

Project information

Title	A47 Blofield to North Burlingham Dualling			
Stage	Full (FBC) business case			
Authority requested	This business case supports the request for formal approval from NH IDC July 2024 to approve the revised pre-construction estimate of £159m and approve the award of Notice to Proceed, subject to the usual Governance gateways and award of the DCO			
Senior responsible owner (SRO)	[REDACTED] – delegated to [REDACTED]			
Distribution	As per PCF portal guidance			
Document status	Approval			
Version	Current	V4.0 FBC	Previous	V3.0

Functional advisors | business partners

Name	Role	Date of issue	Version
Subject matter advisors (SMAs) by function – see next table			
[REDACTED]	Customer champion		
[REDACTED]	Environment		
[REDACTED]	Human Resources		
[REDACTED]	Safety Engineering and Standards (other)		
[REDACTED]	Finance		
[REDACTED]	Commercial		

Subject matter advisors (SMAs) i

Name	Role	Date of issue	Version
[REDACTED]	Health, safety and wellbeing		
[REDACTED]	Customer, Strategy and Communications		
[REDACTED]	Capital Portfolio Management		
[REDACTED]	Economic SMA		
[REDACTED]	Commercial and Procurement SMA		
[REDACTED]	Finance SMA		
[REDACTED]	Management SMA		
[REDACTED]	Digital Services		
[REDACTED]	Legal Services		
[REDACTED]	Equality, diversity and inclusion		

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Introduction

1. Executive summary

1.1 Recommendation

The appraisal of the A47 Blofield scheme demonstrates that it is affordable and where there are risks these will continue to be worked on throughout construction.

The project contributes to the wider objectives of National Highways Strategic Business Plan, presents a High value for money and a BCR of 2.36.

The scheme is currently undertaking advanced works. During the Judicial Review, a court decision following the appeal was received in February 24, with the judge's ruling again against the claimant. An appeal to the Supreme Court was made and this was rejected 28 May 24. The recommendation is that the full business case is approved based upon the pre-construction commercial estimate of [REDACTED].

The DIP have been contracted to fully deliver the scheme in line with the currently agreed TOC of [REDACTED].

1.2 What is the latest information on financing this proposal?

The Scheme has an agreed TOC of [REDACTED] in accordance with contract. This estimate includes all costs to deliver the Scheme from Options stages through to the end of construction. Additional funding will be required following Notice to Proceed to take account of the latest inflation figures and agreement of the ToTP with the DIP. The TOC was agreed prior to the Judicial Review submission and the Deed of Variation 2 Budget was agreed following the first appeal to the high court, therefore an excess of the TOC was agreed in the budget through an X22.6 change.

On 11 March 2020, the Government published its second Road Investment Strategy for the period 2020-2025 (RIS2). Part 3: The Investment Plan sets out the Government's expenditure priorities which confirms the ongoing commitment to the A47 Programme including A47 Blofield to North Burlingham scheme.

In September 2023 NH IDC approved the schemes Full Business Case along with an uplifted budget of [REDACTED] and granted all the construction costs enabling the project to move forward to SoW.

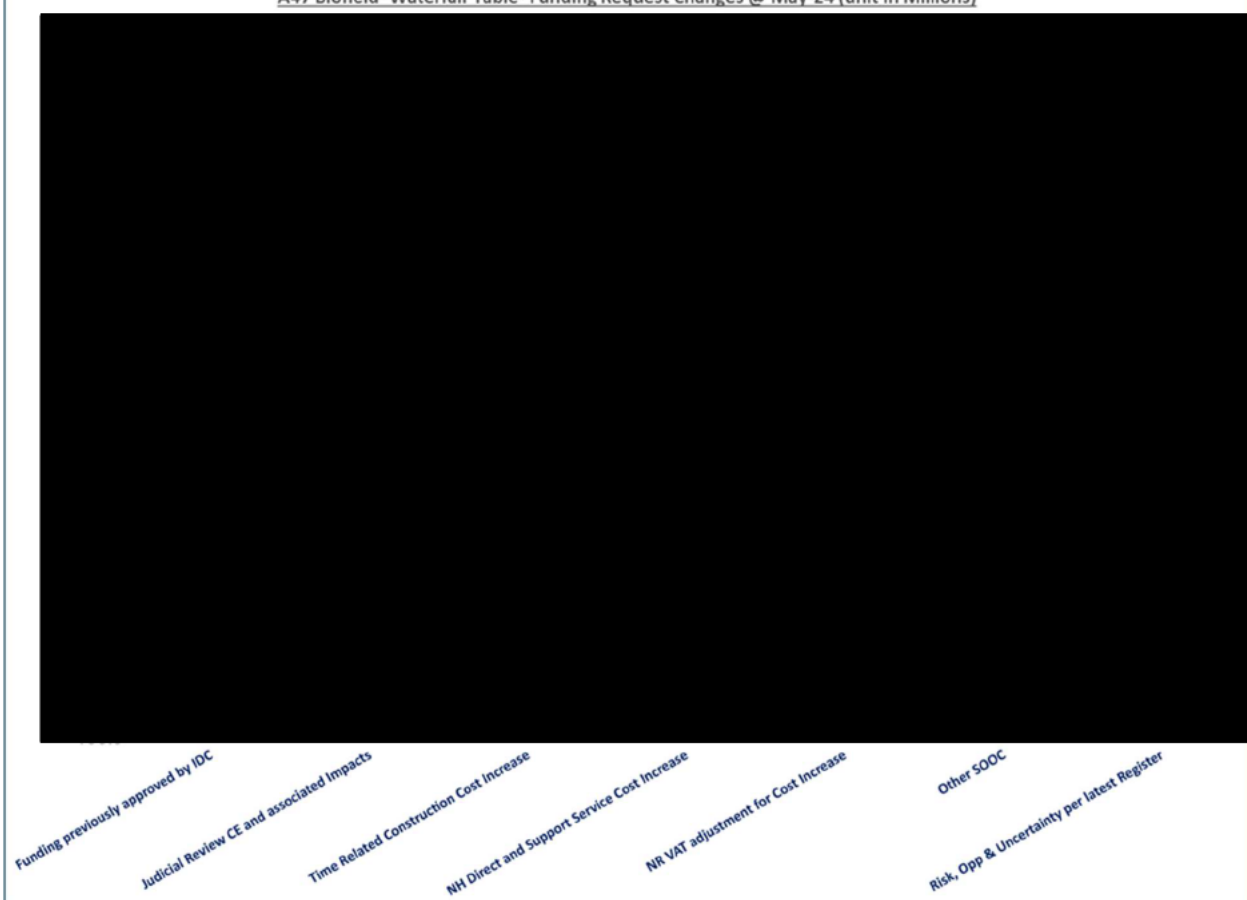
Prolongation costs due to the Judicial Review and inflation numbers have been calculated however commercial negotiations are still ongoing with the DIP. The revised commercial estimate from May 2024 is inclusive of these costs has a most likely figure is [REDACTED].

					W											X	Y	Z	SumW to Z	
Affordability Profiles (£m)				Version	Date	Prior Years	Road Period 2					Road Period 3					RP2	RP3	Future Years	Total Project Cost
							20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30				
a	Capital Baseline			v3.1	Jan-23															
b	Current Operational Plan (inc CRR drawdown) *			v4.2.4	Jun-24															
c	Project Manager's current forecast				Jun-24															
a-c	Current forecast vs Capital Baseline																			
b-c	Current forecast vs Operational Plan																			
Funding Approvals (£m)																				
Funding previously approved by IDC				Sep-23																
Funding requested in this investment submission				Jul-24																
d	Total funding approved after this investment decision				Jul-24															
Actual spend to date				Jun-24																
d-c	Current forecast vs Total funding approved																			
*CRR (drawn down) / handed back previously																				
Additional Information (£m)																				
e	PM's forecast before third party contribution																			
f	Third party contribution																			
g(e+f)	Project Manager's current forecast (cost to NH)				Jun-24															
h	Current Commercial Estimate				May-24															
h-g	Forecast vs Commercial Estimate																			

In Table 1 below, the revised commercial estimate figure reflects construction cost increases resulting from the JR:

Description	Amount
Initial Agreed Budget	
JR initial Ce	
DOV 2 Inflation Adjustment	
Funding previously approved by IDC	
Judicial Review CE and associated Impacts	
Time Related Construction Cost Increase	
NH Direct and Support Service Cost Increase	
NR VAT adjustment for Cost Increase	
Other SOOC	
Risk, Opp & Uncertainty per latest Register	
Latest Outturn Commercial Estimate	
Additional Funding Request	

A47 Blofield- Waterfall Table- Funding Request Changes @ May-24 (unit in Millions)



1.3 What is the proposal trying to achieve?

KPI	CR	KPI	CR
The number of killed or serious injuries (KSIs) on the strategic road network (SRN)		Incident management: percentage of incidents cleared within one hour, based on 24 hour coverage	
Network availability: percentage of the network free from traffic restrictions owing to roadworks		Noise	
Pavement condition: the percentage of pavement asset that does not require further investigation for possible maintenance		Air quality	
Biodiversity		Water	
National Highways carbon emissions		Road user satisfaction: measured using the strategic road user survey (SRUS)	
Roadworks information timeliness and accuracy		Efficiency	
Average delay: difference between the observed travel time and the speed limit travel time (seconds per vehicle per mile)			

CR = confidence rating. Key: red – concern, amber – limited, green – positive.

RIS commitments other	Description	CR
Capability	DIP in contract, project delivery and quality plans and resource plan are all in place	
Deliver to budget	Budget agreed	

1.4 What options have been considered?

A Technical Appraisal Report (TAR) for the route was completed within Product Control Framework (PCF) Stage 1 (Options Identification Stage), in November 2016. A total of 8 options were identified with four options developed in further detail for the TAR.

Further development of 4 options meant that the four options were suitable to take forward to Public Information Exhibition in PCF Stage 2. The four options were costed during stage 2 to inform the project team and to be able to provide a Benefits cost ratio for the options. Following the Options Estimate the A47 corridor improvement schemes were deemed too expensive. A value engineering exercise known as “deep dive” was undertaken to reduce the overall baseline cost. The four options were presented to the PCF Stage 1 Investment Decision Committee (IDC) in December and it was decided that the four options could go through to Non statutory public consultation.

During Stage 2 option 4 was the chosen option and became “the scheme”. PRA was announced on option 4 and design has progressed throughout the development phase. At the end of stage 5 the latest commercial estimate if most likely [REDACTED] with a high VfM.

1.5 How will you go about delivering it?

Procurement of a Delivery Integrated Partner (DIP) has been completed, with partners announced in November 2018. The Delivery Integration Partner (DIP) for Stages 3 to 7 is Galliford Try (GT) for the A47 Blofield scheme. GT completed mobilisation and agreed the framework and scheme contracts in September 2019 and have appointed SWECO as the Design Partner for the scheme. The A47 Programme used the Regional Delivery Partnership (RDP) to procure the ‘Delivery Integration’ Partner (DIP). The procurement strategy which was followed is set out in Section 4.2, Diagram 4.1.

The contract awarded sets a budget for the Development and Construction Phases with efficiencies included in the budget set to ensure that the NH efficiency target is achieved for the scheme through this procurement route. The TOC is in line with the total funds available for the scheme and derives from the commercial estimate completed in June 2023, there has since been a further updated commercial estimate received and this will inform an update to the TOC when agreed in September 2024.

A revised TOC is to be agreed with DIP as required by the contract to include the effect of DOV 1 & 2 changes and associated NRVAT. A total of the Prices also submitted by DIP as detailed within the Quotation Information. After assurance from TA, Commercial, Risk and Planning assurance, the TOTP were used to update the Pre-construction Estimate.

In addition to this, NH procured Technical Advisors (TA) to support the scheme providing assurances including the scheme design and the BCR. The TA was procured under a Collaborative Delivery Framework (CDF) contract with value for each PCF stage being agreed in advance. The TA started supporting the project in November 2019. The TA identifies the high-risk areas of the scheme through the agreed Technical Risk Assessed Table process.

The project uses the CEMAR software to administer the contract.

Efficiencies for the scheme are managed through the digital efficiency register process submitted monthly by the DIP identifying any efficiencies to cost and or time specifically. Within the RDP contract the primary efficiencies are embedded within the TOC with further efficiencies to be identified and delivered within Stage 6.

Supplier performance is measured using the Collaborative Performance Framework (CPF) process. Submissions are quarterly made by the DIP with evidence that is assessed and agreed with NH against performance criteria.

1.6 What is your project/programme governance arrangement?

The Regional Investment Programme (RIP) uses a committee structure which provides monthly forums in which project issues can be reviewed and escalated where necessary. Projects raise issues and discussion points at the Project Committees. Any items deemed to require escalation are raised to the Programme Committee by the Sponsor. This forum is also meant to help maintain the project on Budget using EVM and KPIs to monitor project progress against commitments.

To ensure that the project undergoes quality assurance throughout the project lifecycle, NH quality practices and procedures are adhered to. Stage Gate Assessment Reviews (SGAR) are undertaken to ensure that the products for the stage have been approved and signed off by the relevant sign off authority. Only once all PCF products are completed for that's stage then the scheme can move into the next stage. SGARs are conducted internally by the Project Sponsor and the PCF Management team.

Independent Assurance Reviews (IARs) and Project Assurance Reviews (PARs) using the Infrastructure Projects Authority's Assurance Review process are conducted by experienced and impartial reviewers. The purpose of the IAR or PAR is to provide assurance and support to the Senior Responsible Owner 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
- The project team are gaining input from appropriate stakeholders
- Lessons are learned

1.7 What are the main risks, legal and regulatory impacts?

Threats and opportunities are managed in line with the NH Risk Management Plan. Risks and mitigating measures are reviewed monthly with risk workshops held quarterly. Key risks are discussed and escalated, if necessary, through Project Committees. The Risk Register is continually reviewed, and actions assessed on a regular basis by the integrated project teams and individual risk owners using Xactium as the tool for the register. The NH Project Manager is accountable for the process being managed with either the Client, Contractor or both being responsible for the risks within the register and their mitigations.

The top 5 risks on the Risk Register can be found in Appendix 2 – Risk Register of this Business case.

The team maintain a costed risk register through Xactium which a cloud-based platform allowing the integrated project team, specialist support and suppliers to have instant access to the registers. The register is complete with risk owners and identified mitigation measures. The team also maintains an issues log with structured counter actions. In addition to this the scheme has a Risk Management plan (RMP) for each stage, and all 3 documents are working live documents which have a regular reviewing strategy governed by the RMP.

A47 Blofield Development Consent Order (DCO) application was submitted in December 2020 to the Planning Inspectorate and was accepted in January 2021. DCO examination completed December 2021 with the DCO being granted in June 2022. The A47 team also procured legal support, (Womble Bond and Dickinson) to assist with the DCO process. Womble Bond Dickinson have been involved with the DCO process for the A47 Blofield scheme to date including producing/reviewing all the critical DCO documents.

1.8 Is Cabinet Office and/or His Majesty's Treasury (HMT) approval involved?

As a tier 2 scheme we do not require separate HMT approvals for spend, however, we do require HMT approval for some Utility diversions. We currently have approval to pay for the Anglian Water Diversions and Cadent Gas diversion. No others require HMT approval needed.

1.8.1 Cabinet Office (spending controls aligned to Cabinet Office reform January 2023).

Commercial i	Over £20m - contract / task order / Framework or extension Discuss with your C&P lead. i	<input checked="" type="checkbox"/>	N/A
	Supplier has agreed both DOV 1 and DOV 2. Also have submitted a Total of the Prices for the works in accordance with Quotation information. This submission was assured by TA, Commercial and Risk Scheduling Project Control team prior to submit to Cost Planning for updating the Pre-Construction Estimate. Pre- Construction estimate from cost Planning and a Project Manager's Estimate to complete the works is included with this submission for approval. A revised budget of [REDACTED] is agreed with Supplier taking account of inflationary pressure and changes to the previous TOC with NRVAT and other increases. This Budget will get adjusted in line with DOV 1 & 2		
	Over 20m – contract with a 'grant' element administered by and through the procured supplier	<input type="checkbox"/>	This includes both feeds and grant funding channelled through the contract.
	If selected add a sentence on the status of the grant elements and commercial control approval.		
	Dispute disclosure over £20m i Discuss with the <u>Commercial Resolution team</u> .	<input type="checkbox"/>	Dispute disclosures submitted are independent of the commercial spend controls process (as above).
	If selected add sentence on status of disclosure with Cabinet Office.		
	Consultancy and professional services spend for contracts over £20m	<input type="checkbox"/>	i If you are uncertain of the category you require, please consult your finance business partner <u>and</u> procurement lead who can consult with the classification group
	If selected add a sentence on status of commercial control approval.		
	Facilities management contract over £20m	<input type="checkbox"/>	iTo be discussed with both FM and commercial CO leads, indicating the case is FM specific, for the Cabinet Office approvals routes to be sought.
If selected add a sentence on status of commercial control approval.			

Digital and technology i	All digital and technology spend, regardless of value Discuss with Digital Governance .	<input type="checkbox"/>
All existing and planned digital spend are approved through our digital and technology pipeline process, as part of joint assurance reviews (JAR). If selected add a sentence on status of the JAR approval.		

External recruitment: contingent labour i Discuss with HR business partners. CEO approval obtained via the Reward and Resourcing Executive (RRE) process. Cabinet Office external approval is all completed by HR following RRE.	Approval of all contracts with day rates of £1000 (including any fees)	<input type="checkbox"/>
If selected add a sentence on the status of approval.		

National property control i Discuss with FBS Business cases	Expenditure over £100,000 for the duration of the commitment (freehold acquisition cost or total rental expenditure to lease expiry).	<input type="checkbox"/>
When required add sentence on status of approval.		

Facilities management i FBS Estates and facilities only. i Where contracts are over £20m the CO commercial spend control process is to be followed.	Submit a FM contract pipeline for all FM contracts, expiring in the next 3 years.	<input type="checkbox"/>
	Approval for all new facilities management contracts and all contract extensions above £500k and under £20m.	<input type="checkbox"/>
	Approval for contract variations above £10m	<input type="checkbox"/>
When required add sentence on status of approval.		

Redundancy and compensation i Discuss with HR Business Partner.	Approval of all redundancy and compensation schemes and certain individual exit arrangements.	<input type="checkbox"/>
When required add sentence.		

Learning and development Discuss with Organisational Development Learning and Development Lead.	Learning and development (Civil Service Learning) spend controls	<input type="checkbox"/>
When required add sentence.		

1.8.2 HM Treasury

Novel/contentious i Discuss with Company Secretariat, Legal Services and Financial Governance	<input type="checkbox"/>
When required add detail.	

Advance payments i Discuss with Finance Business Partner.	<input checked="" type="checkbox"/>	Advance payment (other)
HMT approval has been granted for advance payments to Anglian Water and Cadent Gas for SU Diversions, both >£3m.		

Special payment i Discuss with Finance Business Partner	<input type="checkbox"/>
When required add brief detail and anticipated timing of submitting to HMT (via FBS).	

2. Strategic case

The scheme's specific Transport Objectives, as agreed in the Client Scheme Requirements, are as follows:

Economy

- To reduce congestion and increase reliability of journey times on the strategic corridor.
- Assist in bringing forward development and regeneration opportunities in the surrounding area and immediately adjacent to the scheme.
- To minimise traffic disruption due to construction works and incidents.
- To achieve optimum whole life costs taking into account future maintenance and operation, and disruption to users.

Environment

- To minimise impacts on both the natural and built environment, including designated landscape/biodiversity features.
- To seek to mitigate impacts on air quality and noise.
- To ensure effective measures are in place to protect watercourses from pollutant spillage on the highway.
- To investigate and encourage the use of environmentally friendly operations and products throughout the project life cycle.

Society

- To improve the safety for all road users.
- To manage the safety for road works in accordance with the requirements of GD04/12 – Standard for the Safety Risk Assessment on the Strategic Road Network and the Health & Safety at Work act 1974 to be So Far As Is Reasonably Practicable (SFARP).
- To improve safety for residents in the vicinity of the junction.

- To facilitate integration with other transport modes where applicable.
- To ensure a consistent high standard of signing relating to the junction and scheme.
- To seek to reduce severance by maintaining or providing appropriate facilities for crossing and travelling along the route for non-motorised users.

Public Accounts

- To be affordable and represent High Value for Money according to DfT appraisal criteria.

