refers to the opening of navigation from beyond Alveston to Warwick and onto the Grand Union Canal. It would also provide for boats travelling through the Grand Union Canal to access the River Avon near the Edmondscote aqueduct, enabling the region to better capture the benefits of canal traffic between London and Birmingham. The scheme extends approximately 14 miles and will include 13 or 15 new locks (dependent on the route option), 4 of which would be positioned as a flight to reach the Grand Union Canal. The development of the navigation scheme would allow the formation of the South Warwickshire Ring.
- 2.1.2 A map of the proposed navigation scheme can be found in [Appendix A](#)

2.2 Reaches

- 2.2.1 In 2013, the ANT commissioned Halcrow to carry out a feasibility study into the establishment of navigation of the River Avon. For consistency with the 2013 report⁷, in this report the navigation has also been considered as four separate reaches to describe the project. The reaches are as follows:

- **Reach 1** - Stratford-upon-Avon to Charlecote Park;
- **Reach 2** - Charlecote Park to north of Wasperton;
- **Reach 3** – North of Wasperton to Warwick Castle; and
- **Reach 4** - Warwick Castle to the Grand Union Canal.

- 2.2.2 The reaches are defined by potential “destinations” and navigational challenges as discussed in the Halcrow 2013 report. To recap going upstream:

Reach 1 – 4.3 Miles

- 2.2.3 From Stratford-upon-Avon as far as Alveston Weir the river is navigable during periods of moderately high flow. Boaters are encouraged to turn around near Tiddington since venturing further may result in running aground. Beyond Alveston Weir the river is of sufficient depth for vessels to navigate to near the upstream edge of Charlecote Park. Locks are proposed near Tiddington and at Alveston Weir.

Reach 2 – 3.9 Miles

- 2.2.4 Reach 2 begins at the south west of Charlecote Park and runs past the grounds which are owned and managed by the National Trust. Reflecting concerns around the security of the park and house, as well as the safety of the deer in the park, appropriate protection measures would require to be agreed between the ANS and the National Trust.

Reach 2 then continues to meander to the Barford Loop. On its way, the river first passes near Hampton Lucy, a village of some 566 residents⁸. Some 150m before the Charlecote Road bridge, the river is joined by the tail race of Charlecote Mill. It is at this section where the

⁷ Halcrow: Avon Extension - Feasibility Study for the Avon Extension (2013)

⁸ 2011 Census

Charlecote Lower Lock is proposed. The scheme proposes to restore the tail race to its historic alignment to protect the outflow of the mill. The flour mill, a Grade II listed building, is one of Britain's oldest working flour mills and uses the flow of the River Avon to power two waterwheels. The mill's head and tail races are privately owned stretches of river connected to and fed by the River Avon⁹. The Mill is discussed further in the Consultations section of this report (See **Section 5**).

- 2.2.5 After passing Hampton Lucy Bridge the course of the river splits into two channels. One carries the main flow and leads to the current main weir. The other channel leads to side control sluices on the head race. This second channel formerly carried the main flow and was fed by the previous main weirs. The ANT proposes to install a lock between the sites of the old main weirs and the current main weir. Once beyond Charlecote Mill, the Avon then continues through farmland, passing Wasperton, until the Barford Loop. Farms along this stretch extract an average of some 16,966m³ of water daily from the Avon for irrigation, in some instances for fresh food crops. Farmers concerns are discussed in further detail in the Consultation section (See **Section 5**).

Reach 3 - 4.7 Miles

- 2.2.6 Reach 3 follows the river from the start of the Barford Loop to the grounds of Warwick Castle. Initially, Reach 3 has the potential to take two courses: a natural course which follows the loop of the river around farmland to eventually meet the village of Barford; or a canal cut, constructed through farmland adjacent to the A429.
- 2.2.7 Navigation of the natural course would require the construction of four locks along the curve of the river to the south of Sherbourne, spread out roughly 800 metres apart to minimise the impact on the landscape. The river banks are steep at this point and have been subject to erosion over the years. Weirs and locks on this section would increase depth and therefore cross section area and therefore reduce velocity. In general this will reduce erosion and therefore encourage a more stable landform.
- 2.2.8 The canal cut would require excavation to the East side of the Barford Loop. It would also require a flight of two locks. Additionally, the canal cut would require a bridge to the north and south of the canal cut, as well as a single-track road bridge to allow for resident and farm access into the loop itself.
- 2.2.9 Having negotiated the Barford Loop the river passes under the A429 and then behind a number of riverside residences in Barford. At the old site of Barford Mill two channels form an island with weirs on each channel. A power-generating turbine is sited next to the weir on the southern channel. It is proposed that Barford Lock is sited near the weir on the north channel. The wide reach above Barford Weir passes Warwick University Boat House, the M40 bridges, Leafields Bridge, runs through Castle Park and reaches Warwick Castle grounds. The final stretch of Reach 3 sees the Avon flow through Warwick Castle park and underneath a private bridge north east of Fishers Brook before arriving at the boundary of Warwick Castle.

Reach 4 – 2.1 Miles

- 2.2.10 At the beginning of Reach 4, a shallow lock is proposed at the south end of the eastern channel of the Castle Island. The navigation would follow the eastern channel up to a lock adjacent to the Warwick Castle Weirs. The route of the navigation channel would be to the east or upstream side of the line of the old ruined Castle Bridge and to the west of Bridge End.

⁹ The river bed (i.e. the land on which the water flows) is owned by the Lucy Family, giving them riparian rights to that stretch.

- 2.2.11 Before passing under Banbury Road bridge (A425), the vessels would have to navigate through a new cut bisecting land on the corner of Bridge End, with a lock in the cut to allow sufficient passage.
- 2.2.12 The Avon then continues through St Nicholas Park, passing a boat hire facility on the west side of the river. The river then passes the Sea Scouts Boat House before going underneath the National Route 41 Cycling Route. To the north of the playing fields the River Avon passes beneath the Warwick/Leamington Spa railway line, before reaching Edmondscote Aqueduct.
- 2.2.13 The Grand Union Canal flows some 26ft above the River Avon. The proposal is for a linking canal from the Grand Union down to the river, involving a flight of four locks which would be constructed on what is currently privately owned agricultural land. The difference in levels here obviously varies with river conditions but the ANT have designed for a difference of 8 metres, giving a sensible, safe and manageable rise of 2 metres for each lock chamber.

2.3 Project Parameters

- 2.3.1 Information supplied by the Steering Group, along with PBA experience of waterway and leisure development elsewhere in the UK, has informed the development quanta and assumptions used in the economic impact model. The project assumptions are shown below.

Table 2-1: Project Parameters

Item	(m)	Description	Delivery
Length of River	19,500m	From Alveston Weir to the GUC Aqueduct	
Number of Locks (Barford River Option)	15	4 deep locks 7 shallow locks 4 locks on the flight to the GUC	ANT to lead delivery of all locks installed along the stretch of proposed navigation. Access would have to be granted by landowners to allow construction, maintenance and repairs to the locks. ANT has relevant experience and established relationships with landowners on the existing navigation that can be used to support further development.
Number of Locks (Barford Canal Option)	13	6 deep locks 3 shallow locks 4 locks on the flight to the GUC	
Dredging	402m ³	c.0.5 miles of dredging. Depth of 0.5m at any one time.	ANT dredges the navigable stretch of the Avon and would assume responsibility for dredging to establish further navigation to the GUC.
Channel Canal Cut (Barford Canal)	900m	Length of canal cut required to cross the Barford Loop to the west of Barford.	Would require purchase of agricultural land and additional engineering works to create the canal feature overseen by ANT.

Item	(m)	Description	Delivery
Channel Canal Cut (Warwick Castle)	78m	Length of cut required to bypass the Old Warwick Castle Bridge.	Would require purchase of a parcel of land adjacent to the residential settlement and additional engineering works required to navigate the cut. Overseen by ANT.
Realigning the tailrace at Charlecote Mill	100m	Excavating land to the south of the Mill to realign the tail race to its historic position.	Would require agreed design between the Miller and ANT.
Bridges	9	<p>A combination of foot and vehicle bridges.</p> <p>4 footbridges proposed, 1 over each lock on the flight to the GUC</p> <p>Note, 3 of these bridges are not required on the Barford River Option.</p>	This would require the purchase of land or access agreements to be signed by the ANT. Bridges construction would be overseen by the ANT.

3 Baseline

3.1 Introduction

3.1.1 The socioeconomic context for the Avon Navigation Scheme is discussed below. The latest available data from Warwick District Council (WDC), Warwickshire County Council (WCC) and Stratford upon Avon District Council (SADC) has been used to describe the area within a 1-mile corridor of the River Avon (referred to as the 'immediate area').

3.1.2 Summary of key characteristics

- The population of the immediate area is 59,359. Over the next five years, it is expected to increase by 3%, to 60,837 (lower than the 4.4% forecast nationally);
- As a region, Warwickshire's Gross Value Added (GVA) is 43rd of 174 regions, placing it in the top quartile of the UK's best performing regional economies;
- 74% of the population are economically active compared with 70% nationally;
- Stratford-upon-Avon and Warwick boast low unemployment, 1.5% and 1.9% respectively, compared with a national rate of 2.8%;
- 67.3% of people are in social categories AB-C1, 13.7% higher than the national average and 11.4% higher than Warwick County;
- SADC and WDC are expected to see reduced Core Spending Power (CSP) of 5.6% and 7.5% respectively from 2016/17 to 2019/20;
- In 2016-17, Stratford-upon-Avon was home to 43% of all new housing built in Warwickshire, followed by Warwick with 28%;
- Between 2010 and 2016, Warwick saw an average house price increase of 24.2%, outpacing the national average by 2.3%. However, Stratford-upon-Avon saw much slower growth, house prices rising 17.3%, some 4.6% below the national average;
- It is estimated that there are some 791 people classed as being income deprived;
- Over 1 million visitors were attracted to theatres in Stratford-upon-Avon in 2016-17. Shakespeare Birthplace attracted 393,941 visitors;
- Charlecote Park, on the banks of the River Avon, received 209,373 visitors in 2016, with an average annual growth of 7% in visitor numbers since 2011;
- Warwick Castle attracts over 800,000 visitors annually; and
- Between 2014 and 2016, there were an average 556,000 day trips to Stratford-upon-Avon and 336,000 to Warwick per annum. Over the same period, there were 1,335,000 overnight stays in Stratford-upon-Avon and 648,000 in Warwick annually.

3.2 Tourism

- 3.2.1 Stratford-upon-Avon is recognised as a tourism hotspot. It benefits from its historic setting coupled with the presence of the Royal Shakespeare Theatres and Shakespeare's Birthplace. Over 1 million visitors were attracted across all three of the theatres in Stratford-upon-Avon in 2016-17¹⁰, with Shakespeare's Birthplace inviting 393,941 visitors in 2016, up 2.9% on the previous year¹¹.
- 3.2.2 Warwick benefits from Conservation Areas, attractions and heritage sites including Warwick Castle. Located less than an hour's journey from Birmingham, the Castle attracts an estimated 800,000 visitors every year.
- 3.2.3 Situated on the banks of the River Avon, Charlecote Park received 209,373 visitors in 2016, with an average annual growth of 7% in visitor numbers since 2011.
- 3.2.4 Stratford-upon-Avon accounted for roughly 47% of businesses within Warwickshire's tourism industry¹². In addition, the area recorded £155 million in tourism spending between 2014-2016.
- 3.2.5 Coventry's successful bid to become the UK's City of Culture 2021 will also have a positive effect on tourism numbers across Warwickshire.
- 3.2.6 Visitor markets in Stratford-upon-Avon and Warwick presently function as largely separate entities. A more clearly combined and coordinated approach may yield additional benefits in attracting larger numbers of visitors and extended stays. The River Avon, whether through navigation, active travel links along its corridor or both, presents an opportunity to physically link the two.

3.3 Water-based Activity

- 3.3.1 ANT figures for the navigable section of the River Avon show the following:
- Number of licences issued to boats that are based on the Avon Navigation per year: **1,238**;
 - Number of temporary licences issued to boats visiting the Avon per year: **1,879**; and
 - Boat movements: **4,197**¹³.

3.4 Geography

- 3.4.1 Stratford-upon-Avon and Warwick are both connected to the River Avon and the Midlands Canal system, where the Stratford Canal has a Northern and Southern section. The Northern section runs from the Worcester and Birmingham Canal at Kings Norton to join the GUC at Kingswood. The Southern section connects the GUC at Kingswood to the River Avon at Stratford-upon-Avon via the Bancroft Lock.
- 3.4.2 The proposed Avon Navigation Scheme extension links the two urban centres of Warwick and Stratford-upon-Avon. Through navigation of the 14 miles of waterway is not possible by

¹⁰ <https://www.rsc.org.uk/about-us/facts-and-figures>

¹¹ <https://www.visitbritain.org/annual-survey-visits-visitor-attractions-latest-results>

¹² <https://apps.warwickshire.gov.uk/api/documents/WCCC-688-278>

¹³ Avon Navigation Trust estimates. This is vessels passing the Tewkesbury Lock, into and out of the south end of the Navigation. Movements here are referred to the number of passing vessels (trips).

powered vessels due to water level changes along its course. Four weirs currently lack by-pass locks and there are various shallow sections along the river.

- 3.4.3 Working upstream from Stratford-upon-Avon, the River Avon makes a path through a predominately rural area, passing settlements which are characterised by much lower population densities until Warwick. South of the River Avon (Feldon), between Stratford-upon-Avon and Barford Hill, the land is predominantly flat compared to the area to the north (Arden). Here, proximity to the Welcombe Hills has produced a more undulating landscape. The relationship between the local landscape and development is clear to see with a higher volume of development and settlement south of the River Avon.
- 3.4.4 The River Avon itself is designated at District level as a Local Wildlife Site/Site of Importance for Nature Conservation (LWS/SINC), with the potential for a number of nationally protected species to be present in the river corridor. (See attached Environmental Review – LUC)
- 3.4.5 The river runs through several sites of ecological importance and heritage value, including Charlecote Park, the Hampton Lucy Conservation Area and Warwick Conservation Area. The northern extent of the River Avon also flows through Warwick Castle's Registered Park and Garden.
- 3.4.6 The River Avon is the northern boundary of the Barford Conservation Area and abuts the southernmost extent of the Sherbourne Conservation Area at Sherbourne Park.
- 3.4.7 A number of Scheduled Monuments (SM) are located close to the River Avon with the closest SM approximately 600m away at Alveston Weir. Charlecote Mill, a Grade II listed structure, uses two waterwheels fed by the River Avon itself to power its operations.

3.5 Demographics

- 3.5.1 Stratford-upon-Avon and Warwick have the largest populations in Warwickshire County - their combined population in 2017 was over 268,000. Based on Experian¹⁴ forecasts, the combined population is expected to rise to 286,000 by 2030, representing growth of 6.5%.
- 3.5.2 The population within a mile of the proposed ANS is estimated at 59,359. It is expected to grow by 3% to 60,837 over the next five years.

3.6 Economic & Labour Market

- 3.6.1 The ONS measures an area's productivity, a key economic indicator, by GVA per filled job. In comparison with the rest of the UK, Warwickshire's productivity is 43rd out of a possible 174 regions, placing it in the top quartile of economic regions in the UK. In 2016, Warwickshire was one of only 45 regions in the UK to outperform the UK's index productivity levels.
- 3.6.2 In terms of labour market performance, the immediate area performs higher than national and regional indicators. Some 74% of the population is economically active, with around a quarter of residents employed in '*Professional Occupations*'. Stratford-upon-Avon and Warwick have low levels of unemployment, 1.5% and 1.9% respectively.
- 3.6.3 With regards to education attainment, both centres and the immediate area around the Avon Navigation Scheme outperform County and national averages. 42.4% of those living within one-mile of the proposed ANS have achieved high level qualifications, nearly 13% above the national average.

¹⁴ Experian Population Data – Accessed: 2018

3.7 Social

- 3.7.1 In the River Avon's immediate area, 67.3% of people are identified as being in social categories AB-C1, 13.7% higher than the national average and 11.4% higher than Warwickshire. This generally indicates areas with higher levels of affluence and purchasing power.
- 3.7.2 As with most Local Authorities across the UK, Core Spending Power (CSP) is falling. CSP is a reflection of the ability of Local Government to invest in local infrastructure without the support of regional bodies or National Government. This is true of both SADC and WDC, with CSP dropping 5.6% and 7.5% respectively from 2016/17 to 2019/20. This is due to reduced Settlement Funding, estimated reductions in the New Homes Bonus and a 25% loss in the Rural Services Delivery Grant given to SADC. Interestingly, WCC's CSP over the same period increased by 6.3%. This is due to a significant increase in funding from the proposed Better Care Fund, estimated to deliver £12.5 million to the area in 2019/20.¹⁵

3.8 Housing

- 3.8.1 Mean house prices in Warwick and Stratford-upon-Avon have risen at an annual average rate of 4.5% and 3.1% respectively 2010. This is compared to an annual average national growth of 4%¹⁶. Between 2010 and 2016, Warwick saw average house price increases of 24.2%, outpacing the national price growth by 2.3%¹⁷. However, Stratford-upon-Avon witnessed slower growth with house prices rising 17.3% over the same period, some 4.6% below the national average.¹⁸
- 3.8.2 In 2016-17, Stratford-upon-Avon was home to 43% of all new housing built in Warwickshire, followed by Warwick with 28%. Combined, both areas saw 1,510 new homes built, the majority by the private sector.¹⁹

3.9 Health & Wellbeing

- 3.9.1 Average life expectancy for both centres is 80.8 years for males and 85.0 for females²⁰. This compares with 79.1 for males and 82.8 for females²¹ across the UK.
- 3.9.2 In Stratford-upon-Avon, 23.5% of adults and 14.5% of children (Year 6) are considered obese. For Warwick, this figure is slightly lower, at 21.4% for adults and 13.1% for children (Year 6).
- 3.9.3 In 2017, in Stratford-upon-Avon and Warwick, an estimated 791 people were classed as income deprived²².

