



Norfolk County Council

LONG STRATTON BYPASS

Outline Business Case

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WSP

WSP House
70 Chancery Lane
London
WC2A 1AF

Phone: +44 20 7314 5000

Fax: +44 20 7314 5111

WSP.com

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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1. This document is the Outline Business Case (OBC) for the proposed A140 Long Stratton Bypass. It explains why a bypass is needed and why Norfolk County Council (NCC) is seeking support from the Department for Transport's (DfT) Major Roads Network (MRN) fund to deliver it.
- 1.1.2. The OBC builds on the Strategic Outline Business Case (SOBC), which was submitted to the DfT in September 2018.
- 1.1.3. If the OBC is approved, NCC will submit a Full Business Case (FBC) to the DfT with updated information. If the FBC is approved, the DfT will release MRN funds for the scheme.
- 1.1.4. The business case has been prepared in accordance with the Transport Business Cases (DfT, January 2013) guidance, which sets out the requirements for each stage of the process. Each business case stage builds upon the last and evidence is reviewed at each stage to ensure that it remains up to date, accurate and relevant.

1.2 LOCATION OF THE SCHEME

CONTEXT

- 1.2.1. Long Stratton is a small town in the county of Norfolk, with a population of 4,424 as of the 2011 Census. It lies about 10 miles south of Norwich on the A140 Ipswich to Cromer road, mid-way between the county town, Norwich and the market town of Diss.
- 1.2.2. Long Stratton is in South Norfolk district and is home to the District Council's offices. Norfolk is a member of the New Anglia Local Economic Partnership (LEP) together with Suffolk County Council.

Figure 1-1 - Location of Long Stratton



THE A140

- 1.2.3. The A140 is part of the MRN. It connects Ipswich and Norwich – the two largest economies in the New Anglia area, before continuing northwards to the A149 at Cromer. It connects to the Strategic Road Network (SRN) at the A14 near Needham Market and the A47 and A11 at Norwich. The A140 used to be classified as a trunk road but was de-trunked in May 2001 when responsibility passed from the Highways Agency (now Highways England) to the local authorities (Norfolk and Suffolk County Councils). The A140 is a mix of different standards, ranging from 70 mph dual carriageway to 30 mph single carriageway within towns and villages.

THE TOWN

- 1.2.4. Previously a village, Long Stratton became a town at the local elections in May 2019, when its Parish Council became a Town Council. This important change reflects its fast-growing population, which increased by almost 20% between 2001 and 2011¹, as well as transformational plans for at least 1,800 new homes and 9.5ha. of new employment land in the town.
- 1.2.5. Long Stratton has infant, junior and high schools, two churches, three pubs, a doctors' surgery, a library and a leisure centre. Town Centre shopping facilities and a supermarket are located along the A140, which forms the main street of the town, as well as in two shopping centres. Other significant employers are the District Council and the Saffron Housing Trust. There are currently 1,900 people working in Long Stratton, 30% of whom commute in from outside the district, whilst 39% of employed people who live in the town commute to work in Norwich.²
- 1.2.6. The A140 passes through the centre of Long Stratton, forming the town's main street. It is subject to a 30mph speed limit through the centre of the town, between Lime Tree Avenue and St. Michael's Road. 50mph zones extend either side of the 30mph restriction for approximately 700m to the north and 900m to the south. Gateway signing, 'dragon teeth' markings and carriageway roundel markings have been introduced to reinforce the speed restrictions on the approach to the built-up area.
- 1.2.7. Within the built-up area, the A140 is relatively narrow with a minimum carriageway width of 5.7m and 1.2m footways in places. There are eight priority junctions, a signal-controlled junction (with Flowerpot Lane) and a signal-controlled pedestrian crossing (between Swan Lane and Star Lane). There is frontage access to residential and commercial premises along the whole length of the road within the town and on-street parking is prohibited through the town centre.

¹ 2001 and 2011 census. Office for National Statistics

² Long Stratton Area Action Plan (May 2016), paragraph 2.6

Figure 1-2 - Long Stratton



- 1.2.8. The A140 at Long Stratton carries approximately 22,000 vehicles per day, of which 5.69% are heavy goods vehicles (HGV). For users of the A140, the section through the town is a notorious bottleneck on a key route into Norfolk. For residents and visitors to the town it brings unwanted through traffic into an otherwise attractive town, bringing problems of noise, pollution, visual intrusion, accidents and community severance.
- 1.2.9. The continued presence of the A140 and its traffic in the centre of Long Stratton is inconsistent with the town's existing character and function and a serious barrier to the planned housing and economic growth.

PLANNED HOUSING AND EMPLOYMENT DEVELOPMENT

- 1.2.10. The proposal for a bypass is inextricably linked in local planning policies to plans for major new housing and employment development in Long Stratton.
- 1.2.11. The adopted Joint Core Strategy for Broadland, Norwich and South Norfolk identifies Long Stratton as a key location for growth and proposes the development of 1,800 new houses with supporting school facilities and green infrastructure and 9.5ha of employment land, over the period 2008 to 2026. This scale of development would not be acceptable unless a bypass were also provided to remove A140 traffic from the town centre. The adopted Long Stratton Area Action Plan (AAP) confirms that a bypass is an essential requirement for housing growth and must be in place before the 250th house is occupied.
- 1.2.12. Figure 1-3 shows the development sites allocated in the AAP and the indicative line of a bypass.
- 1.2.13. Two planning applications were submitted to South Norfolk Council in January 2018.

An outline application for 109.7ha of land to the east of Long Stratton comprising:

- 1,275 houses
- 8 hectares of employment land
- Primary school (2ha site)
- Community facilities, associated infrastructure and open space

Together with a full application for:

- An eastern bypass, including roundabouts and junctions

An outline application for 45.2ha of land to the west of Long Stratton comprising

- 387 houses
- 1.5ha of employment land
- Associated infrastructure and public open space

Together with a full application for:

- An initial phase of 213 houses
- A western relief road

- 1.2.14. NCC and South Norfolk Council (SNC) have been working with the developers to assess the proposals and develop the bypass proposal. A revised application is anticipated for submission in May 2021.

THE PROPOSED BYPASS

Description

- 1.2.15. The bypass will provide:
- Access to the new development without adding to the traffic on the A140
 - A new, more efficient route for through traffic on the A140
 - Traffic relief in the town centre
 - Opportunities to further improve conditions for people walking, cycling or using public transport
- 1.2.16. The proposed scheme, together with the currently anticipated pattern of development, is illustrated in Figure 1-4 and forms the basis of this OBC. It comprises a 4km long all-purpose bypass on the eastern side of Long Stratton, with:
- A 7.3m single carriageway

- Two 1.0m hard strips
- Variable width soft verges
- A design speed of 100 km/h with a speed limit of 60 mph between Rhees Green roundabout and the existing A140 to the south, and an 85km/h design speed and 50mph speed limit between Rhees Green roundabout and the proposed Roundabout north of Long Stratton

1.2.17. From north to south, the bypass will include:

- A new four-arm roundabout on A140 Norwich Road (the Northern Gateway Roundabout) incorporating an access to development west of the A140
- A priority junction with a new link to Church Lane, which will be diverted
- A footbridge crossing for non-motorised users (NMUs) on the footpath between Long Stratton and St Michael's Church
- A new three-arm roundabout near Edge's Lane (to be known as Rhees Green Roundabout), providing a link into new development
- A road overbridge to carry Hall Lane over the bypass
- A new three-arm roundabout north of Parker's Lane with a single carriageway link to the A140 Ipswich Road at Parker's Lane
- A free-flowing connection to A140 Ipswich Road

1.2.18. The A140 Ipswich Road will remain open for access and cyclists between the bypass and Parker's Lane, with no through traffic.

Cost

1.2.19. The estimated cost of the proposed bypass is **£37.44 million** at out-turn prices. A 30% local contribution (**£11.23 million**) is proposed and the remaining **£26.21 million** is being sought from the government's MRN funding.

Figure 1-3 - Site allocations in the Long Stratton AAP

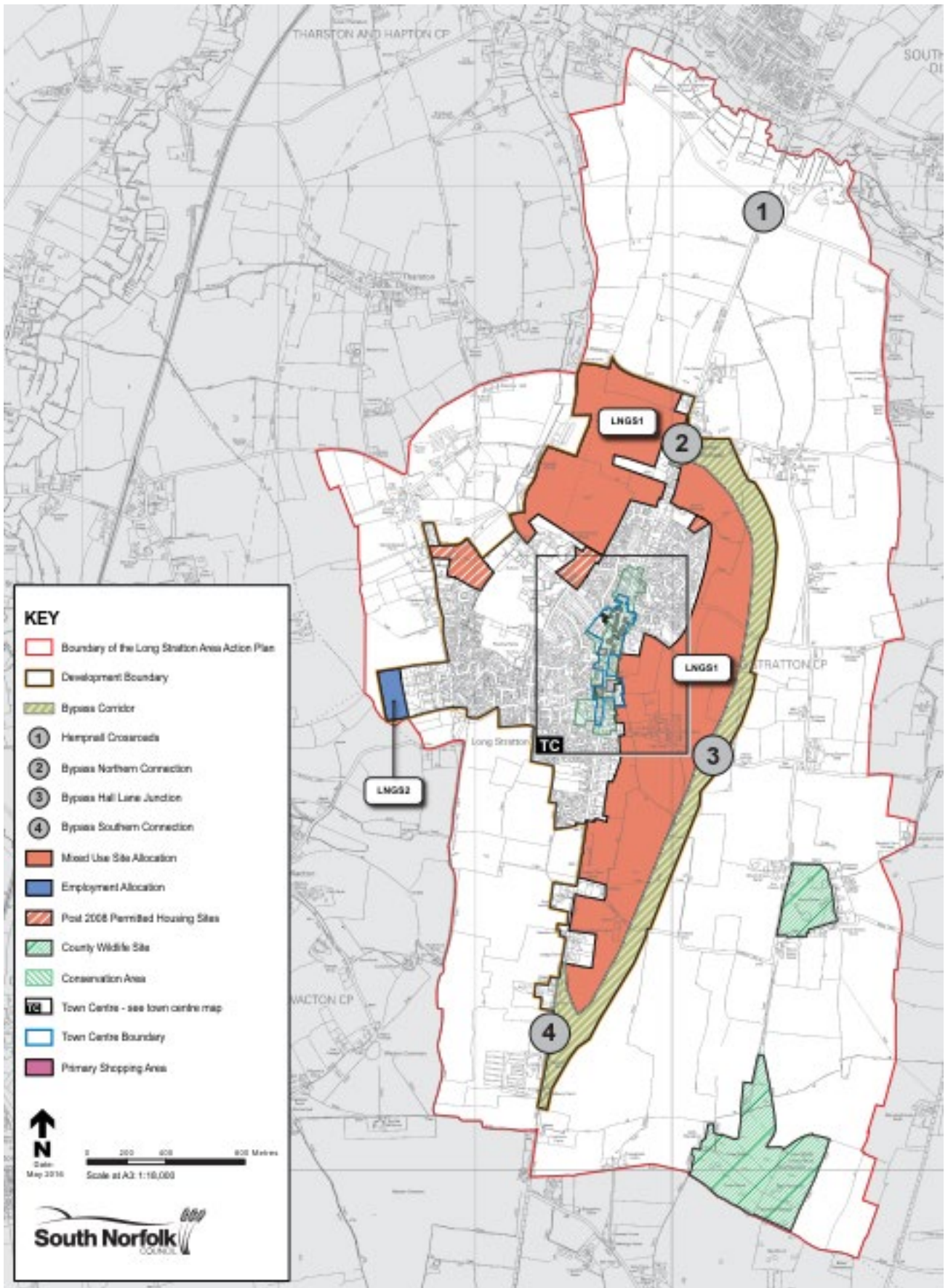
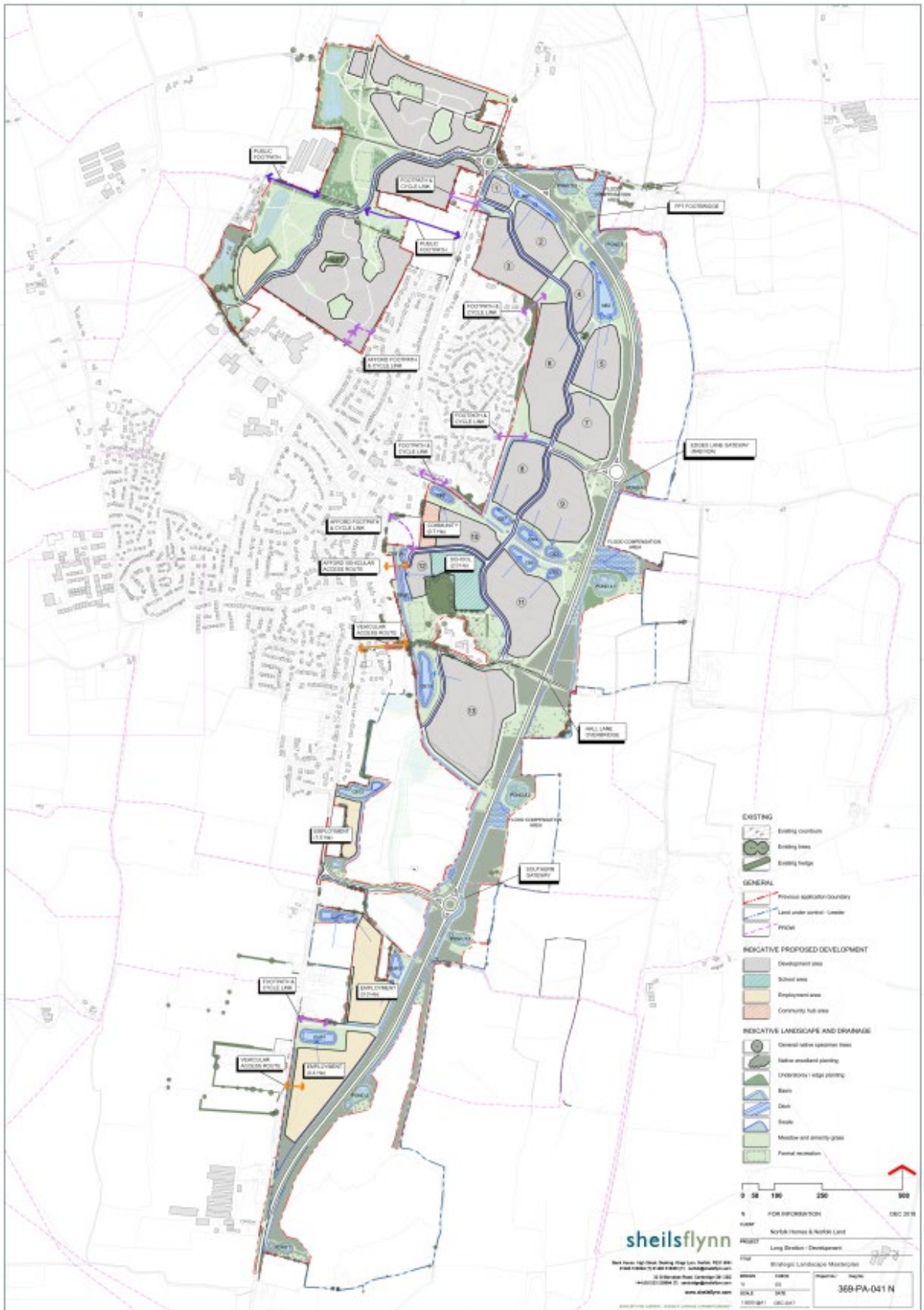


Figure 1-4 - A140 Long Stratton Bypass and indicative development



1.3 THE BUSINESS CASE

- 1.3.1. This OBC sets out the reasons why NCC believe the proposed A140 Long Stratton Bypass should receive funding from the DfT's MRN fund. It has been prepared in accordance with the Transport Business Cases (DfT, January 2013) guidance and follows HM Treasury's five-case business model:
- **Strategic Case:** showing that there is a robust 'case for change', closely aligned to national, regional and local policy objectives, including the objectives of the MRN
 - **Economic Case:** showing that the scheme provides high value for money, based on a formal appraisal undertaken in line with DfT transport appraisal guidance (TAG).
 - **Financial Case:** explaining how much the scheme will cost over its lifespan and how it will be paid for including local contributions, showing that it is affordable
 - **Commercial Case:** showing that the scheme is commercially viable
 - **Management Case:** demonstrating that the scheme is achievable in practical terms and explains how the project will be managed to ensure it achieves its objectives.
- 1.3.2. The five cases are consistent with each other and are based on the development work done since submission of the SOBC, including consideration of the design of the scheme, preparation of cost estimates, traffic modelling, economic appraisal and consideration of constraints and environmental impacts. They will be further updated in the FBC.

2 STRATEGIC CASE

2.1 INTRODUCTION

- 2.1.1. The Strategic Case sets out the case for change and explains why the A140 Long Stratton Bypass is needed. It shows how the proposed investment will support a wider strategy for the development of Long Stratton and the delivery of new housing and employment development, in line with the strategic objectives of NCC, South Norfolk Council (SNC) and the New Anglia Local Enterprise Partnership (LEP).
- 2.1.2. The Strategic Case describes the problems the scheme will address and sets clear objectives. It describes how the proposed scheme has been developed after consideration of a range of options and in consultation with stakeholders, to find the right solution. It explains why the investment is needed now to resolve the problems and enable delivery of housing targets.
- 2.1.3. The Strategic Case should be read in conjunction with the Introduction (Section 1).

2.2 OVERVIEW OF THE STRATEGIC CASE

- 2.2.1. This section covers:
- The policy background and business strategy for the scheme
 - Existing problems
 - Opportunities
 - Future problems - the impacts of not changing
 - Drivers for change
 - Aims and objectives of the scheme
 - Measures for success
 - The scope of the scheme
 - Constraints
 - Interdependencies
 - Stakeholders and consultation
 - Options considered
 - The proposed scheme
 - The impacts of the proposed scheme and the achievement of objectives

2.3 POLICY BACKGROUND AND BUSINESS STRATEGY

- 2.3.1. This section describes the strategic aims and responsibilities of the organisations promoting the scheme and shows how the scheme aligns with these. It then shows how the scheme relates to the government's objectives for the MRN and the criteria for funding. Finally, it reviews relevant national, regional and local strategies and policies, showing how the scheme will support transport and development plans at every level. Where appropriate, a Red / Amber / Green indication is used to demonstrate how the A140 Long Stratton Bypass will contribute to strategic objectives:
- **Green** indicates that the bypass proposals are well-matched to a given objective
 - **Amber** suggests less direct but complimentary alignment
 - **Red** demonstrates a potential conflict of aims or priorities

AIMS AND RESPONSIBILITIES OF ORGANISATIONS PROMOTING THE SCHEME

Norfolk County Council

- 2.3.2. NCC is the top tier local government Authority for Norfolk. In February 2018, NCC set out an overarching vision with six aims for Norfolk in 2021³ and the scheme will contribute to four of these, as set out in Table 2-1 below:

Table 2-1 - Contribution of A140 Long Stratton Bypass to NCC aims

NCC aims	Contribution of A140 Long Stratton Bypass	RAG
Build communities we can be proud of	The bypass will improve the quality of life for people in Long Stratton and allow the town to grow in a planned way	Green
Install infrastructure first	The bypass is an essential pre-condition to the delivery of housing and employment development in Long Stratton	Green
Build new homes to help young people get on the housing ladder	The bypass will enable delivery of major new housing development in Long Stratton, helping to reduce the pressures which drive up housing prices	Green
Make the most of our heritage, culture and environment.	The bypass will improve the environment of the traditional town centre by removing through traffic	Amber

- 2.3.3. The A140 Long Stratton Bypass will contribute directly to NCC's vision of building new homes, installing infrastructure and building communities.
- 2.3.4. NCC is the Local Transport Authority covering Long Stratton and is responsible for the management and maintenance of the A140 County Primary road and for road safety. NCC's transport policies are set out in Connecting Norfolk: Norfolk's Local Transport Plan (2011-2026), the Norwich Area Transport Strategy and the Connecting Norfolk Implementation Plan.

South Norfolk Council

- 2.3.5. South Norfolk Council (SNC) is one of seven second-tier district councils in Norfolk and is based in Long Stratton. It is a key driver of economic growth for Greater Norwich and beyond and is home to leading research institutes and innovative businesses.
- 2.3.6. The Council's vision, set out in the South Norfolk Corporate Plan (2016-20), is:
- to retain and improve the quality of life and prosperity of South Norfolk for now and future generations to make it one of the best places to live and work in the country.
- 2.3.7. The Corporate Plan's high-level priorities include support for the A140 Long Stratton Bypass, as set out below.

Table 2-2 - Contribution of A140 Long Stratton Bypass to SNC priorities

SNC high level priorities include:	Contribution of A140 Long Stratton Bypass	RAG
Deliver a high-quality local road network for our residents, through investing over £10 million to support the development of the Long Stratton Bypass.	The scheme will directly deliver one of SNC's high-level priorities	Green

³ Caring for our County: A vision for Norfolk in 2021, Norfolk County Council, February 2018

- 2.3.8. SNC is the Local Planning Authority covering Long Stratton. The Council’s planning strategy is set out in the Joint Core Strategy for Broadland, Norwich and South Norfolk (2014) and its housing strategy is set out in the South Norfolk Housing Strategy (2016-19).
- 2.3.9. The A140 Long Stratton Bypass will contribute to SNC’s vision by supporting the delivery of new housing in line with the Core Strategy, providing a high-quality road network for residents and enhancing the quality of life for people in Long Stratton.

New Anglia Local Enterprise Partnership

- 2.3.10. The New Anglia LEP covers the whole of Norfolk and Suffolk. It works with businesses, local authority partners and education institutions to drive growth and enterprise in the area.
- 2.3.11. The strategic ambitions of the LEP, set out in its Economic Strategy for Norfolk and Suffolk (2017), are for its area 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
- 2.3.12. The contribution of the A140 Long Stratton Bypass to these strategic ambitions is considered in more detail in below.
- 2.3.13. In 2018, the LEP produced its Integrated Transport Strategy for Norfolk and Suffolk. Under the theme: “Regional connectivity and our priority places” the aims of the Integrated Transport Strategy include improving the Major Road Network within the New Anglia region, as set out below.

Table 2-3 - Contribution of A140 Long Stratton Bypass to the LEP’s ITS aims

LEP Integrated Transport Strategy aims include:	Contribution of A140 Long Stratton Bypass	RAG
Deliver a reliable Major Road Network with improved journey times between our priority places	The A140 Long Stratton Bypass will be a significant improvement to the MRN and will reduce journey times between Ipswich and Norwich	Green

- 2.3.14. The LEP works to secure public and private investment to improve infrastructure, including transport infrastructure, skills and business support. It has secured a Growth Deal with the government worth £290 million to 2021, which is expected to create 54,750 new jobs, 6,800 new homes and to generate an additional £628m of public and private investment.
- 2.3.15. The A140 Long Stratton Bypass will directly contribute to the LEP’s ambition for its area to be a well-connected place with a reliable Major Road Network. It will reduce congestion and will support the local economy by reducing transport costs and enabling housing and employment development.

New Anglia Transport Board

- 2.3.16. The New Anglia Transport Board brings together a wide range of public and private sector transport stakeholders from across the region, including NCC and the LEP. They provide guidance and leadership regarding transport-related investment decisions and make recommendations to the LEP on capital investment projects.

- 2.3.17. The Board's responsibilities include executing and monitoring the Integrated Transport Strategy Delivery Plan. Under the theme: "Regional connectivity and our priority places" the delivery plan includes developing this OBC and working towards delivery of the A140 Long Stratton Bypass.

Transport East

- 2.3.18. Transport East, a strategic partnership of councils and business leaders covering Essex, Norfolk, Suffolk, Southend-on-Sea and Thurrock is the sub-national transport body which advises the Department for Transport on regional priorities for significant road projects.
- 2.3.19. In July 2019, Transport East identified the A140 Long Stratton Bypass as a regional priority scheme for delivery between 2020 and 2025.
- 2.3.20. Consequently, the DfT awarded £570,000 in September 2019 to enable this business case to be developed.

Summary – alignment with aims of organisations promoting the scheme

- 2.3.21. The A140 Long Stratton Bypass project is strongly aligned with the vision, aims and responsibilities of all the relevant government, local government and regional bodies.

THE MAJOR ROAD NETWORK (MRN)

Purpose of the MRN

- 2.3.22. In a move to ensure that the important network of locally managed A-roads does not fall behind the nationally-managed Strategic Road Network, the government's Transport Investment Strategy proposed the creation of a Major Road Network (MRN). The MRN is a designated network reaching all parts of the country.
- 2.3.23. It forms a middle tier of 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.
- 2.3.24. The A140 is part of the defined MRN and forms the main road link between Norwich and Ipswich. It connects with the SRN at Norwich (A47 and A11) and near Needham Market (A14).

MRN Objectives

- 2.3.25. The government has set five objectives for the MRN:
- Reduce congestion
 - Support economic growth
 - Support housing development
 - Support all users
 - Support the Strategic Road Network (SRN)
- 2.3.26. The A140 Long Stratton Bypass will contribute to all the MRN objectives, especially those related to reducing congestion and supporting housing development, as set out in Table 2-4 below.

Table 2-4 - Contribution of the A140 Long Stratton Bypass to the MRN objectives

MRN objectives		Contribution of A140 Long Stratton Bypass	RAG
Reduce Congestion	Alleviating local and regional congestion, reducing traffic jams and bottlenecks	Providing an alternative route around the town, the bypass will enhance the local road network by improving journeys on the A140 at Long Stratton, making them more reliable, quicker 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 opportunities for the economic development of the town would be notably enhanced by the reduction of through traffic on the High Street through the centre. Both town centre regeneration and traffic calming would enhance the public realm and promote a better quality of life for residents and visitors. In addition to this, the scheme directly unlocks 9.5Ha of employment land.	Green
Support Housing development	Unlocking land for new housing developments	The land allocated for approximately 1,800 homes is dependent on the delivery of the bypass. Only 250 houses can be delivered without it. This is stipulated in the Area Action Plan.	Green
Support all users	Recognising the needs of all users, including cyclists, pedestrians and disabled people	Both public transport and active mode users would benefit from the removal of traffic from the centre of Long Stratton. Reduced congestion would mean more efficient bus services and safer journeys for those using active modes.	Green
Support the strategic road network (SRN)	Complementing and supporting the existing SRN by creating a more resilient road network in England	The A140 is a key route to / from the major regional centre of Norwich. It also connects via the wider A road network to Kings Lynn, Great Yarmouth and Lowestoft as well as Bury St Edmunds, Thetford, Newmarket and Cambridge. The reduction in journey times resulting from a bypass supports the efficient access to / from these roads and promotes the economic prosperity they aim to deliver.	Green

MRN Funding

- 2.3.27. Following consultation in 2017/18, the government announced a funding stream aimed at improving the MRN network. £3.5 billion was made available from the DfT's National Roads Fund for local road improvement projects and funding bids were invited from local authority or third-party sources.
- 2.3.28. The government's contribution to supported MRN schemes is typically in the range of £20m to £50m per project. Local or third-party contributions are required, typically 15% of the scheme costs.
- 2.3.29. The proposed A140 Long Stratton Bypass meets the qualification for MRN funding. The estimated out-turn cost of the scheme is £37.44 million at out-turn prices. A local contribution of £11.23 million will be funded from a combination of pooled Community Infrastructure Levy (CIL) and developer contributions.
- 2.3.30. This will be a 30% contribution, significantly more than 15% MRN requirement. The balance of £26.21 million is being sought from MRN funding.

Eligibility for MRN funding

- 2.3.31. The government's MRN Investment Planning Guidance lists the types of scheme for which MRN funding may be sought:
- Bypasses or new alignments that alleviate congestion and make through journeys quicker, safer and more reliable
 - Missing links – new roads that 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
- 2.3.32. The A140 Long Stratton Bypass satisfies the first of these definitions. It will provide 4km of new road to modern standards, completely bypassing the town, alleviating current congestion problems and providing a quicker, safer and more reliable route for through journeys on this part of the MRN.

ALIGNMENT WITH EXISTING STRATEGIES AND PLANS

- 2.3.33. This section demonstrates how the A140 Long Stratton Bypass aligns with and supports a range of existing strategies and plans. The following key documents, which relate to transport and housing policy, have been considered:
- National strategies and plans
 - Industrial Strategy (2017)
 - Transport Investment Strategy (2017)
 - National Planning Policy Framework (2019)
 - Housing white paper (2017)
 - Carbon Net Zero
 - Gear Change (2020)
 - The Ten Point Plan for a Green Industrial Revolution (2020)
 - National Infrastructure Strategy (2020)
 - Regional strategies and plans
 - Norfolk and Suffolk Economic Strategy (New Anglia LEP, 2017)
 - County-wide strategies and plans
 - Together, for Norfolk (2019-2025)
 - Norfolk County Council's Environmental Policy (2019)
 - Connecting Norfolk – Norfolk's Local Transport Plan for 2026 (2011)
 - Norfolk Strategic Framework – Shared Spatial Objectives for a Growing County (2017)
 - Norfolk Infrastructure Delivery Plan (2017-2017)
 - Local strategies and plans
 - Joint Core Strategy for Broadland, Norwich and South Norfolk
 - Long Stratton Area Action Plan (2016)
 - Master planning Report (2018)
- 2.3.34. Each strategy is reviewed below. As before, where appropriate a Red / Amber / Green indication is used to demonstrate how the A140 Long Stratton Bypass aligns with each strategy or plan.

NATIONAL STRATEGIES AND PLANS

Industrial Strategy (2017)

- 2.3.35. 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
- 2.3.36. 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.
- 2.3.37. 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.
- 2.3.38. The contribution of the scheme to the key policy of the Industrial Strategy on infrastructure is set out Table 2-5.

Table 2-5 - Contribution of the A140 Long Stratton Bypass to Industrial Strategy key policies

Industrial strategy key policy	Contribution of A140 Long Stratton Bypass	RAG
Infrastructure Increasing the national productivity investment fund to £31bn, supporting investments in transport, housing and digital infrastructure	The proposed investment in the scheme will: <ul style="list-style-type: none"> • Reduce congestion on the A140 major road and improve journey times and reliability for users, including business users who will benefit from reduced transport costs and increased labour mobility as employees spend less time commuting. • Remove barriers to investment in housing by enabling the development of 1,800 new houses and up to 9.5ha of employment land. 	Green

- 2.3.39. The A140 Long Stratton Bypass will also enhance Long Stratton as a place, improving the look and feel of the high street, improving connectivity and making it a desirable, well-connected investment destination and an attractive town in which to live.

Transport Investment Strategy (2017)

- 2.3.40. The government’s Transport Investment Strategy (TIS) sets out how the transport sector will enable delivery of the UK government’s Industrial Strategy. It explains how recent progress, as a result of investment, will be built on and how responses will be realistic and pragmatic towards today’s challenges.

2.3.41. Table 2-6 summarises the objectives of the TIS and shows how the scheme will contribute to them.

Table 2-6 – Contribution of the A140 Long Stratton Bypass to TIS objectives

TIS Objectives	Contribution of A140 Long Stratton Bypass	RAG
Create a more reliable, less congested and better-connected transport network that works for the users who rely on it	Intense levels of congestion on the A140 prevent pedestrian movements across the village and conflict with the main shopping street. Providing an alternative route will accommodate increasing network demands and provide better connections between communities and businesses.	Green
Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities	The bypass will improve journey times and reliability on the A140, helping to reduce transport costs for local businesses. It will improve business connectivity and accessibility, contributing to a more balanced economy.	Green
Enhance our global competitiveness by making Britain a more attractive place to trade and invest	Constructing the bypass will ease business travel, which will reduce travel time and improve travel efficiency. This 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.	Amber
Support the creation of new housing	Long Stratton is currently facing a housing shortage, resulting in house prices rising. The development of 1,800 homes is dependent on the delivery of the bypass.	Green

National Planning Policy Framework (2019)

2.3.42. The revised National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how these should be applied. It recognises that there are three separate but inter-linked dimensions: economic, social and environmental, all of which contribute to building a strong, responsive and competitive economy. It does this by identifying and coordinating development requirements, including the provision of infrastructure.

2.3.43. Table 2-7 summaries the NPPF sustainable development objectives and provides a summary of the key relevant sections of the NPPF.

Table 2-7 - Contribution to NPPF Sustainable Development Objectives

NPPF Sustainable Development Objectives	Contribution of A140 Long Stratton Bypass	RAG
Economic: ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure	With severe traffic identified on the A140, implementation of the bypass will support and improve travel conditions by modernising the design and quality of the road. The scheme will increase capacity and speeds, with a dualled carriageway bypass resulting in a more resilient highways network and helping to achieve sustainable economic growth.	Green
Social: to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.	Relocating traffic onto the bypass with fewer junctions and minimal pedestrian interfaces is expected to deliver a reduction in accident rates in Long Stratton. This will relieve congestion in the town centre, enabling an increase in physical activity and encouraging more active mode transport such as, walking and cycling.	Green

NPPF Sustainable Development Objectives	Contribution of A140 Long Stratton Bypass	RAG
<p>Environmental: to contribute to protecting and enhancing our natural, built and historic environment, including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution and mitigating and adapting to climate change, including moving to a low carbon economy.</p>	<p>This scheme tackles environmental issues by reducing emissions, improving air quality and health as well as considerably reducing the number of residents impacted by traffic related noise pollution. The Long Stratton A140 bypass provides a strong case for a sustainable development.</p>	<p>Amber</p>

Housing white paper (2017): Fixing our broken housing market

2.3.44. This White Paper sets out how the government intends to boost housing supply and create a more efficient housing market that supports wider economic prosperity. It recognises the extent of the challenges facing the housing market and proposes solutions based on:

- Planning for the right homes in the right places
- Building homes faster
- Diversifying the market
- Helping people now

2.3.45. Under “building homes faster” The White Paper states:

- “Development is about far more than just building homes. Communities need roads, rail links, schools, shops, GP surgeries, parks, playgrounds and a sustainable natural environment. Without the right infrastructure, no new community will thrive – and no existing community will welcome new housing if it places further strain on already stretched local resources.
- “We will take a more coordinated approach across government to make sure the right infrastructure is provided in the right places at the right time to unlock housing delivery.”

2.3.46. The A140 Long Stratton Bypass is part of the response to the challenges in the White Paper. A key objective of the scheme is the delivery of about 1,800 new homes and associated employment development and community infrastructure. Without the bypass, very little of this can be delivered. The bypass is key to the delivery of local housing targets.

2.3.47. The reduction of HGVs and other through traffic will improve air quality and reduce traffic noise on the existing A140. This will increase the attractiveness of the town centre for existing and new residents and supports the objective of planning for the right homes in the right places.

Carbon Net Zero Context

2.3.48. In June 2019, the UK became the first major economy to legislate for a net-zero target for carbon emissions by 2050, passing a law which contained a commitment to strive to end the UK’s contribution to global warming^{4,5}.

2.3.49. The Council for Science and Technology wrote to the Prime Minister⁶ advocating the use of a ‘whole systems approach’ to achieve carbon net zero, highlighting that the interaction of new cross-departmental environmental policies would be needed to achieve the target.

