



A16 Norwood, Peterborough  
**Strategic Outline Business Case**  
November 2020



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## Executive Summary

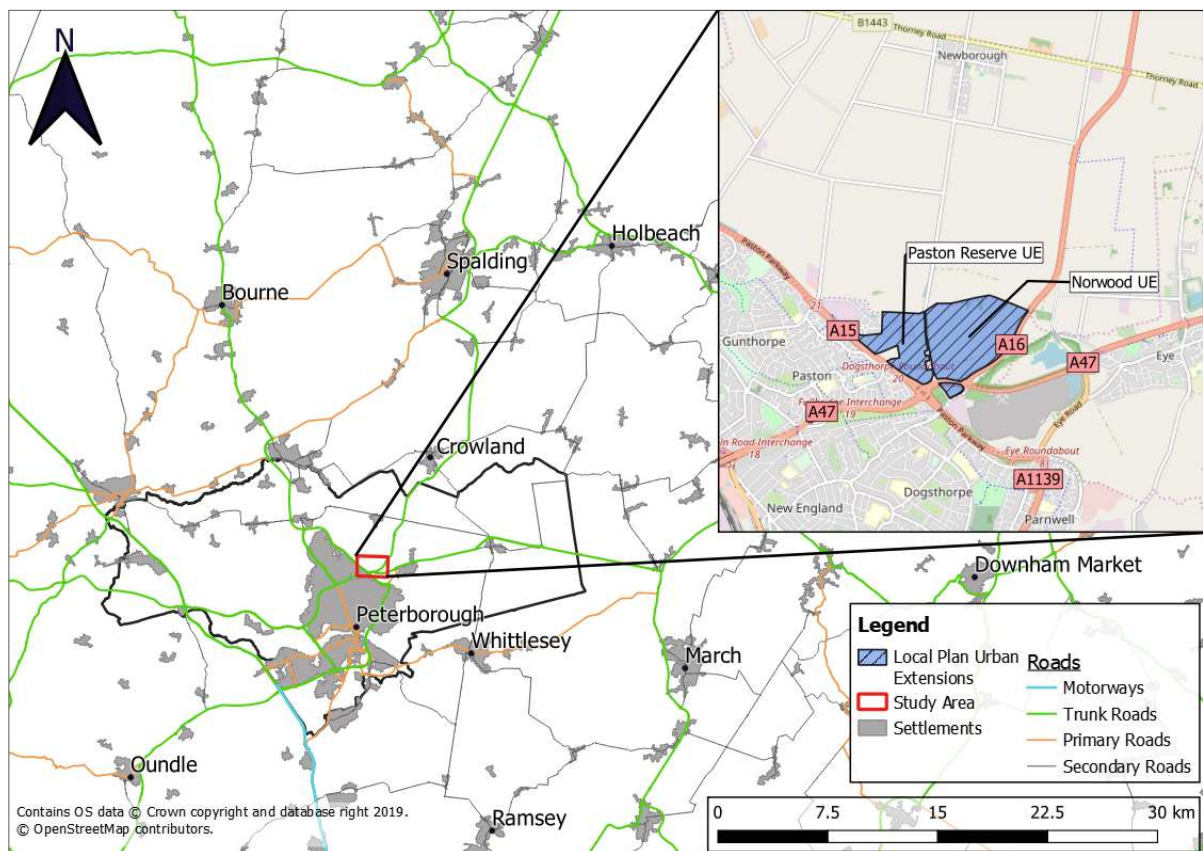
This Strategic Outline Business Case makes a strong strategic and economic case for the A16 Norwood Improvement scheme, which will return **High Value for Money**.

The package of schemes will add capacity to the highway network, addressing existing problems of peak hour congestion, and help to facilitate planned residential growth within Norwood.

The Peterborough Local Plan (adopted July 2019) sets out the overall vision, priorities and objectives for Peterborough up to 2036. The updated strategy identifies the required delivery of 19,440 new homes and 17,600 new jobs by 2036.

The study area encompasses the Norwood and Paston Reserve Urban Extension sites, which are bordered to the west by the A15 Paston Parkway, to the east by the A16 and to the south by the A47, and intersected by Newborough Road.

The Norwood and Paston Reserve urban extensions, shown below are key areas of residential growth for Peterborough and have been allocated for development within the Peterborough Local Plan 2016 to 2036 (Adopted on 24th July 2019), generating a combined total of 2,945 dwellings in the study area.



Norwood Access Study Area

The Strategic Outline Business Case is set out in compliance with the Department for Transport's (DfT) Five Case Business Model.

### Strategic Case

The Strategic Case has considered the policy context in which a scheme for this location has been developed. As well as policy, the need for intervention is explained, which includes the following issues that compromise local growth aspirations:

- Extensive queues and delays on the A16
- Queueing on the A47
- High accident rate at the A16 / A47 / Welland Road Roundabout.

The policy review and data of existing issues has been used to identify scheme objectives, and a long list of potential improvement options have been assessed against these objectives using the DfT's Early Assessment Sifting Tool (EAST). The scheme objectives are set out beneath.

Primary objectives include:

- **Tackle congestion and improve journey times:** Tackle congestion and reduce delay along the A16 and on the primary approaches to the A16 / A47 / Welland Road Roundabout
- **Support Peterborough's growth agenda:** Ensure that the planned employment and housing growth at Norwood can be realised
- **Limit impact on the local environment and improve biodiversity:** Fully mitigate any adverse environmental impacts of a scheme, and ensure a biodiversity net gain within the study area.

In addition to the primary objectives, several secondary objectives were identified:

- **Positively impact traffic conditions on the wider network:** Positively impact the performance of local routes impacted by the traffic and congestion in and around the A16 corridor, such as the A47, A15 Paston Parkway, A1139 Eye Road and Newborough Road.
- **Improve road safety:** Reduce accidents and improve personal security for all travellers within the study area.
- **Improve sustainable transport infrastructure:** Ensure that the scheme provides a comprehensive network of pedestrian and cycling routes where needed.

The Strategic Case concludes with details of the preferred package of schemes (Package 1) which is the subject of this Business Case. Full details of the modelling and assessment work undertaken to identify the preferred package of schemes can be found in the Norwood Option Assessment Report (OAR).

The Preferred Option ('the scheme') includes:

- Closure of Newborough Road access onto A47
- Dualling of A16 between A16 / A47 / Welland Road Roundabout and the Norwood Development Access
- Partial signalisation of A16 / A47 / Welland Road Roundabout (A16 southbound approach)
- A 50 metre flare added to the A47 westbound approach to provide additional capacity for left turning traffic to Welland Road
- Dedicated Left Turn Lane (LDL) from the A47 eastbound to the A16 northbound.

### Economic Case

The Economic Case demonstrates the scheme (Package 1a) achieves a Benefit to Cost Ratio (BCR) of **3.182**, and offers **High Value for Money** based on transport user benefits alone. A breakdown of the scheme BCR is provided beneath.

#### A16 Norwood Improvement Scheme BCR

Value (£'000s) 2010 prices, benefits discounted to 2010	
<b>Benefits</b>	
Greenhouse Gases	-1
Consumer Users (Commuting)	4,168
Consumer Users (Other)	5,442
Business Users/Providers	5,476
Indirect Taxes	53
<b>Present Value of Benefits (PVB)</b>	<b>15,138</b>
<b>Costs</b>	
Broad Transport Budget	4,757
<b>Present Value of Costs (PVC)</b>	<b>4,757</b>
<b>Net Benefit / BCR Impact</b>	
<b>Net Present Value (NPV)</b>	<b>10,381</b>
<b>Benefit/Cost Ratio (BCR)</b>	<b>3.182</b>

The Present Value of Benefits used in the assessment have been derived from the SATURN-based Peterborough Transportation Model (PTM3) used to assess the impact of the scheme in future years. Results from this modelling were then assessed using the Transport User Benefits Appraisal (TUBA, 1.9.14) tool to calculate a scheme BCR. The **Present Value of Benefits** for the scheme are **£15,138,000** in 2010 prices.

The Present Value of Costs used in the Economic Assessment is based upon a robust scheme cost estimate and has been calculated in line with WebTAG guidance over a 60 year appraisal period. The **Present Value of Costs** for the scheme are **£4,757,000** in 2010 prices.

Qualitative assessments have also been undertaken for the following areas:

- Landscape
- Heritage
- Arboriculture
- Ecology
- Noise.