Scheme Specific Objectives

- Reduce congestion related delay, improve journey time reliability and increase the overall capacity of the A47. This will help A47 contribute to sustainable economic growth by supporting employment and residential development opportunities.
- Improving road safety for all road users by designing to modern highway standards appropriate for a major A road.
- Increasing the resilience of the junction in coping with incidents such as collisions, breakdowns, maintenance and extreme weather. The improved A47 from Blofield to North Burlingham will be more reliable, reducing journey times and providing capacity for future traffic growth.
- Protect the environment by minimising adverse impacts and where possible, improving the environmental effects of transport on those living along the route of the new and existing road.
- Ensure the scheme considers local communities and access to the road network, providing a safer route between communities for cyclists, pedestrians, equestrians and vulnerable users where a need is identified.

The scheme's objectives link to the NH's Performance Specification and consideration has been made in the table in Appendix 1 to the contribution to each KPI the scheme will make.

2.1 Relevant strategies

The scheme has been announced and funded in line with the Road Investment Strategy (RIS) for Road Period 1 (RP1). On 11 March 2020, the Government published its second Road Investment Strategy for the period 2020-2025 (RIS2). Part 3: The Investment Plan sets out the Government's expenditure priorities which confirms the ongoing commitment to the scheme. The scheme had a NH delivery plan commitment to start works by 31 March 2022. Due to the JR delay this committed date has undergone change with a new programmed start of works on 3 September 2024.

The RIS sets out a brief for NH to manage the delivery of £27.4 billion of investment in the Strategic Road Network (SRN) between 2020 and 2025. The RIS identified a number of key challenges on the Strategic Road Network (SRN), including increasing demand, delays and associated environmental impacts as well as the need to provide customers with reliable journey information. The RIS defines the works required for this project as "dualling of the A47 between the A1 and the dual carriageway section west of Peterborough."

In 2019 RIS2 was published reaffirming the Government's commitment to delivering the A47 Blofield scheme as part of a wider programme of improvements along the A47 corridor. Full details can be found in the Government's Road Investment Strategy 2: 2020-2025 document. It states: "**A47 Blofield to North Burlingham** – upgrade of the A47 east of Norwich to fill a gap in the dual carriageway section between Norwich and the Acle Straight" as "*Committed for RP2*".

Maximising the economic impact of the SRN is particularly important. Improvements to capacity and connectivity between key cities will help to lever in investment and will better enable local people to access employment opportunities. 'The Road to Growth', National Highways' first strategic economic growth plan, evidences the relationship between the SRN and the economy and sets out how it will increase its economic contribution.

The scheme is required to support the A47 Strategic route and aspirations for local housing and employment developments, which will allow for local economic growth. For this purpose, a number of local policies have been reviewed and the A47 Corridor, as well as the Blofield to North Burlingham dualling scheme, can be seen as highly supportive.

The A47 Blofield to North Burlingham scheme supports National Highways strategic goals and business KPIs, including improving journey times and reducing KSIs on the network.

'Strategic Fit' with Policy			
Policy			Key Extracts
National Policy			
DfT	Transport	Investment Strategy	<i>"Reducing congestion and strengthening connectivity are both crucial for increasing local productivity and creating places in which people want to live and work"</i>
Road	Investment	Strategy (March 2015)	<i>"Our ambition for the next 25 years is to revolutionise our roads and create a modern SRN that supports a modern Britain, making a real difference to people's lives and businesses' prospects."</i>
National Highways Goals for the Strategic Road Network			<i>"Improving the reliability of journey times...Reducing deaths and injuries in line with Government targets."</i>
Strategic Framework for Road Safety (March 2011)			<i>"There have been impressive improvements over previous decades and in recent years. We are committed to ensuring this trend is maintained."</i>

2.2 As-is position

2.2.1 History and issues with existing arrangements

The A47 and former A12 trunk roads provide for a variety of local, medium and long-distance trips between the Midlands (connection with A1) and the ports of Great Yarmouth and Lowestoft along the eastern coastline. The section of the A47 between Blofield and North Burlingham is located to the East of Norwich and the west of Great Yarmouth, providing a strategic route for Blofield and North Burlingham, Lingwood, and Acle in particular.

Previous studies have been conducted of this route, notably in 2008 which identified the same issues as this project has identified. The key problem is defined in the Feasibility Study for Blofield to North Burlingham as follows: "This section is currently operating at 108% of link capacity (2011)" This is predicted to worsen in future years due to short medium and long commercial traffic and increases in residential housing developments.

The link has an average speed lower than the daily average during peak traffic periods. This is an indicator of congestion and affects journey reliability on the route.

The collision rate on this section of the A47 was higher than the route and National average in both 2011 and 2012. The severity rate was higher than the National average, but lower than the route average in both 2011, 2012 and 2023. Due to the lack of nearby alternative routes, the route resilience on this link is also an issue. The route resilience is also affected by seasonal changes as the A47 is the main route for

holiday makers visiting the Norfolk coastline. Additionally, there are increases to farm traffic in the Blofield to North Burlingham area when the sugar beet harvest season is in progress.

2.2.2 Business need and service gaps

Three key problems have been identified along the Blofield to North Burlingham route, each of the problems is expected to deteriorate further in the future as traffic growth exacerbates the current transport problems. The problems are briefly described in the following sections.

Problem 1: Congestion and delay on the A47 Blofield to North Burlingham route disrupts journeys on the strategic road network and local roads.

At present motorists' experience congestion and delays along the A47 Blofield to North Burlingham route in particular at the scheme extents where the road narrows to single carriage way. According to the base year traffic model, in the AM and PM peak periods average delays of at around 1.2 – 1.5 mins are experienced along the A47 single carriageway mainline link between High Noon Lane and South Walsham Road.

Problem 2: Resilience to incidents or accidents is poor, resulting in significant disruption and unreliable journey times

With high demand for using A47 Blofield to North Burlingham route and the increasing levels of traffic predicted for the future, the ability of the route to be resilient to unplanned events will remain poor (for example, crashes, breakdowns, weather events and road maintenance/road works). As traffic volumes increase capacity of the route will remain above 100% for longer and in peak conditions there would be a significant increase in travel times. In addition, the risk and rate of accidents and injuries also contributes to the resilience issues and the resulting increase in journey times. 67 collisions over a 5-year period from 2015 to 2019. Groupings of collisions can be seen at the Lingwood Road/Dell Corner intersections, the Lingwood Lane intersection, the B1140 South Walsham Road intersection and the B1140 Acle Road intersection. During these times significant delays occurred along this route as traffic could not use any extra capacity to pass any incidents. This potentially could cause delays to emergency services arriving. Alternative routes in the area are not suitable for any large volumes of traffic due to the poor quality of them and some are single lane only (with passing places).

Problem 3: Actual and significant perceived safety concerns associated with driver movements along the route, particularly at adjoining roads.

Current records of accidents show that between 2015 and 2019; 67 collisions resulted in 67 casualties: 53 slight, 13 serious and 1 fatal. This number peaked in 2019 when 18 collisions occurred. These statistics do not include damage only collisions. Groupings of collisions can be seen at the Lingwood Road/Dell Corner intersections, the Lingwood Lane intersection, the B1140 South Walsham Road intersection and the B1140 Acle Road intersection. These intersections are all T junctions adjoining the A47. In particular there is a large volume of slow-moving lorries joining the A47 at the South Walsham road and Acle road intersection as they travel north and south crossing the A47.

Summary

An overview of each of the problems, their timescales and key drivers to addressing them is shown in Table 2 below. This summary highlights the alignment of the problems with the key policy drivers identified with National Highways and key stakeholders.

Problem & Causes	Timescale	Key Policy Drivers
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<p>Congestion and delay on the A47 Blofield to North Burlingham route disrupts journeys on the strategic road network and local roads</p> <p>Key causes:</p> <ul style="list-style-type: none"> • Growing traffic demands to use A47 • A lower than average speed limit along the route • Local growth and development in Blofield North Burlingham and Lingwood • Deficiencies in the design of the route to cater current demand and movements, including the local connections 	<p>Current and future</p>	<ul style="list-style-type: none"> • Unlocking economic growth and new housing delivery – particularly along A47 corridor and local growth around Blofield North Burlingham and Lingwood. • Addressing poor customer experience and high level of complaints • The A47 is critical link to the strategic growth and development set out in the Economic Plan for Norfolk
<p>Resilience to incidents or accidents is poor, resulting in significant disruption and unreliable journey times</p> <p>Key causes:</p> <ul style="list-style-type: none"> • High number of accidents and incidents occur along the A47Blofield to North Burlingham route due to poor lane marking, signage, visibility and driver behaviour. • Access points to the route are T Junctions with no slip roads giving no time for traffic to reach suitable speeds • The route is operating at capacity, therefore inability to operate efficiently in the event of an accident or incident. • Depending on nature and location of incident the traffic levels may lead to issues on responding to the incident 	<p>Current and future</p>	<ul style="list-style-type: none"> • Smoothing traffic flows generally and maximising network availability on the SRN • Supporting economic growth and competitiveness through greater reliability in journey times • Improving user satisfaction
<p>Actual and significant perceived safety concerns associated with driver movements along the route particularly at adjoining roads.</p> <ul style="list-style-type: none"> • High number of accidents and incidents occur on the roundabout due to poor lane marking, signage, visibility and driver behaviour. • Access points to the route are T Junctions with no slip roads giving no time for traffic to reach suitable speeds • Poor perception of safety due to confusion as road narrows from dual carriageway to single carriageway. 	<p>Current</p>	<ul style="list-style-type: none"> • Improving network safety issues and reducing the number of collisions along the route • Smoothing traffic flows generally and maximising network availability on the SRN • Improving user satisfaction • Maintaining safe access for pedestrians and cyclists through the route.

Table 2: Summary of problems and causes

2.3 Business need

2.3.1 Key drivers

Internal drivers

The A47 strategic route from Norwich to Great Yarmouth is a very busy section of the A47 Corridor and often experiences severe congestion, in particular at the points of single carriageway. As such this route between Blofield to North Burlingham plays a key role in connecting Norwich with Great Yarmouth and other key destinations across the East of England.

In the Route Strategy for the A47 (April 2014), Highways Agency (now National Highways) set out their priorities for the first road period (2015/16 to 2019/20). It identifies the Blofield to North Burlingham route as a key part of the A47 strategic road network. It caters for high volumes of east west traffic. Delays along this route can be as high as 3 minutes. This section of the A47 contains accident hotspots and the A47 is the trunk road with the second highest accident frequency nationally.

In December 2014, the DfT published the Road Investment Strategy for 2015 to 2020 which sets out the list of schemes that are to be developed by National Highways. Possible solutions for schemes named in the RIS have been identified through the Route Strategies (<https://www.gov.uk/government/publications/route-based-strategies-evidence-reports>) process run by National Highways. This collated evidence on network performance issues and engaged local stakeholders and interested parties on the problems, issues and potential range of solutions.

In 2019 RIS2 was published reaffirming the Government's commitment to delivering the A47 Blofield scheme as part of a wider programme of improvements along the A47 corridor. Full details can be found in the Government's Road Investment Strategy 2: 2020-2025 document. It states: "**A47 Blofield to North Burlingham** – upgrade of the A47 east of Norwich to fill a gap in the dual carriageway section between Norwich and the Acle Straight" as "*Committed for RP2*".

The capacity issues on the A47 between the Blofield to North Burlingham route can be attributed to:

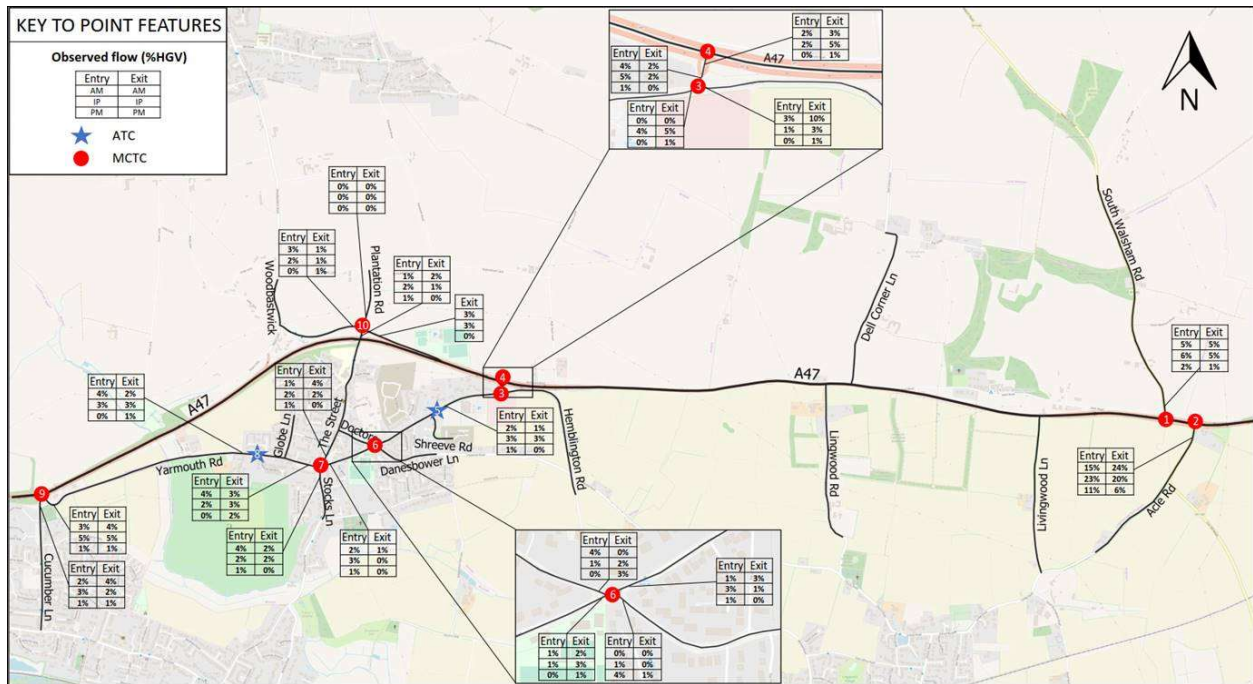
- high volumes of traffic on the A47 eastbound in the AM and PM peak period
- High volumes of traffic on the A47 westbound in the AM and PM peak period
- High volumes of North South traffic between South Walsham Road and Acle Road during the sugar beet harvest.

As shown in the tables and maps provided below:

Link	Year	DM	DS
Modelled Flow (AADT)			
A47 at Blofield (between Yarmouth Road and EB on slip)	2025	28600	32800
	2040	35300	40800
	2061	37200	43300
	2025	29600	33900

Observed 2019 October flows sourced from the PCF Stage 3 work





To measure the success of these outcomes the Delivery Plan also identifies a series of KPIs and associated targets. Many of these complement the outcomes which are set out within the RIS, and these have been key in the identification, development and assessment of alternative options for improving the Blofield to North Burlingham Route.

The Delivery Plan includes specific KPIs for Delivering better environmental outcomes. This scheme has looked to address and/or contribute to achieving these KPIs and related outcomes wherever possible. Some of the key environmental indicators featured relate to:

- **Noise** – 1,150 noise important areas mitigated during and after construction.
- **Air quality** - Undertake air quality testing and minimising the effects on the local environment and local residents.
- **Biodiversity** - delivery of improved biodiversity, as set out in the Company's Biodiversity Action Plan.
- **Cyclists, walkers and other non-motorised users** - demonstrate consideration of NMU's and incorporate measures within the scheme for them to be able to continue to use the network as they can currently.
- Social and environmental objectives should form part of the design solution as required either through the National Highways licence agreement or other government commitments.

External drivers

The scheme is required to support the A47 Strategic route and aspirations for local housing and employment developments, which will allow for local economic growth. For this purpose, a number of local policies have been reviewed and the A47 Corridor, as well as the Blofield to North Burlingham dualling scheme, can be seen as highly supportive.

The Greater Norwich Joint Core Strategy (JCS), which was adopted in March 2011 and amended in January 2014, covers the period 2008 to 2026. It sets out long-term vision and objectives for the area, which includes strategic policies for steering and shaping development. The JCS also identifies locations for new

housing, employment growth, changes to the transport infrastructure and other developments. Housing employment and economic growth is leading to an increased demand on the road network in the Blofield to North Burlingham area. The scheme is needed to add capacity and support the flow of traffic through this route; this will support improvements to the local economy.

The Greater Norwich Infrastructure Plan (GNIP) is a document that helps coordinate and manage the delivery of strategic infrastructure to support growth, high quality of life and an enhanced natural environment. It is a live document, updated annually to reflect the latest information. The GNIP supports the delivery of the JCS, other Local Plan documents for the area and various other strategies, deals and plans. It also focuses on the key infrastructure requirements that support the major growth locations.

The A47 Alliance brings together the business community, local authorities, MPs and stakeholders along the whole of the trunk road route between Peterborough and Lowestoft. Partners, including the Greater Cambridge Greater Peterborough and New Anglia LEPs have been working together, making the case for improvements and to secure the investment required to make the improvements. The proposed changes to the Blofield to North Burlingham route will provide a better flow for traffic between Norwich and Great Yarmouth enabling business traffic to reach destinations quicker and safer.

2.3.2 Impact of not changing/doing nothing

Without appropriate intervention to improve the performance of the Blofield to North Burlingham route, each of these problems would be expected to deteriorate further in the future as traffic levels increase. This would result in significant consequences for the efficiency of traffic flow, road safety, network resilience, and user satisfaction. Ultimately it will further reduce the ability of the junction to perform its role in supporting local and regional aspirations for development and growth.

Specifically, without intervention:

- The Blofield to North Burlingham route will be a constraint on the wider Strategic and local road networks caused by the inadequate capacity of the route junction with increasingly high traffic demands.
- Average delays east and west bound will increase further between 2.5 to 3 minutes during the AM and PM peak periods than at present which is already significantly higher than if Do something is applied.
- The ability of the route to remain open and available in the event of an accident or incident will continue to poor and with increase in traffic will diminish further.
- Accident and incident rates will increase as traffic flows increase.

2.4 The programme/project/service

2.4.1 Scope

Based on the RIS Statement as described in section 1.1, the scope of the A47 Blofield to North Burlingham scheme is to improve The A47 strategic road network between Norwich and Acle. The improvement is to link two existing stretches of dual carriageway to provide a longer continuous route of dual carriageway. Each option developed provides this solution through a variety of routes and side road junction designs.

2.4.2 Proposed strategic benefits and key performance indicator (KPI) contributions

KPIs

The scheme aligns with the Key Performance Indicators set out in the Road Investment Strategy. These indicators, and outline proposals for how the scheme can meet them, are set out in the table in Appendix 1. Although the scheme is programmed to start construction **September 2024** these outline proposals assume the same indicators remain through the next period, when the new route would open to traffic

Occupational health, safety and wellbeing:

Records of collisions over the length of the scheme for the 5-year period between 2015 and 2019 have been reviewed. The locations and severities of collisions are shown in Appendix B of the Scheme Assessment Report (SAR). A total of 67 collisions were recorded in the study area during this period. This includes 53 slight, 13 serious and 1 fatal collisions. This number peaked in 2019 when 18 collisions occurred. Groupings of collisions can be seen at the Lingwood Road/Dell Corner intersections, the Lingwood Lane intersection, the B1140 South Walsham Road intersection and the B1140 Acle Road intersection.

The high rate of accidents in the area is a key safety challenge for the Blofield to North Burlingham dualling scheme. The A47 is currently ranked 2nd national for fatalities on A-roads and the accident severity ratio is above average. Locations of accidents recorded can be seen below in figure 4, and above can be found in Appendix B of the SAR.