3.10 Implications from baseline for ANS design & delivery

Funding

¹⁵ <https://www.gov.uk/government/publications/core-spending-power-final-local-government-finance-settlement-2017-to-2018>

¹⁶ This is an average of the year on year changes.

¹⁷ English house prices rose 21.9% from 2011 to 2016

¹⁸ <https://www.gov.uk/government/news/uk-house-price-index-hpi-for-january-2017>

¹⁹ <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

²⁰ <http://www.localhealth.org.uk/#l=en:v=map13>

²¹

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/20132015>

²² <http://www.localhealth.org.uk/#l=en:v=map13>

- 3.10.1 The funding model for the ANS has yet to be established and no public funding has been committed to it to date. However, its funding may be considered should its development indicate significant economic, environmental and wider benefits. The findings of the baseline indicate a number of potential implications.
- 3.10.2 The Core Spending Power of each concerned Local Authority has, like most Local Authorities across the UK, reduced, restricting the ability to fund large infrastructure projects.
- 3.10.3 It should be noted that virtually no public money was expended on the restoration of the existing Avon Navigation.
- 3.10.4 Potential avenues for funding have been partially explored through consultation with each Local Authority and the Coventry and Warwickshire Local Enterprise Partnership (CWLEP). It is clear from these discussions that either Local Authority has no specific capital funding available to develop the proposed scheme. The CWLEP highlighted that there would be the potential to apply for Regional Growth funding if additional money for the area was granted.

Tourism

- 3.10.5 Stratford-upon-Avon and Warwick benefit greatly from their respective visitor markets as a result of their significant historic assets and attractive conservation areas.
- 3.10.6 It is anticipated that the ANS would help attract additional visitors to the area in the form of boat users, as evident from the number of boat movements on the navigable stretch of the river. While there may be scope to extend this further sub regionally were active travel, other blue green infrastructure and greater opportunity for public access to the river incorporated, this report focusses on the benefits of the ANS as described.
- 3.10.7 Given the sensitivity of development in and around those areas (landscape, conservation, heritage etc.) that people visit, the design, delivery and operation of the ANS must be considerate of the surroundings. The implications for historic assets, the area ecology and the surrounding landscape are considered in further detail in the high level environmental review.

Housing and Development

- 3.10.8 This assessment does not consider the uplift in value of surrounding land or property values in the immediate vicinity of the River Avon from establishing the ANS. However, it should be noted that waterway development in the UK has been shown to increase the value of surrounding land or properties which can have longer term implications for the housing market. **Table 3-1** presents a body of research on this subject.

Table 3-1: Studies Reporting Premiums Associated with Waterway Development

Study	Feature	Description
Crompton & Nicholls 2017 ²³	Waterway development	The effect of rivers, streams, and canals on property values, setting a premium of 2-5%.
IWAC 2007	Inland Waterways	Increases of 10%, 19% and 21% recorded in urban settings

²³ Nicholls, S. and Crompton, J.L., 2017. The effect of rivers, streams, and canals on property values. *River Research and Applications*, 33(9), pp.1377-1386

Study	Feature	Description
Kumpulanian & Sairinin, 2005 ²⁴	Waterfront development	Assessing social impacts in urban waterfront regeneration
Ecotec Case Studies, 2001 ²⁵	Waterfront development	<i>Market Harborough:</i> Waterside residential values generally higher than for equivalent properties elsewhere in Market Harborough. <i>Tower Wharf, Chester:</i> Minimum 5-10% premium for residential properties. <i>Newark:</i> Waterside properties have achieved premiums of 18% over detached houses in Newark centre.
Wood & Handley, 1999	Waterfront regeneration	Enhanced rentals, equating to some 10-40% (mean nearer 20%) for residential property.
Garrod & Willis, 1993 ²⁶	Canal	Value of new residential properties beside canals enhanced by an average 19%
Garrod & Willis, 1994 ²⁷	Canal	Study suggests waterfront location added a premium of 3%-5% to the sale price of a property.

3.10.9 In the long-run, increases in the price of land and property in the surrounding area may be accelerated as a result of delivering enhanced navigation.

²⁴ Sairinin, R. and Kumpulanian, S., 2006. Assessing social impacts in urban waterfront regeneration. *Environmental impact assessment review*, 26(1), pp.120-135.

²⁵ <http://urbed.coop/sites/default/files/Turning%20the%20tide-%20urban%20waterfront%20final%20report.pdf>

²⁶ Willis, K.G. and Garrod, G.D., 1993. Not from experience: a comparison of experts' opinions and hedonic price estimates of the incremental value of property attributable to an environmental feature. *Journal of Property Research*, 10(3), pp.193-216.

²⁷ Garrod, G. and Willis, K., 1994. An economic estimate of the effect of a waterside location on property values. *Environmental and Resource Economics*, 4(2), pp.209-217.

4 Policy Context

4.1 Introduction

- 4.1.1 This section summarises the key policy and strategy documents relevant to the Avon Navigation Scheme. An in-depth review of relevant documents along with comments on their relevance is provided in **Appendix D**

4.2 Policy

- 4.2.1 Key relevant policy includes:

The WDC Open Space Supplementary Planning Document (SPD) and the WDC Local Plan (2011 – 2029)

- 4.2.2 The SPD classifies river and canal corridors as a form of Green Space which is aesthetically attractive and can provide valuable semi-natural habitats of wildlife interest within an urban and rural context. The WDC Local Plan supports proposals for new and improved open space activities, including walking and cycling routes.
- 4.2.3 The SPD states that “green space can provide neutral territory where different groups of people can meet and play, so contributing to social inclusion. Through the opportunities it provides for peace, reflection and leisure activity, green space can also enhance physical and mental health.”
- 4.2.4 To this end, the WDC Local Plan (2011 – 2029) supports proposals for new and improved open space activities. Equally, the SADC Core Strategy (2011-2031)²⁸ proposes to promote and maintain the available open spaces, waterways and other green infrastructure features such as non-vehicular modes of movement.
- 4.2.5 There is no specific mention or support for enhanced navigation along this stretch of the River Avon, although improved access to the GUC and the River Avon is generally promoted.

Canal-side Development Plan Document (DPD)

- 4.2.6 WDC is preparing a Canal-side DPD to identify areas for regeneration along urban sections, particularly for employment, housing, tourism and cultural uses. The Canal-side DPD can help inform the connection between the GUC and the River Avon, an opportunity that may afford potential for creation of a waterways feature between Royal Leamington Spa and Warwick
- 4.2.7 Again, no specific mention is made of the potential for enhanced navigation along this stretch of the River Avon.

The Stratford-upon-Avon Core Strategy

- 4.2.8 The strategy aims to work closely with private sector partners including Shakespeare's England to increase tourism visits by 25% and re-establish Stratford's position in the top 20 UK towns and cities for international visitors by encouraging new attractions. The SADC Core Strategy supports promotion and maintenance of available open spaces, waterways and other green infrastructure features which encourage non-vehicular modes of movement.
- 4.2.9 Furthermore, the SADC Core Strategy seeks to develop the renowned offer that is “Shakespeare's Stratford”. The creation of a navigable waterway and access to the River Avon from Stratford-upon-Avon to Warwick, unlocks a significant opportunity for ensuring that

²⁸ <https://www.stratford.gov.uk/templates/server/document-relay.cfm?doc=173518&name=SDC%20CORE%20STRATEGY%202011%202031%20July%202016.pdf>

the benefits of an enhanced visitor economy are felt throughout Coventry & Warwickshire. Development of the blue corridor considerably reduces the time required to travel from Stratford-upon-Avon to Warwick via powered vessel. Additionally, development of access to the River Avon through investment into the active travel network along the corridor, significantly reduces the active travel journey time between the two key nodes, making the area more attractive to those seeking to explore Shakespeare's Stratford.

- 4.2.10 The Avon Navigation Scheme is not specifically referenced in this document, despite the River Avon and its surrounding green space being an important piece of visitor infrastructure in Stratford-upon-Avon.

The SADC Corporate Strategy and Core Strategy

- 4.2.11 Both strategies state the Council will work with partners and local businesses to create jobs through business retention, expansion and investment from the UK and abroad.
- 4.2.12 While there is no specific reference to the ANS, its construction will temporarily support construction employment within the local area. Operationally, the developed waterway can help to support local employment that maintains the navigation, in addition to creating opportunities for local tourism businesses and employment.

Coventry and Warwickshire Strategic Economic Plan (CWSEP)

- 4.2.13 The CWSEP sets out how the Partnership will grow the economy over the short, medium and longer term. The Plan understands that key strategic actions will play a significant role in stimulating growth, prosperity and competitiveness of the local economy. Key strategic actions from the CWSEP relating to the Avon Navigation Scheme include unlocking growth potential through urban core development and ensuring that the benefits of an enhanced visitor economy are felt throughout Coventry & Warwickshire.
- 4.2.14 While the Avon Navigation Scheme is not directly referenced in the CWSEP it provides a strategic basis for it, noting the need for infrastructure improvements and growth of the visitor economy around key nodes of the River Avon such as Stratford-upon-Avon. Relevant strategic objectives which the ANS may contribute to include unlocking growth potential through urban core development and ensuring that the benefits of an enhanced visitor economy are felt throughout Coventry & Warwickshire.

Summary

- Key policy documents promote the maintenance and development of open spaces, waterways and other green infrastructure, but do not make specific reference to enhanced navigation on the waterways or this stretch of the River Avon.
- References are restricted to supporting the development of green space to encourage recreation and active travel. There is no reference to the corridor between Stratford-upon-Avon and Warwick or the opportunity to link key tourism areas to establish a recreation conduit.
- Restrictive planning policy between the two key nodes limits potential development activity, residential and commercial.

4.3 Planned Development

- 4.3.1 As shown earlier, there is a wide range of comparator research to demonstrate the effect of waterside development in adding a premium to residential property prices. However, given the conservative nature of the area adjacent to the proposed ANS, follow on development at key points has been ruled out. It should be noted that this report clearly considers but separates any additional property (commercial or residential) development as a result of the ANS.

4.3.2 Nevertheless, in respect of providing a detailed socioeconomic study, it is important to highlight the body of research that evidences this benefit. Research shows that property and land values are influenced by:

- An enhanced living environment;
- Closer and more direct access to the waterway for recreation; and
- Enhanced marketability.

4.4 Implications from policy development for ANS design & delivery

4.4.1 As discussed above, each Local Authority does not promote this stretch of river and its surroundings as a resource for tourism development or for promoting wider growth.

4.4.2 There is an overarching strategic basis (Local Plans) for open space development, but none with any direct reference to the River Avon. The joint responsibility of the corridor requires a commitment from both Local Authorities to identify the area as a strategic asset that can contribute to the socioeconomic aspirations of the wider region.

4.4.3 As previously indicated, to generate interest in the ANS and realise any real return on investment in respect of social, economic and health benefits, navigation should ideally benefit both boat users and the wider public. Creating attractive access to the River Avon for the general public will increase interest in the river and the surrounding area, giving the river both a use and a non-use value. This means that people in the local and wider area will place a value on being able to use the asset, giving the river a sense of importance. The latter, non-use value, means that despite no intention to actually visit the river or use the connection, people will attach a value to knowing that it exists or at least having the option to use it.

4.4.4 Both of the concepts above are important in establishing interest in the Avon Navigation Scheme, as they provide the basis for a willingness to pay for the asset. The ANS is likely to require public support, both monetary and in the form of related development/planning consents. To improve its prospects, the public should be aware of its potential benefits.

5 Consultations

5.1 Introduction

- 5.1.1 This section summarises the findings of consultations with key stakeholders. The process was designed to gauge what stakeholders understand about the scheme, its potential benefits, and any negative impacts it may have on them, their land, business or organisation.
- 5.1.2 The consultation process covered forty-one businesses, community organisations, resident's associations, clubs, Parish Councils and Local Government (see **Appendix D**), selected and agreed by the Steering Group.
- 5.1.3 Each stakeholder was first asked what they knew about the proposed navigation scheme. Most had heard of the proposed ANS, either through previous consultations or communication with the ANT. However, it was clear that each of the stakeholders knew either little or no detail about what would be involved in developing it e.g. location of locks.
- 5.1.4 Eighteen stakeholders either own, rent or farmland on the banks of the River, with many of them riparian owners²⁹.
- 5.1.5 Locally, two Parish Councils were consulted, in addition to the County, District and Town (Warwick) Councils. A further four statutory organisations were consulted, as well as regional/national organisations such as the Coventry and Warwickshire Local Enterprise Partnership (CWLEP), Shakespeare's England and the National Trust.
- 5.1.6 Local attractions and businesses operating in the visitor economy included Warwick Castle (Merlin Entertainments) and Avon Boating.

5.2 Areas of Support

ANS

- 5.2.1 The ANS was seen by two consultees as a positive development, specifically gaining support from Shakespeare's England, who see the opportunity to connect the key tourism hubs of Stratford-upon-Avon and Warwick. Developing a clear link between the two was considered vital in encouraging visitors to the area as a whole to stay longer, helping to drive overnight stays and increased spend.
- 5.2.2 Further support was given by Avon Boating, where the ability to navigate further upstream, even just as far as Charlecote Park, could offer significant expansion opportunities. Establishing the ANS would encourage the business to expand its fleet.
- 5.2.3 Interestingly, some support came from stakeholders with limited awareness of the scheme, noting that simply providing access to the river and better connecting Warwick and Stratford-upon-Avon would be beneficial to local people and the economy.

Other Potential Aspects

- 5.2.4 The majority of stakeholders agreed that, if properly managed, better public access to the River Avon would be of benefit to both visitors and the wider community. However, it was

²⁹ The owner of land abutting a natural watercourse, be it a river, stream or ditch (a riparian owner) – Walker Morris - <https://www.walkermorris.co.uk/publications/in-brief-march-2015/and-on-the-river-flows-riparian-rights-and-responsibilities/>

stressed that this would require careful management to protect surrounding land, specifically agricultural land, from being unlawfully accessed and damaged e.g. through littering.

5.3 Concerns

ANS

5.3.1 Areas of potential concern included the following:

- The privacy and security of individual land holdings and private property, including unpaid access to nearby attractions as well as unlawful and potentially dangerous access to farmland;
- Negative environmental impacts, including ecological, heritage and landscape disturbance in construction and operational phases;
- The hydrological impacts on water usage and flows, particularly relating to extraction for irrigation and flows as an energy source;
- The potential for flooding to be worsened; and
- The introduction of motorised boats affecting the safety of current river users, in particular junior rowers and sea scouts, and potentially lowering the water quality.

5.3.2 There are several barriers to the ANS. The two main attractions, Charlecote Park and Warwick Castle, both felt that the navigation's costs would outweigh its benefits. Specifically, Charlecote House, which allows the occasional canoe to pass through, had concerns around the safety and security of their deer. Operators, The National Trust, were concerned that vessels would be able to stop, and their passengers come ashore close to the family home and felt that motorised boats would disturb the tranquillity of the area. Both attractions said that they would face charging issues³⁰ if boat users were able to pass through their land, stop and access the attractions.

5.3.3 Likewise, Warwick Castle was concerned about the potential for boat users to enter the grounds without charge. Therefore, the ability to stop would need to be managed. When presented with the possibility of a secure entrance for boaters, the Castle believed that the notion of a separate entrance to the grounds and additional infrastructure to support moorings³¹ would damage the landscape. Concerns were also raised for the protection of the Old Castle Bridge.

5.3.4 With regards to river users, a joint consultation was held with farmers using the Avon to extract water for irrigation. This included Vale Fresco who produce fresh salad bags for over 2 million people a day. They highlighted three main concerns: security, extraction and pollution. Security of their farmland was raised as an issue, as without protection, boats could easily access their land and damage the embankments. Collectively at peak extraction, the farmers estimated they extract some 106,000 gallons of water per hour (accounting for an estimated 80% of water extraction in the corridor³²). Any reduction in water levels sufficient to have pumps intaking air could cause mechanical damage to the pump, as well as affecting crops which require a steady flow of irrigation. Despite the quality of water already being poor due to agricultural runoffs, the farmers were concerned about the potential for pollutants³³ entering the water from boat engines, something which the farm's filtering system may not be able to

³⁰ The ability for boats to stop and use the facilities without being charged

³¹ A potential solution that would allow a secure entrance to the castle by boat users

³² See the high-level review summary – water extraction = 0.196 cumecs

³³ <https://canalrivertrust.org.uk/enjoy-the-waterways/boating/boating-blogs-and-features/boating-team/what-you-need-to-know-about-oil-pollution-and-boating>

handle. It should be noted that these concerns are not issues experienced on the existing navigation.

- 5.3.5 Another organisation which considers the River Avon a vital resource, is Charlecote Mill. The Grade II listed building is a unique flour mill which uses two waterwheels fed by the River Avon. Two design concerns were raised: flooding and backwatering, both of which are affected by the changes in the Avon's water levels to the north and south of the Mill. Were the water level raised on the head race, the concern was that this may lead to more frequent flooding. Were the water level raised on the tail race, the concern was that this may lead to a reduction in the Mill's power. It is noted that the mill operator has no plan to develop the mill as a tourist attraction (even in part) and will therefore not benefit from increased river, pedestrian or cycling traffic.
- 5.3.6 Other concerned river users included the Sea Scouts, Warwick Boating Club, and the Leamington Spa Angling Association. Explicit safety concerns were raised by both the Scouts and Boating Club over the potential of motorised boats entering areas where they train and in particular, where junior members train. The Angling Association, who estimate around 3,000 anglers visit each year (excluding competitions), raised concerns over the tranquillity of the stretch of the Avon which they fish. It was also noted that they and other Angler Associations pay a large license fee to each Council for the rights to fish, something which may be in danger were navigation allowed.
- 5.3.7 Finally, several land owners and Parish Councils were consulted. They raised security, legal, environmental and structural issues which navigation may pose. The owner of Alveston House (Grade II listed), highlighted specific riparian issues regarding the right to navigate through his land, as well as concerns over the security of his property if navigation were allowed. Concerns over disturbance of the river ecology were raised by the owner of Alveston House and Hampton Lucy Parish Council. A primary concern of the Parish Council was the protection of the Charlecote Road bridge from boat collision and/or dredging, that exposed abutment faults, with any bridge closure being a major inconvenience to the local area.

