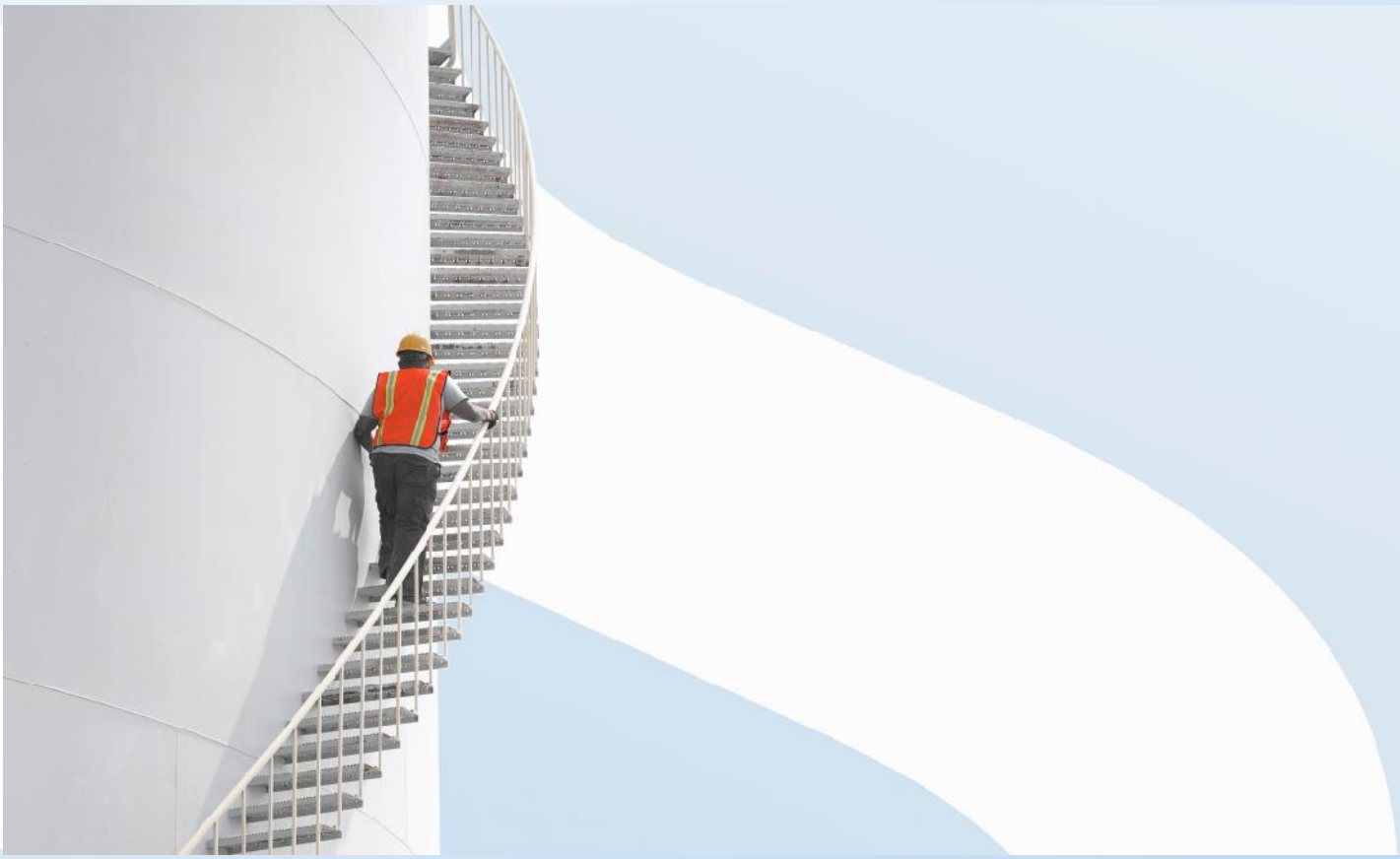
NORFOLK COUNTY COUNCIL

WEST WINCH HOUSING ACCESS ROAD

STRATEGIC OUTLINE BUSINESS CASE



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INTRODUCTION

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1. The South-East King's Lynn Strategic Growth Area has been identified in the King's Lynn and West Norfolk Local Plan as the primary site for substantial housing development. This comprises 4,000 new dwellings on land between the A10 and A47. The site has been selected as the only site available in the area for such levels of growth due to flooding constraints elsewhere, and its proximity and links to King's Lynn. King's Lynn is a hub for many neighbouring, smaller rural settlements and offers employment opportunities as well as a range of services in terms of retail, healthcare, social. It is also home to the Port of King's Lynn which can be accessed by road from the A10 and A47 from the south. The housing development cannot come forward without new highway infrastructure to mitigate the impacts of the additional traffic demand.

1.1.2. The village of West Winch lies to the west of the existing A10, 4km south of King's Lynn. The existing A10 connects King's Lynn to Ely, Cambridge, and further south to London, it is therefore strategically important to the region and is heavily used by commuters, visitors and haulage companies. A traffic count undertaken in 2019 on the A10 immediately to the south of West Winch identified a daily flow of 17,850 vehicles, of which over 11% are HGVs[1]. As a result of this many vehicles travel through West Winch as part of their journey, causing severance, difficulty for residents to emerge from side roads and impacts on the amenity of the village. With many residential properties within the village bordering the road there is an ambition to provide a bypass of the village for through traffic. Further, additional capacity is required to cater for the increase in travel demand as a result of the planned housing growth.

1.1.3. Norfolk County Council (NCC) is working in partnership with the Borough Council of King's Lynn and West Norfolk (BCKLWN) to expediate housing delivery and coordinate the provision of the required highway infrastructure in the West Winch area. This comprises the West Winch Housing Access Road (WWHAR) which includes improvements to the Hardwick Interchange, dualling of a section of the A47 and a new housing access road between the A47, just east of Hardwick Interchange, and the A10, to the south of the village of West Winch.

1.1.4. The BCKLWN has carried out viability work for the growth area and produced an Infrastructure Delivery Plan (IDP). This has identified significant infrastructure requirements to enable the delivery of 4,000 new homes, incurring substantial costs. Viability work undertaken for the IDP identified that the housing development could not contribute the full cost of the road infrastructure in addition to the build costs of the housing and supporting infrastructure. The IDP identified that the housing development could contribute some £13m[2] towards the WWHAR, but not fund it all. For this reason government funding is being sought to support the project.

1.1.5. NCC and BCKLWN are currently developing the planning application for the WWHAR, which is expected to be submitted in Spring 2022. Alongside this, NCC and BCKLWN have undertaken the development of the Strategic Outline Business Case (SOBC) for the WWHAR scheme. Transport East, the Sub-national Transport Body for the area, included the WWHAR as one of its priorities for Major Road Network improvements when it submitted its Regional Evidence Base (REB) in July

[1] DfT Road Traffic Statistics
[2] 2018 prices

2019. Transport East has recently reconfirmed its support for the scheme and this SOBC submission to government.

1.2 THE SCHEME

1.2.1. In line with the BCKLWN Affordable Housing Policy, 20% of the housing delivered in the South-East King's Lynn Strategic Growth Area would be affordable. The northern section of the site, known as Hardwick Green, has capacity for 1,100 of these homes. A planning application is pending for this site, with the developer Hopkins Homes set to deliver the housing and provide a contribution to the required infrastructure to support the growth.

1.2.2. For this SOBC it is assumed that without transport intervention only 350 homes can be developed on the Hardwick Green site, a further 750 homes on this northern site could come forward provided an access road is constructed connecting the site to the A47 (including roundabouts for access/interchange)[3]. To achieve delivery of all 4,000 homes on the site the WWHAR scheme must be delivered.

1.2.3. The WWHAR scheme comprises a number of highway interventions within the vicinity of the development ensuring the site is connected and that the highway network can cope with the increase in demand. The main elements of the WWHAR scheme include:

- A housing access road to the east of West Winch connecting the A47 with the existing A10. This will provide the additional road capacity necessary to accommodate traffic associated with new dwellings;
- A roundabout on the housing access road providing access to the Hardwick Green planned development;
- Two priority junctions on the housing access road to serve proposed dwellings that are outside the planned Hardwick Green development;
- A roundabout on the housing access road, at its southern end, providing a connection to the existing A10;
- Modifications to the existing Hardwick Interchange to accommodate additional housing traffic plus re-orientation of trips through the junction;
- Dualling of the existing A47 between Hardwick Interchange (Constitution Hill roundabout) and the housing access road;
- A signalised roundabout junction where the housing access road meets the A47; and
- Treatment of local roads severed by the housing access road.

The Local Plan, Site Allocations and Development Management Policies (adopted in 2016) indicated a general alignment for the access road[4] that formed part of the appropriate transport infrastructure to enable the housing growth. This alignment was on the basis of the scheme development and options appraisal work. Therefore, the location of the housing access road considered within this SOBC aligns to the general alignment set in policy. Section 2.10 sets out option development work undertaken to date. Figure 1-1 below shows the proposed WWHAR scheme.

1.2.4. In parallel to the development of this SOBC for the housing access road, the Masterplan for the housing allocation area is being developed by the BCKLWN. The Masterplan will be designed to ensure that future residents are able to walk and cycle safely and conveniently within the

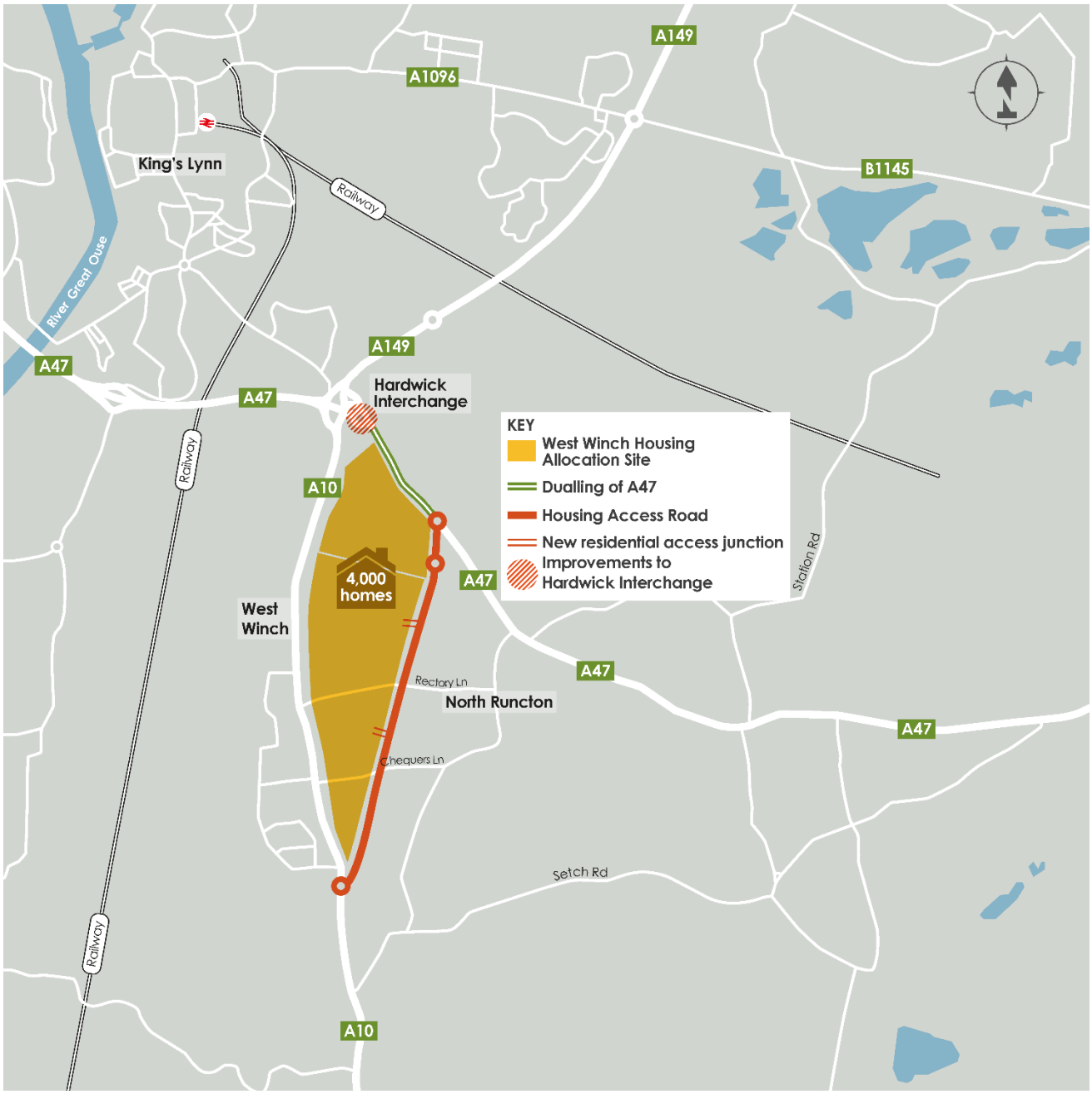
[3] The level housing considered dependent may be refined following Transport Assessments undertaken by developers
[4] https://www.west-norfolk.gov.uk/downloads/file/2491/sadmp_plan_adopted_2016 (page 118 - 119)

development itself and also to local destinations. Walking and cycle facilities within the development area will tie-in to the combined footway / cycleway that will be provided along the length of the WWHAR and also connect to existing facilities located in West Winch and on the A10.

1.2.5. The Masterplan is also being designed to ensure that the development area can be served by bus services and that public transport is a genuine alternative to car travel for future residents.

1.2.6. Within the wider area the Local Cycling and Walking Infrastructure Plan (LCWIP) is being developed that will consider how to connect the development site to key hubs including King's Lynn, encouraging active travel. Delivery of the housing development and access road will support the realisation of these wider initiatives in the area, providing a comprehensive package of measures that addresses the needs of the local community.

Figure 1-1 - WWHAR Scheme



1.3 STRATEGIC OUTLINE BUSINESS CASE

1.3.1. This SOBC presents the strategic rationale for the proposed WWHAR scheme and highlights the need for support from the Department for Transport (DfT) to develop the case further. It draws together the work undertaken to date considering the detailed highway design, environmental implications and constraints as well as the opportunities presented by the scheme. This Business Case presents the need for the scheme as well as the current anticipated value for money of the proposals consistent with DfT guidance.

1.3.2. The structure of the SOBC follows HM Treasury's five-case Business Case model, with a chapter for each case:

- The *Strategic Case*: setting out the case for change, scheme objectives and alignment with national, regional and local policy;
- The *Economic Case*: demonstrating the value for money of the scheme, and how the impacts address the need for intervention;
- The *Financial Case*: describing the proposed funding arrangements to ensure the affordability of the scheme over its lifespan;
- The *Commercial Case*: identifying commercially viable approaches for the delivery of the scheme;
- The *Management Case*: confirming the processes and controls in place to successfully manage the implementation of the scheme and realise the forecast benefits.

1.3.3. The five Cases document the development of the project, identify the economic and social benefits of the scheme and provide confidence that the proposals are deliverable, subject to further development work and confirmation of affordability.

2

THE STRATEGIC CASE

2. THE STRATEGIC CASE

2.1 INTRODUCTION

2.1.1 The Strategic Case sets out the case for change, identifying the need for intervention and option development to find the 'right' solution to meet this need. This Strategic Case is developed in line with HM Treasury's Green Book and the relevant guidance from the DfT.

2.1.2 West Winch is a civil parish in the county of Norfolk, within the district of King's Lynn and West Norfolk. West Winch is located just over 4km south of King's Lynn via the A149 and the existing A10. King's Lynn has been identified as the 'growth point' of the region. The BCKLWN Local Plan[5] outlines housing, retail and employment growth strategies in the town.

2.1.3 Over the last five years, delivery of housing in the area has not met the identified need, leading to lack in supply and increased house prices. This is in part due to the viability and profitability of the market in Norfolk where economic conditions make it difficult to bring forward development. With forecast growth in population and employment in King's Lynn and the surrounding area, there will be increased pressure on the housing market. This housing gap is significant because it can lead to businesses having limited access to a labour force, restricting the area's economic growth potential. Providing housing within a commutable distance of employment sites will provide for the increase in population and employment and support growth.

2.1.4 The South-East King's Lynn Strategic Growth Area is largely bordered by the A10 to the west and the A47 to the east, including parts of the parishes of West Winch and North Runcton. This area has been identified in the Local Plan as the largest site allocated for housing, the West Winch Housing Allocation, and represents the only large scale housing site available due to flooding and other constraints elsewhere and proximity and links to King’s Lynn. This housing site has the potential, and has been allocated in the Local Plan, for 4,000 new dwellings, and therefore offers the greatest opportunity for the region to meet its housing shortfall and help to meet its growth potential.

2.1.5 The existing A10 is a former trunk road and part of the major road network. It is a key north-south route between London, Ely, Cambridge and King’s Lynn and surrounding areas. Serving these strategic locations means the road is heavily used by commuters, freight traffic and tourists. The A10 between Watlington and King's Lynn, including West Winch, experiences some of the highest traffic levels on the road, with 17,850 vehicles daily, of which over 11% are HGVs[6]. The village of West Winch borders the A10, with residential properties adjacent to the road.

2.1.6 The A47 is one of the main east-west economic corridors in East-Anglia and connects Lowestoft and Great Yarmouth in the east with Norwich, King's Lynn and beyond to the Midlands and the rest of the country. It has strategic importance for the local economy, generating a high level of HGV circulation. It is part of the Trans-European Network and the Strategic Road Network (SRN). The A47 provides a link to a number of important international gateways and economic sites in the area including:

- Norwich International Airport
- Great Yarmouth, King's Lynn and Lowestoft Ports
- Regional Enterprise Zones

[5] King’s Lynn & West Norfolk Borough Council Local Development Framework - Core Strategy: https://www.west-norfolk.gov.uk/downloads/download/68/core_strategy_document
[6] DfT Road Traffic Statistics

2.1.7 Both the A10 and A47 experience issues of congestion due to road capacity and network resilience. The A10 and the A47 feed into the Hardwick Interchange to the north. At peak times, the interchange between the A47 and A10 suffers from acute congestion with single carriageways carrying traffic levels which exceed their design flow. Many residential properties border the existing A10 through West Winch village; the continual traffic flows subject these properties to high levels of noise and pollution. Further the high traffic volumes on the road present safety implications for vehicles emerging from side roads and properties to join the A10.

2.1.8 In order to fully realise the potential of King's Lynn and West Norfolk, and bring forward the housing potential of the West Winch Growth Area site, it is necessary to provide the transport infrastructure to connect this site to the region, divert through traffic away from West Winch village, and provide capacity on the road network for the additional demand and for future growth.

2.1.9 The rest of the Strategic Case is structured as follows:

- **Business Strategy** - describes the strategic aims of the organisation(s) promoting the scheme, details of the funding sources and the criteria to unlock such funding.
- **Problem Identified** - describes the challenge being faced that presents the need for intervention.
- **Impact of Not Changing** - demonstrates the significance of the scheme through describing the future in the absence of intervention.
- **Objectives** - identifies the scheme objectives and demonstrates how they align with the priorities of the funding source.
- **Measures of Success** - sets out how the success of the scheme will be recognised.
- **Scope** - describes what the project will deliver and also what is out of scope.
- **Constraints** - identifies the constraints that have and will impact on the scheme from a physical, environmental, legal, and public acceptability perspective.
- **Interdependencies** - highlights internal/external factors upon which the successful delivery of the project is dependent.
- **Options** - sets out the options identified and considered for the scheme, and assesses their impact on the proposal's objectives and wider public policy objectives.
- **Strategic Fit** - demonstrates how closely the proposed scheme aligns to existing plans and policies at a national, regional and local level.
- **Stakeholders** - outlines the main stakeholder groups that will be affected by the scheme.

2.2 BUSINESS STRATEGY

2.2.1 This section provides the context for the Business Case by describing the strategic aims and responsibilities of the organisations promoting the scheme (NCC and BCKLWN), and how the scheme aligns with these. It shows how the scheme relates to the Government's objectives for the MRN and the criteria for funding. Where appropriate, a Red / Amber / Green indication has been used to demonstrate how the WWHAR scheme will contribute to strategic objectives:

- **Green** indicates that the proposals are well-matched to a given objective
- **Amber** suggests less direct but complementary alignment
- **Red** demonstrates a potential conflict of aims or priorities

2.2.2 Alignment of the scheme to wider policy at a national, regional and local level is included within the *Strategic Fit* section later in the Strategic Case.

Norfolk County Council

2.2.3 NCC is the top tier local Government Authority for Norfolk. There are seven second tier local Government District Councils within the NCC area which are; Breckland District, Broadland District, Great Yarmouth Borough, North Norfolk District, Norwich City, South Norfolk District and King's Lynn and West Norfolk Borough.

2.2.4 In February 2018, NCC set out its vision for Norfolk in 2021[7]. This vision encompasses six key areas of focus for the County to overcome the future challenges it faces:

- Build communities we can be proud of
- Install infrastructure first
- Build new homes to help young people get on the housing ladder
- Develop the skills of our people, through training and apprenticeships
- Nurture our growing digital economy
- Make the most of our heritage, culture and environment.

2.2.5 The WWHAR scheme contributes to three of these elements of the vision, set out in **Table 2-1** below.

Table 2-1 - Alignment of WWHAR Scheme with NCC Aims

NCC Aims	Contribution of the WWHAR	RAG
Build communities we can be proud of	The WWHAR will improve the quality of life for people in West Winch and in particular for those living in the properties alongside the A10. It will also facilitate the provision of new sustainable communities in the growth area.	Green
Install infrastructure first	The WWHAR will unlock the development of 4,000 new homes. The infrastructure will be required before the vast majority of these new homes can be built.	Green
Build new homes to help young people get on the housing ladder	The WWHAR is an essential scheme to ensure there is sufficient highway capacity to enable and unlock the delivery of 4,000 new dwellings as set out in the Local Plan. The site will include affordable housing.	Green

2.2.6 The WWHAR scheme will contribute directly to NCC's vision of building new homes, installing infrastructure and building communities. NCC is the Local Transport Authority covering the roads in the West Winch area and is responsible for the management and maintenance of the A10 and surrounding roads, including road safety issues. NCC's transport policies are set out in Connecting Norfolk: Norfolk's Local Transport Plan (2011-2026) and the accompanying Connecting Norfolk Implementation Plan. These documents are currently under review.

2.2.7 In 2019 NCC released Together, For Norfolk, an ambitious plan for the County. This Plan identified the priorities for Norfolk for investment in future growth and prosperity by:

- Focussing on inclusive growth and social mobility
- Encouraging housing, infrastructure, jobs and business growth across the County

[7] Caring for our County: A vision for Norfolk in 2021, Norfolk County Council, February 2018

- Developing our workforce to meet the needs of the sectors powering our local economy
- Work to reduce our impact on the environment

2.2.8 The WWHAR scheme will support delivering a number of these priorities. The scheme will support the delivery of housing which will increase the labour pool for businesses in the area and also retain skilled workers.

Borough Council of King's Lynn & West Norfolk

2.2.9 The BCKLWN is a local Government district and borough in Norfolk. The borough boundary extends from the north Norfolk coast, along the eastern side of The Wash, through the Marshlands, Fens and Brecks to the borders of Lincolnshire, Cambridgeshire and Suffolk. The West Winch Growth Area site lies within this district.

2.2.10 As part of the Local Development Framework, BCKLWN established the Vision for the borough. This Vision sets out where the Borough wants to be in terms of economy, society, environment and vision for places. It recognises the importance of delivering housing in a sustainable way, and growing the economy by making the area somewhere people want to live and work.

Major Road Network (MRN)

Purpose of the MRN

2.2.11 The MRN forms the middle tier of the England's busiest and most economically important local authority 'A' roads, sitting between the national Strategic Road Network (SRN) and the rest of the local road network. Following consultation in 2017/18, the Government announced a funding stream specific to improving the MRN network. The A10, a former trunk road, has been identified as part of the MRN.

MRN Objectives

2.2.12 The MRN has five central objectives which build on the commitments made in the Transport Investment Strategy.

2.2.13 The MRN objectives include:

- **Reducing congestion** - alleviating congestion on local and regional roads and the economic impact of these delays.
- **Supporting economic growth and regional rebalancing** - improving connection of people and businesses to markets and gateways to improve economic performance and support delivery of the Industrial Strategy.
- **Supporting housing delivery** - unlocking housing land for new developments
- **Supporting all road users** - recognising the needs of all road users, including active travel modes, disabled people, motorised and non-motorised modes.
- **Supporting the SRN** - complementing and supporting the SRN by creating a more resilient road network

2.2.14 The WWHAR scheme will contribute to all of the MRN objectives, in particular supporting housing delivery, as set out in **Table 2-2** below.