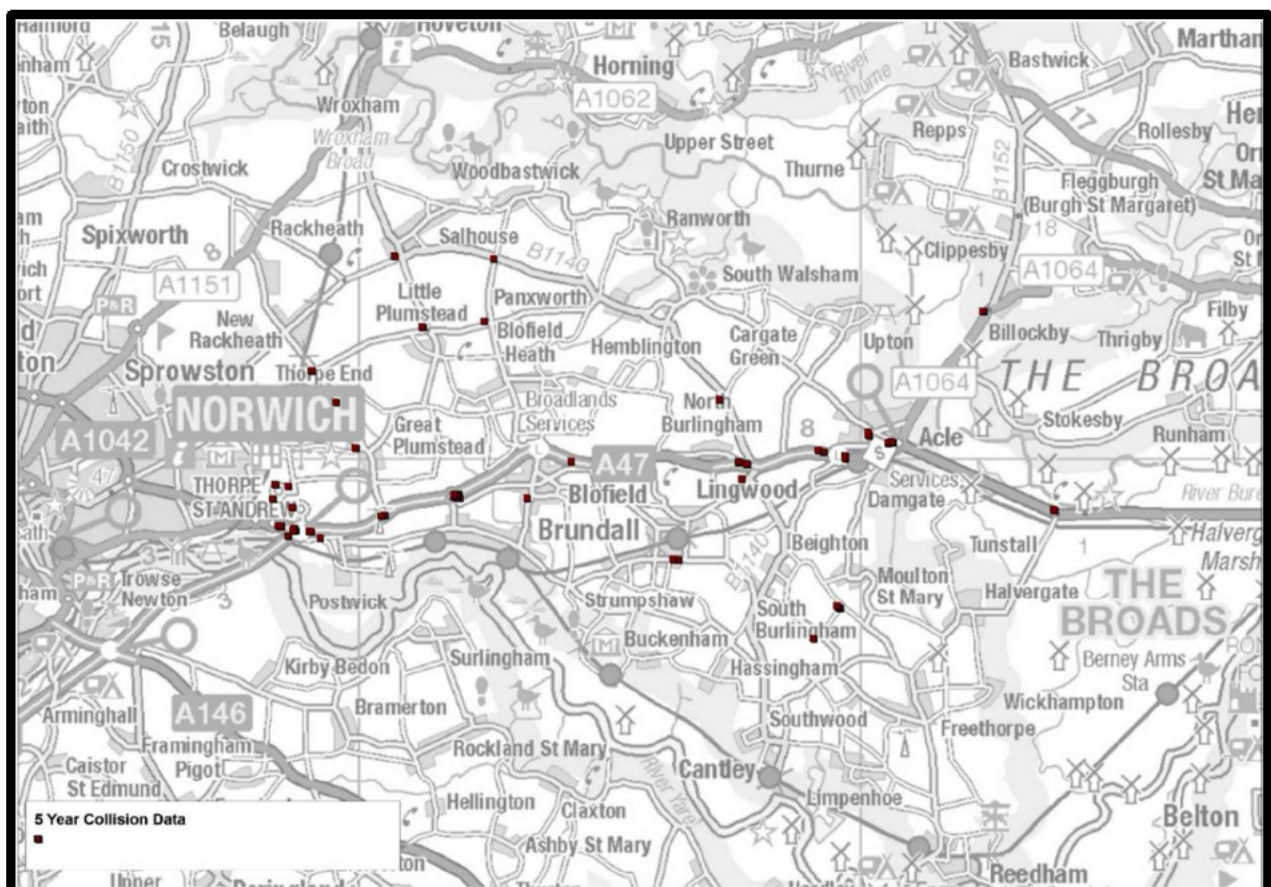


Figure 4 Observed Accident Locations

While the majority of the collisions are low in severity, generally involving damage only and slight injuries, in many cases these result in significant disruption to traffic and unreliable journey times. The Blofield to

North Burlingham dualling scheme will increase the capacity of the route and help to provide continued flow of traffic should an accident occur. Additionally, severance of the current adjourning routes will further improve safety as they currently do not meet safety and engineering standards. The number of adjourning routes will significantly reduce and only be provided in line with current safety standards and will minimise the risk of accidents and collisions. There will also be additional provision for non-motorised users which will separate them more effectively from the motorised traffic.

Equality impact

An Equality Impact Assessment has been completed using National Highways' EDIT tool, census data, and feedback from public consultations and engagement events to evidence our compliance with the Equality Act 2010. At each governance stage the EqIA has been updated and signed off by the National Highways project Equality, Diversity and Inclusion team.

The Stage 3 approved EqIA was submitted within the Development Consent Order (DCO) submission. No specific reference to equality issues were raised during the examination process and there were no significant changes to the DCO application scheme design during the examination that would affect the EqIA receptors or the conclusion of the EqIA issued at DCO.

The following is a link to the latest approved Stage 5 EqIA -
<https://share.highwaysengland.co.uk/Share/llisapi.dll/Overview/104188497>

Summary of the findings, including details of consultation with communities/ customers/ groups/ stakeholders/ staff/ professional organisations.

- Increased construction traffic is likely to be experienced on local road network. This has the potential for noise and dust disturbance. To mitigate any adverse effects, works will be undertaken in accordance with the Construction Dust, Noise and Vibration Management Plan (document reference HE551490-GTYEGN-000-PL-LA-50001) appended to the EMP (second iteration) (document reference HE551490-GTY-EGN-000-PL-LE-50002) at Annex B3.
- Stopping up of Lingwood Road and Lingwood Lane, as well as walking, cycling and horse riding (WCH) routes.
- Visual impacts on properties at multiple locations in the study area.
- Impact on the allotments access/parking facilities located east of Blofield. Permanent loss of existing allotment plots (maximum 6), but car parking will be enlarged, and a new water tank provided. During operation
- Improved reliability of journey times for drivers and the new footway/cycleways, connecting local communities with amenities. The proposed combined footway/cycleway along the northern side of the existing A47 is expected to provide improved connectivity, diversify transport options and promote active travel between North Burlingham and Blofield.
- New footway/cycleway connections between communities.
- Significant short-term adverse noise effects and long-term minor beneficial noise effects are expected to be experienced at 37 residential receptors in the vicinity of Yarmouth Road and 18 residential receptors in the vicinity of the B1140.
- Significant beneficial noise effects are expected to be experienced at Strumpshaw Road, Stone Road and Wood Lane.

The outcome of the hotspot mapping exercise showed that the scheme is located in:

- An equality 'hotspot' area
- An area of high population density
- An area with large numbers of people from equality groups
- An area with high proportions of people from equality groups

- An area with a large number of destinations used by members of equality groups

Key areas identified for consideration include:

- Pedestrian or community severance
- Access to public services or community facilities
- Public transport usage
- Access to employment opportunities
- Streetscape and the pedestrian environment
- Crossings
- Physical accessibility
- User experience and confidence
- Temporary changes to the carriage or footway
- Diversions and changes to key routes
- Noise, dust, light and environmental impacts
- Temporary construction employment
- Changes in access to facilities and services.

Environmental impact

Environmental Impact Assessment (EIA) is a process that identifies the likely significant environmental effects (both adverse and beneficial) of a proposed development. Environmental effects are assessed through understanding of the potential impacts and the sensitivity of the receptors for a given scheme. The process ensures that the importance of effects are properly considered and that the opportunity for reducing any adverse effects are taken into account as part of the design development process.

The approach to the EIA involves; information gathering to establish the baseline and environmental setting, considering the potential impacts of the Proposed Scheme, consultation, developing measures to prevent or reduce adverse impacts, and identifying the residual significant effects.

The findings inform the design process and communicated to competent authorities, statutory authorities and other interested parties.

The EIA is undertaken in accordance with up to date legislation and guidance and includes a spatial and temporal scope for its assessment. The approach and scope of the assessment is outlined in the Stage 3 Scoping Report.

Environmental topics included for the Proposed Scheme are:

- Air quality
- Cultural heritage
- Landscape and visual
- Biodiversity
- Geology and soils
- Material assets and waste
- Noise and vibration

- Population and human health
- Road drainage and water environment
- Climate
- Cumulative effect assessment

The findings of the EIA are reported in the Stage 3 Environmental Statement (ES). A summary of the ES is provided in the Non-Technical Summary. These were submitted as part of the DCO application.

Net zero highways

Whole life carbon impact

Link to Carbon Management Report -

<https://share.highwaysengland.co.uk/Share/llisapi.dll?func=ll&objId=108052914&objAction=browse&viewType=1>

In line with National Policy and the Design Manual for Roads and Bridges (LA114: Climate), the carbon metrics provide evidence of the carbon impacts of the investment and an assessment of these impacts for carbon budget periods.

Corporate Carbon	22/23	23/24	24/25	RP2 Total	RP3 Total
Change in emissions (tCO _{2e})	-	-	-	-	110.0

	Total
Cost Effectiveness of Carbon Reductions £/ (tCO _{2e})	
Valuation of change in corporate emissions £*	(29,480.0)

* Using BEIS appraisal values

notes

¹ IDC Paper to include a statement on whether any Corporate Carbon impact is consistent with our Corporate Carbon Plan.

² Use tool designed by Chief Analyst Division to estimate corporate carbon disbenefit value.

Construction Activity	CB4 2023-27	CB5 2028-32	CB6 2033-37	60 yr Total
Change in emissions (tCO _{2e})	32,781.38	-	-	32,781.38

	Total
Cost Effectiveness of Carbon Reductions £/ (tCO _{2e})	
Valuation of change in construction emissions £*	£4,081,730

* Using BEIS appraisal values

notes

¹ We need to define what is in the scope of Construction activity, in the mean time IDC paper to state which of construction, operation

maintenance, and renewals have been included.

² Use tool designed by Chief Analyst Division to estimate construction carbon disbenefit.

Tailpipe/Road User	CB4	CB5	CB6	60 yr Total
1) Emissions based on Core Assumption	2023-27	2028-32	2033-37	
Change in emissions in carbon budget (MtCO _{2e})	0.0027	0.0132	0.0125	0.0284

	Total
Valuation of change in road-user emissions £*	£9,981,423

	CB4	CB5	CB6	60 yr Total
2) Emissions based on Transport Decarbonisation Plan (TDP)	2023-27	2028-32	2033-37	
Change in emissions in carbon budget (MtCO _{2e}) - upper bound	0.0026	0.0118	0.0084	-
Change in emissions in carbon budget (MtCO _{2e}) - lower bound	0.0022	0.0081	0.0044	-

* Using BEIS appraisal values

notes

¹ Use assured tailpipe carbon estimate produced as part of the business case.

Nature

The below tables provide details of Realised and Future Opportunities for the scheme under Biodiversity, Communities, and Carbon Reduction themes.

Biodiversity

Opportunities Realised	Future Opportunities
The PCF Stage 5 revised drainage design at Waterlow included larger areas of open grassland habitats with scrub and trees compared to the PCF Stage 3 design. The new permanent waterbody, species-rich grassland and increased areas of scrub and tree cover will provide greater opportunities for a wider range of wildlife and protected species than is currently found in the area and contributes further to the scheme's biodiversity net gain.	Species rich grassland trials during early PCF Stage 6 may demonstrate that grass cutting regimes during maintenance (i.e. do nothing no herbicide application prior to seeding and no cut and collection) may be equally or more successful in establishment as standard regimes (e.g. regular cut and collect), thereby saving on costs and carbon footprint.
At PCF Stage 3, lengths of a 5m wide bank and ditch arrangement were proposed within the parcels of land between the existing and the proposed A47s to deter settlement. The ditch element of the feature was not proposed to form part of the wider water environment. At PCF Stage 5, this has been removed and replaced with species rich grassland, bird foraging habitat and planting.	Success or otherwise of the establishment of species rich grassland via the application of three different seed mixes may identify a preferable mix thereby increasing the likelihood of biodiversity net gain towards CPF targets.

Losses and gains of trees and hedgerows to meet updated design requirements at PCF Stage 5 have been broadly balanced across the scheme with the new habitats introduced enhancing the scheme's biodiversity and landscape character.	Provision of bird and bat boxes within the wider neighbourhood and not solely within the footprint of the scheme.
At PCF Stage 5, avoidance of vegetation loss was achieved through relocation of works and proposals moved to impact habitats of lower ecological value e.g. the retention of a large group of trees (170 no.) that had previously been identified for removal (at mainline chainage 1100 to 1400)	
At PCF Stage 5 a detailed method statement to facilitate new compounds was agreed in order to avoid disturbance to bat roosts and to safeguard this species and roosts.	
The removal of the street lighting through PCF Stage 5 improves the conditions at the new junctions for bats. This maintains current light levels at the Yarmouth Road junction and reduces existing light levels at the B1140 junction, whilst maintaining darker zones for light adverse species such as Myotis bats observed to be active within the locality.	
Bat hop-over points using fencing or dense scrub have been designed to encourage bats to fly high over the new road.	

Communities

Opportunities Realised	Future Opportunities
Use of East Anglian Air Ambulance meeting space for larger meetings promoting to other businesses and helping the charity at the same time.	Volunteering days with East Anglian Air Ambulance to help the charity and communities of the east are being planned
Drainage redesigned	Chip local trees that are to be felled, to be used on local allotments and improve quality of their soil, and biodiversity on the land, removing the requirement for less environmentally friendly solutions.
Historical Flooding events for Waterlow Residents. Project team have now designed six infiltration Ponds/Basins that will now address the potential for flooding and not increase the risk with the new road structure.	UKPN & other utility companies consulted with removing the need for established hedgerow trees and fence to be felled. Leaves in place privacy for landowner and biodiversity.
Heritage Local Fruit trees to be transplanted on allotment site, exhibiting our environmental	

commitments to the community, rather than replace with smaller saplings	
Project team consulted Lingwood PC re: relocating Blofield site compound, originally planned access via Lingwood Rd would result in building a haul road across fields to provide access to site for vehicles/equipment. Now relocated closer to the new A47 road saving over 250 metres of haul road being built and will reduce the amount of soil, hedgerows, wildlife being disturbed, and less negative impact on the local community.	

Carbon reduction opportunities

Opportunities Realised	Future Opportunities
Stabilised Capping Layer: reduced road haul of taking class2 material away and importing of capping material (within efficiencies register)	Recycle PPE - Some companies operate a recycling system for used PPE. Old PPE exchanged for newly recycled by some suppliers. Hard hats manufactured into plastic pellets for re-use.
Use of Precast Elements – where possible pre-cast options have been used instead of in-situ construction (box culverts/bridge beams/headwalls)	Solar Powered CCTV & Lighting Rigs - Solar options for lighting and CCTV can be hired - subject to availability
Reduced Pavement Width – Pavement widths have been adjusted to reduce amount of asphalt needed to be placed	Procure Materials with A Certified Low Energy Manufacturing Process: Reduction in carbon emissions - could require longer distance transportation
Reduced Pavement Specification – side roads have reduced to Norfolk County Council specification reducing pavement construction thickness	Re-use of Scheme Haul Road and Platform Materials: re-use materials from haul roads and platforms elsewhere on the scheme
Energy Saving Offices/compound – Solar/bio-diesel hybrid powered offices. Smart heating (switches off if windows left open). Smart sockets (switch off when equipment left on standby). Motion sensor light switches. Instant heat taps instead of water boilers or kettles. Use of low energy products for site offices - e.g. printers. Install smart metres.	Use of Road Plannings for Farmer's Track: Savings on quantities of type 1 material
Location Of Compound - Savings to the scheme costs, Environmental benefits, carbon efficiencies	Part Time WFH For Back Office: Reduction in car usage: Core/admin staff - 95% Construction/delivery team - 5%

Oasis Cabins - opportunity to use solar powered Oasis welfare units/cabins on site.	Mandate Electric or Hybrid Cars: Cost Neutral company policy to use hybrid or electric company cars wherever possible
	Mobile Food Delivery: reduce journeys from site and back for lunch
	Site Won Materials to Reduce Transport Carbon: Reduction in carbon transport, Cost savings in ToTP
	Purchase local materials: Purchase of local materials where possible (limited to items like kerbs or aggregates, to reduce material transportation
	Site Water to Be Reused: Ponds for water collection, opportunity to reuse rainwater for some construction activities (dust suppression)
	Alternative Fuel/Hydrogenated Vegetable Oil to Power Heavy Plant: opportunity to trial alternative fuel/use hydrogenated vegetable oil to power heavy plant on site reducing carbon emissions.
	Locally Sourced Precast Units: A supplier has been sourced approx 90 miles away from the scheme. Previous supplier is in Ireland.

2.4.3 Key stakeholders and customer requirements

In addition to journey time savings and safety impacts, the other key quantifiable benefit from the scheme for road users relates to the reduction in incident related disruption along the route. By providing additional capacity the scheme is predicted to reduce disruption due to unplanned incidents (collisions, breakdowns, obstructions, flooding, etc.), within the scheme extents and hence the associated delay and unreliable journey times.

This also offers a clear potential improvement to journey quality for road users through reduced driver frustration for all road users, potentially leading to an improvement in customer satisfaction. Journey time reliability will also be improved during future maintenance of the route (such as resurfacing schemes) as traffic will be able to utilise the increased capacity along the route.

The Economic Assessment Report also considers the impacts that the construction works would have on users of the existing transport network. This was based on latest input from the buildability consultant as part of the Early Contractor Involvement (ECI) on the likely arrangements for traffic management required during different phases of construction. Traffic management arrangements have been examined in greater detail, during Stage 3 and a Traffic Management Plan produced as part of the PCF requirements.

A non-statutory consultation for the scheme was held in March / April 2017 and was attended by the local communities and resulted in 441 responses comprising of returned questionnaires, or comments by letter or email. 96% of the responses were supportive of the need to improve the Blofield to North Burlingham route with 4% disagreeing with any improvements but did not comment with any specific reasons, and less than 1% did not answer the question.

Four options were presented for the route which resulted in:

Option 1: 53% Neutral or in favour

Option 2: 46% Neutral or in favour

Option 3: 53% Neutral or in favour

Option 4: 76% Neutral or in favour

The key issues raised through the consultation were concerns about the impact of the scheme during the construction period in terms of noise and traffic disruption. The top priorities identified through the consultation were to ease congestion and improve safety.

One key issue from the Non statutory consultation was access to the north and south of the route for NMU's and several suggestions were made in regards to this.

The full report on the outcome of the Blofield to North Burlingham non-statutory consultation will be within the A47 corridor improvements report on public consultation (dialogue by design)

Statutory consultation for the scheme was held in September 2018 where customers were able to formally respond to the proposals as part of the statutory planning process. This was documented formally within publicly available consultation reports. Prior to the Consultation affected landowners, parish and district councils were consulted with as part of the design process. We continue with this consultation to date.

A further targeted Consultation has been carried out on the scheme during September 2020 focusing on newly or differently affected landowners due to the progressed design. Meetings continue to be held with County, Parishes and District Councils, along with engagement with other stakeholders.

Key stakeholders to the progression of the design have been Norfolk County Council, Lead Local flood Authority, Environment Agency, Blofield Parish council, Broadlands District Council, Historic England, Natural England.

2.4.4 Options

Funding has been made available for the A47 Blofield to North Burlingham schemes part of the A47 corridor improvement scheme as part of the RIS.

A Technical Appraisal Report (TAR) for the route was completed within Product Control Framework (PCF) Stage 1 (Options Identification Stage), in November 2016. A total of 8 options were identified with four options developed in further detail for the TAR.

Further development of 4 options meant that the four options were suitable to take forward to Public Information Exhibition in PCF Stage 2:

1. Online Dualling. Proposes dualling the existing A47 with the following:

- Improve the single carriageway section of the A47 between Blofield and North Burlingham to dual carriageway standard by constructing a new section of dual carriageway. The new carriageway will include new junctions.

- This option would attempt to use as much of the existing carriageway as possible. However, due to the differences between single and dual carriageway standards, it may not be possible to achieve this in all locations.

2. Offline Dualling of the route to the north and south of existing alignment. Proposes building a new dual carriageway to the north and to the south with the following:

- The proposed new dual carriageway runs to the north of the A47 as the route heads east away from the village of Blofield and to the south of the existing A47 as the route passes the village of North Burlingham, crossing the existing A47 between the villages.
- The route passes predominantly through open farmland. The remaining existing A47 would, where unaffected by the new dual carriageway, become part of the local road network.

3. Offline Dualling of the route to the south of the existing alignment. Proposes building a new dual carriageway to the south with the following:

- The proposed new dual carriageway for this option follows an alignment running to the south of the A47. The route passes predominantly through open farmland.
- The proposed route of the A47 corridor to the south of the existing is effectively a new highway corridor, meaning new land would need to be acquired along the proposed route.
- The remaining existing A47 would, where unaffected by the new dual carriageway, become part of the local road network.

4. Offline Dualling of the route to the south of the existing alignment however much closer to existing alignment. Proposes building a new dual carriageway to the south with the following:

- The proposed new dual carriageway for this option follows an alignment running just to the south of the A47. The route passes predominantly through open farmland.
- The proposed route of the A47 corridor to the south of the existing is effectively a new highway corridor, meaning new land would need to be acquired along the proposed route.
- The remaining existing A47 would, where unaffected by the new dual carriageway, become part of the local road network.

The four options were costed during stage 2 to inform the project team and to be able to provide a Benefits cost ratio for the options. Following the Options Estimate undertaken by National Highways' Commercial team, the A47 corridor improvement schemes were deemed too expensive. A value engineering exercise known as "deep dive" was undertaken to reduce the overall baseline cost. The four options were presented to the PCF Stage 1 Investment Decision Committee (IDC) in December and it was decided that the four options could go through to Non statutory public consultation.

The engineered options were assessed by cost managers and current options estimates were issued in June. Values do not include Portfolio Risk Adjustment but include inflation; values in brackets include portfolio risk and inflation.