5.4 Possible Mitigation

- 5.4.1 Some 95% of stakeholders consulted have concerns about the Avon Navigation Scheme, particularly those with direct access, riparian or extraction rights. A number of these may be readily addressed through transparent assessment of environmental effects e.g. on water quality or impacts on water levels. In other areas, they may be able to be addressed through appropriate mitigation in the design process.
- 5.4.2 Potential mitigations of these concerns are discussed below. Critical to each possible mitigation is the consultation, collaboration and agreement of all parties involved.

Warwick Castle and Charlecote Park

- 5.4.3 Issues around security and charging structures³⁴ were raised by both Warwick Castle (Merlin Entertainments) and the National Trust.
- 5.4.4 It is, through considerate design, possible to run an operation that would set a specific charging structure for access to these attractions along each designated section of the River Avon. The charges would be set in accordance with a fee payable to both Warwick Castle (Merlin Entertainments) and Charlecote Park (The National Trust), for allowing access to passengers of powered vessels to each attraction. This would have to be agreed in advance of designing the ANS and would be subject to a legal review. ANT have made clear that there is no basis for charging for vessels passing through these attractions.

³⁴ The ability for the attraction to charge boat users that wish to stop.

- 5.4.5 Charlecote House in particular has concerns around the safety of their deer. At present, deer booms and fencing prevent outside deer coming into the herd, preventing the possibility of disease. Additional infrastructure to support the passing of vessels safely through the deer booms will have to be taken into consideration. It is likely that this will involve a specific engineering solution sensitive to the surrounding heritage and landscape.
- 5.4.6 Restrictions governing the timing of passage can also be set to mitigate security concerns of both attractions. The proposed scheme could involve a volunteer lockkeeper to operate the entrance and exit to the park³⁵.

Charlecote Mill

- 5.4.7 Extremes of flow, very low and very high, can restrict operations due to lack of adequate water supply to turn the wheel and due to high downstream backwater effects from spate flows, respectively.
- 5.4.8 Introducing navigable infrastructure including locks, needs to take account of the mill operations and any hydraulic changes and should minimise detrimental effects on the mill, while potentially offering an opportunity to improve on current working constraints. Operating conditions, both for low flow and high flow circumstances, need to be understood more thoroughly and technical discussion with the mill operators needs to establish these limits before design can take this into account.
- 5.4.9 Two locks are proposed in the channel which runs parallel, hydraulically, with the mill's reach. It should be possible to achieve a design solution to at least allow prevailing conditions to continue and it is hoped that with careful design, this may be enhanced. However, enhancement may involve use of land adjacent to the river which would require permissions accordingly. The cost of supplementary infrastructure, such as by-pass channels has been considered for the time being.
- 5.4.10 To confirm the feasibility of improved operability, a comprehensive hydraulic model would be required to simulate conditions, however it should be noted that a benefit to the mill's operability should not result in a worsening of flood risk to other parts of the River Avon. Where an improvement to operability proves feasible, but with increased flood risk to other users (e.g. surrounding farmland), this will not be allowed by the Environment Agency who will view flood risk as the overriding factor.

Abstraction, Water flow and Flood Risk

- 5.4.11 Estimated abstractions are around 0.2 cumecs. Water level variation may be a concern to abstractors if, due to lock operations, a drop-in water level results in abstraction pumps becoming inoperable due to a lack in water depth and thereby possible damage to pumps.
- 5.4.12 The total rise from Stratford to Warwick is 10.45 metres as a sum of lock lifts. There are 9 locks on the river on the canal route, which gives an average lift of 1.16 metres.
- Lock width = 4.5 metres
- Lock length = 30 metres
- 5.4.13 Hence volume per lock turn = 157 cubic metres. The river route has 11 locks, hence reducing this average lift.
- 5.4.14 The shortest reach where extraction might occur is 800 metres. Assuming a river width of 20 metres, which is very much a minimum, then this equates to a level drop of less than 10 mm.

³⁵ The ANT currently uses volunteer lockkeepers along the navigation and it is based on this successful model that assurance can be given.

However, in practice because the locks work slowly, and the river is constantly flowing, this theoretical level deficiency is made up rapidly and no change is apparent. This can be demonstrated in practice.

- 5.4.15 An estimated maximum of 3 turns³⁶ per hour would result in 471m³, or around 4% of the flow at Warwick. It should however be noted that this 4% is a component of the minimum flow and not additional to, or abstraction from the river. The resultant fluctuation in the river level is therefore considered to be minor and unlikely to be noticed.
- 5.4.16 It is assumed that responsible craft navigation will heed guidance and management to cater for spate conditions. The construction of river navigation infrastructure should be such that flood risk does not increase. With careful design, including hydraulic modelling, it is possible to provide similar hydraulic conditions that presently exist. The ANT has a well-developed monitoring, advice, management and if needed, rescue system to cope with adverse conditions.
- 5.4.17 There remains the opportunity, where flood risk may be an issue, to consider improvements upon the existing flood risk condition of the various locations through the navigation.
- 5.4.18 Overall, the introduction of navigation through the River Avon from Stratford-upon-Avon to Warwick can be designed to have minimal impact upon the water regime of the river, with the potential for enhancements to be considered. This may need additional infrastructure installed to negate any constraints in the river and will probably require the use of adjacent land and permissions therein.
- 5.4.19 Sections of the River Avon currently navigable by powered vessels have many horticultural and water abstractions for agricultural use without any impact on water quality. Evidence of this can be used as a basis for development of the ANS.

Safety Concerns

- 5.4.20 At present, the ANT manages a navigable section of the River Avon which hosts a variety of water activity. The proposed scheme would emulate existing agreements with other water users, such as the Sea Scots, boating clubs and angling associations, to allow users to enjoy the water safely. An example of this would be restricting vessel speeds to 4mph, the speed limit that applies to the entire Avon Navigation. However, the ANT has imposed lower speed limits for powered vessels in areas such as the Stratford Town Reach.

5.5 Implications from Consultations for ANS Design & Delivery

- 5.5.1 While navigation is not presently favoured by the majority of stakeholders, careful, collaborative design of the navigation may be able to mitigate many of the expressed concerns. Research by the ANT has shown that there is substantial support for the proposed ANS by ratepayers and the public in general.
- 5.5.2 Establishing an ANS design in conjunction with stakeholders along the River Avon is critical to the project's success. Communication of the ANS should be carefully managed, as stakeholders have differing views of what the implications of navigation by powered craft will actually be for their organisation or land. This could be managed through information sessions run by the Steering Group to deal directly with the concerns of the afore mentioned stakeholders.

³⁶ A turn is defined as a full lock cycle from empty to full and back again. This only uses one lock full of water but can pass 2 narrowboats for example in each direction.

6 ANS High Level Environmental Review

6.1 Introduction

Landscape

- The River Avon settlements are dominated by the urban profiles of Warwick and Stratford-upon-Avon; historic centres with a mixture of retail, commercial and residential land uses.
- A nucleated settlement pattern typifies the landscape of the wider area, characterised by villages broadly following the meandering channel of the River Avon.
- Isolated farmsteads are located in an interspersed pattern within the low-lying landscape.
- The flat low-lying nature of the topography often results in the heightened visual presence of settlements in the wider landscape, although these are screened somewhat by the proliferation of vegetation.

Heritage

6.1.1 Heritage assets of particular importance include:

- Grade I Registered Park and Garden, Warwick Castle;
- Warwick Castle Old Bridge;
- Castle Bridge;
- Charlecote Park, a Grade II Registered Park and Garden;
- Grade II listed Charlecote Mill;
- West Terrace wall and steps; and
- The cascade at the mouth of the River Dene.

Ecology

- A number of non-statutory locally designated sites have been identified within 1 km of the River Avon, reflecting the local importance of the river to the biodiversity of the area. In particular, the River Avon and its tributaries are designated as a Linear Local Wildlife Site.
- The River Avon acts as an important wildlife corridor and supports a variety of flora and fauna including protected species. In particular, the river is known for its role in supporting species of bat, water vole, otter, white-clawed crayfish and eel.
- Several tree preservation orders along the navigation will need to be considered.
- Hampton Woods Local Wildlife Site contains ancient woodland and grazing marsh, providing habitat for a number of protected species which link directly to the River Avon.

Water Quality

- 6.1.2 Assessment of the water quality information for the wider River Avon and tributaries identifies that these are of either moderate, poor or bad ecological status. None of these are of good status. The principal reasons for this include agricultural and land management practices, as well as urban transport and the water industry. The ecological status of the River is deemed as moderate, with the worst scoring elements being moderate for invertebrates (biology) and poor for phosphates (physio-chemistry).

Hydrology

- 6.1.3 From Warwick the Q95 flow is 3.2 cubic metres per second (cumecs, or m³/sec). The main tributaries of the River Avon (below) account for approximately 16% of the catchment at Stratford-upon-Avon, see **Table 6-1** for further detail.

Table 6-1: Watercourse and Catchment Area of the River Avon

Watercourse	Catchment Area km ²
The Tach Brook	29.1
Fisher's Brook	10.9
Sherbourne Brook	20.4
Thelsford Brook	25.2
River Dene	104.1

- 6.1.4 There are estimated to be 7 licensed permits to abstract water for irrigation between Warwick and Stratford-upon-Avon. Abstractions make limited overall impact on the River Avon as would be expected under the regulatory regime. Further detail can be found in **Table 6-2** below.

Table 6-2: Water Abstraction Calculations

Location	Input Watercourses	Input Flows (cumecs)	Flow abstractions (cumecs)	Total Flow in River Avon (cumecs)	Comments
Warwick	River Avon	3.2	0.0	3.2	Upstream extent of reach
Wasperton (approx. half-way through Reach 2)	River Avon	3.2	0.0	3.49	3 watercourses upstream of Wasperton plus 50% of remaining catchment. No abstractions
	Tach Brook	0.9*			
	Sherbourne Brook	0.7*			
	Total	4.1*			

Location	Input Watercourses	Input Flows (cumecs)	Flow abstractions (cumecs)	Total Flow in River Avon (cumecs)	Comments
Stratford-upon-Avon	River Avon	4.1*	0.2	3.9	Downstream extent of reach

*Pro Rata

- 6.1.5 The introduction of the navigation can be designed to have a minimal impact upon the water regime of the river with the potential for enhancements to be considered.

6.2 Implications from Environmental Review for ANS Design & Delivery

Landscape

- 6.2.1 Construction of the project will result in incongruous activity in the context of the agricultural land use which is characteristic of the project area. These will however be short term in nature and localised given the large scale of the landscape character type within which it sits.
- 6.2.2 Although minimal and confined to lock sites, the loss of trees and other vegetation in the area due to the project is likely to detract from the landscape character of the immediate surrounding area. The inclusion of new elements of infrastructure will result in a permanent change to the visual amenity and landscape character.

Heritage

- 6.2.3 There is the potential for effects on historic environment assets as a result of intrusive groundworks relating to the construction of the locks and a possible a new canal cutting, and either boat lifting device or series of locks to connect with the Grand Union Canal. The setting of historic environment assets may also possibly be affected by the construction of this new infrastructure, as well as by river traffic during operation of the river. Specifically, the proposals may have the most significant effects on Barford Conservation Area, Warwick Castle Grade I Registered Park and Garden, Charlecote Park and Charlecote Mill.
- 6.2.4 Although the scheme will be designed to avoid the general need for dredging, the scheme is likely to require some dredging to increase the depth of the river in certain locations. Such activity has the potential to disturb and remove riverine/alluvial deposits which may contain significant archaeological and paleoenvironmental remains. Access for construction vehicles and construction compounds could also potentially affect historic environment assets by temporarily affecting their setting or by causing permanent physical change.

Ecology

- 6.2.5 The proposals may result in changes to habitat and species composition within the River Avon, which may have further reaching effects in relation to other watercourses which the river is currently, and would be, connected to.
- 6.2.6 In addition, direct habitat loss as a result of the project infrastructure, such as locks, and a potentially new canal section is likely to occur. However, new lock cuts and/or canal sections will significantly add to the amount of bankside shallows and diverse environment. Further investigation is required to assess the impacts on notable species and statutory designations.
- 6.2.7 Conclusions, mitigation measures and next steps are further detailed in the attached Environmental review.

7 Economic Impact - Avon Navigation Scheme

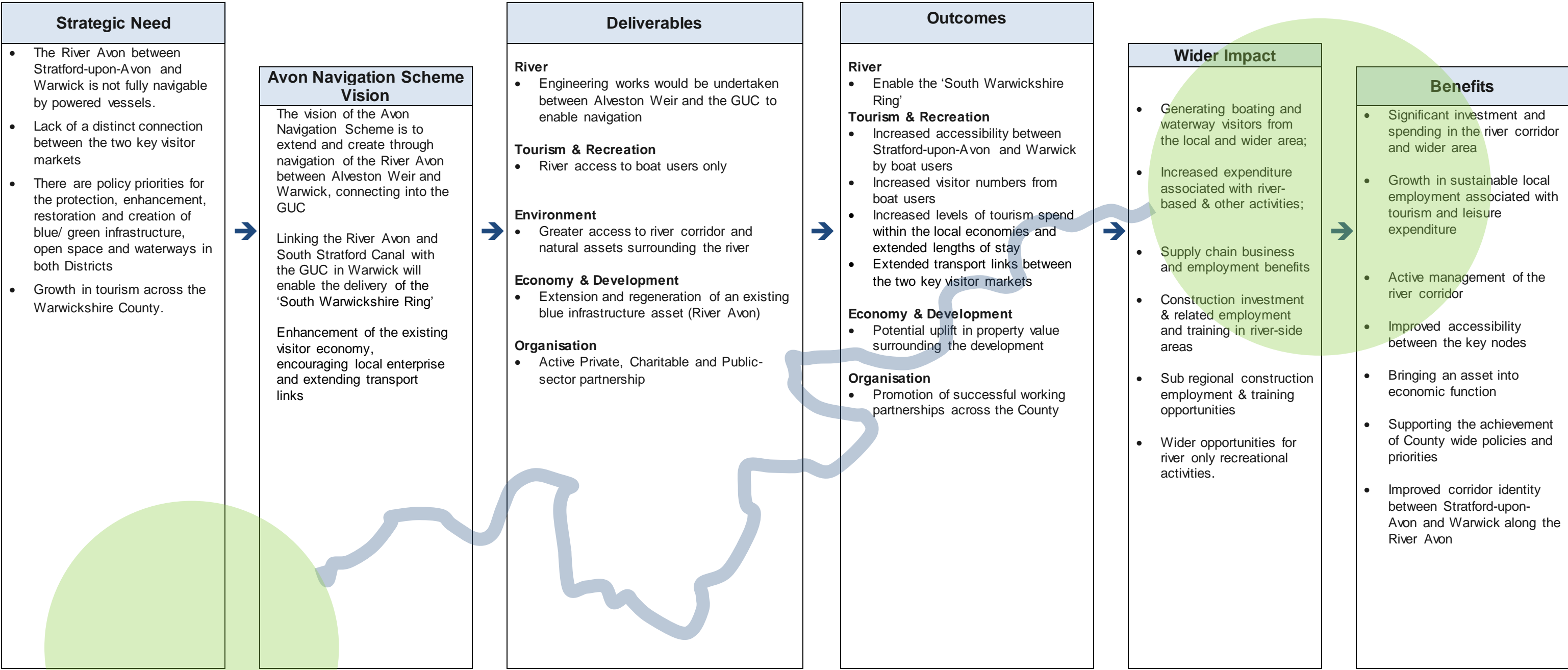
7.1 Introduction

7.1.1 This section presents the estimated economic impact of delivering the Avon Navigation Scheme only. It presents a logic model, setting out the strategic need, vision, deliverables, outcomes and benefits of developing the ANS.

7.2 Logic Model

7.2.1 A 'Logic Model' provided in **Figure 6.1** identifies the areas strategic priorities and shows how the project deliverables provide the required wider benefits and outcomes that reinforce the Strategic need.

Figure 7-1: ANS Logic Model



7.3 Costs

- 7.3.1 The following paragraphs detail the estimated costs of delivering the associated infrastructure of the ANS, distinguishing between the cost of developing the navigation by way of the full river (River Only) and the potential to cut across the Barford Loop with a canal. (River with Canal at Barford).
- 7.3.2 These costs reflect use of the project parameters noted in **Table 2-1** with the Canals and Rivers Trust (CRT) tool. The CRT tool is designed to provide assistance in project development and does not replace the role of a Quantity Surveyor (QS). These provide a high-level indication of the potential costs of establishing full navigation by powered vessels along the River Avon between Alveston and the Grand Union Canal.
- 7.3.3 Both sets of costs include a 30% increase per reach to reflect potential access constraints to construction along the concerned stretch of river. The constraint to construction is evident from the consultation process as discussed in **Section 5**.
- 7.3.4 Costs do not include additional design, planning, Compulsory Purchase Order (CPO), legal or environmental reports which may be required to establish navigation.
- 7.3.5 Following standard guidance³⁷, it is appropriate at this stage of ANS development to assume a level of optimism bias (OB). Standard civil engineering projects are given an OB of 44% to begin with, which is gradually reduced as specific risks are addressed through the procurement and contracting stages.
- 7.3.6 The estimated cost of delivering the ANS is shown in **Table 7-1** distinguishing between the costs for the Full River route i.e. no canal cut at Barford Loop, and the River with Canal at Barford Loop.