Table 2-2 - Alignment of WWHAR Scheme to MRN Objectives

MRN Objectives		Contribution to the WWHAR	RAG
Reduce congestion	Alleviating local and regional congestion, reducing traffic jams and bottlenecks	Providing an alternative route around West Winch, the new road will enhance the local road network by avoiding congestion and making journeys through West Winch more reliable and safer.	Green
Support economic growth	Supporting the delivery of the Industrial Strategy, contributing to a positive economic impact that is felt across the regions	The A10 is the key route into the King's Lynn area from the south. Avoiding the notoriously congested A10 approach to the Hardwick junction by using the WWHAR will improve reliability for business users. At present the perception of congestion on journeys to/from King's Lynn is likely to be having a negative impact on business confidence. This will help the new "levelling up" agenda which applies within, as well as between, regions.	Green
Supporting housing delivery	Unlocking land for new housing developments	The growth area is allocated for approximately 4,000 homes, and the Local Plan states that the WWHAR is an essential prerequisite to enable and unlock this. It is likely that only 300-350 homes could come forward without the road, subject to Transport Assessment evidence presented by developer and assuming agreement from the Local Planning authority.	Green
Support all road users	Recognising the needs of all users, including cyclists, pedestrians and disabled people	Public transport users, active mode users and disabled people will benefit from the reduction in traffic from the centre of West Winch and along the existing A10 route. A Local Cycling and Walking Infrastructure Plan (LCWIP) is in preparation for King's Lynn and this recognises both the opportunities on the existing route brought about by the WWHAR and in conjunction with the new route.	Green
Support the SRN	Complementing and supporting the existing SRN by creating a more resilient road network in England	The A10 is a key route to/from the major regional centres of Cambridge and Ely. It also connects, via the A47 on the SRN, to Norwich, Great Yarmouth and Lowestoft to the east and Peterborough and the Midlands to the west. The improved journey time reliability resulting from the WWHAR supports the efficient access to/from these roads and promotes the economic prosperity they aim to deliver.	Green

MRN Eligibility

2.2.15 The MRN Investment Planning Guidance sets out the eligibility criteria for schemes seeking MRN funding. Schemes eligible for funding include:

- Bypasses or new alignments which alleviate congestion and make through journeys quicker, safer and more reliable
- Missing links - new roads which link existing stretches of the MRN and SRN
- Widening of existing MRN roads where congestion is known to be an issue

- Major structural renewals to prevent potential closures
- Major junction improvements to improve safety and traffic flows
- Variable message signs and traffic management to improve the performance of the network
- Packages of improvements in line with the above

2.2.16 The WWHAR scheme addresses the first of the criteria by providing a new alignment bypassing West Winch and improving the reliability of journeys on the A10 on the approach to King's Lynn. It also effectively widens the existing A10, the third criteria, by providing a parallel route to the existing A10 to modern standards. This increases overall capacity on the route into King's Lynn where there are current congestion issues which will worsen with the planned housing growth.

Regional Evidence Base

2.2.17 In July 2019 Transport East submitted a Regional Evidence Base (REB) to the DfT. The REB outlined a strategic overview of the MRN in the region. Alongside this REB, a list of priority schemes for the MRN was submitted of which WWHAR was one.

2.3 PROBLEM IDENTIFIED

2.3.1 This section identifies and describes the need for intervention. It focuses on the identification of the problem, establishing why this is a problem and the challenge it poses to West Norfolk and more widely. The following section discusses the impact of not changing, and allowing these problems to exacerbate.

Housing Supply

2.3.2 On a national level the UK is facing a housing shortfall, and regionally over the last five years the local planning authorities of Norfolk have also struggled to meet their existing housing delivery targets. On a local level, BCKLWN have a pressing need to identify sufficient locations to meet the housing targets set by central Government, achieving 83% of target house completions in the five years prior to 2019/20. This gives a shortfall of almost 100 homes per year.

2.3.3 Table 2-3 below shows the local housing completion rates for King's Lynn and West Norfolk over the five years to 2019/20.

Table 2-3 - King's Lynn and West Norfolk Housing Completions 2015/16 – 2019/20[8]

Number of homes built	2015/ 2016	2016/ 2017	2017/ 2018	2018 / 2019	2019 / 2020	Average annual target	Actual annual average	% of target
KL&WN	520	395	384	342	591	539	446	83%

2.3.4 In addition, the delivery of affordable homes is currently below target. The Council's Housing Needs Assessment[9] identified a need for 202 affordable houses per year in the Borough. According to the 2018/19 Authority Monitoring Report, in 2017/18 29 affordable houses were delivered, 41 in 2018/19 and 63 in 2019/20.

[8] Borough Council of King's Lynn and West Norfolk Authority Monitoring Report
[9] Borough Council of King's Lynn and West Norfolk Housing Needs Assessment 2020

2.3.5 King's Lynn and West Norfolk has been identified as a strategic growth area[10]. Within King's Lynn there is a focus on brownfield redevelopment and renewal within the town, as well as urban expansion. The creation of the King's Lynn Enterprise Zone is a significant step towards this, with the 15ha Nar Ouse site including employment, residential and public facilities. Within this site there is the King's Lynn Innovation Centre which supports the development of local businesses. Further opportunities for employment growth are key sites in Hardwick Employment Park and Saddlebow Industrial Estate. This increase in economic activity and employment has resulted in an increase in demand for housing in a market already facing a shortage. This demand will increase as employment growth continues.

2.3.6 The River Great Ouse constrains growth to the west of the King's Lynn and West Norfolk borough, and the resulting flood risk areas restrict the locations where development can come forward. In addition to this, there are few sites identified that are large enough to provide the scale of development that is needed, and that are a commutable distance of these key employment sites.

2.3.7 With growing congestion on the roads, the necessity to deliver transport intervention(s) alongside housing development is becoming greater. This creates a further barrier to the delivery of housing as it involves additional capital expenditure and scheme preparation that can make schemes infeasible without Government investment.

2.3.8 The housing shortage in King's Lynn and West Norfolk has led to housing demand outweighing supply and therefore substantial house price increases. Between 2014 and 2019 house prices in King's Lynn and West Norfolk increased in real terms by 4.6% per year on average, and by 25% in total[11]. House price increases of this level will often price young, economically active, people out of the market. Businesses in the area are often faced with a skills gap due to a lack of housing limiting their accessible labour pool. It limits the ability to move jobs and match the supply of skills to demand. This can negatively impact business efficiency and productivity, deterring investment and restricting growth.

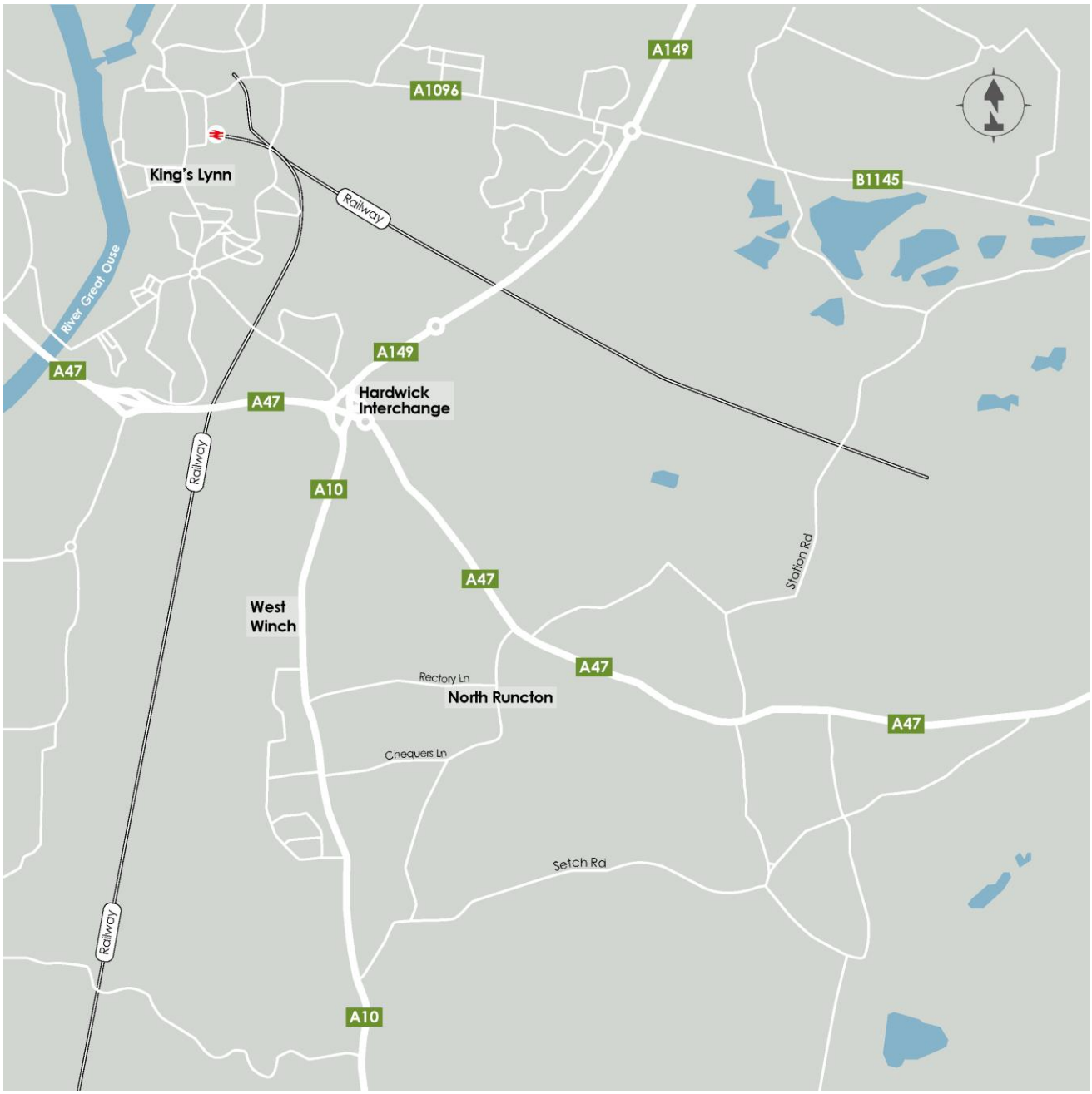
2.3.9 Due to the lack of housing supply, people are forced to live further from employment centres. This results in geographic immobility, restricting the ability of the population to move around the area in order to work. Longer distance commuting puts additional pressures on the local roads, including the A10 and A47.

Road Infrastructure

2.3.10 King's Lynn town centre is situated to the north of the interchange between the A10 and the A47 at Hardwick Interchange. Figure 2-1 shows the existing highway network in the study area.

[10] Infrastructure Delivery Plan for South East King's Lynn Strategic Growth Area
[11] Analysis of Land Registry House Price data

Figure 2-1 - Existing Highway Network



2.3.11 The section of the existing A10 within the area is a single carriageway. There is a 40mph speed limit from the Hardwick Interchange to the south through West Winch and Setchey, it then increases to 60mph. Within West Winch there are numerous private accesses directly on to the road together with a number of minor road uncontrolled junctions. There are limited dedicated crossing facilities for pedestrians, and currently no provision for cyclists along the road. There is currently a good provision of public transport services in the area, with three bus routes and two coach routes passing through West Winch on the A10 and into King's Lynn. Buses 37, 38 and 39 operate hourly, coaches 12 and 40 operate three times a day.

2.3.12 With its connectivity to Cambridge and London, the existing A10 is strategically important to the region and is heavily used by commuters, visitors and haulage companies. The section between

Watlington and King's Lynn experiences some of the highest traffic levels on the A10[12], A traffic count undertaken in 2019 on the A10 immediately to the south of West Winch identified a daily flow of 17,850 vehicles, of which over 11% are HGVs[13]. The section of the A10 on the approach to King's Lynn is prone to significant rush hour and seasonal congestion, regularly resulting in queues of 3-5km[14]. These queues result in extended and unreliable journey times. These delays are likely to be partly due to the decrease in speed limit from 60mph to 40mph due to the vicinity of the road to West Winch and Setchey. In addition, there are severance issues for the local community in West Winch due to the volume and nature of traffic using the A10. This volume of traffic through West Winch is also likely to be contributing to poor air and noise quality for local residents. On the A10 itself in this area, accident records show that over the last five years there have been 28 accidents, 4 of which were considered serious and the remainder slight.

2.3.13 As it currently operates, the character of the existing A10 through West Winch is not in keeping with a road on the MRN due to:

- A high number of direct accesses to private properties;
- Numerous priority junctions with side roads, from which local traffic struggles to enter the A10; and
- Various controlled and uncontrolled pedestrian crossings.

2.3.14 The section of the A47 within the area is a single carriageway. The speed limit on the road is 40mph on the flyover over Hardwick Interchange and through the satellite roundabout on Constitution Hill, it then increases to 60mph to the east of the roundabout.

2.3.15 The A47 is classed as a regional trunk road and a vital east-west corridor connecting Norfolk to the Midlands and the north. Its strategic location means that the A47 generates a high level of HGV circulation. With a high level of HGV traffic on a single-carriageway there are frequent slow-moving tailbacks and delays at pinch points. This results in high levels of congestion and a lack of network resilience.

2.3.16 The existing Hardwick Interchange is a major junction and a main gateway into and out of King's Lynn from the Strategic Road Network (A47). It comprises the following:

- A six-arm roundabout forming a junction with the A47, A10, A149 and Beveridge Way, five of the six arms are traffic signal controlled;
- A flyover above the roundabout that provides a single lane in each direction for east-west through traffic on the A47; and
- A satellite roundabout on the A47 Constitution Hill, east of the flyover, that forms a connection between the A47 and the main roundabout.

2.3.17 At present the Hardwick Interchange is a known road capacity constraint and is responsible for significant delays for vehicles travelling to/from King's Lynn. The single lane flyover is insufficient to accommodate the east-west traffic flows on the A47. The roundabout has also been identified as a 'cluster location' for accidents within King's Lynn[15].

[12] A10 Ely to King's Lynn Stage 1&2 Baseline Report, Cambridgeshire County Council, 2017
[13] DfT Road Traffic Statistics
[14] North Runcton & west winch Neighbourhood plan period 2016-2026
[15] Kings Lynn Transport Study and Strategy, Evidence Gathering and Analysis of Current and Future Transport Problems and Opportunities (Norfolk County Council and Borough Council of King's Lynn and West Norfolk, 2018)

2.3.18 King's Lynn has experienced an increase in economic activity over the last decade and a half. The development of the Enterprise Zone, and other strategic employment sites is making the town an increasingly attractive destination for working and living. From 2003 to 2016, there was 12% growth in jobs, amounting to 6,500 net new jobs[16]. This growth has resulted in an increase in the number of vehicles travelling on roads within the region including commuting, freight and tourism traffic.

2.3.19 Over 60% of commuting trips within King's Lynn are by private car (as a driver). This is higher than the England and Wales average of 54%[17]. In addition, a further 8% travel by private car as a passenger. This shows the fundamental role that the region's roads play in keeping people and businesses moving. In particular the significance of the A10, A47 and the Hardwick Interchange in providing connectivity to the wider region and UK.

2.3.20 Demand above capacity on the road network in the region, and the lack of alternative routes, has resulted in economic, environmental and safety problems.

Economic Implications

- Businesses rely on the road network for distribution and/or supply needs. These businesses have been presented with higher operating costs, while employees can be faced with longer commutes during peak congestion times. These can impact business productivity.
- Employees and residents are faced with unreliable journey times making it difficult for drivers to predict the time needed for their journeys. The more time spent in traffic delays, results in less time spent leisurely or at work.
- Collisions, roadworks and seasonal tourism can have more impact on single carriageway roads due to the lack of additional lanes or alternative routes. Without a second carriageway, or alternative road, it is difficult for the current carriageway to recover quickly from incidents or unable to accommodate unexpected peaks in demand.
- Limits ability to bring forward housing development, given the dependency of housing on transport infrastructure.

Environmental Implications

- The King's Lynn and West Norfolk district has the highest CO_2 emissions per capita, compared to the other districts in Norfolk, with a total per capita emission (CO_2 per person) rate double that of the district of Great Yarmouth[18]. The increase in population from the housing growth will affect this, but the encouragement of non-motorised modes as part of the housing growth could go some way to offset the impact. There are no Air Quality Management Areas (AQMAs) within 200m of the scheme, but the removal of congestion should reduce emissions from stationary traffic.
- Pollution can negatively impact heath, which in turn can harm regional productivity as people are absent from work.

[16] King's Lynn and West Norfolk Local Report for the Greater Cambridge Greater Peterborough Enterprise Partnership Area-Based Review: http://www.gcgp.co.uk/wp-content/uploads/2017/03/reportkingslynn.pdf
[17] Journey to Work data (2011 Census)
[18] https://www.norfolkinsight.org.uk/wp-content/uploads/2019/03/Briefing_paper_-_Air_Quality_-_August_2017.pdf

Safety Implications

- There has been a substantial increase in the number of road accidents within King's Lynn, with an 80% increase between 2015 and 2017[19]. A number of accidents occurred within the vicinity of the Hardwick Interchange and on the A10 through West Winch.
- This increase in accident levels results in:
  - loss of life or injuries that result in reduced quality of life;
  - further delays following accidents where there is a lack of alternative routes;
  - safety concerns for residents of West Winch, and decrease in desirability as an area to live due to close proximity to the road;
  - safety concerns for commuters and all road users.

Summary

2.3.21 Table 2-4 summarises the joint housing and infrastructure problems faced in King's Lynn and West Norfolk and the wider County, and identifies which stakeholders are affected.

Table 2-4 – Problem Identified Summary

Category	Problem Identified	Key stakeholders affected or concerned
Housing Supply	Actual housing delivery in King's Lynn & West Norfolk has generally not kept pace with the projected housing delivery forecasts. Increase in housing demand brought about by the region's Enterprise Zone and targeted growth areas. Housing supply has led to increase in house prices, resulting in businesses having a restricted labour pool to hire from, house buyers being priced out, commuters/road users having to travel further distances and renters in the area being left with less disposable income.	Current resident population Future residents Local businesses (existing and potential) Employees Housing associations
Road Infrastructure	Growth in regional activity has increased car trips, yet there is a lack of road capacity and alternative travel routes which have put pressure on existing corridors. High levels of congestion have led to environmental, health, safety and economic problems.	Businesses that rely on the A47 and the A10 Employees/commuters Current residents Future residents Tourists/visitors

[19] Norfolk County Council and Borough Council of King's Lynn and West Norfolk. King's Lynn Transport Study & Strategy. Evidence Gathering and Analysis of Current and Future Transport Problems and Opportunities

2.4 IMPACT OF NOT CHANGING

2.4.1 Failing to address the issues of housing supply and road infrastructure will constrain local growth, and the potential of the region will not be fully realised.

2.4.2 The population of King's Lynn and West Norfolk is forecast to grow substantially in the coming years, with 13% growth forecast between 2016 and 2036[20]. To 2022 there is forecast to be 4% growth in employment opportunities (representing 2,500 new jobs[21]). This includes growth at the strategic employment locations within the Enterprise Zone at Nar Ouse. The region currently faces a challenging housing climate with demand far outweighing supply. This employment growth will add pressure to an already constrained housing market. Without change, 3,650 of the 4,000 homes proposed for the South-East King's Lynn Strategic Growth Area cannot be delivered. This site presents the primary housing development location for the area and therefore this scale of housing will be a challenge to deliver elsewhere, and the housing deficit will continue. House prices will continue to rise as the gap between supply and demand widens. This will further price out buyers and negatively impact the rental market. A lack of housing can deter business expansion and local investment as it can result in labour shortages and poor investment opportunities. If the area cannot accommodate expansion it will limit the economic growth of the area.

2.4.3 With high car dependency in the area, the forecast levels of growth will result in a further increase in road users and local traffic. Without transport intervention there will be ever increasing pressure put on the existing infrastructure. The current design of the existing A10 does not adhere to characteristics expected as part of the MRN, for example, a high number of direct accesses to private properties; numerous priority junctions and pedestrian crossings.

2.4.4 There will be an increase in business costs and considerably longer commuting trips which would have detrimental impacts to the productivity and economic activity in the area. This could reduce the attractiveness and feasibility of inward investment to the area. In addition, the increase in car demand and congestion could lead to an increase in safety concerns for road users and the local communities near the roads. The increased car use can also have environmental impacts due to increased emissions and reduced quality of life.

2.5 OBJECTIVES

2.5.1 The objectives of this scheme have been shaped by the identification of the problem, and considering the impact of not changing. Using this context to set objectives ensures that the proposed intervention is aligned to mitigate against this future.

2.5.2 The scheme objectives are:

- Drive economic growth by supporting housing delivery and employment growth in the region;
- Enhance the A10's role as a strategic link supporting the wider King's Lynn economy;
- Provide a more resilient road network to improve journey time reliability and safety for all users;
- Improve the quality of life of residents of West Winch by reducing the volume of non-local journeys through the village;
- Provide better conditions in West Winch and along the A10 for travel by non-motorised modes;

[20] Borough Council of King's Lynn and West Norfolk Housing Needs Assessment, March 2020
[21] GCGP's Economic Review of King's Lynn & West Norfolk (2016_

- Seek to minimise environmental impacts of intervention.

2.5.3 The logic map below shows how the scheme objectives link to the problems identified and the impact of not changing. It further shows the alignment of the scheme objectives to the MRN objectives, namely:

- Reducing congestion
- Supporting economic growth and regional rebalancing
- Supporting housing delivery
- Supporting all road users
- Supporting the SRN

2.5.4 The map steps through a number of components in line with DfT guidance[22].

- Problem/context - the problems identified when establishing the need for intervention
- Inputs - what is invested e.g. money, skills, people, activities
- Output - what has been produced
- Outcomes - short and medium-term results
- Impact - long term outcomes (this are the scheme objectives)

[22] Logic mapping: hints and tips, Tavistock Institute for Department for Transport, October 2010

Table 2-5 – Logic Map

Problem/Context	Inputs	Outputs	Outcomes	Impacts (Scheme Objectives)	MRN Objectives
Levels of housing supply causing increase in house prices and limiting economic growth	Development of housing Development resources Implementation resources Funding for transport intervention	4,000 dwellings Creation of regional construction jobs	Increase local and regional employment labour pool Increase local economic activity through job creation Increase living standards, creation of new communities	Drive economic growth by supporting housing delivery and employment growth in the region	Support housing delivery Support economic growth and regional rebalancing
Supply of affordable housing		20% of dwellings are affordable Creation of regional construction jobs	Unlock further local investment facilities and infrastructure to complement housing e.g. schools and businesses Increase home ownership Increase disposable income Increase local purchasing power		
Dependency of housing on transport infrastructure		Housing access road provides access to the	Increase road capacity to support further housing delivery	Drive economic growth by supporting housing delivery	Support housing delivery

Problem/Context	Inputs	Outputs	Outcomes	Impacts (Scheme Objectives)	MRN Objectives
		allocated housing site	Prevent new communities from isolation	and employment growth in the region	Support economic growth and regional rebalancing
Congestion on local road network is holding back economic activity		Localised dualling of the A47 between the WWHAR and the A10/A47 Hardwick Interchange junctions	Improve the reliability of journey times Improve economic prosperity by enhancing connectivity between major cities	Provide a more resilient road network to improve journey time reliability and safety for all users	Support the Strategic Road Network

Problem/Context	Inputs	Outputs	Outcomes	Impacts (Scheme Objectives)	MRN Objectives
		WWHAR to become alternative to the existing route through West Winch Modification of the Hardwick Interchange	Improve journey times and reliability making the region more attractive for investment and business growth Improve connectivity and journey times, enhancing regional labour mobility Improve connectivity and journey times boosting visitor numbers supporting tourism and the local economy Increase road capacity helping to address seasonal congestion e.g. tourism seasons Unlock further housing and infrastructure developments restricted by poor regional road capacity	Improve the quality of life of residents of West Winch by reducing the volume of non-local journeys through the village Enhance the A10's role as a strategic link supporting the wider King's Lynn economy Provide a more resilient road network to improve journey time reliability and safety for all users Provide better conditions in West Winch and along the A10 for travel by non-motorised means	Support all road users Support economic growth and rebalancing Reduce congestion

Problem/Context	Inputs	Outputs	Outcomes	Impacts (Scheme Objectives)	MRN Objectives
Congestion negatively influencing the quality of life for local residents and road users		WWHAR to become alternative to the existing route through West Winch	Less congestion will provide better conditions to encourage local trips to be made by non-motorised means (walking and cycling) or public transport and better air quality for residents Existing isolated communities will have increased local and regional road links Improve road safety Reduction in time spent commuting increasing leisure time Improve the reliability of journey times	Improve the quality of life of residents of West Winch by reducing the volume of non-local journeys through the village Seek to minimise environmental impacts of intervention Provide better conditions in West Winch and along the A10 for travel by non-motorised means	Support all road users Reduce congestion

2.6 MEASURES OF SUCCESS

2.6.1 For each of the objectives, measures of success will be developed as part of the benefits monitoring and realisation strategy. The measures will be quantified metrics (e.g. housing growth, employment growth, reliability improvements on the A10 and A47) against which to assess the successful outcome of the proposed scheme.

2.7 SCOPE

2.7.1 The scope of the proposed scheme encompasses the delivery of the WWHAR scheme. The delivery of this scheme will support the development of the Housing Allocation site.

2.8 CONSTRAINTS

2.8.1 This section sets out the key constraints that may influence the scheme and the form that they take. It considers the constraints under the broad themes of physical, environmental, legal and public acceptability constraints.

2.8.2 The Local Plan identifies the general alignment of the scheme, therefore this has informed and guided the development of the scheme design. The alignment being set in policy has constrained the range of potential options that have been considered for the housing access road.

Physical

2.8.3 Chequers Lane and Rectory Lane are two roads which run east-west between West Winch and North Runcton. It is important to retain local connectivity on these roads between North Runcton and West Winch villages, which also acts as a public acceptability constraint. Consideration will also need to be given to measures to avoid strategic traffic from 'rat running' on these roads or through the villages of North Runcton and West Winch.

2.8.4 The Options section of this Strategic Case outlines the physical constraints that have influenced the design of the highway scheme.