	Range Min (£M)	Most Likely (£M)	Range Max (£M)
Option 1			
Option 2			
Option 3			
Option 4			

Table 1: Min and max range Commercial Estimates

These options estimates are from June 2017

At the time of us announcing our PRA of Option 4 the most likely cost was £83.05M. Since optimisation of the scheme has been approved the most likely cost went to £105.1m (this included portfolio risk).

There has been no significant change to scope or the design while progressing through the stages. The scheme created the preliminary design which was then taken to DCO, approved and then fine tuned during detailed design. The scope and high level requirements remain unchanged since stage 2.

In 2019 National Highways tendered for Regional Development Partners. Following this tendering exercise the A47 programme was awarded to a Delivery Integrated Partner (Galliford Try). Part of this process was setting out the overall DIP BUDGET (Statement of funds available) of which Galliford Try signed up to deliver the scheme within the DIP BUDGET. The DIP BUDGET was calculated on a programme level using a central cost estimate and incorporating efficiencies from the outset.

Galliford Try and Sweco have taken the scheme through DCO and detailed design through to end stage 5 (present). DCO was granted in June 2022 with detailed design then following in 2023 while a JR was ongoing.

2.5 Risk and issues management | risks and opportunities

Scheme specific risks and their management approaches are covered within the Risk Management Plan and Risk Register as on Xactium. The current most likely forecast risk is £7.9m contractor and £1.3m client. including the cost of mitigation.

Opportunities are contained within the Risk register and any efficiency identified are formalised on the efficiency register and supplied bi-monthly to the commercial team for ratification.

The main risks to the scheme include Loss of personnel and recruitment issues and too high of quality of topsoil. Along with delay to start of works and performance of Statutory Undertakers.

Mitigation actions have taken place to mitigate these risks as much as possible.

2.5.1 Constraints

There are a number of constraints that affect the Blofield to North Burlingham dualling scheme and can be summarised as:

- Existing properties and buildings
- Existing local access roads and property access
- Historic and listed buildings
- Areas of nature conservation
- Areas of potential ecological importance
- River and water bodies
- Statutory Undertakers
- Ground Conditions
- Environmental Constraints

There are 3 villages close to the A47, Blofield, North Burlingham and Lingwood. Other farm and commercial buildings, churches and community facilities are near to the A47 and properties are scattered throughout the rural area.

The capacity of the local road network close to the A47 provide a constraint to the project, urban routes are already significantly congested at peak times and are of poor quality.

There are 20 listed buildings in the study area; and two Grade 1 listed churches in the vicinity.

There are 2 county wildlife sites (CWS) nearby. Church and Drive plantation CWS being the closest.

Several ponds and watercourses are within the area.

There are limited nature/conservation/ecology constraints for the scheme.

Engineering Constraints

- Statutory Undertakers – There is a major gas main running parallel with the existing A47 and just to the south.
- There are a number of other statutory undertaker's plant in the existing verges (including fibre optics) and several overhead lines cross the existing A47, including British Telecom and several HV electricity cables.
- Ground Conditions – there is a risk of differential settlement of earthworks and materials susceptible to weathering.
- Access – A number of side roads (incl. North Burlingham access) joining the A47 and a number of properties, both commercial and residential have direct access.
- 12 departures from standards are required and have been approved by Norfolk County Council and Safety Engineering Standards (SES).

Existing Properties and Buildings

- Village of North Burlingham adjacent to and north of the Existing A47.
- Village of Lingwood to the South of all scheme Options.
- Two properties on Yarmouth Road very close to western tie-in which will require extensive accommodation works.
- Existing care home on Dell Corner Road.
- The RIS timescales with the requirement to Start of Works (SoW) by 31st March 2020 was the main constraint for the project but has now been optimised and SoW will be September 2023 following the outcome of the JR.

2.5.2 Key assumptions

Cost estimates have been produced in line with the standard processes of the HE Cost Estimation Manual and have been approved by HE Commercial Team. This means they cover the scope of works as known at the moment; risk and uncertainty (which includes items that may or may not be required within the scope); lands costs as forecast by the District Valuer; and the relevant adjustments for inflation. There is an assumption that these costs are as accurate as can be known at the moment. A separate estimate has also been produced to quantify the efficiencies that are likely to be achieved during the scheme.

All of these elements have been included within the scheme DIP BUDGET with an assumption that the estimates will remain within the DIP BUDGET following detailed design. There is a risk however that the scheme goes over the DIP BUDGET due to uncertainties around land costs, statutory undertaker diversions and risks as when they may be occurred.

2.5.3 Dependencies

The delivery of the project is dependent on:

- Funding being made available within the appropriate RIS period.
- Completion of all products to standard required to advance the project through the Stage gate assessment review process.

There are no dependencies on any other NH or external projects.

2.6 Recommendation

Through stage 2 further analysis and information was gathered in order to make the preferred route decision and included representatives from Amey Stage 1 and 2 supplier Mott Macdonald Sweco Joint Venture Stage 3 and 4 supplier and the National Highways project team and technical specialists. The preferred route was chosen for an option 4 variant taking into consideration the key elements favoured from both option 3 and 4 during consultation and also with a view of the environmental implications of each option. The preferred route decision was agreed on the 16th June 2017 as Option 4 to go forward to Stage 3 for preliminary design. The preferred route announcement (PRA) was successfully undertaken on 14th August 2017.

The conclusion is that the investment to deliver the scheme objectives and RIS commitment is robust and is therefore recommended.

3. Economic case

3.1 Purpose

The value for money case summarises the costs and benefits of options to deliver the project's strategic objectives and recommends the preferred option for implementation. This section assesses the economic, environmental, social and public accounts impacts of the preferred option for the proposed scheme to fulfil National Highways' requirements for appraisal and demonstrating value for money in the use of taxpayers' money.

An economic assessment is undertaken in accordance with the requirements of Transport Analysis Guidance. Overall, schemes are assessed against relevant government objectives, which include:

- to provide good value for money in relation to impacts on public accounts;
- to improve transport economic efficiency for business users and transport providers;
- to improve transport economic efficiency for consumer users; and
- to improve reliability.

3.2 Options appraisal

One option, referred to as the Do Something (DS), was assessed in Stage 5. This was Option four, of the four originally proposed consisting of:

- The proposed new dual carriageway for this option follows an alignment running just to the south of the A47. The route passes predominantly through open farmland.
- The proposed route of the A47 corridor to the south of the existing is effectively a new highway corridor, meaning new land would need to be acquired along the proposed route.
- The remaining existing A47 would, where unaffected by the new dual carriageway, become part of the local road network.

Do Minimum Scenarios

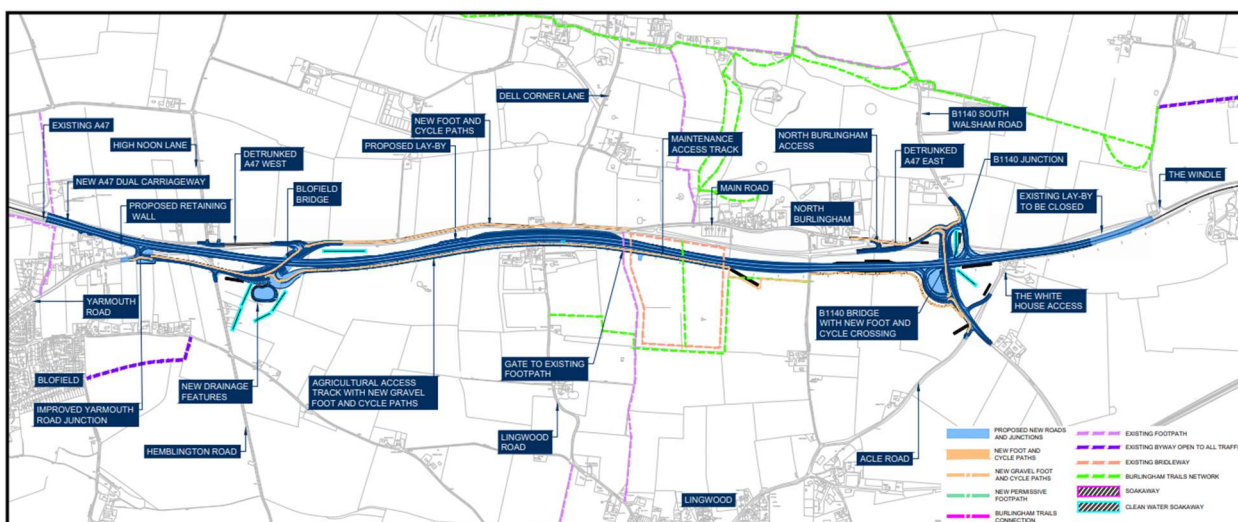
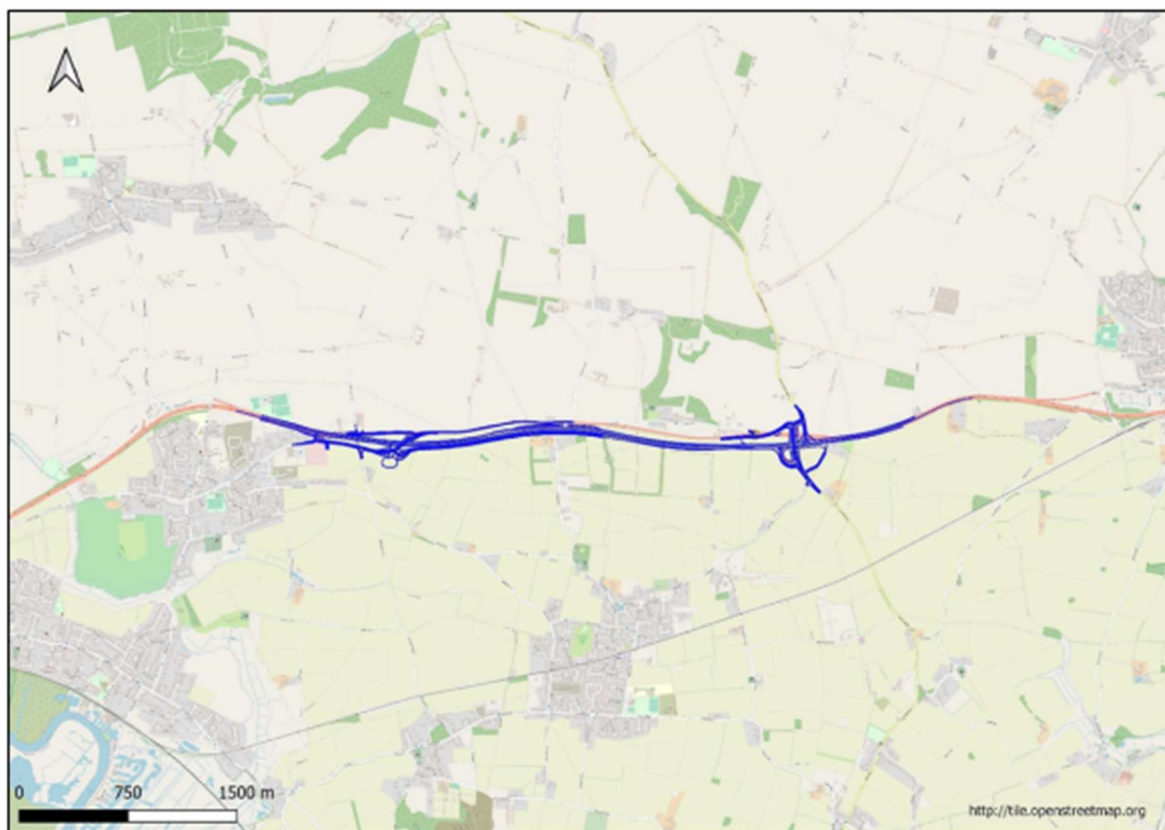
It has been agreed that, in-line with PCF Stage 3, for PCF Stage 5 each A47 RIS scheme in Norwich will be classified as “Near certain”. Therefore, for the Blofield Scheme DM scenario, the Thickthorn and North Tuddenham PCF Stage 5 schemes are included.

In July 2019 the preferred route was announced for the Norwich Western Link (NWL) with the estimated start of construction in late 2022 and estimated opening year in 2025. It has been agreed with National Highways that the NWL should also be classified as “near certain” given their PRA status and therefore will be included in both DM and DS scenarios.

Do Something Scenario

Only one scheme option has been modelled, which includes:

- Take an offline course to the south of the existing route and create a new dual carriageway between Blofield and North Burlingham.
- Provide a new all movements grade-separated junction to the east end of the scheme near North Burlingham.
- Provide a new overpass connecting Yarmouth Road off A47, Hemblington Road on the south side of the new carriageway and existing A47, High Noon Lane on the north



3.3 Key findings from the strategic and economic cases

The PCF Stage 5 ComMA documents the approach adopted for estimating the economic benefits arising from the scheme and summarizes the results of the assessments conducted as part of the PCF Stage 5. The scheme's benefits are calculated from various sources, including:

- User benefits during normal operation (savings relating to travel times and VOC) assessed using TUBA.
- User disbenefits during construction were also assessed using TUBA (user disbenefits during maintenance assumed to be negligible).
- Accident savings forecasted using COBA-LT (COBA-LT assessment retained from PCF Stage 4).

Additionally, monetized impacts related to greenhouse gas emissions, air quality, and noise, as well as benefits due to Journey Time Reliability (JTR) and (Wider Economic Impact) WEIs, have been estimated. These assessments were retained from PCF Stage 4, except for the updated monetized greenhouse gas assessment and WEIs.

Full assessments of the social and distributional impacts resulting from the scheme have also been carried out. These assessments were retained from PCF Stage 4 at Stage 5.

The costs used in the assessment comprise the scheme construction costs provided by Galliford Try. Currently, there is limited information available to inform a maintenance cost appraisal. Reference was made to the July 2019 version of the COBA manual, which classifies maintenance costs as either non-traffic related (Group 1) or traffic related (Group 2).

An initial Benefit Cost Analysis (BCR) has been calculated over the 60-year appraisal period, excluding the outputs of the JTR assessment and WEIs, with an adjusted BCR also reported, including these impacts.

All benefits and costs were calculated in monetary terms and expressed as present values (PV) in discounted 2010 prices. This allows for a direct economic comparison with other schemes, even if they have different timescales.

The scheme is forecasted to generate total benefits of £116.89m million (Adjusted PVB) over the 60-year appraisal period. The total scheme costs are £49.52 million (PVC), assuming none of the costs will be funded from developer contributions.

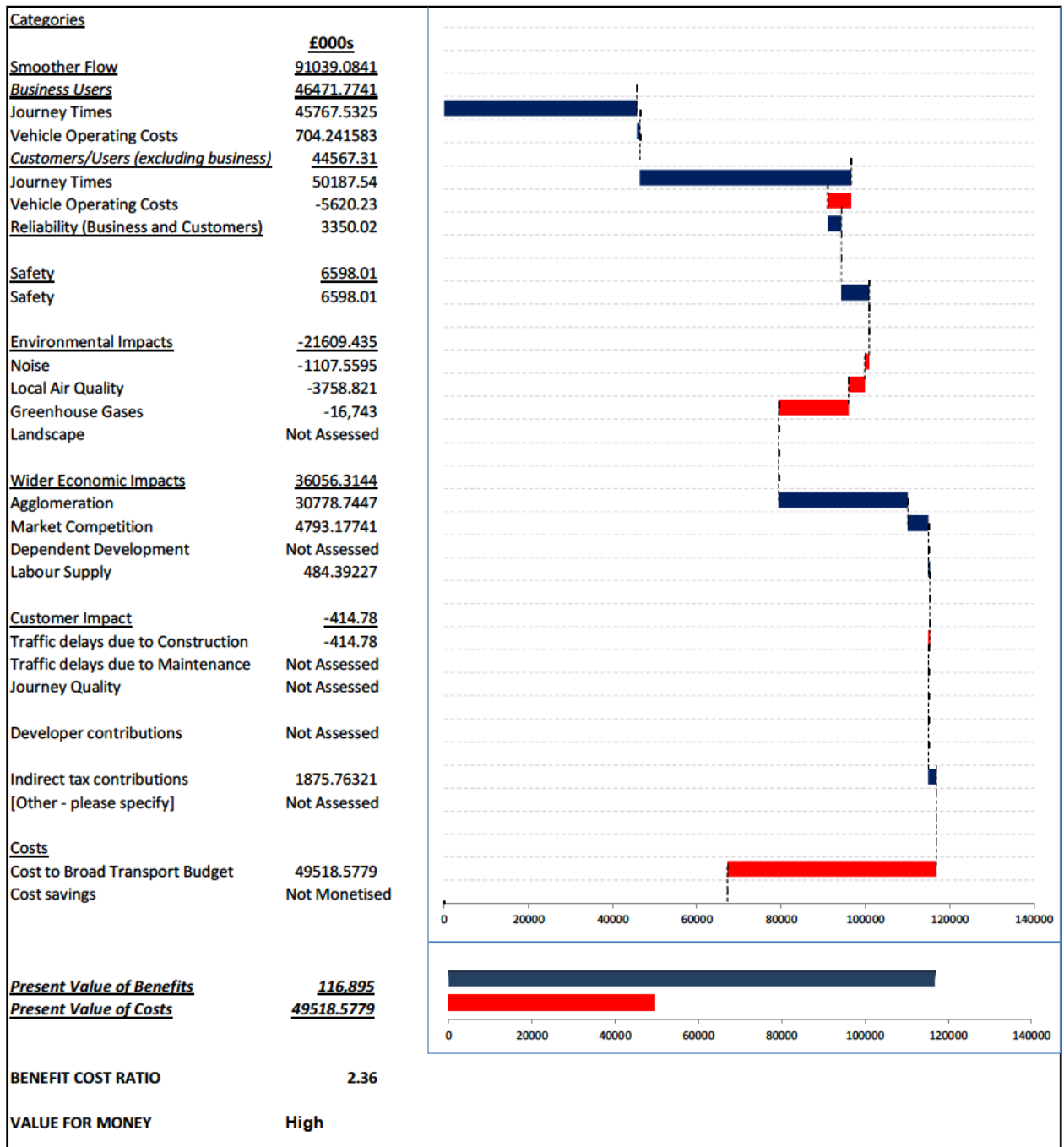
Taking into consideration the effects of construction delays, accident benefits, indirect taxation benefits, and monetized environmental impacts, the initial BCR is 1.56.

The scheme is also expected to generate Wider Economic Impacts (WEIs). These impacts are positive in all cases, suggesting a favourable outcome on non-transport markets, contributing to increased productivity and government income.

Including JTR benefits and WEIs, the adjusted BCR stands at 2.36.

The assessment of social impacts suggests that the scheme would have an adverse impact on socially vulnerable groups in terms of personal affordability. Additionally, the assessment of distributional impacts indicates that air quality, noise, and affordability would adversely affect vulnerable groups.

The benefits captured in the Present Value of Benefits (PVB) are largely driven by journey time benefits experienced on trips through the route; these are supplemented to a limited extent by accident savings, and indirect tax revenue. The benefits are offset to a degree by vehicle operating costs and the cost to the broad transport budget. Below is the current waterfall diagram for Blofield which shows the current benefits and dis benefits and the effect these have on the overall Benefits cost ratio (BCR)



3.4 Long-list appraisal

In Stage 2, a sifting exercise was undertaken to assess the performance of four options against the strategic objectives of the scheme. The sifting process was undertaken by scoring all the options against four independent parameters in two sections. It judged how the option would mitigate the known problems and support National Highways' objectives for the scheme. It judged the deliverability (factors political, planning, timescale and third-party constraints) and feasibility (physical constraint, land availability and design standards) of each option.

The results of the sifting exercise indicated that, primarily due to cost, land take and environmental impact, the 'free-flow' options and cut-through Option 2 should not be taken forward. This left Option 4 to be developed further. PRA was announced on Option 4 and Statutory Consultation carried out on this option, now called the scheme.

Further details of the long-list appraisal can be found in the Stage 2 Business Case.

3.5 Recommendation

The existing Economic Assessment demonstrates that the scheme delivers substantial benefits with a high VfM and a BCR of 2.36.

3.6 Critical success factors assessment

The critical success factors for the Blofield to North Burlingham scheme are detailed in the table below. Please note Time is detailed as RIS2 however change request has been submitted to DfT with a request approved for OfT to May 2026:

Critical Success Factor (CSF)	Reason for Criticality
Safety	To see a reduction in number of seriously injured and killed road related accidents
Sustainability	To be able to support the expected growth within area and support traffic numbers up to 2036
Time	To be open for traffic during 2025
Cost	To ensure delivery of scheme within set budget parameters.
Quality	To meet or better all current DRMB standards for road building.
Scope	To provide a dual carriage between Blofield and North Burlingham to link between existing dual carriageways
Benefits	To ensure the BCR of the scheme is at least medium value for money and greater than 1.5
Functionality	To improve the road to allow the area to grow and allow easier travel with increased safety.