Table 7-1: Total Cost – ANS

	Cost (£m)	Incl. Optimism Bias (44%)
Full River	£19.12	£27.61
River with Canal at Barford Loop	£20.48	£29.60

- 7.3.7 For the purpose of this report the CRT model-based estimates above have been used.
- 7.3.8 It is noted that the ANT has completed a separate cost analysis based on current practice and its experience of waterway restoration to date. While these exclude provision for optimism bias, these estimate the difference between the two approaches to be £3m. This is attached for information at **Appendix F**

7.4 Quantitative Impacts

- 7.4.1 The following section summarises the quantitative impact of developing either route. The construction of the ANS will generate a short-term impact on the local economy, supporting construction and related supply chain jobs at a sub-regional level. The short-term economic benefits of this nature are relative to the overall capital expenditure on development of the ANS i.e. the lower or higher the expenditure, the lower or higher the economic benefit.

³⁷ Greenbook Supplementary Guidance. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/191507/Optimism_bias.pdf

- 7.4.2 The assumptions used to calculate construction benefits are detailed in **Appendix F**
Appendix G

Construction – River Only

- 7.4.3 **Table 7-2** below displays the short-term construction impact on the local economy of developing the river only route.

Table 7-2: Construction Impact – River Only

	Supported Construction Jobs	Training and Apprenticeships	Investment in Training and Skills (£)	Additional GVA (£m)
Gross Jobs	142			
Net Jobs				
Local Area	128	5	49,910	3.61
Warwickshire	110	4	42,818	3.10
England	109	4	42,540	3.08

- 7.4.4 The results indicate that construction of the ANS by the river route generates up to £3.61m in additional GVA to the local economy through the support of up to 128 construction jobs and 5 training or apprenticeship positions.

Construction – River with Canal at Barford Loop

- 7.4.5 **Table 7-3** below displays the short-term construction impact on the local economy of developing the river with a canal cut across the Barford Loop.

Table 7-3: Construction Impact – River with Canal at Barford Loop

	Supported Construction Jobs	Training and Apprenticeships	Investment in Training and Skills (£)	Additional GVA (£m)
Gross Jobs	152			
Net Jobs				
Local Area	138	6	49,910	3.87
Warwickshire	118	5	42,818	3.32
England	117	5	42,540	3.30

- 7.4.6 The results indicate that construction of the ANS with the associated canal cut, generates up to £3.87m in additional GVA to the local economy through the support of up to 138 construction jobs and 6 training or apprenticeship positions.

Operational Impacts

- 7.4.7 The following section summarises the operational benefits of the ANS. This is derived from increased boat patronage, leading to increased expenditure and related employment in the visitor economy.
- 7.4.8 ANT data shows some 4,197 boat movements³⁸ along the navigable stretch of the River Avon to Stratford-upon-Avon. Data from the CRT Annual Lockage Report 2017³⁹ shows a total of 5,284 boat movements at the Calcutt Lock on the GUC, the closest measuring point to the proposed connection and flight of locks. Further detail is shown in **Table 7-4**.

Table 7-4: River Activity Data

River Avon	Per Annum
Moored Boats	1,238
Visits	1,879
Boat Movements	4,197
GUC	Per Annum
Boat Movements	5,284

- 7.4.9 The ANS operational economic impact assessment is based on additional boat trips made as a result of the enhanced navigation and connections to new destinations.
- 7.4.10 As well as encouraging increased boat movements at Tewkesbury, it is assumed that the development of the South Warwickshire Ring would encourage an additional 4,000⁴⁰ boaters per annum to the area based on the current patronage of surrounding waterways. It is also assumed that a proportion of the current traffic using the GUC and the navigable sections of the River Avon will use the new stretch of navigation.
- 7.4.11 These assumptions are based on current boat movements as stated above and discussions with ANT. The operational assumptions for ANS are detailed in **Table 7-5**. The percentage of boat users diverting to the new stretch of navigable waterway at each reach is linked to the attractions at the end of each reach. e.g. it is estimated that Reaches 1 and 3 would be more attractive, as they finish at main visitor attractions, Charlecote Park and Warwick Castle, respectively. The model reflects a conservative view, as it is expected that a number of boat trips will visit the entire navigation throughout the year.

Table 7-5: Navigation Assumptions

	Reach 1	Reach 2	Reach 3	Reach 4	Total
% of Avon boat users	20%	10%	20%	50%	
% of GUC boat users	0%	0%	0%	10%	
Boats	839	420	839	2,627	4,725

³⁸ For the purposes of this report, movements are treated as trips. The movements are derived from the passages of Tewkesbury Lock, into and out of the Avon.

³⁹ Annual Lockage Report 2017. Available at: <https://canalrivertrust.org.uk/specialist-teams/managing-our-water/annual-lockage-report>

⁴⁰ Based on the boating patronage of the surrounding waterways (GUC and navigable section of the Avon)

- 7.4.12 As can be seen from the table above, it is estimated that the new navigation would attract some 4,725 boat trips from existing Warwickshire boat traffic.
- 7.4.13 The CRT completed a study in 2014⁴¹ that showed average expenditure per boat trip per head of £1,510. The report also indicates an average of 2 people per boat making an average of 14 trips a year. This equates to around £3,322 of expenditure per boat per year. It has been assumed that the ANS could capture up to a 1/2 of these trips, equal to a total annual expenditure of £1,661.
- 7.4.14 Initially it is anticipated that the diverted boating traffic (4,725) would have an impact on the local economy. The additionality assumptions used to calculate the results in Table 7-6 can be found in **Appendix H**.

Table 7-6: Impact from diverted boats

Parameter	Result
Spend Per Day Per Head	£108
Average Trips per Year	7
Spend per Head per Trip	£755
Average People per Boat	2
Spend Per Boat per Year	£1,661
Additional Boats	4,725
Gross Expenditure	£7.85
Gross Jobs	101
Net Jobs	
Local Area	87
Warwickshire	18
England	8
GVA	
Local Area	£2.1
Warwickshire	£0.4
England	£0.2

- 7.4.15 The results indicate that the diverted boating traffic would generate some £7.85m of expenditure in the local area per annum. This would support up to 87 net jobs in the local area, stimulating some £2.1m in GVA.
- 7.4.16 The impact of this expenditure against the anticipated uplift in boating patronage on this stretch of the River Avon is shown in **Table 7-7** below.

Table 7-7: Impact of Additional Boat Users

Parameter	Additional Boaters		
	Low 2,500	Medium 4,000	High 7,000
Spend Per Day Per Head	£108	£108	£108
Average Trips per Year	7	7	7
Spend per Head per Trip	£755	£755	£755
Average People per Boat	2	2	2

⁴¹ Boat Owners Survey July 2014 – BDRC Continental – CRT

Parameter	Additional Boaters		
	Low 2,500	Medium 4,000	High 7,000
Spend Per Boat per Year	£1,661	£1,661	£1,661
Additional Boats	2,500	4,000	7,000
Gross Expenditure (£m)	£4.15	£6.64	£11.62
Gross Jobs	54	86	150
Net Jobs			
Local Area	46	74	129
Warwickshire	51	81	142
England	43	68	120
Annual GVA (£m)			
Local Area	£1.1	£1.8	£3.1
Warwickshire	£1.2	£2.0	£3.4
England	£1.0	£1.7	£2.9

7.4.17 The results indicate that an additional uplift in the number of boat trips by 4,000 per annum, generates an annual GVA of £1.8m to the local area, supporting up to 74 net jobs within the visitor economy per annum.

7.4.18 Additionally, the results have been presented to reflect low and high sensitivities were the increase or decrease in additional boaters to be 2,500 and 7,000 respectively.

7.5 Qualitative Impacts

7.5.1 The qualitative impacts of delivering the ANS can be summarised as follows:

- Increased level of skills to the area as job opportunities arise in relation to the construction and operation of the scheme or as a response to the scheme;
- Increased awareness of the history of Stratford-upon-Avon and Warwickshire;
- Increased awareness of the history and heritage of the River Avon;
- Increased national and international profile of Warwickshire; and
- Increased national and international investment interest in river or canal regeneration and development across the UK.

7.6 Total Economic Impact

7.6.1 The estimated total economic impact (Construction and Operation) of the ANS is summarised in **Table 7-8** below.

Table 7-8: Total Economic Impact - ANS

	Construction (Temporary Impact)	
	River Only	River with Canal
Estimated Cost ⁴² (£m)	£27.61	£29.60
Gross Construction Jobs	142	152
Net Construction Jobs		

⁴² Including optimism bias

	Construction (Temporary Impact)	
	River Only	River with Canal
Local Area	128	138
Warwickshire	110	118
England	109	117
GVA (£m)		
Local Area	3.61	3.87
Warwickshire	3.10	3.32
England	3.08	3.30

	Operation (Long Term Annual Impact)		
	Low 7,225	Medium 8,725	High 11,725
Boat movements/p. a			
Net Operational Jobs ⁴³			
Local Area	133	161	217
Warwickshire	50	69	107
England	20	27	42
GVA (£m)			
Local Area	3.2	3.9	5.2
Warwickshire	1.2	1.7	2.6
England	0.5	0.7	1.0

- 7.6.2 The total economic impact shows that the ANS would stimulate a temporary £3.6m uplift in additional GVA to the local economy⁴⁴. Furthermore, the ANS is anticipated to generate an additional annual economic uplift of £3.9m to the local economy through the support of up to 161 net operational jobs derived from additional tourism expenditure.

⁴³ Number of jobs supported in each spatial area per annum by the increased visitor expenditure.

⁴⁴ Using River only

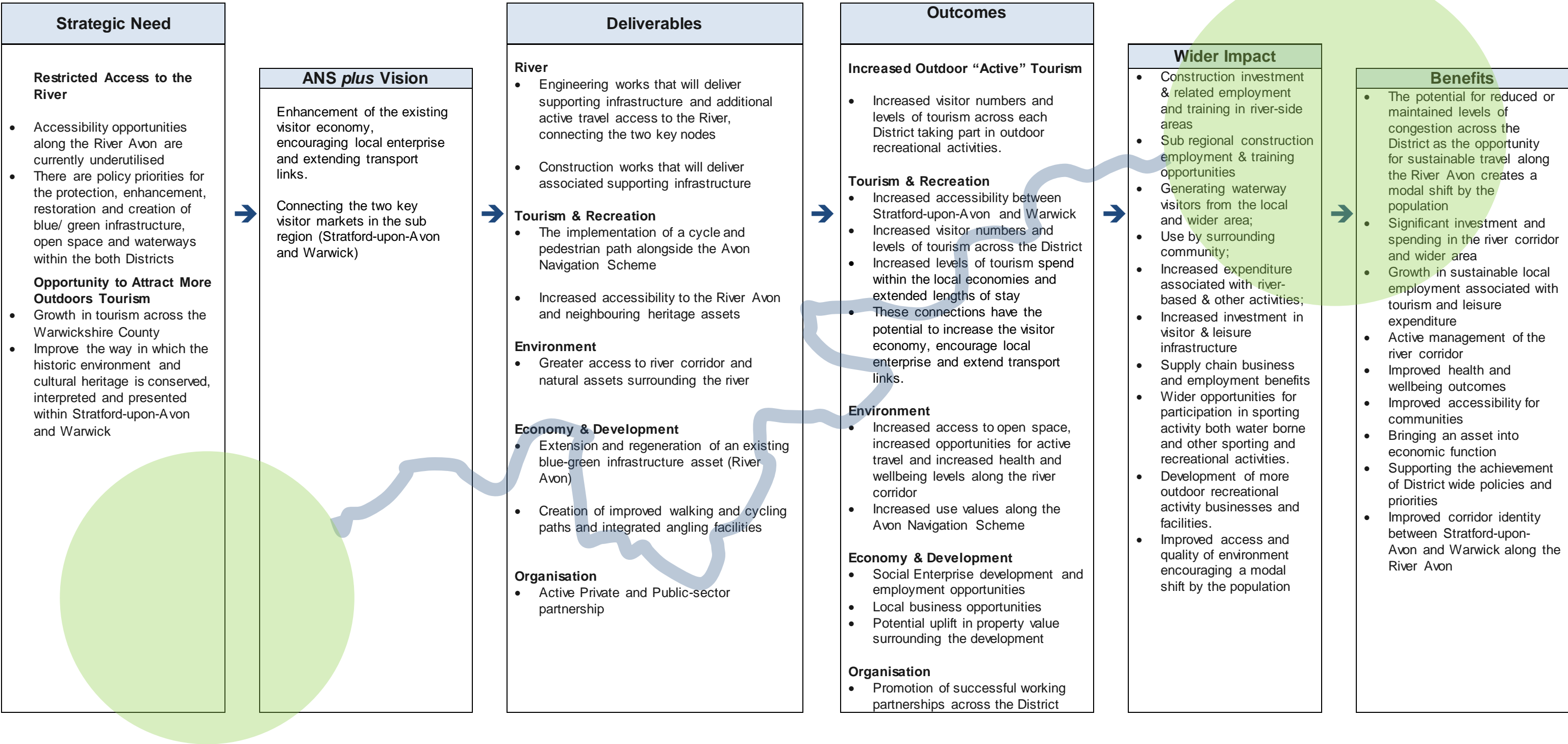
8 Economic Impact – Complementary Investment

8.1 Introduction

- 8.1.1 The report thus far has considered the socioeconomic benefits of delivering the Avon Navigation Scheme in isolation. However, it is recognised that establishing navigation on the stretch of the River Avon from Alveston through Warwick to connect with the GUC, will act as a catalyst for land-based activity. This section considers the potential for such investment as distinct from that generated by the ANS.
- 8.1.2 A marked increase in the economic benefit of opening the River Avon to navigation, requires an extended range of supporting active travel and other infrastructure, accompanied by sensitive related development at key points along the river. This enables the river at this point to be more accessible to the wider public and visitors to the area. Footpath or similar access is essential to this, as it allows pedestrian and cycle access to the River Avon where possible, creating an additional link between Stratford-upon-Avon and Warwick, helping to bridge the gap between the two visitor markets.
- 8.1.3 The following analysis considers the potential increase in the volume of day and overnight trips from this improved accessibility. It also analyses the potential for further economic benefit to be generated from supporting infrastructure such as marinas to support a new navigation and enhance its profile as a visitor attraction.

8.2 ANS *plus* Logic Model

Figure 8-1: ANS *plus* Logic Model



8.3 Total Costs

Active Travel Access

- 8.3.1 As highlighted in the baseline section, there are limited active travel connections between Stratford-upon-Avon and Warwick.⁴⁵
- 8.3.2 Active travel access would require integration of a footpath network with existing pathways along the Avon corridor. It has been identified that this would require an additional 5,800m⁴⁶ of footpath to connect the two key visitor markets. The cost is shown in **Table 8-1**.

Table 8-1: Active Travel Access Cost

Active Travel Cost (£m)		m2	Cost per m2 (£)
Cost exc. OB	£1.46	11,600	£126
Cost Inc. OB at 44%	£2.09	11,600	£181

Marinas & Associated Infrastructure

- 8.3.3 It has been assumed for the purpose of this analysis that there would be the potential for development of up to 3 additional marinas along the route, creating some 500 berths. The largest of the three would likely to be developed at the flight of locks accessing the GUC.
- 8.3.4 The berths are assumed as new developments with water and electric connections, all with supporting service infrastructure. The estimated cost of this follow-on development is indicated in **Table 8-2** below.

Table 8-2: Follow on Commercial Development – Marinas⁴⁷

	Cost (£m)
500 berths	£7.31

- 8.3.5 In addition, it is assumed that leisure and associated retail opportunities would come forward near the flight feature to the Edmondscote aqueduct. For indicative purposes, it has been assumed that this investment would be similar to that at the Falkirk Wheel, with some 100sqm of retail and 300sqm of leisure (mainly food and beverage outlet(s)). The estimated cost of this is shown in **Table 8-3**.

Table 8-3: Follow on Commercial Development – Leisure & Retail

	Size (sqm)	Cost (£m)
Retail	100	£0.13

⁴⁵ The main cycling route (42) follows main roads, which can be deemed as potentially unsafe and/or unattractive

⁴⁶ 11,600m² on a 2m wide stretch

⁴⁷ CRT model

	Size (sqm)	Cost (£m)
Leisure	300	£0.83
Total	400	£1.06

8.4 Quantitative Impacts

Construction of active travel infrastructure

- 8.4.1 The construction benefits derived from active travel infrastructure follow the principles outlined in **Appendix B**. Related construction benefits are shown in **Table 8-4**.

Table 8-4: Active Travel Construction Impact

	Supported Construction Jobs	Training and Apprenticeships	Investment in Training and Skills (£)	Additional GVA (£m)
Gross Jobs	8			
Net Jobs				
Local Area	7	0	2,635	0.19
Warwickshire	6	0	2,261	0.16
England	6	0	2,246	0.16

Construction – Marinas & Associated Infrastructure

- 8.4.2 The estimated economic impact from construction of this 'enabled' development is shown in **Table 8-5**.

Table 8-5: Construction Impact – Private Sector Investment – Marinas

	Supported Construction Jobs	Training and Apprenticeships	Investment in Training and Skills	Additional GVA
Gross Jobs	38			
Net Jobs				
Local Area	34	1	13,206	0.96
Warwickshire	29	1	11,330	0.82
England	29	1	11,256	0.81

- 8.4.3 As can be seen from the table above, the private sector investment in supporting operational infrastructure would support up to 34 net construction jobs in the local area, generating around 1 apprenticeship opportunity. This would generate additional GVA of £0.96m for the local economy.

Operational Impacts

- 8.4.4 The development of supporting infrastructure and enabled facilities will generate further economic benefit throughout its operation, the results of which are summarised in **Table 8-6**.

Table 8-6: Operational benefits derived from Marinas and Commercial Outlets

	Supported Operational Jobs	Training and Apprenticeships	Investment in Training and Skills	Additional GVA
Gross Jobs	22			
Net Jobs				
Local Area	20	1	7,630	0.43
Warwickshire	17	1	6,546	0.37
England	17	1	6,504	0.37

- 8.4.5 As **Table 8-6** shows, operation of potential commercial assets would support an estimated 20 net additional jobs per annum, stimulating an annual economic benefit of up to £0.43m in GVA in the local economy.