Environmental

2.8.5 The River Great Ouse runs south from the coast and constrains growth/development within King's Lynn and West Norfolk. It runs to the west of West Winch and the existing A10, and therefore much of the surrounding area is at risk of flooding and is undeveloped. The study area is almost wholly within Flood Zone 1. This relatively unconstrained flood risk is a key reason the site has been identified for development by NCC and the BCKLWN. The very northern section of the A47 (adjacent to Hardwick Interchange) is partially located within Zones 2 and 3.

2.8.6 There are five Noise Important Areas (NIAs) along the existing A10 between the Hardwick Interchange and the proposed tie in with the WWHAR. The nearest Air Quality Management Area (AQMA) located approximately 1.4km north west in King’s Lynn.

2.8.7 The scheme is not located within any statutory or non-statutory designated sites, however the River Nar Site of Special Scientific Interest (SSSI) is located approximately 1.2km south of the scheme (from the southernmost section). The scheme area does, however, have the potential to support protected species such as bats, badgers, otters, water voles, breeding and wintering birds, reptiles and amphibians. There are no Special Area of Conservation (SAC) with bat interest located within 30km of the scheme.

2.8.8 No designated heritage sites are located within the scheme corridor. There are no Areas of Outstanding Natural Beauty (AONB), National Parks or Country Parks within 2km of the scheme. There are several Public Rights of Way (PRoW) in close proximity to the scheme.

2.8.9 Appendix A shows the environmental constraints plan for the study area. The Environmental Scoping Report included in Appendix B to this SOBC provides a more detailed review of the baseline environmental conditions for the scheme area.

Legal

2.8.10 The housing allocation site is in multiple ownership, with over 20 individual land owners and some of these have land which will be required to construct the WWHAR. Two planning applications have been submitted to date. For the remaining sites the BCKLWN and their advisers have been working to develop a Collaboration Agreement between the landowners. The Collaboration Agreement is a commercial facility to deliver the land more equitably to ensure the overall Masterplan comes forward. The intention is that there will be an overarching Masterplan S106 Agreement that all landowners will need to sign up to. Beneath this there will be specific individual S106 agreements related to each site. At the heart of this structure is a Collaboration Agreement to ensure land values are equalised whether an individual parcel is used for housing, green open space or the WWHAR for example.

2.8.11 In order to expedite work on the Collaboration Agreement, the BCKLWN have bought an option on a significant area of land in the growth area. This together with land owned by NCC forms almost 50% of the land required to develop the growth area. The Borough Council and NCC are in the process of combining their land in a One Public Entity (OPE) undertaking.

2.8.12 The expectation is that the Collaboration Agreement work will be completed before the submission of the Outline Business Case (OBC). Both councils are aware of the importance of having control of the land to build the road and have discussed the prospect of falling back on a CPO process should that prove to be necessary.

Public Acceptability

2.8.13 One objective of the scheme is to divert through traffic away from the existing A10 such that it is primarily used for local access to West Winch village. This aspect of the scheme is widely supported, and the local communities concur that no housing should be able to come forwards without significant transport intervention. However, there may be opposition to the housing development more generally as it is on greenfield land. This will impact on the local amenity and landscape. It is acknowledged that because the WWHAR is essential to enable the housing growth, some might see opposing the road as an opportunity to prevent the housing developments. NCC and BCKLWN are alive to this possibility and the current programme allows time for addressing such a challenge if it were to occur.

2.8.14 The Stakeholders section of this Strategic Case lists the key stakeholders associated with the scheme, and the Management Case sets out the approach to stakeholder engagement and management.

2.9 INTERDEPENDENCIES

2.9.1 As this Strategic Case has set out, bringing forward the housing allocation at the West Winch site is underpinned by delivery of the necessary transport interventions. This link between housing delivery

and road infrastructure is the key interdependency of the project. The desirability of the housing site as a place to live will be dependent on sufficient connection from the site to employment and other strategic locations. Without this, uptake of the housing may be at risk. Therefore, transport intervention is not only a necessity from the perspective of the capacity of the road network, but also for the successful uptake of the housing units.

2.9.2 As discussed previously in the Strategic Case, the scope of this scheme is the delivery of the WWHAR scheme, not the delivery of the housing development itself. However, there is a clear relationship where the success of each element is interlinked. For the housing allocation to be developed there is a need for planning permission for the sites. Two planning applications have already been submitted, however the remaining allocation will also be required to undergo this process. As part of this planning process, developer contributions to the scheme will be secured to support the affordability of the proposals.

2.10 OPTIONS

Housing Delivery

2.10.1 The West Winch Growth Area site has been identified by NCC and the BCKLWN as the most suitable location for this scale of housing development to come forwards. There are no other locations in the King's Lynn area where a development of this size could occur, and a single large site is preferred to enable a sustainable new community to be developed. Land within the borough is generally constrained due to flood risk from the River Great Ouse, however the West Winch site lies within Flood Zone 1 meaning it is at a low risk level. Further, identifying a site that has the capacity to deliver the scale of housing required is challenging. The West Winch site offers this capacity.

2.10.2 The Local Plan sets out that the housing allocation cannot come forwards in its full extent without transport infrastructure in place to mitigate the impacts of the development on existing and future users. Therefore, the option development for the scheme has been centred around identifying and refining the appropriate transport infrastructure to support the housing development. As well as serving the housing site, this option development has produced a solution that provides an effective bypass of West Winch and will mitigate the identified problems on the existing transport network in the area, namely high levels of congestion on the existing A10, A47 and Hardwick Interchange, and significant numbers of journeys on the A10 through West Winch.

2.10.3 The rate at which the level of housing can come forwards is based incrementally on providing adequate transport infrastructure. Based on the existing highway network, it is estimated that there could be capacity for about 350 houses to be developed on the Hardwick Green section of the West Winch Growth Area site to the north of West Winch[23]. However, this will need to be demonstrated by the developer to the satisfaction of the local planning authority with advice from NCC. As shown in Table 2-3, this level of housing delivery will not meet the existing shortfall in homes in the area. This option would not address the existing road network issues. High levels of congestion would remain, and slightly worsen, on the A47 and A10, and traffic would continue to travel through the village of West Winch. For these reasons the 'Do Nothing' option is not considered a suitable solution to the existing problems.

[23] Pending Transport Assessment from developers

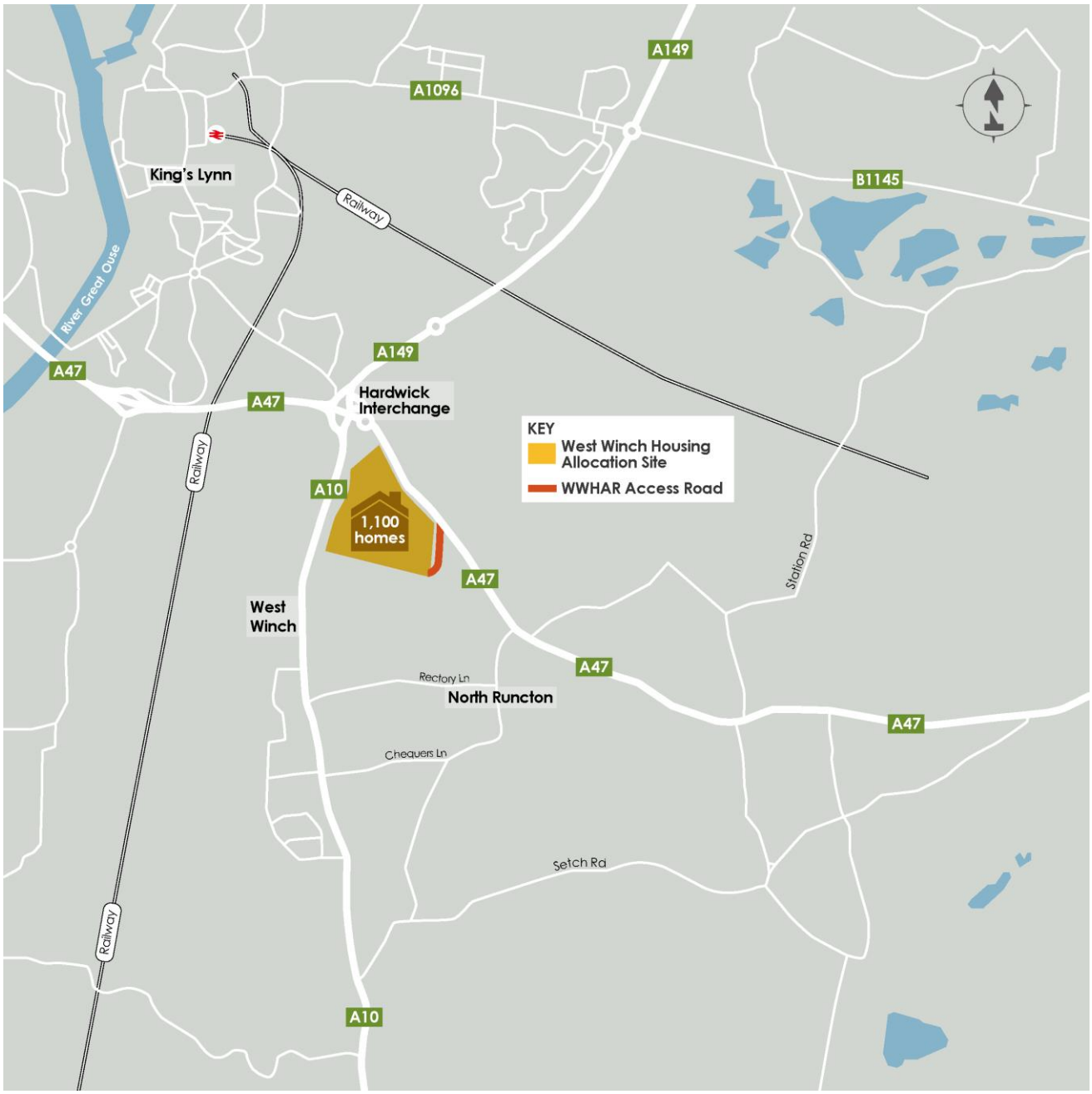
2.10.4 It is likely that a further 750 homes on the Hardwick Green site could be developed provided that an access road is constructed linking the site to the A47[24]. Although this option allows more housing development to come forwards, this is still likely to fall short of existing housing demand and forecast growth. Further this would not utilise the site to its full potential. It is also likely that the Hardwick Green developer would prefer to rely on the delivery of the WWHAR, and make a suitable contribution as prescribed in the BCKLWN IDP, rather than building the scale of infrastructure that would be required. This option would not alleviate the congestion on the existing A10 or A47, nor improve conditions for residents of West Winch.

2.10.5 Figure 2-2 shows the infrastructure that would be delivered under this 'Reduced' option.

2.10.6 Constructing the WWHAR scheme will allow the full 4,000 homes on the site to be developed.

[24] Pending Transport Assessment from developers

Figure 2-2 - Reduced Option



General Alignment

2.10.7 The Local Plan dictates that a new route is required to enable the housing, therefore no non-road building/road improvement solutions have been investigated. However, the WWHAR scheme will incorporate improvements to non-motorised users and facilitate public transport solutions to support the housing growth.

2.10.8 The Local Plan, Site Allocations and Development Management Policies (adopted in 2016) indicated an approximate line for the access road[25] that formed part of the appropriate transport infrastructure

[25] https://www.west-norfolk.gov.uk/downloads/file/2491/sadmp_plan_adopted_2016 (page 118 - 119)

to enable the housing growth. This alignment was on the basis of the scheme development and options appraisal work.

2.10.9 It has not been possible to devise a low cost option that achieves the scheme objectives.

2.10.10 Notwithstanding, alternative options for the WWHAR have been investigated and a preferred option selected. The options investigated comprised:

- 5 different alignments at the northern end of the new road between the A10 and A47
- 2 different alignments at the southern end of the new road between the A10 and A47
- A number of options for junction alterations at the Hardwick A10/A47/A149 junction to suit the rest of the scheme and satisfy Highways England

2.10.11 This option appraisal work is documented in three reports contained in Appendix C:

- Route Alignment Options (Northern Section) - Technical Note 1 - December 2018
- Route Alignment Options (Central & Southern Sections) - Technical Note 2 - December 2018
- A47 Options (Hardwick) study

Preferred Scheme

2.10.12 The overall scheme includes:

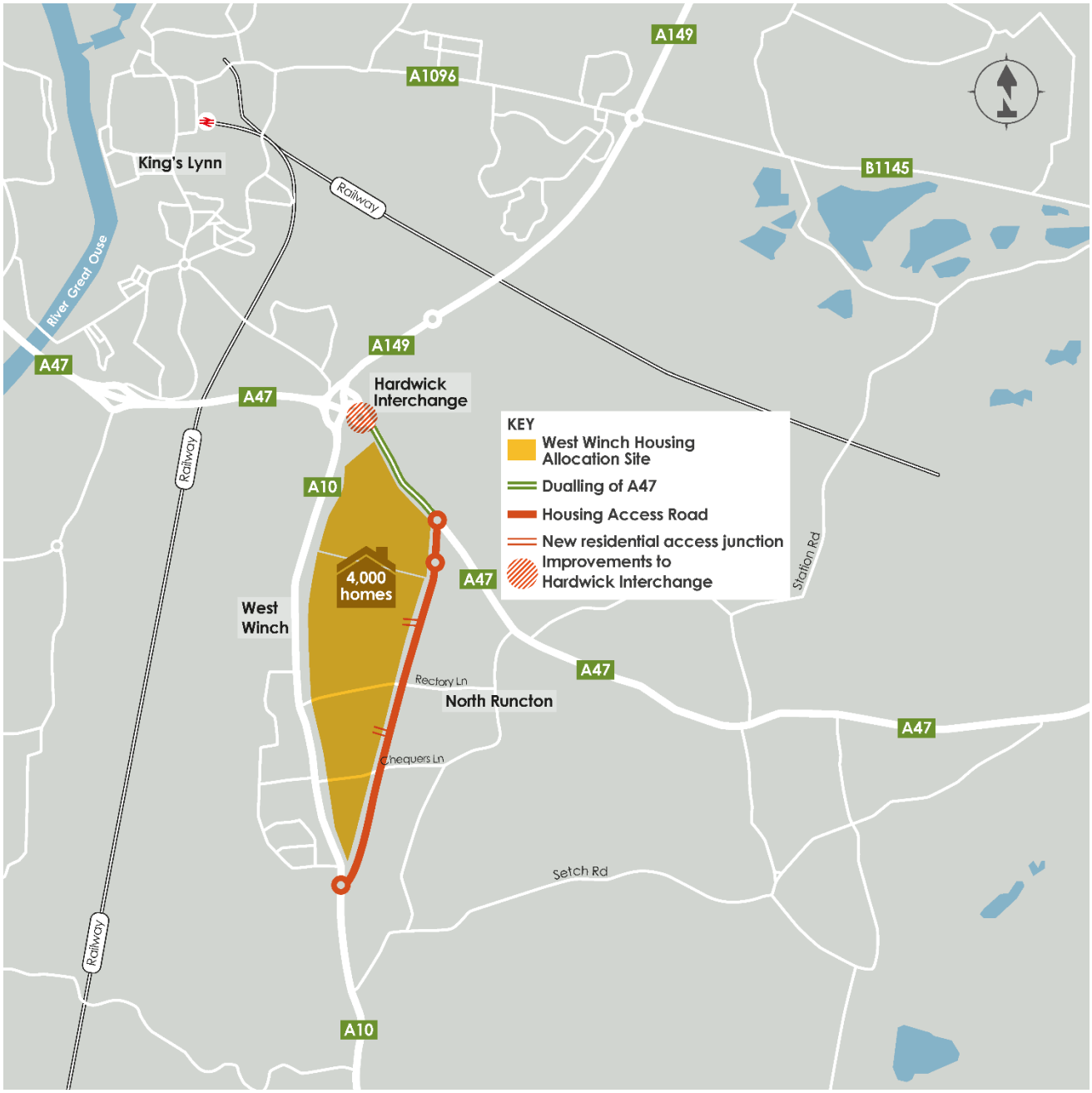
- A new housing access road to the east of West Winch, connecting the A47 with the existing A10;
- A roundabout on the new housing access road providing access to the Hardwick Green planned development;
- Two priority junctions on the new housing access road to serve proposed dwellings that are outside the planned Hardwick Green development;
- A roundabout on the new housing access road, at its southern end, providing a connection to the existing A10;
- Modifications to the existing Hardwick Interchange to accommodate additional housing traffic plus re-orientation of trips through the junction;
- Dualling of the existing A47 between Hardwick Interchange (Constitution Hill roundabout) and the new housing access road;
- A signalised roundabout junction where the new housing access road meets the A47; and
- Treatment of local roads severed by the new housing access road.

2.10.13 Through traffic will be diverted onto the housing access road, bypassing West Winch village and leaving the existing A10 for local access. In order to divert traffic on to the housing access road it is likely that traffic calming measures could be introduced on the existing A10, reducing the severance currently created by the road. The layout of the housing access road would be consistent with the standards required to form part of the MRN. This option supports the scheme objectives, and aligns to the national, regional and local policy priorities. The benefit of the additional 2,900 homes that can come forwards under this full option (compared with the Reduced option), and the additional highway interventions, is likely to outweigh the incremental cost of extending to the full WWHAR scheme from the Reduced option (which provides a partial access road to the A47).

2.10.14 Therefore, the preferred option, which has been included in this SOBC, is the delivery of the WWHAR scheme which would allow the full housing allocation on the West Winch Housing Allocation site to come forward. Detailed optioneering has been undertaken to design specific aspects of the WWHAR scheme and its components. The following sections summarise the options considered for the scheme components, noting that scheme design is ongoing.

2.10.15 Figure 2-3 below shows the WWHAR scheme.

Figure 2-3 - WWHAR Scheme



Hardwick Interchange

2.10.16 At present the primary movement along the A10 is into King's Lynn in the AM peak period, and out of King's Lynn in the PM peak period. These traffic flows on the A10 exceed the east-west flows on the A47. Therefore, the main movement through Hardwick Interchange is north-south on the A10.

2.10.17 With the housing access road in place a large proportion of the existing A10 trips and new residential trips will join the Interchange from the east. Modification of the existing interchange's layout is required to provide the capacity to accommodate these trips. The extent of the modifications required has been established through close collaboration with Highways England.

2.10.18 WSP was commissioned jointly by both NCC and Highways England to investigate possible options for the modification of Hardwick Interchange. WSP identified seven options for the modification of the interchange. These were sifted and a preferred option was recommended to Highways England. This process is described within WSP's *'A47 Options Study Report'* which is included at Appendix C.

2.10.19 Highways England has agreed that the appropriate modification of the Hardwick Interchange should comprise:

- Removal of the Constitution Hill satellite roundabout;
- Provision of new east-facing slip-roads connecting the main A47 carriageway with the interchange's circulatory carriageway below; and
- Minor re-configuration of the southern part of the circulatory carriageway together with re-timing of the interchange's traffic signals.

2.10.20 The works described below are illustrated in the detailed designs included at Appendix D.

2.10.21 The provision of new slip roads for the Hardwick Interchange requires that the existing dismantled railway will need to be bridged over.

A47

2.10.22 The WWHAR scheme would increase traffic flows on the A47 between the new A47 junction and Hardwick Interchange. Modelling work undertaken indicates that this section of the A47 would need to be widened to a dual carriageway to cater for this increased flow. In designing the dualling of the A47, the merits and constraints of widening the road to the north or south were considered. Widening the A47 to the north of the existing road is less likely to impact on the land allocated within the Hardwick Green planning application and the associated green space provision. It would also have less impact on the area of Common Land immediately south of the existing A47, although noting there is a strategy in place for dealing with the Common Land. Other land designated as green open space as part of the growth area masterplan will be designated Common Land to offset that which is lost from the A47 verges, if this is deemed necessary. Discussions are ongoing with the appropriate authority for Common Land.

A47/Housing Access Road Roundabout

2.10.23 A new roundabout on the A47 has been proposed at the junction with the housing access road that links the A10 and A47. The original option considered was an offline roundabout to the south with single lane approaches to the south and east. Modelling work has indicated that although this design could cope with the development on the Hardwick Green site, it could not accommodate the traffic when the full 4,000 homes were developed. The primary performance constraint related to insufficient stop line capacity and unbalanced flows at the roundabout (in the AM most movements are south to west, with reverse in PM). The heavy PM movement of traffic turning right from the A47 onto the housing access road that links to the A10 results in significant queuing on the A47 eastern arm. In order to address the imbalanced flow issues, the roundabout design includes traffic signals. To mitigate delays for A47 east-west traffic the design proposes a segregated left-turn bypass lane and the provision of a third lane on the approach to the A47 from the west.

Hardwick Green Access Roundabout

2.10.24 As part of the Hardwick Green development, there are proposals for an access roundabout from the housing access road. Based on modelling undertaken, it is proposed to dual the northern section of

the housing access road, between the Hardwick Green Roundabout's northern arm and the A47 roundabout.

Housing Access Road

2.10.25 Traffic modelling indicates that a single carriageway road is required for the housing access road between the existing A10 and the Hardwick Green access. Between this roundabout and the A47 tie-in there is a short dualled section to allow capacity for vehicles on approach to the A47 roundabout. The alignment of the proposed housing access road incorporates an overtaking section between the existing A10 and the southern residential access. The key factors influencing the design of the housing access road include:

- Design standards set out in DMRB;
- Site topography;
- Significant utilities;
- Environmental constraints including drainage;
- Land ownership; and
- Relating policy e.g. Neighbourhood plans.

2.10.26 The primary constraints which influenced the design are the common land adjacent to the A47, the outstanding Hopkins Homes planning application, woodland, the presence of two nationally important gas mains running east-west through the area and maintaining access to all affected properties.

Existing Side Roads

2.10.27 The housing access road intersects Rectory Lane and Chequers Lane, two existing single carriageway roads which connect the villages of West Winch and North Runcton. The proposed housing access road design includes an east-west vehicular bridge on Rectory Lane with a shared footway/cycleway on one side. A pedestrian and cycle bridge on Chequers Lane is proposed over the housing access road. Neither bridge would connect with the housing access road. The purpose of the bridges is to provide high levels of local connectivity between the two villages whilst discouraging rat-running for strategic traffic between the existing A10 and A47.

Residential Accesses

2.10.28 The WWHAR scheme will facilitate the development of 4,000 new homes, therefore the road must provide appropriate access to this site, but not compromise the function of the WWHAR scheme as a major north-south route that is part of the MRN. Analysis suggests that two further junctions (in addition to the Hardwick Green Access Roundabout) are required to serve the dwellings. If these two junctions were also roundabouts then this could give insufficient priority to north-south through traffic using WWHAR and vehicles would continue to use the existing A10 through West Winch. Therefore, the design proposes two ghost island priority junctions for residential access from the housing access road.

Housing Access Road/Existing A10 Tie-in

2.10.29 It is proposed that the southern tie-in of the WWHAR with the existing A10 is via a roundabout. A priority junction has also been considered for this location, but given the anticipated traffic flows on the WWHAR, modelling suggested it could become difficult for traffic to exit the minor arm.

2.10.30 Table 2-6 below summarises the WWHAR Scheme preferred design.

Table 2-6 – WWHAR Scheme Preferred Design

Component	Preferred Design
Hardwick Interchange	Removal of the Constitution Hill satellite roundabout, provision of new east-facing slip-roads connecting the main A47 carriageway with the interchange's circulatory carriageway below, and minor reconfiguration of the southern part of the circulatory carriageway together with re-timing of the interchange's traffic signals.
Dualling the A47	The A47 would be dualled north of the existing alignment between Hardwick Interchange and the proposed A47/WWHAR roundabout.
A47 / Housing Access Road roundabout	Provide a priority-controlled roundabout at the A47/WWHAR junction, that can be converted to a signalised roundabout in future if required.
Hardwick Green Access Roundabout	Access roundabout from WWHAR to site. Recommended that the northern arm is dualled up to the A47/WWHAR roundabout.
Housing Access Road	A single carriageway road (except for the dualled section between the A47 roundabout and the Hardwick Green access).
Existing side roads	Provide a low speed vehicular bridge over the WWHAR along Rectory Lane with a shared footway/cycleway on one side. Provide a bridge for pedestrians and cyclists on Chequers Lane.
Housing Access Road/A10 Tie-In	Housing access junctions provided on the WWHAR (i.e. in addition to the Hardwick Green access) should be ghost island priority junctions to facilitate access without detracting from the strategic purpose of the WWHAR.

2.11 STRATEGIC FIT

2.11.1 This project has a strong strategic fit with current Government plans and policies at a national, regional and local level. This section identifies the key policies at each geographic level that are relevant to the scheme. It demonstrates how the scheme aligns with, recognises the importance of, and contributes towards these existing strategies and plans.