⁴ <https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

⁵ <https://www.gov.uk/government/publications/achieving-net-zero-carbon-emissions-through-a-whole-systems-approach>

⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/910376/cst-net-zero-letter-30-january-2020.pdf

- 2.3.50. Since then the government released 'Gear Change' (2020) and the 'The Ten Point Plan for a Green Industrial Revolution' (November, 2020) and noted they would be updating the Industrial Strategy to align with these policies later in 2021.
- 2.3.51. The latest version of the Green Book (November 2020), the UK's overarching appraisal guidance, also highlighted a significant change in the way Treasury would view projects and the way promoters should appraise schemes in relation to policy, and specifically in relation to its dual strategic policy goals: Carbon Net Zero and Levelling up. That change requires schemes to be able to demonstrate a contribution to these policy objectives firstly within the optioneering process, and if they pass this strategic-fit gateway, within a value for money assessment. Gear Change (2020)
- 2.3.52. In July 2020, the government set out a plan to create a step-change in cycling and walking activity in the coming years. The government envisages an England that is a '*great walking and cycling nation*', with cycling as a mass form of 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 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
- 2.3.53. The greatest impact the scheme will have on walking and cycling is by removing the majority of traffic from the A140 running through the centre of the town. All motorised traffic will be prevented from entering and exiting the town via the A140 from the south as is the current arrangement, though pedestrians and cyclists will be permitted to continue to use this existing route, which will become dedicated for cycle and pedestrians. With the construction of the bypass and such traffic management arrangements, the volumes of motorised traffic significantly reduce to between 150 - 340 two-way vehicles in Long Stratton in the morning and evening peaks (see section 2.17).
- 2.3.54. This is a reduction of around 80 - 90% in traffic volumes from the levels before the bypass, which is a significant improvement, providing a much safer environment for pedestrian and cyclists. Such cycling improvements are known to help to bring about mode shift by encouraging cycling activity.
- 2.3.55. Furthermore, the scheme will unlock the interdependent housing development in the town, which will enable additional walking and cycling infrastructure and accompanying urban realm improvements to be implemented in line with the Masterplan proposals (see later local policies), which might include:
- Widening footways
 - Narrowing the carriageway to discourage speeding
 - Tree planting and soft landscaping
 - New street furniture and new seating areas
 - Re-paving footways in more appropriate materials
 - Traffic calming
 - Pedestrian crossings (zebra)

- Pedestrian safety and accessibility improvements
- 20 mph speed limit
- Street market
- A north / south shared footway / cycleway route running alongside the bypass will be incorporated within landscape features and proposed development

2.3.56. Such improvements would be identified during the planning process and implemented through Section 106 and in accordance with Planning Conditions.

The Ten Point Plan for a Green Industrial Revolution (2020)

2.3.57. The ‘*Ten Point Plan*’ commits to mobilising £12 billion of government investment as part of what they term a Green Industrial Revolution.

2.3.58. The ten points cover ways to decarbonise the UK across the sectors of across energy, buildings, transport, innovation and the natural environment, whilst also striving to transform the economy, creating new (green) jobs and delivering growth. Points 4 and 5 of the plan relate to transport infrastructure (accelerating the shift to zero emissions vehicles and green public transport, cycling and walking), but the underlying objective is to reduce carbon from our transport networks.

2.3.59. This is supported by the ‘*National Infrastructure Strategy*’ (see below), (November, 2020) which states infrastructure investment is fundamental to delivering the Carbon Net Zero targets.

2.3.60. The Long Stratton Bypass scheme does exactly this. The infrastructure investment would remove slow moving traffic (known to increase vehicle emissions), which contains around 6% of HGVs, travelling through the centre of the town on the A140, which is closely bounded by residential properties and shops, and places them on a higher speed (50mph is the optimum speed for reducing emissions), appropriately designed bypass away from residents and shoppers.

2.3.61. Forecast traffic flows and speeds with the scheme in place, compared to situation where the scheme isn’t built, sees carbon emissions drop by **109,000 tonnes of carbon** over the 60-year appraisal period. This is equivalent to a saving of £4.68 million in monetary terms. The scheme therefore shows a **strong strategic-fit to the government’s Carbon Net Zero policy objective**, passing the Green Book policy test, whilst also delivering housing and economic growth.

National Infrastructure Strategy (2020)

2.3.62. The government published the ‘National Infrastructure Strategy’ in November 2020, outlining plans to transform the UK’s infrastructure networks. It is based around four overarching subject matters:

- **Levelling Up** – boosting growth and productivity by investing in rural areas, towns and cities through major national projects or local priorities
- **Carbon Net Zero Emissions by 2050** – to put the UK on the path to meeting its net zero emissions target by transforming infrastructure to decarbonise the UK’s power, heat and transport networks
- **Supporting private investment** – to attract private investment into infrastructure, by providing clarity on government plans to increase certainty for investors, so they can help deliver the upgrades and projects needed across the country
- **Accelerate and improve delivery of infrastructure projects** – reforming and speeding up the planning system, and improving the way projects are chosen, procured and delivered

- 2.3.63. The National Infrastructure Strategy shares the National Infrastructure Commission’s ambitions for Levelling Up towns and cities outside of London. Improved transport links will allow cities and towns to ‘act as an anchor’ for growth across a region, enabling the rebalancing of the economy through infrastructure.
- 2.3.64. It is acknowledged 50% of the UK population live in towns, many of which have suffered from economic and social decline over the decades. The government therefore plans to invest in infrastructure to revitalise towns like Long Stratton, which will drive their economic regeneration.
- 2.3.65. The scheme is extremely well-aligned to many of the aspects of the National Infrastructure Strategy: an improved A140 with faster journey times for commuters and business travellers will increase productivity (as will be described in the Economic Case); investment in infrastructure in this rural town will also help to address a long-term reduction in economic performance compared with the UK average, where productivity and job growth have fallen short of the national averages (see section 2.4 below) – this would contribute to the government’s Levelling Up objective; it is also a local priority, as the scheme is contained within the Local Core Strategy; and government investment in this infrastructure would bring about private sector investment in housing in Long Stratton that would not come forward without the scheme, nor would the ‘knock-on’ effects that would result such as the land value uplift (via planning gain – see Economic Case), and the creation of construction jobs – both of which contribute to growth in the local and national economy.

REGIONAL STRATEGIES AND PLANS

Norfolk and Suffolk Economic Strategy (New Anglia LEP, 2017)

- 2.3.66. The Norfolk and Suffolk Economic Strategy (NSES) sets out the evolving needs and opportunities of the growing local economy and how it can respond and succeed in a changing world.
- 2.3.67. It recognises that to support growth in the economy a significant number of houses must be constructed. By 2036, the two counties aim to build 140,000 new homes and create 88,000 new jobs. Housing development will provide employment opportunities in the construction and new technologies sectors.
- 2.3.68. The contribution of the A140 Long Stratton Bypass to the aspirations of the Norfolk and Suffolk Economic Strategy are set out in Table 2-8 below.

Table 2-8 - Contribution of A140 Long Stratton Bypass to the Norfolk and Suffolk Economic Strategy

LEP Economic Strategy: aspirations for Norfolk and Suffolk:	Contribution of A140 Long Stratton Bypass	RAG
A well-connected place	The A140 bypass will significantly improve connectivity between the major centres of Ipswich and Norwich. It will improve connectivity to Great Yarmouth (from Ipswich) and Felixstowe (from Norwich). Provision of a new, modern, high standard road will add to the overall capacity, resilience and reliability of the local road network	Green
A high performing productive economy	The A140 bypass will deliver significant economic benefits for users, including business users and commuters, by reducing journey times and costs, supporting increased productivity. (These benefits are quantified in the Economic Case)	Green

LEP Economic Strategy: aspirations for Norfolk and Suffolk:	Contribution of A140 Long Stratton Bypass	RAG
The place where high growth businesses with aspirations choose to be	Improved connectivity within the region will make it easier to attract new business investment	Green
An international facing economy with high value exports	The A140 bypass will improve connectivity to Great Yarmouth (from Ipswich) and Felixstowe (from Norwich)	Amber
An inclusive economy with a highly skilled workforce	Reduced transport times will in turn reduce commuting times and costs, improving people’s accessibility to employment and giving businesses access to wider labour markets	Amber
A centre for the UK’s clean energy sector	The A140 bypass will improve connectivity to Great Yarmouth (from Ipswich) – an important centre for the offshore renewable energy industry.	Amber
A place with a clear, ambitious, offer for the world	The A140 bypass will support businesses in Norfolk and Suffolk by improving transport connectivity.	Amber

COUNTY-WIDE STRATEGIES AND PLANS

Together, for Norfolk (2019-2025)

- 2.3.69. In June 2019, Norfolk County Council (NCC) launched a six-year business plan spanning 2019-2025. The plan outlines the council’s priorities and how it will work with partners to boost the economy, support communities and protect the environment. The plan sets out three key outcomes:
- Growing economy
 - Thriving people
 - Strong communities
- 2.3.70. To achieve a growing economy, NCC aims to establish an inclusive and supportive economy, with the necessary infrastructure in place to support housing development, inward investment and sustainable growth. Sufficient homes will have to be built to meet demand, including affordable housing, and the transport network throughout the county will require easy access.
- 2.3.71. For thriving people, the county aims to provide education that meets the needs of its recipients. The plan outlines the desire for workers in Norfolk to be able to access a higher proportion of well-paid, high value skilled jobs. All families, older people and people with learning or physical difficulties must be supported adequately within the community.
- 2.3.72. The county aims to strengthen its communities by enabling the joining up of more services that meet people’s needs. Access to facilities is considered a key factor in achieving this vision so that people remain connected to their communities.
- 2.3.73. The A140 Long Stratton Bypass is an important part in the delivery of this business plan, as the “critical planned infrastructure investment” will help to further develop and maintain the highway network so that it can support these individual initiatives.

Norfolk County Council's Environmental Policy (2019)

- 2.3.74. This policy is structured to reflect the key environmental concerns embodied in the government's own 25 Year Plan⁷ that was published in 2018. It will align with the current six-year business plan introduced in Together, For Norfolk by ensuring that the development of Norfolk's economy is socially inclusive, while championing innovative and sustainable development. In addition, it is designed to reflect the increasing importance that climate change is having on the environment.
- 2.3.75. The key policy aims are:
- Using and managing land sustainably
 - Recovering nature and enhancing the beauty of landscapes
 - Connecting people with the environment to improve health and wellbeing
 - Increasing resource efficiency, and reducing pollution and waste
 - Securing clean, healthy, productive and biologically diverse seas and oceans
 - Protecting and improving our global environment
- 2.3.76. By achieving these key aims, the policy is designed to enact the goals that the government has stated for its environmental plan. The policy emphasises the need to embed a holistic approach to climate change in its strategic planning, particularly within local planning frameworks. In practice, this involves working with sectors that have the greatest carbon footprint to help them mitigate their impact. Significantly, NCC will work with its neighbours within the region to collectively achieve 'net zero' carbon emissions on its estates and 'carbon neutrality' within its wider areas by 2030.
- ### Connecting Norfolk – Norfolk's Local Transport Plan for 2026 (2011)
- 2.3.77. NCC's Local Transport Plan (LTP) for 2026 is currently under review. It sets out NCC's vision for:
- A transport system that allows residents and visitors a range of low carbon options to meet their transport needs and attracts and retains business investment in the county.
- 2.3.78. With this emphasis on sustainable transport and the local economy, plans for new transport infrastructure will be limited and strictly targeted. The LTP states that:
- Investment in new infrastructure will be focused on a small number of strategic improvements linked to major housing or economic growth and strategic connections.
- 2.3.79. The A140 Long Stratton Bypass meets this criterion, as it is critical to the delivery of major housing growth, whilst strengthening strategic connections, especially between Norwich and Ipswich.
- 2.3.80. The LTP sets out 16 transport policies, grouped under six strategic aims. The contribution of the A140 Long Stratton Bypass to each of the LTP policies is summarised in Table 2-9 below.

⁷ A Green Future: Our 25 Year Plan to Improve the Environment, HM Government, (2018)

Table 2-9 - Contribution of A140 Long Stratton Bypass to the Norfolk LTP aims and policies

LTP aims and policies	Contribution of A140 Long Stratton Bypass	RAG
Aim 1. Managing and Maintaining the Transport Network		
<i>Policy 1:</i> Maintenance	The scheme will bring about a net improvement in the condition of Norfolk's inter-urban highway network.	Green
<i>Policy 2:</i> Traffic Management	The scheme will improve journey time reliability for users of the A140 and will reduce congestion on the public transport corridor through Long Stratton.	Green
<i>Policy 3:</i> Network resilience	By adding new capacity, the scheme will improve the resilience of the highway network.	Green
<i>Policy 4:</i> Protecting the environment	The scheme is being designed to minimise its impact on the environment and negative impacts will be mitigated. An Environmental Statement was prepared at an early stage of scheme development, as described in the Economic Case and an Environmental Impact Appraisal will be undertaken. The scheme will remove through traffic from the existing A140, reducing noise, pollution and visual intrusion on the town centre.	Amber
Aim 2. Delivering Sustainable Growth		
<i>Policy 5:</i> Growth	The bypass will enable new development to take place in an established settlement with a range of services available (reducing the need to travel), in a way that does not impact adversely on existing road network.	Green
<i>Policy 6:</i> Transport infrastructure to support growth	The scheme will support and enable housing growth and will reduce an existing traffic bottleneck. The layout of the associated development, its proximity to the town centre and community facilities and the reduction in traffic through the town will help encourage walking and cycling for local trips, whilst public transport will benefit from reduced congestion and improved journey times.	Green
Aim 3. Enhancing Strategic Connections		
<i>Policy 7:</i> Bring about improvements in journey time reliability	The scheme will improve journey time reliability in the area south of Norwich, complementing other planned transport improvements in Norfolk.	Green
Aim 4. Reducing Transport Emissions		
<i>Policy 8:</i> Vehicle efficiency	The scheme is forecast to achieve a significant reduction in greenhouse gas emissions (quantified in the Economic Case), by reducing congestion and providing a more efficient through route for through traffic. Buses will benefit from reduced congestion. Reduced traffic in the town centre should improve safety for pedestrians and encourage more walking and cycling. There is no AQMA, but traffic reduction is expected to improve local air quality within the town centre.	Green
<i>Policy 9:</i> Travel choice		
<i>Policy 10:</i> Air quality management areas (AQMA)		
Aim 5. Improving Road Safety		
<i>Policy 11:</i> Reducing casualties	The scheme is forecast to achieve a modest reduction in the number of road accidents (57 over the assessment period). The resulting economic benefit is quantified in the Economic Case. Reduced traffic in the town centre should improve safety for pedestrians and cyclists.	Amber

LTP aims and policies	Contribution of A140 Long Stratton Bypass	RAG
Aim 6. Improving Accessibility		
<i>Policy 12:</i> Tackling poor accessibility	The scheme will reduce journey times for car drivers and passengers and for bus passengers. The removal of through traffic will improve accessibility of Long Stratton town centre and community facilities for pedestrians and cyclists. The scheme will improve access to Norwich and Ipswich for users of the A140.	Amber
<i>Policy 13:</i> Access to town and urban centres		Green
<i>Policy 14:</i> Sustainable tourism and leisure	Norfolk's coastline is popular with leisure travellers who are subject to congestion and delays on the A140 through Long Stratton. Improvements will help support the region as a leisure destination.	Amber
<i>Policy 15:</i> Access for all	Reduced traffic in the town centre should improve conditions for disabled people and could provide opportunities for further improvement.	Amber
<i>Policy 16:</i> Alternatives to travel	The scheme is not expected to contribute to a net reduction in travel	○

Norfolk Infrastructure Delivery Plan (2018-2028)

2.3.81. The Norfolk Infrastructure Delivery Plan (NIDP) identifies the key infrastructure projects needed to deliver economic growth in Norfolk. It is fully aligned with the aims of the Industrial Strategy and with other regional, county-wide and local strategies. As a working document, it is reviewed on a regular basis as information becomes available and as projects progress through to delivery. The NIDP helps Norfolk County Council and partners to coordinate implementation, prioritise activity and respond to funding opportunities. It lists the key infrastructure projects that Norfolk County Council, in collaboration with partners, wants to progress over the next 10 years. Projects were judged on the following criteria:

- Delivering significant housing and jobs growth
- Identified in existing plans/programmes
- Have a committed route to delivery
- Project is in Local Authority Control

2.3.82. The NIDP:

- Identifies Long Stratton as a key housing growth site and key employment site
- Identifies the A140 Long Stratton Bypass as a strategic infrastructure project for Norfolk
- Indicates potential funding sources for the A140 Long Stratton Bypass, including MRN funding and local contributions
- Confirms that the bypass is required for the delivery of 1,800 new houses at Long Stratton and to overcome traffic problems on the A140

2.3.83. The NIDP states that “the need for a bypass has long been a priority and is considered to be a prerequisite to provide for the needs of the proposed growth.” The A140 Long Stratton Bypass is fully aligned with and is an important component of NCC’s Infrastructure Delivery Plan. It is also essential for the delivery of SNC’s housing targets.

Norfolk Strategic Planning Framework (March 2019)

2.3.84. The Norfolk Strategic Planning Framework (NSPF): “Shared Spatial Objectives for a Growing County and Emerging Statement of Common Ground” is a non-statutory document produced by all the Local Planning Authorities (LPAs) in Norfolk, together with bodies such as the Environment Agency. The NSPF sets out guidelines for strategic planning matters across the County and beyond and demonstrates how the LPAs will work together on planning related topics and to secure funding.

- 2.3.85. The population in South Norfolk is expected to grow to 160,000 by 2036, an increase of 25% from 2014, which will place considerable pressure on the transport network to handle additional traffic.
- 2.3.86. Employment in the district is intended to expand by 11,300 people between 2014 and 2036. This is likely to have an impact on Long Stratton, which is already one of the key employment sites in the district.
- 2.3.87. The NSPF:
- Sets out a proposed spatial vision and shared objectives for the Norfolk LPAs, having regard to the main spatial planning issues of population growth, housing, economy, infrastructure and environment
 - Identifies the A140 Long Stratton Bypass as an improvement to Norfolk’s strategic road network and a priority road project for promotion
- 2.3.88. The contribution of the A140 Long Stratton Bypass to the objectives of the Strategic Framework is set out in Table 2-10 below:

Table 2-10 - Contribution of A140 Long Stratton Bypass to the objectives of the Norfolk Strategic Planning Framework

NSPF Objectives	Contribution of A140 Long Stratton Bypass	RAG
To realise the economic potential of Norfolk and its people	The scheme is forecast to deliver significant economic benefits for users, including business users and commuters, by reducing journey times and costs, supporting increased productivity. These benefits are quantified in the Economic Case. It will also facilitate the development of employment land in Long Stratton.	Green
To reduce Norfolk’s greenhouse gas emissions as well as the impact from, exposure to and effects of climate change	The scheme is forecast to achieve a modest reduction in greenhouse gas emissions (quantified in the Economic Case), by reducing congestion and providing a more efficient through route for through traffic.	Green
To address housing needs in Norfolk	The scheme will facilitate the development of 1,800 new houses in Long Stratton. Without it, only 250 of these could be built.	Green
To improve the quality of life for all the population of Norfolk	The scheme will remove through traffic including HGVs from the centre of Long Stratton, reducing traffic congestion, noise and visual intrusion and improving local air quality, making the town a better place in which to live and work.	Green
To improve and conserve Norfolk’s environment	The scheme is being designed to minimise its impact on the environment and negative impacts will be mitigated. The scheme will remove through traffic from the existing A140, reducing noise, pollution and visual intrusion on the town centre.	Green

LOCAL STRATEGIES AND PLANS

Joint Core Strategy for Broadland, Norwich and South Norfolk (2011)

- 2.3.89. The Joint Core Strategy (JCS) has been prepared by the three councils of Broadland, Norwich and South Norfolk, working together with Norfolk County Council as the Greater Norwich Development Partnership (GNDP). It was adopted in 2011 and amendments were adopted in 2014. It forms part of each council’s Local Development Framework (LDF); a ‘folder’ of documents that will guide future development and use of land in Broadland, Norwich and South Norfolk up to 2026.

- 2.3.90. The JCS sets out the long-term vision and objectives for the area, including strategic policies for steering and shaping development. It identifies broad locations for new housing and employment growth and changes to transport infrastructure and other supporting community facilities, as well as defining areas where development should be limited.
- 2.3.91. The JCS states that, in many areas, existing infrastructure is at, or near, capacity. The delivery of substantial growth in housing and employment is dependent on investment to overcome the deficiency in supporting infrastructure.
- 2.3.92. One outcome of consultation with local communities is that the adopted JCS includes a relatively dispersed pattern of development in South Norfolk, including the balanced development of existing and emerging market towns such as Long Stratton, where such development is also linked to the provision of a new bypass.
- 2.3.93. Relevant policies in the JCS include:
- Policy 4 – Housing delivery
 - Includes a commitment to provide 36,820 new homes in the JCS area between 2008 and 2026, with 15,524 of these in South Norfolk District
 - Policy 6 – Access and transportation
 - Includes provision of an A140 Long Stratton Bypass.
 - Policy 9 – Strategy for growth in the Norwich Policy Area
 - Includes provision of 1,800 new dwellings at Long Stratton
 - Identifies infrastructure needed to deliver growth and support the local economy, including a Long Stratton Bypass
 - Includes the expansion of local employment at Long Stratton
 - Policy 10: Locations for major new or expanded communities in the Norwich Policy Area
 - States that major growth, including at Long Stratton, will be master-planned as attractive, well serviced, integrated mixed-use development ... and designed to address current service and infrastructure deficiencies to benefit existing communities
 - Sets out specific policies for Long Stratton, including:
 - A new bypass
 - At least 1,800 dwellings
 - Improvements to the town centre including traffic management, environmental enhancement and expanded facilities
 - Secondary school provision
 - Investment in a strategic green infrastructure corridor reflecting and conserving the ancient landscape to the east of the village
 - Transport improvements, including bus priority at the A140/A47 junction and an enhanced route to the city centre
 - Safe and direct cycle and pedestrian access to the town centre and employment
 - Additional local employment opportunities

“The strategy we have adopted [for development in Long Stratton] reflects the existing local settlement pattern, promoting a scale of development that is appropriate to the size and function of the town **This approach can help to secure a bypass for Long Stratton, which is a long-held aspiration of residents and local councils.**” (Joint Core Strategy, paragraph 2.17)

- 2.3.94. The JCS acknowledges that Long Stratton is not as well connected to employment or high-quality public transport as some areas but considers that this is outweighed by the availability of a good range of local jobs, services and other community facilities and the significant local benefits of a development-led bypass.
- 2.3.95. To mitigate the impact of more limited opportunities for non-car trips to strategic employment locations and other facilities in Norwich, it will be particularly important to take a ‘whole settlement’ approach to the development of Long Stratton to maximise the number of local trips on foot or by cycle.
- 2.3.96. The JCS states that it promotes development at Long Stratton to achieve local benefits and to improve the link between the regional centres of Norwich and Ipswich, through provision of a bypass. It confirms that the bypass is a pre-requisite for the scale of growth identified. It notes that Long Stratton already benefits from reasonable bus links to Norwich. Related development identified in the JCS includes enhanced public transport⁸, additional school and pre-school places, upgrades to utilities, commercial and employment development and improved healthcare facilities.
- 2.3.97. The A140 Long Stratton Bypass is fully aligned with and is an important component of, the Joint Core Strategy. It is fully integrated with the wider strategy for the district and the town, which includes housing, employment, community facilities and transport improvements.

Long Stratton Area Action Plan (2016)

- 2.3.98. Area Action Plans (AAPs) are required for places where significant development is planned. The Long Stratton AAP sets out South Norfolk Council’s more detailed planning framework for the town, building on the JCS.
- 2.3.99. The AAP vision is:
 - Long Stratton - a revitalised large village based around its historic linear street pattern and Conservation Area, growing and building on its existing broad range of jobs and services into a thriving small town. The delivery of a bypass will enable a safer and more inviting centre with increased shops and services and an enhanced Conservation Area.
- 2.3.100. The AAP seeks to ensure that the housing growth planned for Long Stratton is delivered in tandem with a bypass of the town, something residents have wanted for over seventy years. It also supports and encourages improvements to public transport and the provision of new employment, leisure and education facilities in the area.
- 2.3.101. The AAP goals for Long Stratton are:
 - Improving our quality of life and the environment
- 2.3.102. Promoting a thriving local economy

⁸ Opportunities associated with a potential public transport hub in the centre of Long Stratton in the space that will free-up by rationalising the highway, following the reduction in through traffic associated with the bypass are being considered, though these plans do not form part of the scheme.

The contribution of the A140 Long Stratton Bypass to the specific AAP objectives is set out in Table 2-11.

Table 2-11 - Contribution of A140 Long Stratton Bypass to the AAP objectives

AAP objectives		Contribution of A140 Long Stratton Bypass	RAG
Housing	A minimum of 1,800 new homes will be built in locations that support the form and function of the town and deliver a bypass. The bypass will be completed before 250 of the new homes are occupied.	The bypass must be completed before occupancy of the 250 th new home, enabling the planned 1,800 new homes to be delivered in full.	Green
Employment	Provision will be made to support a mix of local job opportunities and economic growth in Long Stratton including further opportunities for small businesses and new commercial development relating to the enhanced town centre.	The bypass will enable development of 9.5ha of employment land, whilst making the town centre a more attractive place for commercial development.	Green
Town Centre	The town centre will be revitalised following the removal of heavy lorries and other traffic through the delivery of the new bypass.	The bypass will provide an alternative route for through traffic on the A140, including HGVs.	Green
Accessibility	The use of public transport will be maximised and safe and direct pedestrian and cycle routes will be provided to link existing and new development to town centre and local employment locations in Long Stratton. Bus waiting facilities will be improved. These improvements form part of the wider development (associated with the housing development in Long Stratton) and will be brought forward through either Section 106 or potentially a Section 278 associated to future development sites	The bypass will remove through traffic, creating better conditions for pedestrians, cyclists and users of public transport in the town centre.	Amber

Note: References in the AAP to “village” have been replaced by “town”, reflecting Long Stratton’s changed status.

Master Planning Report (2018)

2.3.103. In 2018, the then Parish Council commissioned the preparation of a Master Planning Report (MPR) for Long Stratton.

2.3.104. The MPR focused on the existing A140, The Street and states that high traffic volumes lead to problems of congestion, noise, air pollution, severance and the degraded setting of listed buildings and the conservation area. Describing the “hostile environment” caused by these problems, it highlighted issues of:

- Narrow footways
- Pedestrian pinch points
- Surfaces unsuitable for wheelchair users
- Poorly designed junctions
- Unattractive large areas of hard-standing
- Poor quality public realm
- Pedestrian safety and accessibility problems

2.3.105. The MPR identified a wide range of interventions which could address these issues upon completion of the A140 Long Stratton Bypass and associated development. These include:

- Widening footways
- Narrowing the carriageway to discourage speeding
- Tree planting and soft landscaping
- New street furniture and new seating areas
- Re-paving footways in more appropriate materials
- Traffic calming
- Pedestrian crossings (zebra)
- Pedestrian safety and accessibility improvements
- 20 mph speed limit
- Street market

2.3.106. While the MPR is only a recommendation, it does serve to highlight the potential for significant improvement in the centre of Long Stratton, once the A140 bypass has been provided.

SUMMARY

2.3.107. This A140 Long Stratton Bypass scheme has a very good strategic fit with current government plans and policies (Industrial Strategy, TIS, NPPF and the Housing White Paper). At a regional level, it supports the LEP's Norfolk and Suffolk Economic Strategy. It supports the aims of the Norfolk LTP, is an important component of the NIDP and it is a priority project in the Norfolk SPF. It will help to deliver the housing and employment growth planned in the South Norfolk Joint Core Strategy and is central to the Long Stratton AAP and Master Planning Report.

2.3.108. These strategies recognise the importance of job creation, housing delivery and transport infrastructure as drivers of economic growth.

2.4 EXISTING PROBLEMS

2.4.1. This section describes the problems which the scheme will address and provides evidence to underpins these. It shows that there is a need for intervention to deal with these problems. The problems fall into four related categories:

- Problems for users of the existing highway network
 - Sub-standard highway alignment
 - Congestion and unreliable journey times
 - Accidents
- Problems for people living or working in Long Stratton
 - Noise
 - Greenhouse gas emissions and air quality
 - Visual intrusion
 - Impacts of traffic on the conservation area
 - Community severance
- Problems meeting Norfolk's housing needs
 - Shortage and rising costs of housing
 - The inability to deliver housing allocations in Long Stratton without a bypass

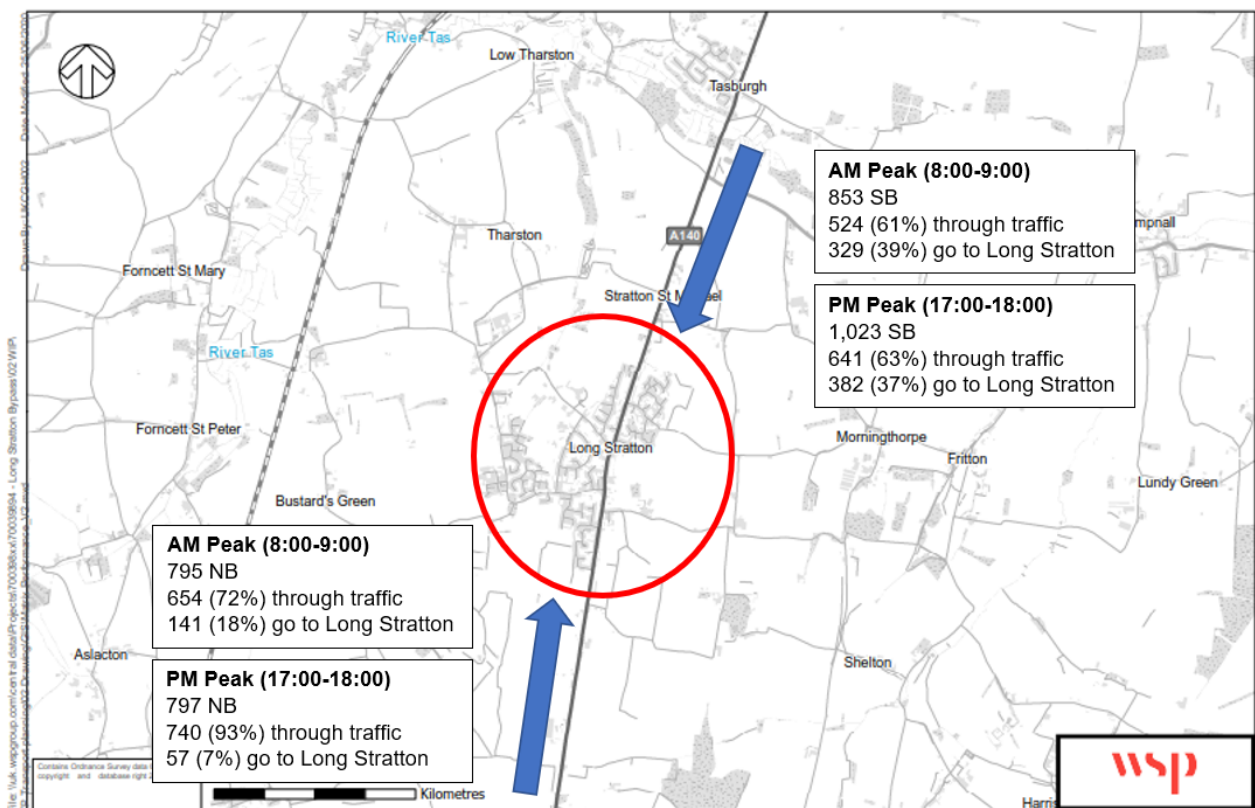
- Problems meeting Norfolk’s economic development and employment needs
 - The need for local employment in Long Stratton
 - The need for improved connectivity to support economic growth

PROBLEMS FOR USERS OF THE EXISTING HIGHWAY NETWORK

2.4.2. The A140 is a key radial route heading south from Norwich. It runs through Long Stratton’s town centre, where it also serves as the town’s high street and primary shopping location. This dual function, together with the fact that the road has evolved over time, rather than having been purpose-built, is the main source of problems for current users of the route.

2.4.3. The A140 at Long Stratton carries approximately 22,000 vehicles per day, of which 5.69% are heavy goods vehicles (HGV). Most of this is through traffic, with neither origin nor destination in the town, as shown in Figure 2-1.

Figure 2-1 - Average daily traffic



SUB-STANDARD HIGHWAY ALIGNMENT

2.4.4. The existing A140 through the town is substandard in both width and alignment. Many junctions do not meet current standards for visibility and layout. The A140 narrows through the town, reducing to 5.7 metres wide with narrow 1.2-metre-wide footways in places. This restricts traffic flow and creates unsatisfactory conditions for pedestrians and cyclists. Within the built-up area (and signed entrances into Long Stratton from the A140), there are eleven road junctions and a single cycle and pedestrian junction with the A140. One of these is signal controlled and one is a signal-controlled pedestrian crossing. Most of the junctions do not meet current standards for layout and visibility. In Stratton St. Michael (the northern end of the town) there are two road junctions, which also do not meet current standards. The horizontal and vertical alignment within Long Stratton is not compatible with current design standards for this type of road.

- 2.4.5. There is a 30mph speed restriction on the A140 through the centre of the town, between Lime Tree Avenue and St. Michael’s Road. 50mph zones extend either side of the 30mph restriction for approximately 700m to the north and 900m to the south. Gateway signing, a speed-reactive sign at the northern end, ‘Dragon’s Teeth’ markings and carriageway roundel markings have been introduced to reinforce the speed restrictions on the approach to the built-up area. This reduction in speed increases congestion in the town and impacts on air quality with vehicles moving slowly and less engine efficiency.
- 2.4.6. Any attempt to improve the standard on the current route would require significant demolition and land-take from properties fronting the A140. The proposed scheme would provide a new, purpose-built route for through traffic, designed to modern standards.

CONGESTION AND UNRELIABLE JOURNEY TIMES

- 2.4.7. The high volumes of traffic, sub-standard alignment, frequent junctions and crossings and conflicting purposes mean that the A140 is often congested at Long Stratton, which has the reputation of being a notorious bottleneck on this important route into Norwich.
- 2.4.8. The speed limits and related measures, whilst necessary in a built-up area, also increase the overall journey times for traffic passing through the town, compared with those which could be achieved on a purpose-built route. Between Hall Lane and Hempnall Crossroads, a distance of 2.8km, the 2019 journey time are shown in Table 2-12.

Table 2-12 – A140 Long Stratton: Journey times

		Northbound		Southbound	
	Time (s)	Average Speed (mph)	Time (s)	Average Speed (MPH)	
AM Peak	304	21	336	19	
Inter Peak	252	25	249	25	
PM Peak	295	21	303	21	

- 2.4.9. The average speed of travel in all peaks is below the 30mph speed limit and during both the AM and PM peaks the average speed for the journey is between 19-21 mph.
- 2.4.10. As well as producing slow average journey times, congestion levels can vary over time, depending on the mix of traffic and any incidents that may occur. This is a familiar problem and creates uncertainty about the actual journey times that will be achieved, making it more difficult to plan journeys efficiently. This can be a problem for businesses, or for people travelling to work.