Visitor Market Impacts

- 8.4.6 From delivery of supporting infrastructure, establishment of active travel links between Stratford and Warwick, and enabling River Avon access more broadly, it is anticipated that the river corridor at this point would become increasingly attractive to residents and those of the wider region, as well as to visitors to the area. This effect would be additional to that generated by the ANS in isolation.
- 8.4.7 **Table 8-7** shows the number of day trips and night stays to each centre at either end of the River Avon at this point. These figures provide the basis for estimating the potential increase in visits to the area attributable to such access.

Table 8-7: Day Trips and Night Stays⁴⁸

	Day Trips	Night Stays
Stratford-upon-Avon	556,000	1,335,000
Warwick	336,000	648,000

- 8.4.8 **Table 8-8** shows the average expenditure per day trip and night stay by visitors to each area. Average visitor spend is typically higher in Stratford-upon-Avon in comparison to Warwick, which reflects the number of overnight stays in the area.

⁴⁸ Experian Data Analysis – 2016

Table 8-8: Average Expenditure per Trip/Stay⁴⁹

	Average Spend Per Day Trip	Average Spend Per Night Stay
Stratford-upon-Avon	£206.83	£372.30
Warwick	£119.05	£214.29
Average	£162.94	£293.29

- 8.4.9 This information allows an analysis of the uplift in visitor numbers generated by open river access to be calculated. This is shown in **Table 8-9**.

Table 8-9: Tourism Analysis Results

Day Trip % Change	Night Trip % Change	Day Trip Change	Night Trip Change	Day Spend (£m)	Night Spend (£m)	Total Increase in Spend (£m)
Baseline growth						
2%	2%	17,840	39,660	2.91	11.63	14.54
Anticipated Growth (15 years)						
6%	3%	53,520	59,490	8.72	17.45	26.17

- 8.4.10 **Table 8-9** above shows the general level of anticipated growth in tourism in the area (Stratford-upon-Avon and Warwick) based on historic growth rates.
- 8.4.11 It is expected that the ANS plus associated supporting and green infrastructure would create an enhanced visitor market and greater tourism offer than currently available. The resulting effect is anticipated to increase the growth in day and overnight trips, with the growth in day trips being more pronounced due to the proximity of large populations such as Birmingham and Coventry.
- 8.4.12 The table then shows the tourism growth estimated over a period of 15 years as a result of the complementary infrastructure i.e. 6% growth in day visitor numbers and 3% growth in the number of overnight stays. This would generate an estimated £26.17m uplift in visitor spend to the local economy annually.
- 8.4.13 The results of applying these assumptions is shown in **Table 8-10** below.

Table 8-10: Additional Jobs by Uplift Scenario (day trips/ night stays)

Day Trip Change / Night Trip Change (%)	
	6%/3%
Increase in Visitor Spend (£m)	£26.17
Support for 1 Year Employment	£77,322
Gross Jobs	338
Net Jobs	
Local Area	291
Warwickshire	199

⁴⁹ Experian Data Analysis – 2016

Day Trip Change / Night Trip Change (%)	
	6%/3%
England	77
GVA	
Local Area	7.02
Warwickshire	4.81
England	1.86

- 8.4.14 As can be seen from the table above, an increase in visitor spend (as a result of enhanced navigation and greater river access) by £26.17m, will support an estimated 291 tourism jobs in the local area. In Warwickshire, the increase in spending would support up to 199 tourism related jobs and in England this would support 77 tourism related jobs.
- 8.4.15 As a result of the additional expenditure and supported jobs, there would be an estimated annual economic benefit of £7.02m GVA to the local area.

8.5 Qualitative Impacts

Qualitative Impacts – Marinas

- 8.5.1 Marinas associated with the ANS could potentially have the following positive qualitative impacts⁵⁰:
- Increased opportunity for river access and boat hire;
 - Improved sense of community along the River Avon;
 - Improved health and safety along stretches of the River Avon;
 - An increase in an alternative source of affordable housing within an area of high valued properties;
 - Increased opportunity for boat maintenance and repair services; and
 - Increased opportunity for regulation of the River Avon's use and maintenance.

Qualitative Impacts – Towpaths

- 8.5.2 Footpaths/cycleways associated with the ANS scheme could have qualitative impacts including the following:
- Increased health and wellbeing of the local community;
 - Improved public access and engagement with the River Avon;
 - Increased awareness of the historic and ecological importance of the River Avon, Stratford-upon-Avon and Warwick;
 - Improved access to settlements, businesses and tourist attractions along the towpath; and

⁵⁰ A number of these benefits also arise from the Navigation Authority, as well as the supporting infrastructure.

- Increased opportunity for a modal shift from vehicle to walking or cycling within the local context.

8.6 Total Economic Impact

8.6.1 The total economic impact estimated from the complementary investment is shown in **Table 8-11**. This includes the estimated cost of active travel access and supporting infrastructure (marinas and commercial elements). The total benefits are based on a visitor expenditure impact of £26.17m i.e. an annual growth of 3% in day visitors and 6% in night trips.

Table 8-11: Total Economic Impact – Complementary Investments (ANS Plus)

	Construction (Temporary Impact)	
	Active Travel	Marinas
Cost (Inc OB for Active Travel) (£m)	£2.09	£7.31
Gross Jobs	8	38
Net Jobs		
Local Area	7	34
Warwickshire	6	29
England	6	29
GVA (£m)		
Local Area	0.19	0.96
Warwickshire	0.16	0.82
England	0.16	0.81

Day Trip / Night Trip Growth (%)	Operation (Long Term Annual Impact)
	6% / 3% Increase
Net Operational Jobs	
Local Area	291
Warwickshire	199
England	77
GVA (£m)	
Local Area	7.02
Warwickshire	4.81
England	1.86

8.6.2 The tables above show the total economic impact anticipated from the development of the complementary infrastructure. The first table shows the temporary impact stimulated by the investment into an active travel network and additional private sector investment into supporting marina infrastructure. The results show that the active travel construction would generate an uplift of £0.19m in additional GVA to the local economy, whilst the marinas construction would generate an additional uplift of £0.96m to the local economy.

- 8.6.3 The long term operational impacts show that an increase in the number of day and overnight trips by 3% and 6% respectively, support the employment of up to 291 net operational jobs in the local area. This would be expected to stimulate some £7.02m in GVA to the local economy.

9 Conclusions and Next Steps

9.1 Conclusions

- 9.1.1 The socioeconomic study shows that the effects of enabling navigation in isolation from linked bankside access improvements on the River Avon are positive but that the scale of benefit tends to be limited to growth in marine and boating markets. Wider benefits are derived from the integration of complementary investments such as access improvements, marinas and associated infrastructure.
- 9.1.2 The ANS project, while technically feasible, faces challenges to its delivery including; ownership, environmental issues and engineering constraints. These have been identified in the analysis through a consultation process, highlighting where there is support for the navigation as well as concerns that need to be addressed in the design process. It is likely that the ANS would need to be developed as a medium to long-term project, mitigating issues with individual stakeholders.
- 9.1.3 In particular, the ANS must consider the implications of navigation on particular features, including: the tail race and operational viability of Charlecote Mill; the deer booms at Charlecote Park; and have due regard to the listed structures in the vicinity of Warwick Castle, especially the ruins of Old Warwick Castle Bridge. It also needs to reach an agreed solution to through passage and the related commercial concerns expressed by the operators of Warwick Castle and Charlecote House.
- 9.1.4 The report finds that the ANS can have a positive impact on the local economy, with its operation supporting up to 92 local jobs within the tourism industry per annum, generating around £2.2m a year in GVA⁵¹. However, as shown in the report, additional active travel and associated infrastructure such as public access to the river and marinas, could have the potential to extend this benefit to a wider proportion of the local population and extend visitor markets further.

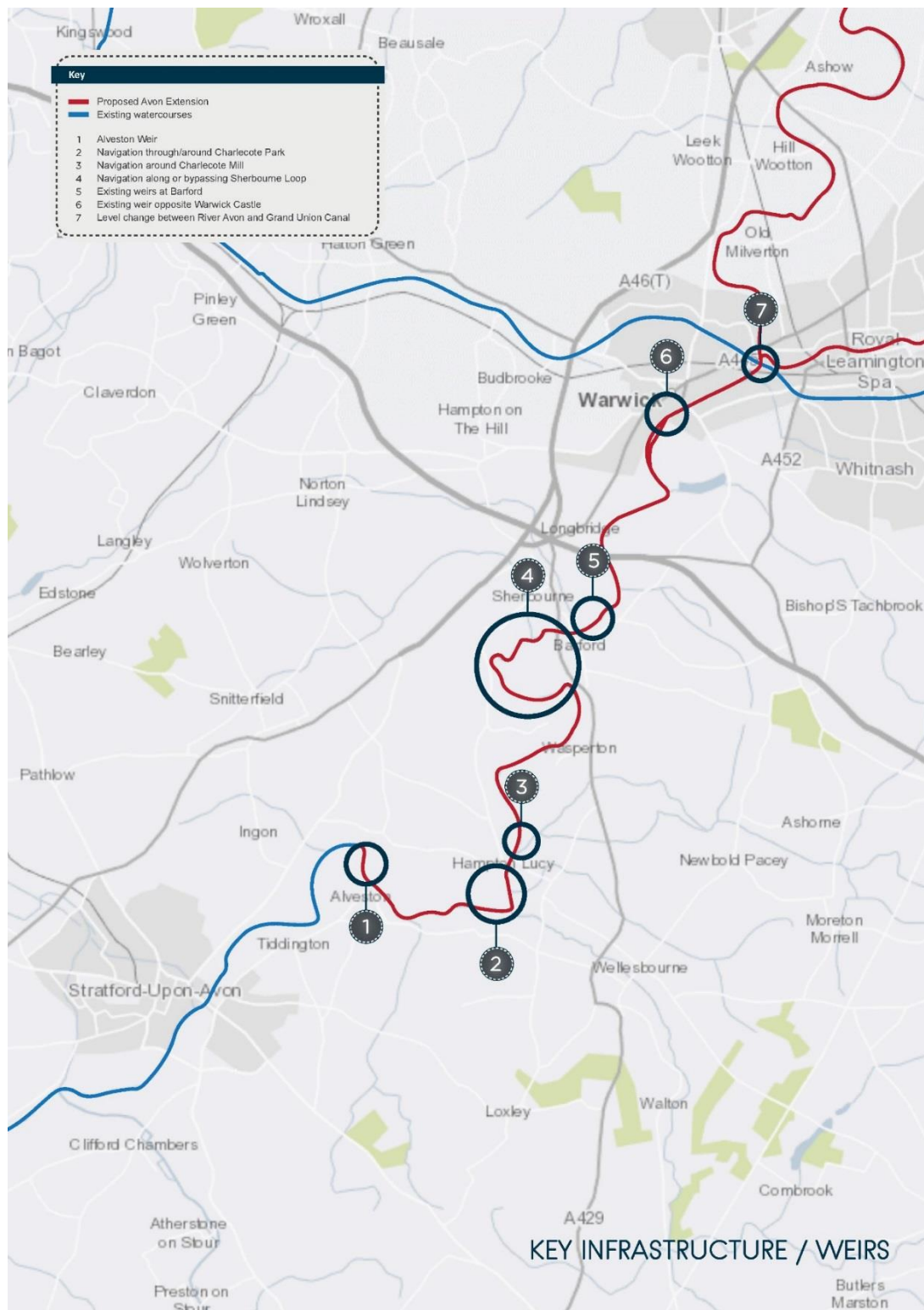
9.2 Next Steps

- 9.2.1 An incremental approach to the re-establishment of navigation on the Avon is recommended. This recognises existing ownership constraints, the present restrictions and objectives of the development plan, and critically, the fact that the Avon corridor in this location is not recognised or treated as a recreation, visitor or business asset in a consistent way.
- 9.2.2 A second but equally significant priority is to establish the area in the eyes of the local population and visitors as a place they would like to visit, recreate in, use or appreciate in other ways, drawing on its outstanding landscape values, its history and its point of connection between Stratford-upon-Avon and Warwick. This would combine various stages:
- Preparation of a collaborative Supplementary Planning Document (SPD) that would seek to establish in the first instance, a continuous active travel passage between Stratford-upon-Avon and Warwick encouraging access to the river where possible. The SPD will create the initial drive needed to gain better access to the River Avon and a consistent access between the two key nodes.
 - The plan should combine ambitions from within each of the policies mentioned in the body of the report, with the view of creating access to open spaces whilst establishing a clear conduit between two tourism hubs. The plan should be sensitive to the design of

⁵¹ Based on 2,500 boaters using the stretch.

this access, respecting the conservative development nature of the key nodes along the corridor.

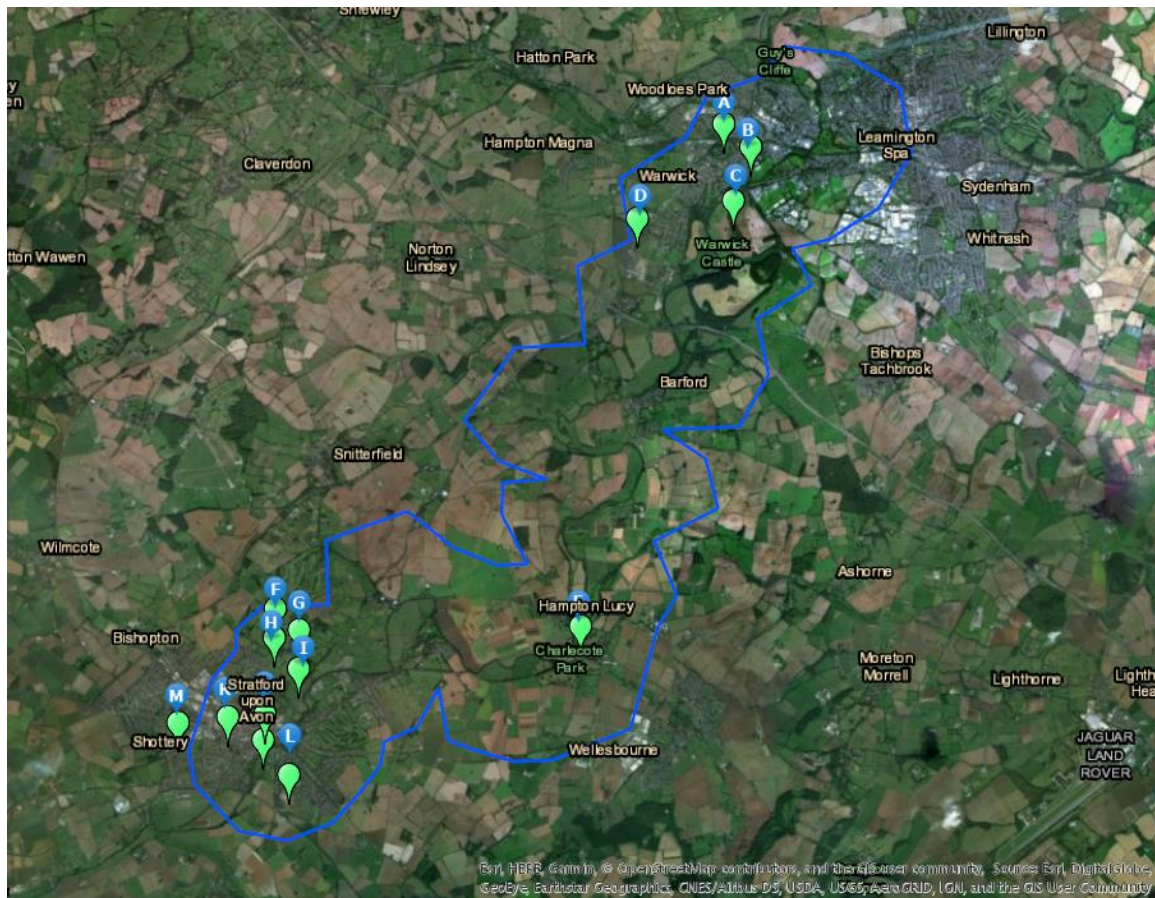
Appendix A Maps



Appendix B Map of the Proposed Navigation 2



Appendix C Green Spaces



Green Spaces	Name
A	Priory Park
B	St Nicholas Park
C	Castle Park
D	Chase Meadow Park
E	Charlecote Park
F	The Welcombe Hills
G	Rowley Fields
H	Clopton Park Local Nature Reserve
I	Warwick Road Lands
J	The Recreation Grounds
K	Firs Gardens
L	Bridgetown Community Woodland and Meadowland
M	Shotton Fields*

Appendix D Policy Review

Policy Support

The Avon Navigation Scheme has broad Policy support from constituent local authorities. The proposed alignment is recognised in statutory spatial planning documents. Significantly the waterway can also help fulfil the broader strategic objectives of wider stakeholders.

The table below shows how the Avon Navigation Scheme can deliver economic, social, community and environmental benefits that help further the areas strategic objectives.