These assessments did not identify any significant concerns, and will be considered in more detail during the Detailed Design process.

### Financial Case

The Financial Case demonstrates that the scheme has been robustly costed in line with WebTAG guidance.

This Scheme Outturn Cost (including risk and inflation) is £6,615,466. This includes a 20% Risk Allowance, which is comprised of 10% construction Risk and 10% COVID-19 related risk.

The initial scheme cost estimates are presented in the table beneath.

Financial Case Scheme Cost Estimates

Cost Stage	Cost (£)
Base Investment Cost	4,294,790
Risk Adjusted Base Cost	4,950,733
Risk Adjusted Base Cost with Construction Industry Inflation <b>(Outturn Cost)</b>	<b>6,615,466</b>

It is anticipated that the full scheme Outturn Cost of £6,615,466 will be funded by the CPCA from the Single Investment Fund.

Peterborough City Council request that the Design Cost of £620,000 is released in advance of the funds required for construction, in order to undertake the Preliminary Design and produce an OBC. This work is provisionally programmed to be undertaken between April 2021 and March 2022, with a view to construction commencing on site in 2024 (closure of Newborough Road).

## Commercial Case

The Commercial Case demonstrates that the scheme can be reliably procured and implemented through existing channels whilst ensuring value for money in delivery of the scheme.

All phases of the scheme, including detailed design, construction and site supervision will be delivered in house by Peterborough Highway Services (PHS), who have been responsible for all planning and design work undertaken on the A16 Norwood Improvement Scheme to date.

The scheme will be procured using a Target Cost payment mechanism. This incentivises both parties to work together to reduce cost through a pain / gain mechanism. To ensure that the procurement remains commercial competitive and offers value for money, all subcontract packages will be subject to competitive tendering.

Procuring the scheme directly through the PHS contract enables Peterborough City Council to appoint a contractor in an efficient manner. Using PHS' in-house delivery capability offers the following benefits over alternative procurement routes.

- PHS is reliable and has a **proven track record** of delivering major schemes successfully, and this serves as a positive indicator of future performance.
- The scheme can be **procured far quicker** than would be the case with alternative procurement routes. As well as reducing the procurement costs for the procuring authority, the project benefits will be realised sooner.
- The integrated delivery model creates a **single point of responsibility** and encourages **more effective collaboration** between client, designer and contractor to reduce costs. As the scheme has been identified, planned and designed within PHS, continuity can be assured through to construction, and any issues identified on site can be quickly resolved by the design team.
- A well-established supply chain is already in place which provides **Value for Money**. All subcontract packages will be competitively tendered to ensure best value, and will be put to a minimum of three tenderers where possible.
- **Strong performance is highly incentivised** as all schemes delivered within the PHS contract contribute to a suite of KPIs which impacts on the term of the contract. Consistent good performance is rewarded with contract term extensions whereas consistently poor performance would see a reduction in the contract term.
- The contract duration and **strong collaborative relationship** encourages both parties to work towards long term gain rather than short term commercial gain.

## Management Case

The Management Case demonstrates that Peterborough City Council, through the PHS Framework, has the necessary experience and governance structure to successfully manage the delivery of the scheme.

The Council, through PHS, have successfully delivered the following highway improvement schemes in recent years:

- Junction 20 Improvement Scheme (A47 Soke Parkway / A15 Paston Parkway) - £5.7m
- Junction 17 – Junction 2 Improvement Scheme (A1139 Fletton Parkway) - £18m.



### Junction 20 Improvement (post scheme)

The scheme will be delivered by a Project Team led by a Peterborough City Council Project Manager, and consisting of all the key project delivery partners. The Project Team will be responsible for the daily running of the project, coordinating with all key stakeholders, and managing the delivery programme.

The existing PHS Project Board will be used to oversee the continued development and delivery of the scheme by the Project Team, and to make key decisions relating to the delivery of the project. The Project Board will be supported by technical specialists, and key stakeholders will be invited to attend as necessary.

Every month the Project Manager will also submit a highlight report to the CPCA recording what progress has been made and whether there are any new risks that could impact the scheme.

Key project milestones for progressing to scheme delivery are outlined in the Table beneath:

Timescale	Milestone Activity
November 2020	Strategic Outline Business Case and Option Assessment Report Submitted.
January 2021	Strategic Outline Business Case reviewed by CPCA and approval sought from CPCA board for the release of funding to undertake an Outline Business Case and Preliminary Design.
April 2021 – March 2022	Outline Business Case produced and Preliminary Design undertaken.
April 2022	Outline Business reviewed by CPCA and approval sought from CPCA board for the release of funding to undertake Detailed Design and produce a Full Business Case.
June 2022 – May 2023	Detailed Design undertaken and Full Business Case produced.
2024	Closure of Newborough Road Access to A47 delivered in conjunction with Developer schemes including Norwood internal access road and A16 Norwood Developer Roundabout.
2027	Construction of the remaining schemes, including A16 Dualling and A16 / A47 / Welland Road Roundabout improvements.

An online public and stakeholder consultation exercise on the final scheme will be undertaken following approval of the OBC, and prior to completion of the Detailed Design. No residents are directly affected by this scheme. All other communication with key stakeholders and the public will be coordinated by a designated Project Liaison Officer who will be based with the project delivery team.

A Risk Register was produced during project initiation to identify potential risks and to evaluate factors that could have a detrimental effect on the project. The Risk Register is a live document and is reviewed regularly at progress meetings and updates are reported to the CPCA through the monthly Highlight Reports.

Details about how the scheme will be monitored and evaluated against the objectives are shown within the Management Case, and include a range of quantitative and qualitative data collection methods that will be undertaken at one, three and five years post scheme opening.

### Summary

This Strategic Outline Business Case makes a strong strategic and economic case for the A16 Norwood Improvement Scheme, which will return **High Value for Money**.

The Business Case demonstrates that the scheme has been carefully costed on the information available, can be efficiently procured through existing commercial channels whilst providing value for money, and that the necessary mechanisms are in place to ensure that the delivery of the scheme can be successfully managed on behalf of the Cambridgeshire and Peterborough Combined Authority.

# 1. Introduction

This document sets out the Business Case for transport improvements in the A16 Norwood Improvement Scheme study area in Peterborough. The scheme will address future congestion and delay along the A16 corridor that would compromise the operational efficiency of the surrounding road network, including the Strategic A47 route. By addressing existing and future issues, and building in additional capacity, improvements will assist with delivering growth aspirations across Peterborough, and specifically at the Norwood site.

This Strategic Outline Business Case is the first stage of the decision making process using the format as set out in “The Transport Business Cases” document published by the Department for Transport (DfT) in January 2013.

The level of detail provided within the Business Case continually builds as the project progresses from Strategic Outline Business Case (SOBC) to Outline Business Case (OBC), and then onto Full Business Case (FBC). This reflects the greater level of detail that becomes available as the list of potential schemes is refined, and preferred schemes are identified for increasingly thorough consideration.

The primary purpose of the SOBC is to:

- Confirm the need for change and the policy fit of a scheme at this location
- Demonstrate that a range of options have been considered, and that a preferred option has been identified that meets the scheme objectives
- Evidence that the preferred option offers value for money, and has been robustly costed based on all information available
- Explain how the scheme will be procured, and how delivery of the project will be managed.

## 1.1. Study Area

The study area encompasses the Norwood and Paston Reserve Urban Extension sites, which are bordered to the west by the A15 Paston Parkway, to the east by the A16 and to the south by the A47, and intersected by Newborough Road.

The Norwood and Paston Reserve urban extensions, shown below in Figure 1.1, are key areas of residential growth for Peterborough and have been allocated for development within the Peterborough Local Plan 2016 to 2036 (Adopted on 24<sup>th</sup> July 2019), generating a combined total of 2,945 dwellings in the study area.