ACCIDENTS

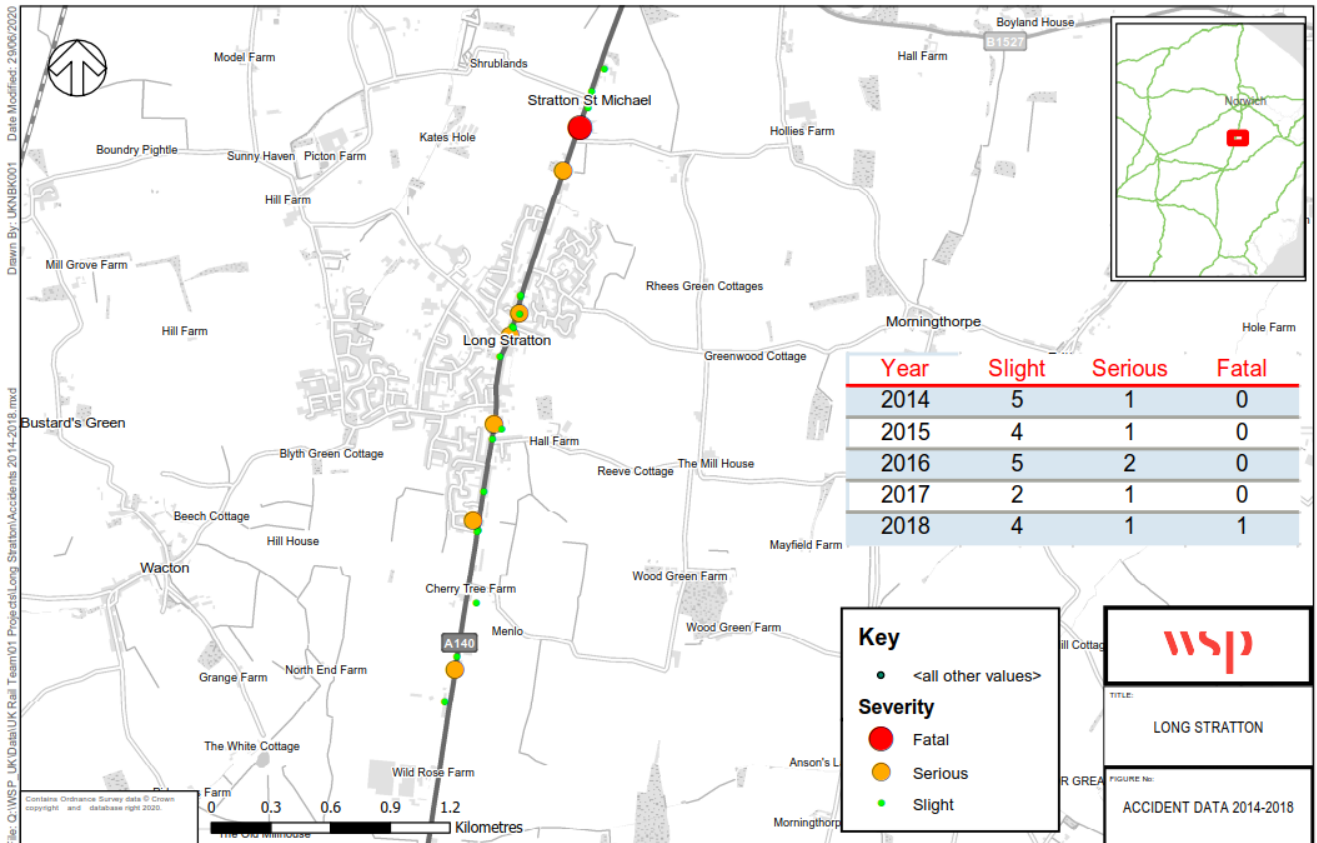
- 2.4.11. Between 2014 to 2016 there were 27 personal injury accidents on the A140 in Long Stratton. 20 involved slight injuries, 6 were serious and there was 1 fatality. Figure 2-2 shows the location and severity of each accident and details are set out in Table 2-13 below.

Table 2-13 – Personal injury accidents by severity

Year	Slight	Serious	Fatal	Total
2014	5	1	0	6
2015	4	1	0	5
2016	5	2	0	7

Year	Slight	Serious	Fatal	Total
2017	2	1	0	3
2018	4	1	1	6
Total	20	6	1	27
Average	6.7	2.0	0.3	

Figure 2-2 - Accidents by severity



2.4.12. Accidents are a problem in Long Stratton, because there is no “acceptable” number of accidents. The scheme will provide a modern, high standard route, taking through traffic away from the built-up area. Designed to current safety standards, it will have a lower accident rate than the existing road and it is forecast that this will prevent about 184 accidents over a 30-year appraisal period. More information is given in the Economic Case.

PROBLEMS FOR PEOPLE LIVING OR WORKING IN LONG STRATTON

2.4.13. As described above, the A140 carries about 22,000 vehicles per day through the centre of Long Stratton. Most is through traffic, having neither origin nor destination in the town. About 5.69% of the daily traffic flow is HGVs, most of which pass straight through. With all this traffic using the town’s high street and no alternative routes available, it causes problems for the people who live and work in the town, with very few compensating benefits.

Noise and vibration

- 2.4.14. Traffic on the existing A140 generates noise that affects hundreds of buildings within several hundred metres either side of it. Baseline noise levels within the study area currently vary from between 70 and 80 dB on the western edge of the existing A140, to as low as 40dB at the far eastern and western edges of the study area and within the densely populated housing estates.⁹
- 2.4.15. One of the key justifications for the scheme is that it will remove the ‘danger, noise, vibration and dirt caused by the continuous heavy traffic’, which the 2013 Conservation Area Statement considers to be one of the main impacts on the character of the Conservation Area and a barrier to greater use and enjoyment of the centre of Long Stratton. The scheme will remove through traffic, reducing noise and vibration in the town centre, although it will lead to increased noise at locations close to the new road, which must be set against these benefits.
- 2.4.16. Noise impacts can be predicted using traffic forecasts and monetised in an economic appraisal. They are therefore considered further in the Environmental Statement (ES), which covers the planning applications for the scheme and associated development and in the Economic Case.

Greenhouse gas emissions and air quality

- 2.4.17. Congestion on the A140 means that emissions of greenhouse gases will be higher than they would be from free-flowing traffic. The presence of HGVs in the through traffic contributes to emissions of carbon dioxide and other particulate pollutants, potentially impacting on people in, or close to, the centre of the town. The existing congestion and through traffic in the built-up area are therefore already contributing both to the problem of global greenhouse gas emissions and, potentially, to health impacts (albeit not to the extent that an AQMA has been declared).
- 2.4.18. Greenhouse gas emissions can be predicted using traffic forecasts and monetised in an economic appraisal. Air quality impact can also be modelled to predict changes in pollutant concentrations. These impacts are therefore considered further in the ES.

Visual intrusion

- 2.4.19. The presence of cars and lorries in the high street of Long Stratton detracts from the appearance of an otherwise attractive small town. The engineering measures needed to accommodate this traffic (signs, road markings, traffic lights, large junctions) also detract from the appearance of the town.
- 2.4.20. The scheme will remove much of the existing traffic from the centre of the town. This will provide an immediate reduction in visual intrusion from vehicles and, over time, an opportunity to address the impacts on the road environment.

Impacts of traffic on the Conservation Area

- 2.4.21. Part of the A140 through Long Stratton runs through a designated Conservation Area. The Conservation Area Character Appraisal and Management Plan, published in 2013 by South Norfolk Council considers the impact of the A140 on the Conservation Area and states that “the danger, noise, vibration and dirt caused by the continuous heavy traffic on the A140 trunk road remain every bit as great as, if not greater than, they were twenty years ago. Only the building of a by-pass would resolve the many problems caused by heavy traffic.” The plan notes that some recently repaired listed buildings “continue to suffer from the effects of heavy traffic” and that it is “imperative that the village is freed from the heavy traffic which pounds through it constantly”.

⁹ A140 Long Stratton Bypass Major Scheme Business Case main report

2.4.22. The scheme will remove a significant amount of the existing traffic, including HGVs, from the Conservation Area.

Road safety

2.4.23. As already noted, there are on average more than five personal injury accidents each year on the A140 though Long Stratton, some of which involve cyclists. From the perspective of residents, the A140 represents a real risk of danger and this perception will affect people's choice of whether to walk, cycle or drive for short trips within the town.

Community severance

2.4.24. Traffic on the existing A140 causes community severance in two ways:

- Heavy traffic makes it more difficult for pedestrians and cyclists to cross the road safely, creating a dividing line between the western and eastern parts of the town.
- Congestion on the A140 at peak times makes it more difficult to make local trips by car.

2.4.25. The scheme will reduce these severance impacts for local residents, though this will need to be set against the potential severance impacts of the new road and the mitigation of these impacts.

PROBLEMS MEETING NORFOLK'S HOUSING NEEDS

Shortage and rising costs of housing

2.4.26. The region's housing market is still experiencing a hangover from the economic downturn in 2008 and the supply of new homes has been impacted more severely than the national average. Completion rates in New Anglia currently stand at 38% of those delivered in 2007/8, compared to 55% in the UK¹⁰. A housing shortage in the region is causing house prices to rise and restricting potential homeowners' ability to buy property. Limited housing supply can also limit the labour pool within a commutable distance.

2.4.27. On average, people in Norfolk must spend eight times their annual salary to be able to afford to buy a house. Over the past 15 years house prices have risen by as much as 131%, with salaries only going up by 34% in some areas. Whilst there is variation between areas, house prices in all parts of Norfolk are becoming less affordable¹¹.

2.4.28. The housing market in Norfolk also faces pressures common to all parts of the UK. More stringent mortgage regulations and the uncertainty caused by Brexit and then COVID-19 have all affected the local property market in recent years¹².

Table 2-14 – Average house prices

Area	January 2018	January 2019	% Increase
South Norfolk	£249,748	£261,499	4.7%
Norfolk	£221,818	£227,316	2.5%
National Average	£240,898	£244,567	1.5%

¹⁰ New Anglia Strategic Economic Plan, 2017. <https://newanglia.co.uk/wp-content/uploads/2017/10/New-Anglia-Strategic-Economic-Plan.pdf>

¹¹ Eastern Daily Press: Property, 2018. <https://www.edp24.co.uk/edp-property/can-you-afford-to-buy-a-house-where-you-live-1-5516608>

¹² Eastern Daily Press: Property, 2018. <https://www.edp24.co.uk/edp-property/what-has-2019-got-in-store-for-the-property-market-1-5810659>

- 2.4.29. As shown in Table 2-14¹³, between January 2018 and January 2019 house prices in South Norfolk increased by more than those in other parts of Norfolk and the rest of the country. This disparity reflects a trend that has been apparent in the region for several years and its continuation is harmful to the local economy.
- 2.4.30. A fundamental reason for upward pressures on house prices is a lack of supply. The supply shortfall leads to excess demand and price increases and the continuation of this trend adversely impacts various stakeholders.
- 2.4.31. Examples of affected stakeholders include homeowners being priced out of the market, local businesses having a limited labour pool to draw from because of this, commuters/road users having further distances to travel and renters in the region having less disposable income.
- 2.4.32. These knock-on impacts are detrimental to the local economy. A restricted labour pool will also restrict employment opportunities and economic output, therefore having a negative impact on the productivity of the region. This puts Norfolk at a competitive disadvantage and discourages inward investment. There are social implications, too, as the lack of affordable housing forces people to travel further distances to work and elsewhere, as well as forcing a larger number of people to rent properties – leaving them with less disposable income for consumer spending.
- 2.4.33. Increased house prices also contribute to geographical immobility. This occurs when people struggle to find housing within a commutable distance from work. Longer commutes place additional pressure on local transport networks and in the case of this scheme, the resultant increases in commuting times contribute to the adverse effects on the economy.

Inability to deliver housing allocations in Long Stratton

- 2.4.34. Formerly a large village, Long Stratton has recently been designated as a town, recognising its potential for further development. It has been identified as a growth location in the Local Plan documents and sites have been allocated for the development of 1,800 new homes.
- 2.4.35. Delivery of this new housing will help to meet South Norfolk's housing supply needs and will enable the newly designated town to grow in a managed way. The only way to deliver this new housing is as part of a package which includes a bypass.
- 2.4.36. Without a bypass, traffic generated by the new housing would exacerbate the existing congestion and delay on the A140 and make all the other problems discussed in this situation very much worse. The bypass is needed to provide safe and efficient access to the new housing sites and to enable the existing A140 to function safely and efficiently as the high street of a growing town, benefiting both new and existing residents and businesses.
- 2.4.37. For this reason, the bypass and housing developments have been designed together and will be delivered together. Planning Policy requires that the bypass must be complete before the 250th new house is occupied.

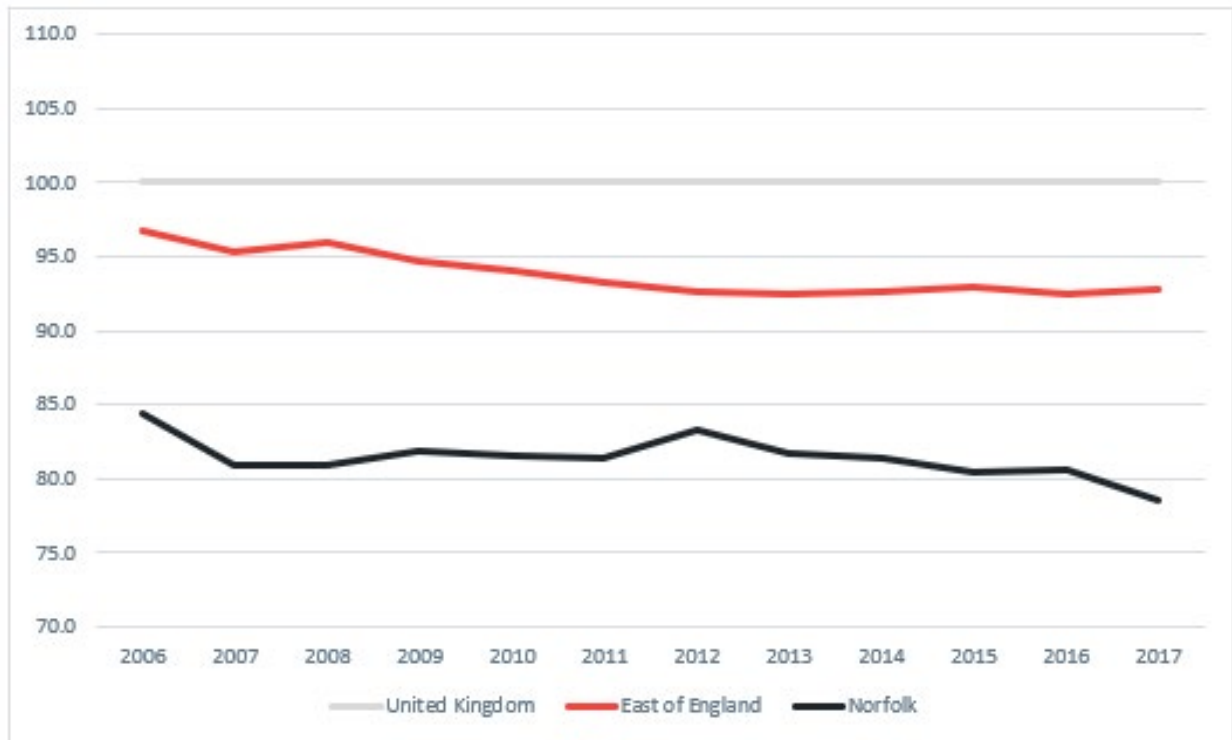
PROBLEMS MEETING NORFOLK'S ECONOMIC DEVELOPMENT AND EMPLOYMENT NEEDS

- 2.4.38. The economy of Norfolk is largely self-contained due to its peripheral location on the east coast of England and the relatively poor connectivity afforded by its transport network.

¹³ <https://www.gov.uk/government/publications/uk-house-price-index-england-january-2019/uk-house-price-index-england-january-2019>

Economic activity may be gauged from annual estimates of the balanced regional Gross Value Added (GVA), which measures the value of goods and services produced in an area. Norfolk has historically had a much lower GVA compared to the UK average and compares poorly to the regional average for the East of England. Between 2006 and 2017, Norfolk's GVA per head index fell from 84.3 to 78.8. Although many regions in the UK experienced a decline in GVA since the economic downturn, there has been a widening of the margin between Norfolk and the UK over the same period¹⁴. This is shown in Figure 2-3.

Figure 2-3 - GVA (Income approach) per head indices, 2006-2017



The need for improved connectivity to support economic growth

- 2.4.39. Norfolk has experienced a long-term reduction in economic performance compared with the UK average, largely due to higher value jobs being lost without replacement. Productivity and job growth have fallen short of the national averages¹⁵ and remain areas of relative weakness. GVA per hour is 96% of the UK average, while job growth was 5.3% between 2010 and 2015, compared to 6.8% nationally¹⁶.
- 2.4.40. The reasons for Norfolk's below average GVA and job growth include industrial restructuring, differences in employment rates and skills, as well as a lack of access to large markets. Inefficient transport infrastructure makes this problem worse.
- 2.4.41. Businesses need reliable access to suppliers and customers. Employees need good access to places of work and employers need access to a skilled workforce. Investors need to be confident that new business locations are well connected.

¹⁴ Ibid

¹⁵ New Anglia Economic Strategy, 2017. <https://newanglia.co.uk/wp-content/uploads/2017/10/New-Anglia-Economic-Strategic-Brochure-V3.pdf>

¹⁶ Ibid

2.4.42. The problems of congestion, delays and unreliable journey times on the A140 therefore affect employers, employees and investors and restrict productivity. The scheme will improve connectivity on the A140, helping to address this problem.

The need for local employment in Long Stratton

2.4.43. Norwich is the primary employment centre in Norfolk and has maintained a large presence in high value jobs in financial industries. The city has one of the largest general insurance centres in Europe, with one in three employees working in the finance and business services. Over 50 regional, national and international companies are based in the city, including major companies such as Aviva and Virgin Money¹⁷. The development of this cluster of financial industries within Norfolk will be central to boosting inward investment and driving growth.

2.4.44. Ten miles south of Norwich, Long Stratton is a relatively self-contained employment location with a range of shops and services that are important to the local economy. However, new employment opportunities are needed to maintain the levels of sustainability and self-containment appropriate in a small market town and – as a growth location - to accommodate housing and employment pressures. Policies 9 and 10 of the Joint Core Strategy reference employment in Long Stratton, stressing that new employment development is necessary to serve the local needs of major growth locations¹⁸. Local studies¹⁹ show that a greater variety of employment units is required to help retain existing employers and unlock space for new businesses.

2.4.45. The proposed solution is the creation of an additional 9.5 hectares of employment land in the town, to support economic growth in the area. The proposed scheme will enable this to happen as part of a planned, integrated development.

SUMMARY OF PROBLEMS AND SOLUTIONS OFFERED BY SCHEME

Table 2-15 summarises the problems identified and the ways they will be addressed by the scheme.

Table 2-15 – Problems and solutions

Category	Problem identified	Solution offered by scheme
Problems for users of the existing highway network	<ul style="list-style-type: none"> ■ Sub-standard highway alignment ■ Congestion and unreliable journey times ■ Accidents 	<ul style="list-style-type: none"> ■ New road to modern standards ■ Removes source of congestion ■ Reduces risk of accidents
Problems for people living or working in Long Stratton	<ul style="list-style-type: none"> ■ Noise ■ Greenhouse gas emissions and air quality ■ Visual intrusion ■ Impacts of traffic on the conservation area ■ Community severance 	<ul style="list-style-type: none"> ■ Reduced noise in town centre* ■ Net reduction in emissions ■ Reduced visual intrusion in town centre* ■ Reduced traffic in conservation area ■ Reduced severance in built-up area* <p>* To be balanced against potential noise, visual intrusion and severance impacts in areas close to the new bypass</p>

¹⁷ Visit Norfolk. <https://www.visitnorfolk.co.uk/Locate-Norfolk.aspx>

¹⁸ Joint Core Strategy, Greater Norwich Growth Board. <http://www.greaternorwichgrowth.org.uk/planning/joint-core-strategy/>

¹⁹ Long Stratton Area Action Plan, May 2016. https://www.south-norfolk.gov.uk/sites/default/files/Long_Stratton_Area_Action_Plan_Adopted_May_2016_1.pdf

Category	Problem identified	Solution offered by scheme
Problems meeting Norfolk's housing needs	<ul style="list-style-type: none"> Shortage and rising costs of housing The inability to deliver housing allocations in Long Stratton without a bypass 	<ul style="list-style-type: none"> Helps deliver housing supply Essential to delivery of JCS housing allocations in Long Stratton
Problems meeting Norfolk's economic development and employment needs	<ul style="list-style-type: none"> The need for local employment in Long Stratton The need for improved connectivity to support economic growth 	<ul style="list-style-type: none"> Allows development of employment land in Long Stratton Improved connectivity between Ipswich and Norwich

2.5 OPPORTUNITIES

2.5.1. As well as addressing existing problems, the A140 Long Stratton Bypass presents important opportunities for the future. They range from those directly linked to the provision of the bypass, to those which remain aspirational and may evolve over a longer timescale.

2.5.2. These opportunities are summarised briefly below:

- To build new homes**
 To provide 1,800 new houses in Long Stratton, in line with planning policies
- To create more jobs**
 To provide 9.5ha of employment land, bringing more jobs to Long Stratton and helping the town to develop in a more self-contained and sustainable way
- To improve community facilities**
 To support new or expanded community facilities, including schools and healthcare, to complement the planned growth, in line with Policy 10 of the JCS
- To encourage active travel**
 To create safe and direct cycle and pedestrian access to the town centre and employment
- To support the high street**
 To create a more attractive environment in the town's high street, supporting existing shops and businesses and encouraging them to make greater use of outside space to enhance the atmosphere and broaden the evening economy
- To revitalise under-used premises**
 To encourage provision of new shopping facilities by revitalising buildings which are currently not used, especially on the east side of Ipswich Road and at the northern and southern extremities of the defined town centre, where there is a greater concentration of vacant units and residential properties
- To support aspirations for enhancement**
 To support the other aspirations for potential enhancement identified in Policy 10 of the JCS and explored further in the MPR, in line with the Conservation Statement
- To support public transport**
 To encourage improved public transport into Norwich

2.6 FUTURE PROBLEMS – THE IMPACTS OF NOT CHANGING

2.6.1. If, for any reason, a bypass is not provided for the A140 at Long Stratton:

- The planned housing growth will be severely limited and local demand for homes will not be met
- Other, less suitable, housing sites will come under pressure to be developed and there will be further upward pressure on house prices
- The planned employment growth will not come forward for development and there will be fewer and less varied opportunities for employment in Long Stratton
- Existing local shops and businesses will not have the benefits of a larger local customer base and may find it more difficult to survive
- The existing problems of congestion, traffic noise, poor air quality and visual intrusion will continue and will get worse with background traffic growth, reducing the quality of life for residents of Long Stratton
- Opportunities to physically improve the high street and town centre will be lost
- Opportunities to improve conditions for pedestrians and cyclists will be lost (because through traffic will remain in the town centre)
- Increased congestion and longer journey times will reduce the efficiency of local public transport
- There will be more personal injury accidents than there would be if a bypass were in place
- Greenhouse gas emissions will be slightly higher than they would be if a bypass were in place
- Long-distance traffic on the A140 will suffer from increased congestion, longer delays and less reliable journey times, increasing transport costs for businesses and commuters

2.7 DRIVERS FOR CHANGE

2.7.1. The key drivers for change are:

- **The Government's MRN objectives**
The need to deliver the government's objectives for the MRN (reduce congestion, support economic growth, support housing development, support all users and support the SRN)
- **Housing and employment targets**
The need to deliver local targets for housing and employment growth in line with planning and economic strategies
- **Opportunity**
The need to seize the present opportunity to work with developers to deliver both the scheme and planned development in Long Stratton
- **Economy**
The need to support the local economy by improving connectivity and removing a long-standing congestion bottleneck on the A140
- **Community**
The need to ensure a good quality of life for people living and working in Long Stratton, by allowing the town to grow in a planned way

2.8 AIMS AND OBJECTIVES OF THE SCHEME

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

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

2.8.3. For this reason, a set of specific objectives has been set. These are directly related to the scheme and achieving them will help to achieve the strategic outcomes. As far as possible, the specific objectives are SMART. i.e. specific, measurable, achievable, realistic and time-bound.

2.8.4. **The strategic, or high level, outcomes are:**

- Reduced congestion
- Improved connectivity
- Delivery of planned new housing development and reduced pressure on house prices
- Increased economic growth and employment
- Improved road safety
- Reduced greenhouse gas emissions
- Improved quality of life for communities

2.8.5. **The specific or intermediate objectives are:**

- To remove through traffic, including HGVs, from the centre of Long Stratton
- To reduce congestion, queueing and delay on the A140 at Long Stratton
- To improve journey times and journey time reliability, for all users of the A140
- To improve the journey times and reliability of bus routes through Long Stratton
- To improve conditions for people walking or cycling in Long Stratton
- To enable full delivery of 1,800 planned new houses in Long Stratton
- To enable the development of up to 9.5ha of new employment land in Long Stratton
- To improve conditions for businesses in Long Stratton and stimulate investment in the town
- To improve the accessibility of Long Stratton town centre for people
- To improve conditions for the delivery of goods and reduce transport costs for businesses
- To improve the environment of Long Stratton town centre by reducing noise and visual intrusion
- To achieve a net reduction in greenhouse gas emissions
- To improve air quality in Long Stratton town centre
- To reduce community severance in Long Stratton
- To facilitate improvements to the public realm in Long Stratton
- To reduce the number of people killed or injured in collisions in the area affected by the scheme

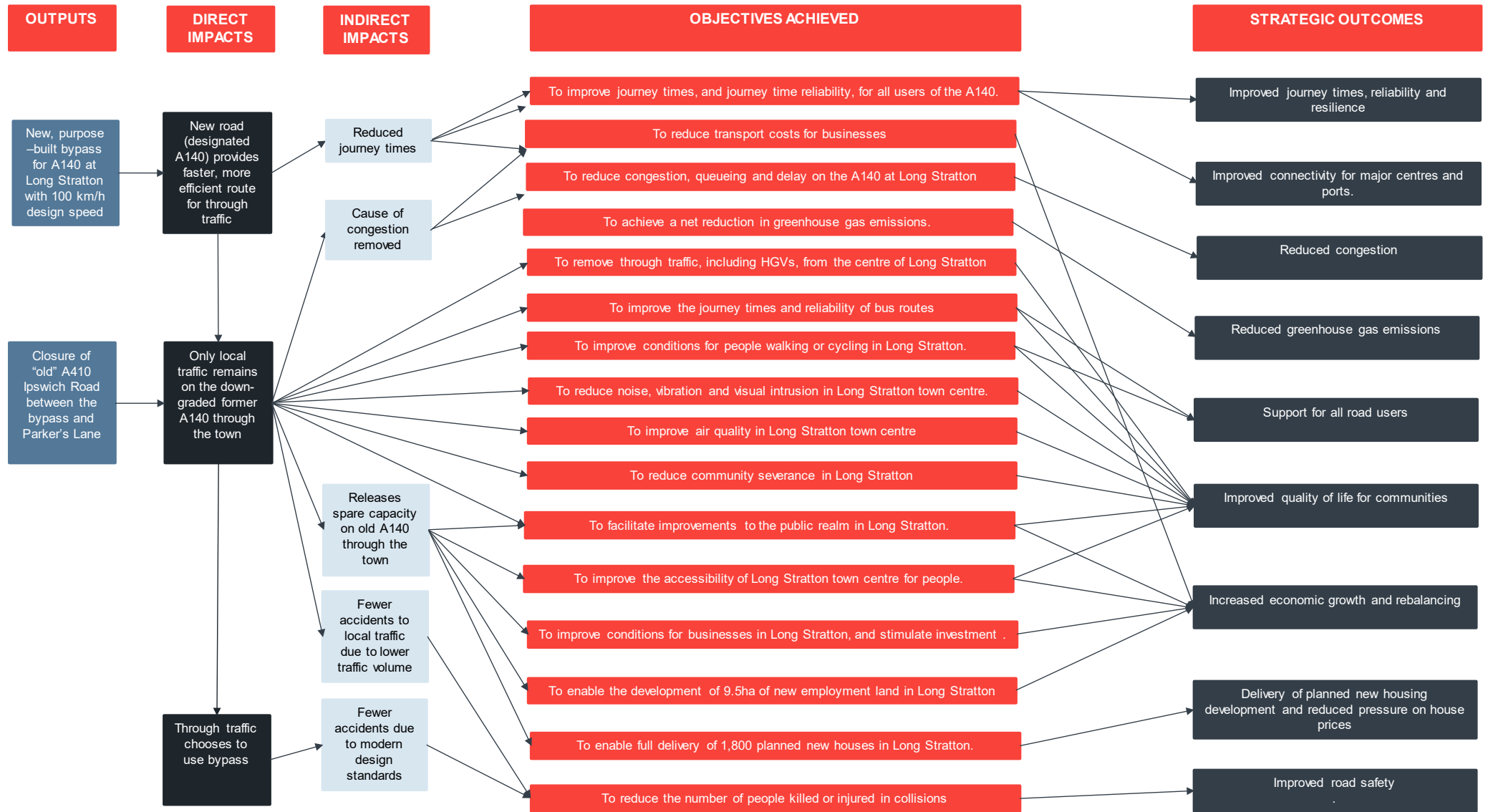
2.9 MEASURES FOR SUCCESS

2.9.1. This section considers what constitutes successful delivery of the objectives, as this informs the development and appraisal of the scheme, the selection of the preferred option and the monitoring and evaluation of the scheme's performance after construction.

LOGIC MAP (CAUSAL CHAIN ANALYSIS)

2.9.2. Figure 2-4 is a Logic Map or Causal Chain Diagram. It shows the expected relationship between the outputs of the scheme and its impacts, the achievement of specific objectives and delivery of the strategic outcomes. It is usually easier to measure achievement of the specific objectives (e.g. a change in traffic volume or journey time) than the strategic outcomes (e.g. a reduction in greenhouse gas emissions) because the latter may be affected by factors other than the scheme.

Figure 2-4 - Long Stratton Bypass logic map



MONITORING AND EVALUATION

- 2.9.3. A Monitoring and Evaluation Plan will be prepared and appended to the FBC, a summary of the content is included within Section 6.12.
- 2.9.4. In most cases, achievement of the specific objectives will be measured directly by means of:
- Traffic counts
 - Journey time surveys
 - Accident statistics
 - Air quality monitoring
- 2.9.5. As noted above, greenhouse gas emissions and improved journey time reliability are difficult to measure directly but are predictable consequences of reduced traffic, congestion and delay.
- 2.9.6. Not all the strategic outcomes can be measured directly, but they can all be seen to be logical consequences of achieving the specific objectives. Some objectives, such as shorter journey times, will be achieved as soon as the bypass opens, but others, such as increased employment, will take time to achieve. Longer-term monitoring of local development, business growth and relocations and employment will continue to take place and will contribute to an understanding of the success of the scheme.
- 2.9.7. Anecdotal information, especially in relation to perceptions of congestion, reliability and the attractiveness of the town as a place in which to live, also has a supporting role in evidencing the success of the scheme.
- 2.9.8. The project will be judged successful if it delivers the expected benefits at levels close to, or exceeding, those forecast, without any unforeseen disbenefits.

2.10 THE SCOPE OF THE SCHEME

- 2.10.1. This section explains what the scheme will include and what it will not include.

IN-SCOPE

- 2.10.2. Construction of a 4km long all-purpose bypass on the eastern side of Long Stratton with:
- A 7.3m single carriageway
 - Two 1.0m hard strips
 - Variable width soft verges
 - A design speed of 100 *km/h* with a speed limit of 60 *mph* between Rhees Green roundabout and the existing A140 to the south, and an 85km/h design speed and 50mph speed limit between Rhees Green roundabout and the proposed Roundabout north of Long Stratton
- 2.10.3. From south to north, the bypass will include:
- A new four-arm roundabout on A140 Norwich Road (the Northern Gateway Roundabout) incorporating an access to development west of the A140
 - A priority junction with a new link to Church Lane, which will be diverted
 - A footbridge crossing for non-motorised users (NMUs) on the footpath between Long Stratton and St Michael's Church
 - A new three-arm roundabout near Edge's Lane, providing a link into new development
 - A road overbridge to carry Hall Lane over the bypass
 - A new three-arm roundabout north of Parker's Lane with a single carriageway link to the A140 Ipswich Road at Parker's Lane



- A free-flowing connection to A140 Ipswich Road
- Traffic signs, road markings and street lighting where required
- Earthworks, drainage and landscaping associated with the new highway

2.10.4. The A140 Ipswich Road will remain open for access and cyclists between the bypass and Parker's Lane, with no through traffic.

OUT OF SCOPE

2.10.5. The scheme does not include:

- Other infrastructure (roads, footways, cycle facilities etc) associated with the proposed housing and employment development to the east of the present A140
- Highways infrastructure to the west of the proposed Northern Gateway roundabout
- Physical enhancements, traffic calming or traffic management in the high street or other parts of Long Stratton
- Public transport facilities or services

2.11 CONSTRAINTS

2.11.1. The following types of high-level constraint have been taken into account in developing the scheme:

- Physical
- Environmental
- Financial
- Contractual
- Public acceptability constraints

PHYSICAL CONSTRAINTS

2.11.2. There are no insurmountable physical constraints on the construction of the scheme.

ENVIRONMENTAL

2.11.3. Further details of the environmental impacts are given in the Economic Case.

2.11.4. There are no insurmountable environmental constraints on the construction of the scheme.

FINANCIAL

2.11.5. The Council does not have the resources to deliver a without funding support from the government.

2.11.6. The anticipated programme for financial approval is:

- Outline Business Case Approval – early 2021
- Full Business Case Approval – May 2023

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

CONTRACTUAL

2.11.8. The Commercial Case describes the type of contract proposed.

2.11.9. There are no contractual constraints that would inhibit delivery of the scheme.

PUBLIC ACCEPTABILITY CONSTRAINTS

2.11.10. A bypass for the A140 at Long Stratton, South Norfolk, has been in development for decades, having first been raised back in the 1930s. In 2002, a public consultation was undertaken on five route strategies including both dual and single carriageway schemes. This was followed by a supplementary consultation to consider four variants to one of the original public consultation options. The consultation, as set out in Section 2.13 indicated a very strong level of support for the principle of a bypass with the balance in favour of an eastern route.

CONCLUSION

There are no insurmountable constraints on the delivery of the A140 Long Stratton Bypass.