2.11.2 The policies and plans that have been reviewed to assess the scheme's strategic fit include:

- National
  - The Government's Road Investment Strategy 2015 - 2020 (DfT & Highways Agency, 2014)
  - The Government's Industrial Strategy (BEIS, 2017)
  - The Government's Transport Investment Strategy (DfT, 2017)
  - Green Book Update (HM Treasury, 2020)
  - Gear Change (DfT, 2020)
  - Cycle Infrastructure Design LTN 1/20 (DfT, 2020)
- Regional
  - Transport Strategy (Transport East, 2019)
  - Investment and Delivery Plan (Transport East, 2020)

- Integrated Transport Strategy for Norfolk and Suffolk (New Anglia LEP, 2018)
- Norfolk and Suffolk Economic Strategy (New Anglia LEP, 2017)
- Norfolk Strategic Infrastructure Delivery Plan 2020 (NCC, 2020)
- Connecting Norfolk: Norfolk's Transport Plan for 2026 (NCC, 2011)

- The A47: Investing in East-West Success (A47 Alliance, 2019)Local

  - King's Lynn & West Norfolk Local Plan - Site Allocation and Development Management Policies (BCKLWN, 2016)
  - BCKLWN Local Development Framework Core Strategy (BCKLWN, 2011)
  - North Runcton & West Winch Neighbourhood Plan 2016 - 2026 (BCKLWN, 2017)
  - King's Lynn Transport Study and Strategy (NCC and BCKLWN, 2018)

2.11.3 The following sections set out the alignment of the WWHAR scheme against these policies/documents.

National

The Government's Road Investment Strategy 2015 - 2020 (2014)

2.11.4 The Government's Road Investment Strategy (RIS) was launched in 2014. It describes an ambitious programme of investment, to be delivered by Highways England, in the motorways and trunk roads which make up the Strategic Road Network (SRN). The strategy states that:

"This Road Investment Strategy outlines how we can grasp the opportunity to transform both our roads and the experience of driving on them, whilst also addressing strategic imperatives such as economic growth and climate change[26]… The SRN is vital to British businesses and to the successful functioning of our local and national economies[27]"

2.11.5 The RIS has identified points on the A47 that require investment. It recognises that the A47 has a number of current constraints, which include congestion hotspots stemming from insufficient road capacity, a lack of alternative routes and inadequate junction design; resulting in heavy rush hour delays and queues.

2.11.6 The Strategy specifically highlights road capacity issues of the Hardwick Interchange junction and states that congestion has been limiting growth along the single carriageway section of the A47. In addition, the Strategy recognises that construction of housing and creation of jobs are often held back by poor transport connections and bottle necks.

2.11.7 The WWHAR scheme recognises the relationship between housing and transport. The capacity improvements proposed prioritise the need for suitable transport infrastructure to facilitate and unlock housing development. It will provide the road capacity to maintain the current level of service of the network whilst bringing forward the 4,000 dwellings development proposal. The WWHAR scheme targets improvements to the A47 and Hardwick Interchange, both of which are recognised within the RIS.

[26] Road Investment Strategy: for the 2015/16 – 2019/20 Road Period (Page 5)
[27] Road Investment Strategy: for the 2015/16 – 2019/20 Road Period (Page 13)

The Government's Industrial Strategy (2017)

2.11.8 The Government's Industrial Strategy was set out in a 2017 White Paper: Building a Britain fit for the future. It identifies five foundations of productivity:

- Ideas
- People
- Infrastructure
- Business environment
- Places

2.11.9 The Industrial Strategy states that infrastructure is the essential underpinning of people's lives and work and that having modern and accessible infrastructure throughout the country is essential to future growth and prosperity. Infrastructure investment is, by its nature, large scale and long term and is one of the most significant ways the government can influence the economy - including transport and housing. Infrastructure choices not only provide the basics for the economy, they must actively support long term productivity, providing greater certainty and clear strategic direction.

2.11.10 The proposed investment in the scheme will improve journey time reliability for users, including business users who will benefit from reduced transport costs and increased labour mobility as employees spend less time commuting. Further the 4,000 new dwellings have the potential to increase the size of the labour market available to local industries.

The Government's Transport Investment Strategy (2017)

2.11.11 In July 2017, the Transport Investment Strategy was published, which sets out the Government's planned approach to investment in transport infrastructure. The Transport Investment Strategy outlines aspirations to:

- Create a more reliable, less congested, and better-connected transport network that works for the users who rely on it;
- Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities;
- Enhance our global competitiveness by making Britain a more attractive place to trade and invest;
- Support the creation of new housing.

2.11.12 The Transport Investment Strategy prioritises the importance of transport investment in the development of housing. It states that "transport infrastructure is one of the keys to unlocking development and delivering places people want to live". The WWHAR scheme recognises that in order to bring forward the housing development proposals, a housing access road must also be developed, to ensure that the local transport network has the road capacity to accommodate the expansion. This will help improve regional road capacity, improve safety and make better connections between communities and businesses. In turn it can contribute towards unlocking further regional growth, due to the road capacity improvements attracting additional investment through the increased productivity and efficiency benefits of less delays.

2.11.13 Table 2-7 summarises the objectives of the Transport Investment Strategy and shows how the scheme will contribute to them.

Table 2-7 - Alignment of WWHAR Scheme with Transport Investment Strategy

Transport Investment Strategy Objectives	Contribution of the WWHAR	RAG
Create a more reliable, less congested and better-connected transport network that works for the users who rely on it	Current traffic conditions on the A10 inhibit pedestrian movements across the road within the village. Providing the new route will accommodate the increased network demands from the housing growth and could provide better local connections between communities and businesses.	Green
Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities	The improved journey time reliability on the A10 route helping to reduce transport costs for local businesses. It will improve business connectivity and accessibility, contributing to a more balanced economy. This will help the new "levelling up" agenda which applies within as well as between regions.	Green
Enhance our global competitiveness by making Britain a more attractive place to trade and invest	Constructing the WWHAR will ease business travel making it more efficient. The new housing will expand businesses' labour pool and available skill markets. Creating a richer and diverse workforce will support inward investment into the region, enhancing the country's global competitiveness.	Green
Support the creation of new housing	The West Winch area is the only place that could be identified for the essential large scale growth required in King's Lynn. The development of 4,000 homes is dependent on the delivery of the WWHAR	Green

Green Book Update (HM Treasury, 2020)

2.11.14 In November 2020 the Government published an updated Green Book. The Green Book sets out the guidance applied by HM Treasury for public servants on how to appraise projects, programmes and policies. Departmental guidance which sits under that of Green Book has not changed, nor has the 5 Case Model that underpins Business Case development. Therefore, DfT's TAG, Business Case Guidance and Value for Money Framework has not changed as a result, nor has MHCLG's 2016 DLCG Appraisal Guide.

2.11.15 The headline changes within the update include a reduced emphasis on the BCR and corresponding increased emphasis on the Strategic Case in business cases. Projects will first need to demonstrate national policy alignment at the earliest part of the optioneering stage and show a contribution to these policies in the Strategic Case. Current policies of focus include Carbon Net Zero and Levelling Up. It is acknowledged that reducing the dominance of the BCR may require a change in mindset for decision-makers and public sector scheme promoters. DfT's Value for Money Framework has always acknowledged that the overall VfM assessment should look wider than the BCR.

2.11.16 The revised Green Book places an increased emphasis on place-based analysis (including a mechanism to deliver Levelling Up) and additional guidance to partner Additionality appraisal. This has not yet translated into a change in DfT appraisal guidance however, will be reconsidered at the time of the SOBC appraisal.

2.11.17 Tied in with the important of the alignment of schemes to national policy, the Green Book update identifies approaches to increase the weight given to environmental impacts within appraisal. Environmental impacts are permitted to use a social discount rate of 1.5%, compared to 3.5% for other impacts. This will amplify environmental impacts in appraisal (both positive and negative).

2.11.18 The WWHAR scheme has a strong strategic rationale, demonstrating alignment to the priorities and policies at a local, regional and national level. The scheme has been developed to best meet the need for intervention and address the current problems faced, as opposed to focussing on the BCR calculation. Further the scheme supports the Governments agenda to 'level up', reducing regional inequality and encouraging growth and prosperity across the country.

Gear Change (Department for Transport, 2020)

2.11.19 In July 2020, the Government set out a plan to create a step-change in cycling and walking infrastructure in the coming years. The Government envisages an England that is a 'great walking and cycling nation', with cycling as a form of mass transit. Half of all journeys in towns and cities should be cycled or walked by 2030. To facilitate this, actions are grouped into four central themes:

- **Better streets for cycling and people** – thousands of miles of safe, continuous, direct routes for cycling in towns and cities, physically separated from pedestrians and volume motor traffic
- **Cycling and walking at the heart of transport, place-making and health policy** – significantly increasing dedicated cycling and walking funding, and creating a long-term cycling and walking programme and budget
- **Empowering and encouraging local authorities** – by increasing funding for local authorities, but also ensuring that Government funding is only granted to schemes that meet new standards. No funding shall be given to schemes that do not meet the new standards and principles established
- **Enabling people to cycle and protecting them when they do** – introducing new laws and safety standards

2.11.20 Gear Change was published along-side Local Transport Note (LTN) 1/20, outlined below. The design of the housing access road includes provision for cycling infrastructure, with a cycle lane on the north west side of the carriageway supporting the Government's aims to encourage active modes through improved infrastructure. Further, as part of the development Masterplan active travel routes through the housing site are being considered, and wider LCWIP proposals are considering how to provide linkages between the housing site, King's Lynn and the wider area.

Local Transport Note (LTN) 1/20: Cycle Infrastructure Design (Department for Transport, 2020)

2.11.21 LTN 1/20, issued in July 2020, provides the accompanying design guidance to support Gear Change. It reflects current best practice, and states that, for schemes to receive Government funding for local highways investment where the main element is not cycling or walking, there will be a presumption that they must deliver or improve cycle infrastructure to the standards set out in the LTN, unless it can be shown that there is little or no need for cycling in the particular highway scheme.

Regional

Transport Strategy (Transport East, 2019)

2.11.22 Transport East is the Sub-National Transport Body (STB) that was established in March 2018 to deliver a "collective vision for the future of transport and infrastructure in Essex, Norfolk, Suffolk, Southend-on-Sea and Thurrock". This vision seeks to transform the region's transport connections over the next 30 years to help drive long term economic growth.

2.11.23 A 'Transport East Transport Strategy' is currently being developed that will set out their ambitions and priority areas for improved connectivity and will build upon established growth strategies and corridor-specific evidence, to ensure that the region's transport networks are fit for the future.

2.11.24 Transport East has identified three key themes that are said to define the unique transport geography of the region and provide an overarching narrative for the Strategy. These themes are:

- **Global Gateways:** Transport East will strive for better connected ports and airports to help UK businesses thrive and boost the nation's economy through greater access to international markets facilitating Foreign Direct Investment.
- **Energised Coastal Communities:** Transport East see a reinvented, sustainable South-Eastern coast for the 21st century, which delivers on their ambition to become the UK's foremost all-energy coast, as well as providing a competitive visitor offer.
- **Multi-Centred Connectivity:** Enhanced transport links between the region's fastest growing places and business clusters are seen as an enabler for the area to function as a coherent economy and bring about productivity gains.

2.11.25 The WWHAR scheme supports these three objectives. Given its coastal location, the maritime sector is of strategic importance to Norfolk. The region is home to the Ports of Great Yarmouth, Lowestoft, Felixstowe and King's Lynn. The A47 links Lowestoft and Great Yarmouth Ports to Norwich and the Midlands. The WWHAR scheme will improve travel conditions on the A47 for freight traffic through increased capacity, reduced journey times and improved network resilience. This will enhance the road access offer to these ports, increase productivity and ensure the ports have a competitive offer. The design of the existing A10 means that its connectivity to Cambridge and London is not fully exploited due to congestion and delays. The WWHAR scheme will divert this HGV traffic on the newly-designed housing access road, improving journey times and reliability. This will help the region to be competitive in its logistics/freight offer, supporting growth at the ports/airport via the wider road network.

2.11.26 The WWHAR scheme will support Transport East's objective to energise coastal communities. The existing A10 and A47 provide access to key coastal locations for the energy sector and tourism. By improving travel times and reliability on these roads, the WWHAR will improve accessibility to/from the energy centre from the wider region. Improving journey times to tourist locations will support the ambition to have a competitive tourist offer.

2.11.27 To realise the economic potential of the growth opportunity in King's Lynn and West Norfolk, it is fundamental that these growth areas are connected to the wider road network and labour force. The WWHAR scheme will support this growth through improving linkages between fast growing places. This will benefit business to business movements, in particular freight, and also commuting trips. Improving journey times and reliability on the existing A10 and A47 will improve business efficiency and boost productivity. It will widen the labour pool within a commutable distance of these

employment areas which will offer a more diverse, multi-skilled workforce. A strong labour force will encourage inward investment.

Investment and Delivery Plan (Transport East, 2020)

2.11.28 The Investment and Delivery Plan provides a 'snapshot' of the strategic investment programme across the region. The core themes within the Plan align with those included in the Transport East Transport Strategy above. The Plan recognises King's Lynn as a multi-centred hub, and the King's Lynn – Cambridge – Harlow – London as the 'UK Innovation Corridor' for which the A10 West Winch Housing Access Road is identified as a strategic scheme for this corridor. It is acknowledged that dualling of the A47 at West Winch will be important for opening up economic activity at Harlow and north of Cambridge.

Integrated Transport Strategy for Norfolk and Suffolk (New Anglia Local Enterprise Partnership, 2018)

2.11.29 The Integrated Transport Strategy looks ahead to 2040, whilst focussing on what is required in the short term to deliver this. It recognises the important role transport plays in delivering and supporting growth across Norfolk and Suffolk.

2.11.30 The Strategy identifies priority themes and places, within this the A47 to King's Lynn is considered a 'critical east – west growth corridor', and the A10 between King's Lynn and Cambridge is recognised as a priority place.

Norfolk and Suffolk Economic Strategy (New Anglia Local Enterprise Partnership, 2017)

2.11.31 The Norfolk and Suffolk Economic Strategy, published by the New Anglia LEP in 2017, details the approach for growing the local economy, and how it can "respond and succeed in a fast-changing world". The Strategy sets the ambitions for Norfolk and Suffolk to be:

- The place where high growth businesses with aspirations choose to be
- An international facing economy with high value exports
- A high performing productive economy
- A well-connected place
- An inclusive economy with a highly skilled workforce
- A centre for the UK's clean energy sector
- A place with a clear, ambitious offer to the world

2.11.32 The Strategy recognises that to support growth in the economy a significant number of houses need to be constructed. By 2036, the two counties are aiming to create 140,000 new homes and 88,000 new jobs. Housing development will provide employment opportunities in the construction and new technologies sectors. The Strategy identifies King's Lynn, the A10 and rail corridor to Cambridge, and Great Yarmouth to King's Lynn (the A47), as 'priority places' and major growth locations. The strategic importance of the A47 is highlighted in the Strategy, as well as the ambition to dual the road.

2.11.33 The WWHAR scheme will support these ambitions by providing housing to support the workforce, and ensuring this housing is well connected to key employment locations. This will ensure that King's Lynn is an area where businesses want to invest and will boost the local economy and support the new levelling up agenda for the local population.

Norfolk Strategic Infrastructure Delivery Plan 2020 (Norfolk County Council, 2020)

2.11.34 The Council's Strategic Infrastructure Delivery Plan sets out the high-level strategic infrastructure priorities for the next 10 years. The Plan identifies the need for infrastructure development in order to help realise the potential for regional economic growth. This plan focuses on regional transport infrastructure initiatives, and highlights the importance of linking planned and existing infrastructure to housing. It recognises this as being an essential step towards promoting economic growth.

2.11.35 The WWHAR scheme is directly cited in this Infrastructure Delivery Plan, demonstrating the importance of this project within the region. The Delivery Plan highlights that to facilitate planned housing growth in West Winch a new road is required between the A47 and A10. This will enable the distribution of trips from the new development and to alleviate congestion on the A10 through West Winch.

Connecting Norfolk: Norfolk's Transport Plan for 2026 (NCC, 2011)

2.11.36 Norfolk's Transport Plan for 2026 sets out the strategy and policy frameworks intended to create sustainable transport to facilitate reliable journeys. The Plan highlights that transport should be integrated into development plans and seeks improvements to Norfolk's strategic transport network. The Plan lists the strategic aims which underpin this vision:

- Managing and maintaining the transport network
- Sustainable growth
- Strategic connections
- Accessibility
- Emissions
- Road safety.

2.11.37 The Transport Plan states the priority of "improving the road and rail infrastructure to support economic and housing growth and attracting inward investment" and to "ensure all new residential developments have access to a range of services and employment". This directly aligns with the aims of the housing access road. The development of the WWHAR scheme recognises the important role that transport plays in sustainable housing development. Connecting the growing workforce to housing and employment opportunities will increase the attractiveness of the County for further inward investment.

2.11.38 A new Local Transport Plan is currently being reviewed, a draft version of the new Plan has recently been the subject a public consultation. This updated Plan responds to challenges ahead including air quality and carbon reductions. The West Winch Housing Access Road scheme is recognised as a priority within the new Plan to 'tackle the infrastructure deficit to ensure journeys on our major road, bus and rail connections are quick and reliable'. The Local Transport Plan is due to be adopted by NCC in the Spring of 2021.

The A47 Investing in East-West Success (A47 Alliance, 2019)

2.11.39 The A47 Alliance is supported by local MPs and consists of organisations such as the New Anglia and Greater Cambridge and Peterborough LEPs, the Chambers of Commerce, and the constituent local authorities. The Alliance's purpose is to promote the long-term goal of dualling the A47.

2.11.40 The 2019 report recognises the key role the A47 plays in connecting a number of nationally significant businesses and organisations between Lowestoft, Great Yarmouth, Norwich, King's Lynn

and Peterborough. Dualling the A47 would reduce business inefficiencies and delays travelling, attract more customers and allow businesses to invest with confidence.

2.11.41 The section of the A47 between East Winch and Tilney is cited as one of the three priority sections of the A47 to be dualled, this includes the A47 on approach to Hardwick Interchange. The Report acknowledges that dualling this priority section would support 16,500 new homes, the Nar Ouse Business Park and Enterprise Zone and support the planned expansion of Hardwick and Saddlebow Industrial Estates.

2.11.42 The WWHAR scheme directly supports this ambition to dual to A47 and strengthen the east west connection of the region. Bringing forward the housing site at West Winch will further support growth ambitions and priorities for the area.

Local

King's Lynn & West Norfolk Local Plan - Site Allocation and Development Management Policies (BCKLWN, 2016)

2.11.43 King's Lynn and West Norfolk's Local Plan is a comprehensive plan document identifying where development will take place.. It includes policy descriptions and their relevance to growth in the area, focusing on housing developments, transport strategies and mitigation schemes to reduce negative impacts of transport.

2.11.44 The Plan emphasises that the A47 and A10 roads are both essential to the future growth of the area, and are in need of investment to improve their travel conditions. It highlights the current and future issues of the A10 and A47 routes, including:

- Congestion
- Noise pollution
- Poor air quality
- Road safety issues

2.11.45 The growth ambitions of King's Lynn and West Norfolk are likely to exacerbate these issues in the future.

2.11.46 The Plan highlights that King's Lynn is under-performing in terms of housing. The Plan identifies West Winch as one of the "strategic urban expansion areas around King's Lynn". It recognises the allocation of land for housing by 2026, alongside the necessary supporting infrastructure.

2.11.47 The WWHAR scheme contributes towards the Plan's 'supporting infrastructure' statement, through providing a new road between the A47 and A10 and further enhancements to the existing network. This will aid providing the network capacity for the local area to feasibly support additional homes being built.

Local Development Framework Core Strategy (BCKLWN, 2011)

2.11.48 The Core Strategy sets sustainable development at the heart of the planning agenda for King's Lynn and West Norfolk. The vision is for sustainable growth, a sustainable economy and strong and healthy communities within environmental limits.

2.11.49 The Core Strategy recognises the A10 and the A47 as "assets of strategic importance, both essential to the future growth of the town and in need of improvement". Further, the Strategy

identifies West Winch as an area that will support the growth of the sub-regional centre (King's Lynn) through supporting significant residential development.

2.11.50 The WWHAR scheme aims to meet this growth ambition, bringing forwards housing in West Winch to support growth in wider King's Lynn. The scheme will also seek to deliver improvements to the A47 and A10 roads, ensuring they are able to maintain their strategic importance, and improve the quality of life for residents of West Winch.

North Runcton & West Winch Neighbourhood Plan 2016 – 2026 (West Winch & North Runcton Parish Councils, 2017)

2.11.51 The Neighbourhood Plan provides a policy framework that aims to define future development in the area, as well as nurturing a vibrant, integrated community.

2.11.52 The plan highlights that the A10 and A47 are important elements of the regional road network and that the high level of traffic can adversely affect local settlements. The Hardwick Interchange is a gateway to King's Lynn, but is prone to rush hour and seasonal congestion. Residents have expressed great concern about the impact of additional development in the Parishes that will increase traffic on these main road routes.

2.11.53 The WWHAR scheme acknowledges and directly addresses residents' concerns of the possibility of increased housing activity exacerbating current congestion problems, through the understanding that transport and housing planning need to be integrated. The WWHAR creates road capacity on the highway network for this additional demand, and provides traffic management and junction improvements to the current network. It will provide the capacity to sustainably create a new community.

King's Lynn Transport Study and Strategy (NCC and BCKLWN, 2020)

2.11.54 Working in partnership, NCC and the BCKLWN have recently completed a study to devise a Transport Strategy for the town. The King's Lynn Transport Strategy (KLTS) was adopted by both councils in early 2020 and this seeks to alleviate existing problems whilst enabling new development opportunities to support future economic growth. The KLTS includes an Implementation Plan of schemes and measures to be developed further and several workstreams are in progress stemming from this work. Notably, a Local Cycling and Walking Infrastructure Plan (LCWIP) is being developed following the Gear Change and LTN 1/20 principles. The Study sets out a Vision Statement for the Transport Strategy: *"To support sustainable economic growth in King's Lynn by facilitating journey reliability and improved travel choice for all, whilst contributing to improve air quality; safety; and protection of the built and historic environment".*

2.11.55 This Vision is then translated into a set of objectives which are to:

- Provide a safe environment for travel by all modes;
- Encourage town centre accessibility by all modes whilst conserving and enhancing King's Lynn's rich historic environment;
- Support sustainable housing and economic growth;
- Reduce the need to travel by car through development planning;
- Manage traffic congestion in King's Lynn;
- Increase active travel mode share for short journeys;
- Promote and encourage the use of public transport;
- Reduce harmful emissions and air quality impacts.

2.11.56 The Study designates that the A47 is a 'congestion hotspot' in peak hours, and that the A10 experiences congestion at West Winch in peak hours. Due to a lack of alternative routes, incidents on the A47 can impact considerably on the region. The Study notes the development of an access road between the A47 and A10 as a potential solution to some of the transport issues presented in King's Lynn, in particular to reduce emissions.

2.11.57 The WWHAR scheme supports the Vision and Objectives of the Transport Study and Strategy. The scheme will support housing growth and managing traffic congestion, which in turn should stimulate economic growth. By reducing levels of congestion and delays within the vicinity of West Winch village, the scheme should contribute to reducing harmful emissions.

Summary

2.11.58 Reviewing the policy aims and objectives it is clear that the WWHAR scheme strategically aligns to priorities at a national, regional and local level. At all levels, these policies recognise the importance of delivering housing and transport infrastructure to drive economic growth. The A10, A47 and Hardwick Interchange are recognised as congestion hot spots and roads in need of investment at all policy levels. Further, the identification of the West Winch Housing Allocation site as the primary site for significant housing development is supported across regional and local policies.

2.12 STAKEHOLDERS

2.12.1 Given the scale of the intervention proposed, there is a wide-ranging set of stakeholders that will have an interest in the scheme.

2.12.2 The main stakeholder groups associated with the scheme are as follows:

- Norfolk County Council
- Kings Lynn & West Norfolk Borough Council
- Parish Councils within BCKLWN
- New Anglia Local Enterprise Partnership
- Transport East
- Norfolk Members of Parliament
- Highways England
- Homes England
- Department for Transport
- Environment Agency
- A47 Alliance
- Local businesses
- Enterprise Zone businesses and employees
- Local residents
- Local employees
- Land owners
- Housing developers including Hopkins Homes
- Road users
- Bus and haulage companies
- Non-Motorised road users
- Utilities companies

2.12.3 Further detail on engagement with some of these key stakeholder groups is set out below. Letters of Support are included in Appendix Q, the views of other key stakeholders are being sought.

Local residents

2.12.4 As discussed in the Constraints section of the Strategic Case, providing the WWHAR scheme, which will also provide an effective bypass of West Winch, is widely supported. However, it is acknowledged that because the WWHAR is essential to enable the housing growth, some might see opposing the road as an opportunity to prevent the housing developments from taking place. NCC and BCKLWN are alive to this possibility and the current programme allows time for addressing such a challenge if it were to occur.

2.12.5 Generally, because of the level of congestion on the existing road network and the detrimental impact of through traffic in the village, the local communities are firmly united behind the view that no housing should be allowed to come forwards prior to the development of the WWHAR scheme. However, subject to Transport Assessments submitted as part of planning applications for housing in the growth area, the BCKLWN may allow early phases to be developed, based on sound evidence, before the WWHAR scheme is in place.

Parish Councils

2.12.6 NCC and BCKLWN have worked closely with the Parish Councils within the Borough of King's Lynn and West Norfolk as the proposed scheme has been developed. A workshop was held with the local Parish Councils in Spring 2019 to discuss the scheme and how the local roads it crosses should be treated. This engagement was very positive and gave rise to a consensus on Rectory Road needing to pass over the scheme and not be connected, and for Chequers Lane to be severed by the scheme.

2.12.7 A regular stakeholder group with the local Parish Councils has now been set up by BCKLWN, led by one of their senior members. This includes their planning and legal advisors and NCC officers to ensure local viewpoints are accounted for, and the scheme is designed to meet the needs of the local residents as it progresses.

Land Owners

2.12.8 The West Winch Growth Area Delivery Group has been set up by BCKLWN for landowners within the growth area, including some whose land will be required to construct the road.