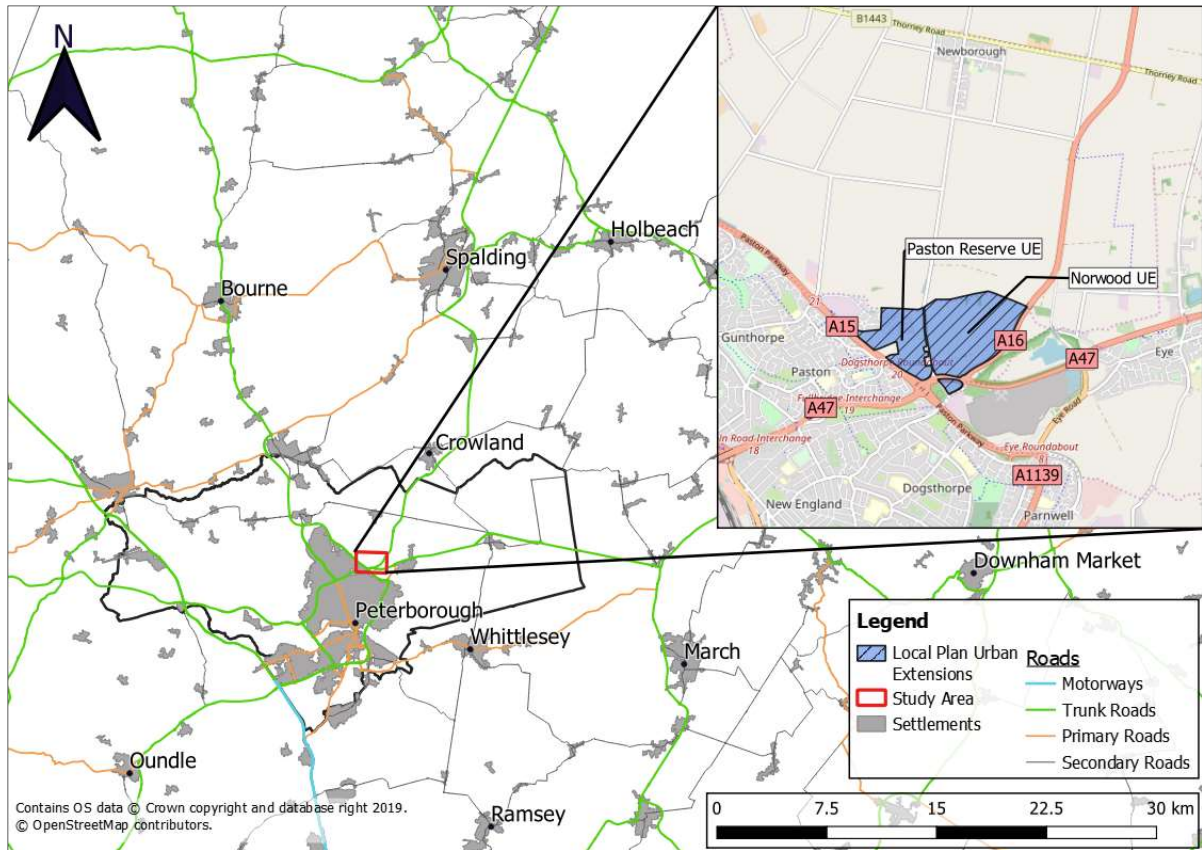


Figure 1.1: A16 Norwood Improvement Scheme Study Area

The principal road network within the study area is shown in Figure 1.2 beneath.

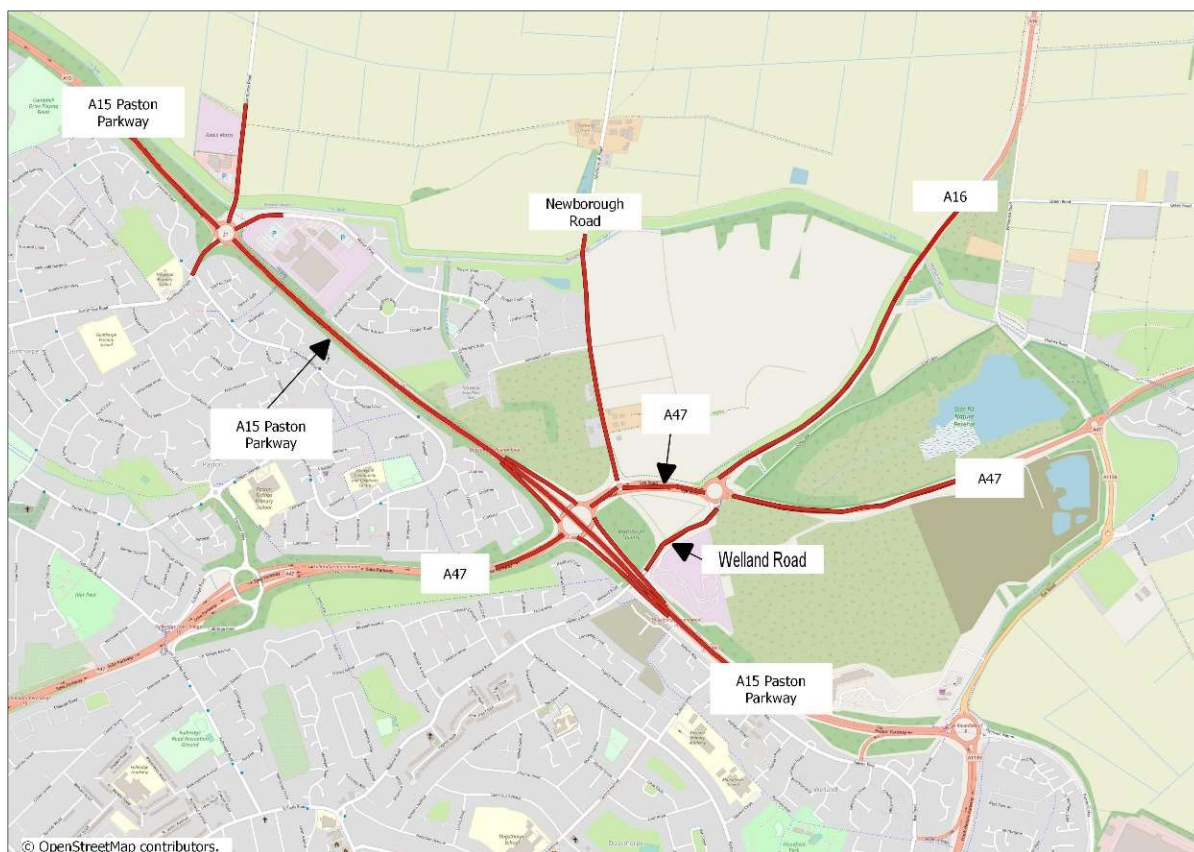


Figure 1.2: A16 Norwood Improvement Scheme Study Area Road Network

The A16 is a 125 km principal road connecting Grimsby (Lincolnshire) and Peterborough, along with other primary destinations such as Boston and Spalding. The southern section of the A16 ends in Peterborough at the A16 / A47 / Welland Road Roundabout, which is operating over capacity with significant queueing and delays during the AM peak hour.

The A47 is a 309 km east-west trunk road linking Birmingham to Lowestoft and passes through Peterborough. The significant queueing and delays along the A47 approach of the A16 / A47 / Welland Road Roundabout in Peterborough consequently encourages vehicles to rat-run via the A1139 Eye Road and increase queueing and delays at the A15 / A1139 / Parnwell Way signalised roundabout (Junction 8).

## 1.2. Growth Context

The population of Peterborough has grown considerably over recent years, increasing by 29% from 156,061 to 201,041 residents between 2001 and 2018 (based on Office for National Statistics estimates). Peterborough's population is the 33<sup>rd</sup> fastest growing out of 382 local authorities between 2013 and 2018.

To date Peterborough's transport network, which was fundamentally redesigned in the 1970s to accommodate the then "Peterborough New Town", has served the city well. However, as a consequence of recent and planned housing and employment growth, capacity issues are now emerging on the road network, resulting in congestion and delay. As congestion increases on the strategic network, and queues form at key junctions, the potential for delivering new homes and jobs in the area will become increasingly constrained. Peterborough City Council are committed to addressing these highway constraints to ensure that its full growth aspirations can be realised.

The Peterborough Local Plan 2016 to 2036 (Adopted on 24<sup>th</sup> July 2019) sets out the overall vision, priorities and objectives for Peterborough for the period up to 2036. The strategy identifies the required delivery of approximately 19,440 dwellings and 17,600 jobs between 2016 and 2036. It is estimated that urban extensions would account for approximately 59% of all residential growth in Peterborough.

The Norwood and Paston Reserve urban extensions, shown previously in Figure 1.1, have been allocated for development within the Peterborough Local Plan 2016 to 2036 (Adopted on 24<sup>th</sup> July 2019). The 80 hectare Norwood site will provide 2,000 dwellings, a local centre and primary school. The delivery of the development has been split into two phases.