2.12 INTERDEPENDENCIES

2.12.1. The scheme (Long Stratton bypass) and Long Stratton residential development projects are dependent upon each other. However, there are other factors which the successful delivery of project is dependent. These include:

- The approval by DfT of this OBC (anticipated in early 2021) and then the FBC (anticipated in 2023), at which point MRN Funding can be drawn down
- The granting of planning permission for the bypass and connected development, anticipated in September 2021

2.13 STAKEHOLDERS AND CONSULTATION

STAKEHOLDERS

2.13.1. Key stakeholders and their interests in the scheme are summarised in Table 2-16.

Table 2-16 – Stakeholder groups and interests

Stakeholders	Summary of interests
Cycling groups (Diss Group, we are cycling UK)	Interested in better street design, promotion of cycling infrastructure and cycling safety
Department for Transport	Interest in the detailed engineering layout, development of the full business case and submission, funding and planning
Directly Affected Landowners	Interested in the land take and engineering requirements of the bypass and how this will affect them and businesses directly
Emergency Services (Police, Fire, Health)	How the bypass will impact upon their service provision, accessibility and permeability
Environment Agency	Interested in environmental legislation relevant to construction, air quality and noise issues
Greater Norwich Growth Board	Formed of NCC, South Norfolk Council, Broadland District Council and Norwich City Council. They provide strategic direction, monitoring and coordination of the Greater Norwich City Deal and the wider Growth Programme for the Greater Norwich area. They are also going to be a major funding partner for the proposal.
Highways England	Interested in the impact of the scheme on the Trunk Road Network and junctions on this network. Particularly interested in maintaining the safety of the A47 Trunk Road and ensuring there is no congestion at the A47/A140 junction

Stakeholders	Summary of interests
Historic England	Interested in limiting adverse impacts of the scheme protecting the historic environment
Housing Developers	Cannot progress full development of land unless bypass is delivered.
Indirectly Affected Landowners	Interested in the land take and engineering requirements of the bypass and how this will affect them, and businesses not directly affected
Long Stratton Neighbourhood Plan Team	Interested how the bypass aligns with the strategic interests of the Neighbourhood Plan and Master Plan Report
Media Groups	All issues relating to the bypass that may be of public interest
Natural England	Interested in the natural environment. To ensure that areas with environmental designations are conserved, enhanced and managed
New Anglia LEP	Interested in improving connectivity and the reliability of the MRN as a stimulus for economic growth
New Anglia Transport Board	Interested delivery of the scheme as part of the Integrated Transport Delivery Plan and its contribution to regional connectivity and priority places
Norfolk County Council	Formal planning processes, stakeholder engagement, political engagement, design of the scheme
Norfolk County Councillors	Interest in all aspects of the scheme that will have an impact on their constituents
Norfolk Wildlife Trust	Interested in the protection of the natural environment
Norwich Geological Society	Regional Important Geological Sites (RIGS)
Parish and town councils	Interest in how the bypass directly or indirectly affect the parish and its residents
PROW Interest Groups	Focus on issues surrounding Public Rights of Way including reducing severance and enhancing the network for public right of way users
Public and residents	Interested in all aspects of the scheme, such as noise pollution, traffic implications, traffic management, construction issues, planning issues and procedures, environmental issues, environmental enhancement and design
Public Utilities: Anglian Water, BT, Cadent (gas network and service provider), UK Power Network	Affected utilities and assets in the site area
South Norfolk Council	Formal planning processes, stakeholder engagement, political engagement, design of the scheme
South Norfolk Council Councillors	Interest in all aspects of the scheme that will have an impact on their constituents
The Ramblers, local access and Open Space society	Interested in how the scheme impacts walking routes and the local environment
Transport East	Advises the DfT on regional priorities for significant road projects. Interested in delivery of the scheme as a regional priority between 2020 and 2025
Transport groups (bus companies, freight associations)	Interest in issues surrounding transport companies such as route changes

2.13.2. The following town and parish councils, as well as Neighbourhood Area and residents association were consulted on the 2018 applications for the bypass and associated development.

2.13.3. These include Parish Councils along the A140 corridor:

- Long Stratton Town Council
- Forncett Parish Council
- Hempnall Parish Council
- Shelton and Hardwick Parish Council
- Starston Parish Council
- Tasburgh Parish Council
- Tharston and Hapton Parish Council
- Saxlingham Parish Council
- Swainsthorpe Parish Council
- Wacton Parish Council
- Newton Flotman Parish Council
- Morningthorpe and Fritton Parish Council
- Pulham Market Parish Council
- Tivetshall St Margaret Parish Council
- Great Moulton Parish Council
- Stoke Holy Cross Parish Council
- Topcroft Parish Council
- Woodton Parish Council
- Long Stratton Neighbourhood Plan Team
- Wood Green Residents Association

CONSULTATION

2.13.4. In 2002, a public consultation was undertaken in which five route strategies at both dual and single carriageway standard were presented. This was followed by a supplementary consultation on four variants of one of the options.

2.13.5. These consultations revealed a very strong level of support for the principle of a bypass, with the balance in favour of an eastern route. In choosing the standard of the road, the public consultation indicated a clear preference for a dual carriageway.

2.13.6. Table 2-17 summarises the public consultations undertaken from 2002 onwards.

Table 2-17 – Summary of consultations

Year	Description
2002	A public consultation was held in Autumn 2002. A consultation leaflet and questionnaire were distributed to the surrounding local population, key stakeholders and statutory bodies. Key stakeholders and statutory bodies were also sent copies of the Stage 2 Assessment report. A series of staffed exhibitions were held at a local venue together with an open public meeting.
2003	After considering a report on the Public Consultation in January 2003, the Cabinet of Norfolk County Council resolved to undertake further assessment work on a number of variations to one of the eastern routes. Following further consultation with stakeholders and two further reports, the Cabinet resolved to adopt a preferred standard and alignment for the bypass. The preferred scheme was taken forward for more detailed engineering development and Stage 3 Environmental Assessment and further consultation with local stakeholders and statutory bodies.
2004 / 2005	A preferred layout was presented to Cabinet in January 2004, with a scheme submitted for planning application in September 2004. The application was supported by an Environmental Statement and was subject to formal consultation under the planning processes. The application was reported to Planning Regulatory Committee of Norfolk County Council on 18 February 2005 and approved unanimously.

Year	Description
	As the scheme was not in the local Development Plan, the application was referred onto the Secretary of State. It was concluded that the matters arising could be satisfactorily addressed by the Council and that the issues were not of such significance to warrant calling in of the application and examination at public inquiry. This scheme was not progressed, however, as funding could not be secured.
2015	In 2015, the Long Stratton Area Action Plan (LSAAP) was submitted for examination. The site allocations as submitted for examination came about following considerable consultation, a 'call for sites', detailed site assessment and the development of alternative options for the location of the employment and housing growth. During the Hearings, representatives of both South Norfolk Council and the County Council confirmed they would ensure that the parishes potentially affected by the bypass and the associated housing and employment developments would be involved in the scoping of any transport assessments to support any future planning application(s).
2018	Following the receipt of planning applications, these were advertised, and consultation letters sent to: <ul style="list-style-type: none"> ■ Residents and businesses directly adjacent to the A140 ■ Residents and businesses directly adjacent to the application site ■ Residents and businesses directly opposite or at the junction of a new access ■ Residents and businesses to the east of Long Stratton affected by severance of Public Rights of Way or highways Site notices were posted at key locations including employment areas and their locations published on the Council's website.

2.13.7. There will be another round of public consultation in Summer 2021 associated to the updated planning submission. It will consider some issues (e.g. public rights of way) in more detail than before.

2.13.8. Details of how NCC will manage future stakeholder engagement are outlined in the Management Case.

2.14 OPTIONS CONSIDERED

2.14.1. Option assessment was undertaken in three main stages, in 2002, 2005, and most recently in 2018.

ROUTE STRATEGIES (2002)

2.14.2. In 2002, a range of options was considered for provision of an A140 Long Stratton Bypass. At this stage, only road-based options were considered.

2.14.3. A Stage 2 assessment was undertaken on five potential route strategies, two to the west and three to the east of the existing A140. Dual and single carriageway options were considered for each route and the results were presented at public consultation in 2002.

2.14.4. The consultation indicated a very strong level of support for the principle of a bypass with the balance in favour of an eastern route and two route options were identified that offered the greatest relief to the A140. Both involved construction of a roundabout at the A140/B1527 junction as a natural northern terminal for the bypass.

2.14.5. Some concerns were, however, expressed about the proximity of these routes to existing structures and the severance that this could cause. To address these, four versions of an eastern route option were considered, involving alternative alignments for the northern part of the route and alternative arrangements at Church Lane (options with and without an overbridge). These formed the basis of a supplementary consultation.

2.14.6. Public consultation also revealed a clear preference for a dual carriageway bypass and this was supported by the view that, despite the higher cost, it would offer a better rate of return and have a better fit with any potential future schemes to dual the A140.

PREFERRED ROUTE (2003)

- 2.14.7. Following the above consultation, in April 2003, NCC's Cabinet adopted as their preferred route a dual carriageway A140 bypass on the eastern side of Long Stratton, with an overbridge at Church Lane.

FURTHER OPTIONS (2005)

- 2.14.8. In 2005, the scheme was included as part of a developer-led proposal. A Major Scheme Business Case (MSBC) was produced, which included an assessment of a range of alignments and carriageway options, together with three alternatives to a bypass, the assessments of which are summarised below:

Do-nothing option

- 2.14.9. A 'do nothing' option was found to significantly constrain the scale of new development that could be permitted. This was because of the cumulative environmental effect that current and predicted traffic volumes would have on Long Stratton and the A140.
- 2.14.10. The housing allocations in the Joint Core Strategy could therefore not be met and the do-nothing option was therefore considered unacceptable.

Non-road options

- 2.14.11. The objectives for the scheme include addressing the problems caused by substantial movements of non-local traffic on the A140 through Long Stratton. Norfolk is a large rural county and the potential for managing travel demand on the A140 is limited. Any measures would place unacceptable constraints on the accessibility of Norwich and other parts of the county.
- 2.14.12. It was concluded that traffic could not be sufficiently reduced to achieve the environmental improvements needed in Long Stratton. It was considered unlikely that a modal shift to rail or long-distance buses could bring about sufficient reductions in traffic.
- 2.14.13. For these reasons a non-road building option was ruled out.

Online improvement option

- 2.14.14. In the late 1990's, before the A140 was de-trunked, a scheme was introduced comprising speed restrictions and traffic management, with gateway signing, 'Dragon Teeth' markings and carriageway roundel markings. These are comprehensive traffic management and safety measures and it was concluded that there was little scope for any further improvements.
- 2.14.15. Any attempt to widen the existing road through Long Stratton to meet modern standards would require significant demolition and land-take from properties fronting the A140. The impact of this on the conservation area was considered unacceptable.

Preferred option (2005)

- 2.14.16. The 2005 MSBC therefore proposed a bypass solution. This gained the necessary approvals but eventually stalled due to a lack of funding.

REFINEMENT OF ROUTE OPTIONS (2018)

- 2.14.17. The scheme was taken up again by developers, leading to a planning application for a bypass and associated development. In support of the application, further work was done by the developers. This included the preparation of a *Bypass Testing Options Report* in November 2016. This assessed nine possible alignments for an eastern bypass, with different arrangements for the connections with existing roads and new development sites.



Preferred option

2.14.18. A preferred solution was identified, and this formed the basis for a planning application in 2018 for a single carriageway bypass together with mixed-use development. NCC's consultants have been working in collaboration with the applicants to develop and enhance the scheme.

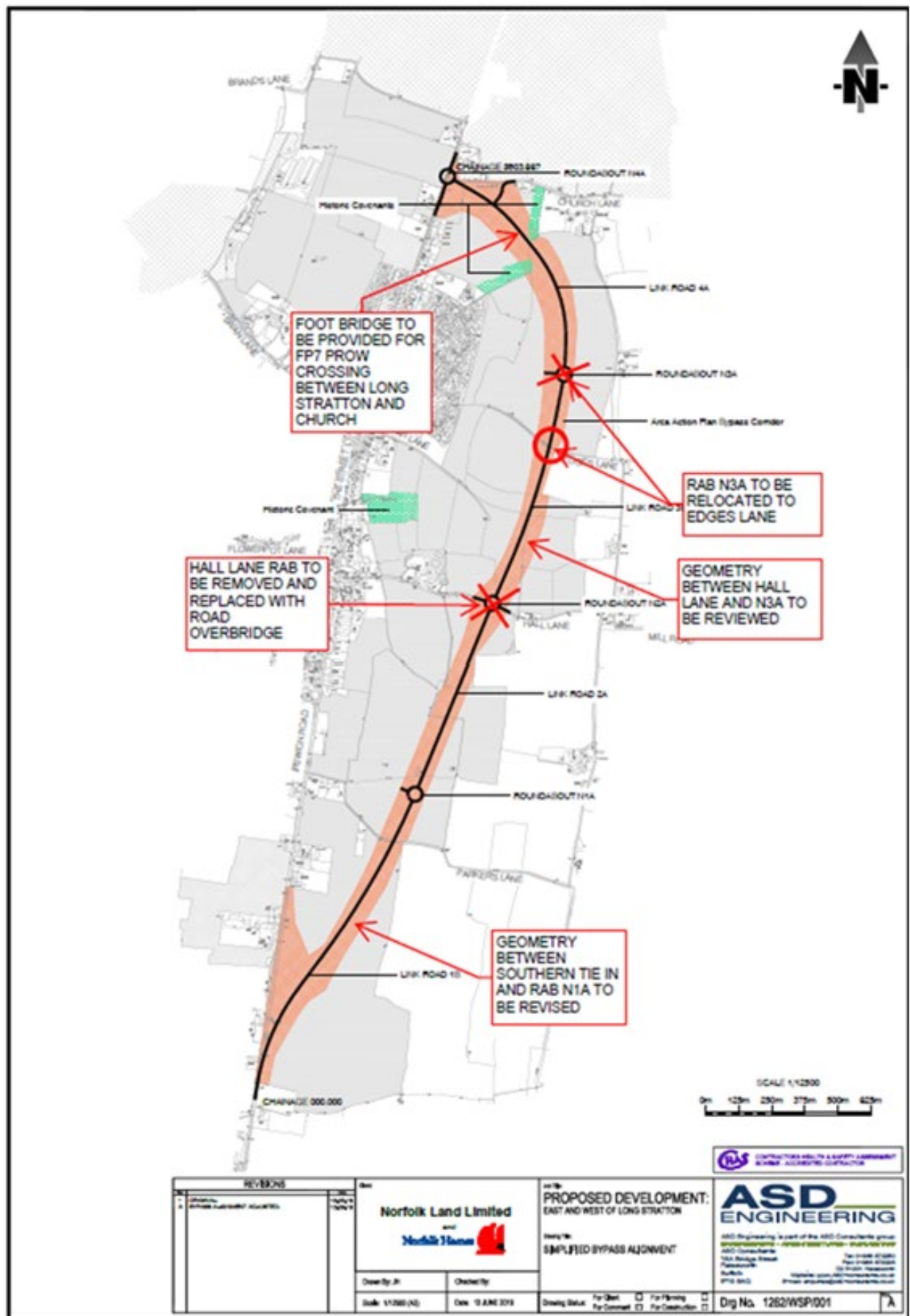
Refining the preferred option

2.14.19. The meetings and workshops held as part of the option refinement led to improvements in the bypass design, including:

- More allowance for safe overtaking sections
- Inclusion of an overbridge and removal of a roundabout at Hall Lane to maintain connectivity for communities to the east of Long Stratton and provide a second grade-separated crossing for non-motorised users
- Repositioning the proposed junction at Edges Lane to better serve the emerging masterplan for the development

2.14.20. The refinements to the preferred scheme are shown indicatively in Figure 2-5.

Figure 2-5 – Refinements to the preferred scheme



2.15 THE PROPOSED SCHEME

- 2.15.1. Development of the scheme has continued as part of the preparation of this OBC.
- 2.15.2. The proposed scheme, which forms the basis of the cost estimates, traffic forecasts and other assessments which underpin this OBC is shown in Figure 1-4.

2.16 IMPACTS OF THE PROPOSED SCHEME

This section briefly summarises the impacts that the scheme is forecast to have on traffic flows in and around Long Stratton. These forecasts have been derived from traffic modelling and underpin the economic case and detailed assessment of safety and environmental impacts.

- 2.16.1. Currently within Long Stratton during the AM and PM peak hours there are between 1,650 - 1,800 two-way vehicles travelling through the town. This is forecast to increase by 1,810 - 1960 in 2024 and 1,920 - 2095 by 2039 without a bypass.
- 2.16.2. With the construction of the bypass, the volumes of traffic significantly reduce to between 150 - 340 two-way vehicles in Long Stratton. This is a reduction of around 80 - 90% in traffic volumes from the levels before the bypass, which is a significant improvement. Traffic volumes on the bypass range between 1,630 - 1815 two-way vehicles in the future. This is shown in Table 2-18.

Table 2-18 – Scheme impacts

	Two-way Traffic in Long Stratton (without Bypass)		Two-way Traffic in Long Stratton (with Bypass)		Two-way Traffic in Long Stratton Bypass	
	AM	PM	AM	PM	AM	PM
Current	1,650	1,800				
2024 Forecast	1,810	1,960	150	310	1,630	1,675
2039 Forecast	1,920	2,095	175	340	1,755	1,815

2.17 SUMMARY OF THE STRATEGIC CASE 7

STRATEGIC FIT

- 2.17.1. The proposed Long Stratton Bypass scheme is closely aligned with national, regional and local transport policies and plans.
- 2.17.2. It has a very good strategic fit with current government plans and policies, including the two current strategic policy objectives: Levelling Up and Carbon Net Zero (as well as the Industrial Strategy, TIS, National Infrastructure Strategy, NPPF and the Housing White Paper); at a regional level, it supports the LEP’s Norfolk and Suffolk Economic Strategy; it supports the aims of the Norfolk LTP, is an important component of the NIDP and it is a priority project in the Norfolk SPF. It will help to deliver the housing and employment growth planned in the South Norfolk Joint Core Strategy and is central to the Long Stratton AAP and Master Planning Report.
- 2.17.3. These strategies recognise the importance of job creation, housing delivery and transport infrastructure as drivers of economic growth.

PROBLEMS

2.17.4. The problems the scheme will address, which establish the need for intervention, fall into four related categories:

- Problems for users of the existing highway network
 - Sub-standard highway alignment
 - Congestion and unreliable journey times
 - Accidents
- Problems for people living or working in Long Stratton
 - Noise
 - Greenhouse gas emissions and air quality
 - Visual intrusion
 - Impacts of traffic on the conservation area
 - Community severance
- Problems meeting Norfolk's housing needs
 - Shortage and rising costs of housing
 - The inability to deliver housing allocations in Long Stratton without a bypass
- Problems meeting Norfolk's economic development and employment needs
 - The need for local employment in Long Stratton
 - The need for improved connectivity to support economic growth

AIMS AND OBJECTIVES

2.17.5. The strategic aims of the scheme, which mirror the policy and strategy objectives, whilst also attempting to address the problems above, are to:

- Reduced congestion
- Improved connectivity
- Delivery of planned new housing development and reduced pressure on house prices
- Increased economic growth and employment
- Improved road safety
- Reduced greenhouse gas emissions
- Improved quality of life for communities

CONSTRAINTS

2.17.6. In developing the scheme, account has been taken of physical, environmental, financial, contractual and public acceptability constraints.

SUPPORT FOR THE SCHEME

2.17.7. Public consultation has revealed a very strong level of support for the principle of a bypass, with the balance in favour of an eastern route.

2.17.8. Overall the scheme addresses identified problems, has a strong strategic fit with national, regional and local policy, and has strong public support.

3 ECONOMIC CASE

3.1 INTRODUCTION

3.1.1. The Economic Case identifies and appraises all scheme impacts to determine its overall Value for Money (VfM). It takes account of the costs of developing, building, operating and maintaining the scheme, and a full range of its impacts. The assessment of impacts will not be limited to the monetised measured economy, and will include welfare, economic and environmental benefits as well as distributional impacts. The economic case considers the extent to which the scheme's benefits will outweigh its costs.

3.1.2. This section covers:

- Options appraised
- Overview of methodology and assumptions
- Scheme costs
- Scheme impacts (user, safety, active mode, wider, indicative monetised, environmental and distributional)
- Value for money statement
- Switching value analysis
- Sensitivity testing
- Summary and conclusion

3.2 OPTIONS APPRAISED

3.2.1. The scheme option development process and the appraisal of options was summarised in section 2.15 and described more fully in the Options technical note provided in Table 2.15. A large number of options were considered to identify the best solution for Long Stratton. These included online and offline highway improvements. The proposed scheme comprises a 4km long all-purpose bypass on the eastern side of Long Stratton, including new roundabout junctions at Church Lane, Rhees Green (Edges Lane) and Parkers Lane, an overbridge at Hall Lane and a footbridge crossing for non-motorised users (NMUs) to link the existing PROW to the church..

3.2.2. Within this OBC, the preferred highway option has been appraised using the economic appraisal tools and methods set out within the Appraisal Specification Report (ASR). These are described further below in this Economic Case, with more detail provided within the Economic Appraisal Report (EAR).

3.3 OVERVIEW OF METHODOLOGY AND ASSUMPTIONS OF THE TRAFFIC MODELLING

3.3.1. The development, validation and use of the Highways Assignment (SATURN) model are described in the following reports, provided as appendices to the OBC, with a summary provided in the text below.

Table 3-1 – Modelling reports

Appendix	Report
B	Data Collection Report
C	Local Model Validation Report (LMVR)
D	Forecasting Report

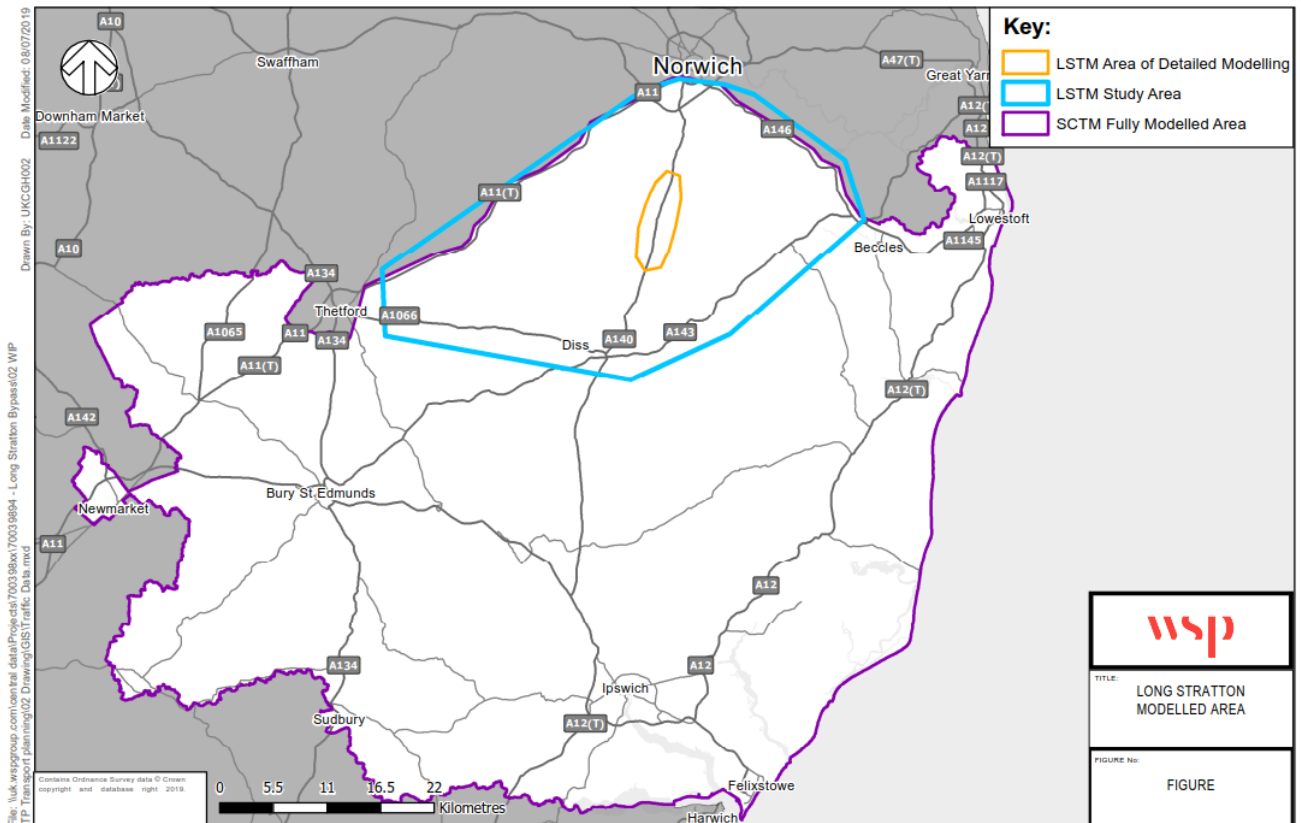
METHODOLOGY

3.3.2. A high-level summary of the approach to modelling is set out below.

MODEL STUDY AREA

3.3.3. The Long Stratton Transport Model (LSTM) Fully Modelled Area, is shown in Figure 3-1. As defined in the DfT's TAG, the Fully Modelled Area (FMA) is the area over which proposed interventions are likely to have influence. In the LSTM, the area is bounded by Norwich in the north, by the coastline in the east, by Felixstowe and Sudbury in the south and by Newmarket and Thetford in the west.

Figure 3-1 - LSTM Modelled Areas



ZONING

3.3.4. The zone system in the LSTM is predominantly made up by Lower Super Output Areas (LSOAs). LSOAs form the entirety of the model zones in South Norfolk, so trips in the vicinity of the scheme are granular enough to capture the re-assignment response to the scheme for individual settlements and neighbourhoods.

HIGHWAY NETWORK

3.3.5. A review of the highway network detail within the study area was undertaken to ensure all key roads were included within the LSTM, incorporating both strategic and local routes within the vicinity of the scheme. The network was verified using Google and OS maps, survey footage and aerial photography.

3.3.6. The Highway Network coding is discussed in more detail within the LMVR.



TRAFFIC DATA

- 3.3.7. WSP commissioned Nationwide Data Collection (NDC) to undertake a comprehensive traffic survey collection process of key highway links and junctions in and around Long Stratton, Norfolk. These surveys were designed to complement the existing traffic data already available, to provide a complete set of observed traffic counts in the Long Stratton area. This data will be used to ensure that the traffic model represents the observed data accurately. Manual Classified Counts (MCC) and Automatic Traffic Counts (ATC) were undertaken over a single day and two weeks respectively. For LSTM development, INRIX data was provided to WSP from NCC for the month of June 2016 excluding school holidays and bank holidays. The data was processed to provide an average weekday (Monday to Thursday) travel time by direction for each peak hour being modelled within the LSTM.

MODEL TIME PERIODS

- 3.3.8. The model has been developed for the following time periods:
- AM Peak Hour: 08:00 – 09:00
 - Average Interpeak Hour: 10:00 – 16:00
 - PM Peak Hour: 17:00 – 18:00
- 3.3.9. These time periods are consistent with the Mobile Network Data (MND), which is the primary input to the trip matrices and only available in three pre-determined periods. Manual Classified Count (MCC) and Automatic Traffic Count (ATC) data collected in the Long Stratton area was analysed to determine peak hours. Total flow across all sites was used to obtain hour rolling totals. The peak hours as identified from MCC data were 7:30-8:30 for the AM Peak and 16:30-17:30 for the PM peak, and 7:15-8:15 and 16:30-17:30 for the ATC data, respectively. The difference between the modelled hours and these peak hours is less than 2% and therefore not deemed significant.

USER CLASSES

- 3.3.10. Ten user classes have been modelled:
- User Class 1: Cars Home Based Work – Inbound
 - User Class 2: Cars Home Based Work – Outbound
 - User Class 3: Cars Home Based Employer Business – Inbound
 - User Class 4: Cars Home Based Employer Business – Outbound
 - User Class 5: Cars Non-Home-Based Employer Business
 - User Class 6: Cars Home Based Others – Inbound
 - User Class 7: Cars Home Based Others – Outbound
 - User Class 8: Cars Non-Home-Based Others
 - User Class 9: Light Goods Vehicles
 - User Class 10: Heavy Goods Vehicles

FORECASTING

- 3.3.11. In addition to the base year, two forecast year assessments have been developed to represent the scheme opening year and the design year, 15 years after scheme opening:
- Base Year (2016)
 - Opening Year (2024)
 - Design Year (2039)

VARIABLE DEMAND AND MODE CHOICE

3.3.12. The model is a highway only, fixed-demand assignment model. The justification for this (as opposed to a Variable Demand Model) was set out within a technical note entitled ‘Long Stratton VDM Requirement Technical Note’ (2019)” and this justification was accepted by the DfT during a review of the Strategic Outline Business Case.

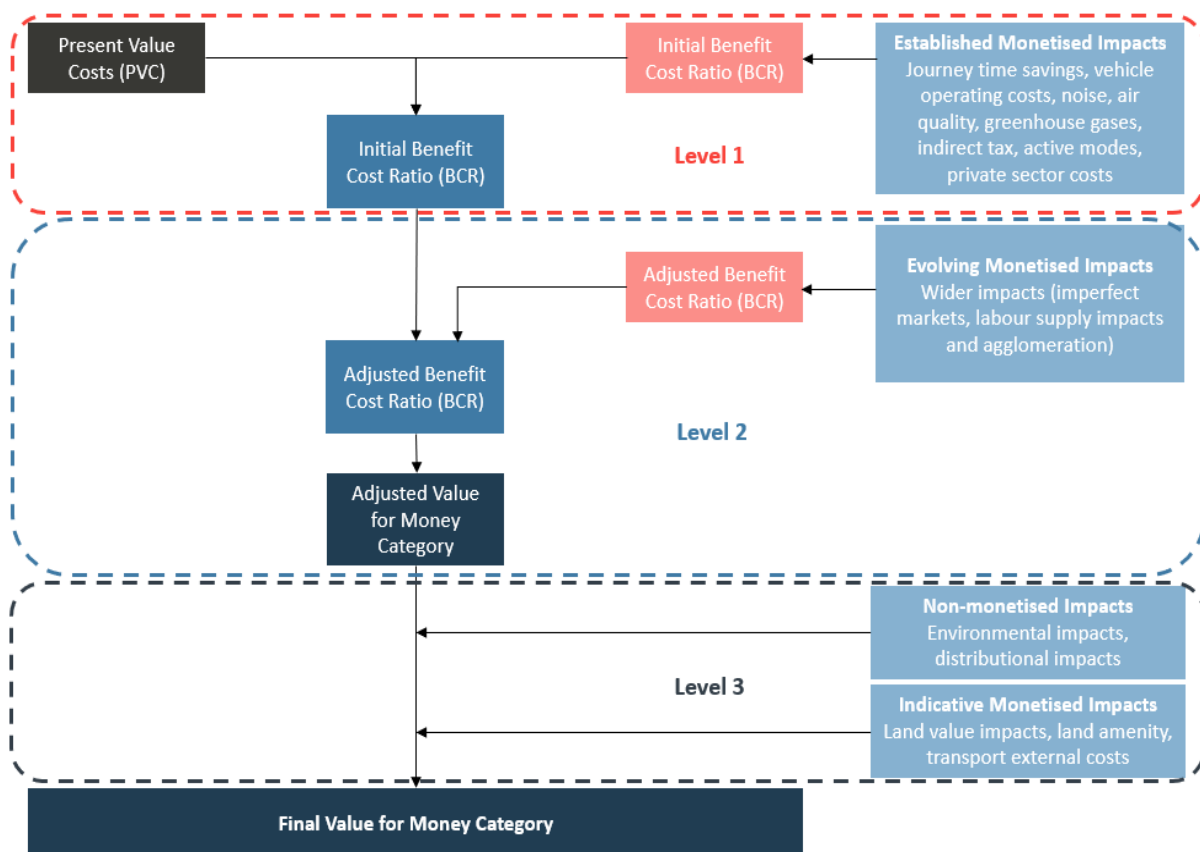
3.4 OVERVIEW OF METHODOLOGY AND ASSUMPTIONS OF THE ECONOMIC APPRAISAL

3.4.1. The economic appraisal of the scheme has been undertaken in accordance with current TAG, including:

- TAG Unit A1 cost-benefit analysis
- TAG Unit A2 economic impacts
- TAG Unit A3 environmental impacts
- TAG Unit A4 social and distributional impacts

3.4.2. The methodology is based on the DfT Value for Money Framework (July 2017). An overview of the appraisal process is presented as follows.

Figure 3-2 - Process to derive BCR and Value for Money Category



3.4.3. The DfT Value for Money Framework identifies three categories of monetised impacts and a set of non-monetised impacts:

- **Established:** where the method for estimating the impact and the monetary value is tried-and-tested (these impacts can be captured in **Level 1** of the VfM analysis and contribute to the initial Benefit Cost Ratio (BCR) calculation)

- **Evolving:** where some evidence exists to support the estimation of a monetary value but is less widely accepted and researched (these impacts can be captured in **Level 2** of the VfM analysis and contribute to the adjusted Benefit Cost Ratio (BCR))
- **Indicative:** where monetary valuation methods are not considered widely accepted or researched to be definitive, with a high degree of uncertainty in terms of the magnitude of the impact (these impacts can be captured in **Level 3** of the VfM analysis)

3.4.4. In line with the DfT Value for Money Framework, both established and evolving impacts were combined to derive the monetised impacts. These were compared with costs to produce the initial and adjusted BCRs. The final stage of the Value for Money assessment requires consideration of indicative monetised impacts and non-monetised impacts. This involves determining whether these impacts have the potential to alter the overall Value for Money category. This analysis is termed sensitivity or ‘switching-value’ analysis. Distributional Impact analysis has been undertaken to support the economic analysis of the scheme. The methods used to appraise each scheme and how these fit within the Value for Money framework is summarised in Table 3-2 below:

Table 3-2 – Impacts appraised

Analysis Level	Scheme Impacts	Selected Appraisal Method
Level 1 - Initial BCR	Journey times and vehicle operating costs	Monetised – Transport Users Benefit Appraisal (“TUBA”) software
	Greenhouse gas emissions	Monetised – TAG Unit A3 method
	Noise	Monetised – TAG Unit A3 method
	Air quality	Monetised – TAG Unit A3 method
	Government tax revenues	Monetised – Transport Users Benefit Appraisal (“TUBA”) software
	Accidents	Monetised – Cost and Benefits to Accidents – Light Touch (“COBALT”) software
	Active mode benefits from walking and cycling	Monetised – Active Mode Appraisal Toolkit (AMAT)
Level 2 - Adjusted BCR	Wider Benefits	Monetised – Wider Impacts in Transport Appraisal (WITA) toolkit emulator
Level 3 – Monetised and non-monetised impacts	Land Value Uplift	Monetised – Land Value Uplift and Additionality calculation has been undertaken to capture the full extent of welfare benefits in scenarios with variable land use
	Land Amenity impacts	Monetised – DCLG (now MHCLG) Amenity Impact calculation undertaken to capture the full extent of the development impacts
	Transport External Costs	Monetised – Transport User Benefits Appraisal (“TUBA”) software
	Environment	Qualitative – Evaluation of changes in the environmental impacts directly related to the scheme (TAG Unit A3)

APPRAISAL METHODOLOGY SCENARIOS

- 3.4.5. The economic appraisal approach is based on TAG Unit A2.2 ‘Appraisal of Induced Investment’²⁰, which provides guidance on how to assess the value of transport schemes, particularly the impacts of induced investments to the local economy. This requires the preparation of four model scenarios P, S, Q and R²¹, set out in Table 3-3, which are required to quantify ‘dependent development’ (i.e. development that cannot come forward without scheme) impacts. Development dependency is described in more detail below.