2.12.9 The Legal Constraints section of the Strategic Case outlines the engagement NCC and BCKLWN have had with landowners to date.

NCC / Norfolk Members of Parliament

2.12.10 The local NCC member for Clenchwarton and King's Lynn South, where the scheme is located, supports the scheme and the funding bid. They recognise the scheme is critical to addressing connectivity issues for King’s Lynn and maximising the economic potential of the area. Further the importance of the scheme in allowing the housing development to come forward.

2.12.11 The local MP, James Wild (North West Norfolk), has expressed his support for the scheme and for the MRN funding bid to the Leaders and Chief Executives of both KLWNBC and NCC. He believes the WWHAR is crucial to unlocking the housing growth.

Transport East

2.12.12 The Sub National Transport Body for the scheme is Transport East. Transport East submitted priorities for MRN schemes in July 2019, supported by a Regional Evidence Base. It recently reaffirmed its commitment at a meeting held on 3 November 2020.

Highways England

2.12.13 Highways England (HE) is a key stakeholder as the WWHAR scheme involves improvements and alterations to their network. HE has been actively involved in the project since summer 2019 and collaborated with scheme promoters to devise appropriate solutions for the scheme that they can support.

3

THE ECONOMIC CASE

3. THE ECONOMIC CASE

3.1 INTRODUCTION

3.1.1 The Economic Case set out the impacts of a scheme to inform the assessment of its Value for Money (VfM) in the use of tax payers' money. This Economic Case considers the impacts that can be measured and quantified, and also impacts that at this stage of Business Case development have been assessed qualitatively. To assess the value for money of the scheme, these impacts have been compared to the cost of delivering the scheme.

3.2 APPRAISAL METHODOLOGY & ASSUMPTIONS

3.2.1 This Economic Case has been developed in line with HM Treasury's Green Book and the relevant guidance from the DfT.

3.2.2 The economic appraisal refers to, and follows the guidance of, the following TAG Units:

- TAG Unit A1-1 (May 2018): Cost-Benefit Analysis
- TAG Unit A1-2 (July 2017): Scheme Costs
- TAG Unit A1-3 (March 2017): User and Provider Impacts
- TAG Unit A2-2 (May 2018): Induced Investment
- TAG Unit A4-2 (December 2015): Distributional Impact Appraisal
- TAG Unit A5-4 (May 2018): Marginal External Costs
- Value for Money Framework: Moving Britain Ahead, Department for Transport, 2015

3.2.3 In line with TAG, all costs and benefits in the appraisal are presented in 2010 present values (market prices). The appraisal period is 60 years from scheme opening, from 2026 to 2085.

3.2.4 The Value for Money Framework sets out three levels of impacts of a transport proposal:

- Level 1 – Established Monetised Impacts – the impacts include user and non-user benefits of the scheme. These impacts form the initial BCR.
- Level 2 – Evolving Monetised Impacts – these impacts include reliability and wider economic impacts.
- Level 3 – Indicative Monetised Impacts & Non-Monetised Impacts – these impacts include induced investment and non-monetised environmental and social impacts. These impacts can be used as switching values for the change in VfM categorisation.

3.2.5 As set out in the Strategic Case, the housing development at the West Winch Housing Allocation site is dependent upon transport intervention to ensure there is capacity on the road network for the additional demand. The Economic Narrative included in Appendix E further sets out the rationale for assuming induced investment and describes the anticipated impacts.

3.2.6 The impacts associated with induced investment (in this case dependent development) are Level 3 impacts, and not considered within the initial BCR for the scheme. The value of the dependent development is considered within the VfM assessment. The initial BCR of the WWHAR scheme considers the value of the transport scheme. This initial BCR considers the user benefits of the scheme, the non-user benefits of the scheme, and the scheme costs. The environmental and social impacts are assessed qualitatively at this SOBC stage.

Transport Model

3.2.7 The Kings Lynn Transport Model (KLTM) has been used to assess the impact of the WWHAR on transport users. To ensure it is fit for purpose in assessing the impacts of the scheme, a number of updates have been made to the model, including:

- Expanding the area of influence of the model to ensure it captures the scheme geography;
- Increasing the model granularity within the vicinity of the scheme, i.e. disaggregating model zones around West Winch;
- Updating the base year from 2015 to 2018.

3.2.8 The updated model has forecast years of 2024 (in line with TUBA guidance[28] this has been used as a proxy for the year of scheme opening (2026)) and 2039. The model has three-time periods:

- AM: 0800 – 0900
- IP Average Hour: 1000 – 1600
- PM: 1700 – 1800

3.2.9 Annualisation factors have been calculated to expand from these time periods to a modelled year. These factors, shown in Table 3-1, are calculated based on Automatic Traffic Count (ATC) data. The derivation of these factors is described in the Model Forecasting Report (see Appendix F).

Table 3-1 - Annualisation Factors

Time Period	Annualisation Factor
AM (0800 – 0900)	703
IP Average Hour (1000 – 1600)	1,518
PM (1700 – 1800)	676

3.2.10 The demand, cost and time skims are extracted from the transport model for use in the benefits calculation.

NTEM 7.2 Forecasts

3.2.11 The household growth for King's Lynn and West Norfolk with NTEM 7.2 is significantly higher than that shown in Office of National Statistics (ONS) data and Local Plan information. The demand matrices used in the modelling have been re-estimated to include a lower level of growth than the current NTEM forecasts to reflect this.

3.2.12 Traffic growth has been constrained on the basis of assumed housing growth, which is in line with the latest projections from BCKLWN. A growth figure of 555 homes per annum has been assumed based on local housing need/Local Plan review. This therefore assumes 11,655 dwellings in KLWN by 2039, rather than the 26,723 homes projected in NTEM. For the first forecast year (2024[29]) the revised figure is 5,671 dwellings compared with 7,634 in NTEM.

[28] TUBA FAQs state that if scheme opening is only 1 or 2 years after the first modelled year then the modelled year data can be used represent the scheme opening year.
[29] Used as a proxy for scheme opening year of 2026

3.2.13 For further information regarding the transport model please refer to the Local Model Validation Report (LMVR) in Appendix G, the Model Forecasting Report in Appendix F and the accompanying Technical Note in Appendix H, which sets out changes since the production of these reports.

User Impacts

3.2.14 The user impacts of the scheme include changes in journey time and vehicle operating costs (fuel and non-fuel).

3.2.15 These user impacts have been quantified in the DfT software TUBA (Transport User Benefit Analysis) v1.9.14. TUBA uses the time period outputs (journey time, demand and cost skims) from the transport model, and calculates the annual user impacts in line with TAG Unit A1-3, and values from the TAG Databook. The output is a 60-year profile of the monetised changes in journey time and vehicle operating costs as a result of the WWHAR scheme.

Decongestion Impacts

3.2.16 At this SOBC stage of the WWHAR scheme development, the decongestion impacts have been quantified using the Marginal External Costs (MECs) approach. The methodology employed is in line with TAG Unit A5-4, and uses the change in highway kilometres forecast as a result of the WWHAR scheme along with cost rates from the TAG Databook.

3.2.17 The impact of decongestion is considered under the following headings:

- Infrastructure
- Accidents
- Local Air Quality
- Noise

3.2.18 The car kilometres (KM) in the with and without scheme scenarios have been extracted from the transport model, and the difference calculated. This has then been profiled over the 60-year appraisal period, interpolating between forecast years and then holding constant post 2039. The TAG Databook gives cost rates (pence per KM, 2010 prices) for each of the headings above in five-year increments from 2015 to 2050. Post 2050 these rates are assumed to grow in line with value of time growth. The change in car KM is then multiplied by the cost rate and discounted to 2010 to give the societal impact of decongestion.

Indirect Tax

3.2.19 The indirect tax impact reflects the change in indirect tax revenue received by Central Government as a result of the scheme. This impact is closely linked to the change in fuel VOC, where duty is charged on fuel. An increase in fuel consumption will lead to an increase in indirect tax revenue, and vice versa.

3.2.20 The indirect tax impact is estimated in TUBA using outputs from the transport model.

Greenhouse Gases

3.2.21 The impact of the scheme on greenhouse gas emissions from vehicles has been captured in TUBA using outputs from the transport model.

Scheme Costs

Capital Costs

3.2.22 The Capital Expenditure (CapEx) of the scheme are the costs required to develop and construct the WWHAR scheme. This capex estimate does not include any costs associated with the development of the housing, which are captured within the LVU calculation that is outside the initial BCR. At this SOBC stage a high-level budget cost estimate for the WWHAR scheme has been prepared by WSP.

3.2.23 The costs are considered under direct works costs and indirect costs. For further detail of the scheme cost estimation methodology and assumptions please refer to the Financial Case.

3.2.24 A Quantified Risk Assessment (QRA) has not been carried out to date, therefore optimism bias has been added to the scheme costs to reflect the early stage of cost development. Given this scheme is at the SOBC stage, a 44% level of optimism bias has been applied to costs. This level of optimism bias is the upper bound for standard civil engineering projects in line with HM Treasury Green Book.

3.2.25 For inclusion in the appraisal, the following adjustments are made to these costs:

- Apply real growth above inflation forecasts
- Apply optimism bias
- Deflate to 2010 prices
- Discount to 2010 values
- Adjust to market prices

Operating and Maintenance Costs

3.2.26 At this SOBC stage, the Operating and Maintenance (O&M) costs have not undergone detailed forecasting. Therefore, these costs have been assumed to be in proportion to the capital costs.

3.2.27 The O&M cost per appraisal year is assumed to be 0.4% of the construction cost of the scheme. This estimate of O&M costs includes routine and lifecycle costs. Given these costs have been estimated at a high level at this stage of Business Case development, a 44% optimism bias has been applied to these costs in the economic appraisal. In the appraisal these costs are deflated and discounted to 2010 prices and values, and adjusted to market prices.

Appraisal Assumptions

3.2.28 The table below sets out the key assumptions used in the appraisal of the WWHAR scheme.

Table 3-2 – Appraisal Assumptions

Assumption	Value	Source
Scheme Opening Year	2026	
Transport Model Base Year	2018	
Transport Model Forecast Years	2024 (proxy for 2026), 2039	
Transport Model Time Periods	AM: 0800 – 0900 IP Average Hour: 1000 – 1600 PM: 1700 - 1800	KLTM LMVR
Annualisation Factors	AM: 703 IP: 1,518 PM: 676	ATC data
Appraisal Period	60 years (2026 – 2085)	HM Treasury Green Book
Appraisal Base Year	2010	HM Treasury Green Book
Appraisal Output Price Base	£2010, PV	HM Treasury Green Book
Discount Rate	Year 0 – 30: 3.5% Year 31 – 60: 3.0%	TAG Databook Table A1.1.1
General Inflation	GDP Deflator Forecasts	TAG Databook (July 2020)
Construction Inflation	BCIS All-In TPI Forecasts	BCIS All-In TPI Forecasts (November 2020)
TUBA version	v1.9.14	
MECs cost rates		TAG Databook Table A5.4.2
Road classification for MECs	Rural A roads	Assumption
Market Price Adjustment	1.19	TAG Databook (July 2020)
Capital Cost Optimism Bias	44%	Supplementary Green Book Guidance: Optimism Bias
O&M Costs as a proportion of CapEx	0.4% per year	Assumption
Appraisal Parameters	As per TAG Databook	TAG Databook (July 2020)

3.3 OPTIONS APPRAISED

3.3.1 This Economic Case sets out the appraisal of the WWHAR scheme. The appraisal considers the impact of the transport intervention on existing transport users (i.e. under fixed land use). The following scenarios have been compared in this appraisal:

- Do Minimum (DM): land use without dependent development, current transport network
- Do Something (DS): land use with dependent development, current transport network and WWHAR scheme.

3.3.2 The difference, increment, of these two options forms the economic appraisal. Figure 3-1 and Figure 3-2 below show the DM and DS for the WWHAR scheme.

Figure 3-1 – WWHAR Do Minimum (DM)

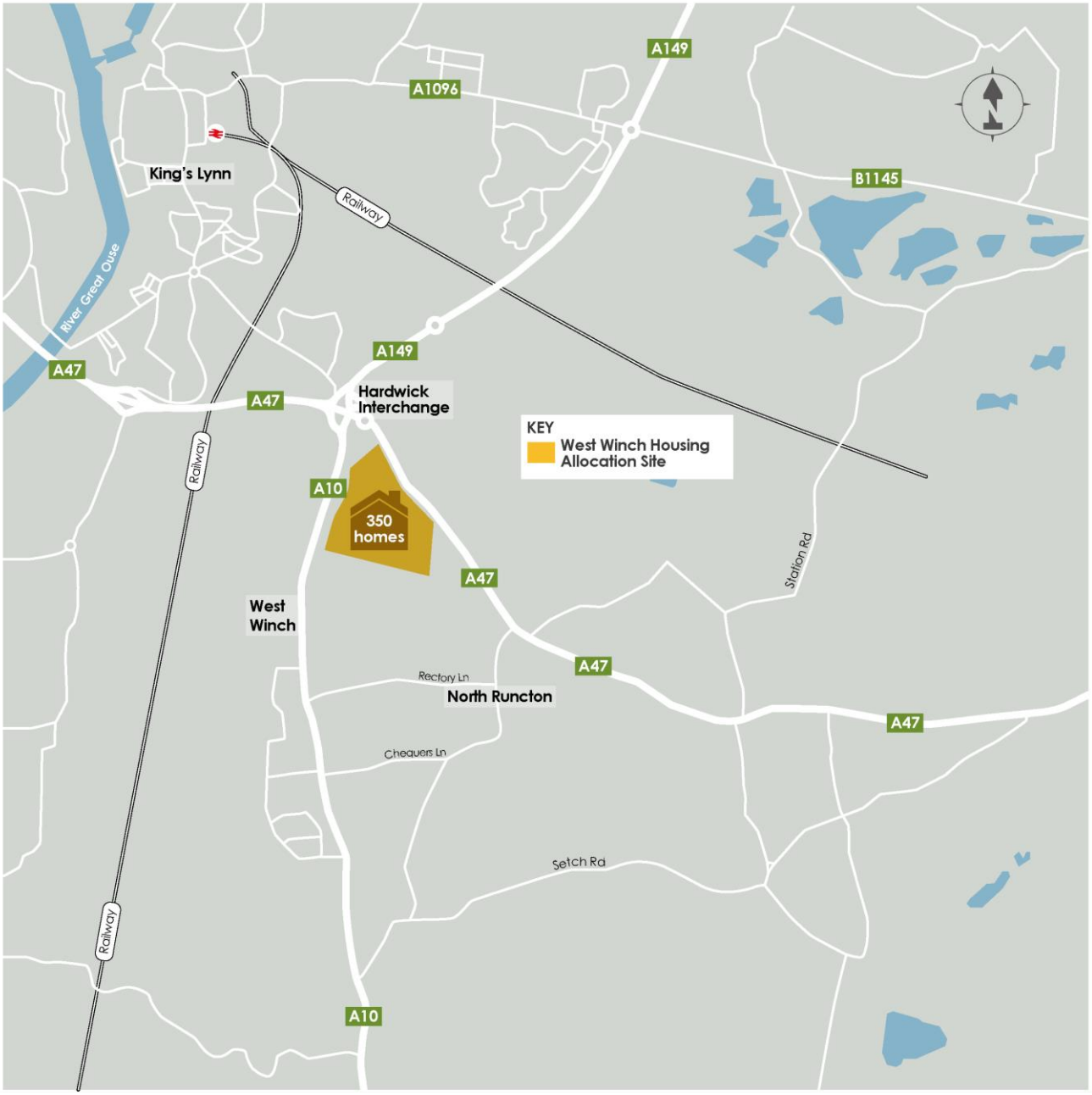
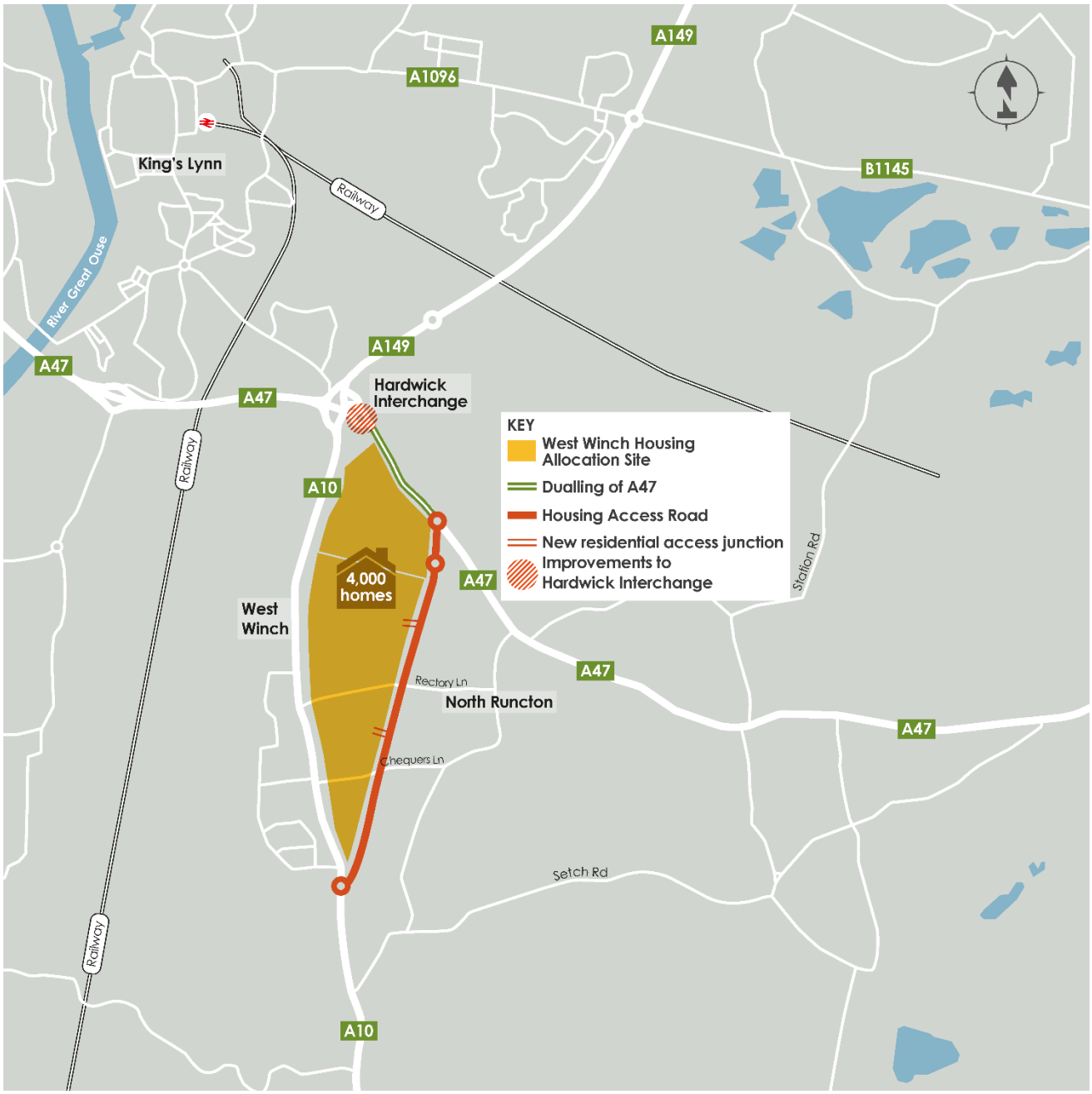


Figure 3-2 - WWHAR Do Something (DS)



3.3.3 To establish this scheme design, a number of design iterations were undertaken. The options established in this process do not warrant appraisal as the differences between them would be immaterial at the appraisal level and therefore not proportionate to appraise these options.

3.4 APPRAISAL RESULTS

3.4.1 The following sections set out the results of the components of the economic appraisal considered within this SOBC. For each component the methodology employed to establish these results is set out in Section 3.2.

Journey Time

3.4.2 The change in journey time between the DM and DS scenarios is calculated and monetised (in £, 2010 PV) in TUBA. Table 3-3 below shows the journey time impacts as a result of the WWHAR scheme by forecast year and also for the 60-year appraisal period.

Table 3-3 - WWHAR Scheme Journey Time Impacts

Year	Journey Time Impacts (£m, 2010 PV)
2026	0.22
2039	0.24
Total (60 year)	**11.75**

3.4.3 The scheme seeks to remove through traffic from West Winch village and divert it onto the housing access road. Through the improved design and higher speed limits, use of the access road provides journey time savings to users compared to the existing A10. However, the scheme is unlikely to result in substantial journey time savings given the length of the housing access road compared to the existing A10. Further integrating the housing access road with the A47 requires the introduction of a roundabout, the impact of this on through traffic will counteract some of the benefits generated through the dualling of the A47 as part of the scheme.

3.4.4 Overall the scheme results in £11.75m (2010 PV) of journey time benefits.

Vehicle Operating Costs

3.4.5 The change in Vehicle Operating Cost (VOC) as a result of the WWHAR scheme is categorised into fuel and non-fuel. Changes to fuel VOC are concerned with changes to fuel consumption as a result of the scheme, i.e. through more/less time spent in delays, more/less distance covered due to re-routing or more/less speed of travel. Changes to non-fuel VOC are concerned with the impact on vehicle operation aside from fuel costs, i.e. maintenance and operating costs.

3.4.6 The VOC impacts for WWHAR scheme have been calculated using transport model outputs and TUBA. **Table 3-4** below shows the change in VOC between the DM and DS scenarios, in £2010 PV.

Table 3-4 - WWHAR Scheme VOC Impacts

Time Period/Year	VOC Impacts (£m, 2010 PV)
2026	0.01
2039	0.01
Total (60 year)	**0.54**

3.4.7 As discussed above, the introduction of the scheme diverts traffic from the existing A10 on to the access road. For some users this can result in an increased journey distance, and therefore additional costs to the user. Therefore the benefits in terms of VOCs are relatively small, over the 60-year appraisal period this results in a £0.54m (2010 PV) benefit.

Greenhouse Gases

3.4.8 The impact of the scheme on greenhouse gas emissions has been calculated using the transport model outputs and TUBA. Over the 60-year appraisal period the monetised impact of the scheme on greenhouse gas emissions is estimated to be £0.10m (2010 PV).

3.4.9 This shows that the scheme results in an slight reduction in greenhouse gas emissions. This ties in with the small reduction in fuel consumption captured in the VOC benefits above.

Decongestion

3.4.10 As described in the Section 3.2, the decongestion impacts are calculated based on the change in highway kilometres travelled between the DM and the DS. Table 3-5 below shows the difference in highway kilometres across the modelled area with and without the WWHAR scheme. These figures are extracted from the transport model for each time period and then annualised using the factors presented Table 3-1.

Table 3-5 - Highway Kilometres Travelled

Year	Scenario	Highway Kilometres Travelled (millions)
2026	DM	891.24
	DS	891.44
	Difference	*0.20*
2039	DM	936.34
	DS	936.74
	Difference	*0.40*

3.4.11 In both forecast years the implementation of the scheme results in an increase in highway kilometres travelled. This is as a result of traffic diverting from the existing A10 to the WWHAR, which is a longer route in terms of distance.

3.4.12 Between 2026 and 2039 the highway kilometres travelled are estimated by interpolating between the two forecast years. Applying this interpolation to the DM and DS forecasts means the difference will remain in the same proportion in these years. Conservatively, post 2039 the difference in highway kilometres travelled is held constant.

3.4.13 The cost rates (as per TAG Databook Table A5.4.2) are then applied to the change in highway kilometres, and discounting to 2010 PV (using rates in TAG Databook Table A1.1.1) gives the decongestion impacts of the scheme. Table 3-6 below presents these impacts over the 60-year appraisal period.

Table 3-6 - WWHAR Scheme Decongestion Impacts

Decongestion Impact	60 Year Value (£m, 2010 PV)
Infrastructure costs	-0.01
Accidents	-0.07
Local Air Quality	-0.01
Noise	0.00

3.4.14 The table shows that there are limited highway externality impacts as a result of the scheme. Over the 60-year appraisal period there is some increase in highway kilometres travelled which results in some small negative impacts on accidents, local air quality and infrastructure costs. It is noted that this approach to externalities only considers the overall network impact, rather than localised effects, notably on the existing A10 through West Winch.

Indirect Tax

3.4.15 The indirect tax impacts of the scheme are calculated in TUBA using outputs from the transport model. These changes in indirect tax are mainly driven by the changes in fuel vehicle operating costs. Table 3-7 below shows the indirect tax impact as a result of the scheme in each of the model forecast years and also over the 60-year appraisal period.

Table 3-7 - WWHAR Scheme Indirect Tax Impacts

Time Period/Year	Indirect Tax Impacts (£m, 2010 PV)
2026	-0.00
2039	-0.01
Total (60 year)	**-0.19**

Scheme Costs

Capital Costs

3.4.16 The capital costs of the scheme are incurred between 2020 and 2026. These costs are considered under construction costs, professional fees and STATS.

3.4.17 At this stage of scheme development, a Quantified Risk Assessment (QRA) has not been conducted. A 30% allowance for risk has been included in the scheme cost estimate. In addition to this, optimism bias has been applied to the scheme costs in the economic appraisal at a rate of 44%, this is the upper bound for a standard civil engineering project.

3.4.18 The Financial Case sets out further details of the scheme costs. Table 3-8 below shows the base costs for the scheme rebased to 2010 prices and values.