Policy Framework to Meet Project Objectives

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
Coventry & Warwickshire Local Enterprise Partnership (CWLEP) 2016 Strategic Economic Plan⁵²	<p>The Coventry & Warwickshire Strategic Economic Plan (CWSEP), sets out how the Partnership will grow the economy over the short, medium and longer term. The Plan understands that key strategic actions will play a significant role in stimulating growth, prosperity and competitiveness of the local economy. The key strategic actions relating to this project's objectives are highlighted below:</p> <p>Strategic Programme: Unlocking Growth Potential – Urban Core Development An important part of the Strategic Economic Plan is to ensure that there are appropriate and available employment sites to allow existing businesses to grow and to attract inward investment. Transport infrastructure and urban centre improvements are noted by CWSEP to play a crucial role in bringing major sites forward for development and attracting business investment.</p> <p>As part of unlocking the Growth Potential, several sites and infrastructure items have been highlighted for provisional allocations (as part of the Growth Deal, starting in 2016/17 and beyond). Items include delivery of the A46/A425/A4177 Stanks Road network scheme, improving links to UK Central, Birmingham Airport and High Speed 2 (HS2), and investment in start-up facilities in Stratford-upon-Avon.</p> <p>Strategic Programme: Culture and Tourism – The Culture and Tourism strategic programme focuses on the opportunity of ensuring that the benefits of an enhanced visitor economy are felt throughout Coventry & Warwickshire. Part of</p>	<p>The CWSEP Strategic Economic Plan (2016) provides a strategic basis for the project, noting the need for infrastructure improvements and growth of the visitor economy around key nodes of the Navigation Scheme such as Stratford-upon-Avon.</p> <p>The Avon Navigation Scheme may encourage further investment in sites along the waterway, whilst adding to the overall infrastructure improvements and beneficial projects within the area.</p> <p>The development of the project will enable the delivery of the South Warwickshire Ring. This in turn may further promote and attract investment within tourism sector, thereby having positive impact on tourism and growth targets for the region.</p>

⁵² <https://www.stratford.gov.uk/doc/205795/name/cw%20lep%20strategic%20economic%20plan%202016.pdf>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	doing this is noted to be by further developing the renowned offer that is "Shakespeare's Stratford".	
Warwickshire County Council Warwickshire Local Transport Plan 2011 - 2026⁵³	<p>Warwickshire's third Local Transport Plan (LTP3) sets out the County Council's Transport Goals to provide the framework for how the transport network will be improved across Warwickshire to help meet wider objectives, including supporting economic growth, tackling climate change and promoting equality of opportunity.</p> <p>The following goals are of relevance to the Navigation Scheme:</p> <p>LTP3 has several overall objectives for Warwickshire:</p> <ol style="list-style-type: none"> 1. To promote greater equality of opportunity for all citizens in order to promote a fairer, more inclusive society; 2. To seek reliable and efficient transport networks which will help promote full employment and a strong, sustainable local and sub-regional economy; 3. To reduce the impact of transport on people and the [built and natural] environment and improve the journey experience of transport users; 4. To improve the safety, security and health of people by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health; 5. To encourage integration of transport, both in terms of policy planning and the physical interchange of modes; and 6. To reduce the area transport's emissions of carbon dioxide and other greenhouse gases, as well as addressing the need to adapt to climate change. <p>The key challenges faced by Warwickshire as identified by the LTP3 are as follows:</p> <ol style="list-style-type: none"> 1. Transport and the Economy; 2. Transport and Climate Change in Warwickshire; 3. Safety, Security and Health in Warwickshire; 4. Equality of Opportunity in Warwickshire; and 5. Quality of Life in Warwickshire. 	<p>The delivery of the Avon Navigation Scheme can support the overall objectives of LTP3 through the promotion and enabling of sustainable forms of transport whilst providing increased levels of accessibility along the length of the scheme.</p> <p>The landscape setting of the Navigation Scheme shall improve the journey experience of transport users (including that of air quality) along the stretch when compared to other routes to key nodes.</p> <p>Increased levels of accessibility can help towards narrowing the gaps between economic growth rates for different areas by ensuring that transport does not act as a barrier to opportunity.</p> <p>The Avon Navigation Scheme shall not hinder proposals within the proximity of the River.</p> <p>Proposals for Stratford-upon-Avon of relevance to the scheme include the potential development of a scheme to improve provision for cyclists between Tiddington and Stratford-upon-Avon town centre.</p> <p>Proposals of relevance to the Scheme from the Warwick, Leamington Spa, Kenilworth and Whitnash Urban Area combined strategy include: developing dedicated cycle infrastructure on key links to town centres, employment sites, educational establishments and public transport interchanges in Leamington Spa and Warwick.</p> <p>The Avon Navigation Scheme has relevance to the completion of the</p>

⁵³ <https://apps.warwickshire.gov.uk/api/documents/WCCC-630-116>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>The Plan notes that a key challenge for this LTP is to improve connectivity by public transport to edge of centre or out of town destinations in ways which are commercially viable in the long term. A further challenge is to ensure that future developments are located in areas which maximise accessibility by all modes.</p> <p>A substantial increase in housing is planned across Warwickshire and neighbouring authorities over the period of the Plan. A key challenge of this is to ensure that adequate transport infrastructure and services are provided to enable sustainable growth.</p>	<p>Warwick to Leamington Spa corridor cycle improvements, provision of improved cycle parking within the main urban areas and making sure cycle parking continues to meet demand, including assessing the need for long-stay cycle parking facilities at key transport interchanges. All of these improvements will deliver additional infrastructure around the Navigations key nodes, allowing vital active travel commuter routes to be linked within Warwickshire.</p> <p>As housing development is realised throughout the immediate area, increased footfall in and around the Navigation would be expected. The provision of active travel infrastructure along the proposed route will help to ease that anticipated transport demand arising from the housing developments.</p>
<p>Warwickshire County Council</p> <p>Warwickshire Local Transport Plan 2011 - 2026</p> <p>The Southern and Western Warwickshire Area Strategy</p>	<p>The Southern and Western Warwickshire Area Strategy includes the main settlement of Stratford-upon-Avon. Objectives for the area are as follows:</p> <ul style="list-style-type: none"> ▪ To support the World Class Stratford initiative and the broader local economy by reducing the dominance of vehicular traffic in Stratford town centre, whilst ensuring good accessibility for residents and visitors; ▪ To improve quality of life in Stratford-upon-Avon by managing access for deliveries and coaches, and promoting facilities for bus layover at the proposed Stratford Bus/Rail Interchange; ▪ To tackle congestion by improving public transport, providing better facilities for cycling and walking and developing innovative traffic management measures; ▪ To support new housing and employment growth by identifying and securing funding for appropriate transport improvements across Stratford-on-Avon District; ▪ To support access to services and facilities, particularly for those without access to a car; and ▪ To deliver improvements that reduce the environmental impact of traffic within the District and improve local air quality in existing Air Quality Management Areas. 	<p>The delivery of the Avon Navigation Scheme will support the Southern and Western Warwickshire Area Strategy, which includes the main settlement of Stratford-upon-Avon.</p> <p>The provision of active travel infrastructure along the proposed Navigation Scheme will support increased accessibility levels to the wider area.</p>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
<p>Warwickshire County Council</p> <p>Warwickshire Local Transport Plan 2011 - 2026</p> <p>The Warwick, Leamington Spa, Kenilworth and Whitnash Urban Area Strategy</p>	<p>The Warwick, Leamington Spa, Kenilworth and Whitnash Urban Area Strategy objectives are as follows:</p> <ul style="list-style-type: none"> Stabilise and grow the local economy of the area; Support future housing and employment growth within the District; Support access to services and facilities, particularly for those without access to a car; and Reduce the environmental impact of traffic within the District and improve local air quality. 	<p>The delivery of the Avon Navigation Scheme will support the Warwick, Leamington Spa, Kenilworth and Whitnash Urban Area Strategy. The Navigation Scheme aims to support sustainable growth in the local economy, enabling employment delivery along its length and provide an opportunity for a modal shift away from car use.</p>
<p>Warwick District⁵⁴ Local Plan 2011-2029</p> <p>Development Strategy</p>	<p>The purpose of the Warwick District Local Plan is to set out the long-term spatial vision for how the towns, villages and countryside in the district will develop and change and how this vision will be delivered through a strategy for promoting, distributing and delivering sustainable development.</p> <p>The following Policies are of relevance to the Navigation Scheme:</p> <p>Strategic Policy DS3: Supporting Sustainable Communities – The Council will promote high quality new development and will expect development that enables new communities to develop and sustain themselves. As part of this, development will provide for the infrastructure needed to support communities and businesses, including: physical infrastructure (such as transport and utilities), social infrastructure (such as education, sports facilities and health) and green infrastructure (such as parks, open space and playing pitches).</p> <p>Strategic Policy DS4: Spatial Strategy – The District Council's Spatial Strategy focuses on the growth of the main urban areas such as Warwick. In addition, housing and employment growth is expected to be distributed across the District.</p> <p>Policy DS5: Sustainable Development – When considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework (NPPF).</p> <p>Policy DS9: Employment Sites to be Allocated - To meet the employment land needs of the</p>	<p>The Warwick District Local Plan details the long-term vision for the area in which the Navigation Scheme shall sit and as such, should be developed in accordance with.</p> <p>The development of the River Avon Navigation Scheme seeks to engage communities within the area in both a personal and professional capacity, achieved through enhanced green space development and increased enterprise opportunities. In addition, the proposed engineering of the navigation shows that the water level will be protected and managed in such a way which will protect the valuable resource that businesses along the River Avon require.</p> <p>The extension of River Avon has further potential to support sustainable communities as specified in Strategic Policy DS3. By the means of giving communities around the river bank the opportunity to shape their localities, while indirectly influencing investment in housing, commercial activities, tourism and employment.</p> <p>The high level environmental impact review will highlight the impact upon the local environment that the Avon Navigation Scheme would generate. Therefore, the combined results of this study and the environmental review will allow the Council to have oversight of</p>

⁵⁴ https://www.warwickdc.gov.uk/downloads/file/4623/new_local_plan_-_consolidated_version

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>district, an additional 19.7 hectares of employment land for B class uses has been allocated at strategic sites.</p> <p>Policy DS11 Allocated Housing Sites – This Policy details sites which are allocated for housing development, associated infrastructure and uses.</p> <p>Policy DS12 Allocation of Land for Education – This Policy details sites allocated for educational uses and other compatible uses. This includes, on each site, the provision of a secondary school, 6th form centre and, if deemed the most appropriate location, a primary school.</p> <p>Policy DS17: Supporting Canal-side Regeneration and Enhancement – The Council will prepare and adopt a Canal-side Development Plan Document (DPD) to: assess the canals in the district and their environment and setting; identify areas for regeneration along urban sections, particularly for employment, housing, tourism and cultural uses; and identify areas for protection, where these are appropriate, throughout the canal network within the district. This DPD has not yet been produced and as such cannot be assessed at the time of writing this report.</p>	<p>the projects ability to be sustainably developed.</p> <p>The allocation of land surrounding the Navigation is reviewed in accordance with Policy DS9, DS11 and DS12 in Chapter 5.</p> <p>Establishing a Canal-side DPD will help interconnect this Socioeconomic Study with the surrounding canals, further enhancing the understanding and capabilities of waterway regeneration in the immediate area. Furthermore, the re-establishment of the Avon Navigation along with supporting policy for development of surrounding canals, creates a solid direction for progressive regeneration in the area.</p>
<p>Warwick District⁵⁵ Local Plan 2011-2029</p> <p>Prosperous Communities</p>	<p>Policy PC0 Prosperous Communities - The Council will promote sustainable economic development to support a vibrant and thriving economy to deliver the jobs the District needs during the plan period</p>	<p>The development has the potential to act as a catalyst for future enterprise along the route, in turn creating opportunities for the areas communities</p>
<p>Warwick District⁵⁶ Local Plan 2011-2029</p> <p>Sustainable Communities</p>	<p>Policy SC0 Sustainable Communities - New development should be high quality and should ensure that it is brought forward in a way which enables strong communities to be formed and sustained. It is also important that new development protects and enhances the historic, built and natural features that make Warwick District a great place</p> <p>Policy BE1 Layout and design - New development will be permitted where it positively</p>	<p>The design of the Navigation, will be such that its development will be sensitive to the surrounding landscapes characteristics. It is anticipated that the Navigation will have a positive impact on the amenity of current residents and its re-establishment prepares for future increases in the number of residents within its vicinity.</p> <p>The Navigation Scheme seeks to improve the availability of open space</p>

⁵⁵ https://www.warwickdc.gov.uk/downloads/file/4623/new_local_plan_-_consolidated_version

⁵⁶ https://www.warwickdc.gov.uk/downloads/file/4623/new_local_plan_-_consolidated_version

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>contributes to the character and quality of its environment through good layout and design.</p> <p>Policy BE3 Amenity - Development will not be permitted that has an unacceptable adverse impact on the amenity of nearby uses and residents and /or does not provide acceptable standards of amenity for future users and occupiers of the development.</p> <p>Policy HS5 Directing Open Space, Sport and Recreation Facilities - The Council will support proposals for new and improved open space, sport and recreation facilities</p> <p>Policy HS6 Creating Healthy Communities - Development proposals will be permitted provided that they are associated with delivering health benefits to the community</p> <p>Policy CC1 Planning for Climate Change Adaptation - All development is required to be designed to be resilient to, and adapt to the future impacts of, climate change through the inclusion of adaptation measures</p> <p>Policy HE1 Designated Heritage Assets and their setting - Development will not be permitted if it would lead to substantial harm to or total loss of the significance of a designated heritage asset, unless it is demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss</p> <p>Policy NE4 Landscape - New development will be permitted that positively contributes to landscape character.</p> <p>Policy NE5 Protection of Natural Resources - Development proposals will be permitted provided that they ensure that the district's natural resources remain safe, protected, and prudently used</p> <p>Policy NE7 Use of Waterways - The waterways can be used as tools in place making and place shaping, and contribute to the creation of sustainable communities</p>	<p>and recreational activities in between Stratford-upon-Avon and Warwick. In doing so, the project will permit a greater number of leisure and recreational options in which the community can utilise to lead healthier lifestyles.</p> <p>It is proposed that the Navigation will open opportunities for a modal shift in transport. Given the right behavioural shift, this transformation facilitates a reduction in road traffic, thus helping the local area to adapt to Climate Change.</p> <p>The proposed design which PBA are working with seeks to mitigate any harm to heritage assets, their setting, surrounding landscapes and the areas natural resources. Instead, the Navigation seeks to pursue a development which encourages more people to safely explore the areas natural and built environment, whilst ensuring that the natural resources, mainly the water supply utilised by local enterprises, are protected</p>
Strategic Urban Extension South of Royal Leamington Spa and Warwick: Design Guide	The Design Guide was prepared by WYG on behalf of Warwick District Council. Its primary purpose is to ensure that development in the areas of the Strategic Urban Extension to the South of Royal Leamington Spa and Warwick, as designated in the Publication Draft Local Plan	The Strategic Urban Extension South of Royal Leamington Spa and Warwick provides a guide for the developing wider context of the area in which the Avon Navigation Scheme shall partially pass through.

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
January 2016⁵⁷	<p>2014, come forward in accordance with the Garden Suburb⁵⁸ ambitions for the area.</p> <p>The Design Guidance is intended to be a reference document for Councils and developers pursuing applications within the Sustainable Urban Extension area.</p> <p>The overall aim of the extension is as follows:</p> <p><i>“The Strategic Urban Extension will create integrated and vibrant new communities, echoing the garden suburb principles. They will bridge the urban and rural edge and link in the richness of landscape. Tree lined connections and well managed spaces will ensure all can access and enjoy a healthy and sustainable lifestyle, binding the existing and new communities together.”</i></p> <p>As part of the connectivity elements of the garden suburbs, there is the aim to connect with key destinations within and outside of the Garden Suburb area such as the Canal Network and National Cycle Network.</p>	
Warwick District Council Open Space Supplementary Planning Document (SPD) June 2009⁵⁹	<p>The Council's Open Space SPD sets the standards for informal and formal open space which developments should meet within the District. The SPD is underpinned by a range of national, regional and local policy documents and strategies.</p> <p>The document classifies River/Canal corridors a form of Green Space which is aesthetically attractive and can provide valuable semi natural habitats of wildlife interest within an urban and rural context.</p> <p>Further to this, the SPD states the following:</p> <p><i>“Green space can provide neutral territory where different groups of people can meet and play, so contributing to social inclusion. Through the opportunities it provides for peace, reflection and leisure activity, green space can also enhance physical and mental health. The proximity of</i></p>	<p>The Avon Navigation Scheme will continue to support the SPD's ambitions for Green Space and Open Space provision across the District.</p> <p>The Scheme shall promote leisure activities, increase accessibility levels to the River and contribute towards social inclusion.</p>

⁵⁷ https://www.warwickdc.gov.uk/downloads/file/4685/design_guidance_for_the_strategic_urban_extension_south_of_royal_leamington_spa_and_warwick

⁵⁸ A “Garden Suburb will integrate with surrounding communities and provide the full range of housing choices and local services for new and existing communities. Families, singles, young couples, older people and those with special housing needs can benefit from living in an environmentally-friendly green setting that will mature and improve over time” (Garden Towns, Villages and Suburbs: A prospectus for Warwick District Council, May 2012, pg. 7).