The first phase of development (2019 – 2031) is known as the Land off Newborough Road (Leeds Farm Development), which includes up to 870 dwellings and auxiliary uses, including a primary school and local centre, and would initially be accessed via Newborough Road.

The second phase of development (2026 – 2031) will complete the build out the Norwood site, and will include the remaining dwellings.

It is expected that the entire Norwood site will ultimately have a primary point of access onto the A16 via a developer funded / built roundabout, with the secondary point of access being via Newborough Road. It is currently understood that the two points of access will be connected by an internal road, providing all residents with direct access to the A16.

Adjacent to the Norwood site (to the west of Newborough Road) is the Paston Reserve Urban Extension. Development at this site has begun, with 87 dwellings now complete, and the site will eventually include 945 dwellings, a local centre, a primary school and a secondary school with space for 900 pupils. Primary access to the Paston Reserve site is currently via Manor Drive and Junction 21 of the A15 Paston Parkway, with secondary access provided by Newborough Road and the A47.

The current access points for the Norwood site are the:

- A16 / A47 / Welland Road Roundabout
- A47 / Newborough Road priority junction.

Alternative access points are located to the north and are limited to:

- B1443 / Guntons Road / Willow Drove priority junction
- A16 / B1443 Roundabout.

The A16 / A47 / Welland Road Roundabout and A47 / Newborough Road priority junction accommodate a large number of peak hour commuter trips between Peterborough, Newborough, Crowland, Spalding, Eye, Thorney, March and Wisbech, and as a result suffers from severe peak period congestion and delays. This is exacerbated by a high number of u-turning vehicles, coming from Newborough Road, which has an adverse impact on the capacity of the A16 / A47 / Welland Road Roundabout.

The Norwood study area is identified as a key residential growth area in the Peterborough Local Plan. However, the local transport network is likely to constrain the amount of development that can take place at this location and limit its full potential.

This Business Case demonstrates the need for, and value of, investing in schemes that together will provide the necessary increase in highway capacity to unlock congestion and significantly reduce delay along the A16 corridor. This will help to support the growth at Norwood, and Paston Reserve, as well as providing wider network benefits.

### 1.3. Document Structure

Based on the context outlined above, the remainder of this report will consist of the following sections, with the aim of providing a thorough picture of baseline transport and development conditions across the study area, and the need for, and value in, investment to enable growth:

- **Chapter 2: The Strategic Case** identifies the need for an improvement at this location, considers an initial long list of options, and how these perform against CPCA, Peterborough City Council and the scheme objectives.
- **Chapter 3: The Economic Case** demonstrates that the preferred option offers value for money, and details the quantitative and qualitative Economic Assessment undertaken to date on the scheme.
- **Chapter 4: The Financial Case** shows how the scheme has been costed, and the expected funding arrangement for delivering the scheme.
- **Chapter 5: The Commercial Case** sets out how Peterborough City Council will procure in a way that delivers value for money.
- **Chapter 6: The Management Case** explains how successful delivery of the scheme will be managed.

## 2. Strategic Case

### 2.1. Introduction

This chapter sets out the strategic case for the A16 Norwood Improvement Scheme package of improvements. It demonstrates why improvements are needed at this location, and considers how the package of schemes fit with local, regional and national policy, assisting Peterborough to deliver its planned growth.

### 2.2. Business Strategy

The Government's strategy for facilitating further economic growth requires continued investment in transport infrastructure to enable businesses to invest in job creation and the provision of new residential developments. Achieving economic growth, increasing living standards and the provision of new housing are key Government objectives at national, regional and local level. This section details how highway improvements within the Norwood area will contribute to achieving these strategic aims and policies.

#### Department for Transport Single Departmental Plan

The Single Departmental Plan published in June 2019<sup>1</sup> sets out the DfT's objectives and the plans for achieving them.

The objectives are:

- Support the creation of a stronger, cleaner, more productive economy
- Help to connect people and places, balancing investment across the country
- Make journeys easier, modern and reliable
- Make sure transport is safe, secure and sustainable
- Prepare the transport system for technological progress and a prosperous future outside the EU
- Promote a culture of efficiency and productivity in everything they do.

An improvement scheme along the A16 corridor, and within the general study area, has the potential to reduce congestion and improve journey time reliability. The delivery of these benefits will support housing and economic growth, As such, delivery of a scheme will provide benefits aligned to delivering the main objectives of the DfT's Single Departmental Plan.

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<sup>1</sup> <https://www.gov.uk/government/publications/department-for-transport-single-departmental-plan>

**Cambridgeshire and Peterborough Combined Authority**

The CPCA was formed in 2017, as a Mayoral Combined Authority. It is made of seven local authorities (Cambridgeshire County Council, Peterborough City Council, Huntingdonshire District Council, East Cambridgeshire District Council, Fenland District Council, Cambridge City Council and South Cambridgeshire District Council) and the Business Board (Local Enterprise Partnership).

The focus of the CPCA is on strategic issues (such as housing, transport and infrastructure demand) which cross council borders and span the entire Cambridgeshire and Peterborough area. The Devolution Deal for Cambridgeshire and Peterborough runs for 30 years and sets out key ambitions for the CPCA as well as including a list of specific projects, which the CPCA and its member councils will support over that time.

To help achieve these ambitions and provide the requisite support, the CPCA has set out a short-term business plan<sup>2</sup> that is aimed at giving a clear pathway to deliver on their ambitious and transformational agenda for Cambridgeshire and Peterborough. Figure 2.1 sets out the CPCA Policy Framework.



Figure 2.1: CPCA Policy Framework

The CPCA Mayor’s Growth Ambition Strategy sets out the area’s priorities for achieving ambitious levels of inclusive growth and meeting the commitments of the Devolution Deal. The Strategy is based upon significant work undertaken by the Cambridgeshire and Peterborough Independent Economic Review (CPIER).

The CPIER<sup>3</sup> was commissioned by the Combined Authority and other local partners to provide a robust and independent assessment of the Cambridgeshire and Peterborough Economy and its potential for growth. The assessment makes a number of recommendations for the CPCA to take forward over the short, medium and long-term.

<sup>2</sup> <https://cambridgeshirepeterborough-ca.gov.uk/assets/Uploads/CPCA-Business-Plan-2019-20-dps.pdf>

The success of Cambridgeshire and Peterborough as a project of national importance is highlighted in the CPIER. This is because the area contains some of the most important companies and institutions in the country, much of the country's high value agricultural land, and the cities and towns that continue to support both.

The CPIER identifies Peterborough as a city with a dynamic business environment, built on its history of industry including brickmaking and manufacturing. It is an attractive place for business due to its position on the A1 and East Coast Main Line, as well as for aspirational workers who want easy access to London, the Midlands and the North. However it also states that it has a lower proportion of high-level skills than elsewhere in the area, and educational and health outcomes in Peterborough are relatively poor. The CPIER believes a strong focus on these issues is needed to improve productivity and well-being, which should also include new higher education provision.

The Local Industrial Strategy<sup>4</sup> sets out the economic strategy for Cambridgeshire and Peterborough, taking a lead role in implementing the business growth, productivity and skills elements of the Growth Ambitions Strategy. The Local Industrial Strategy is focussed around five key foundations of productivity established in the UK Industrial Strategy:

- People
- Ideas
- Business Environment
- Infrastructure
- Place.

It is a core principle of the Local Industrial Strategy that the fifth foundation of place reflects the findings of the CPIER, responding to the three sub-economies identified:

- Greater Cambridge
- Greater Peterborough
- The Fens.

The CPCA Assurance Framework states that investments will only be made if they can demonstrate that they will support the delivery of the Growth Ambitions Statement and the Local Industrial Strategies, as well as the more detailed place and sector strategies.

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<sup>3</sup> <https://www.cpier.org.uk>

<sup>4</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/818886/Cambridge\\_SINGLE\\_PAGE.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/818886/Cambridge_SINGLE_PAGE.pdf)

In January 2020, the CPCA adopted a Local Transport Plan for Cambridgeshire and Peterborough<sup>5</sup> and it replaces the interim Local Transport Plan published in 2017. The plan describes how transport interventions can be used to address current and future challenges and opportunities for Cambridgeshire and Peterborough, and sets out the policies and strategies needed to secure growth and ensure that planned large-scale development can take place in the county in a sustainable way.