Table 3-3 - Combinations of required scenarios – with/without dependent development and the transport scheme

	Without Dependent Development	With Dependent Development
Without transport scheme	P	Q
With transport scheme	S	R

- 3.4.6. A dependent development test (a TAG appraisal test) has been undertaken, aligned to the planning requirement specified within the Long Stratton Area Action Plan – i.e. for the bypass to be completed before occupancy of the 250th new home from development within Long Stratton. This ‘deadweight’ figure (as it is termed) of 250 homes is also a Planning Condition for the housing development, and therefore any development in excess of 250 homes is “dependent” upon the construction of bypass.
- 3.4.7. As part of the DfT requirements for this dependency test, the traffic model developed to assess the scheme should seek to confirm the point at which the highway network cannot accommodate any additional traffic (from future development) without existing users suffering from a deterioration in the ‘level of service’ (i.e. experiencing delay). This point sets the theoretical threshold from which to prevent any additional development coming forward. Completion of this modelling test with the 250 home ‘deadweight’ did indicate some deterioration in the ‘level of service’, but it did not categorically confirm an “unreasonable level of service”, which the test seeks²².
- 3.4.8. In order to provide greater certainty in the results of the appraisal and Value for Money assessment, but still adhere to the DfT appraisal guidance, a second dependent development test was undertaken with a higher ‘deadweight’ value²³. There is no suggestion that there could be any increase in the number of homes that could be built prior to the bypass being constructed (250 units), it could not; this is encapsulated in policy and the NCC development management function are unwavering in this position. This value was also tested and re-affirmed by the Planning Inspector at Public Inquiry of the Joint Core Strategy.

²⁰ Induced investments refer to changes in private sector investment as a direct response to a transport investment (i.e. a highway scheme). In the context of this scheme, these relate to investment associated with housing development in Long Stratton

²¹ As per Table 1, section 3.2, TAG unit A2-2 (Combinations of Scenarios – with/without dependent development and the transport scheme)

²² Within TAG “There is no precise definition of **reasonable level of service**. However, if additional traffic can be accommodated by the network without significant increases in the costs of travel for existing users, then the network can be assumed to be providing a reasonable level of service.” Emphasis added (2.2.2, TAG A2.3, ‘Transport Appraisal in the Context of Dependent Development’, (2015)

²³ Within the calculation this would likely simultaneously increase user benefits (within the initial BCR through further congestion relief) and reduce Land Value Uplift benefits.

- 3.4.9. However, a greater deadweight value, determined via the application of TAG appraisal guidance rather than policy, would likely generate a different set of outturn appraisal results and potentially different Value for Money category.
- 3.4.10. A secondary appraisal was therefore undertaken to determine this alternative set of results and is presented alongside the initial appraisal method to provide a Value for Money range. This also provides greater transparency of the appraisal process and provides decision-makers with additional information and thus level of certainty of the results.
- 3.4.11. A second dependent development test was consequently undertaken based on a higher 'deadweight' value of 979 homes. The deterioration of network performance (level of service) is much greater using this value, and 'development dependency' therefore more clearly demonstrated.
- 3.4.12. Finally, to provide a complete picture of the likely Value for Money assessment outcome, a third alternative appraisal method was employed, one which excluded the dependency test altogether (and associated land value uplift), in a counterfactual scenario where a planning condition didn't exist, and no deadweight was set. This model scenario would include the full development build-out (1885 homes) within both the Do Minimum and Do Something model scenarios, with all scheme benefits captured within the Level 1 VfM Framework appraisal (i.e. within the initial BCR). This scenario can be thought of as a sensitivity test but is presented here for comparative purposes.
- 3.4.13. Table 3-4 presents the details and assumptions of the three appraisal methods / options that have been undertaken and reported within the Economic Case.
- 3.4.14. The Option A appraisal generates the results that have been used to populate the Appraisal Summary Table and other accompanying tables. It could be considered the core appraisal methodology. Options B and C are in effect alternative methods best considered as sensitivity tests.

Table 3-4 – Long Stratton Bypass appraisal options

Appraisal Methodology Option	Description	Transport modelling scenarios tested
A	<ul style="list-style-type: none"> ▪ This method was described in the ASR ▪ Level 1 TUBA impacts based on DM scenario of deadweight of 250 homes ▪ Level 2 WITA impacts based on DM scenario of deadweight of 250 homes ▪ Level 3 land value impacts and transport external costs based on additional homes of 1,635 ▪ Dependent development testing undertaken 	<p>Transport User Benefits - ‘Scenario P / (DM includes 250 dwellings as deadweight)’ vs ‘Scenario S / Do Something 1 (DS1 includes 250 dwellings as deadweight)’</p> <p>Transport External Costs – ‘Scenario R / (DS2 includes 250 dwellings as deadweight)’ vs ‘Scenario S / (DS1 includes 250 dwellings as deadweight)’</p>
B	<ul style="list-style-type: none"> ▪ This utilises the same method described in the ASR but with an alternative deadweight figure used within the appraisal ▪ Level 1 TUBA impacts based on DM scenario of deadweight of 979 homes ▪ Level 2 WITA impacts based on DM scenario of deadweight of 979 homes ▪ Level 3 Land value impacts and transport external costs based on additional homes of 906 ▪ Dependent development testing undertaken 	<p>Transport User Benefits - ‘Scenario P / (DM includes 979 dwellings as deadweight)’ vs ‘Scenario S / Do Something 1 (DS1 includes 979 dwellings as deadweight)’</p> <p>Transport External Costs – ‘Scenario R / (DS2 includes 979 dwellings as deadweight)’ vs ‘Scenario S / (DS1 includes 979 dwellings as deadweight)’</p>
C	<ul style="list-style-type: none"> ▪ This is a change in method from that set out in the ASR ▪ Impacts calculated for Initial (Level 1) and Adjusted (Level 2) BCRs only ▪ Level 1 impacts based on DM scenario with no deadweight with the full build out / no constraint on residential development (1,885 homes) ▪ No dependent development test and no LVU impacts included in Level 3 analysis 	<p>Transport User Benefits – ‘Scenario R / (DS2)’ vs ‘Scenario Q / (DSQ)’</p> <p>Transport External Costs – Not tested as this assumes no dependent development</p>

3.4.15. The Economic Case demonstrates how each appraisal method / option would impact the VfM for the scheme at all levels of analysis. This analysis has no impact on the scheme costs.

3.5 SCHEME PREPARATION AND CONSTRUCTION COSTS

3.5.1. The cost of the proposed scheme has been estimated at 2020 prices, as set out in the Financial Case. It includes all costs associated with scheme preparation and construction, including land costs.

3.5.2. The costs have been calculated in line with TAG A1.2 Scheme Costs (July 2017), which uses the following methodology:

- Estimation of a base cost estimate
- Incorporation of a real cost increases
- Application of risk-cost adjustment
- Application of optimism bias-cost adjustment

- Rebase cost to Department base year
- Discount cost to Department base year
- Convert costs to market prices

3.5.3. Costs have been estimated under two broad headings:

- Investment costs (scheme preparation and construction)
- Maintenance and renewal costs

3.5.4. The breakdown of costs presented above, align with breakdown required for the DfT Cost Pro-forma (See Table 3-5).

ESTIMATION OF BASE COST ESTIMATES

3.5.5. The initial capital cost estimate of the scheme is £28.6m in 2020 Q2 prices. This includes costs for construction, statutory undertakers work, land and other costs such as professional fees. As land is being gifted by the developer / landowners to the Council as part of this scheme, the value of the land is included as a cost within the economic appraisal (see Table 3-5) but is not included in the Financial Case – Budget Impact Summary.

Table 3-5 - Investment Costs, £000s at 2020 Q2

Investment costs	Cost (£000s) at base price 2020 Q2
Construction cost	21,331
Statutory	1,794
Professional fees	5,255
Land	262
Total	28,641

3.5.6. This base cost estimate does not take account of real increases in costs and must therefore be adjusted to provide real costs that account for the effects of inflation (this is addressed from paragraph 3.5.8).

SCHEME MAINTENANCE AND RENEWAL COSTS

3.5.7. The whole life costs of the scheme have also been estimated. A breakdown of the estimated capital renewal, annual maintenance and bridge operation costs is presented in Table 3-6.

Table 3-6 - Breakdown of capital maintenance, renewal and operating costs

Year after opening	Costs (£000s) at base price 2020 Q2	Costs (£000s) adjusted for inflation
Total (60 years)	5,143	11,493

Incorporation of real cost increases

3.5.8. The first step of cost adjustment is to incorporate real cost increases. A real cost adjustment is calculated by inflating base costs by the construction cost index to bring them to their nominal values, and then dividing by the rate of general inflation to give their 'real' value. General inflation is assumed to be around 2-2.50% per year as provided in the TAG Databook, while construction costs are forecast to increase by 2.1% per year. Using the real cost adjustment to multiply by the initial base estimate derives a 'real' capital cost estimate.

3.5.9. Only the general inflation rate has been applied to the maintenance and renewals costs. Therefore, it assumes zero real cost inflation over the appraisal period.

Table 3-7 - Real adjusted Costs (£000s)

Costs (£000s)	2021	2022	2023	2024	Total
Scheme Base Cost	1,989	3,766	8,490	14,397	28,641
Real Adjustment Factor	1.002	1.003	1.003	0.992	
Investment Cost w/Real adjustment	1,992	3,777	8,519	14,284	28,572

Application of risk-cost adjustment

- 3.5.10. Once the base cost estimate has been adjusted to incorporate real cost increases, the risk contribution is calculated. This used two methods within this appraisal: use of Quantified Risk Assessment (QRA) of scheme investment costs, using a P90 probability value of £4.96 million, plus an additional contingency to account for COVID-19 and Brexit. The QRA provides the weighted average of all risk outcomes and probabilities. The process of capturing and quantifying risk for the scheme is presented in Chapter 6.9 in the Management Case. Additional risk has been included as part of the cost estimates to uncertainty surrounding reflected by the Major Schemes. A rate of 4.54% of the construction and statutory total and also a 5% of construction costs to reflect the uncertainty surrounding Brexit and COVID-19 have been included.
- 3.5.11. As noted in the Financial Case, the total quantified risk value added to the scheme base costs is £7.08m at 2020 Q2 prices. This equates to approximately 24.7% of base costs.
- 3.5.12. No risk-adjustment has been applied to the maintenance costs.

Table 3-8 – Risk adjusted Costs (£000s)

Costs (£000s)	2021	2022	2023	2024	Total
Public sector investment costs with real cost adjustment	1,395	2,460	5,963	9,999	19,817
Private sector investment costs with real cost adjustment	598	1,317	2,556	4,285	8,756
Total real costs (without risk)	1,992	3,777	8,519	14,284	28,572
Public quantified risk cost with real cost adjustment	322	611	1,378	2,310	4,621
Private quantified risk cost with real cost adjustment	138	262	591	990	1,981
Total quantified risk cost in real prices	460	873	1,968	3,301	6,602
Public sector risk adjusted costs with real cost adjustment	1,717	3,071	7,341	12,309	24,438
Private sector risk adjusted costs with real cost adjustment	736	1,579	3,146	5,275	10,736
Total risk-adjusted cost in real prices real adjustment	2,452	4,649	10,487	17,583	35,174

Application of optimism bias-cost adjustment

- 3.5.13. In line with TAG Unit A1.2, an optimism bias adjustment of 15% has been applied to all public sector capital costs to ensure that the cost-benefit analysis is robust. It is only applied to costs in the economic assessment and is not included in the forecast out-turn costs in the Financial Case (as required).
- 3.5.14. The recommended optimism bias uplifts for each stage of a transport project and the type of scheme, for Local Authority schemes are set out in Table 3-9.

Table 3-9 - Recommended optimism bias uplifts (Source: TAG Unit A1.2, Scheme Costs)

Category	Types of projects	Stage 1 Strategic Outline Business Case	Stage 2 Outline Business Case	Stage 3 Full Business Case
Road	Motorway, Trunk roads, Local roads	44%	15%	3%

- 3.5.15. Optimism bias has not been applied to the maintenance and renewals costs. The impact of applying different optimism bias values to the capital costs on the VfM analysis are tested within Section 3.16.4.
- 3.5.16. Table 3-10 shows the application of optimism bias to public sector risk adjusted costs (calculated in Table 3-8).

Table 3-10 - Costs adjusted for Optimism Bias

Costs (£000s)	2021	2022	2023	2024	Total
Public Sector Risk adjusted costs	1,717	3,071	7,341	12,309	24,438
Optimism bias (15%)	258	461	1,101	1,846	3,666
Public investment costs with 15% optimism bias	1,974	3,531	8,442	14,156	28,104

Rebase cost to Department base year

- 3.5.17. For appraisal purposes, all costs should be presented in the Department's base year, 2010. Costs are deflated to the correct price base by multiplying them by the ratio of the inflation index in the desired base year to the inflation index in the year currently being used.
- 3.5.18. Costs have been adjusted to 2010 prices using TAG data book (July 2020) values as set out in Table 3-11.

Table 3-11 - Adjustment to 2010 prices

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
GDP Deflator	100.00	102.04	103.73	105.70	107.63	108.26	110.57	112.66	115.07	117.21	119.37	121.66	124.04	126.50	129.41

Table 3-12 - Rebased Costs to 2010 Prices

Costs (£000s)	2021	2022	2023	2024	Total
Public investment costs with 15% optimism bias	1,974	3,531	8,442	14,156	28,104
GDP deflator factor	0.84	0.84	0.84	0.84	
Public investment costs with deflation	1,654	2,958	7,073	11,859	23,544

Discount cost to Department base year

- 3.5.19. As well as rebasing, a discount factor is applied to costs based on the HM Treasury Green Book to adjust costs occurring in different periods to a standard base year of 2010. Our model period takes place between the years 2010 and 2099; therefore, a discount rate of 3.5% per year is applied for years 2010 until 2048 (first 30 years plus the 9 years between the model period start and the appraisal period start), with a rate of 3% per year applied for the next 45 years between 2049 and 2093, and 2.5% thereafter. This reflects the lower weighting placed on costs (and benefits) incurred at a future date compared to those incurred in the present.

Table 3-13 - Scheme Costs Discounted to 2010 Present Value

Costs (£000s)	2021	2022	2023	2024	Total
Public investment costs with deflation	1,654	2,958	7,073	11,859	23,544
Discount rate	3.5%	3.5%	3.5%	3.5%	
Discount factor	0.68	0.66	0.64	0.62	
Public investment costs with deflation & discounting	1,133	1,958	4,522	7,326	14,939

Convert costs to market prices

- 3.5.20. The last stage in preparing costs for appraisal is to convert them from the factor cost to the market price unit of account. This is done by using the indirect tax correction factor of 1.190, as per the TAG Data Book.
- 3.5.21. In line with TAG Unit A1.2 (Scheme Costs), the Present Value of Costs (PVC) only includes investment and operating costs incurred by the public sector. Private sector contributions to the scheme costs are not included in PVC but are recorded as negative values in the Transport Economic Efficiency (TEE) table and Present Value of Benefits (PVB).
- 3.5.22. Table 3-14 shows the present value of scheme costs after rebasing and discounting to the Department base year.

Table 3-14 - Present Value of Costs

Costs (£000s)	Scheme preparation and construction cost	Maintenance, renewal and operational cost	Total cost
Public Sector risk adjusted costs	24,438	5,143	29,582
Public investment costs with 15% optimism bias	28,104	5,143	33,248
Public investment costs with deflation	23,544	4,309	27,854
Public investment costs with deflation & discounting	14,939	1,091	16,032
PVC with Market Price Adjustment - Public sector costs only	17,778	1,299	19,077
PVC with Market Price Adjustment – Private sector costs only	6,799		6,799

- 3.5.23. In line with TAG Unit A1.2 (Scheme Costs), sunk costs have not been included in Table 3-14 as these are costs that represent expenditure prior to the economic appraisal, and cannot be retrieved.

3.6 TRANSPORT ECONOMIC EFFICIENCY (TEE)

- 3.6.1. The Transport Economic Efficiency (TEE) benefits are derived from travel time and vehicle operating cost benefits as a result of the scheme.
- 3.6.2. TEE benefits for the scheme were assessed using the DfT’s Transport Users Benefit Appraisal (TUBA) software. TUBA calculates the benefits associated with journey time savings and vehicle operating cost savings using information taken from the traffic model, in accordance with the procedures and economic parameters in TAG Unit A1. The standard TUBA 1.9.14 economics file was used. The private sector contributions to the scheme include £4.5 million developer contribution, plus £6.73 million from pooled Community Infrastructure Levy (CIL) funds, £11.1 million in total (as stated in the Financial Case).

- 3.6.3. Once these private sector costs have been adjusted (following the process above of adjustment to real prices, deflating, discounting and market price adjustment), they reduce to £6.8 million. This value is reported in the Transport Economic Efficiency (TEE) table.
- 3.6.4. These costs are recorded as a negative value in the Transport Economic Efficiency (TEE) table and Present Value of Benefits. The full TEE Table is included within the economic appraisal model. The benefits by time period are summarised in Table 3-15. The figures in this table exclude wider public finances.

Table 3-15 - Transport Economic Efficiency (TEE) Benefits

£000s, 2010 prices and values		Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Consumer – commuting user benefits	Travel Time	13,817	13,561	23,063
	Vehicle operating costs	932	842	1,169
	Subtotal	14,749	14,403	24,233
Consumer – other user benefits	Travel Time	14,008	14,962	21,983
	Vehicle operating costs	760	538	667
	Subtotal	14,768	15,500	22,650
Business benefits	Travel Time	11,760	12,891	13,209
	Vehicle operating costs	1,454	1,336	1,533
	Subtotal	13,215	14,227	14,742
Private Sector	Investment costs	-6,799	-6,799	-6,799
	Operating Costs	0	0	0
	Subtotal	-6,799	-6,799	-6,799
Net Business Impact		6,416	7,428	7,943
Total TEE benefit		35,934	37,331	54,826

MONETISED ENVIRONMENTAL IMPACTS

- 3.6.5. The following environmental impacts were monetised and appraised in line with TAG Unit A3:

- Noise
- Air Quality
- Greenhouse gases

- 3.6.6. A more detailed description of the appraisal is found in separate document Appendix G, the Environmental Appraisal Report.

GREENHOUSE GASES

- 3.6.7. Greenhouse gas impacts depend upon changes in traffic flows, composition, speeds and distance travelled as a result of the scheme. As the scheme is predicted to alter traffic flow, vehicle speed and distance travelled, it is also expected to have an impact on levels of greenhouse gas emissions (GHGs). As defined by the Intergovernmental Panel on Climate Change, GHG emissions are expressed as tonnes of carbon dioxide equivalent (tCO₂e), which will be used for the purposes of this appraisal.

- 3.6.8. The UK is legally bound by the Climate Change Act 2008 to achieve a target to reduce GHG emissions to at least 80% below base year (1990) levels by 2050.
- 3.6.9. For the purposes of the OBC, an environmental appraisal has been undertaken to assess the impacts of the scheme over a 60-year appraisal period (2024-2083) using the DfT Greenhouse Gas workbook (not Greenhouse gas outputs from TUBA). The appraisal calculates and evaluates the discounted present value of changes in CO₂e for non-traded (i.e. petrol, diesel, fuel oil) and traded (e.g. electricity) fuel consumption.
- 3.6.10. The proposed scheme is expected to reduce greenhouse gas emissions by 109,046 tCO₂e (of which 487 tCO₂e is traded and 108,559 tCO₂e untraded) for Option A (the core methodology). This is equivalent to a saving of **£4.68 million** in Net Present Value (NPV) between the Do Something and Do Minimum scenarios. Table 3-16 presents this figure for the 3 appraisal methodologies²⁴.

Table 3-16 - Greenhouse gases impacts

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Greenhouse Gases	4,684	4,122	6,839

- 3.6.11. A saving of **£4.68 million** in GHG is important because it helps contribute to the government’s Carbon Net Zero commitment, the 25 Year Environmental Plan, as well as NCC’s Environmental Carbon Net Zero commitment.

AIR QUALITY

The air quality appraisal has been undertaken using the Impact Pathways approach which considers the impact of air quality changes on people. Using this methodology, the scheme generates local air quality improvements for both nitrogen dioxide (NO₂) and particulate matter less than 2.5 µm in diameter (PM_{2.5}) within the appraisal study area (i.e. the impact on people is less with the scheme in place), but it does generate an increase in overall emissions of NO_x and PM_{2.5} from the affected road network as a whole.

- 3.6.12. The change in NO₂ between the with and without-scheme scenarios are **£114,664** NPV over the 60-year appraisal period.
- 3.6.13. The change in PM_{2.5} between the with and without-scheme scenarios are **£363,187** NPV over the 60-year appraisal period.
- 3.6.14. The total air quality improved measured in NPV is **£477,851**.
- 3.6.15. The air quality improvements for methodology options A to B and C are provided below²⁵.

²⁴ Note, only Option A uses the methodology described above. Option B and C use a factor derived from the Greenhouse Gas outputs from TUBA for options B and C relative to option A. This was used as a proxy for GHG impacts to retain an equivalent methodology through the VfM assessment. This factor is then applied to the monetised impacts generated by A above to derive an equivalent GHG impact for option B and C. This was undertaken for proportionality reasons given options B and C are sensitivity methodologies.

²⁵ As with Greenhouses gases option B and C results are factored from the relative change to option A using TUBA GHG results.

Table 3-17 – Local Air Quality Impacts

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Local Air Quality	478	492	664

NOISE

3.6.16. The noise impact appraisal anticipated the scheme would generate the following noise impacts:

- Notable noise decreases for many existing properties in the centre of Long Stratton;
- Notable noise increases at relatively fewer existing properties on the eastern fringe of Long Stratton and at scattered locations to the east.

3.6.17. This included the following specific impacts on the number of households within the study area:

- Households experiencing increased daytime noise in forecast year: 703
- Households experiencing reduced daytime noise in forecast year: 646
- Households experiencing increased night-time noise in forecast year: 50
- Households experiencing reduced night-time noise in forecast year: 354

3.6.18. Overall, the NPV of changes in noise are equivalent to **£6.08 million**. The noise improvements for methodology options A to B and C are provided below²⁶.

Table 3-18 – Noise impacts

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Noise	6,076	6,258	8,445

3.7 SAFETY IMPACTS

3.7.1. To estimate the accident savings from the scheme, a COBALT assessment has been undertaken over a 60-year period (2024-2083). The traffic volume along the bypass results in a decrease in accident costs, as shown in Table 3-19.

Table 3-19 - COBALT Output: Economic Benefits

£000s, 2010 prices and values	Impacts
Total without scheme accident costs	621,627
Total with scheme accident costs	616,025
Total accident benefits saved by scheme	5,601

3.7.2. The total number of accidents saved by the scheme is 184. The introduction of the bypass is expected to result in **£5.6m** of accident benefits.

3.8 ACTIVE MODE APPRAISAL

3.8.1. An active mode appraisal seeks to capture scheme benefits associated with active modes (cycling and walking), and uses the methodology outlined within the DfT's TAG unit A5.1 – use of the Active Mode Appraisal Toolkit (AMAT). The methodology for monetising the scheme impacts has focused

²⁶ As with Greenhouses gases option B and C results are factored from the relative difference to option A, but this time using total PVB.

on estimating the increase in the amount of cycling and walking associated with implementing the scheme. The method considers:

- Mode shift
- Changes to health
- Changes to journey quality

3.8.2. The tool monetised costs and benefits for the following impacts:

- Congestion benefit
- Infrastructure
- Accidents
- Local Air Quality
- Noise
- Greenhouse Gases (GHGs)
- Reduced risk of premature death
- Absenteeism
- Journey Ambience
- Indirect Taxation

3.8.3. The active mode appraisal has been conducted over a 20-year appraisal period, in line with TAG Unit A5-1. The benefits have been discounted and reported in present values using the schedule of discount rates provided in the TAG data book (July, 2020). Again, in line with TAG, the values have included real growth in line with forecast GDP/capita. The assumptions used within the appraisal are based on scheme data, Travel-to-Work Census data and default TAG values from the AMAT.

3.8.4. Further details of the Active Mode Appraisal method are provided within the Economic Appraisal Report in separate document, Appendix F.

RESULTS

3.8.5. The monetised costs and benefits associated with the scheme on active modes is summarised in Table 3-20.

Table 3-20 - Active Mode Appraisal Benefits (in £000s)

Factor	Value, £000's
Congestion benefit	9.79
Infrastructure	0.22
Accident	1.54
Local Air Quality	0.25
Noise	0.08
Greenhouse Gases	1.35
Reduced risk of premature death	1,057.12
Absenteeism	196.93
Journey Ambience	778.52
Indirect Taxation	-3.12
Present Value of Benefits	2,042

3.8.6. The Present Value of Benefits (PVB) for Active Mode Impacts associated with the scheme is **£2.0m** in 2010 prices and values.

3.9 INITIAL BENEFIT COSTS RATIO (BCR)

3.9.1. The BCR is calculated by dividing the PVB by the PVC. According to TAG, Value for Money categories are defined as follows:

- Very Poor - if BCR is less than or equal to 0
- Poor VfM - if BCR is below 1.0
- Low VfM - if the BCR is between 1.0 and 1.5
- Medium VfM - if the BCR is between 1.5 and 2
- High VfM - if the BCR is between 2.0 and 4.0
- Very High VfM - if the BCR is greater than or equal to 4.0

3.9.2. Based on the Analysis of Monetised Costs and Benefits (AMCB), the total monetised benefits exceed the costs for each appraisal methodology option (A, B and C). The initial BCR of the scheme ranges from **2.8** to **4.1** depending on the approach adopted. This places the scheme in **High/Very High** Value for Money category when including just the Level 1 initial BCR impacts.

Table 3-21 - Analysis of Monetised Costs and Benefits (AMCB)

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Noise	6,076	6,258	8,445
Local Air Quality	478	492	664
Greenhouse Gases	4,684	4,122	6,839
Journey Quality	2,042	2,042	2,042
Accidents	5,601	5,601	5,601
Economic Efficiency: Consumer Users (Commuting)	14,749	14,403	24,233
Economic Efficiency: Consumer Users (Other)	14,768	15,500	22,650
Economic Efficiency: Business Users and Providers	6,416	7,428	7,943
Wider Public Finances (Indirect Taxation Revenues)	-895	-739	-1,098
Present Value of Benefits (PVB)	53,919	55,108	77,320
Broad Transport Budget	19,077	19,077	19,077
Present Value of Costs (PVC)	19,077	19,077	19,077
Net Present Value (NPV)	34,843	36,031	58,243
Initial BCR	2.8	2.9	4.1

3.9.3. Option C, where no dependent development is included, shows TEE benefits that are higher than options A and B. Options A and B produce a very similar initial BCR, rounded to **2.8/2.9**.

3.9.4. The initial value of BCR includes monetised benefits of accident savings, greenhouse gas reductions, journey quality and indirect taxation impacts, but does not include benefits accruing from other impacts such as wider impacts or land value uplift.

3.10 WIDER IMPACT TRANSPORT APPRAISAL (WITA)

METHOD

- 3.10.1. Transport investments such as the Long Stratton Bypass are likely to affect the wider economy beyond the direct impact that the road has on users and individuals living close to it. The strategic case highlights the expected wider economic impacts the scheme will deliver.
- 3.10.2. The methodology used to calculate ‘wider benefits’ is set out as described in TAG units A2.1 to unit A2.4 and includes the following components:
- **Agglomeration** – the concentration of economic activity in an area can be improved by transport schemes as accessibility between businesses and workers is improved by reduced journey times, thus generating productivity benefits from the ‘closer’ proximity;
 - **Changes to tax revenues arising from labour market impacts** - the labour supply (workers) can move to more productive jobs as locations further afield become more accessible because of a more efficient road network, or because businesses choose to locate in more productive locations. The changes in tax revenues associated with these impacts are not captured within commuter user benefits; and
 - **Output change in imperfectly competitive markets** – a reduction in transport costs (for business and freight) allows businesses to profitably increase their output (goods and services) that require the use of transport in their production.
- 3.10.3. To assess the wider economic impacts for the scheme, WSP’s Wider Impacts Transport Appraisal (WITA) tool has been used. The WSP tool uses the same methodology as the WITA 2.0 tool, assessing the impacts described above. The economic appraisal was undertaken over a 60-year period, from 2024 (opening year) to 2083. The WITA calculations have used TAG Data Book v1.13 May 2020.
- 3.10.4. Trips from and to external transport model / WITA zones have been excluded as part of the WITA analysis to ensure the agglomeration impacts are not exaggerated. This has been achieved by masking out all the cost differences for external trips from the study area.

RESULTS

Agglomeration

- 3.10.5. The agglomeration impacts are calculated across the four sectors of the economy within the appraisal guidance. Table 3-22 presents the agglomeration impacts across the construction, consumer services, manufacturing and producer services for each appraisal option.

Table 3-22 - Agglomeration Impacts

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Manufacturing	473	444	551
Construction	1,447	1,295	1,767
Consumer Services	3,077	2,542	3,803
Producer Services	5,047	4,242	6,332
Sub-Total	10,044	8,524	12,453

- 3.10.6. Within these calculations, to represent travel by all modes within the average cost calculations, an allowance has been made to account for the impact of the other modes (which consider the effects of including non-highway modes). This detail of this approach is provided in the EAR.

- 3.10.7. The greatest agglomeration benefits are to be found in South Norfolk and Norwich as this is where the scheme is located and will have the largest impact in terms of improving accessibility respectively. The agglomeration impacts make up the majority of the wider impacts which is typical in wider economic impacts analysis.
- 3.10.8. The agglomeration impacts calculated account for approximately 20% of the scheme Transport Economic Efficiency (TEE) impacts. This falls within the 10% to 30% range deemed plausible within TAG unit A2.4. This level of impact is therefore considered proportional to the size of the project and location of the scheme between Norwich and Ipswich.

Output change in imperfectly competitive markets

- 3.10.9. Table 3-23 presents the unadjusted output change in imperfectly competitive markets impacts for each appraisal option.

Table 3-23 - Output change in imperfectly competitive markets

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Output change in imperfectly competitive markets	1,321	1,423	1,474

- 3.10.10. The total additional benefits arising due to output change in imperfectly competitive markets range from **£1.3m** to **£1.5m** depending on the appraisal method and assuming that benefits would be incurred across all time periods. This suggests that business users benefit most from improved accessibility in Long Stratton and subsequent reduction in congestion brought about by the scheme.

LABOUR SUPPLY IMPACTS

- 3.10.11. Taxes arising from labour supply impacts have been calculated for all forecast years. Table 3-24 presents the labour supply impacts for the scheme for each appraisal option.

Table 3-24 – Labour supply impacts

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Labour Supply Impacts	165	161	236

- 3.10.12. The total benefits arising due to labour supply impacts over the 60-year appraisal period are approximately **£0.2m** for each appraisal option. These impacts are considered to be very minor as the analysis only considers the increased tax revenues associated with changes in the labour supply to be additional at UK level. Calculations for this element are based on the link between the cost of commuting and the increase in labour supply.

SUMMARY

- 3.10.13. A summary of wider impact benefits is presented in Table 3-25 and provides a breakdown for the three wider economic impacts that have been calculated.

Table 3-25 - Total Wider Economic Impacts

2010 prices and values, £000's	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
WI1: Agglomeration impacts	10,044	8,524	12,453
WI2: Output change in imperfectly competitive market	1,321	1,423	1,474
WI3: Tax revenues arising from labour market impacts	165	161	236
Total Wider Impact Benefits	11,530	10,108	14,163

3.10.14. The WITA analysis shows that the scheme is expected to deliver approximately **£10.1m to £14.2m** of wider economic impacts depending on the appraisal approach used. The highest contributions come from the agglomeration impacts and output change in imperfectly competitive markets. This suggests that business users are the main beneficiaries from the enhanced connectivity and consequent congestion reductions brought about by the scheme. The impacts are positive for all categories, which suggest that the scheme has a positive outcome on non-transport markets, contributing to an increase in productivity and government income.

3.11 ADJUSTED BENEFIT COST RATIO (BCR)

3.11.1. The Adjusted BCR includes all monetised benefits associated with accident savings, greenhouse gas reductions and indirect taxation impacts including benefits accruing from wider impacts. The calculations of the Adjusted BCR is set out in Table 3-26.

Table 3-26 - Adjusted BCR calculation

£000s in 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Initial PVB	53,919	55,108	77,320
Wider Economic Impacts	11,530	10,108	14,163
Adjusted Present Value of Benefits (PVB)	65,450	65,215	91,483
Present Value of Costs (PVC)	19,077	19,077	19,077
Net Present Value (NPV)	46,373	46,139	72,406
Adjusted BCR	3.4	3.4	4.8

3.11.2. Following the inclusion of wider economic impacts in appraisal the BCR increases to **3.4** for Options A and B and remains in the **High** VfM category. For option C the BCR increases to **4.8** and showing **Very High** VfM category.

3.11.3. For the Long Stratton scheme, only calculating the wider economic impacts considered as part of the level 2 analysis (adjusted BCR) may underestimate the total wider impact since it does not capture the expected land value uplift of dependent development in Long Stratton. Therefore, a land value uplift appraisal has been undertaken to capture any impacts which are capitalised into land values. This is discussed in next section.

3.12 INDICATIVE MONETISED IMPACTS

LAND VALUE UPLIFT

3.12.1. Land Value Uplift associated with the dependent development (described within the Strategic Case) has been calculated as part of the indicative monetised benefits to capture the housing benefits that can be unlocked through the delivery of housing, which wouldn't occur without the construction of the bypass. The local planning authority will permit 250 homes to be constructed without the bypass in place, but no more. An additional 1,635 homes could be constructed, effectively 'unlocked' (1,885 homes in total), once the bypass is built. This has been encapsulated within Planning Policy since adoption of the Joint Local Plan (see Strategic Case).

3.12.2. A Land Value Uplift model has been built in line with TAG Unit A2.1 Wider Economic Impacts Appraisal, DfT TAG Unit A2.2. The analysis has been based on viability work undertaken by the developer and also using MHCLG²⁷ guidance values.

3.12.3. As stated in Appendix D, TAG Unit A2.2

$$\text{Land Value Uplift} = \text{Land Value after Development} - \text{Land Value before Development}$$

3.12.4. To calculate the additional housing benefit, 'additionality²⁸' needs to be determined and applied. Impacts of government intervention are described as 'additional' if the net increase in economic performance takes into account deadweight and displacement, two of the main economic impact types covered in the DCLG (now MHCLG) Appraisal Guide.

3.12.5. Deadweight for this scheme is defined as the number of houses that could be built without the bypass (and their residual value) without government funding.

3.12.6. The Option A method uses the deadweight based on planning policy condition of 250 homes and therefore 1,635 additional homes. Option B uses a higher deadweight of 979 homes where the transport modelling demonstrates a greater deterioration on road network performance. Land value analysis is based 906 additional homes in this approach. There is no land value impact for Option C since that method is based on a no development dependency scenario.