Table 3-8 – Scheme Costs

Cost Line Item	Total Scheme Cost (£m, 2010 PV, market prices)
Scheme Costs	53.11

3.4.19 At this stage of scheme development, it is assumed that £44.83m (2010 PV) of the scheme costs will be incurred by the public sector. The remaining £8.28m (2010 PV) will be incurred by the private sector through developer contributions.

Operating and Maintenance Costs

3.4.20 The Operating and Maintenance (O&M) costs will be incurred following scheme opening in 2026. Over the 60-year appraisal, the O&M costs are estimated to be £2.37m in 2010 prices and values. 44% optimism bias has been included in these costs.

3.4.21 Appendix I to this SOBC presents the Economic Appraisal Model showing the treatment of these costs in the appraisal.

Initial BCR

3.4.22 The initial BCR has been calculated based on the impacts and costs presented above. The Economic Appraisal Model included as Appendix I to this SOBC presents the calculation of the initial BCR.

3.4.23 Table 3-9 shows the initial BCR.

Table 3-9 - Initial BCR

Appraisal Component	60 Year Value (£m, 2010 PV)
Present Value of Benefits (PVB)	
Journey Time Impacts	11.75
Vehicle Operating Cost Impacts	0.54
Indirect Tax	-0.19
Accidents	-0.07
Local Air Quality	0.01
Noise	-
Greenhouse Gases	0.10
Private Sector Costs	-8.28

Total PVB	**3.83**
Present Value Costs (PVC)	
Public Sector Costs	44.83
O&M	2.37
Infrastructure MEC	0.01
Total PVC	**47.21**
NPV	**-43.38**
Initial BCR	**0.1:1**

3.4.24 The WWHAR scheme presents an initial BCR of 0.1:1. This represents Poor Value for Money.

3.4.25 This scheme is not a conventional 'transport scheme', transport infrastructure is required in order to deliver housing and would not necessarily deliver the same benefits as a traditional transport scheme The scheme will also provide an alternative route to the existing A10, which will offer improved infrastructure, improved quality of life for the residents of West Winch by reducing through traffic (in particular HGVs). However, these benefits are not captured through the conventional transport appraisal, as in terms of journey times the scheme has little impact.

3.4.26 Appendix J presents the Transport Economic Efficiency (TEE) table, Public Accounts (PA) table and Analysis of Monetised Costs and Benefits (AMCB) table for the scheme.

3.5 ENVIRONMENTAL IMPACTS

3.5.1 At this stage of scheme development, most environmental impacts have been considered qualitatively, with the exception of those included in the previous section which were estimated using MECs. As part of the preparation of the planning application for the scheme, an Environmental Scoping Report has been prepared. The purpose of this report is to establish the scope of the Environmental Statement (ES) for the scheme by identifying sensitive receptors and resources. This scoping report has been used to assess the environmental impacts of the scheme. The following sections provide detail of the anticipated impacts of the scheme.

3.5.2 It should be noted that only the impacts as a result of delivering the WWHAR scheme have been considered within the appraisal. The impacts of the development Masterplan and wider measures as a result (LCWIP etc) have not been included within this assessment.

Noise

3.5.3 There are five Noise Important Areas (NIAs) along the existing A10 between the Hardwick Interchange and the proposed tie-in with the WWHAR. There are existing residential receptors adjacent to the A10 which are likely to be experiencing high levels of traffic noise currently. There are dwellings within 300m of the scheme on Chequers Lane and Rectory Lane which are further from main roads and hence are likely to be experiencing lower noise levels currently.

3.5.4 There may be adverse effects at sensitive receptors as a result of the WWHAR scheme, particularly in more rural areas near Chequers Lane and Rectory Lane where road traffic is not currently a dominant noise source. An increase in noise levels might be experienced by residential receptors located in close proximity to the WWHAR and its intersection with the existing A10. There is lower potential for significant adverse effects on these receptors due to the fact that the area is already dominated by traffic noise.

3.5.5 There is potential for beneficial effects as a result of traffic redistribution from the scheme. Where traffic is diverted from existing roads, particularly for the sensitive receptors on the A10 between Hardwick Interchange and the scheme including existing NIAs, there may be reductions in traffic noise.

3.5.6 Overall, and taking into account that to date an Environmental Impact Assessment (EIA) has not been undertaken, it is considered that the WWHAR may have a **slight adverse** impact on noise.

Local Air Quality

3.5.7 Existing data shows that air quality in the local area is currently good. There are no Air Quality Management Areas (AQMAs) within 200m of the scheme and no Pollution Climate Mapping (PCM) links are currently in exceedance.

3.5.8 The scheme is expected to result in changes to emissions of NO_x, NO_2, PM_{10} and $PM_{2.5}$ along the A47 and A10 and linked routes. These changes are a result of changes in traffic flows and speeds. Air quality along Chequers Lane and Rectory Lane may be slightly adversely affected by the proposed scheme due to the new infrastructure proposed. A reduction in traffic flows is expected on minor roads within West Winch along the existing A10 due to the redistribution of traffic onto the WWHAR.

3.5.9 Overall, and taking into account that to date an Environmental Impact Assessment (EIA) has not been undertaken, it is considered that the WWHAR may have a **slight adverse** impact on local air quality.

3.5.10 Based on the change in highway kilometres, the impact of the scheme on local air quality is estimated to be –£0.01m in 2010 PV.

Greenhouse Gases

3.5.11 The scheme is anticipated to result in changes to traffic flows and speeds on the existing roads in the area and the housing access road. Therefore, there are likely to be changes in fuel consumption and greenhouse gas emissions as a result in the scheme.

3.5.12 Greenhouse Gas impacts have been calculated and monetised within TUBA. Over the 60-year appraisal period these impacts are estimated to be a benefit of £0.10m (2010 PV).

Landscape

3.5.13 The landscape within and surrounding the scheme is generally flat with very gentle undulation. There are no Areas of Outstanding Natural Beauty (AONB), National Parks or Country Parks within 2km of the scheme.

3.5.14 No statutory landscape designations would be directly impacted by the WWHAR scheme. The proposed scheme is located in close proximity to three Public Rights of Way, including North Runcton RB3, North Runcton RB4 and West Winch FP3.

3.5.15 New infrastructure (including two bridges) will be constructed on an existing open field which would change the character of the local landscape and may be visually intrusive to residential properties located in proximity. There are opportunities through environmental design measures including landscape planting, to minimise the potential impacts of this.

3.5.16 Overall, taking into account that to date an Environmental Impact Assessment (EIA) has not been undertaken, it is considered that the WWHAR scheme may have a **slight adverse** impact in terms of landscape and visual.

Townscape

3.5.17 It is considered that the WWHAR would have a **neutral** impact on townscape. The proposed access road would be positioned east of the settlement of West Winch and west of North Runcton. It is anticipated that the road infrastructure would be screened by the built environment, trees and hedgerows.

Historic Environment

3.5.18 There is one Grade I Listed Building, one Grade II* Listed Building and seven Grade II Listed Buildings within 1km of the scheme. No World Heritage Sites, Scheduled Monuments, Conservation Areas, Registered Park and Gardens and Registered Battlefields are located within 1km of the study area. The scheme passes through fields identified as archaeology areas in Norfolk Heritage Explorer records which are currently crossed by two single carriageways (the A10 and A47) and the Hardwick Interchange.

3.5.19 The proposed scheme might adversely impact two Grade II Listed Buildings, The Old Rectory (240m east) and The Gables (700m south) due to the potential increase in traffic flow and disturbance associated with the WWHAR. It might have beneficial impacts on The Mill at TF 6314 1678 Grade II Listed Building (70m east) and Church of St Mary Grade II* Listed Building (50m east) due to the expected reduction in traffic volumes along the existing A10 once WWHAR is operational. There is the potential for adverse effects on unknown and buried archaeological assets where the WWHAR is located on undeveloped land.

3.5.20 Overall, taking into account that to date an Environmental Impact Assessment (EIA) has not been undertaken, it is considered the WWHAR may have a **slight adverse** impact on historic environment.

Biodiversity

3.5.21 The closest designated site is River Nar Site of Special Scientific Interest (SSSI) which is approximately 1.2km to the south of the scheme. Also 1.2km to the south of the scheme is the Setchey SSSI designated for its geological interest. There are no Special Areas of Conservation with bat interest located within 30km of the proposed scheme.

3.5.22 Negligible impacts on ecological designated sites are anticipated. There are, however, potential undetermined effects on protected species which could be of significance and would require mitigation.

3.5.23 Overall, taking into account that to date an Environmental Impact Assessment (EIA) has not been undertaken, it is considered that the WWHAR scheme may have a **moderate adverse** impact on biodiversity.

Water Environment

3.5.24 The proposed alignment does not cross any Statutory Main Rivers nor is it located within Source Protection Zones (SPZs). The scheme falls within Water Framework Directive (WFD) groundwater body, North West Norfolk Sandringham Sands. The majority of the scheme falls within a Major Aquifer High and Major Aquifer Intermediate.

3.5.25 The proposed scheme is located within Environment Agency (EA) Flood Zone 1. Works on the Hardwick Interchange are located within close proximity to EA Flood Zone 2 and Flood Zone 3.

3.5.26 Overall, taking into account that to date an Environmental Impact Assessment (EIA) has not been undertaken, it is considered that the WWHAR may have a **neutral** impact on the water environment. Although there is potential for pollution or flood related impacts, it is envisaged that these would be mitigated through appropriate design and good construction practice.

Summary

3.5.27 The table below summarises the environmental impacts of the scheme as envisaged at this stage, pending results of the detailed assessments to be carried out as part of the EIA process.

Table 3-10 – Summary of Environmental Impacts

Environmental Impact	Assessment
Noise	Slight Adverse (£-)
Local Air Quality	Slight Adverse (-£0.01m)
Greenhouse Gases	£0.10m
Landscape	Slight Adverse
Townscape	Neutral
Historic Environment	Slight Adverse
Biodiversity	Moderate Adverse
Water Environment	Neutral

3.6 SOCIAL IMPACTS

3.6.1 The following sections describe the social impacts of the WWHAR scheme under the headings aligning to the Appraisal Summary Table. It should be noted that only the impacts as a result of delivering the WWHAR scheme have been considered within the appraisal, the development Masterplan and wider measures as a result (LCWIP etc) are likely to deliver further social benefits than those recognised below.

Reliability

3.6.2 Currently the A10 and A47 experience congestion and delays during peak times, exacerbated by high levels of HGV vehicles. The scheme aims to divert traffic from the existing A10 onto the WWHAR. This will improve reliability of journey times for both vehicles travelling through West

Winch and also local traffic, including bus services that currently route along the A10. The WWHAR will be of a better design to cope with HGV traffic than the existing A10. Dualling of the A47 will improve journey time reliability for trips on this route as well as offering more resilience to delays, accidents and congestion.

3.6.3 Overall the scheme is anticipated to have a **moderate beneficial** impact on reliability.

Physical Activity

3.6.4 There are currently high levels of traffic travelling through West Winch on the existing A10. This is a barrier for walking and cycling trips in the vicinity of the A10, where travelling along or across the road can be dangerous and undesirable. Diverting this through traffic onto the WWHAR will result in the existing A10 mainly serving local traffic.

3.6.5 As part of the housing access road there is provision for non-motorised users, this will encourage active travel and benefits associated with physical activity.

3.6.6 Overall the scheme is anticipated to have a **slight beneficial** impact on physical activity.

Journey Quality

3.6.7 Current users of the A10 and A47 are likely to feel less stress/frustration as a result of the WWHAR scheme as the roads will be less congested. This will improve their overall journey quality. Therefore, the impact of the scheme on journey quality is assumed to be **slight beneficial**.

Accidents

3.6.8 The reduction in traffic, in particular HGVs, on the existing A10 should improve safety and the perception of it for residents of West Winch. Further the housing access road will be designed to meet modern design standards. However, the increase in traffic volume on the A47 and WWHAR may result in an increased number of accidents.

3.6.9 Based on the change in highway kilometres across the whole network, the impact of the scheme on accidents is estimated to be –£0.07m in 2010 PV. However, there are likely to be localised impacts within the vicinity of the scheme.

Security

3.6.10 There is not anticipated to be any impact on security as a result of the scheme. Therefore, the impact is assessed as **neutral**.

Access to Services

3.6.11 The introduction of the WWHAR will improve connections to services offered in King's Lynn and local centres at West Winch and North Runcton. Therefore, the scheme is anticipated to have a **slight beneficial** impact on access to services.

Affordability

3.6.12 The scheme is anticipated to have a negligible impact on the cost of driving. Therefore, the impact is assessed to be **neutral**.

Severance

3.6.13 The scheme is anticipated to result in reduced traffic volume and speeds on the existing A10 through diversion of strategic traffic to the WWHAR. This will help alleviate the barrier the road

creates within the vicinity of West Winch, improving severance. For pedestrians and cyclists, it will feel safer, and more pleasant to cross/walk alongside the A10.

3.6.14 Chequers Lane and Rectory Lane run east-west between North Runcton and West Winch. The WWHAR will sever these roads. As part of the scheme design the interaction of the WWHAR with these roads has been considered in detail. A number of options were considered to ensure the WWHAR does not create severance for residents travelling between these two villages. The current design includes an east-west vehicular bridge on Rectory Lane and a shared footway/cycleway on one side. A pedestrian and cycle bridge over WWHAR is proposed on Chequers Lane, therefore it will no longer be possible to drive the length of the road. Neither bridge would connect to the WWHAR, but pass over it.

3.6.15 Overall, the scheme is anticipated to have a **slight beneficial** impact on severance.

Option and Non-use Values

3.6.16 The scheme is not anticipated to have any impact on the availability of transport services within the study area, therefore the impact is assessed as **neutral**.

Summary

3.6.17 The table below summarises the social impacts of the scheme.

Table 3-11 – Summary of Social Impacts

Environmental Impact	Assessment
Reliability	Moderate Beneficial
Physical Activity	Slight Beneficial
Journey Quality	Slight Beneficial
Accidents	-£0.07m
Security	Neutral
Access to Services	Slight Beneficial
Affordability	Neutral
Severance	Slight Beneficial
Option and Non-Use Values	Neutral

3.7 DISTRIBUTIONAL IMPACTS SCREENING

3.7.1 TAG Unit A4.2 (Distributional Impact Appraisal) states there are three steps to the Distributional Impacts (DI) appraisal process:

- Screening Process: identification of likely impacts for each indicator
- Assessment: confirmation of the area impacted by the transport intervention, identification of social groups in the impact area and identification of amenities in the impact area

- Appraisal of Impacts: core analysis of the impacts, full appraisal of the DIs and input into AST.

3.7.2 A DI screening exercise has been carried out at this SOBC stage of scheme development. This exercise determines whether the scheme is likely to have an impact on the DI indicators, and therefore whether it should proceed to the second stage of the process. At this stage, the following indicators will proceed to the assessment stage as part the development of the scheme progresses:

- User benefits
- Noise
- Air Quality
- Accidents
- Severance
- Affordability

3.7.3 The full DI screening proforma can be found in Appendix K. At this stage it is not anticipated that the scheme will disproportionality impact any particular group of the population for the indicators considered in the screening.

3.8 VALUING DEPENDENT DEVELOPMENT

3.8.1 Appendix E to this SOBC presents the Economic Narrative for the WWHAR scheme. This narrative provides an insight into the economic context of the scheme, it articulates and justifies the scope of analysis that informs the value for money assessment.

Value of Dependent Development

3.8.2 TAG Unit A2-2 sets out the approach to valuing the welfare impacts of dependent development and transport intervention. This includes the following steps:

- Valuing the transport scheme – considering the user benefits of the scheme under the assumption of fixed land use. This compares a scenario with the transport intervention against a scenario without, and assumes none of the dependent development. The user benefits under this approach are estimated in line with TAG Unit A1-3 (User and Provider Impacts). The value of the transport scheme forms the initial BCR for the scheme.
- Valuing the dependent development – this step involves measuring the impacts of unlocking the dependent development as a result of the transport scheme. There are four impacts considered under this:
  - Transport External Costs (TECs) – the impact of the development on existing transport users.
  - Land Value Uplift (LVU) – the change in value of land as a result of change in land use type, incorporating the cost of development of the housing.
  - Land Amenity Value – the change in amenity value associated with a different land use type, i.e. converting from greenfield land to residential properties.
  - Environmental and Social impacts – the impact of the transport scheme and dependent development compared to a scenario of no dependent development nor transport intervention.

Transport External Costs

3.8.3 The Transport External Costs (TECs) capture the impact of the additional transport demand as a result of the development on the existing transport users. These impacts are estimated by comparing two modelled scenarios:

- Without the new housing but with the transport scheme; and
- With the new housing development and with the transport scheme.

3.8.4 The two scenarios have been run in the KLTM, and outputs extracted and processed in TUBA. The impact on journey time, vehicle operating cost and indirect tax are calculated using the same approach as when valuing the transport scheme.

3.8.5 Table 3-12 below shows the TECs over the 60-year appraisal period in £2010 PV.

Table 3-12 - Transport External Costs

TECs	60 Year Value (£m, 2010 PV)
Journey Time Impacts	-144.87
Vehicle Operating Costs	-3.46
Indirect Tax Impact	1.00
Total (60 year)	**-147.33**

3.8.6 As expected, as the additional housing demand is added to the transport network this results in journey time disbenefits through increased congestion. It is likely that there is a balance of traffic between the A10 and the housing access road. As discussed when considering the transport user benefits there are implications of this on distance travelled and journey time. This balance of traffic across these routes impacts the vehicle operating costs and therefore the indirect tax revenue.

Land Value Uplift

3.8.7 The Land Value Uplift (LVU) has been calculated according to the methodology set out in the MHCLG Appraisal Guide and TAG Unit A2-2 Appendix D.

3.8.8 The deadweight assumption is that 350 homes are not dependent on transport intervention (as set out in the Strategic Case). It is assumed that 95% of the remaining 3,650 homes are additional, i.e. they would not have come forwards elsewhere in the region. Therefore, 3,468 homes are considered additional and are included in the LVU calculations.

3.8.9 It is assumed that the deadweight homes (350) would be developed in the period from 2022 to 2025 as no further homes can be developed until the highway scheme is put in place. The remaining 3,650 homes are then assumed to be built between 2025 and 2041. Based on the Local Plan review it is assumed that 1,600 of the homes are completed by 2032 and 3,000 by 2036. It is then assumed that the remaining 1,000 homes come forward by 2041. Within these time brackets it is assumed that the housing is delivered in an even profile.

3.8.10 The Gross Development Value (GDV) of the development is estimated by multiplying the number of dwellings developed by the house price per dwelling. The average house price for King's Lynn and West Norfolk in 2020 has been estimated by Gerald Eve to be £220,000 (£2020). The Land Registry dataset shows substantial house price increases in the borough, over the past five years house prices rose by approximately 4% per year in real terms. This real house price growth is applied to the 2020 house price for dwellings developed post-2020. Over the 60-year appraisal, the GDV is estimated to be £484m (£2010 PV).

3.8.11 The land price is then calculated by subtracting from the GDV the costs to the developer of constructing the housing. Table 3-13 below shows the values and sources of these cost components.

3.8.12 The IDP for South East King's Lynn Strategic Growth Area includes a high-level development appraisal for the West Winch Growth Area site. The parameters from this appraisal have informed the LVU calculation included in this SOBC.

Table 3-13 – Housing Build Costs

Cost Line Item	Assumed Value	Source
Average house size	927 sq. ft.	Weighted average of build sizes and housing composition in IDP
Build costs	£112/sq. ft. (2020 prices)	Gerald Eve
Professional Fees	8.0% of GDV	IDP
Developer Profit	17.0% of GDV	Land Value Estimates for Policy Appraisal (May 2017 Values)
Sales Agent Fees	1.0% of GDV	IDP
Legal Fees	0.5% of GDV	IDP
Marketing	1.0% of GDV	IDP
Finance Costs	7% of build costs	IDP
Contingency	5.0% of build costs	IDP
Growth in build costs	2019: 0.5% 2020: 2.2% 2021: 3.0% 2022: 3.7% 2023: 3.8% 2024 onwards: 2.6% p.a.	IDP (Annual average forecast based on Gardiner and Theobald, Turner and Townsend, Mace and BCIS All In Tender Price Index (TPI) forecast at August 2018)
Dwellings/acre	11.5	IDP

3.8.13 Over the 60-year appraisal period the costs are estimated to be £268m (£2010 PV). Combined with the GDV, the land price is £216m (£2010 PV).

3.8.14 Currently the site identified for development is greenfield agricultural land. Based on the IDP, it has been assumed that in one acre, 11.5 dwellings can be developed. For the 3,468 additional homes the area of the site for development would be 302 acres. Based on the BCKLWN 2016 Viability Assessment, the 2018 South East King's Lynn Growth Area Infrastructure Development Plan stated a value for the land in its current agricultural usage of £10,000 per acre (2016 prices). Multiplying

this by the number of acres that housing is developed on each year, and converting to £2010 PV gives the current land value of £2.1m. It should be noted that this calculation includes solely the area of the houses (sq. ft. multiplied by number of dwellings).

3.8.15 Subtracting this current use value from the land price gives the land value uplift for the site. The LVU is estimated to be £214m (£2010 PV factor prices), and £255m once converted to market prices.

3.8.16 The calculation of the LVU is presented in the WWHAR LVU Model attached as Appendix L to this SOBC.

Land Amenity Value

3.8.17 The Land Amenity Value (LAV) is calculated based on the change in land use as a result of the scheme. In the case of the housing development on the West Winch Housing Allocation site, the land is currently greenfield agricultural land and it will transition to residential land use.

3.8.18 The amenity value associated with extensive agricultural land is £4,380/hectare or £1,773/acre[30] in 2010 prices. Multiplying this by the acres developed each year and discounting to 2010 gives a loss of amenity value of -£0.24m (£2010 PV factor prices), and -£0.28m in market prices.

3.8.19 The calculation of the LAV is presented in the WWHAR LVU Model attached as Appendix L to this SOBC.

Environmental and Social Impacts

3.8.20 At this stage of Business Case development, the environmental and social impacts have not been considered for the value of the dependent development. As the scheme progresses these impacts will be considered.

Summary

3.8.21 As stated in TAG Unit 2.2, the value of dependent development is calculated as the sum of the above components: TECs, LVU and LAV. This results in a value of dependent development of £107m in £2010 PV market prices.

3.8.22 In line with guidance in the Value for Money Framework, induced investment impacts are considered within the Indicative Monetised Impacts. Therefore, these Level 3 impacts are not considered within the initial or adjusted Benefit Cost Ratio (BCR) for the scheme, but are used as a 'switching value' of the VfM category. With the value of dependent development added to the benefits included within the initial BCR, the WWHAR scheme demonstrates **High Value for Money**.

Sensitivity Analysis

3.8.23 Testing has been undertaken to explore the sensitivity of the expected outcomes to changes in inputs. These sensitivity tests are conducted on the initial BCR conditions. The following sensitivity tests have been undertaken:

- Impact of dependent development
- 15% Optimism Bias
- July 2020 sensitivity TAG Databook

[30] TAG Workbook: Valuing Dependent Development, May 2019

3.8.24 The table below shows the impact on the PVB, PVC, NPV and BCR of each of these tests compared to the initial BCR.

Table 3-14 - Sensitivity Analysis

	£m, 2010 PV			
Sensitivity Test	**PVB**	**PVC**	**NPV**	**BCR**
Initial BCR	*3.83*	*47.21*	*-43.38*	*0.1:1*
Impact of dependent development	110.85	47.21	63.64	2.3:1
15% Optimism Bias	3.83	36.04	-32.21	0.1:1
July 2020 sensitivity TAG Databook	1.93	47.75	-45.82	0.0:1

3.8.25 The table above shows that when the value of the development is considered alongside the conventional transport benefits of the initial BCR the scheme demonstrates high value for money.

3.8.26 Reducing the optimism bias has limited impact on the value for money of the scheme given the difference in magnitude between the PVB and PVC.

3.8.27 The July 2020 sensitivity TAG Databook reflects the lower economic forecasts issued by the Office for Budget Responsibility (OBR). These forecasts reflect the short term economic impacts of COVID-19 and also lower longer term growth forecasts. This sensitivity Databook has used with TUBA, LVU model, cost model and the overall appraisal model. The application of this Databook results in a 50% decrease in the PVB, largely driven by the reduction in transport user benefits. There is a small increase in the PVC due to lower economic forecasts reducing the impact of deflating to 2010 prices.

3.9 APPRAISAL SUMMARY TABLE

3.9.1 The Appraisal Summary Table (AST) is included in Appendix M of this SOBC.

3.10 VALUE FOR MONEY STATEMENT

3.10.1 The WWHAR scheme has the potential to deliver **High Value for Money**.

3.10.2 The construction of the WWHAR scheme unlocks the significant development potential of the West Winch Housing Allocation site. The scheme is estimated to generate a LVU benefit of £255m (£2010 PV, market prices), where the land is converted into a more economically valuable land use. There is also an amenity impact associated with developing the land. The impact of this is estimated to be -£0.28m (2010 PV, market prices) based on the loss of the current agricultural land. The impact on the highway network of the increased demand from the housing site is captured through the Transport External Costs, over the 60-year appraisal period these amount to -£147m (2010 PV). This suggests a value of development of £107m.

3.10.3 From a transport perspective, the PVB for the scheme is £3.83m. This is comprised of £12.09m of transport user benefits and £0.01 of externality impacts. £8.28m of costs to the private sector are then subtracted from these benefits.