The Local Transport Plan is split in to two main parts: The 'Local Transport Plan' which sets out the vision, goals and objectives and the policies designed to deliver the objectives, and the 'Transport Delivery Plan' (2019 to 2035) which explains how the Local Transport Plan strategy will be delivered. It details programmes for delivery of improvements to the transport network and for its day to day management and maintenance.

The development of the Local Transport Plan was undertaken concurrently with the CPIER and the Growth Ambition Strategy which enabled the challenges and opportunities detailed in these documents to be reflected within the Local Transport Pan. The Local Transport Plan completes the suite of documents which articulates the Combined Authority's response to the CPIER.

The vision for the Local Transport Plan is:

*'To deliver a world-class transport network for Cambridgeshire and Peterborough that supports sustainable growth and opportunity for all'.*

The goals of the Local Transport Plan outline the wider outcomes the transport network in Cambridgeshire and Peterborough will aim to achieve. They are:

- **Economy** – Deliver economic growth and opportunity for all communities
- **Society** – Provide an accessible transport system to ensure everyone can thrive and be healthy
- **Environment** – Protect and enhance our environment and tackle climate change together.

The objectives of the Local Transport Plan underpin the delivery of the goals for an improvement within the A16 Norwood Improvement Scheme study area, and form the basis against which scheme, initiatives and policies will be assessed. The initial scheme objectives for an A16 Norwood Improvement Scheme were devised at the beginning of the study and pre-date the objectives of the Local Transport Plan. Since the introduction of the CPCA's Local Transport Plan, these initial scheme objectives have been refined to ensure they meet those objectives both locally (for Peterborough) and regionally (for the CPCA). The scheme objectives for an A16 Norwood Improvement Scheme are set out later in this chapter.

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<sup>5</sup> <https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf>



The objectives of the CPCA Local Transport Plan are:

- **Housing** – support new housing and development to accommodate a growing population and workforce
- **Employment** – connect all new and existing communities so all residents can easily access jobs within 30 minutes by public transport
- **Business and Tourism** – Ensure all of our region’s businesses and tourist attractions are connected sustainably to our main transport hubs, ports and airports
- **Resilience** – build a transport network that is resilient and adaptive to human and environmental disruption, improving journey time reliability
- **Safety** – embed a safe systems approach in to all planning and transport operations to achieve Vision Zero (zero fatalities or serious injuries)
- **Accessibility** – promote social inclusion through the provision of a sustainable transport network that is affordable and accessible for all
- **Health and Well-being** – provide ‘healthy streets’ and high quality public realm that puts people first and promotes active lifestyles
- **Air Quality** – ensure transport initiatives improve air quality across the region to exceed good practice standards
- **Environment** – deliver a transport network that protects and enhances our natural, historic and built environments
- **Climate Change** – reduce emissions to as close to zero as possible to minimise the impact of transport and travel on climate change.

The A16 is identified within the Local Transport Plan as a corridor in need of improvement to relieve congestion and support the development at Norwood.

### 2.3. Fit with the Wider Policy Context

The wider policy context is set out in Table 2.1 overleaf. Each policy document is set out alongside its objectives and how the proposed scheme will support and facilitate the objectives of each policy document.

Appendix A details other local policies that are relevant to improvements in the A16 Norwood Improvement Scheme study area.

Table 2.1: Wider Policy Context and Impact of Delivering Improvements within the A16 Study Area

Policy Framework	Policy Function	Objectives	Study Impact
Department for Transport Single Departmental Plan	Sets out the DfT's objectives and the plans for achieving them	<ul style="list-style-type: none"> <li>Support the creation of stronger, cleaner, more productive economy</li> <li>Help to connect people and places, balancing investment across the country</li> <li>Make journeys easier, modern and reliable</li> <li>Make sure transport is safe secure and sustainable</li> <li>Prepare the transport system for technological progress and a prosperous future outside the EU</li> <li>Promote a culture of efficiency and productivity in everything we do.</li> </ul>	Improvements within the A16 study area will: <ul style="list-style-type: none"> <li>Support the housing and economic growth ambitions of the city</li> <li>Improve reliability for drivers on this section of the city's road network</li> </ul>
Cambridgeshire and Peterborough Combined Authority Local Transport Plan	Describes how transport interventions can be used to address current and future challenges and opportunities. Sets out policies and strategies needed to secure growth and ensure planned large scale development can take place in the county in a sustainable way. The Local Transport Plan completes the suite of documents which articulates the Combined Authority's response to the CPIER	<ul style="list-style-type: none"> <li>Housing – support new housing and development to accommodate a growing population and workforce</li> <li>Employment – connect all new and existing communities so all residents can easily access jobs within 30 minutes by public transport</li> <li>Business and Tourism – Ensure all of our region's businesses and tourist attractions are connected sustainably to our main transport hubs, ports and airports</li> <li>Resilience – build a transport network that is resilient and adaptive to human and environmental disruption, improving journey time reliability</li> <li>Safety – embed a safe systems approach in to all planning and transport operations to achieve Vision Zero (zero fatalities or serious injuries)</li> <li>Accessibility – promote social inclusion through the provision of a sustainable transport network that is affordable and accessible for all</li> <li>Health and Well-being – provide 'healthy streets' and high quality public realm that puts people first and promotes active lifestyles</li> <li>Air quality – ensure transport initiatives improve air quality across the region to exceed good practice standards</li> <li>Environment – deliver a transport network that protects and enhances our natural, historic and built environments</li> <li>Climate Change – reduce emissions to as close to zero as possible to minimise the impact of transport and travel on climate change.</li> </ul>	Improvements within the A16 study area will: <ul style="list-style-type: none"> <li>Support the housing and economic growth ambitions of the city</li> <li>Improve journey time reliability for drivers on this section of the city's road network</li> <li>Reduce the number of accidents.</li> </ul>
Peterborough City Council Strategic Priorities	The Council's priorities to help meet its vision to 'create a bigger and better Peterborough that grows the right way, and through truly sustainable growth	<ul style="list-style-type: none"> <li>Drive growth, regeneration and economic development</li> <li>Improve educational attainment and skills</li> <li>Safeguard vulnerable children and adults</li> <li>Implement the Environment Capital Agenda</li> <li>Support Peterborough's culture and leisure trust Vivacity</li> <li>Keep all our communities safe, cohesive and healthy</li> <li>Achieve the best health and wellbeing for the city</li> </ul>	Improvements within the A16 study area will: <ul style="list-style-type: none"> <li>Support the housing and economic growth ambitions of the city</li> <li>Improve journey time reliability for drivers on this section of the city's road network</li> <li>Reduce the number of accidents.</li> </ul>
Peterborough City Council Local Plan	Updates the 2011 Core Strategy and looks to deliver 21,315 homes and 17,600 jobs by 2036		

## 2.4. The Need for Change

There is a very clear and compelling case for change within the A16 Norwood corridor. The Local Plan has allocated Norwood as a residential urban extension along with further residential development on the neighbouring site at Paston Reserve, totalling over 2,500 new homes.

Evidence of existing and future condition of the highway network within the study area demonstrate that there are already congestion issues during the peak hours. If the transport infrastructure is not improved and increased transport capacity is not provided, it will impact the delivery of the proposed development.

These challenges are documented in the Option Assessment Report (OAR) and are set out beneath in the following themes:

- Peak Hour Congestion and Delay (particularly on the A47 and A16)
- U-turning traffic from Newborough Road
- High accident rate.
- Proposed growth at the Norwood site is forecast to exacerbate these existing issues.

If not resolved, these factors will compromise the city's growth aspirations as well as the Council's objectives to keep Peterborough a pleasant place to live and work.

### Congestion and Delay

Figure 2.2 and Figure 2.3 overleaf show the typical delays at 08:00 and 17:30 on a neutral weekday to the east of Peterborough. There is significant delay in both the AM and PM peak periods at the following junctions:

- A16 / A47 / Welland Road roundabout
- A47 / A1139 roundabout
- A1139 / Peterborough Road roundabout
- A15 / A1139 / Parnwell Way signalised roundabout (Junction 8)
- A47 / Crowland Road roundabout
- A15 / Gunthorpe Road / Manor Drive roundabout (Junction 21).