3.12.7. Displacement is defined as the extent to which the investment in South Norfolk crowds out other private sector investment in the local area; and the extent to which the new housing prevents other new sites coming forward through the planning system.

3.12.8. The formula below illustrates how the additional housing benefit is calculated for Option A. The methodology is the same for option B but with a higher deadweight value.

$$\text{Additionality} = (1 - \text{Displacement}) * (1 - \text{Deadweight as a \% of LVU})$$

$$\text{Additionality} = 1 * (1 - 8.9\%) * (1 - 10\%) = 82\%$$

3.12.9. An additionality rate of 75% or higher is defined as a high additionality rate in The DCLG Appraisal Guide, Figure 10, page 45.

$$\text{Additional Housing Benefit} = \text{LVU} * \text{additionality}$$

$$\text{Additional Housing Benefit} = \text{c.£111.5m} * 0.82 = \text{c. £91.5 million}$$

²⁷ Section 4, DCLG Appraisal Guide, 20126

²⁸ As defined in Annex A of TAG Unit A2.1, additionality is the extent to which local economic performance impacts are additional at the national level, gross and net effects respectively

3.12.10. The Housing Benefit is initially calculated in 2020 prices, then converted to 2010 prices and values. The same market price adjustment factor of 1.19 that was applied to the scheme costs has also been applied to the LVU impacts. In 2010 prices and values, the Additional Housing Benefit for Option A is **£64.7m** and for Option B is **£36.5m**.

LAND AMENITY

3.12.11. The amenity value of a plot of land refers to the level of ‘pleasantness’ of the area, in which the bypass will be developed, including the allocation of 1,885 houses and 9.5Ha of employment land. The existing use land value has been assumed to be typical of prior-use greenfield land within the same area. The development will be built on greenfield land, which can result in a loss in the land amenity value, if the area becomes less desirable for recreational activity.

3.12.12. The welfare impact from the change in land amenity value can be estimated as the difference between the present value benefits for different land types: it is assumed that developed land has no amenity value, such that land use change is associated with a loss of amenity value.

3.12.13. Based on the planning applications described in section 1.2 for the sites in Long Stratton, in alignment with the DCLG appraisal guidance, the ‘Agricultural (Extensive)’ land type has been selected. The amenity benefit (2016 real value), used is £6,366 per hectare. An estimate of 67.40 ha, based on the expected residential and commercial development in Long Stratton, was used to generate the land amenity value. Therefore, the market amenity value in 2016 prices is **£429,323** for both the Option A and Option B scenarios.

3.12.14. This land amenity is initially calculated in 2016 prices but in line with TAG guidance this has been converted to 2010 prices and discounting and the market price adjustment of 1.19 has also been applied. Therefore, the market price adjusted 2010 deflated Amenity Value is **£464,473** for both the option A and option B scenarios.

TRANSPORT EXTERNAL COSTS

3.12.15. TAG Unit A2.2 states “Transport external cost attributable to the new development” should be calculated. This refers to the “change in costs (including time, vehicle operating costs and charges) caused to all other transport users on the network by the traffic generated by the new development.” This will later be subtracted from Land Value Uplift values. The assessment of what is described as “dependent development” requires two transport model scenarios to be run:

- Scenario S – without the housing but with the transport scheme; and
- Scenario R – with the new housing and with the transport scheme

Table 3-27 - Transport External Costs (AMCB Table)

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B
Greenhouse Gases	559	532
Economic Efficiency: Consumer Users (Commuting)	-26,502	-3,720
Economic Efficiency: Consumer Users (Other)	-16,954	-6,075
Economic Efficiency: Business Users and Providers	-13,910	-2,683
Wider Public Finances (Indirect Taxation Revenues)	675	78
Present Value of Benefits (PVB)	-56,142	-11,868

3.12.16. The transport external costs from dependent development traffic are expected to be **£56.1m** or **£11.9m** depending on the different deadweight parameters used within Option A or option B. Both are in 2010 prices and values. There are no transport external costs for option C since there is no appraisal of dependent development in this approach.

DEPENDENT DEVELOPMENT IMPACTS

3.12.17. The dependent development impacts, all which fall with indicative monetised, Level 3 Value for Money framework sensitivity analysis, take into account the Land Value Uplift, Transport External Costs and Land Amenity. The formula below is taken from TAG Unit A2.2 Induced Investments.

$$\text{Total Benefit} = \text{LVU} - \text{TEC} - \text{LAV}$$

3.12.18. The results for each appraisal method are presented in Table 3-28.

Table 3-28 - Breakdown of the Level 3 Impacts

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B
Land Value Uplift after additionality	64,650	36,476
Land Amenity	-464	-464
Transport External Costs	-56,142	-11,868
Total	8,044	24,144

3.12.19. For Option A and Option B, the adjusted BCR is **3.4**, representing **High** Value for Money. Even with the addition of the Land Value Uplift values generated by Option A, this would not be large enough to move the scheme into the Very High Value for Money Category. However, the dependent development impacts both increase the confidence that scheme will fall within the High Value for Money category.

3.12.20. There are no impacts reported for Option C since there is no appraisal of dependent development in this approach.

3.13 NON-MONETISED IMPACTS

ENVIRONMENTAL IMPACTS

3.13.1. An Environmental Impact Appraisal in line with TAG Unit A3 has been undertaken as part of the economic appraisal of the scheme. The following qualitative or non-monetised impacts were appraised:

- Landscape
- Townscape
- Historic Environment
- Biodiversity
- Water Environment

3.13.2. A full Environmental Impact Appraisal report is provided in separate document, Appendix G, with only the summary impacts assessments from the Appraisal Summary Table reproduced below. In line with the DfT Value for Money Framework (and the appraisal methodology specified in Figure 3-2).

3.13.3. The following environmental impacts were appraised qualitatively using the 7-point scoring system set out below:

- Large beneficial
- Moderate beneficial
- Slight beneficial
- Neutral
- Slight adverse
- Moderate adverse
- Large adverse

LANDSCAPE

3.13.4. To deliver the scheme, a subdivision of fields would be required which would disrupt field patterns locally. The proposed housing development would introduce new features into this landscape which would have a slight impact on tranquillity to the East of Long Stratton. The road would also alter the tranquillity locally along its entire length, although to a limited degree due to it largely being at-grade with green infrastructure allowing it to integrate into the local context. The alignment of the bypass, which will be a single carriageway, is similar to the existing road infrastructure through this landscape and therefore not out of character. There would be some loss of arable farmland altering land cover locally. The introduction of the scheme, removing through-traffic from the town will benefit the town's character. Considering all of the above, following the appraisal of the scheme for landscape impacts, a qualitative score of **slight adverse** is considered appropriate.

TOWNSCAPE

3.13.5. The impacts of the scheme on townscape were scoped out of the appraisal, and are covered within the wider landscape appraisal, which includes the town of Long Stratton.

HISTORIC ENVIRONMENT

3.13.6. No designated heritage assets are located within the operational footprint of the bypass, however a number of heritage assets have been identified in the study area of the appraisal. The Long Stratton Conservation Area and 3 Grade II listed buildings are located within the boundary of the associated development connected to the bypass.

3.13.7. The Proposed Scheme has the potential to cause the following impacts:

- Adverse physical impacts to heritage assets in relation to the associated development
- Adverse impacts to the setting of heritage assets from all components of the scheme
- Beneficial impacts to the conservation area and the setting of assets located on the A140 through a reduction in traffic flow and noise
- Adverse impacts to known and unknown below ground non-designated heritage assets

3.13.8. It is advised that direct physical impacts to designated heritage assets should be avoided through design refinements and construction environmental management; however due to uncertainty regarding the temporary and construction works required for the bypass or and associated development, this cannot be confirmed at this stage.

3.13.9. The potential impacts to the setting of built heritage assets range from **slight beneficial** in some cases, to **large adverse** in other cases. The Large Adverse impacts relate to the Grade I listed Church of St Michael (Ref. 1304267) and the Grade II* listed The Old Rectory (Ref. 1373264). The conclusion of Large Adverse for these assets is considered to be a worst-case scenario at this stage.

- 3.13.10. The possibility of mitigating these impacts will need to be explored further at the next stage. As stated, Slight Beneficial impacts have also been identified to a number of assets through the reduction of traffic in the Long Stratton Conservation Area. Impacts to the setting of other designated heritage assets ranged from **moderate adverse** to **slight beneficial**.
- 3.13.11. The potential impacts to archaeology range from **slight adverse** in some cases, to **large adverse** in other cases, depending on factors such as final design, construction techniques and impact management strategies. The overall assessment score is **large adverse**.
- 3.13.12. Impact mitigation has not been considered at this stage of the assessment, however, there is the potential to reduce adverse impacts with the implementation of mitigation measures for above ground and below ground heritage assets.

BIODIVERSITY

- 3.13.13. The scheme has the potential to impact bats, birds, badger, water vole, reptiles and great crested newt prior to implementation of mitigation measures. Ponds and grassland habitats will also be impacted by the scheme. On the assumption that the mitigation measures detailed in the Environmental Statement undertaken in 2018²⁹ (associated with the scheme and housing development) are implemented, the overall impact is assessed as being **slight adverse**. With additional appropriate avoidance and best practice mitigation measures, it is considered possible to reduce this assessment score as the scheme design progresses.

WATER ENVIRONMENT

- 3.13.14. The main surface water receptors in the vicinity of the scheme are Picton Stream, ephemeral ordinary watercourses and online ponds, mostly located at field boundaries providing drainage for agricultural land. These are deemed to have low quality in all feature attributes assessed. Potential impacts to receptors are anticipated to be negligible based on mitigation measures embedded into the design and other best practises assumed to be adopted as the scheme progresses.
- 3.13.15. Key mitigation measures will comprise the provision of sustainable drainage systems that will provide appropriate treatment and attenuation of runoff, as well as appropriate watercourse crossings that will maintain connectivity and flow conveyance.
- 3.13.16. The main groundwater receptors are superficial aquifers, public and private (non-licenced) abstractions and localised perched and discontinuous groundwater. Local impacts are expected to groundwater receptors specifically minor superficial aquifers that may provide water supply on a local scale. No direct impacts are expected to the Principal Chalk Aquifer which is present at depth. Currently, there is limited data relating to the presence of Groundwater Dependent Terrestrial Ecosystems (GWDTE) and public and private (non-licenced) abstractions - further consultation with regulators/stakeholders is required. Risks to groundwater receptors related to construction phase impacts where intrusive works and dewatering activities are expected. Residual risks may remain at operational phase if below ground structures are considered and extend below the groundwater table and potentially impact on groundwater receptors.
- 3.13.17. Considering all of the above, following the appraisal of the scheme for biodiversity impacts, a qualitative score of **neutral** is considered appropriate.

²⁹ This ES will be update in line with an updated Planning Application (scheduled for the Spring 2021)

QUALITATIVE ENVIRONMENTAL IMPACTS AND SWITCHING VALUE ANALYSIS

3.13.18. None of the non-monetised or qualitative environmental impacts are considered to be significant enough to be used in switching-value analysis to switch the Value for Money Category.

3.14 DISTRIBUTIONAL IMPACTS

3.14.1. A stand-alone distributional impact report is provided in separate document, Appendix H.

3.15 VALUE FOR MONEY STATEMENT

- 3.15.1. Using the approach in options A and B the initial and adjusted BCRs for the scheme have been calculated at 2.8/2.9 and 3.4 respectively demonstrating **High** Value for Money in both instances. The adjusted Present Value of Benefits (PVB) for Option A is £65.5m which consists of transport user benefits & environmental benefits of approximately £48.6m, accidents benefit of £5.6 million, wider economic impacts of £11.5m, active mode benefits of £2.0m and a £6.8m reduction in through private sector contributions.
- 3.15.2. The initial and adjusted BCRs for the scheme using the approach outlined for option C have been calculated at 4.1 and 4.8 respectively demonstrating **High and Very High** VfM respectively. The adjusted Present Value of Benefits (PVB) is around £91.5m which consists of transport user benefits and environmental benefits of approximately £76.5m, accidents benefit of £5.6 million, wider economic impacts of £14.2m, active mode benefits of £2.0m and a £6.8m reduction in through private sector contributions.
- 3.15.3. The Present Value of Costs (PVC) consist of £18.9m of scheme costs. An Optimism Bias of 15% has been applied, in line with TAG Unit A1.2 for a road scheme at Outline Business Case stage. The estimated costs of Operating and Maintenance costs are expected to be minor to maintain the proposed infrastructure and have been quantified as part of the economic appraisal. Table 3-29 shows the initial BCR and adjusted BCR.

Table 3-29 - Analysis of Monetised Costs and Benefits

£000s, 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Noise	6,076	6,258	8,445
Local Air Quality	478	492	664
Greenhouse Gases	4,684	4,122	6,839
Journey Quality (AMAT)	2,042	2,042	2,042
Accidents	5,601	5,601	5,601
Economic Efficiency: Consumer Users (Commuting)	14,749	14,403	24,233
Economic Efficiency: Consumer Users (Other)	14,768	15,500	22,650
Economic Efficiency: Business Users and Providers	6,416	7,428	7,943
Wider Public Finances (Indirect Taxation Revenues)	-895	-739	-1,098
Present Value of Benefits (PVB)	53,919	55,108	77,320
Broad Transport Budget	19,077	19,077	19,077
Present Value of Costs (PVC)	19,077	19,077	19,077
Net Present Value (NPV)	34,843	36,031	58,243
Initial BCR	2.8	2.9	4.1
Level 2 Benefits	11,530	10,108	14,163
Adjusted PVB (Level 1 + Level 2)	65,450	65,215	91,483
PVC (same as above)	19,077	19,077	19,077
Adjusted BCR	3.4	3.4	4.8

- 3.15.4. A full dependent development appraisal has been undertaken to investigate the benefits associated with the scheme including land value uplift, land amenity value and the transport external costs.
- 3.15.5. The total Level 3 dependent development benefits for the scheme will be **£8.0m** or **£24.1m** depending on whether the approach in option A or B is considered. The adjusted BCR is **3.4**, representing High Value for Money. The dependent development impacts strengthen the confidence in the High category but are not enough to consider switching the VfM category.
- 3.15.6. At this stage, and as presented in this Business Case, it is anticipated that the scheme will deliver significant quantified and non-quantified benefits and provide High VfM for public sector expenditure.

3.16 SWITCHING VALUE ANALYSIS

3.16.1. Switching value analysis has been undertaken to determine how a change in costs or benefits would alter the Value for Money category. Table 3-30 provides the changes that would be required, either in scheme costs or benefits, for the scheme to shift from High VfM category (as indicated by its adjusted BCR) to the Medium or Very High categories on either side of its current position.

Table 3-30 - Changing the Adjusted BCR to Medium

Factor	Appraisal Methodology Option A (High to Medium)	Appraisal Methodology Option B (High to Medium)	Appraisal Methodology Option C (Very High to Medium)
Benefits	Benefits would need to decrease by £27.3m or 41.7%	Benefits would need to decrease by £27.1m or -41.5%	Benefits would need to decrease by £53.3m or 58.3%
Costs	Costs would need to increase by £13.6m or 71.5%	Costs would need to increase by £13.5m or 70.9%	Costs would need to increase by £26.7m or 138.8%

3.16.2. If the costs were to remain the same, benefits would need to decrease by 41.7%, 41.5% or 58.3% for options A, B and C respectively, to lower the scheme into the medium VfM category.

3.16.3. If benefits were to stay the same, cost would need to increase by 71.5%, 70.9% or 138.8% for options A, B and C respectively, to lower the scheme into the medium VfM category.

Table 3-31 - Changing the Adjusted BCR to Very High

Factor	Appraisal Methodology Option A (High to Very High)	Appraisal Methodology Option B (High to Very High)	Appraisal Methodology Option C (High to Very High)
Benefits	Benefits would need to increase by £10.9m or 16.6%	Benefits would need to increase by £11.1m or 17.0%	N/A – option already at Very High VfM
Costs	Costs would need to decrease by £2.7m or 14.2%	Costs would need to decrease by £2.8m or 14.5%	N/A – option already at Very High VfM

3.16.4. To switch the scheme into the Very High VfM category, if the costs were to remain the same, benefits would need to increase by 16.6% or 17.0% for options A and B, with option C already being within the Very High VfM Category. If benefits were to stay the same, cost would need to decrease by 14.2% or 14.5% for options A and B respectively, option C already being within the Very High VfM Category.

3.17 SENSITIVITY AND RISK PROFILE

3.17.1. In order to understand how sensitive the benefits described above are to a range of alternative parameters, a number of tests have been performed.

- TAG Sensitivity Databook
- High and low traffic growth scenarios
- Alternative levels of Optimism Bias (different stages of the business case)
- Alternative levels of Additionality applied to dependent development impacts

3.17.2. The results of these tests are summarised below.

TAG SENSITIVITY DATABOOK

- 3.17.3. Sensitivity tests have been undertaken to using the TAG Sensitivity Databook (V1.14). The Databook reflects changes in economic and population parameters projects provided by the Office for Budget Responsibility (OBR).

Table 3-32 – TAG Sensitivity Databook testing (2010 prices and values)

£000s in 2010 prices and values	Appraisal Methodology Option A	Appraisal Methodology Option B	Appraisal Methodology Option C
Initial PVB	47,203	48,045	67,410
Wider Economic Impacts	11,530	10,108	14,163
Adjusted Present Value of Benefits (PVB)	58,733	58,153	81,573
Present Value of Costs (PVC)	19,077	19,077	19,077
Net Present Value (NPV)	39,657	39,076	62,497
Adjusted BCR	3.1	3.0	4.3

- 3.17.4. These results show that the BCR remains above 2 and within the High Value for Money category in across all scenarios. This increases the level of certainty in the VfM associated with a reduction in Transport User Benefits and COBALT.

HIGH AND LOW TRAFFIC GROWTH SCENARIOS

- 3.17.5. The first sensitivity test undertaken was a standard high and low growth scenario sensitivity test. These sensitivity tests are provided in Table 3-33.

Table 3-33 – High and low traffic growth scenario testing (2010 prices and values)

Appraisal Methodology Option	Scenario	Initial PVB (£,000)	Initial BCR	Adjusted PVB (£,000)	Adjusted BCR	VfM category
Option A	Low Traffic Growth Scenario	48,427	2.5	59,957	3.1	High
	Core Scenario	53,919	2.8	65,450	3.4	High
	High Traffic Growth Scenario	63,948	3.4	75,478	4.0	Very High

- 3.17.6. These results show that the BCR remains above 2 and within the High Value for Money category in across all scenarios. This increases the level of certainty in the VfM associated with a significant reduction in Transport User Benefits.

ALTERNATIVE OPTIMISM BIAS

- 3.17.7. As noted in Section 2.5, an allowance of 15% optimism bias (OB) is considered appropriate for this scheme, given the level of development and scope of the Quantified Risk Assessment (QRA). The effect on PVC, BCR and VfM for the core scenario of changing OB to, 3% and 44% is set out in 3.5. In line with TAG guidance, public sector and private sector costs get treated differently in the Benefit-Cost Ratio. This means that when the OB is altered from the core scenario, this will impact both the PVB and PVC.

Table 3-34 - Alternative optimism bias sensitivity tests (2010 prices and values)

Appraisal Methodology Option	Allowance for Optimism Bias	Adjusted PVB (£,000)	Adjusted PVC (£,000)	Adjusted BCR	VfM category
Option A	15% (OBC)	65,450	19,077	3.4	High
	3% (Stage 3 FBC)	65,450	17,221	3.8	High
	44% (Stage 1 SOBC)	65,450	23,560	2.8	High
Option B	15% (OBC)	65,215	19,077	3.4	High
	3% (Stage 3 FBC)	65,215	17,221	3.8	High
	44% (Stage 1 SOBC)	65,215	23,560	2.8	High
Option C	15% (OBC)	91,483	19,077	4.8	Very High
	3% (Stage 3 FBC)	91,483	17,221	5.3	Very High
	44% (Stage 1 SOBC)	91,483	23,560	3.9	High

3.17.8. These results show that when high levels of Optimism Bias are applied the BCR remains above 2 and within the High Value for Money category, which increases the level of certainty associated with a change in costs.

ALTERNATIVE ADDITIONALITY

3.17.9. The Economic Appraisal model tests the level of displacement applied, impacting on the additionality rate applied to the Land Value Uplift. The results are summarised in the Table 3-35.

Table 3-35 - Sensitivity Testing on Land Value Uplift

Appraisal Methodology option	Scenario	Displacement Rate, %	Additionality Rate, %	Land Value Uplift Benefit, £, 2010
Option A	Core Scenario (1)	10.0	82.0	64,650,448
	Scenario 2	5.0	86.6	68,242,140
	Scenario 3	15.0	77.5	61,058,757
	Scenario 4	20.0	72.9	57,467,065
Option B	Core Scenario (1)	10.0	46.3	36,476,271
	Scenario 2	5.0	48.8	38,502,731
	Scenario 3	15.0	43.7	34,449,812
	Scenario 4	20.0	41.1	32,423,352

3.17.10. For each of the above scenarios would the Value for Money category would remain High Value for Money category but would not switch it to Very High.

3.18 APPRAISAL SUMMARY TABLE

3.18.1. The AST presents in all the evidence from the economic appraisal a single table. It records all the impacts which have been assessed and described above – economic, fiscal and environmental impacts – assessed using monetised, quantitative or qualitative information as appropriate. The AST for the scheme, in line with TAG requirements, is included in Appendix I.

3.19 SUMMARY OF THE ECONOMIC CASE

3.19.1. The Economic Case identifies and assesses all the impacts of the scheme to determine its overall Value for Money. It takes account of the costs of developing, building, operating and maintaining the scheme, and a full range of its impacts, including those impacts which can be monetised.

BENEFIT COST RATIO

Option A approach

3.19.2. The initial BCR is **2.8**, indicating **High** Value for Money according to the DfT Value for Money Framework. The adjusted BCR is **3.4**, strengthening the **High** category.

Option B approach

3.19.3. The initial BCR is **2.9**, indicating **High** Value for Money according to the DfT Value for Money Framework. The adjusted BCR is **3.4**, strengthening the **High** category.

Option C approach

3.19.4. The initial BCR is **4.1**, indicating **Very High** Value for Money according to the DfT Value for Money Framework. The adjusted BCR is **4.8**, strengthening the Very High Value for Money category.

3.19.5. Once the full scheme impacts are included, which contain the Level 3 Dependent Development benefits associated with land value uplift and land amenity impacts, the scheme still remains **High** Value for Money Category for all methodology options. The scheme would need to deliver greater than the calculated Level 3 benefits to reach the Very High Value for Money category.

3.19.6. Therefore, the dependent development impacts are not enough to consider switching the Value for Money category strengthen the confidence and likelihood of the High category for the scheme.

SENSITIVITY TESTING

3.19.7. The sensitivity tests applied to the appraisal results confirm the High Value for Money position is not sensitive to cost increases, or a reduction in benefits (as the BCR does not drop into the Medium Value for Money category). This increases the level of certainty that the scheme will deliver High Value for Money. When changes to the TAG Sensitivity Databook (V1.14) and optimism bias have been applied, the scheme delivers an adjusted BCR which still remains **High** Value for Money Category for the majority of methodological approaches, pushing into the **Very High** Category for option C, where no dependent development is assumed.

4 FINANCIAL CASE

4.1 INTRODUCTION

4.1.1. This section sets out the financial case for the proposed scheme to demonstrate its affordability.

4.1.2. This section describes:

- How much the proposed scheme is expected to cost, and how this has been calculated
- Risks that could affect the cost of the scheme
- How the scheme will be paid for and by whom
- The anticipated profile of expenditure over time (whole life costs)

4.1.3. This section deals with costs and accounting issues. The question of value for money is dealt with separately in the Economic Case.

4.2 COSTS

4.2.1. The estimated cost of the scheme, at out-turn prices excluding non-recoverable VAT, is **£37.44 million**. Land costs are **not** included within the table below as the land for the scheme is being gifted by the developer / landowners to the council. The out-turn value of the gifted land is **£273,112**. Table 4-1 shows the build-up and profile of the cost estimate excluding the gifted land costs.

Table 4-1 - Breakdown of scheme costs (£), excluding land*

Scheme Element	2021	2022	2023	2024	Total
Construction Contracts	-	1,066,531	6,399,185	13,864,901	21,330,616
Statutory Undertakers Works	-	448,500	1,345,500	-	1,794,000
Design Investigations, Surveys, Procurement, Supervision and Client Costs	1,988,717	1,988,717	745,769	531,625	5,254,828
Total Cost (excluding risk)	1,988,717	3,503,748	8,490,454	14,396,526	28,379,445
Risk	469,181	907,075	2,088,092	3,614,948	7,079,296
Total Cost @2020:Q2 prices	2,457,898	4,410,823	10,578,545	18,011,474	35,458,741
Adjustment to out-turn (inflation)	41,763	148,703	546,210	1,247,937	1,984,613
Scheme Cost (out-turn prices)	2,499,661	4,559,526	11,124,756	19,259,412	37,443,354

SCHEME PREPARATION AND CONSTRUCTION

4.2.2. The cost of scheme preparation and construction has been estimated by WSP Quantity Surveyors working alongside design technical specialists. NCC have undertaken an independent review of these costs, and any differences were discussed to generate a revised, robust cost base.

4.2.3. The full schedule of construction costs is provided in Appendix J.

SPEND PROFILE

4.2.4. The assumed annual profile of expenditure is shown in Table 4-2.

Table 4-2 - Annual spend profile

Scheme Element	2021	2022	2023	2024
Construction Contracts	0%	5%	30%	65%
Statutory Undertakers Works	0%	25%	75%	0%
Design Investigations, Surveys, Procurement, Supervision and Client Costs	38%	38%	14%	10%

RISK BUDGET

- 4.2.5. The cost of delivering the scheme will not be fully known until the detailed design has been completed, the scheme obtains planning approval and tender prices have been received. TAG Unit A1.2 requires that all project related risks that may impact on the scheme costs should be identified and quantified and subject to a Quantified Risk Assessment (QRA), in order to produce a risk-adjusted cost estimate.
- 4.2.6. To reflect the uncertainty associated with known risks, a QRA has been undertaken³⁰, using a scheme risk register and Monte Carlo analysis software @RISK. Further detail of the methodology applied to generate a risk-adjusted cost is contained within the Management Case. The QRA analysis estimated a risk-adjustment of **£7.08m**, equivalent to 18.9% of total scheme costs. This is considered to be a robust estimate.

OUT-TURN PRICE ADJUSTMENT

- 4.2.7. The cost estimates assume a price base of Q2 2020. An allowance is therefore made for expected inflation between the date of the cost estimate and the date when the expenditure is expected to occur. This is influenced by the profile of expenditure set out in Table 4-2. The uplift factors to reflect price inflation are based on a 2.1% inflation factor (consumer price inflation) applied to construction cost items and general inflation to other capital cost items.

4.3 BUDGETS / FUNDING COVER

- 4.3.1. An estimated funding profile is outlined in Table 4-3 split by calendar year. The profile programmes that MRN funds will be spent by 2024, prior to the end of the MRN funding period, which runs to 2025.
- 4.3.2. The largest contribution to the scheme costs would be provided by the government's Department for Transport. A local contribution, underwritten by Norfolk County Council, will account for 30% of the scheme costs, which totals **£11.23 million**.
- 4.3.3. The exact composition of this local contribution has not yet been finalised, however it is estimated to comprise of a **£4.5 million** contribution from the developer and the remaining funds from pooled Community Infrastructure Levy (CIL).
- 4.3.4. It is expected that the identified local contributions would cover any potential increase in scheme costs above those set out below, however as confirmed in the letter of intent, written by the Council's Section 151 officer contained in Appendix K, the Council confirms to underwrite any shortfall in the local contribution.

³⁰ Risk allowance is a factor applied to project costs to act as a contingency for unforeseen circumstances.

Table 4-3 - Budgetary Impact Summary

Funding package	2021	2022	2023	2024	Total
Government/ DfT Funding	1,749,763	3,191,668	7,787,329	13,481,588	26,210,348
Local Contribution	749,898	1,367,858	3,337,427	5,777,824	11,233,006
Total	2,499,661	4,559,526	11,124,756	19,259,412	37,443,354

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

Estimated scheme cost	£37,443,354
DfT MRN Funding (70%)	£ 26,210,348
Local Contribution: Developer & CIL funding (30%)	£ 11,233,006

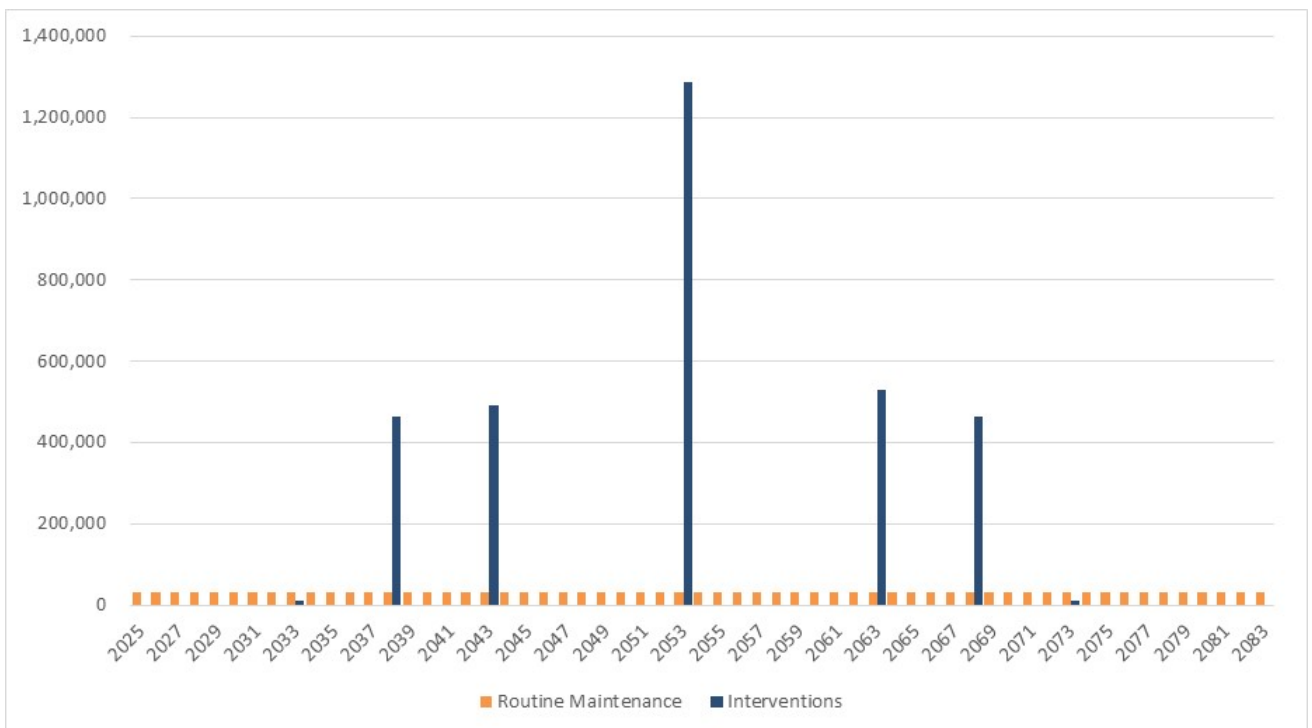
4.4 WHOLE LIFE COSTS

4.4.1. The scheme will give rise to additional revenue liabilities for capital renewals and maintenance, when compared to a future scenario in which the bypass does not exist. All maintenance obligations will fall under the purview of NCC and, as such, will be fulfilled as part of the maintenance regime operated by the council. The following allowances will need to be made by the Council towards maintaining the bypass.

4.4.2. Approximately **£1.89 million** (at current 2020 price base) will be required for the total maintenance costs (over 60 years). This assumes a £32,000 per annum expenditure on routine maintenance during this period. Approximately **£3.26 million** (at current 2020 price base) will be required for interventions covering: renewal works to pavements, footpaths and kerbing. The total life-cycle costs over a 60-year period for both maintenance and renewal are circa **£5.14 million**.

4.4.3. The maintenance and renewal expenditure profile over a 60-year periods is illustrated in **Figure 4-1**.

Figure 4-1 - Maintenance and renewal expenditure profile, 2020 prices



4.5 ACCOUNTING IMPLICATIONS: CASH FLOW STATEMENT

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

- Central government / DfT funding of **£26.21m** (70%) is sought to deliver the scheme, with majority of the funds being spent during the financial years 2023-2024
- A local contribution of **£11.23m** (30%) of the scheme implementation costs is required, which is comprised of developer contributions of **£4.5m** and a GNGB contribution of **£6.73m** (from pooled local authority Community Infrastructure Levy (CIL) contributions
- The maintenance costs for the scheme are expected to cost **£1.89m** in Q2 2020 prices, the funding for which will be sourced from the annual maintenance budget
- Capital renewal costs over 60 years are expected to be approximately **£3.26m** in Q2 2020 prices. Funding for the works will be ring-fenced from the maintenance budget

4.5.2. As a commitment of support, NCC's Section 151 Officer has provided a Letter of Intent to confirm the Council's financial obligations toward the scheme (See Appendix K).

5 COMMERCIAL CASE

5.1 INTRODUCTION

5.1.1. The Commercial Case provides evidence of the commercial viability of the proposed scheme and describes the procurement strategy that will be used to engage the market. It provides evidence on the approach to risk allocation and transfer, contract and implementation timescales and the approach to managing the contract.

5.2 OUTPUT-BASED SPECIFICATION

5.2.1. The Commercial Case is based on strategic outcomes and outputs, against which alternative procurement and contractual options are assessed.

5.2.2. The outcomes, which the preferred procurement strategy and contract must deliver, are to:

- Achieve cost certainty, or certainty that the scheme can be delivered within the available funding constraints
- Minimise further preparation costs with respect to scheme design by ensuring best value and appropriate quality
- Provide a quick route to the market and efficient tender process to quickly receive tender prices
- Receive quality contractor input to risk management and appraisal, including mitigation measures, to capitalise on opportunities to reduce construction risk and improve out-turn certainty thereby reducing risks to a level that is 'As Low as Reasonably Practicable'

5.2.3. For civil engineering works in the UK, there are two main forms of contract: the New Engineering and Construction (NEC) Contract suite of contracts; or the Institution of Civil Engineers (ICE) Conditions of Contract, which since August 2011 has been rebadged as the Infrastructure Conditions of Contract (ICC). These two options are discussed in more detail below.

NEC ENGINEERING AND CONSTRUCTION CONTRACT

5.2.4. 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.

5.2.5. 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.

5.2.6. 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

5.2.7. 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.



- 5.2.8. 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.
- 5.2.9. 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

- 5.2.10. 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.
- 5.2.11. 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.
- 5.2.12. 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.
- 5.2.13. As a result, NCC internal support services and 'in-house' term consultant, WSP, have greater experience and capability procuring works under the NEC suite.

PREFERRED FORM OF CONTRACT

- 5.2.14. NCC has selected the NEC Form of Contract for the scheme. The additional flexibility and existing in-house familiarity with NEC suite make it the preferred option. The potential options for the Conditions of Contract are discussed in more detail in the following sections.