3.10.4 The PVC for the scheme is £47.21m. This is comprised of £44.83m of costs to the public sector and £2.38m of O&M costs over the 60-year appraisal period.

3.10.5 In addition to the monetised benefits captured above, there are also a wide range of benefits of the scheme. The WWHAR scheme is anticipated to result in a range of social benefits. The scheme will increase road capacity through dualling part of the A47 and providing an alternative travel route via the housing access road. This increase in capacity supports improved journey time reliability and journey quality through reduced congestion and delays on the road. Reducing the traffic volume on the existing A10 through West Winch will improve the quality of life for village residents. It will remove the barrier that the road currently presents, reducing severance and promoting active travel. The scheme will provide a road of improved design to better serve the high proportion of commercial traffic in the area.

3.10.6 There are likely to be some net environmental disbenefits as a result of the scheme. Where the WWHAR will be constructed through greenfield land, there are anticipated to be increases in noise and reductions in air quality in these areas, however there may be areas of localised improvements in West Winch where traffic is diverted away from the village. Although there are likely to be impacts on the landscape, there are opportunities to mitigate/minimise these through environmental design measures. Where the WWHAR will be constructed on undeveloped land there are risks to biodiversity and historic environmental unknowns, however it is envisaged that these impacts would be mitigated by appropriate design and good construction practice. The appraisal does not consider the wider impacts of the development Masterplan or complementary and supporting schemes including LCWIP. Delivery of these elements may further support the social and environmental impacts recognised as part of the WWHAR scheme.

3.10.7 At this stage, and as presented in this Business Case, it is anticipated that the WWHAR scheme will deliver significant quantified and non-quantified benefits and provide value for money for public sector expenditure.

4

THE FINANCIAL CASE

4. THE FINANCIAL CASE

4.1 INTRODUCTION

4.1.1 The Financial Case considers the affordability of the proposed scheme. It presents the costs of the scheme and the proposed funding sources. This Financial Case has been developed in line with guidance from HM Treasury's Green Book and the DfT.

4.2 COSTS

Scheme Costs

4.2.1 The scheme costs of constructing the WWHAR have been estimated by WSP. At this SOBC stage, a high-level cost budget estimate has been prepared. This estimate considers the construction costs of the scheme and statutory undertakers costs. The design fees, supervision and surveys costs are estimated as 23% of the construction costs. This is in line with NCC's experience on similar projects.

4.2.2 The Strategic and Management Cases set out the latest position in terms of land purchase required for the scheme. As discussions between land owners, NCC and BCKLWN are ongoing, an estimate has been made to the likely land costs of the scheme for inclusion in the business case. The cost of land included in the SOBC is £6.70m.

4.2.3 At this stage of scheme development, a Quantified Risk Assessment (QRA) has not been carried out. Therefore, to reflect the uncertainty of the scheme costs a risk allowance of 30% has been included in the cost estimate. As the scheme develops and undergoes detailed design work, a QRA will be undertaken.

4.2.4 The scheme costs have been estimated in 2020 Q2 prices. It is programmed that the construction of the scheme will commence in 2020/21 and run through until 2026/27. Inflation has been added to these costs to reflect the year in which they are incurred. To convert the 2020 cost estimate to outturn costs, inflation has been applied based on the BCIS All-In TPI November 2020 forecasts.

4.2.5 Table 4-1 below shows the breakdown of the scheme costs.

Table 4-1 – WWHAR Scheme Cost Estimates (£m, 2020)

Cost Category	£m, 2020
Construction Costs incl. Prelims	26.88
Design Fees, Supervision and Surveys (23%)	6.18
Statutory Undertakers	4.93
Land	6.70
Risk (30%)	13.41
Total	**58.10**

4.2.6 Table 4-2 shows the scheme costs adjusted for inflation.

Table 4-2 – Conversion of WWHAR Scheme Costs to Outturn Estimate

Cost Category	£m, nominal
Total Cost (2020 prices)	58.10
Inflation	6.63
Total Outturn Cost (nominal)	**64.73**

4.2.7 For further detail on the derivation of the capital cost estimates of the WWHAR scheme, please refer to Appendix N.

Cost profile

4.2.8 Table 4-3 below shows the outturn estimate of the WWHAR scheme costs for the period 2020 / 21 to 2026 / 27.

Table 4-3 – WWHAR Scheme Cost Profile (£m, outturn)

Cost (£m, nominal)	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Total
Scheme Cost	**0.96**	**4.68**	**13.79**	**1.74**	**13.39**	**21.27**	**8.90**	**64.73**

Operating and Maintenance Costs

4.2.9 There will be costs associated with the maintenance of the WWHAR. At this stage of Business Case development these costs have been considered as a proportion of the construction costs. The annual O&M costs are assumed to be 0.4% of the construction costs. Over the 60-year appraisal period this gives O&M costs of £6.45m (£2020), and after inflation £15.45m (nominal). These costs are assumed to be incurred by the local authority.

4.3 FUNDING

4.3.1 Work undertaken as part of the IDP identified that it was not viable for the housing development to fund the construction of the housing access road in full. Therefore public sector funding from the MRN Fund is sought to fill this gap.

4.3.2 In order to be eligible for MRN funding, the Government contribution to the scheme cost should be between £20m - £50m, and local or third-party contribution should be at least 15% of the total scheme costs.

4.3.3 It is anticipated that part of the funding required to deliver the scheme would be met by the DfT through MRN funding. NCC is seeking £50.08m (nominal) of MRN funding to support the delivery of the scheme.

4.3.4 The remaining cost is assumed to be met through developer contribution. The IDP for the South-East King's Lynn Strategic Growth Area identified that the developer contribution would be £13m in 2018 prices. Within the Financial Case this has been inflated to the year in which costs will be incurred. This equates to a 23% contribution. The IDP identifies the possible funding streams that could be utilised alongside the MRN funding to deliver the scheme.

Section 106 Planning Obligations

4.3.5 Planning obligations, one of the key mechanisms available to BCKLWN, are a legally binding document that enables the local authority to secure contribution to the provision of infrastructure to support development. Planning obligations are entered into with regard to Section 106 (S106) of the Town and Country Planning Act 1990.

Section 278 Highway Agreements

4.3.6 Section 278 agreements secure highway works required to facilitate or service a proposed development. These works are outside of the development site, hence the distinction from Section 106 agreements. Works covered by the Section 278 agreements include roundabouts, signalised junctions, right turn lanes, safety related work such as traffic calming, street lighting and improved facilities for pedestrians and cyclists.

4.3.7 These agreements are made between the landowner/developer and the Highways Authority.

Land Development/Equalisation Agreement

4.3.8 As set out in the Legal Constraints section of the Strategic Case, the housing allocation site is in multiple ownership, and the BCKLWN and their advisers have been working to develop a Collaboration Agreement between the landowners. The Collaboration Agreement is a commercial facility to deliver the land more equitably to ensure the overall Masterplan comes forward. The intention is that there will be an overarching Masterplan S106 Agreement that all landowners will need to sign up to. Beneath this there will be specific individual S106 agreements related to each site.

4.3.9 In order to expedite work on the Collaboration Agreement, the BCKLWN have bought an option on a significant area of land in the growth area. This together with land owned by NCC forms almost 50% of the land required to develop the growth area. The BCKLWN and NCC are in the process of combining their land in a One Public Entity (OPE) undertaking.

4.3.10 The expectation is that the Collaboration Agreement work will be completed before the submission of the OBC. Both councils are aware of the importance of having control of the land to build the road and have discussed the prospect of falling back on a CPO process should that prove to be necessary.

4.3.11 As the Business Case progresses this mechanism will be developed in more detail in relation to land acquisition for construction.

5

THE COMMERCIAL CASE

5. THE COMMERCIAL CASE

5.1 INTRODUCTION

5.1.1 The Commercial Case outlines the commercial viability of delivering the proposed scheme. At the SOBC stage this addresses the specification of outputs of the scheme and the strategy for procurement.

5.1.2 This chapter has been developed to follow HM Treasury's Green Book and the relevant guidance from the DfT (TAG).

5.1.3 At this stage of the Business Case, the Commercial Case is high level. Details on areas such as contract lengths, contract management, and risk allocation and transfer will be finalised at a later stage of scheme development.

5.2 OUTPUT BASED SPECIFICATION

5.2.1 As set out in the Strategic Case, a range of objectives have been established for the scheme. The proposed scheme has been developed to provide the outputs to underpin the outcomes sought. Notably this is to provide the transport infrastructure required to facilitate residential expansion and employment growth in King's Lynn and West Norfolk.

5.2.2 Detailed design will be undertaken as part of the ongoing scheme development, and the output specification will be confirmed during the procurement and contract management process.

5.3 PROCUREMENT STRATEGY

Delivery Models

5.3.1 The decision on the form of contract to use to procure the services to deliver the proposed WWHAR scheme has not been made yet. The decision will be based on an assessment of a number of potential arrangements and their ability to best meet the requirements of the project. The requirements will reflect the specific factors of the proposed scheme, including, the stage of development of the project, process and construction risks and the appetite to accept or transfer risks to other parties so that the risk sits with the party best placed to manage it. This will all be considered in the context of the strategy objectives of NCC and BCKLWN, which are:

- Managing and maintaining the transport network
- Sustainable growth
- Strategic connections
- Accessibility
- Emissions
- Road safety

5.3.2 It is anticipated that the following forms of arrangements will be considered:

- Conventional arrangement with one contract for the detailed design and specification for construction and a separate contract for construction
- Single contract covering both design and build
- Early Contractor Involvement (ECI) for design and build contract, but with a breakpoint prior to construction if the contractor's performance is not satisfactory.

5.3.3 Each of these arrangements has benefits and challenges, as described below.

Conventional Arrangement

5.3.4 This arrangement provides the client with close control over the design process. However, as the construction contract is awarded separately on the basis of the completed design, the construction contractor may be different from the design contractor. This limits the opportunity for the construction contractor to employ innovation, which may benefit the scheme, as the design is already set.

5.3.5 Separation of the work also introduces an interface risk whereby the construction contractor may raise issues with the design, which the client in the first place needs to manage. This form of contracting is therefore most appropriate for projects which carry low risks, or clearly known risks, and relate to 'tried and tested' solutions.

Single Contract

5.3.6 A single stage Design and Build (D&B) contract removes the interface risk from letting two separate contracts. Bidders for a D&B contract provide a target price on the basis of an outline design already produced. This approach offers the opportunity for bidders to innovate in their approach where they believe it will improve the efficient delivery of the scheme (and therefore the competitiveness of their target price), as well as ensuring the design they develop will be deliverable as they will be contracted to deliver it.

5.3.7 A challenge with a single contract is the requirement at the bidding stage to estimate the target cost based on the outline design. There is a risk that during the development of the detailed design and during construction the actual cost changes significantly from the target cost estimated. Robust arrangements for change controls are necessary and the client-contractor relationship may become very adversarial with the potential for contractual claims and disputes.

ECI Design and Construct

5.3.8 Early Contractor Involvement is intended to ensure a collaborative way of working. The contractor becomes part of the project team early enough in the process to enable it to shape the approach and draw on its experience to support the successful realisation of the project. The early engagement and continuity through the design and construction stages should reduce risks related to constructability and the overall project.

5.3.9 To mitigate the cost risk element of the single D&B contract approach, while the intention is to retain the same contractor throughout the whole process, there is the opportunity to re-let the work if following the development of a detailed design an acceptable target price cannot be agreed (and/or contractor performance has not been satisfactory). The contract provides for the client to be the owner of the detailed design enabling it to procure a new construction contractor if required.

5.3.10 Whether with the original contractor or a new one, the approach supports greater certainty for the estimation of target prices as they are based on the detailed design that has been developed, hence reducing the risk of cost overruns.

Forms of Contract

NEC Engineering and Construction Contract

5.3.11 The NEC Engineering and Construction Contract suite of contracts, originally known as New Engineering Contract, has been used to deliver building and engineering schemes globally since its first publication in 1993. The NEC suite uses plain language and promotes good communication and

management to deliver projects. The NEC suite has been endorsed by governments and industry with the current revision, NEC4, being published in 2017.

5.3.12 The NEC offers five Conditions of Contract options for delivery of engineering projects including priced, target cost and cost reimbursable contracts. The different conditions, based around common core clauses, seek to allocate risk management to the appropriate party and promote non-adversarial working. The Contract is administered by an appointed Project Manager.

5.3.13 The NEC suite encourages a collaborative approach to deliver schemes and promotes proactive management of risks to deliver schemes on programme and budget.

Infrastructure Conditions of Contract

5.3.14 The Infrastructure Conditions of Contract (ICC) suite of contracts is also aligned to UK civil engineering and infrastructure work. ICC provides a clear and standardised contract specifically tailored for civil engineering and infrastructure projects. It is endorsed by the sponsoring bodies, Association for Consultancy and Engineering and the Civil Engineering Contractors Association.

5.3.15 Separate versions of the ICC Conditions of Contract cater for a variety of types of contract strategy including measurement, target cost and design and construction. The different conditions provide options for delivery with each offering a comprehensive and clear set of conditions with clear risk allocation between Employer and Contractor. The contract is administered by an independent engineer.

5.3.16 The procedures set out in the Contract provide a cooperative form of contract that should prevent or reduce delays and allow control of costs at any stage of a Contract.

Form of Contract Discussion

5.3.17 The NEC and ICC contract suites both provide a robust contracting framework through which the scheme could be delivered. They have proven track records for the delivery of infrastructure schemes and are widely accepted within the UK civil engineering industry. The NEC is considered a less adversarial form of contract although the most recent revisions of the ICC have also attempted to promote collaboration.

5.3.18 Both the NEC and ICC offer a range of Conditions of Contract which would enable NCC to select conditions that best align to the scheme procurement objectives.

5.3.19 NCC contract procurement rules allow for either the NEC or ICC standard form to be adopted for the delivery of major projects. Previously, NCC has adopted NEC for tendered civil engineering, maintenance and professional services contracts and has found from its experience in procuring construction works that this is generally the preferred form within the highway construction sector. As a result, NCC internal support services and 'in-house' term consultant, WSP, have greater experience and capability procuring works under the NEC suite.

Procurement Routes

5.3.20 The following procurement route options were considered for the scheme:

- New UK 'Find a Tender Service' (FTS) – previously OJEU Competitive Tender Process
- Eastern Highways Alliance (EHA)

5.3.21 These are described in detail below.

OJEU Competitive Tender Process

5.3.22 The Official Journal of the European Union (OJEU) is the publication in which all public sector tenders valued above £4,733,252 (for infrastructure projects) must be advertised[31].

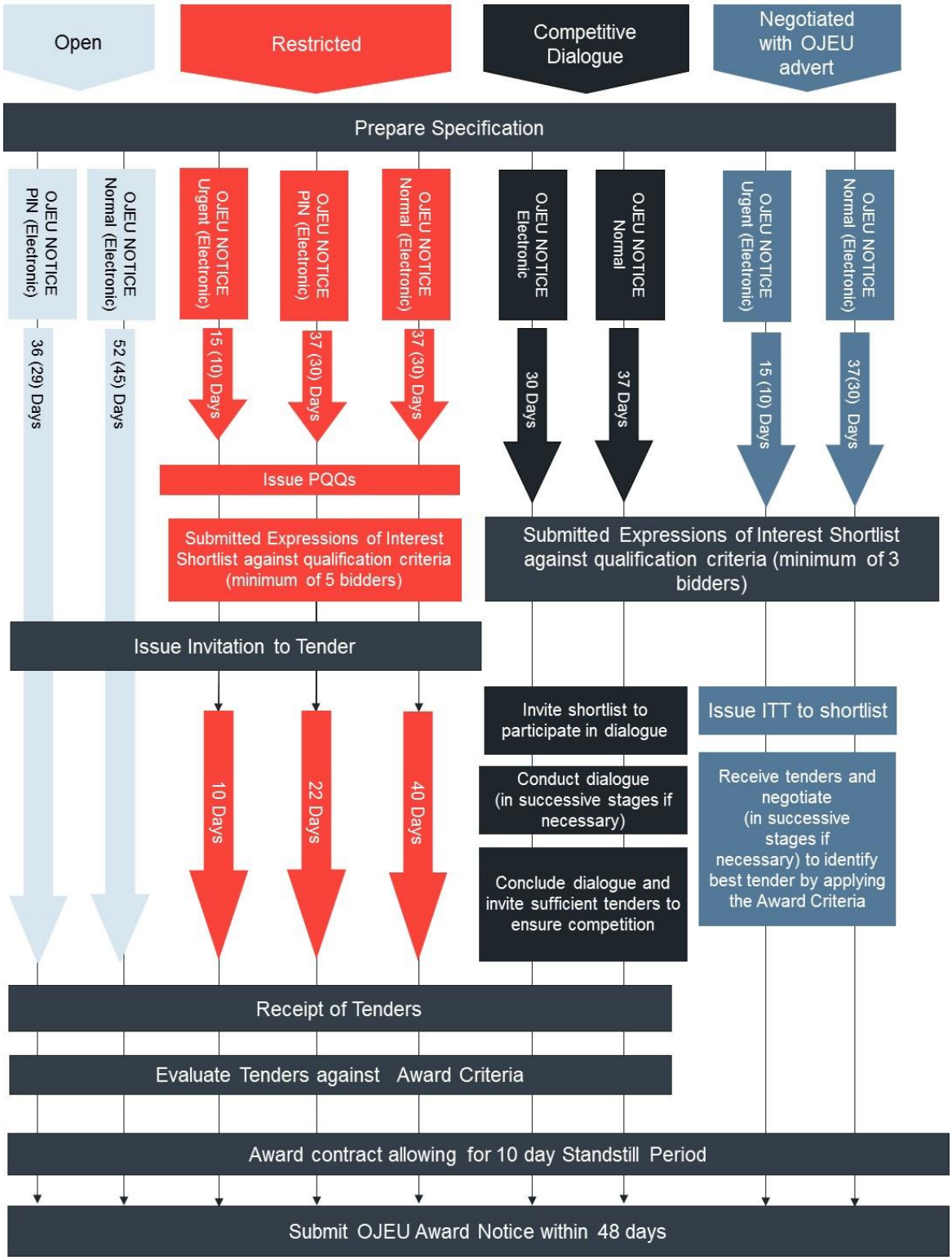
5.3.23 Four options within the FTS procurement process have been considered:

- Open Tender
- Restricted Tender
- Competitive Dialogue
- Competitive Procedure with Negotiation

5.3.24 Figure 5-1 below shows the process under these options.

[31] Revised guidance for UK procurement (post-Brexit) has recently been published (10 November 2020). Whilst OJEU tendering has been replaced for advertising new contracts post-January 1st 2021 (with Find a Tender), it is not expected this would change any of the considerations contained within the commercial case, nor the contracting strategy. This however will be reviewed as part of any further procurement assessment before commencing the process.
Note, this also applies to the Eastern Highways Alliance described below, which itself was published via OJEU. However, call-off contracts advertised / awarded via the EHA do not require publication on OJEU.

Figure 5-1 - Procurement Options[32]



32 Adapted from https://www.procurementjourney.scot/sites/default/files/documents_library/Issue%20ITT%20-%20OJEU%20Process%20Timescales%20Document.pptx

Open Procedure

5.3.25 This procedure is often used for the procurement of commodity products which do not require a complex tender process in order to be purchased.

5.3.26 This procedure allows an unlimited number of interested parties to tender against defined parameters. There are no restrictions (e.g. pre-qualification) on the parties who are permitted to tender, meaning that some parties may not be suitable to carry out the work. This procedure is straightforward and transparent but can attract a large number of potential bidders (which will require a greater degree of assessment and resource requirements).

Restricted Procedure

5.3.27 This is a two-stage procedure. The first stage allows the contracting authority to set the minimum criteria relating to technical, economic and financial capabilities that the potential bidders have to satisfy. Following evaluation of the responses to the first stage, typically five bidders (unless fewer qualify) are invited to tender in the second stage.

Competitive Dialogue

5.3.28 This procedure is appropriate for complex contracts where contracting authorities:

- are not objectively able to define the technical means capable of satisfying their needs or objectives, and/or
- are not objectively able to specify the legal and/or financial make-up of a project.

5.3.29 This is a multi-stage procedure. The first stage is a pre-qualification to select the potential bidders to participate in the dialogue. In the second stage the contracting authority enters into a dialogue with the potential bidders to identify and define the means best suited to satisfying their needs.

5.3.30 Any aspect of the contract may be discussed, including technical requirements for the works to be delivered and the commercial/contractual arrangements to be used. The dialogue may be conducted in successive phases with the remaining bidders being invited to tender. By the end of the dialogue phase the contracting authority's requirements will have been determined such that the scheme can be tendered. In the final stage, the remaining bidders from the dialogue phase are invited to tender for the scheme.

5.3.31 This procedure is used in more limited circumstances described in the Regulations and if the client is very clear about the requirement and does not wish to discuss alternative solutions then there is no need for dialogue.

Competitive Procedure with Negotiation

5.3.32 This procedure is intended to be used where minimum requirements are able to be specified but negotiations with bidders may be needed to improve the initial tenders. The grounds for using this procedure are as follows:

- Where needs cannot be met without adaptation of readily available solutions
- Where the contract includes design or innovative solutions
- Where the requirement is complex in nature, in its legal and financial make-up or because of its risks
- Where the technical specifications cannot be established with sufficient precision
- In the case of unacceptable/irregular tenders

5.3.33 Within this procedure, bidders initially submit tenders based on the information issued by the contracting authority. The contracting authority is then able to review the tenders it has received and negotiate with the bidders, following which the tenders will be resubmitted.

5.3.34 This procedure can only be used in the very limited circumstances described in the Regulations, generally where it is not possible to use either the Open or Restricted Tender route and would not be applicable to the award of the scheme. It may be appropriate where:

- The contracting authority is unable to produce an ITT / specification without discussing its needs in detail with suppliers (but iterative discussions with bidders should allow a detailed solution to be specified)
- Where the solution is likely to be particularly complex and will require dialogue with bidders to conclude. The competitive dialogue procedure is generally used for complex procurements such as PFI / PPP projects

5.3.35 The advantages and disadvantages of the OJEU procurement process are described in Table 5-1.

Table 5-1 – Advantages and Disadvantages of the OJEU Procurement Process

Advantages	Disadvantages
The OJEU process provides a robust procurement route that follows legal regulations	Potentially longer procurement period required compared to alternative procurement route options
There is a clearly auditable procurement and award process	Increased level of resources required to carry out the procurement process
Competition is open to a wide range of Contractors, so competitive prices should be received	
NCC can choose which form of contract the scheme is awarded under	

Eastern Highways Alliance

5.3.36 The Eastern Highways Alliance (EHA), Eastern Highways Framework 3 (EHF3), recently awarded in October 2020, is designed to deliver highways schemes for the 10 members of the EHA, of which NCC is one. The Framework seeks to build on the successful delivery of projects across the region through the previous Frameworks, most recently EHF2, which expired in June 2020. It forms a key part of the strategy for efficient and effective delivery of larger highways and transport schemes from the overall capital programme.

5.3.37 The appointed Contractors under EHF3 Lot 3 are:

- Interserve Construction
- BAM Nuttall
- John Sisk

5.3.38 The procurement of the EHF3 was led by Essex County Council. The OJEU PIN was issued in April 2019 and the tender process started in June 2019. The general format is broadly similar to the EHF2 version, but now with more lots covering a wider financial scope.

5.3.39 The EHA has adopted the NEC4 suite for EHF3. Depending on the delivery methodology, a wide range of the Option Clauses are available for use.

5.3.40 The EHA Framework Contract provides NCC with a significant level of flexibility in terms of delivery options, as well as a swift route to market that negates the need for an OJEU process, should the Authority choose. EHF3 mirrors the delivery options of EHF2 in terms of routes to market, Competed Services (formerly Mini Competition) and Standard Services (formerly Direct Award). There are three financial Lots available within this new Framework, Lot 1 which covers works up to £2.0m, Lot 2 for works between £1.5m and £7.0m with Lot 3 covering £5.0m to £30.0m (and greater with EHA Board approval).

5.3.41 Competed Services follows the 'First Principles' pricing strategy, whereby Client Authorities provide Framework Contractors with a Works Information bundle including Scheme Specific Information, Drawings, Health and Safety File and any other information as deemed necessary by the Client, to allow a price to be developed. Prices are then submitted by the Contractors through the mini competition process, which will then be combined with previously submitted Quality weightings to identify the most advantageous submission. Award is then made to the appropriate Contractor.

5.3.42 The standard weightings between Price and Quality which are used to obtain a position on the Framework are 60/40. However, there is flexibility within the Framework to allow Clients to change these 'headline' weighting to suit priorities or objectives for individual call-offs (as long as Contractors are informed in the Works Information at tender stage). The Framework also offers the ability to use a suite of quality questions, including a 'free text' question, for individual call-off situations and change the weightings associated to those questions. This flexibility allows Authorities to tailor their requirements around delivery to individual schemes

5.3.43 Although Standard Services is a quick way to price a scheme and give some degree of certainty in budgetary terms (due to the availability of a schedule of rates), this will not be a delivery option considered for this scheme as the financial ceiling for works in this Award process is £7.0m.