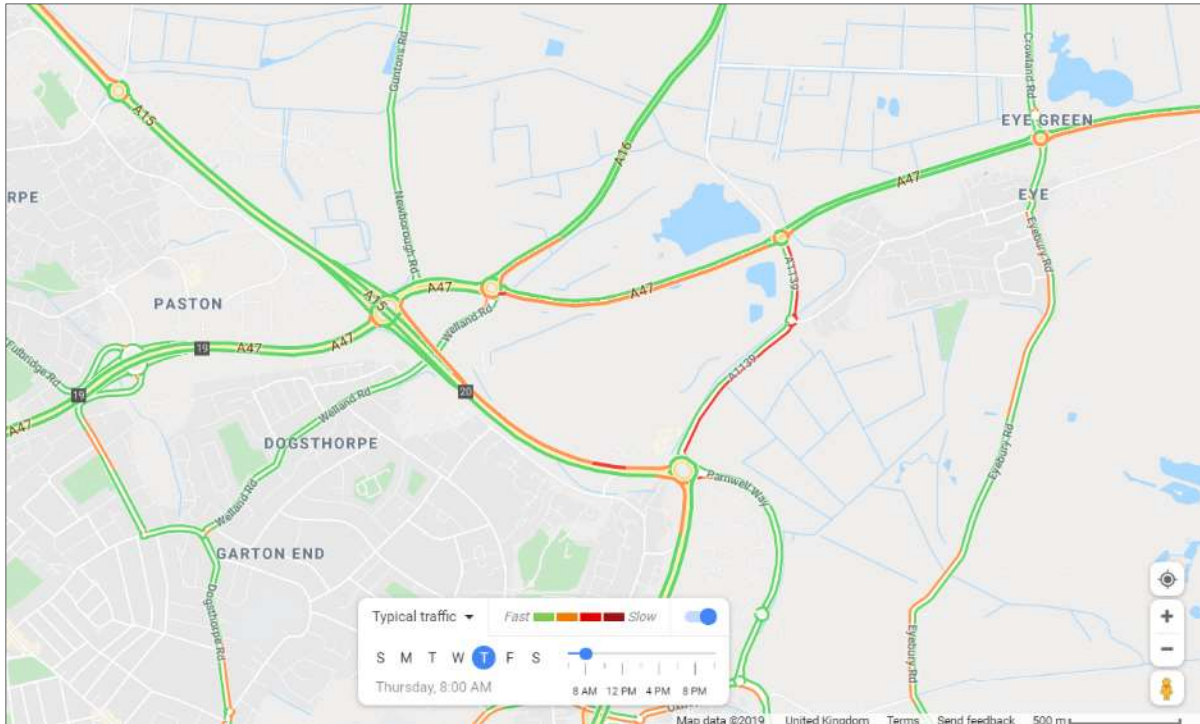


Figure 2.2: AM Peak Hour (Snapshot at 08:00) Delay to the East of Peterborough

Figure 2.2 shows delay along the A16 southbound and A47 westbound on the approach to the A16 / A47 / Welland Road Roundabout. This is due to the volume of traffic and tidal nature of trips into Peterborough during the AM peak hour. Two significant inbound traffic flows (A16 and A47) merge at the A16 / A47 / Welland Road Roundabout, and capacity at the junction is compromised by a high proportion of u-turning traffic from Newborough Road.

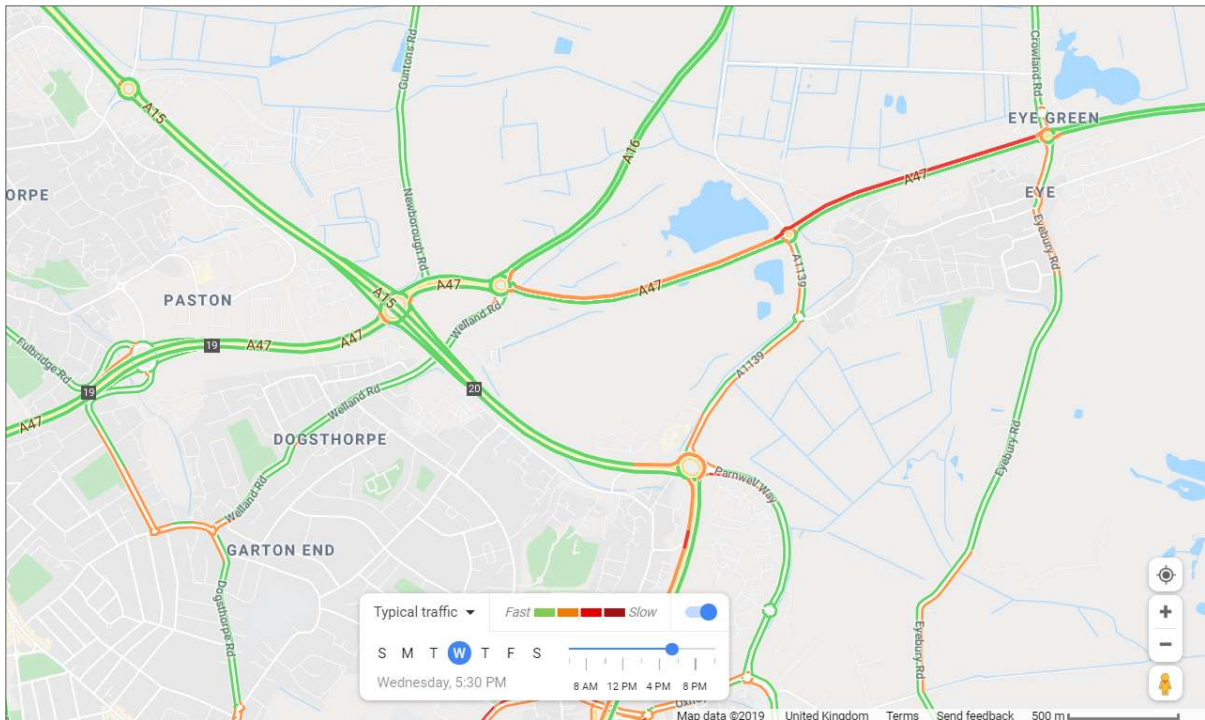


Figure 2.3: PM Peak Hour (Snapshot at 17:30) Delay to the East of Peterborough

The tidal nature of delay is evident again in the PM peak hour, as delay forms on the A47 eastbound and Welland Road approaches to the A16 / A47 / Welland Road Roundabout as vehicles depart Peterborough to the east at the end of the day.

Satellite Navigation data (2018) has been used to better investigate journey times and delay within the study area. Figure 2.4 overleaf shows the journey times for the Free Flow period (FF, 00:00 – 05:00), AM peak hour (08:00 – 09:00), Inter peak hour (14:00 – 15:00) and PM peak hour (17:00 – 18:00) within the study area for weekdays in October 2018.



Figure 2.4: Average Trafficmaster Journey Time (secs – Free Flow, AM, Inter and PM peak hour)

There are some significant increases in journey times in the AM peak hour when compared to the free flow period, including a 20 second increase per vehicle on the A16 southbound. There is also an increase in journey time on the A47 westbound towards the A16 / A47 / Welland Road Roundabout of 17 seconds per vehicle in the AM peak when compared to the free flow period.

It should be noted that not enough trips were recorded along Newborough Road in the free flow period for a journey time record to be ascertained.

As with the AM peak hour, the Inter peak hour experiences an increase in average journey time (25 seconds per vehicle) along the A16 southbound compared to the free flow period. The majority of other journey times are similar to those in the free flow period.

In the PM peak hour there are increases in average journey time compared to the free flow period along the A16 southbound (13 seconds per vehicle), A16 northbound (19 seconds per vehicle) and the A47 eastbound exit from the A16 / A47 / Welland Road Roundabout (20 seconds per vehicle).

**U-turning Traffic**

Part of the capacity constraint at the A16 / A47 / Welland Road Roundabout is caused by u-turning traffic from Newborough Road. The A47 / Newborough Road junction is a left in / left out only junction, and so any vehicle from Newborough Road destined for Peterborough must u-turn at the roundabout, as shown in Figure 2.5 below.



**Figure 2.5: U-turning Traffic Route from Newborough Road**

Vehicles on the busier A16 and A47 westbound movements (AM peak hour) must stop and give-way to every u-turning vehicle from Newborough Road. If not resolved, this issue will be exacerbated in future with the development of Paston Reserve and Norwood both having direct access to Newborough Road, and existing developer proposals to formalise this movement through the provision of a traffic signal controlled junction.