Table 10: Critical Success factors

3.7 Qualitative assessment

Four options were assessed for the Strategic Road Network (SRN) as part of stage 2.

All other options put forward were discounted in the sifting process described in section 1.5 and 2.3.5. The preferred option was identified as being the most capable of delivering the objectives of the scheme.

Noise	A noise appraisal has been undertaken at PCF Stage 3 and has not been re-assessed as part of Stage 5 work. The results of the assessment indicate an overall disbenefit due to a greater number of households experiencing daytime traffic noise increases than decreases, within the study area. Significant beneficial noise effects are predicted at dwellings in the vicinity of Strumpshaw Road/Stone Road/Wood Lane. Significant adverse noise effects are predicted at dwellings in the vicinity of Yarmouth Road (A47 to the Danesbower Lane junction) and the B1140 High Road (Cock Tavern to Sandy Lane). No properties are forecast to be eligible for insulation under the Noise Insulation Regulations. Only one non-residential sensitive receptor (Village Hall at High Road) is predicted to experience significant adverse noise effects.
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Air Quality	Retained from Stage 4 - An air quality assessment was undertaken at PCF Stage 3 and has not been revisited as part of Stage 5 work. The air quality assessment finds that the dualling of the A47 will result in an increased road capacity and congestion improvements. However, the widening of the A47 will result in the road alignment moving closer to human receptors. This alongside the increased road capacity of the A47 results in an increased exposure to emissions resulting in the scheme experiencing a negative value of change in air quality of -£3.8m. Although no significant impacts have been recorded, overall a deterioration in air quality is expected with the scheme in place. All modelled concentrations were below the relevant air quality annual mean objectives. The proposed scheme and the study area considered is not located within or near to an air quality management area (AQMA).
Greenhouse gases	As part of the Stage 5 addendum update, the impact of the scheme on Greenhouse Gases has been calculated using the Emissions Factor Tool kit. The value of the benefits over 60 years, in 2010 prices discounted to 2010 is -£15.61m. As part of the updated methodology, the benefits are separated into three categories: tailpipe emissions (-£11.81m) and construction and maintenance emissions (-£3.80m), operating emissions has not been included in this round of appraisal as lighting provisions have been removed.
Landscape	Retained from Stage 4 - A landscape appraisal has been undertaken at PCF Stage 3 and has not been revisited as part of Stage 5 work. The scheme runs within a corridor to the south of the existing A47. The scheme will result in loss and change to existing vegetation and land use through the part removal of existing mature field boundaries and woodland belts and an increase in highway infrastructure. The scheme lies within National Character Area (NCA) 79; North East Norfolk and Flegg, which comprises a generally flat, low-lying agricultural landscape of small to medium scale fields enclosed by hedgerows and featuring isolated farmsteads and small, nucleated villages. The scheme will result in an increased presence of highway infrastructure within an otherwise more typically rural character context. However, these changes to landscape fabric and character will occur within a corridor, within a limited geographical area already influenced by the existing A47. The scheme will be visible from visual receptors including residential properties and Public Rights of Way (PRoW). Whilst mitigation will aid the scheme's integration, the residual effect is considered to be slight adverse in recognition of the residual increase in built infrastructure and close proximity of the scheme to residential properties and PRoW.
Townscape	Retained from Stage 4 - A townscape appraisal was undertaken at PCF Stage 3 and has not been revisited at Stage 5 as no design changes have occurred. The scheme is located approximately 500m east of Blofield and will not have an impact on the townscape character of the village. The alignment of the A47 will move slightly further away from North Burlingham.
Historic Environment	Retained from Stage 4 - An appraisal of the schemes impact on historic and heritage assets was undertaken at PCF Stage 3 and remains as is at PCF Stage 5. The scheme will result in the partial or total removal of non-designated archaeological remains of low to medium value/sensitivity. It will also have an impact upon the context of one complex of undesignated historic buildings (Poplar Farm). It will have a mix of beneficial and adverse impacts on an un-designated parkland associated with Burlingham Hall and a non-designated guidepost. The scheme will have slight beneficial effects on Grade I and II Listed churches at North Burlingham, as well moderate beneficial effects on two non-designated mileposts.
Biodiversity	Retained from Stage 4 - A biodiversity appraisal was undertaken at PCF Stage 3 and remains unchanged at PCF Stage 5. Habitat severance and fragmentation would occur to woodland and open habitats and would affect notable species such as bats and breeding birds including barn owl. The risks from construction and operation (from road-traffic collisions) are predicted to result in residual effects of slight adverse for birds and moderate adverse for bats due to the presence of barbastelle bats which are of a national value of importance. Moderate adverse residual effects to bats would remain despite mitigation from trees planted as bat hops at crossing points over the road and new tree planting. Compensation for the permanent loss of trees by replacement woodland planting in terms of habitat loss would have a slight adverse residual effect. Removal of pond habitat would have a large adverse significant effect as it is NERC Act (2006) habitat. Grasslands within the scheme would have a slight beneficial residual effect as there would be a net gain of more biodiverse grasslands with the introduction of species-rich and marshy, wet grassland. Great crested newt surveys could not be completed in 2020 due to covid restrictions. None were found in ponds that were surveyed however the remaining ponds need to be surveyed in 2021.

Water Environment	<p>A water environment appraisal was undertaken at PCF Stage 3 and remains unchanged at PCF Stage 4 as no design changes have occurred.</p> <p>Potentially adverse effects on the water environment (including groundwater bodies and surface water bodies and their indirect receptors, flood risk and WFD waterbodies) during construction and operation of the scheme will be mitigated by the scheme design, selection of construction methods and by best practice construction measures.</p> <p>Potential construction dewatering impacts, if any, are likely to be temporary and localised, and will be mitigated by measures included within the CEMP.</p> <p>Potential impacts from routine run-off discharging via soakaway would be mitigated through pollution control measures included within the drainage design.</p> <p>Potential impacts from redirection or blockage of flood flow pathways are mitigated by the inclusion of culverts in the drainage design to maintain flood flow pathways across the scheme.</p>
Commuting and Other users	<p>Commuting and other users benefit significantly from the provision of the scheme through reduced travel time savings amounting to £50.18m. However, vehicle operating costs create disbenefits of -£5.62m. In addition, they will experience minor disbenefits of -£0.31m due to delays during construction, giving an overall net benefit of £44.26m.</p> <p>In terms of vehicle hour savings due to the scheme, there will be about 22.3 million person hour savings for commuting and other users in total over the 60-year appraisal period.</p>
Reliability impact on Commuting and Other users	<p>Retained from Stage 4 - A journey time reliability assessment has been retained from PCF Stage 3. The dualling of the A47 between Blofield and North Burlingham will generate journey time reliability benefits as dual carriageways are more reliable than single carriageways. Road capacity is increased, delays are shortened and accidents are reduced, all of which contribute to improved journey time reliability for commuting and other users.</p>
Physical activity	<p>Retained from Stage 4 - A social and distributional impact appraisal has been undertaken at PCF Stage 3 and not revisited as part of Stage 4 work. The scheme is an inter-urban road scheme and so is not anticipated to impact active mode provision, nor discourage the use of active modes. Therefore, the impact on physical activity will be negligible.</p>
Journey quality	<p>Retained from Stage 4 - A social and distributional impact appraisal has been undertaken at PCF Stage 3 and not revisited as part of Stage 4 work. Traveller stress / frustration is anticipated to reduce on the whole, through a reduction in congestion along the A47 and an improvement to journey time reliability. Traveller's fear of potential accidents is anticipated to improve due to the higher quality standard of carriageway and junction improvements being delivered by the scheme.</p>
Accidents	<p>A revised accident appraisal has been undertaken at Stage 5 as part of the ComMA addendum, with the latest COBA-LT software. The results of this appraisal are as follows:</p> <p>Reduction in accidents (172) and casualties (2 fatal, 25 serious and 199 slight) as a result of the scheme has a positive benefit (£6.59m) over the 60-year appraisal period. Converting the old single carriageway section to modern dual carriageway along with associated junction improvements is predicted to improve network safety.</p>
Security	<p>Retained from Stage 4 - A social and distributional impact appraisal has been undertaken at PCF Stage 3 and not revisited as part of Stage 5 work. Lighting and visibility and landscaping are assessed as having a high importance and moderate beneficial impact. All other indicators are of lesser importance and have a neutral impact.</p>
Access to services	<p>Retained from Stage 4 - A social and distributional impact appraisal has been undertaken at PCF Stage 3 and not revisited as part of Stage 5 work. The scheme is not anticipated to impact on the level of access bility for any particular social group to access the services they require. Changes in the cost or provision of public transport will not result from the scheme.</p>
Affordability	<p>Retained from Stage 4 - A social and distributional impact appraisal has been undertaken at PCF Stage 3 and not revisited as part of Stage 5 work. All areas within the study area generate disbenefits in personal affordability in relation to their population proportion. Only 15% of the population experience large disbenefits, with the rest experience slight disbenefits.</p>

3.8 Benefits assessments

The scheme's benefits are calculated from various sources at PCF Stage 5, including:

- User benefits during normal operation (savings relating to travel times and VOC) assessed using TUBA.

- User disbenefits during construction, also assessed using TUBA (user disbenefits during maintenance assumed to be negligible).
- Accident savings forecasted using COBA-LT (COBA-LT assessment retained from PCF Stage 4).
- Monetised impacts of greenhouse gas emissions
- Wider Economic Impacts

Additionally, monetized impacts related to air quality, and noise, as well as benefits due to JTR have been assessed. These assessments were retained from PCF Stages 3. Full assessments of the social and distributional impacts resulting from the scheme have also been carried out. These assessments were retained from PCF Stage 3 for Stage 5.

The PCF Stage 5 ComMA documents the approach adopted for estimating the economic benefits arising from the scheme and summarizes the results of the assessments conducted as part of the PCF Stage 5. The scheme's benefits are calculated from various sources, including:

- User benefits during normal operation (savings relating to travel times and VOC) assessed using TUBA.
- User disbenefits during construction were also assessed using TUBA (user disbenefits during maintenance assumed to be negligible).
- Accident savings forecasted using COBA-LTF

Due to legal challenges arising from the Judicial Review process, the A47 Blofield to North Burlingham dualling scheme has incurred delays of almost two years, where the scheme is now expected to be Open for Traffic (Oft) in 2026 rather than originally planned Oft year of 2024.

It has therefore become necessary to undertake additional transport modelling and appraisal in response to the delays, whilst incorporating the notable updates to the Department for Transport's (DfT) Transport Analysis Guidance (TAG), Trip End Model version 8 (NTEM 8) and the revised National Road Traffic Projections 2022 (NRTP 2022). Further guidance released by National Highways Transport Planning Group (TPG), in relation to post-Covid adjustments has also been adopted to this latest update.

For that reason, it was agreed to undertake and produce a new round of modelling and appraisal outputs that will serve as an addendum to the existing Stage 5 ComMA report, originally issued to National Highways and approved in July 2023.

The following scenarios have been run as part of this analysis:

- NTEM 8 Core
- NTEM 8 Low growth
- NTEM 8 Mode balanced decarbonisation
- NTEM 8 Vehicle led decarbonisation

Monetized impacts related to greenhouse gas emissions, air quality, and noise, as well as benefits due to Journey Time Reliability (JTR) and (Wider Economic Impact) WEIs, have been estimated.

Full assessments of the social and distributional impacts resulting from the scheme have also been carried out.

The costs used in the assessment comprise the scheme construction costs provided by Galliford Try. Currently, there is limited information available to inform a maintenance cost appraisal. Reference was made to the July 2019 version of the COBA manual, which classifies maintenance costs as either non-traffic related (Group 1) or traffic related (Group 2).

An initial Benefit Cost Analysis (BCR) has been calculated over the 60-year appraisal period, excluding the outputs of the JTR assessment and WEIs, with an adjusted BCR also reported, including these impacts.

All benefits and costs were calculated in monetary terms and expressed as present values (PV) in discounted 2010 prices. This allows for a direct economic comparison with other schemes, even if they have different timescales.

The scheme is forecasted to generate user benefits of [REDACTED] (PVB) over the 60-year appraisal period. The total scheme costs are [REDACTED] (PVC), assuming none of the costs will be funded from developer contributions.

Taking into consideration the effects of construction delays, accident benefits, indirect taxation benefits, and monetized environmental impacts, the initial BCR is 1.56.

The scheme is also expected to generate Wider Economic Impacts (WEIs) valued at about £39.40 million. These impacts are positive in all cases, suggesting a favourable outcome on non-transport markets, contributing to increased productivity and government income.

Including JTR benefits and WEIs, the adjusted BCR stands at 2.36.

The assessment of social impacts suggests that the scheme would have an adverse impact on socially vulnerable groups in terms of personal affordability. Additionally, the assessment of distributional impacts indicates that air quality, noise, and affordability would adversely affect vulnerable groups.

While the core scenario is considered the 'most likely' future scenario, forecasting into the future is inherently uncertain due to unforeseen changes in key assumptions. Therefore, the DfT recommends conducting scenario analysis to account for future uncertainty.

3.9 Cost assessments

The PCF Stage 5 ComMA sets out the key assumptions and parameters involved in the economic assessment of the A47 Blofield to North Burlingham route.

Scheme construction costs have been estimated by the National Highways Commercial Team and were received in May 2024.

The expenditure profiles are based upon cost estimates for each financial year and then inflated to outturn costs using projected construction related inflation. These costs have then been rebased to 2010 calendar year profiles for economic calculations, using the Gross Domestic Product (GDP) deflator series, as published in the latest TAG Databook (November 2023, v1.22). All the costs are in factor cost unit of account and exclude VAT, both recoverable and non-recoverable. All spend to date (historic cost) has been removed as these costs are considered as sunk costs and not included in the economic appraisal.

The total value of the construction cost in 2010 market price unit of account (Present Value Cost - PVC) for the scheme is [REDACTED] with an assumption that none of the costs will be funded from developer contributions. The total scheme cost includes the following items:

- Investment costs relating to the preparation and construction of the scheme
- Operating and maintenance costs

3.10 Cost benefit analysis

The scheme benefits are a combination of different elements which are dependent on network capacity, average speeds, number of trips, cost of travel, tax, etc. The total benefits, PVB, include the following items:

- Travel time, which is assessed within TUBA software
- VOC, assessed within TUBA
- Accident benefits, assessed within COBA-LT
- Indirect tax revenues, assessed within TUBA
- Construction and maintenance user delays, assessed within SATURN and TUBA
- Environmental impacts, assessed in accordance with TAG unit A3
- Journey time reliability, assessed in accordance with TAG unit A1.3
- Wider economic impacts, assessed in line with TAG unit A2.1

The total scheme costs, PVC, include the following items:

- Construction costs relating to the preparation and construction of the scheme
- Operating and maintenance costs

The Adjusted PVB, PVC, and BCR can be found in the below extract from the ComMA Technical Addendum:

Figure 5-3: November 2023 Core scenario AMCB table

Item	Core
Accidents	£6.60
Air quality	-£3.76
Noise	-£1.11
Greenhouse Gases - Tailpipe emissions	-£11.89
Greenhouse Gases - Construction & maintenance emissions	-£4.86
Greenhouse Gases - Operating emissions	£0.00
Total Greenhouse gases	-£16.74
Economic efficiency: consumer users (commuting)	£19.10
Economic efficiency: consumer users (other)	£25.16
Economic efficiency: business users and providers	£46.36
Wider public finances	£1.88
Level 1 present value of benefits (PVB)	£77.49
Broad transport budget present value of costs (PVC)	£49.52
Net present value (NPV)	£27.97
Level 1 benefit to cost ratio (BCR)	1.56
Reliability benefits	£3.34
Wider economic benefits	£36.06
Level 2 PVB	£39.40
Adjusted PVB (level 1 + level 2)	£116.89
PVC	£49.52
Adjusted NPV (level 1 + level 2)	£67.37
Adjusted BCR (level 1 + level 2)	2.36

All monetary values are presented in 2010 prices and discounted to 2010 values

The results of the Economic Appraisal for Blofield are summarised in the AST within the Benefits Register

Link to the benefits register: <https://share.highwaysengland.co.uk/Share/llisapi.dll/link/110454079>

Link to the ComMA Technical Addendum:

<https://share.highwaysengland.co.uk/Share/llisapi.dll/Overview/110530366>

3.11 Sensitivity | risk and issues management | risk profile

Various sensitivity tests have been undertaken considering changes to traffic growth and uncertainty of assumptions as agreed with National Highways.

An update to the NTEM scenarios was necessary to evaluate the impact of the November 2023 TAG Databook on both the modelling and economic assessments. The transport modelling has been updated with new Pence Per Minute (PPM) and Pence Per Kilometre (PPK) parameters and the economic appraisal has been updated, notably the Transport Users Benefit Appraisal (TUBA), Cost and Benefit to Accidents – Light Touch (COBA-LT), Wider Impacts in Transport Appraisal (WITA) and greenhouse gases assessments. This addendum details the results and highlights the comparisons between the TAG Databook's (May 2022, January 2023, and November 2023), showing the impact of the updated TAG parameters.

The following scenarios have been run as part of this analysis:

- NTEM 8 Core
- NTEM 8 Low growth
- NTEM 8 Mode balanced decarbonisation
- NTEM 8 Vehicle led decarbonisation

The AMCB table as shown in the ComMA Technical Addendum can be found below:

Table 4-1: Comparison of all scenarios

			January 2023 Core (NTEM 8)	November 2023 Core (NTEM 8)	November 2023 Low Growth (NTEM 8)	November 2023 Mode Balanced (NTEM 8)	November 2023 Vehicle Led (NTEM 8)
Benefits	Consumer Commuting User Benefits	Travel Time	£22.27	£20.02	£18.31	£21.04	£19.31
		VOC	-£0.87	-£0.81	-£0.82	-£0.93	-£0.84
		Construction Delays**	-£0.11	-£0.11	-£0.11	-£0.11	-£0.11
		Net Consumer User Benefits	£21.30	£19.10	£17.38	£20.00	£18.36
	Consumer Other User Benefits	Travel Time	£32.93	£30.16	£29.14	£30.22	£32.95
		VOC	-£5.13	-£4.81	-£4.48	-£6.73	-£4.00
		Construction Delays**	-£0.20	-£0.20	-£0.20	-£0.20	-£0.20
		Net Consumer User Benefits	£27.60	£25.16	£24.46	£23.30	£28.75
	Consumer Business User Benefits	Travel Time	£45.44	£45.77	£42.84	£44.33	£48.36
		VOC	£0.83	£0.70	£0.65	£0.16	-£0.37
		Construction Delays**	-£0.11	-£0.11	-£0.11	-£0.11	-£0.11
		Net Business User Benefits	£46.16	£46.36	£43.38	£44.38	£47.88
	Accidents Benefits		£8.46*	£6.60	£5.26	£5.44	£6.80
	Indirect Tax Revenues		£2.10	£1.88	£1.85	£4.90	£0.64
	Noise**		-£1.11	-£1.11	-£1.11	-£1.11	-£1.11
	Air Quality**		-£3.76	-£3.76	-£3.76	-£3.76	-£3.76
	Greenhouse Gases – Tailpipe		-£18.73	-£11.89	-£12.13	-£4.40	-£5.76
	Greenhouse Gases – Construction & Maintenance		-£3.24	-£4.86	-£4.86	-£4.86	-£4.86
	Greenhouse Gases – Operational		-£0.10	-£0.00	-£0.00	-£0.00	-£0.00
Initial PVB (£m)		£80.35	£77.49	£70.47	£83.89	£86.95	
Costs	Operating and Maintenance Costs**		£0.17	£0.17	£0.17	£0.17	£0.17
	Investment Costs***		£56.70	£49.34	£49.34	£49.34	£49.34
	PVC (£m)		£56.87	£49.52	£49.52	£49.52	£49.52
Initial NPV (£m)			£23.48	£27.97	£20.95	£34.37	£37.43
Initial BCR			£1.41	1.56	1.42	1.69	1.76
Benefits Level 2	Journey Time Reliability		£3.34	£3.34	£3.34	£3.34	£3.34
	Wider Economic Impacts		£43.33	£36.06	£34.09	£35.58	£36.76
	PVB (Level 2)		£46.67	£39.40	£37.43	£38.93	£40.11
Adjusted PVB			£127.02	£116.89	£107.91	£122.82	£127.05
Costs	PVC (£m)		£56.87	£49.52	£49.52	£49.52	£49.52
Adjusted NPV			£70.15	£67.37	£58.39	£73.30	£77.53
Adjusted BCR			2.23	2.36	2.18	2.48	2.57

All monetary values are presented in 2010 prices and discounted to 2010 values

*Retained from PCF Stage 4

** Retained from PCF Stage 3

*** Retained from PCF Stage 5

While the core scenario is considered the 'most likely' future scenario, forecasting into the future is inherently uncertain due to unforeseen changes in key assumptions. Therefore, the DfT recommends conducting scenario analysis to account for future uncertainty.