5.3 CONTRACT STRATEGY

- 5.3.1. The preferred form of contract, NEC4 Engineering and Construction Contract suite, offers five Conditions of Contract options for scheme delivery including priced, target cost and cost reimbursable contracts. The contract strategy considers which contractual mechanisms align best with the procurement objectives. The five main options within the NEC4 suite are set out below.

- Option A: Priced contract with activity schedule
- Option B: Priced contract with bill of quantities
- Option C: Target cost with activity schedule
- Option D: Target cost with bill of quantities
- Option E: Cost reimbursable

CONTRACT STRATEGY OPTIONS

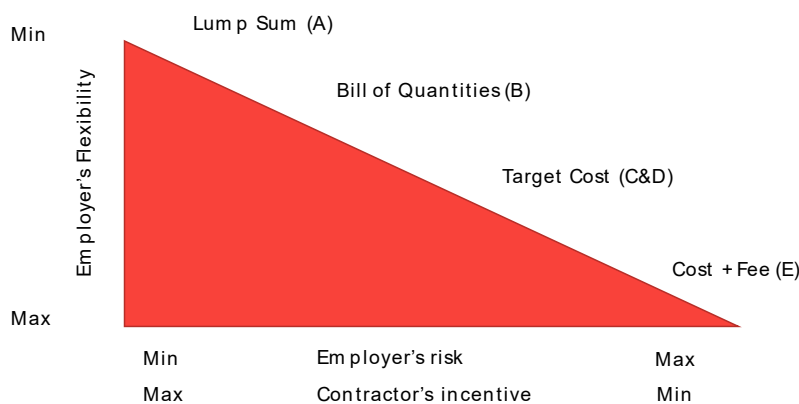
- 5.3.2. Option A is a priced contract with an activity schedule where the risk of carrying out the work at the agreed price is largely borne by the Contractor. Contractors tender for an Option A contract based on lump sum prices for each activity based on his own assessment of the requirements of the activities.

- 5.3.3. Option B is a priced contract with a bill of quantities where the risk of carrying out the work at the agreed prices is largely borne by the Contractor. Contractors tender for an Option B contract by completing a bill of quantities prepared by the Employer³¹. The quantities required to complete the scheme works are therefore specified by NCC, and therefore quantities risk rests with NCC.
- 5.3.4. Option C is a target cost contract with an activity schedule where the out-turn financial risks are shared between the Employer and the Contractor in an agreed proportion. Contractors tender a target price based on a list of activities which is then adjusted through the delivery to reflect agreed changes. The Contractor is then paid for completed works and a percentage of any savings made during the delivery. The contractor also takes a share of the risk of costs exceeding the target price.
- 5.3.5. Option D is a target cost contract with a bill of quantities where the out-turn financial risks are shared between the Employer and the Contractor in an agreed proportion. Contractors tender and are paid in a similar mechanism to Option C but payment is based on a bill of quantities rather than an activity schedule.
- 5.3.6. Option E is a cost reimbursable type contract where the financial risk is taken largely by the Employer (NCC). Under Option E the Contractor is paid for works completed plus an additional fee.

CONTRACT STRATEGY DISCUSSION

- 5.3.7. The Options, A to E, offer varying levels of risk exposure, incentivisation and flexibility depending on the procurement objectives and the level of design undertaken prior to tender.
- 5.3.8. Figure 5-1 indicates the overall characteristics of the different NEC4 Options:

Figure 5-1 - Comparison of NEC4 Options



- 5.3.9. A high degree of design maturity will be achieved prior to procurement of works. This makes the fixed-price contracts offered by Options A and B both feasible contract strategies. Option A and, to a lesser extent, Option B minimises NCC's risk exposure following contract award and incentivises the Contractor to deliver the scheme in the most efficient manner. This can result in increased cost and programme certainty.
- 5.3.10. Options C or D follow a target cost contract strategy, which provide a more balanced allocation of risk between the NCC and Contractor as well as incentivising both parties to work together to achieve an efficient delivery. In practice, target cost contracts are usually tendered with activity schedules (Option C), rather than with a bill of quantity (Options D).

³¹ The Employer is Norfolk County Council

- 5.3.11. Lessons have been learnt by NCC through the delivery of the Norwich Northern Distributor Road (NDR) in respect of the NCC owning the design and consequently all of that risk. If there is any change to the design during the construction stage, the NCC will be responsible for additional Contractor costs which they would not be in a Design and Build (D&B) style contract.
- 5.3.12. However, it is likely that this scheme will have a significant level of design maturity by the time Planning Permission has been granted, so the risk of change should be reduced. Also, the scale of the project and risks associated to delivery are significantly different to that of the NDR, so NCC are more comfortable with the Option C contract using a Traditional delivery methodology.
- 5.3.13. The cost reimbursable strategy offered by Option E places maximum risk with NCC and little incentive for the Contractor to deliver works efficiently. A cost reimbursable contract would not generally be considered an appropriate delivery strategy for the main contract works of a large civil engineering infrastructure scheme.

Table 5-1 - Option comparison

Option	Advantages	Disadvantages
A	<ul style="list-style-type: none"> Somewhat greater price predictability at start of Stage Two Simpler to administer Quantity and price risks borne by Contractor 	<ul style="list-style-type: none"> Contractor incentivised to cut corners at the expense of quality Contractor's price likely to include high contingency Adversarial relationship more likely to develop Less commercial transparency around compensation events
B	<ul style="list-style-type: none"> Somewhat greater price predictability at start of Stage Two Bill of Quantities could lead to cost savings when the scheme is well defined, and Employer is able to list out the activities and approximate quantities Simpler to administer 	<ul style="list-style-type: none"> Similar negatives to A however greater levels of risk taken on by NCC over Option A Any risks/omissions in the Bill of Quantities will be an Employer risk and treated as compensation events Less commercial transparency around compensation events
C	<ul style="list-style-type: none"> More incentive on Contractor to innovate to achieve a better outturn cost Contractor commercially rewarded for performance Contractor encouraged to identify supply chain efficiency to benefit of both Contractor and client Collaborative behaviour incentivised Commercial transparency 	<ul style="list-style-type: none"> Particularly tight project controls needed Reduced cost predictability Reliant on audit accuracy Administratively burdensome
D	<ul style="list-style-type: none"> Advantages are similar to C 	<ul style="list-style-type: none"> Target cost contracts are not typically tendered with a bill of quantity
E	<ul style="list-style-type: none"> Effective where the scope of the work to be carried out cannot be properly defined at the outset, and the risks associated with the works are high, such as emergency work 	<ul style="list-style-type: none"> Places maximum risk with NCC in term of delivery Very little incentive for the Contractor to deliver works efficiently Not an appropriate strategy for schemes such as this one

PREFERRED CONTRACT STRATEGY

- 5.3.14. Option C, a target cost with activity schedule has been selected to deliver the scheme, given that it balances the allocation of risk between NCC and the Contractor, incentivising both parties to work together to achieve an efficient delivery.
- 5.3.15. NCC will be looking to create a position of shared savings from improved delivery so that both parties' benefit. NCC will be able to set programme parameters for the Contractor to work within which important in terms of the MRN funding. While the risk element sits in the general mid-range for NEC Options, this should be reduced as the design will be well progressed, based upon a tight scope with good quality works information to support the Contract.

5.4 PROCUREMENT ROUTE

- 5.4.1. The following procurement route options were considered for the scheme:
- New UK 'Find a Tender Service (FTS) – previously OJEU³² Competitive Tender Process
 - Eastern Highways Alliance (EHA)
- 5.4.2. These are described in detail below.

OJEU COMPETITIVE TENDER OPTIONS

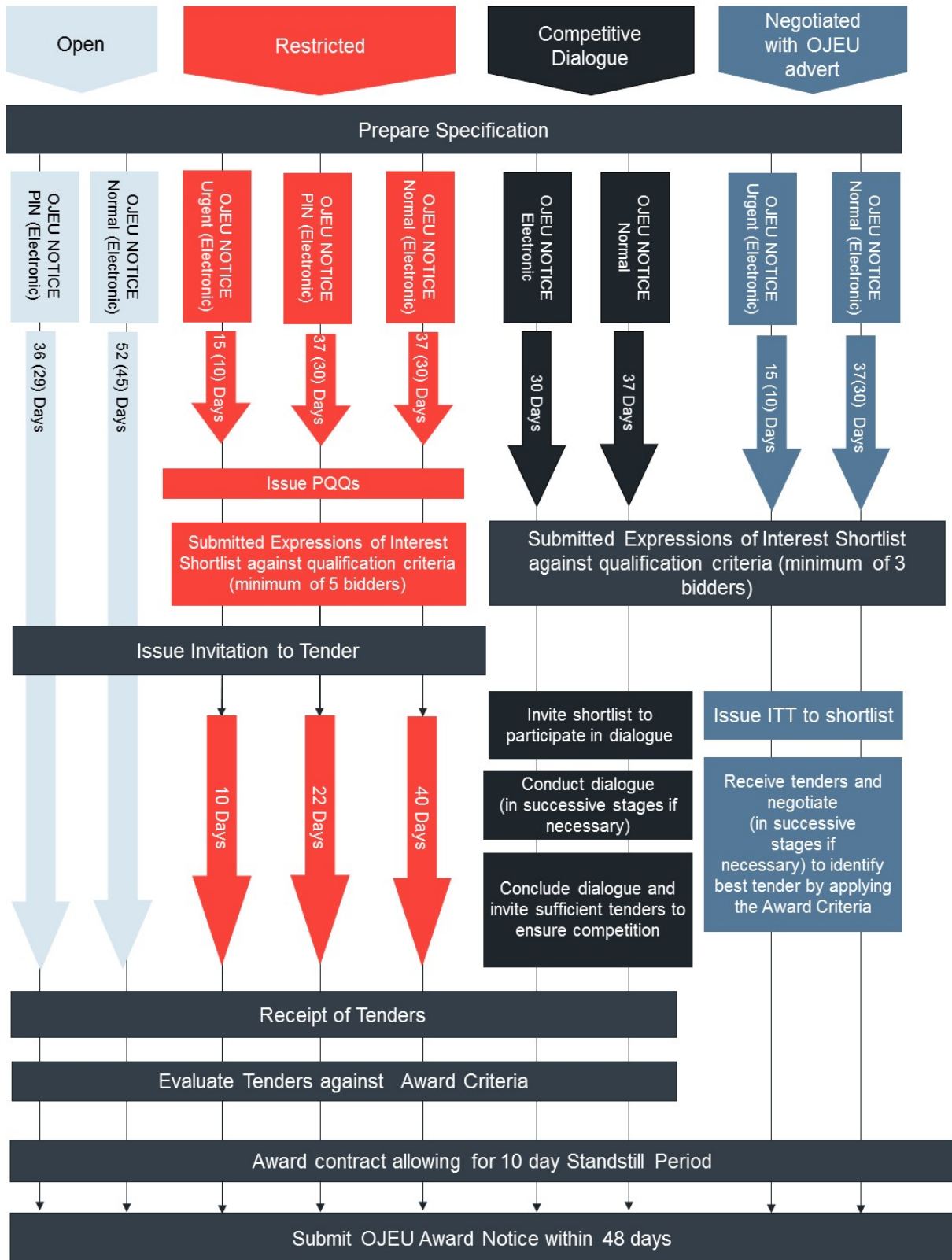
- 5.4.3. The Official Journal of the European Union (OJEU) is the publication in which all public sector tenders valued above £4,733,252 (for infrastructure projects) must be advertised³³.
- 5.4.4. Four options within the FTS procurement process have been considered:
- Open Tender
 - Restricted Tender
 - Competitive with Negotiation
 - Competitive Dialogue

³² 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.

³³ 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.

5.4.6. These are described as follows.

Figure 5-2 - Procurement options³⁴



³⁴ Adapted from https://www.procurementjourney.scot/sites/default/files/documents_library/Issue%20ITT%20-%20OJEU%20Process%20Timescales%20Document.pptx



OPEN PROCEDURE

- 5.4.7. This procedure is often used for the procurement of commodity products which do not require a complex tender process in order to be purchased.
- 5.4.8. 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

- 5.4.9. 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

- 5.4.10. 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.
- 5.4.11. 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.
- 5.4.12. 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.
- 5.4.13. 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

- 5.4.14. 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

- 5.4.15. 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.
- 5.4.16. 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
- 5.4.17. Neither of these situations apply to this scheme.
- 5.4.18. The advantages and disadvantages of the OJEU procurement process are described in Table 5-2.

Table 5-2 - 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

- 5.4.19. 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, seeking 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.
- 5.4.20. The appointed Contractors under EHF3 Lot 3, which is appropriate for the Long Stratton Bypass scheme, are:
- Interserve Construction
 - BAM Nuttall
 - John Sisk
- 5.4.21. 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.

- 5.4.22. 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.
- 5.4.23. 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 3 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).
- 5.4.24. 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.
- 5.4.25. 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
- 5.4.26. 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 considered a delivery option considered for this scheme as the financial ceiling for works in this Award process is £7.0m.
- 5.4.27. The advantages and disadvantages of using the EHA procurement route are described in Table 5-3.

Table 5-3 - Advantages and disadvantages of using 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 NEC 4 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

Advantages	Disadvantages
	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	

5.4.28. A provisional timeline for an EHA contract to the start of works is set out below.

Table 5-4 - Provisional procurement timeline

EHA Award Process	Dates
Issue of Works Information bundle to EHF3 Contractors	December 2022
Closing date for tender documentation (13 weeks)	December 2022 – March 2023
Tender appraisal and clarifications period (4 weeks)	March 2023 – March 2023
Contract Award date	March 2023
Mobilisation period (12 weeks)	April 2023 – July 2023
Start of Works date	July 2023

5.4.29. Within in EHA EHF3 guidance there is a typical timeline for procurement activities. However, based on the nature of the scheme and previous experience, the suggested timescales are not particularly advantageous in the long run. This is because it can lead to poor relationships and opens the door to Contractual disagreement due to the pressurised timescales. Therefore, the procurement programme would likely be stretched to account for the Long Stratton Bypass scheme specificities and to try to minimise contract issues.

5.5 PREFERRED PROCUREMENT STRATEGY

PROCUREMENT ROUTE DISCUSSION

5.5.1. An OJEU open tender, and to a lesser extent, the OJEU restricted tender options were rejected as potential procurement routes due to the significant resource requirements resulting from the large number of bidders likely to tender and the scope and scale of the procurement process. The OJEU competitive tender and competitive tender with negotiation were discarded because the proposed scheme does not contain a high degree of engineering or contract complexity and there is no requirement to engage with bidders in substantive discussion on technical details.

5.5.2. Both the EHF3 framework and OJEU restricted tender options offer viable procurement routes for the scheme. The table below summarises the advantages and disadvantages of the OJEU restrictive tender process and EHA Framework.

Table 5-5 - Advantages and disadvantages of using the OJEU Restricted Tender Process and Eastern Highways Alliance (EHA) Framework

Procurement Option	Advantages	Disadvantages	Cost
OJEU Restricted Tender Process	<p>Fully compliant with EU procurement legislation</p> <p>Clear audit trail to demonstrate award to most economically advantageous tender</p> <p>It allows flexibility of choice of contract form and option</p> <p>Ability to select list of tendering Contractors</p>	<p>Potentially longer procurement period required compared to alternative procurement route options</p> <p>Increased level of resources required to carry out the procurement process</p>	<p>Reduced procurement costs due to the restriction on number of tenderers</p> <p>No additional joining Fees or Contract Levies</p>
Eastern Highways Alliance (EHA)	<p>Fast route to market</p> <p>Probity of Framework Contractors already proven</p> <p>Good working relationships built through wider Framework working groups</p> <p>Good flexibility in terms of financial value covered by Framework</p> <p>Framework will be supported by Framework Manager</p>	<p>Reduced number of Contractors to be able to choose from</p> <p>Price fluctuations could be susceptible to level of throughput associated to Framework</p> <p>No flexibility within Framework to choose suitability of Contractor</p> <p>Framework can be susceptible to a lack of competition</p> <p>As Contract terms for EHF3 have been organised by Essex County Council, NCC to ensure that they fully align with NCC's requirements for project delivery</p>	<p>Reduced procurements costs due to pre-qualification of Contractors</p>

- 5.5.3. The required timescales associated with both the OJEU restricted procedure route and the EHA Framework would both allow the procurement process to be completed within the overall requirements of the scheme programme. Therefore, the procurement timescale is not the deciding factor when selecting the most suitable procurement route.
- 5.5.4. The remaining key objectives would be sourcing a sufficient pool of potential tenderers and ensuring a clearly visible audit trail to demonstrate award having been made to the most economically advantageous tender. Again, both procurement routes would achieve this.
- 5.5.5. The procurement route selected for this tender is the use of the EHA.
- 5.5.6. The EHA has been selected as it balances NCC's attitude to numerous delivery factors including risk appetite, programme constraints and need for cost certainty. Previous experience of the EHF has demonstrated that the Contractors are capable and will have interest in delivering the scheme. Other advantages of the EHF include:
- Reduced resource (NCC) required to undertake procurement activities
 - Fast route to market
 - Good working relationships with Contractors built through the wider Framework working groups
 - Good flexibility in terms of financial value covered by the Framework
 - Framework will be supported by Framework Manager to assist relationships between Authorities and Framework Contractors
- 5.5.7. The EHA is the current preferred procurement route however NCC want the other routes considered in this section to remain potential fall-back options.

5.6 TYPE OF CONTRACT

- 5.6.1. Two contract types were considered for this scheme:

- Traditional contract
- Design and Build contract

TRADITIONAL CONTRACT

- 5.6.2. A traditional contact would offer the following advantages:

- The principles have been developed over many years and are widely understood
- The Client (NCC) develops the specification
- Risk is managed by the Client
- The Client retains control and flexibility to change the specification
- Award of contract on the lowest price basis demonstrates Value for Money

- 5.6.3. The disadvantages of a traditional contract are as follows:

- The Client retains risk of delivery on time and to budget
- There is no incentive for a Contractor to innovate
- There is no link between design and construction
- The nature of all risks are not fully realised at the point of award resulting in the potential for an increase in outturn cost and delays with completion.

DESIGN AND BUILD CONTRACT

5.6.4. A Design and Build contract would offer the following advantages:

- Integration of design and construction leads to efficiencies in cost and time
- Single point of responsibility for the Client
- Risks are clearly identified and allocated during the procurement phase
- It stimulates innovation, reducing cost
- It allows the Contractor to review the buildability of the design

5.6.5. The disadvantages of a design and build contract are as follows:

- There is reduced competition with fewer companies interested
- The Contractor takes on greater risk and prices risk into the estimate (increasing scheme costs)
- There is a lack of flexibility to change the specification
- Quality may be overridden by cost efficiency
- Delay to the delivery programme to allow for contractor design development

5.7 FORM OF PROCUREMENT

The preferred form of procurement for the scheme is the option that best achieves the specific procurement objectives and accommodates the other scheme constraints. NCC has assessed the relative importance of the following considerations to inform its preference:

- Time – time for overall delivery, time for procurement, consideration of key milestones
- Complexity of arrangements – dependency on third parties, separate contracts and sub-Contractors
- Complexity and scope of the scheme – extent of unique or unusual features, scale of the project
- Potential for change – fixity of design achievable prior to procurement
- Cost certainty – requirement for cost certainty and most economically advantageous delivery
- Design responsibility – expertise and capacity for design delivery existing within different parties
- Risk appetite – appetite to retain risk or incentivise Contractor to manage project risk
- Control – desire to retain control over the final scheme details

FORM OF PROCUREMENT DISCUSSION

- 5.7.1. Under a Traditional form of procurement, NCC would deliver the scheme through planning and Public Inquiry (if that occurs). The main works contract would be tendered later in the overall programme when the scheme design is fully matured. Under the Traditional option, NCC would retain design responsibility and have more control over the final scheme design. Whilst NCC retain more risk to the point of contract award, the risk of change post-contract award is significantly reduced. This leads to increased cost certainty under a Traditional model compared to the other forms of procurement.
- 5.7.2. A significant constraint of the Traditional model is that detailed design must be completed prior to commencement the procurement process. Where the programme allows for pre-tendering activities to be undertaken in sequence this would extend the overall programme.
- 5.7.3. Given the advanced nature of the scheme design and condensed programme with early commencement of the planning process (May 2021) means that procurement under a Design and Build ECI form of procurement is not feasible if the current programme is to be met.

- 5.7.4. A Design and Build model would cause difficulties with timing of the procurement and as NCC are not leading the planning application process (this is being delivered by the developer). The Contractor could not be asked to take on responsibility for the design at this time, due to programme timescales. The scheme contract could not be awarded early enough that planning risk is passed to the Contractor. Essentially, a late award would negate the benefits of the Design and Build form of procurement, as, to retain the benefits of a Design and Build delivery, NCC would have to accept the risk of change stemming from the planning process.
- 5.7.5. The Traditional form of procurement is feasible for the delivery of the scheme and is more compatible with the condensed programme. The option does not offer some of the benefits of the Design and Build model but does provide greater cost and programme certainty at the point of procuring the main works and there is limited scope for a contractor to provide innovation as part of a Design and Build process. The existing in-house design and the consultancy contract with WSP provides the Council with access to the necessary skills and experience to produce the detailed design required for a Traditional procurement.
- 5.7.6. Without the likely benefit from a Design and Build approach, a Traditional contract with better time and cost predictability is a more attractive option and is the preferred form of procurement for the scheme. This is because of the advanced nature of the scheme design at this stage of project.

5.8 PROPOSED FORM OF CONTRACT

DESIGN ORGANISATION

- 5.8.1. The preferred Traditional form of procurement adopted for the scheme requires that design is undertaken by, or on behalf of NCC. NCC will utilise its in-house design resource and its existing term consultant WSP, to progress the scheme through detail design. Once the main works contract has been tendered, the project team will provide contract administration and construction supervision for the Council. The project team has the capability, capacity and experience to deliver the design, contract administration and supervision functions required of the design organisation under a Traditional form of procurement.

DISPUTE RESOLUTION

- 5.8.2. As the Construction Act applies, we will use dispute resolution option W2. An additional tiered dispute resolution process has been included to encourage resolution of disputes without resort to adjudication or the courts.

Table 5-6 - Other commercial considerations

Issue	Approach	Rationale
Specification	Based on the DfT Specification for Highway Works.	The DfT specification is the industry standard and is an integrated system including the standards for the works.
Ultimate holding company guarantee	NCC will review the need for an ultimate holding company guarantee	An ultimate holding company guarantee protects NCC against a Contractor avoiding its liabilities by winding up the company that would otherwise be liable.
Delay damages	NCC will require delay damages to cover the cost of keeping our	A delay in completing the project does not have a direct monetary

Issue	Approach	Rationale
	project team mobilised for any delay period.	impact on the authority, other than the cost of its project team.
Performance bond	NCC will not require a performance bond.	The premium for a performance bond is significant and would be passed on to the authority. In practice performance bonds are heavily caveated and hard to claim against. The cost is therefore judged to exceed the benefit.
Retention	NCC will not retain any part of the price	Retentions have a significant impact on cash flow and as such are usually limited such that they are of limited effect. This means that the administrative burden outweighs their effectiveness.

SOURCING OPTIONS

5.8.3. As described above, the scheme will be sourced through the EHF3. The following Contractors form part of Lot 3 within EHF3 (for projects from £5m to £30m):

- John Sisk & Son (Holdings) Ltd
- BAM Nuttall
- Interserve Construction

5.9 PAYMENT MECHANISMS

5.9.1. It is anticipated that payment will be made to the Contractor by monthly valuation with a BACS payment within 30 days after the due date for payment.

5.9.2. NEC option C (target cost) has been adopted for the construction phase. The advantages and disadvantages were described in section 5.3.

5.10 PRICING FRAMEWORK AND CHARGING MECHANISMS

5.10.1. The council intends to make payments in relation to the proposed products and services as follows.

Table 5-7 - Payment mechanisms

Service provider	Element	Payment mechanism
Professional services	Design	Cost-reimbursable
Professional services	Support to Planning process	Cost-reimbursable
Construction services	Construction	Target cost

5.11 RISK ALLOCATION AND TRANSFER

5.11.1. The general principle of risk allocation is that risks should be passed to the party best able to manage them, subject to value for money considerations.

5.11.2. As part of the procurement process using the EHA, NCC will look to facilitate the transfer of some risks to the Contractor.

- 5.11.3. As discussed in section 5.3, the use of option C will share the risk more between the Client and Contractor compared to options A and B. This incentivises both parties to work together to achieve an efficient delivery.
- 5.11.4. The project management and governance structure for delivery of the bypass follows an established structure that has been used by NCC to successfully deliver previous schemes. NCC recognises that in order to successfully deliver the scheme, effective risk management is vital.
- 5.11.5. Risks for this scheme have been identified by specialists in highways and structural engineering, geotechnics, transport planning, quantity surveying and the environmental disciplines and entered into a risk register. 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.
- 5.11.6. At this stage of design and prior to the appointment of Contractors, the scheme cost estimate contains a greater proportion of risk borne by NCC than will remain after the Contractor appointment. Some of the risk will be captured and quantified within the risk register and QRA process.
- 5.11.7. The detailed description of this process is outlined in the Management Case. Once the tendering process is complete, and through use of NEC4 Option C some of the risk (such as scheme cost increases associated with the design and construction) can be transferred to the Contractor. Other risks, such as the identification of statutory undertaker equipment, and mitigation costs associated with these, can be removed from the “risk pot” completely if they do not materialise, or transferred to “actual” scheme costs if they do materialise, rather than remaining as risk.
- 5.11.8. This section provides an assessment of how the associated risks might be apportioned between the council and the Contractor.

Table 5-8 - Potential risk allocation

Risk Category	Potential allocation	
	Council	Contractor
Design risk	The Council will have design responsibility	
Construction & development risk	The starting point will be the standard risk allocation in the NEC4 ECC contract. This will be tailored to reflect the specifics of the scheme.	The starting point will be the standard risk allocation in the NEC4 ECC contract. This will be tailored to reflect the specifics of the scheme
Transition and implementation risk	Risks associated with design vehicle traffic flow will be borne by the Client	Successful commissioning will be a Contractor risk
Operating risk	The council will take the operating risk	
Termination risks	<p>The standard ECC termination position applies, with additional grounds for termination if the Contractor:</p> <ul style="list-style-type: none"> ■ is convicted or has been convicted of a criminal offence relating to the conduct of its business or profession; or ■ commits or is found to have committed an act of grave misconduct in the course of its business or profession; or ■ fails or has failed to comply with any obligations relating to the payment of any taxes or social security contributions; or ■ has made any serious misrepresentations in the tendering process for any project or matter in which the public sector has or had a significant participation; or ■ fails to obtain any necessary licences or to obtain or maintain membership of any relevant body; or ■ demerges into two or more firms, merges with another firm, incorporates or otherwise changes its legal form or there is a change of control as defined by section 416 of the Income and Corporation Taxes Act and, in any such change of control, there are reasonable grounds relating to the financial standing of the new entity that is proposed to Provide the Works for the Client to withhold its consent. 	
Technology & obsolescence risks	The council takes the obsolescence risk during the highway's operational life	
Residual value risks	Residual value risk is retained by the Council	
Financing risks	Financing risk is retained by the public sector	
Legislative risks	The council would take risk associated with changes in legislation	

5.12 CONTRACT LENGTH

- 5.12.1. The tender invitations will assume a construction period of 18 months. It is however possible that tender submissions will propose a shorter period than this, as the programme contains elements of contingency following the risk assessment.
- 5.12.2. Construction is expected to commence in July 2023 and is expected to be complete by December 2024.
- 5.12.3. The contract programme is considered in further detail within the Management Case.

5.13 HUMAN RESOURCE ISSUES

- 5.13.1. No significant human resources issues have been identified that could affect the deliverability of the scheme. No TUPE issues are expected. The Council will provide personnel to perform the role of Project Manager and create a small site supervision team.
- 5.13.2. More information on the governance and management of the project, including details of the people involved, is set out in the Management Case.

5.14 CONTRACT MANAGEMENT

- 5.14.1. The form of contract selected provides the Council with a suitable contract at construction to minimise risk, but with increased ability to bring forward the detailed design process in the programme.
- 5.14.2. Design, procurement, and construction supervision will be managed by NCC and if necessary supported by NCC's Consultants WSP. Both the council and the consultant has experience in delivering major schemes including the Norwich Distributor Road (NDR), A47/A1042 Postwick Hub Junction Improvement and A12/A143 Link Road.
- 5.14.3. The Project Manager will be named within Contract Data as the individual who will administer the contract on behalf of the Employer. The Project Manager will have the designated authority to issue all instructions, notifications and other communications required under the contract. As well as providing general management support and advice to the Project Manager, NCC will undertake the role of Supervisor under the contract with responsibility to check for compliance to the Works Information. Under the contract the responsibilities of the Project Manager or the Supervisor may be delegated but this is not anticipated at this stage.
- 5.14.4. More detail on contract management will be provided in the Full Business Case.

5.15 COMMERCIAL VIABILITY

- 5.15.1. The information above provides evidence that the scheme is commercially viable, with a robust contracting and procurement strategy. The Council has confidence that the contractual and commercial arrangements are appropriate and workable. Specifically:
 - The EHA procurement route has been successfully utilised by NCC in the past on a number of works and other schemes. The proposed approach is in full accordance with the Council's procurement systems and processes.
 - The procurement route includes risk management as a core principle, using strategies of risk allocation and transfer to the Contractor. It includes the use of disincentives, delay damages for programme overruns or missing key milestones, in order to achieve delivery on time and to the required quality.

5.16 SUMMARY

- 5.16.1. The scheme will use the traditional contract and EHA procurement route, however it is also proposed that this will be reviewed to ensure the contract terms and details align with the project requirements, and to ensure a competitive procurement process is delivered.
- 5.16.2. The preferred procurement option is a Traditional construction contract as it offers increased cost and programme certainty. The programme constraints and the limited scope for innovation restrict the benefits of a Design and Build model. NCC also has ready access, including through its term consultant, to the design resources necessary procure under a Traditional model.
- 5.16.3. In line with the council's adopted approach, the preference is to procure the works for the scheme using NEC4 Option C: 'Target cost with activity schedule' contract.
- 5.16.4. The Commercial Case demonstrates that the scheme is commercially viable, with a robust contracting and procurement strategy.

6 MANAGEMENT CASE

6.1 INTRODUCTION

- 6.1.1. This section identifies the management and governance arrangements for the scheme, based on experience from successfully delivered previous projects. It includes details of the key milestones, key risks and the governance structure for the scheme.

6.2 EVIDENCE OF SIMILAR PROJECTS

- 6.2.1. Table 6-1 provides evidence of NCC's ability to successfully deliver high quality highways schemes.
- 6.2.2. All of the schemes have been developed and tendered by the County Council, or procured using the Council's Highways Term Service Contract. The Council has fulfilled the role of Project Manager.
- 6.2.3. A Delivery Team has been used successfully on major infrastructure schemes and this approach will again be followed for the Long Stratton Bypass.
- 6.2.4. Opportunities will be taken, wherever possible, to improve delivery processes by acting upon the lessons learnt from recent schemes. For example:
- Maintaining good stakeholder consultation and engagement, including developing statements of common ground wherever possible, during design development and construction phases of the project
 - Finalising design work before moving to the construction phase. 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 obtain value engineering advice during the detailed design
 - Aiming to carry out as much utility diversion work as possible prior to main start of works

Table 6-1 – Experience of Similar Projects

Scheme name	Description	Contract	Form of contract	Approximate total 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, roundabouts 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
A47/A143 Link Road	Construction of a new link between the A47 (formerly A12) trunk road and the A143	NCC Term Service Contract - 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	£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 January 2016 and fully opened to traffic April 2018



CONSULTANT EXPERIENCE

- 6.2.5. NCC is being advised by WSP Ltd, the Council's term contract consultant, and a major provider of highway consultancy services to local authorities. This contract started in 2014 and has potential to extend to 2026.
- 6.2.6. 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 Great Yarmouth Third River Crossing (for NCC), Lake Lothing (Lowestoft) Third Crossing (Suffolk County Council), the Shrewsbury North West Relief Road (Shropshire Council) and the M4 Smart Motorway for Highways England. WSP is also one of the UK's leading providers of support services to the statutory procedures required to plan, deliver and maintain infrastructure projects, providing land referencing, stakeholder engagement and consultation service, and order management.

CONTRACTOR EXPERIENCE

- 6.2.7. It will be essential to appoint a contractor with significant experience in delivering similar large-scale highway projects. The selection and procurement of the contractor is summarised in the Commercial Case, and the management of the contractor is considered in the project governance section below.

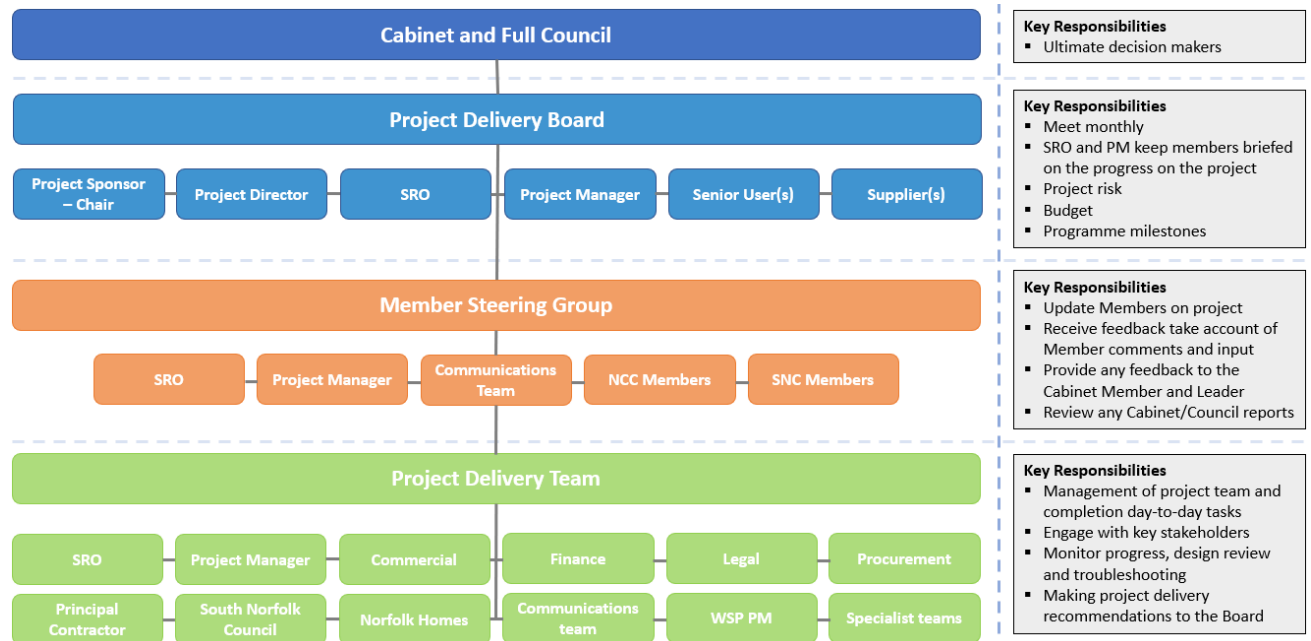
6.3 PROGRAMME / PROJECT DEPENDENCIES

- 6.3.1. The A140 Long Stratton Bypass scheme is not dependent on any prior schemes or projects and can be delivered independently. However, the housing and employment development is reliant on delivery of the bypass. The strategic case indicates that the Local AAP states that the bypass is required to be completed in order to address any highway implications as a result of planned growth in Long Stratton. NCC are working closely with the developer team, who are leading the process to finalise their updated planning application for their development and the bypass project.