⁵⁹ https://www.warwickdc.gov.uk/downloads/file/1309/open_space_spd

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<i>green space also raises property values and can therefore provide a spur to regeneration."</i>	
Stratford-on-Avon District Council Corporate Strategy 2015-2019⁶⁰	<p>The Corporate Strategy for the Stratford-on-Avon District details the vision of the District to be:</p> <p><i>"recognised as a place of opportunity and economic prosperity in order to provide a better quality of life for all who live, work and visit."</i></p> <p>The three main objectives of the Strategy are as follows:</p> <ul style="list-style-type: none"> ▪ A flourishing local economy; ▪ People and their environment; and ▪ Responsible community leadership. <p>In order to meet the objectives, the Council will:</p> <ul style="list-style-type: none"> ▪ Work with partners and local businesses to create jobs through business retention, growth and new inward investment from the UK and abroad; ▪ Work with partners to protect the character of the environment and support activities to improve the health and wellbeing of our local communities; and ▪ Support our communities and the diversity of local interests within them. When opportunities arise, we shall embrace innovative solutions to provide the best results for residents and the Council. 	<p>The Avon Navigation Scheme should support the Corporate Strategy for the Stratford-on-Avon District by working alongside its objectives of enabling tourism opportunities along the River, increasing accessibility levels along the Scheme and working with the communities' response to the Scheme through the Consultation process.</p>
Stratford-on-Avon District Council Site Allocations Plan (TBC)⁶¹	<p>The Site Allocations Plan (SAP) is a planning document that will form part of the Development Plan for Stratford-on-Avon District. This document is undergoing scoping and initial options, as such it was not available for review at the time of writing this report.</p> <p>It is noted that sufficient housing provision has been made in the Core Strategy and through planning permissions to meet the housing requirement identified for the current plan period to 2031. As a result, the focus of the SAP will be on the identification of 'reserve sites' in accordance with Policy CS16 in the Core Strategy.</p>	<p>As the SAP was not available at the time of writing this report, the Avon Navigation Scheme Socioeconomic Study shall take account of the allocations and provisions noted with the Core Strategy.</p>

⁶⁰ <https://www.stratford.gov.uk/doc/175656/name/Corporate%20Strategy%202015%202019.pdf>

⁶¹ <https://www.stratford.gov.uk/planning-regeneration/site-allocations-plan.cfm>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
Stratford-on-Avon District Council Core Strategy 2011 -2031⁶²	<p>The Core Strategy sets out the Councils development strategy and planning policies including the allocation of strategic employment and housing site and guidance on provision on infrastructure and services.</p> <p>The aim of the Strategy for Stratford-upon-Avon is as follows:</p> <p><i>“The aspiration for Stratford-upon-Avon is for it to have enhances its roles as a town of international standing that satisfies the expectation of residents, business and visitors. More Tourists will visit the town and stay longer, in part achieved through and expansion of its cultural offer. The towns role as the main shopping and services centre in the District will have been strengthened. Significant progress will have been made on the regeneration of an extensive area of mostly outworn and underused lands adjacent to the canal. New and existing companies will have location on high quality employment land on the periphery of the town, with excellent access to the strategic road network. A new link to the strategic network from the south of the River Avon will have been provided via a western/south western relief road. Traffic in the Town centre will be managed more effectively to reduce its impact on the environment”.</i></p> <p>The strategic objectives represent the key delivery outcomes that the Core Strategy should achieve by 2031. The following are of relevance to the Navigation Scheme:</p> <ul style="list-style-type: none"> ▪ The rural character of the District will have been maintained and enhanced. The Green Belt and countryside of the District will have been protected from inappropriate development (1); ▪ The historic character of the District will have been maintained and enhanced. Sites of historic importance will have been protected from harmful development (2); ▪ The character and local distinctiveness of the District will have been reinforced by ensuring new development is of high quality design, considering the intrinsic and special value of its landscapes and townscapes (3); ▪ The District will have reduced its greenhouse gas emissions, contributing to the national target for reduction, through a range of 	<p>The Core Strategy provides a Strategic basis for the delivering of the Avon Navigation Scheme. The Core Strategy sets out Policy support for the delivery of the Navigation Scheme and supporting infrastructure.</p> <p>The path of the Avon Navigation Scheme itself is not identified as an Area of Restraint (Policy CS.13) however, there are a number of land parcels towards Reach 1 which are. As such, the Navigation Scheme will accord with the principles of Policy CS.13 increasing accessibility and enhancing the existing character and visual amenity of the area.</p> <p>This study, through analysis of the socioeconomic impacts and consultation with stakeholders, seeks to establish the appropriateness of the River Avon's development.</p> <p>Many of Warwickshire's visitors come to the area for its renowned historic appeal, therefore maintaining and promoting the district's historic character is off the upmost important in retaining visitation numbers. Hence, the River Avon's navigable expansion aims to not only protect the historic sites which it encounters on its way upstream but promote them through allowing greater access.</p> <p>Through the development of active travel infrastructure along the banks of the River Avon, a model shift is expected to occur. Currently, the main</p>

⁶² <https://www.stratford.gov.uk/templates/server/document-relay.cfm?doc=173518&name=SDC%20CORE%20STRATEGY%202011%202031%20July%202016.pdf>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>measures such as the location and design of development, provision of renewable and low carbon energy schemes, and promoting opportunities for low carbon travel (5);</p> <ul style="list-style-type: none"> Community facilities and open space will have been improved across the District. Through collaborative working between District, Town and Parish Councils and key partners in education, public safety, health and other services, opportunities to improve the health and wellbeing of the District's communities will have been realised as a result of the development process (8); and The value of tourism to the District will have increased substantially, initially by 25% during the period 2011-2015, through the District Council working with its private sector partners, including Shakespeare's England. Stratford-upon-Avon will have re-established its position in the top 20 UK towns and cities for international visitors (10). <p>The following Policies are of relevance to the Navigation Scheme:</p> <p>Policy CS.1: Sustainable Development – The Council supports and will apply the principle that planning to secure a high-quality environment, managed economic growth and social equity are of equal importance.</p> <p>All development proposals should contribute towards the character and quality of the District and to the well-being of those who live and work in and visit the District.</p> <p>Policy CS.2: Climate Change and Sustainable Construction – Proposals for development are required to demonstrate that, dependent on their scale, use and location, measures are included that mitigate and adapt to the impacts of climate change. The Policy further suggests specific measures which developments could adopt to sufficiently mitigate and adapt to climate change.</p> <p>Policy CS.4: Water Environment and Flood Risk – Development proposals are to consider the predicted impact of climate change on the District's water environment. Measures to meet this include sustainable use of water resources, minimising water consumption, protecting and improving water quality, and minimising flood risk from all sources, as set out in the most up-to-date Strategic Flood Risk Assessment (SFRA). The Policy further states additional requirements</p>	<p>National Cycling Route from Stratford to Warwick involves taking a country road, which may put current commuters of cycling between the two nodes from a safety perspective. In addition, the investment into this type of infrastructure along the River Avon, may encourage current car commuters between the two nodes to take up cycling, potentially reducing congestion on the main roads and thus greenhouse gas emissions within each of the Districts.</p> <p>Further to this, the River Avon's reestablishment will deliver more open space, acting as an enabler to improved health and wellbeing throughout the communities it passes.</p> <p>Integral to achieving a place in the top 20 UK towns and cities for international visitors, is maintain and investing in the areas assets which will entice international visitors. Opening up the South Warwickshire Canal Ring will facilitate shorter canal journeys in-between to culturally rich destinations. As a result, it is anticipated that tourists will be attracted by the enhance options available in the area.</p> <p>The socioeconomic established within this study will comply with Policy CS1. It is pertinent that a realistic and positive outcome is established, reflecting the character of the district, before development of the River Avon is commenced.</p> <p>There is potential for the construction waste element of the river to have a positive impact rather than a wholly negative one. This would be achieved through a Circular Economic Analysis of the construction process, something which is currently out of the current scope of work. However, initial findings show the possibility of reutilising and selling material extracted from dredging the river, which in turn reduces the cost of the construction both financially and environmentally.</p>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>around flood risk areas, surface water runoff, sustainable urban drainage systems, enhancing and protecting the water environment and water quality.</p> <p>In accordance with the Water Framework Directive's objectives, development must not affect the water bodies' ability to reach good status or potential as set out in the Rivers Severn, Humber and Thames River Basin Management Plans (RBMP).</p> <p>Policy CS.5: Landscape – The landscape character and quality of the District should be maintained by ensuring that development takes place in a manner that minimises, mitigates and where possible it enhances its impact on the landscape. The Policy makes specific reference to landscape character and enhancement, visual impacts and trees, woodland and hedges.</p> <p>Policy CS.6: Natural Environment – Development are expected to contribute towards a resilient ecological network throughout the District that supports ecosystems and provides ecological security for wildlife, people, the economy and tourism.</p> <p>Developments that are likely to have an adverse effect either directly, indirectly or cumulatively upon a site designated through the EC Habitats Directive or Birds Directive will not be permitted.</p> <p>The Policy makes specific reference to biodiversity and geodiversity.</p> <p>Policy CS.7: Green Infrastructure – The existing Green Infrastructure network in the District will be promoted through the principles of protection, enhancement, restoration and creation.</p> <p>The availability of open spaces, waterways and other green infrastructure features will be maintained and improved as a contribution towards:</p> <ol style="list-style-type: none"> 1. Quality of life and attractive communities; 2. Biodiversity and the provision of habitats; 3. Landscape character and quality; 4. Non-vehicular modes of movement; and 5. Sustainable drainage, flood management, carbon sinks and other climate change mitigation and adaptation measures. 	<p>Sensitive design of the River Avon Scheme will help to further develop the socioeconomic case for its progression.</p> <p>It is expected that Green Infrastructure in the form of cycling and walking paths will be developed in conjunction with the River Avon Scheme. By opening up the Navigation, the District unlocks the potential to develop additional Green Infrastructure following the banks of the River. As a result of the Schemes development, additional benefits are established which achieve the areas Green Infrastructure priorities.</p> <p>The River Avon Navigation Scheme is exactly the type of development which this policy seeks to achieve, through establishing a new blue corridor connecting Stratford-upon-Avon and</p>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>Access to Green Infrastructure features within settlements and the countryside are to be provided through, for example, local nature reserves, green corridors, waterway ('blue') corridors, allotments and woodland, together with connections between built up areas and the countryside.</p> <p>Further to this, the Council supports the creation of new routes for walking, cycling and horse-riding to improve access to the countryside. Where outdoor recreation facilities are proposed, a management plan will be sought to enhance the Green Infrastructure features of the site</p> <p>Policy CS.8 Historic Environment - The District's historic environment will be protected and enhanced for its inherent value and for the enjoyment of present and future residents and visitors. Through a partnership approach, the Council will seek opportunities to promote the historic environment as a catalyst for enhancing the vitality of the District. Stratford-upon-Avon's historic townscape and street scene, and sites associated with William Shakespeare, are to be protected to maintain the town's international and cultural importance.</p> <p>Policy CS.9 Design and Distinctiveness - All forms of development will improve the quality of the public realm and enhance the sense of place, reflecting the character and distinctiveness of the locality.</p> <p>High quality design of developments will be achieved by ensuring that all development is attractive, sensitive, distinctive, connected, environmentally sustainable, accessible, safe and healthy.</p> <p>The Council will support high quality design innovation where it reflects and complements the immediate local environment and maximises sustainability benefits.</p> <p>Policy CS.10: Green Belt – Per the Policy, the purposes of the Green Belt will be upheld by resisting inappropriate development within it.</p> <p>Policy CS.13: Areas of Restraint - Land designated as an Area of Restraint makes an important contribution to the character of the settlement. Development must not harm or</p>	<p>Warwick, interconnecting the waterways within the South Warwickshire Ring.</p> <p>Improved access is at the core of the River Avon Navigation Scheme. If developed, PBA would be more than happy to develop a sustainable management plan of the waterway and green infrastructure, something which is out of the scope of this socioeconomic study, but of importance to the proposed developments maintenance and protection in the future.</p> <p>If developed, the navigation opens the opportunities for day trips between Warwick and Stratford-upon-Avon, by boat. As a result, future visitors and residents alike of both key centres, will get to experience the historic delights of Shakespeare's home in a day.</p>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
	<p>threaten the open nature of such areas, considering any possible cumulative effects. Projects which enhance the character and visual amenity of Areas of Restraint will be encouraged, as will the promotion of beneficial uses such as public access, nature conservation and food production.</p> <p>Policy CS.15: Distribution of Development - The distribution of development in Stratford-on-Avon District during the plan period 2011 - 2031 will be based on a pattern of balanced dispersal, in accordance with the distinctive character and function of the wide range of sustainable locations across the District.</p> <p>Policy CS.16 Housing Development – The Policy details that during the period of 2011 to 2031 approximately 3,500 homes will be developed in Stratford-on-Avon as part of at least 14,600 additional homes across the District.</p> <p>Policy CS.22: Economic Development – the Policy supports development that provides for a wide range of business and commercial activity will be promoted in sustainable locations to support and foster the growth and competitiveness of the District's economy, provide more jobs and improve the vitality of the local business environment. Provision will be made for at least 35 hectares of employment land over the plan period 2011-2031. Opportunities for business development will be provided in the countryside, including farm-based activities.</p> <p>Policy CS.24: Tourism and Leisure Development – The role of tourism will be increased by supporting the growth and improvement of existing attractions and by encouraging new attractions and dispersing them throughout the District to support the local economy and to provide the opportunity for local communities to enjoy the benefits that are derived.</p> <p>Increased access to and use of canals and navigable waterways in the District will be encouraged, including the provision of moorings and marinas where it respects and works with the natural features and function of the watercourse. Any proposed extension to or creation of new navigable waterways must ensure there are no overall detrimental impacts on the natural environment. Additional permanent moorings and marinas will only be supported where there is</p>	<p>Key housing developments along the River Avon have been highlighted and analysed in the Planned Development Section.</p> <p>The allocation of land surrounding the Navigation is reviewed in accordance with Policy DS.15, DS.16 and DS.22 in the Chapter 5.</p> <p>The development of the River Avon enables the area to remain attractive from a leisure perspective, an aspect which is important to enticing labour.</p> <p>Opening the Navigation will create not only a new attraction within the County, but it will establish a new link to various attractions in both Districts, thus promoting the local visitor economy.</p> <p>This study seeks to establish the Socioeconomics of opening the waterways between Stratford-upon-Avon and Warwick, in addition, a high level environmental statement will be provided. Both pieces of work aim to inform the clients of what the overall impacts of implementing the development will be on the local area.</p>

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	<p>adequate access, availability of existing facilities such as transport links or shops, adequate water resources and foul waste infrastructure and it can be demonstrated that the Water Framework Directive status of navigable rivers will not deteriorate. Such schemes should not compromise the use or operation of existing navigable waterway features such as junctions or locks.</p> <p>All forms of tourism and leisure development should be sensitive to the character of the area and designed to maximise the benefits for the communities affected in terms of job opportunities and support for local services.</p> <p>Large-scale proposals for new and major extensions to existing tourism-related development, including accommodation, will need to be justified considering:</p> <ol style="list-style-type: none"> 1. the nature of the activity and whether it can only reasonably be located in a rural area; 2. the nature of the existing site and its relationship to the local area; 3. its impact on the character of the local landscape and settlements, including historic and natural features; 4. the benefits that the scheme offers to the local communities; 5. the benefits that the scheme would secure to wider economic or environmental interests; 6. the relationship between the development and major transport routes and impact on the highway network; and 7. the accessibility of the site by existing public transport and the scope to improve services. <p>Policy AS.1 Stratford-upon-Avon – The Policy sets out the following principles in considering development proposals and other initiatives relating to the Stratford-upon-Avon area, of relevance to the Navigation Scheme:</p> <ul style="list-style-type: none"> ▪ Environmental: <ol style="list-style-type: none"> 1. Enhance the River Avon corridor through the town for its biodiversity, recreational and flood management value; 2. Improve linkages between key biodiversity areas and corridors, including the river, the racecourse and Welcombe Hills; 	

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	<ol style="list-style-type: none"> 3. Provide additional access to natural accessible greenspace given the shortfall against the standard set out in Policy CS.25 Healthy Communities; 4. Improve the appearance and image of the Stratford Enterprise Park; and 5. Apply measures relating to the Air Quality Management Area designated for the town. <ul style="list-style-type: none"> ▪ Social: <ol style="list-style-type: none"> 1. Provide additional parks, gardens and amenity greenspace ▪ Economic: <ol style="list-style-type: none"> 2. Provide opportunities for existing companies to expand and to attract new companies to the town; 3. Support uses which create a diverse and prosperous night-time economy for residents and visitors; and 4. Improve the quality and variety of the visitor experience. <p>Policy CS.25: Healthy Communities - The provision of new and enhanced community, cultural, sport and leisure facilities will be encouraged as a way of promoting healthy, inclusive communities. New open space provision is to be designed to complement and enhance the existing open space provision in the area. Where appropriate, improvements to the quality and/or accessibility of existing provision will be sought.</p> <p>Policy CS.26: Transport and Communications - Development will only be permitted if the necessary mitigation is provided against any unacceptable transport impacts which arise directly from that development. This will be achieved, as appropriate, through measures such as the provision of new, and the improvement of existing, pedestrian and cycle routes.</p> <p>The Policy details a number of areas of land which have been safeguarded for transport infrastructure requirements.</p>	
<p>Stratford-on-Avon District Council</p> <p>Development Requirements Supplementary Planning</p>	<p>The Council are preparing a Development Requirements Supplementary Planning Document (SPD) to provide additional guidance on the interpretation and implementation of a number of policies within the Core Strategy.</p>	<p>The production of the SPD by the Council would allow further guidance on topics such as design, parking, affordable housing and planning obligations for developments such as the Avon Navigation Scheme. Such a document would be useful to provide and guide towards the Councils</p>

Document	Key Policies and Priorities	Implications for Avon Navigation Scheme
Document (SPD) (TBC)	At the time of writing this report, the SPD was not available and as such has not been reviewed as part of this work	requirements and aspirations for future developments across the District.
Stratford-on-Avon District Council Stratford-on-Avon Neighbourhood Development Plan (NDP) 2011-2031 Submission Version - April 2017	<p>The Localism Act of 2011 introduced three new tools to help local communities shape planning in their area. A Neighbourhood Plan establishes a vision and general planning policies, as well as proposals for the future development and use of land in a local area.</p> <p>A Neighbourhood Plan forms part of the district's local development plan and will be a significant consideration when decisions are made on planning applications within the plan's area.</p> <p>A Plan is currently "in progress" for Stratford-upon-Avon. The Submission version (April 2017) for the Development Plan Period 2011 – 2031 has been reviewed.</p> <p>The Stratford-upon-Avon Neighbourhood Development Plan sets out to ensure that future development respects the character of the town, is supported by adequate infrastructure and brings benefits to the community.</p> <p>This vision for the Neighbourhood Area in 2031 is based on extensive consultation and feedback from residents:</p> <ul style="list-style-type: none"> ▪ Stratford-upon-Avon will still be instantly recognisable as a historic market town in a beautiful riverside setting. It will have absorbed the additional housing required by SDC but retained its charm and individuality; the historic core will have been sympathetically enhanced and run-down areas redeveloped; ▪ For residents, the town will be liveable: compact, walkable, attractive with good public spaces, culture, a strong local economy and housing choice; ▪ Stratford-upon-Avon will also continue to act as a centre for the surrounding area for shops, services and jobs; ▪ The town will be much better at accommodating and managing visitors; ▪ There will have been an integrated approach to investment in infrastructure and transport, traffic will be less intrusive, and congestion will have been reduced and managed effectively; 	<p>The Stratford-on-Avon NDP provides feedback from the local community of what they would like to see happening with the Stratford-on-Avon Neighbourhood throughout the Plan period (2011 - 2031). As such, this document provides an informed basis of the delivery requirements the community have in order to support the delivery of a project.</p> <p>The Avon Navigation Scheme should consider the vision, objectives and policies associated with the NDP to enable a development receptive to the needs of the existing community and their aspirations for the future.</p>