3.12 Options impacts

As only one DS scenario was modelled, no comparative option assessment was undertaken at stage 5.

3.13 Detailed benefit, cost and impact appraisal

More details of benefits, cost, impacts can be found within the CoMMA Report:

https://share.highwaysengland.co.uk/Share/llisapi.dll?func=ll&objaction=overview&objid=107192548&logStopConditionID=5873402_606732037_1_open

ComMA Technical Note - <https://share.highwaysengland.co.uk/Share/llisapi.dll/link/109908484>

3.14 Breakeven and whole life value assessment

The Blofield scheme has a BCR of 2.36. This means the breakeven point is part way through the 60-year appraisal period, at which point the benefits accrued so far would out-weigh the scheme costs.

This calculation ignores maintenance costs, indirect tax revenues, accident saving benefits, vehicle operating costs, benefits during construction, reliability benefits and several other monetised costs and benefits that tend to be smaller in value.

4. Commercial case

4.1 Required services

The key activities for the delivery of the project for each of the remaining stages, as per the PCF guidance, are as follows;

PCF Stage 4 – Statutory Procedures and Powers

- Await the outcome of the Judicial Review.

PCF Stage 5 – Construction Preparation/Detailed Design

- Complete the final elements of the detail design for the project and seek all necessary approvals.
- Agree costs of construction with the contractor.
- Obtain notice to proceed

PCF Stage 6 – Construction, Commissioning and Handover

- Construct and commission scheme
- Hand over asset for operation with as-built drawings and health and safety file
- Open scheme to traffic

PCF Stage 7 – Closeout

- Agree final account with contractor
- Contractor completes outstanding works (or re-work)
- Complete a review of project delivery
- Initiate POPE process

The supply chain will lead on these activities or assist the NH project team as appropriate. Details of the required services and deliverables are stated in the scoping documents issued to the supplier.

4.2 Market analysis

The CDF, which was established in late 2014 and preceded the Regional Delivery Partnerships (RDP) Framework, was a £5 billion four-year (plus two year) framework that provided a procurement route for any project with a value over £15 million, thus removing the need to hold individual OJEU procurement events. It was split into four lots; one design and three construction.

The submissions made under each lot were scored on both quality and price. Those suppliers who passed the scoring criteria were appointed to the framework. A total of ten suppliers are appointed to Lot 1 (Design), with an indicative total spend of £500 million.

Galliford Try are the supplier (Principal Contractor) appointed through the RDP Framework.

The Routes to Market (RtM) programme was established by National Highways in March 2016 to consider and develop the most appropriate procurement routes for National Highways' major programmes of work arising from the Road Investment Strategy period 1 2015-2020 (RIS1) and Roads Investment Strategy period 2 2020-2025 (RIS2).

This underpins the long-term ambition for RIP delivery to move away from transactional relationships and to create a 'High Performing Enterprise' where decisions are made based on the value to all parties and delivering against asset driven priorities.

To achieve our long-term ambition, we have a two-stage strategy:

- Regional Delivery Partnerships (RDP): The delivery vehicle covered by this paper procured for a six-year term and with a forecast expenditure of £9bn. The initial focus will be on delivering the remainder of RIS1 and flexibility to adapt to manage with the early elements of RIS2 once it is defined.
- Enterprise Partnerships: A future vehicle that will cover the delivery of the large part of RIS2 schemes and preparing for RIS3 delivery. The intention is that these partnerships will represent an even closer relationship between National Highways and our suppliers.

The procurement of the RDP model was outlined and approved by NH IC in December 2017. The model addresses key challenges faced because of the profiling of RIS1 work (which has led to a large number of schemes being delivered at the end of RP1) and the uncertainty that exists over the RIS2 work (which limits our ability to award a defined programme of work upfront).

The approach to supplier incentivisation proposes a "triple lock" of financial gain, continuity of work and reputational value through improved performance to support sector growth and organisational success. The incentives will ensure alignment between Technical Advisors and DIPS to achieve outcomes aligned to our imperatives of safety, customer service and delivering the RIS. To create the desired level of commercial tension and support access to new entrants the packages will be grouped into Lots aligned

with the six Regions. For the DIP competition some regions are grouped together to ensure at least two suppliers will operate within each lot.

The Regional Delivery Partnerships represent an evolution of the CDF model that will be the bridge between our existing arrangements and our future enterprise partnerships. It has been designed to move from transaction based on simple collaboration environment to integrated relationships focused on improving investor value.

The model addresses key challenges faced as a result of the profiling of RIS1 work (which has led to a large number of big schemes being delivered at the end of RP1) and the uncertainty that exists over the RIS2 work (which limits our ability to award a defined programme of work upfront).

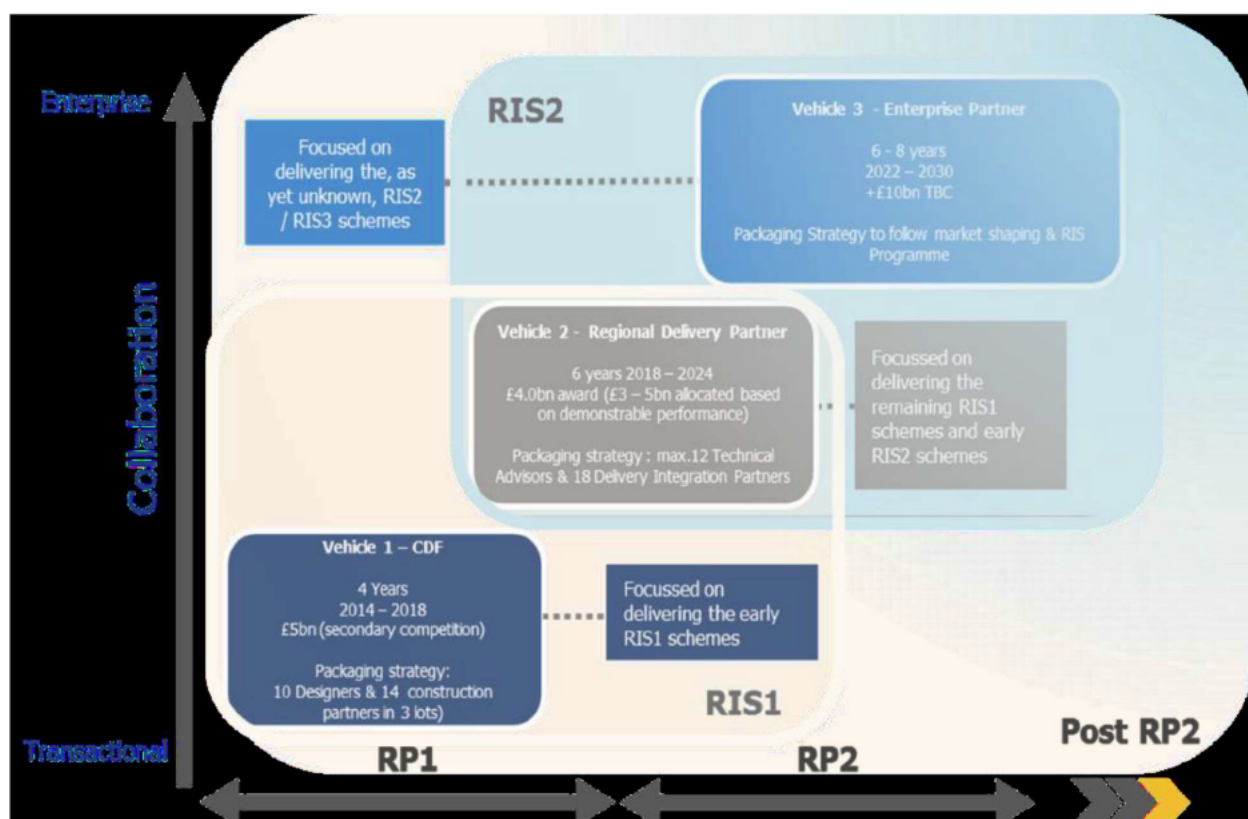


Figure 5- RIS 1 & RIS 2 Model

The A47 Blofield to North Burlingham improvement scheme will be part of the Band B Lot 7. The scheme is packaged along with all A47 Programme Schemes.

Galliford Try were the successful parties within this Lot and as such have been awarded the programme of A47 schemes.

The RDP mechanism is such that even where multiple schemes are within a package each individual scheme forms a separate contract between NH and the DIP. Therefore, each scheme can enter construction based on its own programme and, should a scheme no longer be progressed, this does not impact the delivery of the remaining schemes in the package.

Procurement of the Delivery Integration Partner and the mobilisation period was completed in 2019. The procurement for Technical Advisors was completed in 2019.

Technical advisers for the scheme were procured under the existing CDF. The TA provide design assurance for the project to support National Highways in ensuring the design produced by the DIP is fit for purpose and meets the Client Scheme Requirements

4.2.1 Supplier relationship

As set out in its Strategic Business Plan 2015-2020, the development of effective relationships between National Highways and its partners in a collaborative working environment is an integral part of delivering a safe, efficient network to the full satisfaction of customers. This includes the creation of integrated delivery teams with its supply chain to create a singular commercial approach. By working collaboratively with its suppliers, National Highways can draw on knowledge and best practice from the UK and overseas, promoting innovation, efficiency and the delivery of best value.

Regional Delivery Partnerships incorporate the operating relationships between the Delivery Integration Partners, Technical Advisors and National Highways. This offers the maximum opportunity to realise the benefits and outcomes for the Routes to Market procurement strategy and critically the delivery of the RIP. The Regional Delivery Partnerships delivery model has been designed to support moving from an asset-based development environment to one focused on improved value. This is in line with other transformational changes within the wider National Highways portfolio of directorates.

Within each region, National Highways, Delivery Integration Partners and Technical Advisors will be incentivised to work collaboratively together to deliver the outcomes of the programme.

4.2.2 External factors

As a public body, National Highways is bound by UK and EU procurement directives, including the Public Contract Regulations 2015 and the requirements of the Official Journal of the European Union (OJEU). National Highways is committed to working within the EU treaty principles of transparency, equal treatment and non-discrimination.

4.3 Commercial and procurement strategy, including procurement options

A key component of RIP's maturity development is to improve commerciality. The aspiration is that RIP commerciality is improving with a structured programme of activity to empower delivery; with teams to act intelligently when demanding efficient and predictable performance from suppliers under CDF and Regional Delivery Partnerships.

This approach was developed by RIP in partnership with Commercial & Procurement, with the detailed activities shown below.

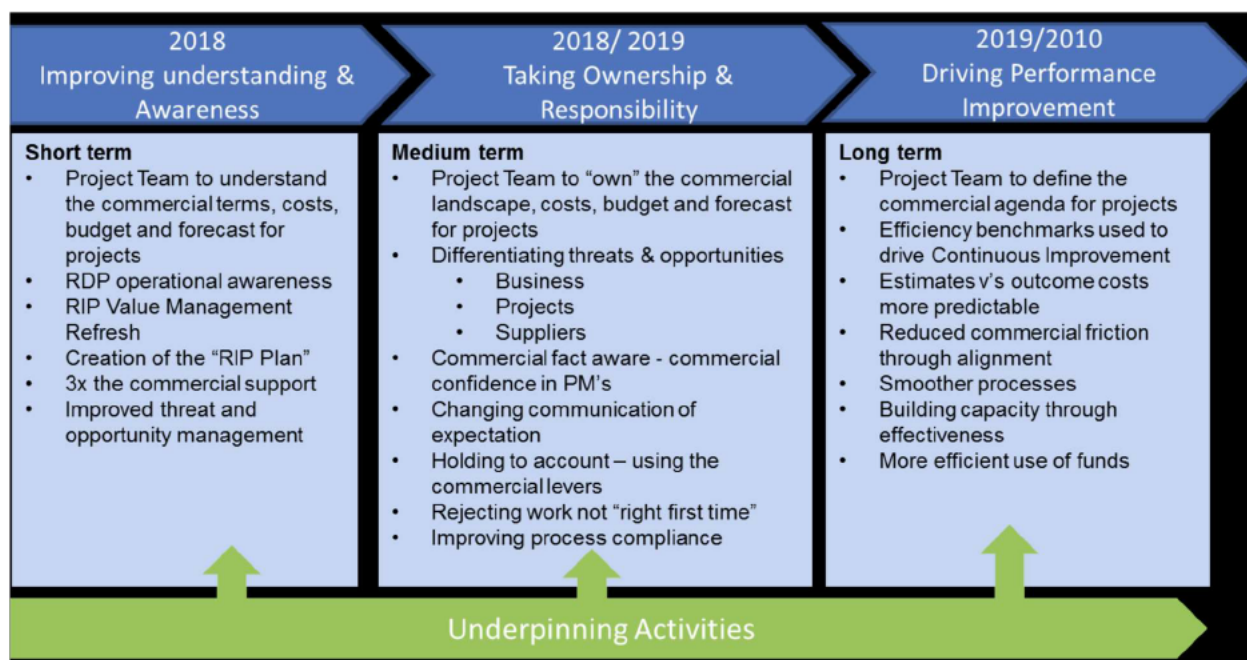


Figure 6- RIP's RIS1 Aspirations

The approach to supplier incentivisation proposes a "triple lock" of financial gain, continuity of work and reputational value through improved performance to support sector growth and organisational success. The incentives ensure alignment between Technical Advisors and DIPS to achieve outcomes aligned to our imperatives of safety, customer service and delivering the RIS.

The proposed commercial framework is therefore founded on the principle that supplier performance will be driven at two levels:

1. Scheme Level – by monitoring individual scheme outcomes at supplier scheme level; and
2. Lot Level – by monitoring supplier performance on all schemes awarded to them within a specific Lot inform the allocation of future workload

The packaging strategy has been developed to achieve the following outcomes:

1. Programme level efficiencies – reducing overheads and transaction costs, resulting in efficiency targets being realised
2. A deliverable programme – reflecting supplier capability and capacity to support new core and specialist supplier entrants to the market that are committed to delivering the programme
3. Enhanced pipeline visibility – enabling greater programme planning and securing supply through long-term contracting
4. Drive innovation – longer-term supplier engagement to develop supplier confidence and drive inward investment
5. Continuous improvement – awarding manageable packages upfront and tracking performance to enable the best allocation of future work

The A47 Blofield to North Burlingham scheme has used the Regional Delivery Partnership (RDP) to procure the delivery partner, Galliford Try, for the remainder of the project. Sweco will be the principal designer on this project. This is a major HE framework and as such is OJEU compliant. The Design and Build (D&B) contract will be NEC4, Engineering and Construction Contract, Option C Target Contract with Activity Schedule. The contract will include appropriate incentives agreed at a package and project level. The A47 Blofield to North Burlingham scheme has also used the CDF to procure Technical Advisors, Atkins are on board to provide all levels of assurance ensuring designs are products are all fit for purpose.

4.3.1 Commercial estimates, performance management and commercial assurance

The history of previous range estimates is shown in the tables below and can be found in link (Cost Estimating <https://share.highwaysengland.co.uk/Share/llisapi.dll/link/29470665>)

The project is within Delivery Integration Package B7, which was awarded to Galliford Try in 2019. The Partner has progressed through mobilisation, due diligence and Development Phase activities and the scheme is currently ready to move to construction.

The Target Outturn Cost were originally set at £89.5m in 2019.

Following the legal challenge to the Development Consent Order the Target Outturn Costs (TOC) was adjusted to reflect the impact of the legal challenge and treatment of NR VAT and account for the unprecedented inflation adjustment provided for under the RDP Framework Deed of Variation. Supplier Galliford Try have signed Deed of Variation 2 which addresses any inflation impacts on the scheme costs in line the IOPI. Currently the inflation (within TOC) is calculated using current inflation model with DOV 2 (Inflation Calculations in Budget V1.1.2). This model uses IOPI + forecast of CPI+200 basis point to end of RIS 2 and a forecast provision beyond. A Scheme Budget within the updated Targeted Outturn cost value of [REDACTED] has been agreed with Galliford Try, with further updates to the budget to be made with agreement with Galliford Try by September 2024. The previously agreed budget ([REDACTED]) is currently being reviewed in accordance with provisions of the Contract:

- (51.1) Judicial Review: – is a challenge by way of judicial review to the decision of the Secretary of State for Transport to grant development consent for the Scheme or the making or confirmation of orders under the Highways Act 1980 which is not due to a failure of the Supplier under the contract.”
- X22.6 (1) in the event of Judicial Review which the Project Manager notifies to the Supplier changes the start of works date, or
- The Project Manager and the Supplier discuss different ways of dealing with any changes to the Budget, the Dates, the Prices for Development Phase Activities and the Fee.”

We are currently compiling information implemented via CEs 6, 12 & 13 and changes to stage 2 including programme, risk and inflation impacts as part of the budget adjustment which will be incorporated into an agreement of the budget for NtP. TOC has previously been agreed and ToTP of has previously been assured as part of an IDC submission last year.

As noted, Galliford Try have submitted a Total of the Prices (TotP) of [REDACTED] to National Highways for assurance. The quantities and prices have been independently assured and verified by our commercial partner and adjusted where agreed. The Programme and risk register submissions have been assured and verified by National Highways Risk & Planning team. The submission has also been assured by the National Highways Technical Assurance partner.

The Pre-construction Estimate was produced in May 2023 utilising the assured Total of the Prices and additional adjustments relating to the legal challenge. This has been used to and was used to determine the revised scheme funding request within the September 2023 IDC funding submission. A further Pre-construction Estimate was produced in 2024 which assured Total of the Prices and additional adjustments relating to the legal challenge which has informed the revised scheme funding request within the July 2024 funding submission. See table under 5.4 – ‘Financial Model’

A copy of this estimate can be found in the Link
<https://share.highwaysengland.co.uk/Share/llisapi.dll/link/100331792>

There was still an appeal challenge on the court decision. The pre-construction estimate produced by cost planning team included a risk allowance to account for this.

Contracts will be managed through the CEMAR system, a change management system bought in as part of the MP Change Programme. The Project Manager is responsible for administering the contract with the support of the regionally based commercial teams.

4.3.2 Delivering and measuring efficiencies

The RDP contract contains embedded efficiencies which are built into the DIP Budget for the scheme. The DIP Budget was set below the capital baseline of [REDACTED] as a post efficient budget of [REDACTED]. The efficiency target is currently set to [REDACTED]. The DIP continues to maintain an efficiency register that records how these efficiencies are being delivered. Efficiency numbers will now be revised based on the latest position.

The efficiency target will be demonstrated by providing evidence to support the efficiency types, primary evidence will be provided to monitor all efficiency, secondary evidence will be provided for assurance where needed.

The KPI continues to be stretching but achievable, expected to be widely understood, is driving positive behaviour and performance and shouldn't jeopardise anyone's safety or welfare while on the network.

There are two efficiency delivery programmes in RP2:

Embedded	Post-efficient cost baseline has been set
Measured	Pre-efficient cost baseline Efficiency identified in RP1 which is realised in RP2
RP2 generated	
RP1 carry over	

4.4 Risk and issues management

4.4.1 Risk allocation and transfer

Project team review the Threats and Opportunities regularly and allocated between the employer and the contractor. A cash flow forecast is agreed for whole of Development Phase works with the supplier.

The scheme has regular monthly risk reviews which are led by the supplier risk manager and assured by the Project Controls Risk Manager and Regional Risk Manager. Risk logs are maintained and managed through the employer platform (Xactium) allowing full control over all its data. The scheme uses this data to inform QCRA monthly and QSRA on a quarterly basis to give the team appropriate foresight of proximity risks and threats to the projects to inform mitigation plans.

The register undergoes regular assurance by the team to ensure it is robust. The current assured risk position (post mitigation EMV) in May 2024 is reflected in the Preconstruction Estimate.

The RDP procurement strategy includes relevant risk mitigation clauses (Table 4.3). Also Scheme level and Package level incentivisation model derived for RDP does encourage a collective Threats and Opportunity management process.

4.4.2 Limits of liability

Suppliers are required to carry Professional Indemnity insurance for provision of technical services. Where technical assessments have not been carried out appropriately or the interpretation is incorrect, there could be grounds for risk transfer to the supplier by utilising their Professional Indemnity insurance.