6.4 GOVERNANCE, ORGANISATIONAL STRUCTURE AND ROLES

- 6.4.1. The governance structure for delivery of the bypass is described below. This follows an established structure that has been used by NCC for successful delivery of previous schemes, including those identified in the previous local experience in Section 6.2.
- 6.4.2. To ensure successful delivery of the scheme, NCC has established and will continue to resource the following bodies:
- Project Board
 - Members Steering Group
 - Project Delivery Team
- 6.4.3. The organisational and governance structure is illustrated in Figure 6-1 which shows the essential lines of accountability and responsibility. 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.

Figure 6-1 - Project Governance Structure



PROJECT SPONSOR / DIRECTOR

- 6.4.4. The Project Sponsor /Director is NCC, represented by Grahame Bygrave who is currently Director for Highways and Waste at NCC.

SENIOR RESPONSIBLE OFFICER

- 6.4.5. The Senior Responsible Officer (SRO) will be David Allfrey who is currently Infrastructure Delivery Manager, Highways and Waste, Communities and Environmental Services at NCC.
- 6.4.6. David Allfrey is a Chartered Civil Engineer and a Member of the Institution of Civil Engineers (ICE). He has over 30 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 more recently with a focus on major highway improvement projects, including:

- Great Yarmouth Third River Crossing
- Norwich Western Link
- The Nar Ouse Regeneration Route in King’s Lynn
- A47/A1042 Postwick Hub Junction
- Norwich Northern Distributor Road

PROJECT BOARD

- 6.4.7. NCC has established a Project Board 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 are decision taking and review. The Board will be responsible for:
- Approval of project / scheme objectives and scope
 - Authorisation of expenditure on the project in line with the Project Plan
 - Briefing senior officials and other executives on the status of the project
 - Communication of information about the project to other parts of NCC and key stakeholder groups

- Project assurance
- Signing off any changes to the Project Plan and Programme, Business Case or project budget
- Monitoring quality control
- Managing key risks highlighted in the Risk Register
- Signing off key stages of the project and approval to proceed to the next phase
- Monitoring the project as it develops to ensure that it meets the scheme objectives

- 6.4.8. 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.
- 6.4.9. The key project team members including their roles and responsibilities are provided in Table 6-2. The project team has experience in the successful delivery of similar projects including through the EHA Framework with Grahame Bygrave (Director for Highways and Waste), on the EHA Board.

Table 6-2 – Key Project Team

Role	Responsibility	Name	Position
Project Sponsor/Project Director	Chair of Project Board.	Grahame Bygrave	NCC – Director of Highways and Waste
Senior Responsible Officer	Responsible for the successful delivery of the project, ensuring that it meets its objectives and delivers its intended benefits.	David Allfrey	NCC – Infrastructure Delivery Manager
Senior User	Represents the interests of all those who will use the scheme. Monitors and manages user-related risks.	Phil Courtier	BDC/SNC – Director of Place
Project Executive (WSP)	Represents those who are designing, developing, facilitating, procuring and implementing the scheme. Verifies the quality of products delivered by suppliers, resolves supplier conflicts, and monitors and manages supplier-related risks.	Gerry Corrance	WSP – Technical Director
Project Executive (NCC)	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.	Matt Tracey	NCC – Director Growth and Development/Growth and Infrastructure Group Manager
Project Assurance	Considering the end product of each work package against the plan and specification and confirming that it is fit for purpose.	Richard Doleman	NCC – Principal Infrastructure Growth Manager
Finance Manager	Responsible for financial monitoring and reporting.	Andrew Skiggs	Finance Business Partner Community and Environmental Services
Supplier/s	Developer Principal Contractor (PC) once works Contract has been awarded)	Philip Makepeace -PC Rep (TBC when appointed)	Norfolk Homes/ Land PC Rep
Project Manager	Managing the project to ensure that it delivers the required products within the agreed constraints. Coordinating the work of the delivery team.	Rod Kelly	NCC – Highway Design Team Manager

MEMBER STEERING GROUP

- 6.4.10. The role of the member steering group is to provide input to project based on their direct experience on similar projects. The steering group will meet bi-monthly during the course of a project. SNC Members will be invited to join on an ad-hoc basis, as needed.
- 6.4.11. The steering group is a key body within the governance structure and is responsible for providing political input and overview of the project delivery. The current membership of the steering group is shown in Table 6-3.

Table 6-3 – Member Steering Group

Role	Name	Position
Senior Responsible Officer (Chair)	David Allfrey	NCC – Infrastructure Delivery Manager
Project Manager	Rod Kelly	NCC – Highway Design Team Manager
Communications Team	Chris Andrews	Stakeholder and Engagement Officer
NCC Member representation	Martin Wilby Alison Thomas Bev Spratt Colin Foulger Tim East Danny Douglas	Cabinet Member & East Depwade Long Stratton Member (AT) West Depwade (Adjacent Local Member) Forehoe (Adjacent Local Member) and cross party (TE & DD)
SNC Member representation	Alison Thomas Joshua Worley Michael Edney Martin Wilby Barry Duffin Florence Ellis	Long Stratton Long Stratton Hempnall Beck Vale Forncett Newton Flotman

PROJECT DELIVERY TEAM

- 6.4.12. NCC has established a Delivery Team for the scheme. The team will be led by the Project Owner and Project Manager 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, statutory planning processes, procurement and construction stages. Each work stream will have an individual, detailed, agreed action plan to meet the target milestones for the coming year and beyond. This ensures coordination of activities and is a forum for discussing issues/problems as they arise.
- 6.4.13. The main responsibilities of the delivery team are to:
- Coordinate the different activities which make up the project
 - Provide direction to the technical delivery of the project
 - Undertake monthly reviews of progress against targets, including budget and programme
 - Undertake monthly review of the risk register, and initiate corrective action where appropriate
 - Provide monthly progress reports for the project board. The board will consider any matters of a strategic nature and give advice accordingly
- 6.4.14. Costs are monitored and presented to the Project Board on a monthly basis. The Project Manager and Commercial Manager maintain the system and takes account of any known committed costs in updating forecast outturn.

6.4.15. The current Delivery Team is shown in the table below and will consist of people in the following roles show within Table 6-4.

Table 6-4 – Delivery Team Members and Roles

	Responsibility	Name
SRO / Project Owner (NCC)	Chair of Delivery Team Provides reports to Project Board	David Allfrey (Infrastructure Delivery Manager)
Project Manager (NCC)	Project delivery lead, coordinating work streams and key activities	Rod Kelly (Project Manager)
Stakeholder & Communications Lead (NCC)	Develop communications plan Options Consultation Stakeholder management Press liaison	Chris Andrews (Project Stakeholder Engagement Manager) (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	David Gibbons / Paul Gallop (Project Engineer) Vicky Dale (Project Delivery Coordinator)
Project Director (WSP)	WSP Project Owner/Senior Manager with overall responsibility for WSP project input	Gerry Corrance
Project Manager (WSP)	Develop Full Business Case Coordinate design and delivery Manage the technical delivery Monitoring and evaluation Communication with stakeholders	Matt Fox / Ian Baker
Specialist Teams (WSP)	Environmental Modelling & Appraisal Drainage Geotechnical Landscaping Risk Costing Structures Business Case Transport Planning Construction Design (CDM)	TBD
Project Support (NCC)	Support to project manager and delivery team.	Debbie Reilly (Project Officer – Infrastructure Delivery)

6.5 PROGRAMME / PROJECT PLAN

6.5.1. A project programme has been developed for this OBC which contains all the key project tasks, their duration, interdependencies and key milestones and gateways. Certain elements of the programme have built in tolerance / contingency to account for risks identified within the risk register (which could have an impact upon the programme).

6.5.2. The programme will be a live document, with progress on planned task completion being monitored against actual progress on a weekly basis by the project manager. The Project Manager will report progress against plan to the Project Board.

- 6.5.3. A project schedule (programme) is provided in Appendix L. The developer will be making further submissions to the already submitted applications around May 2021 and construction is shown from mid-2023 until late 2024.

6.6 ASSURANCE AND APPROVALS PLAN

- 6.6.1. The scheme will follow the relevant assurance and approval processes, at both a national and local level. As the scheme is being submitted to DfT as part of the proposals for the creation of the MRN, the business case will be developed in line with DfT business case guidance and the supporting modelling and economic appraisal work will be developed in line with TAG. Furthermore, the business case will need to be signed-off to the satisfaction of NCC's Section 151 Officer in their role as the Chief Financial Officer.
- 6.6.2. The business case has been taken to NCC's Cabinet (5 October 2020) for approval at a local level and follow the relevant MRN funding approval processes to go forward.
- 6.6.3. A detailed planning application for the bypass, with outline permission for 1,200 houses and most of the employment allocation on adjacent land, will be submitted to South Norfolk Council. The Long Stratton Bypass must be in place before the 250th house is occupied, as set out in the Long Stratton AAP. The AAP also included a restriction that no houses should be occupied before a junction improvement is completed at the Hempnall junction (north of Long Stratton). This has now been completed by NCC and was opened in November 2019.
- 6.6.4. The planning application for the bypass project is linked with 1200 new homes on the east of Long Stratton, however there is also an application for a further 600 houses to the west of Long Stratton. This equates to the overall housing provision within the AAP of 1800 new homes. The initial applications were submitted and can be viewed via the Council planning portal, references 2018/0111 and 2018/0112.
- 6.6.5. The scheme is entirely within highway boundaries or on land in the control of the developers who have submitted the planning application and this land will also form a contribution to the project (as a land gift). This was also the case for the already completed Hempnall junction improvement.

ASSURANCE – GATEWAY REVIEWS

- 6.6.6. It is essential that large, complex and long running projects are monitored effectively. All major transport schemes have to demonstrate that a system for monitoring progress is part of the management structure and plan. The Gateway review process is a formal assessment of the progress of a project at key stages in its development.
- 6.6.7. A Gateway review is a 'peer review' in which independent project managers from outside the project use their experience and expertise to examine the progress and likelihood of successful delivery of the project.
- 6.6.8. A Gateway review provides assurance and support to the SRO that:
- Suitable skills and experience are deployed on the project
 - All stakeholders understand the project status and issues
 - There is assurance that the project can progress to the next phase
 - Time and cost targets have a realistic basis
 - Lessons are learned
 - The project team are gaining input from appropriate stakeholders

- 6.6.9. Gateway reviews are a mandated assurance process for all publicly funded major projects, although not all reviews will apply to all projects. The SRO and project manager will engage early with Local Partnerships to agree which gateways are required and when.
- 6.6.10. The Gateway review process will assess the project's viability and the proposed approach for achieving delivery of the project's objectives. This approach will allow the review to assure the SRO, and ultimately the Project Board, that the selected delivery approach is appropriate.
- 6.6.11. Figure 6-3 lists the normal stages for Gateway Reviews, as part of the process of managing stage boundaries:

Figure 6-2 - Gateway Review Stages

- 1
 - Business justification
 - Entry to the options phase (undertaken on behalf of DfT) (option identification stage)
 - 2
 - Delivery Strategy
 - Entry to the development phase (preliminary design stage)
 - 3a
 - Investment decision
 - Entry to the statutory procedures and powers stage
 - 3b
 - Investment decision
 - End of the construction preparation stage
 - 4
 - Readiness for service
 - Prior to open for traffic or consent to operate
 - 5a
 - Operational review and benefits realisation
 - Following handover into operations and before the end of the defects period
 - 5b
 - Operational review and benefits realisation
 - A further operational benefits review may need to be undertaken. The timing is at the discretion of the SRO.
- 6.6.12. A review has been completed by Local Partnerships to assess the project and the next stages for the Long Stratton Bypass project. It is expected that further gateway reviews will be completed after the submission of the Outline Business Case (OBC).

6.7 COMMUNICATIONS AND STAKEHOLDER MANAGEMENT

- 6.7.1. A communication strategy has been developed which identifies stakeholders, describes the communication objectives and specifies the key messages, frequency of engagement and communication methods to be used when engaging with these groups about the scheme. This is provided in separate document, Appendix M.

- 6.7.2. As identified in the Strategic Case, there are large number of key stakeholders with ranging levels of interest and influence in the scheme. NCC are currently developing collaborative working arrangements with South Norfolk Council (SNC) and the developer that will cover the delivery of the housing development, planning application and the bypass. There is a delivery team meeting that takes place with representation from both NCC and SNC and this is actively developing the communications plan for the project that will be agreed and monitored by the project board.
- 6.7.3. This will provide details of how and when Norfolk County Council and South Norfolk Council will communicate the stakeholders and keep them up to date with progress on the scheme. This will be a live document that will be updated and maintained by the project Stakeholder and Engagement Manager and Project Manager, who will be responsible for reporting to the project board. Details of the scheme will be provided on the council website.
- 6.7.4. There were previously several public consultation and stakeholder events for a previous bypass scheme developed and approved (but not delivered due to lack of funding) between 2002 and 2005. More recent consultations included the examination of the (now adopted following a local examination) Long Stratton AAP in 2015 and the planning application submission in 2018; further details of these are provided in the Strategic Case. Further planning consultation will be completed following submission of the updated planning application.
- 6.7.5. Letters from a range of stakeholders who support the scheme can be provided.

6.8 PROGRAMME / PROJECT REPORTING

- 6.8.1. Project reporting will be a live process, which will be kept up to date over the life cycle of the project. This relates to reporting of progress, risks and issues. This will involve the following regular actions, as well as additional reporting as and when required:
- The Project Manager will report to the Project Board at each Project Board meeting
 - The Delivery Team leads will report to the Project Manager monthly in advance of the Project Board meeting and hold “weekly calls” to discuss progress and issues.
- 6.8.2. Progress will be reported to the County Council’s Cabinet, which has executive powers. Intervening reports to Cabinet will be prepared if the Board consider these necessary to resolve a specific project delivery matter. The SRO will provide regular updates to the responsible Cabinet Member. This ensures appropriate involvement of the elected members and Member Steering group in this important project.
- 6.8.3. In specific circumstances the Cabinet can give powers to either the Project Board or the Executive Director of Community and Environmental Services to make specific decisions on projects.
- 6.8.4. The SRO reviews the actual and forecast expenditure against budget profiles and reports by exception to the Project Board.

6.9 RISK MANAGEMENT STRATEGY

- 6.9.1. Risk management is a continual process involving the identification and assessment of risks and the implementation of actions to mitigate the likelihood of them occurring and 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.

- 6.9.2. Key to effectively mitigating risks is to develop a series of well-defined steps to support better decision-making through an in-depth comprehension of the potential risks inherent in a scheme and their likely impact. Annex 4 of the HM Treasury Green Book emphasises that “effective risk management helps the achievement of wider aims, such as: effective change management; the efficient use of resources; better project management; minimising waste and fraud; and supporting innovation”.
- 6.9.3. It also recommends a four-stage process which is broadly cyclical (plan-do-review) requiring on-going review and update of risks to ensure that effective controls are implemented during scheme development and delivery. The risk management strategy is illustrated in Figure 6-3.

Figure 6-3 - Risk management strategy



6.10 RISK MANAGEMENT PROCESS

- 6.10.1. Risk management is seen as a key process underpinning good scheme governance and achievement of scheme objectives in a cost-effective manner. TAG Unit A1.2 requires all project related risks, which may impact on the scheme costs, to be identified and quantified in a Quantified Risk Assessment (QRA) to produce a risk-adjusted cost estimate.
- 6.10.2. The outcome of the QRA process is the prediction of an 'expected' risk value which provides confidence levels of the risk outcomes, factoring in the various probabilities of these risks materialising. The confidence levels are reviewed to notice any trends with the P90 confidence level used here to provide the 'expected' risk value. This effectively informs the 'risk adjusted cost estimate'. The risk assessment has been undertaken using the following process:
- Risk identification
 - Risk quantification
 - Assessing the impacts of risk
 - Assessing the likelihood of risk
 - Managing risk

RISK IDENTIFICATION

- 6.10.3. For this scheme, risks have been identified during multi-disciplinary discussions, including inputs from technical experts in highway and structural engineering, geotechnical, planning, transport planning, quantity surveyors and environmental disciplines. A risk identification session was held in October 2019, building upon the initial risk work undertaken for preparation of the SOBC, to review and align the risks to the latest information available. This session was held to ensure new risks were captured and existing risk information was reviewed ensuring completeness, integrity and accuracy of data during the review. Likelihood and impact of each risk to the project were assessed in terms of its possible monetary, programme and reputational effects. Owners were assigned to each risk, based on the type of risk and the resource best placed to manage the risk. The risk register has since been maintained as a live document with regular updates during project design review meetings. The most recent version of the project risk register can be found in separate document, Appendix O. The risks were grouped into the following categories:
- Design Risk Products / Materials
 - Environmental
 - Funding / Third parties
 - Programme / Contract
 - Scope Change
 - Utilities
 - Weather

QUANTIFICATION OF RISKS

Assessing the impact of risk (costs)

- 6.10.4. Each risk has been evaluated in terms of the cost outcomes of the risk. Whilst DfT recommends³⁵ the use of empirical evidence to estimate a range of cost outcomes, it is noted that 'common sense approximations' should be used when such empirical data is not available, rather than aiming for unrealistic levels of accuracy.

³⁵ TAG Unit A1.2, Scheme Costs, p.8, paragraph 3.2.10

6.10.5. At this stage, the cost range associated with the consequences of each risk was estimated, where the 90th percentile is the most likely value (the P90). The estimates have been derived following input from each discipline specialist working alongside the Quantity Surveyor and risk management team, to ensure estimates of cost (and probability, discussed within the next section) are complete and accurate, and consistent with the basis of the base cost estimate.

Estimating the likelihood of the outcomes occurring

- 6.10.6. Having estimated the likely impact (in cost terms), the likelihood (probability) of the risk occurring also needs to be estimated. Assigning probabilities is not an exact science³⁶ and therefore the scheme team technical specialists, including Quantity Surveyors, have had to apply a degree of judgement-based experience gained from working on other similar projects.
- 6.10.7. Once the ‘impacts’ and ‘probabilities’ have been estimated, the risks are mapped onto a 5-point risk matrix to generate an overall ‘risk score’ (Figure 6-4).
- 6.10.8. Each risk has been assigned a likelihood rating. This has been multiplied by the estimated financial value of the risk occurring, to give an expected value. The sum of these expected values forms the total Quantified Risk value (this totalled £4.96 million). NCC then added two additional risk items to this figure to account for COVID19 and Brexit, a value totalling £2.1 million. Combined (at £7.08 million) these costed risks equate to approximately 26% of the total construction cost including utilities. This risk value is included in the financial case.

Figure 6-4 - Risk criteria

Methodology							
Project Risk Impact Criteria Model							
Likelihood of risk occurring							
Likelihood	Definition			Value			
Almost Certain	The event is expected to occur in most circumstances			5			
Likely	The event will probably occur in most circumstances			4			
Possible	The event might occur at some time			3			
Unlikely	The event is not expected to occur			2			
Rare	The event may occur only in exceptional circumstances			1			
Impact if risk occurs							
Schedule	Costs	Performance / Quality	Value				
<2 weeks delay	<1% of budget	Cosmetic impact only	1	Insignificant			
2 weeks– 1 month	1%-<2%	Some minor elements of objectives affected	2	Minor			
1 month-<2 months	2%-<8%	Significant areas of some objectives affected	3	Moderate			
2 months-<4 months	8%-<12%	Wide area impact on some objectives	4	Major			
>4 months delay	>12% of budget	Significant failure resulting in the project not meeting its objectives	5	Extreme			
Impact							
			5	4	3	2	1
Likelihood	5	25	20	15	10	5	
	4	20	16	12	8	4	
	3	15	12	9	6	3	
	2	10	8	6	4	2	
	1	5	4	3	2	1	
Risk Level Tolerances							
Band	Risk Treatment						
High 20-25 (Red Risks)	Risks analysed at this level are so significant that risk treatment is mandatory						
Medium 6-16 (Amber Risks)	Risks analysed at this level require a cost/benefit analysis to take place to determine the most appropriate treatment						
Low 1-5 (Green Risks)	Risks analysed at this level can be regarded as negligible, or so small that no risk treatment is required						

MANAGING RISKS (RESPONSE PLANS AND MITIGATION)

- 6.10.9. Following the initial assessment of scheme risks, a systematic approach was adopted to respond to risks and allocate responsibility to the most appropriate party in line with governance arrangements set out in section 6.4. One of the following four strategies is adopted for each risk when developing a suitable response plan.

³⁶ Ibid. p.8, paragraph 3.2.14

- Accept or tolerate consequences in the event that the risk occurs – In the event that a) the cost of taking any action exceeds the potential benefit gained; or b) there are no alternative courses of action available
- Treating the risk – Continuing with the activity that caused the risk by employing four different types of control including preventative, corrective, directive and detective controls³⁷
- Transferring the risk – Risks could be transferred to a third party e.g. insurer or contractor
- Terminating the activity that gives rise to the risk

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

IMPLEMENTATION AND REVIEW

6.10.11. Effectiveness of the response plan is dependent on the proper implementation and review of the residual risk (including any secondary risk associated with implementation). Reviews of the status of scheme risk assessments and their related response plans (as part of project reporting) will be an integral part of progress meetings (and at the Project Board) during progression of detailed design and the construction period. All key risks will be formally reviewed at key decision points in the scheme lifecycle.

THE RISK REGISTER

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

6.10.13. The top strategic and top quantified risks are provided in Table 6-5.

³⁷ The Orange Book, HM Treasury (2004)

Table 6-5 – Top Strategic Risks

Risk Type	Risk Cause	Risk Description	Risk Impact
Funding / Third parties	#1 Key local stakeholders lobby against the scheme #2 The costs of the scheme increase leading to a reduced BCR #3 Dependent development test not carried out yet but could potentially reduce VfM e.g. impacts of additional housing development/added congestion #4 Quantified risk assessment increases costs significantly	The Project may fail to secure funding in line with expectations to advance beyond OBC stage	1 Delays to programme whilst priority is agreed (risk to overall delivery due to delay / delivery confidence), 2 Potential curtailment of the project and prevention of the project moving into the OBC phase
Funding / Third parties	#1 Competing projects provide a more credible case to be granted the funding #2 The costs of the scheme increase leading to a reduced BCR #3 Results from Public consultation do not support the implementation of the scheme	The project may fail to secure LLM funding to progress the scheme	1 Potential showstopper for the project unless alternative funding stream comes along.
Funding / Third parties	#1 Timing of trying to secure the funding isn't right politically #2 The costs of the scheme increase leading to a reduced BCR	The project may have difficulties finding local funding contributions from developers in Long Stratton to meet the contribution threshold	1 Norfolk CC or developers would need to underpin the cost of the scheme
Funding / Third parties	#1 The outcomes of the Brexit negotiations are currently unknown	Brexit may have an impact on national wealth	1 Reduced opportunity to secure funding
Scope Change	#1 If the scope is not sufficiently precise and comprehensive	The contractors may be entitled to compensation	#1 Cost uncertainty
Programme / Contract	#1 Programme tight timescales	Stakeholders may become disengaged if there are delays.	Delays, cost and reputational risk
Modelling	#1 Traffic model assumptions change #2 There is no variable demand model component to the current model #3 Further modelling and iterations to be done around the economic case	Further traffic modelling may show that any feasible road alignment does not have sufficient benefits for business case	#1 Reputational impact if funding has been granted to progress to OBC with a reduced confidence in model outputs #2 BCR of the scheme reduces from current reported figures #2 Reduction in the scheme's VFM to 'poor'

Risk Type	Risk Cause	Risk Description	Risk Impact
Environmental	#1 Traffic flows increase to a wider range of locations than anticipated	The project may introduce a greater traffic flow and congestion to wider areas than the models envisaged	#1 Increased mitigation costs to residents impacted. #2 Scheme opposition in the wider impacted locations #3 Increased pollutant concentration in the atmosphere and increased noise emissions.
Political / Stakeholder		Inability to maintain political support for the scheme including at MP level.	Loss of support may affect ability to secure funding
Policy		Local Plan for 2036 is emerging - key developments in study area not confirmed.	Future model forecast results may change - may affect scheme economics
Modelling		DfT may not accept traffic modelling used for assessment, economic appraisal or are not forth-coming with technical reviews.	"1. Inability to support the findings 2. Extra modelling work 3. Delay associated with additional modelling "
Commercial		Concerns over whether new EHA Framework will be suitable vehicle to deliver construction works	1. Delay to programme
Technology		Advances in technology e.g. driverless cars may result in design requirement changes.	
Policy		Gear change impact on design	

Table 6-6 – Top Scoring Quantified Risks

Risk Type	Risk Number	Risk Cause	Risk Description	Risk Impact	Pre-Counter Measure			
					Likelihood	Impact	Risk Score	Risk Level
Environmental	31	#1 Sites of significance found in the South and North #2 A number of artefacts have been found around Long Stratton	Archaeological remains that require significant intrusive investigation or removal may be present	1. Risk to pre-construction programme and cost from survey requirements pre-application. 2. Re-route scheme to avoid	4	2	8	MEDIUM
Design Risk Products / Materials	41	#1 Drainage interface of 2x catchment areas #2 There has been a lack of surveys yet - will be done once floor risk stuff is undertaken	Design of the drainage at Northern Roundabout may be impacted by lack of surveys	1. Increase in pond size to manage the risk - cost impact is for surveys and for remediation 2. Address existing infrastructure with surveys and remediation.	3	2	6	MEDIUM
Design Risk Products / Materials	17	#1 RS Audit highlights safety concerns #2 Lack of engagement with road safety engineers	Road Safety Audit may lead to changes in designs	#1 Cost implication of late design changes #2 Programme implication of further design reviews	5	2	10	MEDIUM
Funding / Third parties	69	#1 Landowners refuse to sell #2 Assumed that the agreements will be back to backed with the developer.	NCC may fail to obtain the land that they subsequently need	1) The CPO process will need to be followed and associated legal and evaluation costs	3	2	6	MEDIUM
Programme / Contract	51	#1 The public inquiry finds in favour of the objectors #2 NCC's evidence is not strong enough	More mitigation needed to address the public inquiry objections	1. Potentially needing to add an additional overbridge 2. Other mitigation measures identified as part of the objector's concerns	3	3	9	MEDIUM
Programme / Contract	52	#1 The Developer's planning programme is significantly delayed and is likely to be delayed further by key local events #3 Developer has yet to re-engage their consultants #4 Designs needing review by LLFA	The assumed procurement strategy for the project may change	1. The project will need to use the OJEU procurement route	3	2	6	MEDIUM

Risk Type	Risk Number	Risk Cause	Risk Description	Risk Impact	Pre-Counter Measure			
					Likelihood	Impact	Risk Score	Risk Level
		may arrive late so they can't comment until during planning						
Programme / Contract	55	#1 Government working restrictions enforced #2 Contractors have working restrictions or members of team not working	The ongoing Covid-19 pandemic may impact the project	1. Prolongation of design or construction programme 2. Increased cost due to contractors refusing to bear all the risk associated with Covid-19	4	2	8	MEDIUM
Programme / Contract	62	#1 Scheme noise impact may be greater than assumed	Scheme noise effects may extend to a wider residential area than first anticipated.	1. May need to discretionary purchase a property 2. Increased mitigation costs to residents impacted. 2. Increased possibility of opposition to the scheme	2	3	6	MEDIUM

TRANSFER OF RISK TO THE CONTRACTOR

- 6.10.14. The Commercial case describes how the procurement strategy will seek to place risk with the party best placed to manage or mitigate that risk or manage the consequences should they transpire. Much of the risk will be around ground conditions (for structures, pavement/ construction, and drainage), so NCC will ensure to provide sufficient GI data well before tender stages. Delivery and programme risk will substantially rest with the contractor.
- 6.10.15. The contractor will be required to produce a priced risk register. This will be reviewed as part of the process of target cost setting and decisions made on the mechanism for sharing risk between the contractor and NCC, ensuring that the proposed allocation provides the best value for money for the project. The risks on which the council will need to take a view are noted within the commercial case.
- 6.10.16. A ‘pain-gain’ share mechanism where the basic principle is that a target cost is agreed and then the contractor is paid for the work undertaken on a cost reimbursable basis may be negotiated and agreed with the contractor and used to provide incentive for value engineering and robust cost and programme management.

6.11 BENEFITS REALISATION PLAN

- 6.11.1. A Benefits Realisation Plan will be prepared for the Long Stratton Bypass scheme. The plan is designed to enable benefits, and disbenefits, that are expected to be derived from the project, to be planned for, managed, tracked and realised. The plan will help demonstrate whether the scheme objectives identified are able to generate the desired ‘measures for success’. This can be assessed by tracking and realising the desired outputs and outcomes of the project.
- 6.11.2. Desired outputs are those tangible effects that are funded and produced directly as a result of the scheme. Desired outcomes are the final impacts brought about by the scheme in the short, medium and long-term. The scheme objectives, together with the desired outputs and outcomes, are summarised in Table 6-7.

Table 6-7 – Benefits Realisation Plan

Scheme Specific Objectives	Desired Outputs	Desired Outcomes	Scheme Target
A new bypass will take through traffic out of the town centre and reduce queues and delays to journeys.	To reduce excessive traffic on A140 To increase regional transport capacity and resilience	<ul style="list-style-type: none"> ■ Unlock further local investment in facilities and infrastructure to compliment housing. ■ Reduced journey times ■ Reduced fuel consumption ■ Making the region more attractive to investors 	Reduce congestion
Proposals seek to ‘free up’ the town centre route and thus enhance efficiency and attractiveness of public transport and active modes			<ul style="list-style-type: none"> ■ Reduced fuel consumption ■ More people choosing to walk or cycle ■ More people using public transport due
By relieving congestion on the existing A140 the bypass will aid in improving journey times and reliability of bus services along this route. This should also make the route more accessible for sustainable modes		<ul style="list-style-type: none"> ■ Making the region more attractive to tourists ■ Making the region more attractive to investors 	
Improved journey times and reliability will be offered to through traffic, better connecting the towns and cities of the surrounding area.			

Scheme Specific Objectives	Desired Outputs	Desired Outcomes	Scheme Target
A more efficient route around Long Stratton will better facilitate deliveries that would otherwise be subjected to congestion and speed limits through the town			Support economic growth & rebalancing
By improving accessibility to and from the town centre, the bypass will provide more opportunity for businesses;	Unlock commercial land to create jobs	<ul style="list-style-type: none"> ■ Increased disposable income, leading too Regional, productivity and Consumption ■ Making the region more attractive to investors 	
Enabling the delivery of a significant new employment opportunities via new land allocated for businesses.			
Creating a new road, adhering to all modern design standards should provide an improved highway and reduce the rate and severity of road traffic incidents.	To reduce excessive traffic on existing A140 To increase regional transport capacity and resilience	<ul style="list-style-type: none"> ■ Reduced journey times ■ Social multipliers ■ Making the region more attractive 	Support all road users
Reducing heavy traffic on the existing A140 will work to remove the impact of severance in Long Stratton and enable an enhanced local centre public realm;			
Reduction of HGVs and other through traffic in the town centre will assist in improving air quality in the town and reduce the noise impact from the existing road.			

6.12 MONITORING AND EVALUATION

6.12.1. The HM Treasury Magenta Book provides the following definition of Monitoring and Evaluation³⁸:

- Monitoring – seeks to check progress against planned targets and can be defined as the formal reporting and evidencing that spend and outputs are successfully delivered and milestones met
- Evaluation – is the assessment of the initiatives effectiveness and efficiency during and after implementation. It seeks to measure the causal effect of the scheme on planned outcomes and impacts and assessing whether the anticipated benefits have been realised, how this was achieved, or if not, why not.

6.12.2. The DfT has also published a document entitled, 'Monitoring and Evaluation Framework for Local Authority Major Schemes' (2012), designed to make the process as consistent and proportionate as possible. It also aimed to be complementary with the devolution of decision-making.

6.12.3. The document sets out three levels of monitoring and evaluation:

- Standard monitoring
- Enhanced monitoring
- Fuller evaluation

³⁸ The Magenta Book, HM Treasury (2011)

- 6.12.4. This scheme is required to conduct the 'standard monitoring' approach, as the costs are less than £50 million which is the threshold for scheme's requiring 'enhanced monitoring'.
- 6.12.5. The following measures (covering inputs, outputs, outcomes and impacts) will be monitored for all schemes:
- Scheme build
 - Delivered scheme
 - Costs
 - Scheme Objectives
 - Travel demand
 - Travel times and reliability of travel times
 - Impacts on the economy
 - Carbon Impacts

6.13 SUMMARY

- 6.13.1. This management case confirms the scheme is deliverable. It has provided evidence that NCC and their consultants have delivered similar highway schemes, of similar scale and complexity in the past, using known procurement approaches, governance structure and project management processes as is proposed here. Where lessons have been learnt from those experiences, these will be used to improve the management and delivery of the Long Stratton Bypass. A contractor with significant experience in delivering similar large-scale highway schemes will also be selected during the procurement process.
- 6.13.2. The case confirms the scheme is not dependent on any prior schemes or projects and can be delivered independently.
- 6.13.3. An appropriate governance structure is essential to the delivery the scheme, which is why NCC has established a tried and tested Project Board, a Members Steering Group and a Project Delivery Team to govern the delivery of the scheme. These groups will govern the project in accordance with project management best practice.
- 6.13.4. A project programme (Gantt chart) has been developed for the scheme, setting out all the key project tasks, their duration and interdependencies, key milestones and gateways. This will act as a live document and will enable the Project Manager to monitor and manage progress.
- 6.13.5. The project has appropriate assurance and approval processes in place, and the project will need to progress through gateway review stages which will confirm suitable skills and experience are deployed on the project, all stakeholders understand the project status and issues, there is assurance that the project can progress to the next phase, that time and cost targets have a realistic basis and that lessons are learned. This gateway review process will be undertaken independently by Local Partnerships.
- 6.13.6. A communication and stakeholder management plan, a live document that will be updated throughout the delivery of the project is being developed and will ensure that all stakeholders are identified and planned interactions are set out and monitored. All details of the plan will be agreed with the project board who will receive regular updates by the project Stakeholder and Engagement Manager and Project Manager.



- 6.13.7. A risk management strategy has been developed which enables risk for the project to be identified, quantified and managed. These risks are contained within a live risk register, which the Project Manager will use during project reporting.
- 6.13.8. Both Benefits Realisation plans and Monitoring and Evaluation plans have been outlined within the case which will ensure the benefits the scheme is expected to deliver are delivered, and the scheme is evaluated post-construction. The plans will be further developed as the project progresses.



WSP House
70 Chancery Lane
London
WC2A 1AF

wsp.com