5.3.44 The advantages and disadvantages of using the EHA procurement route are described in Table 5-2.

Table 5-2 – Advantages and Disadvantages of the EHA Procurement Route

Advantages	Disadvantages
Fast route to market	Reduced number of Contractors to be able to choose from which may not drive the level of competition and consequently obtain the value NCC are seeking
Probity of Framework Contractors already proven	Price fluctuations could be susceptible to level of throughput associated to Framework, i.e. increased workflow through a small number of Contractors could drive higher tender prices
Good working relationships built through wider Framework working groups	Framework does not support all NEC4 Contract Options. These restrictions may limit the scope available to consider variant design solutions and value engineering proposals

Good flexibility in terms of financial value covered by Framework	No flexibility within Framework to choose suitability of Contractor. Potential for dialogue with all Contractors could be reduced by Framework rules
Framework will be supported by Framework Manager to assist relationships between Authorities and Framework Contractors	Framework can be susceptible to a lack of competition; particularly should a Contractor have to withdraw and reduce the required 'tender list' to two
	As Contract terms have not been fully appraised for EHF3 it is possible that they may not fully align with NCC's requirements for this project delivery. It is likely that the scope of the Framework could be amended to suit NCC's requirements, however, it may be more straightforward to utilise a standalone NEC4 Contract
Streamlined tender process allows for fast tender prices	
Reduced procurement costs	Needs to be balanced against fees for using the EHF contract
ECI Option available	

5.4 SOURCING OPTIONS

5.4.1 Following a decision on the procurement strategy, the appropriate procurement route will be identified. As this stage it is anticipated that it will be procured through a competitive tendering process consistent with the County Council's procurement requirements. This will seek the most economically advantageous tender (MEAT) on the basis of quality and commercial submissions.

6

THE MANAGEMENT CASE

6. THE MANAGEMENT CASE

6.1 INTRODUCTION

This chapter forms the Management Case, which assesses whether a proposal is deliverable. The Case tests the project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance.

The Management Case has been prepared in line with DfT guidance for the preparation of transport business cases, using HM Treasury's (HMT) Five Case Model and TAG guidance.

6.2 EVIDENCE OF SIMILAR PROJECTS

NCC has successfully procured and delivered a large number of projects since 1999 using the NEC Engineering and Construction Contract. The projects vary in size and complexity and include:

- Broome Ellingham Bypass
- King's Lynn Household Waste Recycling Centre
- Nar Ouse Regeneration Scheme
- Sprowston, Harford and Thickthorn park and ride sites
- Cringleford Cluster (including new development link road)
- A140 refurbishment at Scole
- King's Lynn South Lynn Transport Major
- King's Lynn Major Developments (including new development link road)
- King's Lynn Transport Interchange
- A47/A1042 Postwick Hub Junction
- A12/A143 Link Road

Norwich Northern Distributor Road (NNDR) Table 6-1 below sets out the scope of the works, costs, timescale and procurement strategy followed for the three most recent schemes.

Table 6-1 – Evidence of Similar Projects

Scheme Name	Description	Contract	Form of Contract	Approximate Project Value	Construction Date
A47/A1042 Postwick Hub Junction Improvement	Construction of a new bridge over the A47 and the construction of associated link roads, slip roads, roundabout junctions, a signal-controlled junction and new access arrangements to the existing Park and Ride site	NEC3 Engineering and Construction Contract	Option C, with a Target Price developed from first principles and an incentivised approach which aimed to deliver the construction works below the target figure.	£28m	Construction commenced in May 2014 and opened to traffic in December 2015

A12/A143 Link Road	Construction of a new link between the A12 trunk road and the A143	NCC Term Service Contract - NEC3 Engineering & Construction Contract	Option C, with a Target Price developed from first principles and an incentivised approach which aimed to deliver the construction works below the target figure.	£8m	Construction commenced in September 2014 and opened to traffic in December 2015
Norwich Northern Distributor Road	Construction of 20km dual carriageway including eight bridges (one over a railway), a grade separated junction, and associated link roads and roundabout junctions	NEC3 Engineering and Construction Contract	Option C, with a Target Price developed from first principles and an incentivised approach which aimed to deliver the construction works below the target figure.	£177m	Construction commenced December 2015 and fully opened to traffic in April 2018

All of the schemes have been developed and tendered by NCC or procured using the Council's Strategic Partnership Contract or the Highways Term Service Contract using an Option C Target Cost Contract. The Council has fulfilled the role of Project Manager. A Delivery Team has been used successfully on major infrastructure schemes and this approach will again be followed for the WWHAR scheme.

For the WWHAR scheme, opportunities will be taken, wherever possible, to improve delivery processes by acting upon the lessons learnt from recent schemes. For example:

- Using knowledge and experience gained during the Town and Country Planning Act (TCPA) process to assist with the development of the TCPA application submission;
- Maintaining good stakeholder consultation and engagement, including developing statements of common ground wherever possible, during design development and construction phases of the project;
- Finalising as much design work as possible before moving to the construction phase. Any change to the design during the construction phase is disruptive;
- Early engagement with utility providers as part of the detailed design phase including establishing the location of apparatus on site using trial holes;
- Early procurement of the main contractor and engagement with sub-contractors to provide early contractor involvement during the detailed design;
- Where significant archaeological excavation is necessary, planning to carry out this work prior to the main start of works where this is possible; and
- Aiming to carry out as much utility diversion work as possible prior to main start of works.

Consultant Experience

NCC is being advised by WSP Ltd, the Council's consultant, and a major provider of highway consultancy services to local authorities.

WSP has experience and expertise in business case proposals, optioneering for cost benefit analysis, planning applications and detailed design for major infrastructure projects for central and local government clients. Recent projects include the M4 Smart Motorway for Highways England, the A5 Western Transport Corridor for Transport Northern Ireland, the Lowestoft Lake Lothing Third Crossing for Suffolk County Council and the Great Yarmouth 3rd River Crossing. WSP is also one of the UK's leading providers of support services to the statutory procedures required to plan, deliver and maintain infrastructure projects, providing land referencing, stakeholder engagement and consultation service, and order management.

Contractor Experience

It will be essential to appoint a contractor with significant experience in delivering similar large-scale bridge and highway projects. The options for the procurement of the contractor are summarised in the Commercial Case, and the management of the contractor is considered in the Project Governance section below.

6.3 PROGRAMME/PROJECT DEPENDENCIES

The WWHAR scheme is a stand-alone project, which can be delivered independently of any other scheme or development.

The WWHAR scheme includes improvements and changes to A47 junctions which are the responsibility of Highways England. In view of this, the scheme has been developed with Highways England and they are represented on the current project team. NCC will continue to work closely with Highways England in the detailed design phase to ensure the scheme remains acceptable to both parties.

Land assembly for construction of the WWHAR is being considered as part of the Masterplan Framework S106 Agreement being developed by BCKLWN. Progress on this will be reported as part of future business case submissions

From the legislative perspective, there are no dependencies for the WWHAR.

6.4 GOVERNANCE, ORGANISATIONAL STRUCTURE AND ROLES

The governance structure for delivery of the WWHAR scheme follows an established structure that has been used by NCC for the successful delivery of previous schemes.

To ensure successful delivery of this scheme, NCC has established and will continue to resource the following bodies:

- Project Board
- Project Delivery Team
- Stakeholder Group

At the heart of project governance is the Project Board, which is accountable through the Project Sponsor to NCC, and is responsible for reviewing the scheme and taking key decisions. The Senior Responsible Officer is accountable to the Project Board and is responsible for the work of the Delivery Team.

Project Sponsor

The Project Sponsor is NCC, represented by Tom McCabe, the Council’s Executive Director of Community and Environmental Services and Head of Paid Service.

Senior Responsible Officer

The Senior Responsible Officer will be David Allfrey who is currently Infrastructure Delivery Manager at NCC.

David Allfrey is a Chartered Civil Engineer and a Member of the Institution of Civil Engineers (ICE). He has 28 years' experience working in the construction industry. For the last 25 years he has worked for NCC specialising in highways design and maintenance, and supervising and delivering a wide range of highway maintenance and major improvement schemes, including:

- The Nar Ouse Regeneration Route in King's Lynn.
- A47/A1042 Postwick Hub Junction
- Norwich Northern Distributor Road

Project Board

A Project Board will be set up for the scheme. In line with best practice the Board will include representatives of the customer, user, and supplier aspects of the project. The main roles of the board will be decision taking and review.

The Project Board will meet monthly until the project has been completed, after which it will make arrangements for ongoing oversight and reporting of monitoring and evaluation.

The draft composition of the Project Board is shown in Table 6-2.

Table 6-2 – Project Board Roles and Responsibilities

Role	Responsibilities	Name	Position
Project Sponsor	Chair of Project Board	Tom McCabe	Executive Director of Community and Environmental Services (NCC)
Project Director/Executive	Oversee the development and coordination of the case for the project and ensure it remains in line with the wider county council and LEP priorities	Grahame Bygrave	Director Highways & Waste (NCC)
Project Owner and Senior Responsible Owner (SRO) The "customer for the scheme", representing the public's interests	Responsible for the successful delivery of the project, ensuring that it meets its objectives and delivers its intended benefits	David Allfrey	Infrastructure Delivery Manager (NCC)
Principal Planner	Responsible for Economic Development including transport policy.	TBD	Principal Planner for Local Plan review (NCC)

Project Finance	Review budget and costs to ensure funding is available	Andrew Skiggs	Finance lead and CES Business Partner (NCC)
Project Stakeholder and Engagement Manager	Responsible for communication planning and management	TBD	Project communication lead officer (NCC)
Project Manager – WWHAR	Managing the project to ensure that it delivers the required products within the agreed constraints. Co-ordinating the work of the delivery team	TBD	Project Stakeholder and Engagement Manager' (NCC)
Head of Procurement	Responsible for the procurement delivery	Al Collier	Head of Procurement (NCC)
Technical & Stakeholder Manager (WSP)	Responsible for communicating with external stakeholders to ensure successful delivery of the project	TBD	Stakeholder Manager (WSP)
Project Manager - WSP	Managing the project to ensure that WSP delivers the required product within the agreed constraints	Gerry Corrance	Project Manager (WSP)
Borough Council of King's Lynn and West Norfolk Representative	Strategic Planning	Alan Gomm	Head of Planning
Highways England Representative	Strategic planning	Eric Cooper	Asset Development Team Leader
New Anglia LEP Representative	Represents the interests of the LEP	Ellen Goodwin	Infrastructure Manager (NA LEP)

Delivery Team

NCC currently has a Working Group developing the WWHAR scheme in conjunction with the BCKLWN and Highways England and will establish a Delivery Team for the scheme. The team will be led by the Project Owner and will include representatives of the various disciplines and work streams involved in delivering the project to completion. The delivery team will meet monthly, or as required, and the Project Manager will be responsible for determining which disciplines or work streams need to be represented at any particular meeting. The Delivery Team approach runs from 'cradle to grave', right through the design and construction stages. Each work stream will have an individual, detailed, agreed action plan to meet the target milestones for the coming year and beyond. This ensures co-ordination of activities and is a forum for discussing issues/problems as they arise.

The main responsibilities of the delivery team will be to:

- Co-ordinate the different activities which make up the project;
- Provide direction to the technical delivery of the project;
- Undertake monthly review of progress against targets and programme;
- Undertake monthly review of the risk register, and initiate corrective action where appropriate; and
- Provide, as a minimum quarterly, progress reports for the Project Board. The Board will consider any matters of a strategic nature and give advice accordingly.

Costs will be monitored and presented to the Project Delivery Team on a monthly basis. The Project Manager will maintain the system and take account of any known committed costs in updating forecast outturn.

The Senior Responsible Officer will review the actual and forecast expenditure against profile and budget, and report by exception to the Project Board.

Table 6-3 shows the roles and responsibilities of the proposed Delivery Team.

Table 6-3 – Delivery Team Roles and Responsibilities

Role	Responsibility	Name
Senior Responsible Officer/ Project Owner (NCC)	Chair of Delivery Team Provides reports to Project Board	David Allfrey *(Infrastructure Delivery Manager)*
Stakeholder & Communications Lead (NCC)	Develop communications plan Option Consultation Stakeholder Management Press Liaison	TBD *(Project communications lead officer)*
Finance Team (NCC)	Financial monitoring and reporting	Andrew Skiggs *(Finance Business Partner)*
Legal Team (NCC)	Specialist legal advice	NP Law
Highways and Transport Team (NCC)	Supporting project delivery	TBD *(Engineer)*
Project Director (WSP)	WSP Project Owner	TBD *(Project Director)*
Technical & Stakeholder Manager (WSP)	Develop Full Business Case Coordinate design and delivery Manage the technical delivery Monitoring and evaluation	TBD *(Technical & Stakeholder Manager)*

	Communication with stakeholders	
Project Manager (WSP)	Develop Full Business Case Coordinate design and delivery Monitoring and evaluation	TBD *(Project Manager)*
Assistant Project Manager (WSP)	Support the WSP Project Manager to deliver the project.	TBD *(Assistant Project Manager)*
Specialist Teams (WSP)	Ecology Environmental Water Quality Archaeology & Heritage Air Quality Noise Landscape & Urban Design 3D Visualization Modelling & Appraisal Drainage Geotechnical Hydrogeology Costing Consultation Structures Business Case Transport Planning Construction Design (CDM) Land Referencing	TBD
Project Support (NCC)	Support to project manager and delivery team	TBD *(Project Officer – Infrastructure Delivery)*
Project Coordinator (NCC)	Project coordination	TBD

6.5 PROGRAMME/PROJECT PLAN

The key milestones for the development of the scheme are shown in Table 6-4 below. The detailed programme for delivery of the scheme is included in Appendix O.

NCC is committed to continuing work on design and planning for the scheme post-SOBC submission, which has been incorporated in the programme, and will be progressed by NCC.

Table 6-4 – WWHAR Scheme Key Milestones

Milestone	Current Estimate
Priority schemes submitted to DfT supported by Regional Evidence Base	Q3 2019
SOBC submitted to DfT	Q1 2021
Non-statutory consultation	Q3 2021
Submit WWHAR planning application	Q1 2022
Planning application determined	Q3 2022
Detailed design	Q3 2022 – Q2 2023
Procurement	Q3 2023 – Q4 2023
Start of main WWHAR Construction	Q1 2024
Anticipated Scheme Opening	Q3 2026

6.6 ASSURANCE AND APPROVALS PLAN

The scheme will follow the relevant assurance and approval processes, at both a national and local level. As the scheme has a value of over £20m, the Business Case will be developed in line with the required TAG processes as agreed with the DfT. Furthermore, the Business Case will need to be signed off to the satisfaction of NCC Section 151 Officer in their role as the Chief Financial Officer.

The Business Case will be taken to Cabinet for approval at a local level and follow the relevant MRN funding approval processes to go forward.

The local funding contribution is discussed within the Financial Case. However, to confirm, NCC Section 151 Officer has underwritten the local contribution and will approve the release of local funding, when satisfied and appropriate to do so.

In order to introduce some peer scrutiny into the project, a programme of Gateway Reviews will be instigated using a recognised supplier such as Local Partnerships.

6.7 COMMUNICATIONS AND STAKEHOLDER MANAGEMENT

As part of any major scheme development, it is important to conduct formal consultation and stakeholder engagement.

The West Winch and North Runcton Parish Councils were both engaged in the development of the Borough Council's Local Plan and subsequent Site Allocations and Development Management Policies Plan. Both parish councils have worked together to produce the North Runcton and west Winch Neighbourhood Plan. These planning documents establish the basic alignment of the new housing access road.

Two workshop meetings have been held with both Parish Councils. Those workshop meetings established the highways strategy for the WWHAR scheme, particularly the treatment of Rectory Lane and Chequers Lane.

The BCKLWN has regular stakeholder meetings to provide updates on matters relating to the West Winch housing allocation and the WWHAR scheme.

Looking ahead, it is intended that a public consultation for the WWHAR scheme will be held during Summer 2021. The views of local residents and businesses will be invited as part of this consultation exercise.

A stakeholder database will be developed by the project team and updates on the project's progress will be added as appropriate. This database will include the following groups:

- Norfolk Members of Parliament (MPs)
- County and District Councillors and Officers
- Local businesses
- Transport Associations and bus and haulage companies
- Environmental groups

6.8 PROGRAMME REPORTING

Project reporting will be a live process, which will be kept up-to-date over the life cycle of the project. This relates to reporting of progress, risks and issues. This will involve the following regular actions, as well as additional reporting as and when required:

- The Project Manager will report at each Project Board meeting
- The Delivery Team leads will report to the Project Manager monthly in advance of Project Board meeting and hold "bi-weekly calls" to discuss progress and issues.

6.9 RISK MANAGEMENT STRATEGY

The detailed Risk Register for the project is included in Appendix P.

In line with project reporting, the risk management strategy will be updated on an on-going basis to capture the progress of the scheme and assist with programme management.

Identifying Risks

A risk register will be developed to consider risks associated with the preferred scheme, and to provide up-to-date input to the above process. The risk register will capture issues such as Compulsory Purchase Orders (CPOs), common land, design of Hardwick Interchange.

Risks will be identified by specialists in highways and structural engineering, geotechnics, transport planning, quantity surveying and the environmental disciplines and entered into the risk register.

Managing Risks

The Treasury Green Book states that “effective risk management helps the achievement of wider aims, such as effective change management, the efficient use of resources, better project management, minimising waste and fraud, and supporting innovation”.

NCC recognises that to successfully achieve its own fundamental transformation, effective risk management is vital. The Council has a dedicated Risk Management Policy where managers are encouraged and supported to be innovative whilst understanding the risk and implications, so they

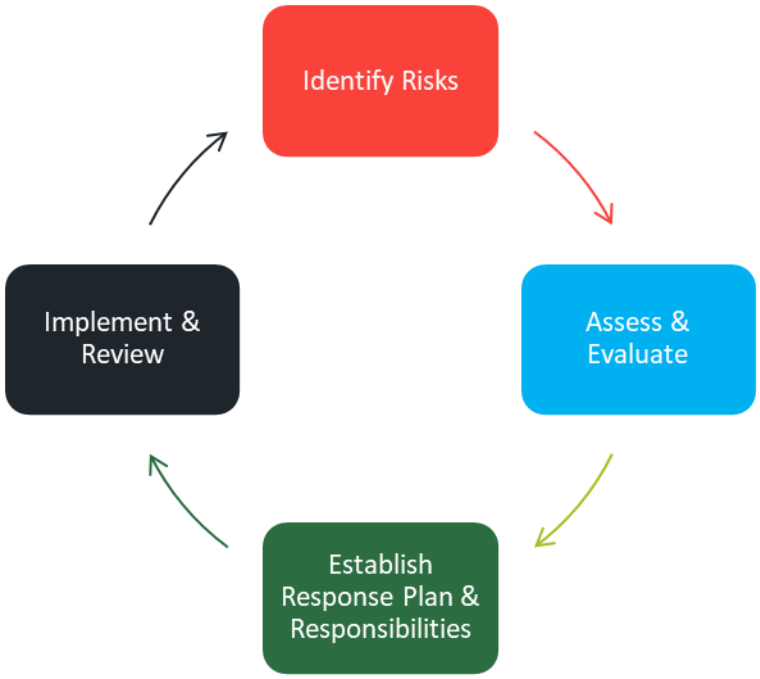
make informed decisions to achieve objectives and deliver results. By being risk aware, reviewing its risk appetite and tolerance, the Council will be better placed to both take advantage of opportunities, and manage threats.

Risk management is a continual process involving the identification and assessment of risks, prioritisation of them and the implementation of actions to mitigate the likelihood of them occurring and the impact if they did. The Project Board's approach to risk management will be proportionate to the decision being made or the impact of the risk, to enable the Council to manage risks in a consistent manner, at all levels.

In line with project reporting, the risk management strategy will be updated on an on-going basis to capture the progress of the scheme and assist the programme management.

Figure 6-1 shows the four-stage risk management process.

Figure 6-1 - Four-Stage Risk Management Process



Identifying Risks

A Risk Management Workshop will be held to consider risks associated with the proposed scheme, and to provide up-to-date input to the above process. Assumptions will be tested for stability and sensitivity, and where they were deemed to be unstable, a corresponding risk will be assigned and assessed.

Quantified Risk

At this stage of scheme development, a Quantified Risk Assessment (QRA) has not been conducted. Optimism Bias is applied to costs within the Economic Case to account for uncertainty. As the Business Case progresses for the scheme, a QRA exercise will be undertaken.

Managing Risk (Response Plans and Mitigation)

Having identified scheme risks and undertaken an initial assessment, responsibilities will be allocated to the most appropriate party and response plans developed. One of four possible strategies will be adopted:

- *Accept or tolerate consequences if the risk occurs* - In the event that a) the cost of taking any action exceeds the potential benefit gained; or b) there are no alternative courses of action available;
- *Treating the risk* - Continuing with the activity that caused the risk by employing four different types of control including preventative, corrective, directive and detective controls;
- *Transferring the risk* - Risks could be transferred to a third party e.g. insurer or contractor; and
- *Terminating the activity* that gives rise to the risk.

The effectiveness of the response plans will depend on the implementation of the plan, and review of the residual risk, including any secondary risk associated with implementation, at key decision points in the life of the scheme.

To achieve this, scheme risk assessments and their associated response plans will be reported regularly to the Project Board throughout the detailed design and construction stages.

Transfer of Risk to the Contractor

The Commercial Case describes different procurement strategies which reflect different levels of appetite to accept or transfer risks to other parties so that the risk sits with the party best placed to manage it. Early involvement with the Contractor will include an assessment of the appropriate balance of risk. Design risk could be retained by the Council or transferred to the Contractor. Delivery and programme risk will substantially rest with the Contractor.

The Contractor will be required to produce a priced risk register. This will be reviewed as part of the process of target setting and decisions made on the mechanism for sharing risk between the Contractor and NCC. This will ensure that the proposed allocation provides the best value for money for the project.

A pain-gain share mechanism is where a target cost is agreed and then the Contractor is paid for the work undertaken on a cost reimbursable basis. This mechanism may be negotiated and agreed with the Contractor and used to provide incentive for value engineering and robust cost and programme management.

6.10 BENEFITS REALISATION PLAN

A Benefits Realisation Plan will be prepared for the WWHAR scheme. It will enable the benefits and disbenefits that are expected to derive from the project to be planned, tracked, managed, and realised. It will help demonstrate whether the scheme objectives identified in the Strategic Case are being achieved in terms of the desired “measures for success”.

The Benefits Realisation Plan will be linked to the Monitoring and Evaluation Plan described below and will be owned by the Project Manager.

6.11 MONITORING AND EVALUATION PLAN

This section outlines the approach that will be taken for the preparation of a Monitoring and Evaluation Plan.

Monitoring involves checking progress against the targets set for the scheme. Evidence of expenditure and the delivery of outputs is formally reported.

Evaluation involves assessing the effectiveness and efficiency of the scheme both during and after implementation. It seeks to measure the success of the scheme in delivering planned outcomes. It assesses whether, and how, the anticipated benefits have been achieved, or if any benefits have not been achieved, the reasons why.

DfT guidance sets out three levels of monitoring and evaluation:

- Standard monitoring
- Enhanced monitoring
- Fuller evaluation

The standard monitoring is required for all schemes, and schemes costing over £50 million are expected to be subject to enhanced monitoring. As such it is expected that only the standard monitoring will be required for the WWHAR scheme.

The scheme will be subject to an outcome evaluation. This will compare the existing situation (before construction of the WWHAR scheme) against the situation with the scheme in place. Any observed changes are assumed to be attributable to the scheme.

The Monitoring and Evaluation Plan will be developed and included with the Outline and Full Business Case.

APPENDIX A

ENVIRONMENTAL CONSTRAINTS PLAN

See appended file named *'Environmental Constraints Plan.pdf'*

APPENDIX B

ENVIRONMENTAL SCOPING REPORT

See appended report named *'WWHAR EIA Scoping Report MASTER public.pdf'*

APPENDIX C

OPTION DEVELOPMENT REPORT

See appended reports named *'TN01 Technical Note 01_rev3.pdf'*, *'TN02 Technical Note 02_rev1.pdf'* and *'A47 Options Study.pdf'*

APPENDIX D

DETAILED DESIGN

See appended file named *‘9893-WSP-XX-00-AL-SK-0007_P06.pdf’’*

APPENDIX E

ECONOMIC NARRATIVE

See appended file named *'WWHAR Economic Narrative v2.00.pdf'*

APPENDIX F

MODEL FORECASTING REPORT

See appended report named *'191004 West Winch Forecasting Report.pdf'*

APPENDIX G

LOCAL MODEL VALIDATION REPORT (LMVR)

See appended file named *‘201130_WestWinch_LMVR_inclAppendices.pdf’’*

APPENDIX H

FORECASTING TECHNICAL NOTE

See appended file named *'WWHAR DfT Business Case Update 20200622 v1.00.pdf'*

APPENDIX I

ECONOMIC APPRAISAL MODEL

See appended file named *'WWHAR Economic Appraisal Model v1.00.xlsx'*

APPENDIX J

APPRAISAL OUTPUT TABLES

See appended file named *'WWHAR Appraisal Output Tables v1.00.xlsx'*

APPENDIX K

DI SCREENING PROFORMA

See appended file named *'WWHAR DI Screening Proforma v1.00.xlsx'*

APPENDIX L

WWHAR LVU MODEL

See appended file named *'WWHAR LVU Model v1.00.xlsx'*

APPENDIX M

AST

APPENDIX N

COST PLAN

See appended file named *'West Winch SOBC Estimate Summary 18.05.20 Profiling Issue.xlsx'*

APPENDIX O

DETAILED PROGRAMME

APPENDIX P

RISK REGISTER

See appended file named *'Risk Register – September 2020.xlsx'*

APPENDIX Q

LETTERS OF SUPPORT

See appended file named *'Letters of Support.pdf'*

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