The current contracts in place were all commissioned to ensure that design and appropriate liability terms in accordance with National Highways procedures are in place.

4.4.3 Human Resources general

There are no Transfer of Undertakings (protection of Employment) regulations 2006 (TUPE) considerations on this scheme.

4.5 Commercial and procurement recommendation

With the receipt of positive outcome from all assurance processes the scheme is now in a position to move to the Construction Phase. National Highways are content that the project can be delivered within the DIP budget with risks managed appropriately and are satisfied the scheme should proceed with Galliford Try for PCF Stage 6 and 7.

5. Financial case

5.3 Applied accounting principles and tax

5.3.1 Real vs nominal values

Unlike the economic case, the financial case applies the actual (nominal) costs that are forecast. Budgets are set on a nominal base, which includes inflation in later years. The economic real values are rebased on 2010 calendar year profiles for Economic Calculations.

The expenditure profiles within the Economic output from the latest Commercial estimate of May 2024 are based upon the cost estimates for each financial year prepared at a base date and then inflated to outturn costs using HE projected construction related inflation. These costs have then been rebased to 2010 calendar year profiles for economic calculations, using the GDP-deflator series as published in the TAG Data book.

In the Economic Case, the costs also exclude all VAT and all historic costs have been removed - previous years and an approximate of this year's spend that occurs in the past as well.

5.3.2 'Capex' vs 'Opex' analysis

The accountancy treatment progressing through the Development and Construction Phases will be in line with standard National Highways practice. As the resources are being employed in the construction of a Capital asset, the policy is to capitalise the costs.

All project costs will be capital i.e. on balance sheet.

If land take is required, provision will be made from the Government's Capital Annually Managed Expenditure (AME) budget accordingly. The trigger points for accounting the provisional liability are: Preferred Route Announcement (PRA) – Blight; and Start of Works/Made Orders – Compulsory Purchase Order (CPO), Part 1. When the claims are paid, the AME liability is reversed and the payment is Capital Departmental Expenditure Limit (DEL). The main project expenditure will also be funded from the Capital DEL budget.

5.3.3 Values matched to financial years (including Capex depreciation)

			W											X	Y	Z	SumW to Z		
Affordability Profiles (£m)			Version	Date	Prior Years	Road Period 2					Road Period 3					RP2	RP3	Future Years	Total Project Cost
						20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30				
a	Capital Baseline	v3.1	Jan-23																
b	Current Operational Plan (inc CRR drawdown) *	v4.2.4	Jun-24																
c	Project Manager's current forecast	Jun-24																	
a-c	Current forecast vs Capital Baseline																		
b-c	Current forecast vs Operational Plan																		
Funding Approvals (£m)																			
Funding previously approved by IDC			Sep-23																
Funding requested in this investment submission			Jul-24																
d	Total funding approved after this investment decision		Jul-24																
Actual spend to date			Jun-24																
d-c	Current forecast vs Total funding approved																		
*CRR (drawn down) / handed back previously																			
Additional Information (£m)																			
e	PM's forecast before third party contribution																		
f	Third party contribution																		
g(e+f)	Project Manager's current forecast (cost to NH)		Jun-24																
h	Current Commercial Estimate		May-24																
h-g	Forecast vs Commercial Estimate																		

5.3.4 Non-recoverable VAT

The procurement approach for construction is as set out in the Commercial Case.

Non-recoverable VAT is included in the costs, which has been calculated based on an assessment of the proportion of the construction works that will take place outside the National Highways boundary.

The NR VAT rate is currently 19% recoverable.

5.3.5 Risk contingency

The current most likely forecast risk is £7.9m contractor and £1.3m client. If the risk is realised, we would look to draw down from the client risk element of the DIP budget.

5.3.6 Third party funding

The scheme funding is not dependent on any third-party funding.

5.4 Financial Model

Financial governance will be in accordance with the National Highways Governance end to end process will be employed for this scheme.

National Highways operates according to an annual budgetary cycle, where it receives a set budget from central Government each year. One of the key financial constraints that National Highways operates under is therefore the need to ensure that spend is within the total budget allocated.

Under the PCF, funding for the continued development of an individual project is confirmed on a stage-by-stage basis, with consent granted to release funding for the next PCF stage by the Investment Decision Committee (IDC) at the end of the proceeding stage. Key investment decision point is at the end of PCF Stage 3 upon the application to DCO and at the end of PCF Stage 5 prior to construction commencing. Further details are provided in the Management Case. It is worth noting that under RDP funding approval has been sought for stages 3, 4, 5, 6 and 7.

RDP Estimate summary

Latest approved Commercial Range Estimate (May 2024)		Min: [REDACTED]
		Most Likely: [REDACTED]
		Max: [REDACTED]
Current Operational Plan (June 2024)		[REDACTED]
DIP Budget		[REDACTED]

Project Phase	Estimate	Date of Estimate release	Start of Works	Minimum (£m)	Most Likely (£m)	Maximum (£m)
Pre Options	Stage 0 (Order of Magnitude)		Mar 2020	[REDACTED]	[REDACTED]	[REDACTED]
Options	Option 1		Apr 2021	[REDACTED]	[REDACTED]	[REDACTED]
	Option 2		Apr 2021	[REDACTED]	[REDACTED]	[REDACTED]
	Option 3		Apr 2021	[REDACTED]	[REDACTED]	[REDACTED]
	Option 4		Apr 2021	[REDACTED]	[REDACTED]	[REDACTED]

Development	Option 4		Mar 2022			
Construction Estimate	Final Estimate	May 2023	Oct 2023			
Construction Estimate	2nd Final Estimate	May 2024	Sep 2024			

5.4.1 In Table 1 below, the revised commercial estimate figure reflects construction cost increases resulting from the JR

Description	Amount
Initial Agreed Budget	
JR initial Ce	
DOV 2 Inflation Adjustment	
Funding previously approved by IDC	
Judicial Review CE and associated Impacts	
Time Related Construction Cost Increase	
NH Direct and Support Service Cost Increase	
NR VAT adjustment for Cost Increase	
Other SOOC	
Risk, Opp & Uncertainty per latest Register	
Latest Outturn Commercial Estimate	
Additional Funding Request	

5.4.2 Scope and full business case check on economic case

The high level requirements for the scheme are being achieved by the project and recorded within the economic appraisal section within this business case.

As noted within the financial case the budget for the scheme is within the cost estimate as supports the schemes BCR.

5.4.3 Efficiency plan

The RDP contract contains embedded efficiencies which are built into the DIP budget for the scheme. The efficiency reporting process consists of a number of aspects which govern the process by which efficiency is identified, captured and reported within National Highways. The overarching principles for capture, valuation and reporting are laid out in the Efficiency and Inflation Monitoring Manual. These are the rules by which efficiency is to be reported; Economy, Productivity & Effectiveness:

- Economy - minimising the cost of resources used while having regard to quality

- Productivity - relationship between outputs and the resources used to produce them
- Effectiveness - extent to which objectives are achieved and the relationship between intended and actual impacts of a service.

The digital efficiency register contains a tabulated summary of the perceived opportunities for adding value. These opportunities are described, categorised, assessed and managed making best use of the knowledge, experience and skills of the integrated project team. Control actions are assigned, monitored and recorded.

Value Management workshops identified potential efficiencies to be implemented to the designs and/or delivery of the scheme. These have been captured in the Digital Efficiencies Register, which have been scrutinised by the HE Commercial team in order to ratify these efficiencies or not and provide feedback to the integrated team. This process is ongoing and will continue through all the stages of the scheme's lifecycle to maximise efficiency. The evidence obtained must ultimately satisfy the Office of Rail and Road (ORR) as to the existence and valuation of the efficiency. Key tests will be to ensure that the person in charge of the register can provide adequate support to the existence, assumptions & calculations to support each efficiency claim. The person reviewing the register can justify the value and existence of the efficiency. The reviewing team consists of the Efficiency and Project Manager, Regional Programme Office, Financial and Commercial Assurance team and Central Efficiency team.

5.5 Affordability

The estimated Scheme TOC of [REDACTED] is [REDACTED] less than the latest Operational Plan and [REDACTED] over the Capital Baseline for the scheme but remains [REDACTED] lower than the Most Likely assured cost estimate from May 2024. All forecasting including the latest business planning position aligns to the May 24 Pre-Construction estimate. Recent delays caused by the Judicial Review have caused the scheme to incur additional Prolongation costs and inflation, and consequential impacts on the Schedule of Other Costs and NR VAT. This will be realised through a revised TOC prior to notice to proceed and SoW.

5.6 Funding recommendation

Assurance has been given on a DIP Budget of £89.5m as set in 2019. The funding recommendation is for approval of the higher budget of [REDACTED]

The project contributes to the wider objectives of National Highways Strategic Business Plan, presents a High value for money and a BCR of 2.36.

The Scheme has an agreed TOC of [REDACTED] million in accordance with contract. This estimate includes all costs to deliver the Scheme from Options stages through to the end of construction.

A further revision will follow prior to Notice to Proceed following the latest inflation figures and agreeing ToTPs with the DIP. The TOC was agreed prior to the Judicial Review submission and the Deed of Variation 2 Budget was agreed following the first appeal to the high court, therefore an excess of the TOC was agreed in the budget through an X22.6 change.

In September 2023 NH IDC approved the schemes Full Business Case along with an uplifted budget of [REDACTED] and granted all the construction costs enabling the project to move forward to SoW.

Prolongation costs and inflation numbers have been calculated however commercial negotiations are still ongoing with the DIP. The revised commercial estimate from May 2024 is inclusive of these costs has a most likely figure is [REDACTED]

6. Management case

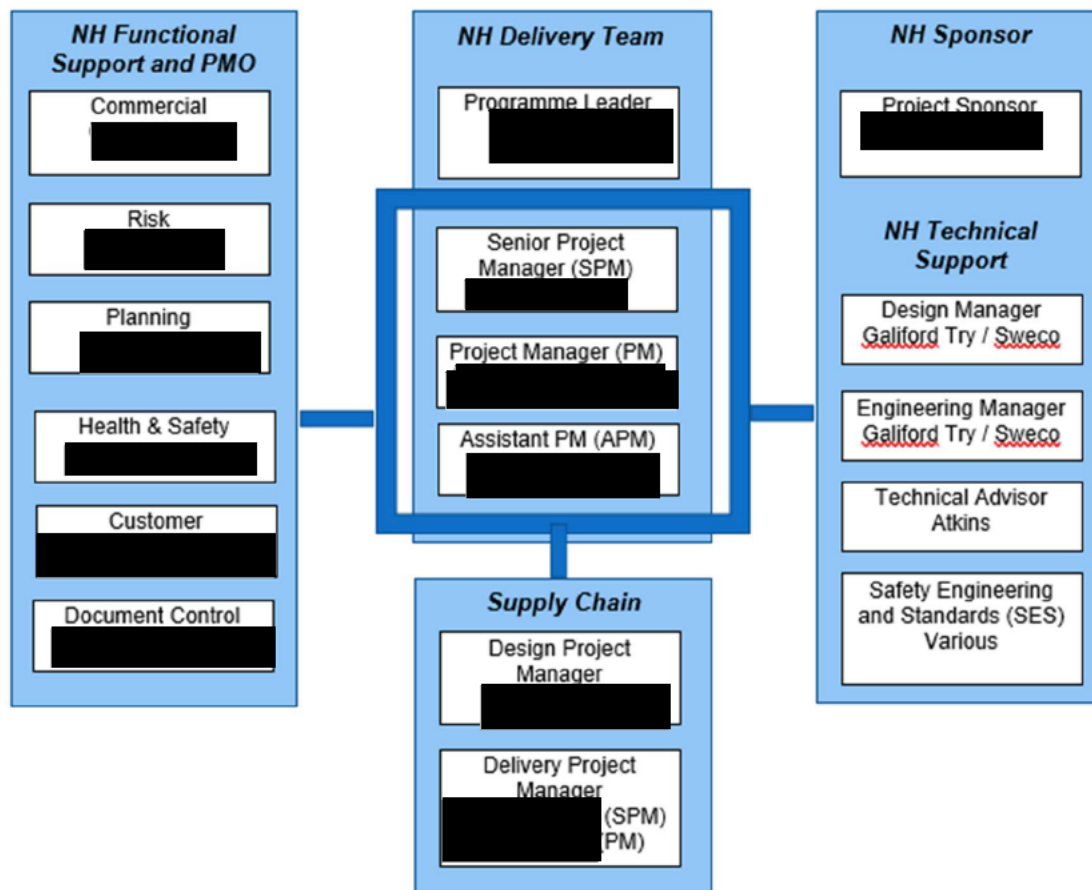
6.3 Management arrangements

This chapter will set out the processes, procedures, and systems in place and to be utilised to facilitate the delivery of the project.

SHARE link to project folders	http://share/Share/llisapi.dll?func=ll&objId=29521171&objAction=browse&viewType=1
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6.3.1 Transition and implementation plans

Following the implementation of the Delivery integrated Partner, full transitioning has now been completed and the team are working as a fully integrated project team.



6.3.2 Resourcing requirements:

- Employees
- Contingent worker
- Third party contractor (also known as technical services)
- Consultancy and professional services.

6.3.3 Stakeholders and communications

A Communication Plan has been developed during Stage 1 for Stage 2 and stage 2 for stage 3 activities setting out the approach to engagement and communication with stakeholders. We have further developed the communications plan at each stage, specifically during stage 5 in readiness for construction. The plan describes the communication objectives, the key messages the stakeholders need to know about the scheme and the channels in which to convey messages to stakeholders.

The outputs of the communications plan should include a:

- Completed Communications Plan;
- Media Plan (not required at this stage); and
- Stakeholder map

Initial engagement with key stakeholders that could influence or have a strong interest in the scheme was undertaken in advance of the non-statutory consultation in March 2017 in late 2016. The aim of this initial engagement was to introduce the scheme and obtain the views of key stakeholders on the key issues and the emerging concepts. Stakeholders engaged during Stage 1 and 2 included: National Highways; Connect Plus Services; local authorities; statutory environmental bodies and any other relevant local key stakeholders.

Non-statutory consultation on options identified during Stage 1 took place in Spring 2017 in Stage 2, through a series of stakeholder meetings, public consultation events and digital and print media campaigns.

Statutory consultation was carried out in September 2018 with ongoing engagement with all stakeholders to date.

Key stakeholder groups of the project can be found within the SoCC. These groups include the individuals that comprise the:

- Project team and the significant engineering discipline areas responsible for, for example, the design and commercial aspects of the work. The individuals will obviously change as the project progresses through each Stage.
- NH technical support groups and senior decision-making individuals and bodies. A number of these groups and bodies will provide services and governance at programme level and therefore will be advising several projects.
- Client teams, including most importantly the Department for Transport representatives, but also other Client groups and Section 278 groups that might be providing partial finance.
- External stakeholders, including the road users, transport interest groups and the supply chain to the project itself.
- Local government, environmental bodies, neighbouring interest groups and public affected by the scheme.
- Identify and consult with all relevant stakeholders on the impact and benefits of the options being considered to optimise the scheme.
- Successfully communicate the impacts, timetable, and benefits of the scheme to minimise disruption to road users and stakeholders and to gain their support for the project; and
- Use the project benefits to support a wider corporate message concerning safety, network performance and economic growth.

Stakeholder Action Tracker and Communications Plan –
A47 Blofield Stage 5 Comms Plan Stakeholder Tracker .xlsx

6.3.4 Change and control management

Change control ensures that all changes made to project's baselined scope, time, cost, quality, objectives or agreed benefits are identified, evaluated, approved, rejected or deferred.

Effective change control will ensure that the stakeholders understand and agree the baseline scope and that a formal process for controlling change is implemented throughout the project.

Change request forms ensure that stakeholders understand rationale behind the change and have full knowledge of its impact. The Project Manager is responsible for managing the change process and the Sponsor has authority for approval.

Tolerances such as Quality Specifications for delivery and performance for example, are reported via the Compensation Events process. In general, these tolerances are incorporated and outlined within the contractual terms and conditions. Tolerance to target dates and their risks are reported via Early Warning Notices to any Compensation Events.

Earned value targets have been set and are to be monitored monthly with the Supplier. The targets are:

- CPI / SPI >0.95

There is a separate change control process between National Highways and DfT, where any change to the RIS description must seek approval via Strategy and Planning team that will provide discussion and interface with the Ministry.

Lot 1 and 5 contracts within this phase are let under a NH tailored form of the NEC Professional Services contract on a target cost basis.

Changes are documented through change control forms (CEs) and logs and are approved by the Project Manager in consultation with the Programme Manager or SRO dependent on the level of change. Any changes that the Project Manager considers could result in exceeding tolerance against in-year or phase budgets, baselines for the stage or phase, or affect the scheme's likelihood to meet any of its Delivery Plan Objectives would be escalated to the SRO and Project committee.

Lot 3 has been let on a cost reimbursable basis; CEs are submitted for any extension of time required.

6.3.5 Risks and issue management

A process is in place for the effective management of risks and issues. As of December 2017, the project team has been using Xactium to manage risks. Xactium is a cloud-based risk management solution. The project team and suppliers have access to the Risk Register and are able to manage risks collaboratively through the use of Xactium.

These are reviewed through a series of regular meetings and workshops, led by the Project Managers. All members of the team are expected to identify risks associated with their area of work and contribute to the risk management process on an ongoing basis, and NH specialists are also involved in reviewing the risk register and providing comments. Support is provided through the Commercial Assurance supplier in developing and reviewing risk descriptions and quantifications. There is regular liaison with the NH Regional Risk Manager, who supports with the process and provides assurance to the Project team that the risk register is fit for purpose at each stage of the project. The risk register is governed by the Risk management plan for the scheme and undertakes formal 6 monthly reviews called an RMQA.

The current top 5 risks for this scheme are in 7.1.6

The risks identified do not have an impact on the viability of the Business Case. The focus of risks has been by proximity and what may impact the delivery of the current stage. The risk register was used to provide a quantified risk cost to include in the overall scheme costs. The project is a stand-alone scheme, which does not depend on the completion of other work.

6.3.6 Benefits realisation plan

The scheme is currently completing stage 4 and 5 of the Project Lifecycle. A Benefits Realisation plan has been developed as part of PCF Stage 5 and Benefits Register has been updated during stage 4 and 5. In terms of benefits the key benefits identified so far are:

- Encouraging Economic Growth – Route improvements to increase capacity at this point on the A47 are expected to reduce average delay and contribute to journey time savings along the route.
- Improving User Satisfaction – Reduced average delay is expected to improve user satisfaction for those using the A47 route.
- Helping cyclists, walkers, and other vulnerable users – Where the scheme affects existing and planned cycle/pedestrian/other non-motorised routes, alternatives will be incorporated into the design to provide equal or improved connectivity and route quality.
- Delivering better environmental outcomes - Any negative impacts on landscape will be mitigated by native planting and habitat creation where possible.

Following delivery of the scheme it will be important to determine whether the forecast impacts of the scheme and anticipated benefits have materialised. As such, a robust strategy will be put in place for both benefits realisation and the associated monitoring and evaluation. A Benefits Realisation Plan and Monitoring and Evaluation Plan will be developed in line with the relevant guidance to ensure that a process is in place to assess whether the scheme objectives have been successfully realised. As part of this plan, a programme of monitoring will be established from pre-construction, through scheme construction and for a period of up to 5 years post scheme opening.

Stage 5 Benefits and Realisation Evaluation Plan -

<https://share.highwaysengland.co.uk/Share/llisapi.dll/link/110529231>

6.3.7 Customer considerations/ planned communications before and during works

Link to latest Customer Plan :

<https://share.highwaysengland.co.uk/Share/llisapi.dll?func=ll&objaction=overview&objid=107195197>

6.4 Programme/project management plan (PMP) and assessment

Project Management Plan: <https://share.highwaysengland.co.uk/Share/llisapi.dll/link/106458239>

6.4.1 Governance, organisation structure and roles

The purpose of the Project Committee is to support the Project Sponsor and Programme Lead in the executive control of projects, by providing stakeholder and technical input to decisions affecting the scheme. Exception reports will be prepared for the Committee to review and manage any key changes on the programme that are likely to have an impact on the scheme objectives. Key project issues requiring escalation will be taken by the committee members to regional committee.

All changes are to follow the Commercial Management process. Any amendments to the scope of works will be raised as Early Warnings and if accepted, the change is then processed as a Compensation Event, in accordance with the contract.