High Accident Rate

Figure 2.6 overlaid shows the incident density weighted by severity along the A16 and at the A16 / A47 / Welland Road Roundabout compared to the wider area to the east of Peterborough (2016 – 2019).

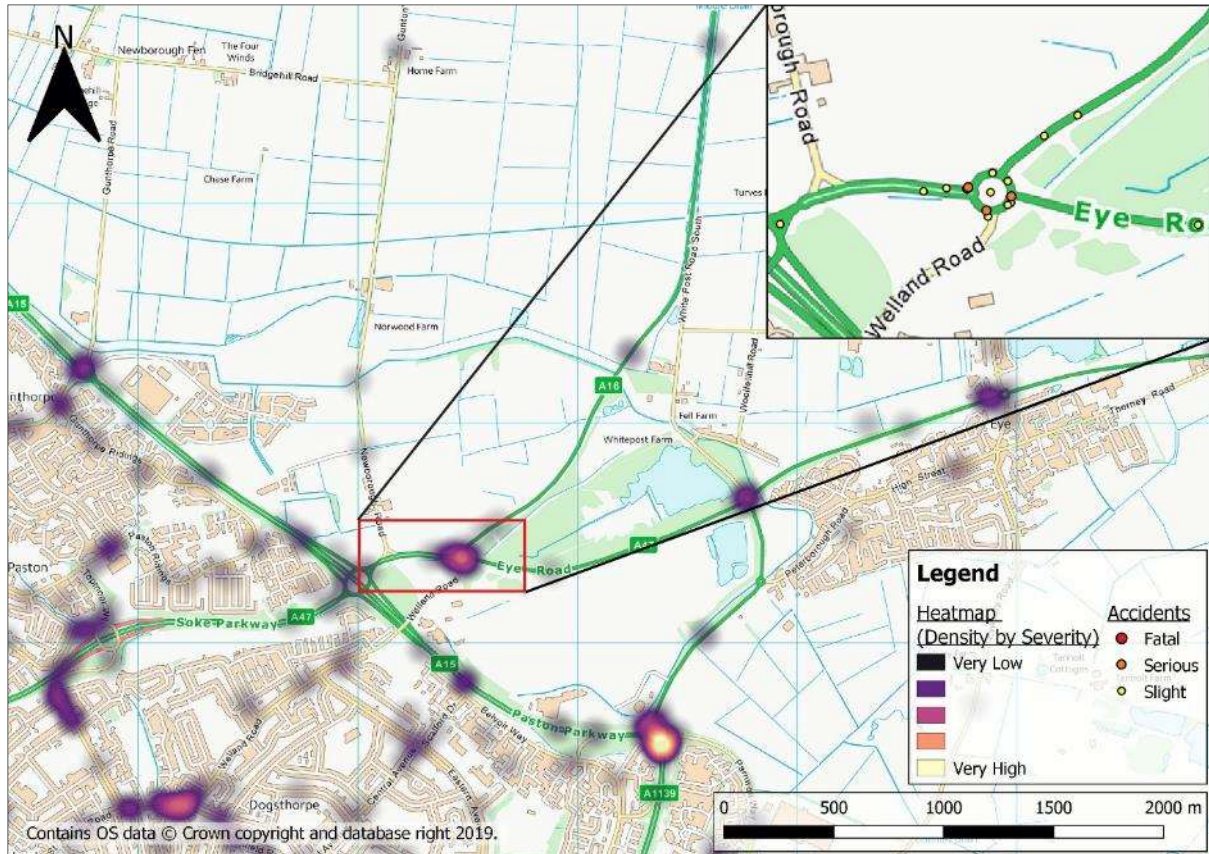


Figure 2.6: Accident Density Weighted by Severity (2016 – 2019)

Figure 2.6 shows that the A16 / A47 / Welland Road Roundabout has a higher density of accidents than other junctions along the A47 to the east of Peterborough. Only Junction 8 (A15 Paston Parkway / A1139 Frank Perkins Parkway / Parnwell Way Roundabout) to the south-east of the study area has a higher density of accidents.

Nearly all of the accidents have happened on either the circulatory or the approaches close to the give way line of the roundabout, with most being a result of either failing to look properly or misjudging the speed of the other vehicle. All recorded serious accidents occur on the A47 (eastbound and westbound) and Welland Road approaches close to the give way line.



## 2.5. Impact of Not Changing

As highlighted above, Norwood and Paston reserve are identified as an area of growth in the Peterborough Local Plan, with residential expected to come forward before 2036.

Without intervention, the existing issues of peak hour delay and congestion along the A16 and A47 will deteriorate further. This will impact on the operational performance of the highway network across the study area, and compromise the viability of local growth aspirations within the Norwood area.

The Peterborough Transportation Model (PTM3) model has been used to assess conditions within the Norwood study area in future years should the growth occur without any highway improvements (Do Minimum (DM) Scenario).

PTM3 was developed using SATURN (v11.4.07H), which is a suite of network analysis programs. SATURN allows the user to model baseline and future year traffic conditions, such as traffic volumes, capacities and delays, at a strategic level and analyse the impact of potential road-investment schemes.

PTM3 has been constructed to represent the morning (08:00 - 09:00), Inter (14:00 - 15:00) and evening (17:00 - 18:00) peak hours, to reflect the most congested time periods across Peterborough's network, and it models cars, LGVs, HGVs and buses. The base model was validated using traffic count and travel time data from 2019.

The PTM3 forecast models use the base model and applies traffic growth sourced from the Department for Transport's Trip End Model Presentation Program (TEMPro), National Road Traffic Forecasts (NRTF) and trip rates for local developments. Forecast growth has been calculated for 2026, 2031 and 2036 to align with the Local Plan.

Figure 2.7 shows delay (seconds per vehicle) in the AM peak hour across the study area in the 2036 DM scenario.

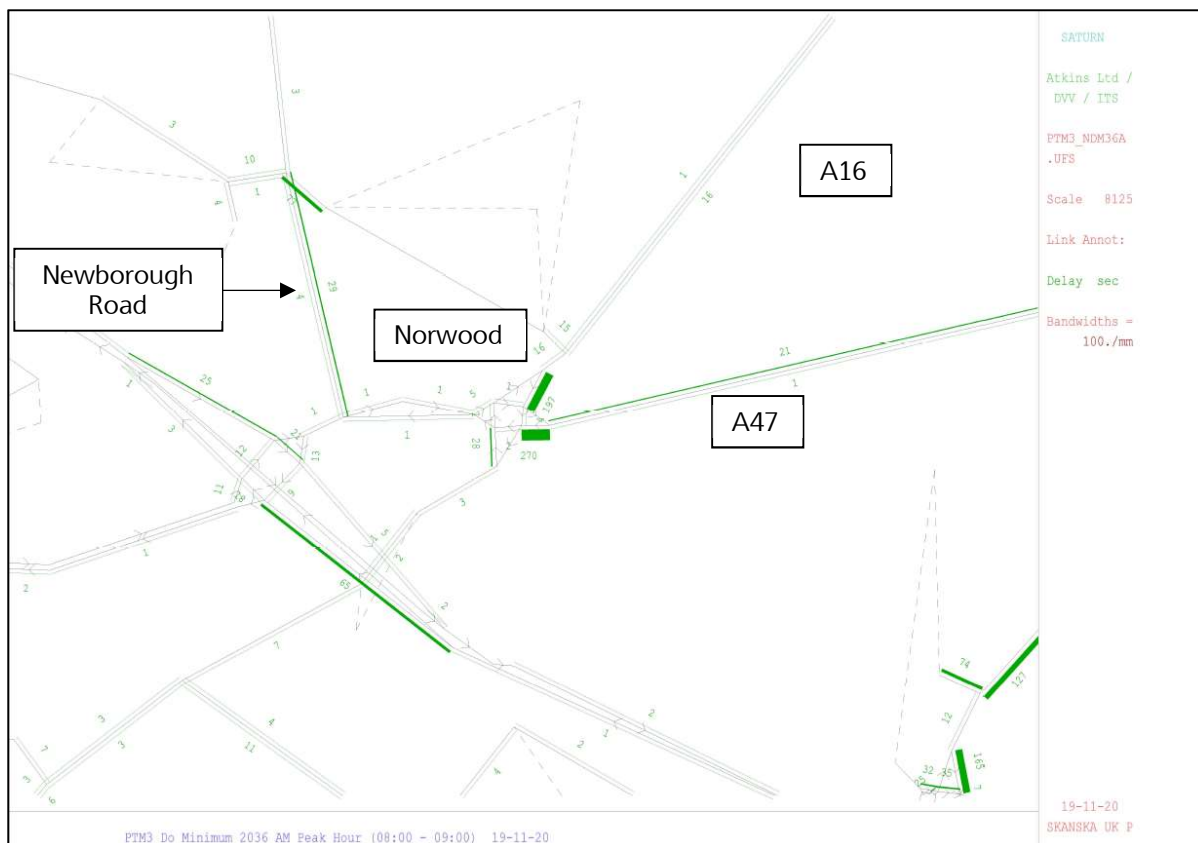


Figure 2.7: AM Peak Hour Delay (seconds per vehicle) 2036 Do Minimum Scenario (PTM3)

Figure 2.7 shows that without intervention there is expected to be significant levels of delay on both the A16 southbound approach (197 seconds per vehicle) and the A47 westbound approach (270 seconds) at the A16 / A47 / Welland Road Roundabout.