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	<ul style="list-style-type: none"> ▪ Tiddington and Alveston will have retained their separate identities; and ▪ Stratford-upon-Avon will be greener with more soft landscaping, trees, open spaces and green corridors linking the town to the countryside. <p>Objectives to achieve the Plans vision, which are of relevance to the Navigation Scheme, are as follows:</p> <ul style="list-style-type: none"> ▪ Promoting new high-quality employment opportunities in appropriate locations and encouraging the retention of existing employers in the Neighbourhood Area; ▪ Improving the visitor experience in the Town Centre; ▪ Protecting the town's heritage; ▪ Improving access and movement within the Town Centre; ▪ Promoting high quality sustainable design; ▪ Promoting a strong and healthy community; ▪ To improve pedestrian and cycle connectivity; and ▪ Provide green spaces and exercise facilities for the enjoyment of residents and to promote an active community. <p>Policies of relevance to the Navigation Scheme include the following:</p> <p>Policy E3: Promoting Employment Associated with Culture, Media and Tourism - Proposals for cultural, media and tourism-based services within the Neighbourhood Area will be supported.</p> <p>Policy TC4: Rother Street and Rother Market - Proposals to encourage Rother Street shopping and the Rother Market to become more established as a key anchor area shall be supported</p> <p>TC Project 6: Cycling in the Town Centre - Proposals for safer cycling within the Town Centre will be actively encouraged and implemented in consultation with the County Council and amenity groups.</p> <p>Policy BE1: Creating a Strong Sense of Place - All developments must demonstrate a high standard of design and layout. All large-scale developments are expected to achieve this through the following ways:</p> <ol style="list-style-type: none"> a. Permeability - the ability to move freely and effectively through a development to reach 	

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	<p>destinations by a choice of access routes, clear definition of public and private spaces and the integration and connection of the development into the surrounding area and adjoining developments;</p> <p>b. Variety - the experience of a choice of varied uses and activities, building types and forms, and the interaction of buildings, uses and people within a development and quality of the public realm; and</p> <p>c. Legibility - the quality and function of a place defined by nodes, landmarks, strong building blocks and lines, linkages and community cohesion.</p> <p>Policy BE2: Responding to Local Character - All development proposals must demonstrate how local character has been considered during the conception and evolution of a design.</p> <p>Policy BE5: Designing Out Crime - All development proposals are expected to demonstrate how design has been influenced by the need to plan positively to reduce crime, the fear of crime and how this will be achieved.</p> <p>Policy BE6: Design Quality - All new development should demonstrate that it has taken account of best practices to achieve high levels of sustainability and safety. Appropriate measures to deal with climate change should be demonstrated together with the use of sustainable drainage systems.</p> <p>Policy BE7: Effective and Efficient Use of Land - All development proposals must demonstrate an effective and efficient use of land.</p> <p>Policy BE10: Designated Heritage Assets - All proposals must as a minimum preserve the important physical fabric and settings of listed buildings and ancient monuments.</p> <p>Policy NE2: River Avon Biodiversity Corridor - Proposals within the Flood Zones of the River Avon will be required to show that they will not damage the river's role as a biodiversity corridor or linkages between the river and other important biodiversity sites. Proposals which positively enhance or contribute to the environmental quality of these areas will be supported.</p> <p>INF Project 6: Dedicated Pedestrian and Cycle Routes - A network of new and improved pedestrian and cycle paths will be created within</p>	

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	<p>the Neighbourhood Area. Development proposals will be expected to demonstrate how pedestrian and cycle links have been incorporated throughout the development and how the development connects to the existing infrastructure.</p> <p>Policy CLW3: Protecting and Enhancing Existing Open Spaces - It is important to protect and enhance existing open spaces in order to ensure a suitable quantum and quality of recreational and amenity space is available for the Neighbourhood Area.</p> <p>Policy CLW5: Walking and Cycling Routes - The Neighbourhood Area has a wealth of public routes and rights of way which should be protected, enhanced, expanded and positively utilised in all new development. New development must demonstrate how walking and cycling opportunities have been incorporated and connections made to existing routes.</p> <p>CLW Project 2: Promoting New Strategic Green Open Spaces - In order to ensure that there is sufficient green open space for the growing population the following proposals, of relevance to the Navigation Scheme, will be promoted:</p> <ol style="list-style-type: none"> A green corridor or 'necklace' around Stratford-upon-Avon incorporating footpaths and cycle routes that are connected and accessible to all users. The necklace should include extensive native tree planting to encourage biodiversity and enhance the natural environment. Developments on the edge of town must demonstrate how they contribute to the creation of the green necklace and how they connect to it; and The integration and connection between developments for pedestrians and cyclists in order to enhance permeability between green open spaces. <p>Policy CLW8: Reducing Levels of Air, Noise and Water Pollution - Where appropriate, development proposals will be required to demonstrate how measures to minimise the impact of pollution have been considered.</p> <p>Policy SSB1: Canal Quarter Regeneration Zone - Developments that would deliver an enhancement to the canal corridor through the release of previously developed land and buildings for redevelopment comprising mixed</p>	

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	<p>uses will be supported. In particular it is expected that:</p> <ul style="list-style-type: none"> a. Existing commercial uses and development would be relocated from the canal side to more appropriate locations such as the proposed Employment Site in Core Strategy Proposal SUA.2; b. New development along the canal would be primarily residential, of no more than 4 stories, with some supporting mixed uses; c. A linear park of at least 5m in width on at least one side of the canal would be provided incorporating landscaping and pedestrian and cycle access; and d. New development would front onto the canal to enhance appearance and make a safer and more inclusive environment. 	

Appendix E List of Stakeholders

Alveston Residents Group
Avon Boating
Avon Navigation Trust
Canal & River Trust
Canal and River Tours
Charles Cadogan (South Bank Farmer)
Charlecote Parish Council
Chris Taylor (Owner of Castle Park, Warwick)
Councillor Colin Quinney
Councillor Kate Rolfe
Councillor Peter Richards
Coventry and Warwickshire LEP
Dave Webb
David Tucker
Derrick William Clark (North Bank Farmer)
Environment Agency
Hampton Lucy Parish Council
Highways England
Historic England
Jamie Dewhurst (North Bank Farmer)
Jephson's Farm
Jeremy Clay (North Bank Farmer)
Karl Grevatt – Hampton Lucy Miller at Charlecote Mill
Leamington Spa Angling Association
Liz Ogg (Westham Farmer)
National Trust
Natural England
Robin Smith-Ryland
Shakespeare's England
Stratford-On-Avon District Council
Tim Morgan (Westham Farmer)
Vale Fresco (Nick Mauro)
Warwick Boat Club
Warwick Castle (Merlin Entertainment)
Warwick Castle Park Trust
Warwick Chamber of Trade
Warwick District Council
Warwick Society
Warwick Town Council
Warwickshire County Council
Warwickshire Wildlife Trust

Appendix F ANT Costs

NOTES TO CONSTRUCTION ESTIMATE – ANS

14-10-18

Current prices and costs are from a number of sources:

ANT (A)

CRT (C)

Hawkesford's Estate Agents (H)

Faithful & Gould (FG)

Mabey Hire (MH)

The Constructive Group (CG) (Crouch Waterfall)

Mike Sheard, Proj Mgr (MS)

Industry Standard (IS)

The Inland Waterways Association (IW)

All are considered to be generously biased high.

1. The costs of Locks, Weirs, Bridges, Cuts, Extraction, Disposal and Land Purchase have been estimated, including allowances for all labour, materials, plant and legal permissions.
2. Volumes, quantities and dimensions are biased high with obvious potential savings of materials, excavation and disposal ignored. For example the Barford Canal and other sites are likely to yield saleable materials but no account has been taken of this. All spoil is assumed to be taken off-site.
3. The cost of site investigation and refinement of mass concrete lock design and construction method has been included for Warwick lock flight (CG).
4. An allowance has been made in the main figure for the cost of reports or studies, EIS, etc., which local authorities may require. The experience of ANT suggests that a budget figure of £50k per site should be used.
5. An allowance of 5% has been added to the full cost to cover for Consultant Engineering, Architect Fees and Project Management (MS).
6. An allowance of £300,000 has been included as the estimate for obtaining the high level legal authority, Transport and Works Order, etc.
7. No account has been made of the possible need for and the cost of archaeology on any of the sites. The Warwick Castle lock site is perhaps the most potentially sensitive.
8. No account at this stage has been taken of the cost of environmental enhancements. In particular these may include the old river channel at Hampton Lucy and a possible new shallow channel at Barford. These are likely to involve relatively simple earthmoving and offer benefits for little expense.
9. Dredging is difficult to estimate since no need for any major dredging is apparent nor is it proposed. A budget figure is however included (A).
10. Two models of lock design are developed for the Tiddington site, a Shallow and Deep design. These are then applied as relevant to individual sites with costs in proportion to gate height.
11. The Shallow version is assumed to be built in or close alongside the river channel and require little or no land acquisition. Three rows of piles are required: one alongside the bank and two to form the lock island. Allowances are made for cut backs at each end.

12. The Shallow version requires a new shallow weir alongside. These together with lock moorings are costed separately.
13. The Deep Lock version is built alongside an existing weir or on a canal route. These are thus dry land construction sites. Two rows of piles are required to form the lock walls. Allowances are made for cut backs at each end.
14. Piles are proposed to be driven 2.5 M below the finished lock floor (A). Other dimensions, standard draught, lift and freeboard are as shown.
15. Larssen piles to be used for lock structures and weirs. M13 Galvanized for moorings (MH).
16. Concrete is proposed for all gate cills and seatings. Floors for piled locks to be approx 1.0 M reinforced concrete (A).
17. Concrete cost is taken as £70 per cu m (IS). All concrete is estimated to require reinforcement at 1% of cross-sectional area (IS). In practice this is an overestimate since whilst floors need this percentage, areas of mass side walls of fully concrete locks do not. Reinforcement is taken as £75 per cu m of concrete placed (IS). Formwork is estimated at 10% of concrete cost and placement at 50% of concrete plus reinforcement cost (MS).
18. Gates are proposed as steel single leaf wherever possible. To be of buoyant tank construction with sockets in heel post and pin on lock floor. Shallow locks to be fitted with four paddles in top gates. Elsewhere two paddles as current practice. French paddle gear, tubular bars and buoyant paddles (A).
19. Other cost elements, rock for weir reinforcement, tie-backs for lock walls, etc are hopefully self explanatory.
20. Rock for Tiddington Weir stabilisation calculated as follows. Nominal weir length 15 M. Nominal water depth 2 M. Rock slope 1:3. Rock density 2.5. Packing Fraction 80%. Hence: $15 \times 2 \times 6 \times 0.5 \times 2.5 \times 0.8 = 180$ tonne.
21. The lock and weir costs for other sites are based on the Tiddington costs and are in proportion to the nominal gate height. This cost escalation only fully applies to the bottom gates but is a useful over estimate. Gate height is taken as standard draught plus lift plus freeboard. A number of cost elements are fixed e.g. Lock Floors, Piling below water line, Paddle Gear, etc, however this approach is deemed to provide a sensible margin at this stage.
22. Excavation volumes for lock sites and cuts are mostly taken from the UANT Brochure. The Barford Canal volumes have been recalculated on the following basis. Length = 900 M. Depth of water = 1.5 M. Bed Width = 8.5 M. Surface of water below ground level at central section = 4.5 M. Length of central section = 400 M. Immersed side slope = 1:1. Towpath on east side 3 M wide with 1 M freeboard. Slope above water = 1:3. The ground slope at north and south ends is assumed to result in 50% of centre volume, but in practice will be less.
23. Land areas required are based on desk-top site surveys. It is assumed that at Edmondscote lock flight the flight will swing well away from the line of the canal as it descends in order not to compromise the stability of the canal embankment and aqueduct.
24. The flight of four locks at Edmondscote is perhaps the area of greatest uncertainty. Costs have been prepared on the basis of only the land area required for a navigation passage, but also assuming that all spoil will need to leave the site. This may not be the case. The nature of the site suggests the possible construction of a multi-level marina utilising all extracted material.
25. Two costs are provided for Edmondscote, firstly based on standard ANT piled locks and secondly, the extra cost of non-piled mass concrete structures. The final total assumes mass concrete will be employed at this site.

26. The new canal junction at Edmondscote will involve diverting the fibre optic cable that is laid in the towpath, either down into the canal bed or carried under the new junction footbridge.

27. On the above rules and assumptions two costs have been determined for the project, which reflect the choice of route near Barford, either via a new canal or following the river channel.

Canal Route: £12.2M

River Route: £9.1M

Appendix G Construction Phase Assumptions

The construction of the project will initially generate benefits to the local economy through the employment and support of construction employees in the surrounding area as described above. In turn, it is expected that there would be an additional uplift of Gross Value Added (GVA)⁶³ to the local area. This benefit is calculated by dividing the overall cost of the scheme by what it takes to support one construction worker for one year in the region (1 Person Year or Gross Jobs). This is equal to £194,844 in the West Midlands⁶⁴.

Additionality factors are applied to gross construction employment to calculate the net employment estimated in each spatial area. The spatial areas are: Local Area (Stratford-upon-Avon and Warwick); Warwickshire; and England. These can be found in the table below. The additionality factors are explained below:

- **Leakage** – This reflects the proportion of employment opportunities accessed by people living outside the spatial area. Given the connectivity of the local area and the transient nature of construction employment, it is expected that 25% of jobs would go to residents of areas other than Stratford-upon-Avon and Warwick. Furthermore, it is expected that 10% of construction jobs would go to non-Warwickshire residents. It is assumed that all construction work would be contained to Midlands residents;
- **Deadweight** – This is the proportion of activity that would take place regardless of intervention. Given the level of residential development in the Warwick/Leamington Spa area, it is expected that 20% of construction employment would have happened anyway. This gradually increases the larger the spatial area, with deadweight being relatively high in the Warwickshire and England spatial areas;
- **Displacement** – This is the proportion of the employment benefits accounted for by a reduction in benefits elsewhere i.e. the larger the spatial area, the greater the competition for resources (employment), as a result the level of displacement increases; and
- **Multiplier** – This reflects estimated further economic activity associated with additional income and supplier purchases (i.e. indirect and induced expenditure). ONS Input – Output tables for England have been used. Note, it is assumed that Warwickshire will capture 80% of the national multiplier and that the Local Area is 60% of the Warwickshire multiplier.

The number of net jobs is multiplied by the GVA per construction worker in the West Midlands - £28,120⁶⁵, to generate a total GVA for the construction element of the ANS. It may also be appropriate to assume community benefits clauses in construction contracts, resulting in the support of apprenticeships and/or trainees. The CRT model assumes this to be 4%.

	Study Area	Warwickshire	England
Leakage	25%	10%	0%
Deadweight	20%	45%	50%
Displacement	10%	15%	25%
Multiplier	1.68	1.85	2.06

⁶³ Gross Value Added (GVA) is a measure of economic growth within a particular area.

⁶⁴ ONS Employment and Turnover Count – March 2017

⁶⁵ ONS Data on GVA by Industry by Region

Appendix H Operational Phase Assumptions

- 9.2.3** A separate set of additionality factors are then accounted for that differ from the construction industry, these can be found in

Additionality Factors – Additional Boats

	Local Area	Warwickshire	England
Leakage	15%	2%	0%
Deadweight	10%	80%	90%
Displacement	10%	35%	50%
Multiplier	1.25	1.41	1.52

Leakage – This is the proportion of employment opportunities accessed by people living outside the spatial area being considered. Given the connectivity of the local area, it is expected that 15% of jobs would go to people out with Stratford-upon-Avon and Warwick. Due to the relatively lower than average wage expected within each of the analysed industries, it is expected that few people would travel from out with the Warwickshire area to work in the local area. Similarly, it is expected that 0% of the jobs would go to people living out with England.

- **Deadweight** – This is the proportion of jobs that would take place regardless of intervention. Given the popularity of each visitor market (Stratford-upon-Avon and Warwick), it is expected that deadweight would sit at 10%. This gradually increases the larger the spatial area, with deadweight being relatively high in the Warwickshire and England i.e. the number of tourism jobs expected to happen anyway.
- **Displacement** – This is the proportion of the employment benefits accounted for by a reduction in benefits elsewhere i.e. the larger the spatial area, the greater the competition for resources (employment), as a result the level of displacement increases;
- **Multiplier** – This is the estimated further economic activity associated with additional income and supplier purchases (i.e. indirect and induced expenditure). The multipliers have been sourced from the ONS Input – Output tables for England⁶⁶. Note, that the Warwickshire area is 80% of the English multiplier and the Local Area is 60% of the Warwickshire multiplier.

Industry Turnover, Employees and Support for 1 year of Employment⁶⁷ (West Midlands)

	Employees	Industry Turnover (£,000s)	Support for 1-year Employment (£)
Retail	264,388	27.14	102,656
Accommodation + Food Services	107,014	3.78	35,316
Arts, Entertainment and Recreation	89,879	22.09	254,887
Tourism Sector Avg.	153,760	17.93	130,953

⁶⁶ ONS Input – Output Tables – Based 2014

⁶⁷ ONS Employment and Turnover Count – March 2017

Additionality Factors – Additional Boats

	Local Area	Warwickshire	England
Leakage	15%	2%	0%
Deadweight	10%	80%	90%
Displacement	10%	35%	50%
Multiplier	1.25	1.41	1.52

Additionality Factors – Additional Boats

	Local Area	Warwickshire	England
Leakage	15%	2%	0%
Deadweight	10%	50%	80%
Displacement	10%	15%	25%
Multiplier	1.25	1.41	1.52