The project is controlled by the National Highways governance processes and Major Project procedures such as the Project Control (PCF) delivery framework. The scheme will be subject to peer reviews and audits e.g. Gateway Reviews and Stage Gate Assessment reviews

The Project has been organised at the following levels:

- Project Committee
- Integrated Project Team
- Design Delivery Team

The design, management and planning of assurance activities has been informed by the Link Stage 5 IAAP:

<https://share.highwaysengland.co.uk/Share/llisapi.dll?func=ll&objaction=overview&objid=104265070>

The Project Committee consists of core members from all the parties which are responsible for the delivery of the project, as follows:

Role	Name
Sponsor	[REDACTED]
Programme Lead	[REDACTED]
Regional Head of PMO RIP	[REDACTED]
Operations Directorate	[REDACTED]
OD East Regional Director	[REDACTED]
Regional Health & Safety Manager	[REDACTED]
Finance Business Partner RIP East & CIP	[REDACTED]
Commercial Team Leader	[REDACTED]
Regional Risk Manager	[REDACTED]
Regional Customer Lead	[REDACTED]
A47 Senior Project Manager	[REDACTED]
A47 Project Manager	[REDACTED]
A47 Assistant Project Manager	[REDACTED]
Committee Secretariat	[REDACTED]

The Project Committee was introduced in June 2017 following the issue of MPI-59-062017. The Committee performs a regular 'health check' on the project and validates the decisions of the Integrated Project Team. The Project Committee supports the Programme Lead (PL) and takes an overview of the project by managing by exception. The Project Committee meets monthly, as a minimum requirement.

The Programme Lead has overall accountability for the delivery of the project ensuring the project remains focused on achieving its objectives. He has the authority to make decisions concerning the delivery of the project within a certain delegation.

The Programme Lead is responsible for: -

- Providing clear leadership and direction through the life of the project
- Ensuring the project governance arrangements comply with the PCF through: -
 - Review and sign off key products
 - Deciding the outcome of Stage Gate Assessment Reviews for medium and high-risk projects
 - Ensuring change is effectively managed and escalated appropriately
 - Ensuring that the project is technically and financially viable and compliant with the National Highways corporate standards and strategic business plans
 - Ensuring the project is ready to seek investment authorisation
 - Managing the interface with key senior stakeholders

The Project Manager is the individual responsible for managing the development and the delivery of the project on behalf of the National Highways and on behalf of the SRO.

The Project Manager leads and manages the Project Team with the authority and responsibility to run the project on a day-to-day basis. The Project Manager is responsible for: -

- Managing the project on a day-to-day basis and delegations provided by the SRO
- Being aware of the business objectives of the project and ensuring that these are satisfied
- Ensuring that the project produces the required products, to the required standard of quality and within the specified constraints of time and cost
- Establishing the project organisation, defining roles and responsibilities and deliverables for each team member
- Performing project planning, monitoring and control on the project
- Establishing the safety ethic within the project team and ensuring that the project complies with safety regulations
- Providing a safe working environment for the execution of work directly under their responsibility

The scheme is managed in accordance with the PCF and as such the Stage Management, Project Management and Integrated Assurance and Approvals Plans have been approved and signed off throughout each Stage.

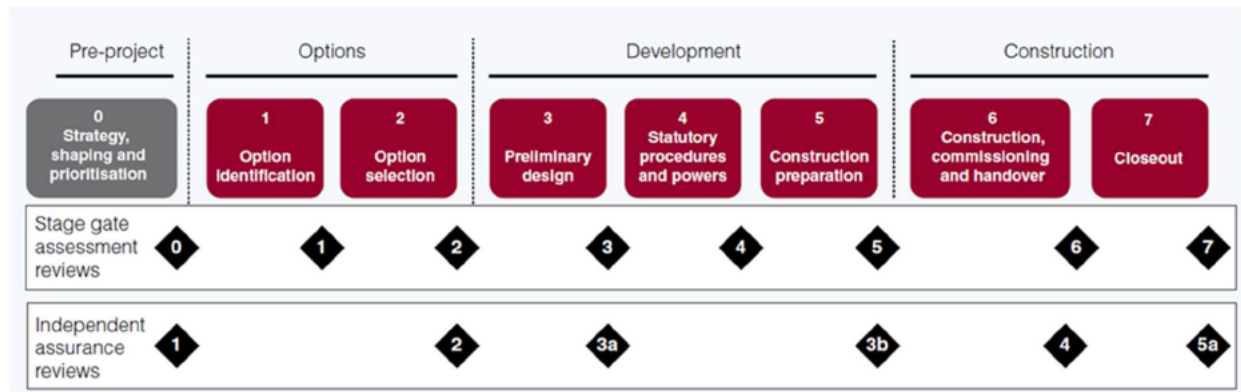
To ensure that the project undergoes quality assurance subject matter experts are engaged to review, feedback and provide technical approval where appropriate on products produced during the project lifecycle. Regular Stage Gate Assessment Reviews (SGAR) are undertaken to ensure that the products for the stage have been approved and signed off by the relevant signoff authority. These are internal reviews consisting of a panel of senior leaders from the Operations Directorate and Major Projects, PCF leads and the project team.

SGAR 4 was held 26th April 2024, with an Amber outcome, solely due to the position of the Judicial Review at the time of the SGAR date. In accordance with PCF guidelines and is included as a key milestone on the project schedule. NH administrators from the project team are responsible for booking SGARs through PMO and organising the paperwork.

Independent Assurance Reviews (IAR) using the OGC Gateway process are conducted by experienced and impartial reviewers. The purpose of the IAR is to ensure that the project is kept on track to success and are run effectively to prevent failure. It provides the Project Sponsor and the accounting officer, with confidence that the project will deliver its benefits to time and budget. These usually take place at the end of each Stage.

A Risk Potential Assessment (RPA) was completed by the NH PM midway through Stage 5, with input from the Programme Lead and Project Sponsor. The RPA was updated again in May 2024 and submitted to NH Programme Assurance in readiness for the IAR Gate 3b. The IAR was held in July 2024 and the scheme was awarded a 'Green' outcome.

SGARs and IARs will be held in accordance with the review timeline shown below:



The RIP Committee structure (Project, Regional, and Programme) provides forums in which project issues can be reviewed and escalated where necessary. However, the size of the programme dictates that limited time can be allocated to individual project issues at Programme Committee.

The Project Committee is accountable to the Programme Committee for the success of the project and has the authority to direct the project within the remit set by the Programme Committee as documented in the project business case. The Project Committee is also responsible for the communications between the project management team and stakeholders external to that team (e.g. corporate and Programme management). According to the scale, complexity, importance and risk of the project, Project Committee members may delegate some project assurance tasks to separate individuals. The Project Committee may also delegate decisions regarding changes to a Change Authority.

From time to time, issues will arise on projects which Project Committees need to explore in detail. Under Governance, discussion of such issues would flow from Regional and into Programme Committee.

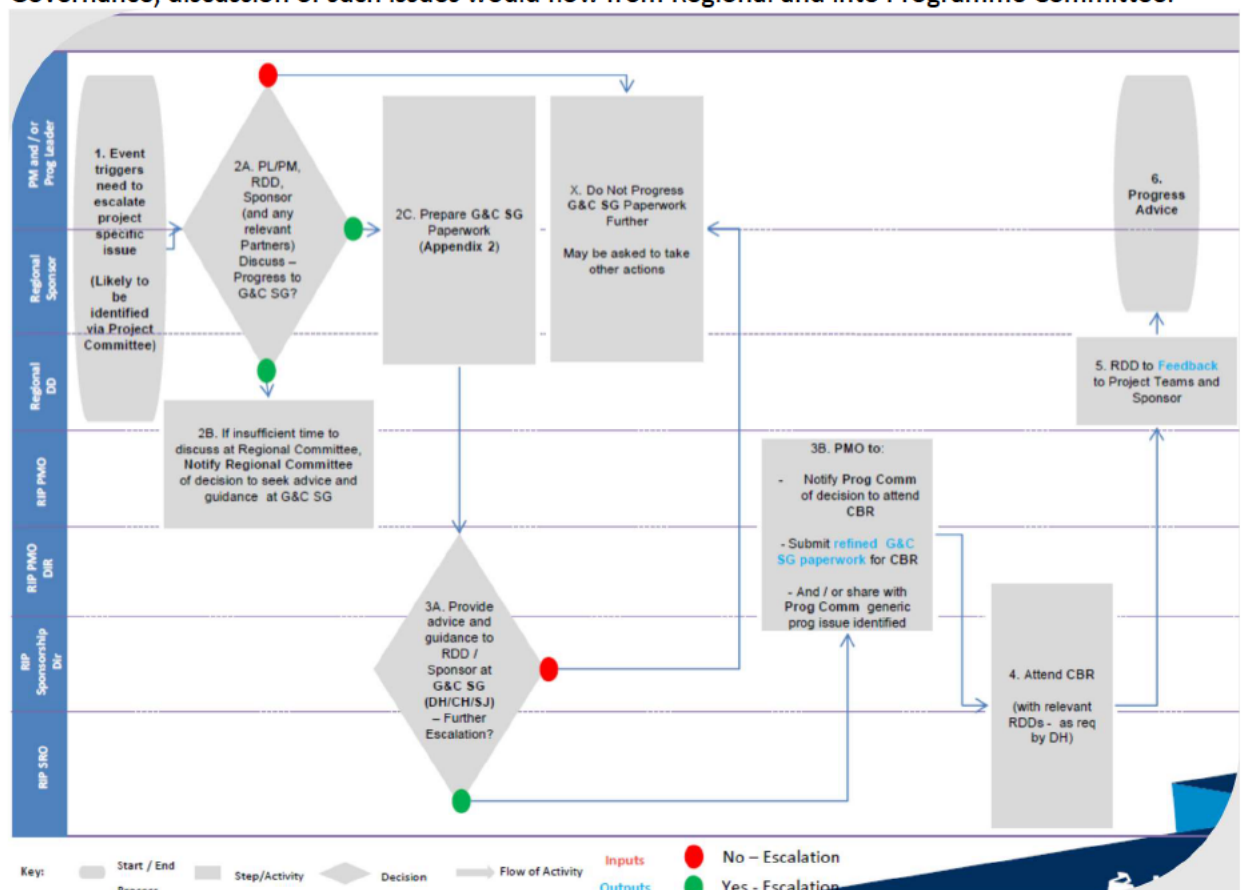


Figure 8- Committee Escalations Process Map

6.4.2 Reporting

The Project Committee has been chaired by the Programme Lead for the project and attended by the Senior User (OD representative) and Senior Supplier (usually the Supplier Director) and other attendees at the discretion of the Programme Lead. The Project Committee has met regularly throughout the stage to effectively manage the project and will continue to do so moving forward into PCF Stage 4.

Milestones and delivery targets, risks and issues are discussed at each meeting to manage the successful delivery of the programme.

The Project Manager has been responsible for reporting progress and other matters to the Project Committee, this has included highlight reports covering progress against milestones, key issues and risks, actual and forecast financial information, forward look, and items escalated to the Project Committee for consideration/a decision. This will continue through PCF Stage 4 to 7 as an effective way of providing information to project committee members.

Financial and progress reporting has been carried out in accordance with the requirements of the Major Projects Portfolio office on a monthly basis. These reports for the project feed into a bigger reporting picture compiled by MP Portfolio office reporting on the monthly and longer-term forecasts and milestones for the whole RIP programme.

Report type examples:

- Progress – Gantt charts, status reports
- Quality – registers, checklists
- Risk – register, checklists
- Finance – budgetary reports, cost variance in a form of a Dashboard
- Review/audit – checklists, recommendations, SGAR reports

The table below shows types of reports and coordination. The Programme Management Office will provide report templates and will coordinate their completion in time for a monthly Senior Management Performance Reporting Meeting.

Control Area	Report description	Frequency	Coordinated by
Progress (product delivery) against Stage plan/schedule (MMR, Dashboard)	PMO project report	Monthly	Project manager
Risks and issues (Risk Register)	PMO project report	Monthly	Project manager
Change control	PMO project report	Monthly	Project manager
Costs and budgets against the Stage cost plan	PMO project report	Monthly	Project manager
Look ahead (milestones)	PMO project report	Monthly	Project manager
Health & Safety	Health & Safety review	Monthly	Project manager
Programme Delivery	Project Board meetings	Monthly	SRO

Table 19: Report types for PMO

6.4.3 Work streams

Within the project there are two key components in the current stage, the client and the supply chain team. Accountabilities of these functions are detailed below.

Internal Client Team – key accountabilities:

- Project management
- Stakeholder management
- Governance and assurance
- Business case and benefits realisation
- Value Management
- Risk Management
- Discharging Client duties under the CDM Regulations

External Design/D&B team – key accountabilities:

- Performing the role of the Principal Designer and discharging client duties under the CDM regulations
- Performing the role of the Principal Contractor and discharging client duties under the CDM regulations
- Delivery of the preliminary/detailed design
- Construction works
- Completion of all applicable PCF products
- Monitoring spend to comply with monthly and annual forecast tolerances
- Assisting the client team with their duties where required

The overall accountability of the project governance sits with the Regional Sponsor. The overall accountability of the project delivery sits with the SRO and Regional Delivery Director.

6.5 Programme/project assurance reviews

The following project assurance controls are employed on the Scheme:

- **Regular reporting**, the responsibility of the Project Manager
- **Exception reporting** to capture significant changes in scope, budget or programme
- **Sign-off of PCF products** as they are produced
- **Stage Gate Assessment Reviews (SGARs)**, which are planned at the project outset and which provide basic assurance that the PCF has been followed and the project is ready to proceed to the next stage, subject to investment authorisation
- **Independent Assurance Reviews (IARs)**, which are peer reviews by independent Project Managers, that confirm that time and cost targets have a realistic basis, lessons are being learned and there is assurance that the project can proceed to the next stage.

Investment authorisation is required at the start of each phase in the PCF, once an SGAR and IAR have been held at the end of the preceding stage. SGAR 1 signed off as green. SGAR 2 signed off as green, SGAR 3 signed off as green, SGAR4 signed off as Amber (Due to awaiting outcome of the Judicial Review).

The project held an SGAR 4 in August 2023 where it received a RED outcome due to an appeal being submitted on the Judicial Review Ruling. All products were signed off as fit for purpose. The project is continuing with advanced works supported by an interim SGAR 4 with a Amber rating. SRO permission to continue advanced works has been confirmed.

The investment authorisation approves the budget and duration for the project phase, the planned duration for the project as a whole and the outturn range estimate for the project as a whole.

It is the responsibility of National Highways IDC to approve the release of funding for the delivery of the Scheme. The IDC provides effective corporate governance of investment and is used to ensure value for money, effective management control and decision making, and financial and contractual propriety.

A summary of the programme and project reviews are provided in the sections below.

6.5.1 Reviews completed before SOBC/OBC/FBC submissions.

Internal assurance review			
Name of review		PAR	
Date of review	Rating	Summary of recommendations	Response to recommendations
23/11/18	Amber	1.The review team recommends that project team intensifies constructive engagement with the utility provider to encourage them to expedite the movement of the gas main before the project start of works. 2.The review team recommends that an urgent review of all critical PCF products is carried out to ensure that they can be delivered to achieve SGAR3. 3.Review team recommends that a collaborative planning workshop is held with project team, MMS JV and incoming RDP supplier at the earliest opportunity to ensure clarity of delivery of SGAR3 and the impact on DCO process. The outputs need to be clearly documented.	Completed

External assurance review			
Name of review		IAR 3a	
Date of review	Rating	Summary of recommendations	Response to recommendations
01/12/20	Red/Amber	1. The project team and senior management need to ensure the supplier is engaged with this activity - Completed. 2. The RT recommends that the governance bodies supporting the scheme be used more effectively for decision making and tracking mitigation actions for robustness and timely completion - Noted 3. The RT recommends that project team intensifies constructive engagement with the utility provider to encourage them to expedite the movement of the gas main before the project start of works - Noted 4. The project team need to resolve the issues with Norfolk County Council around Brundell roundabout and the pedestrian crossing for the A47- Noted.	Noted

		5. The project team, senior management and the executive should continue provide sufficient resource to resolve the problems with this supplier- Completed. 6. The project and programme team need to continue to work on resolving this funding issue - Completed	
21/06/23	Amber	1. A detailed lesson learnt exercise should be undertaken once the issues with Cadent have been resolved and detailed on the knowledge bank. This will help future projects ensure the issues Cadent are not reoccurring. 2. Confirm that the DCO condition to complete construction within two years has been added to the risk register and detailed on the critical path. This will give the project a point of note if required. 3. The SRO – Sponsor should read the detailed document and apply its principles.	

6.5.2 Review relating to this business case stage

Independent Assurance Reviews

It is a requirement of the PCF that Independent Assurance Reviews (IARs) are carried out, where independent project managers from within Highways England examine the progress and likelihood of successful delivery of the project.

IARs will be carried out at the end of PCF Stages 2, 3, 5, 6 and 7, following the SGAR held at the end of each stage.

IAR3b is scheduled for 9th – 11th July, as a recommendation for a repeat following the Judicial Review outcome, prior to the further July 2024 IDC application and SGAR5.

Operations Technical Leadership Group

The operational solution taken forward for the Scheme will be presented to the Operations Technical Leadership Group (TLG) during PCF Stages 3, 5 and 7, in order to demonstrate a safe and efficient design and to contribute to the application of best practice. The Stage 5 Ops TLG certificate was obtained in December 2022.

Investment Authorisation

The ultimate decision to continue to invest in the continued development of the Scheme is the responsibility of Highways England's IDC. Investment authorisation is required from the IDC.

IDC scheduled for July 2024 to authorise the release of construction funding.

6.5.3 Project evaluation reviews

Project evaluation reviews will be held during PCF Stages 1 to 7, in addition to Gateway Reviews as required.

6.5.4 Post implementation review

The regular review process will continue throughout construction and post implementation, using the Monitoring and Evaluation Plan. The Programme Lead will commission a formal Post Implementation

Review (PIR) prior to the Stage 5 IAR at PCF Stage 7, before the handover to operations and before the end of the defects period. The PIR will help to identify the performance of the scheme against the objectives set, examine the final outturn costs in comparison to the cost estimates and identify lessons learnt. The Programme Lead will be responsible for disseminating the outputs of the PIR to the appropriate stakeholders.

6.5.5 Post project review

A post project review will take place following PCF Stage 7 Closeout. The focus of this review will be on how the benefits information and lessons learnt can be applied to future projects.

6.5.6 Lessons learnt

Lessons learnt from previous projects are being considered and across the programme which are held on the National Highways share Website. The A47 corridor improvement scheme has a lessons learnt log which is updated as required by the Stage suppliers and regularly shared with integrated project team and discussed at progress meetings.

As part of Stage 4 and 5, the scheme has produced a Lessons Learnt Log as a PCF Product for sign off.

Link to Stage 4 Lessons learnt log :

<https://share.highwaysengland.co.uk/Share/llisapi.dll?func=ll&objaction=overview&objid=102379989>

Link to Stage 5 Lessons learnt log: <https://share.highwaysengland.co.uk/Share/llisapi.dll/link/107288100>

6.6 Contingencies and dependencies

There is always a chance that an event could result in premature closure of the project due to unforeseen circumstances. These may include:

- Affordability
- Legislation (HA80 not approved by Sectary of State)
- Outside factors (Environmental constraints)
- Buildability

Many of the risks associated with these scenarios have been recorded in the project risk register with appropriate mitigation noted. Should any risks be realised the team will ensure the project communications plan is updated, the NH press office engaged, and a mitigation plan put in place to ensure the key messages are communicated.

The project will then need to be scaled back to an appropriate hold point in the programme and demobilised.

In line with the PCF, this scheme is being delivered in stages. If at any stage it was deemed undeliverable, it would be closed, and all data passed to National Highways.

If this project fails, the other projects within the scheme would be able to continue and the project would then be reviewed as part of the RIS2 2020 – 2025 programme.

6.6.1 Dependencies

In developing the scheme further, a comprehensive risk log will be maintained as part of the Management Case. The delivery of the improvement scheme for the A47 Blofield to North Burlingham route will be dependent on these risks either not arising or being mitigated so that the scheme delivery is not affected.

At this stage several key potential issues and factors that might influence the successful delivery of the route have been identified.

Internal

- Cost changes due to optimisation and possibly missing significant sums at this stage including statutory undertakings etc.
- Statutory processes: the time and cost to acquire the land required to implement the scheme.
- Acceptance; potential opposition and challenges to the scheme.
- Consultation: there is the potential for delays to delivery as a result of issues raised during consultation.
- The design of the route and junctions.
- Construction.

External

Strategic issues, such as changes in Government priorities and/or lack of support from local authorities

6.7 Findings and conclusions

The programme and project management section has summarised the overall approach to project management at FBC stage of the project. This is expected to provide robust governance and assurance of project outcomes going forward.