There is also expected to be 85 seconds of delay (per vehicle) on the Development Access onto Newborough Road.

Figure 2.8 shows delay (seconds per vehicle) in the PM peak hour across the study area in the 2036 DM scenario.

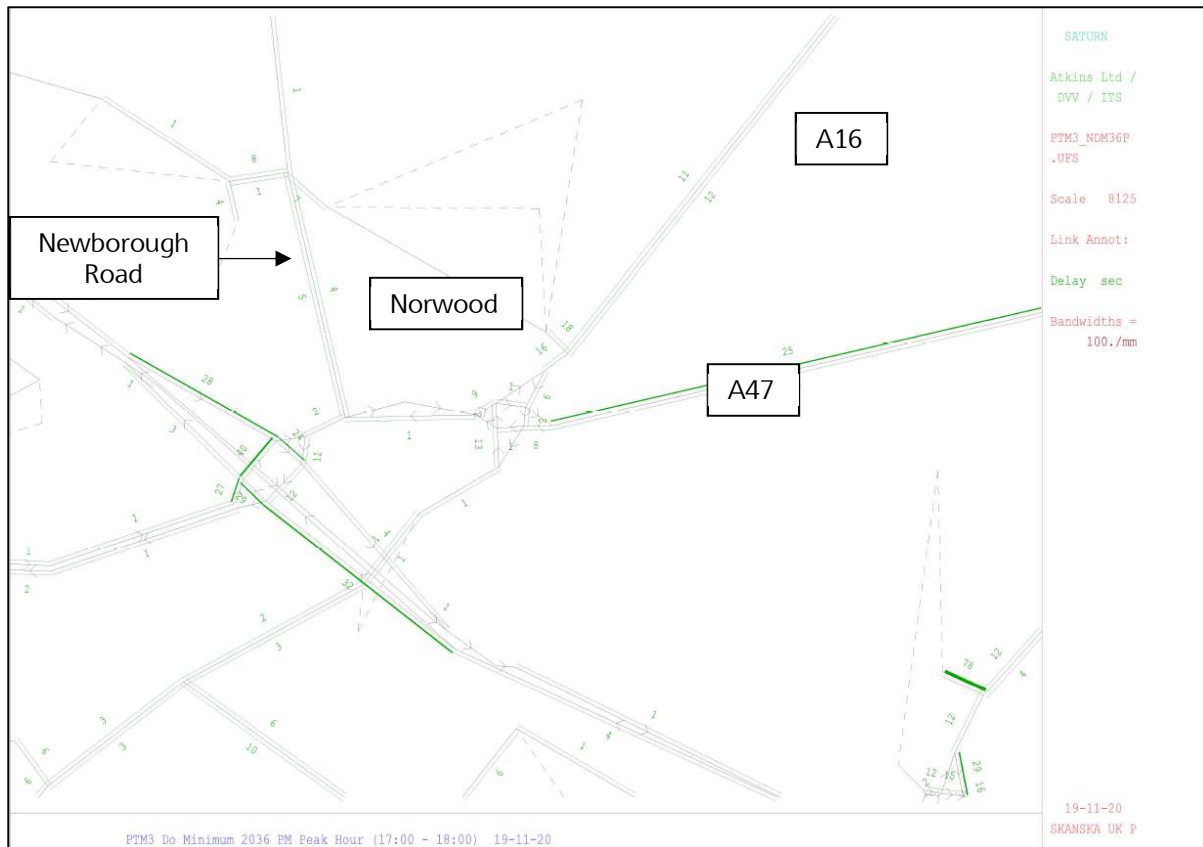


Figure 2.8: PM Peak Hour Delay (seconds per vehicle) 2036 Do Minimum Scenario (PTM3)

Figure 2.8 suggests that delay is less pronounced in the PM peak hour, however delay is evident on the A47 eastbound in several places. Existing and future issues of delay are expected to be at their worst during the AM peak hour. This is as a result of the tidal nature of traffic entering Peterborough during the morning peak hour, when more vehicles use the A16 southbound and A47 westbound approaches towards Peterborough.

**Likelihood Accidents will Increase**

There is an increasing likelihood that accidents at the A16 / A47 / Welland Road roundabout will rise. As shown above, the forecast increase in delay and travel time is expected to rise which will entail more stopping and starting on approach to the roundabout.

**Attractiveness of Norwood as a place to live and Peterborough as a place to work will decrease**

The A16 corridor provides a main access point to the east of Peterborough, which contains many businesses and developments that will be affected by its operation. As traffic, queueing and delays increase, it is likely the area will become more congested in peak times. Businesses and their employees in the east of Peterborough will increasingly become frustrated with the difficulty of accessing and exiting their premises and may look to relocate or work elsewhere.

This may also have a detrimental impact on the Council's objective for Peterborough to be an attractive place to live and work. If residents and employees experience increased journey times around the city when accessing employment opportunities, they may choose to work elsewhere. In addition, companies looking to relocate to the city may instead consider other towns and cities with better transport conditions.

The location of Norwood by the A47 and A16, and the impact of delay and congestion along the A16 and at the A16 / A47 / Welland Road Roundabout (often encouraging commuters to reroute via the A1139 Eye Road during the peak periods) means that issues at this location have an impact across the east of Peterborough, and also on strategic long distance trips that have no suitable alternatives for east-west travel.

## 2.6. Internal Drivers for Change

Internal drivers for change are the factors that are driving the need for change, and come from the scheme promoter. Examples include aspirations for growth, or increasing network resilience. In this instance, the scheme promoters are the CPCA and Peterborough City Council.

The internal drivers for improvements along come from local growth aspirations, and the structured framework of support provided by the CPCA to enable this growth to be realised.

### Local Growth Aspirations

Peterborough is forecast to experience significant employment and population growth over the next few decades, reflecting a continuation of past trends. Peterborough is one of the fastest growing cities in England, with 19,440 new homes required between 2016 and 2036. This level of growth will in turn strengthen the city's economy, contribute to regional growth, and increase the demand for travel on the local network.

Peterborough strives to become a "destination of choice", and to be continually recognised as a regional centre. With the attractiveness of the city set to increase as a place to live, work, and travel, this in turn creates pressure related to housing and employment growth. The consequence of this is increased strain on the cities' transport infrastructure. Improving the existing infrastructure to enable Peterborough's strong history of growth to continue is the primary internal driver for change within the A16 Norwood area.

It is acknowledged by the Council that if no changes are made to existing congestion and delay on major routes across the city, then growth aspirations will be compromised. The Local Transport Plan identifies the major infrastructure requirements that are needed to address existing capacity constraints on the network, and those that are required to enable the travel demand to increase in accordance with the city's growth aspirations. Longer-term highway improvements along the A16, such as partial dualling at the southern end, are considered key to the CPCA's Local Strategy for Peterborough.

### Combined Authority Support

The CPCA has identified a number of strategic projects which it believes will provide transformational benefits for the area. This feasibility study for highway improvements along the A16 corridor is one of the studies shortlisted as a priority and was begun in the 2017 / 2018 financial year.

The CPCA recognises that the development of a wider, multi-year pipeline of transport schemes can also contribute towards its objectives. The benefits of such a pipeline include:

- The provision of a steady flow of transport improvements over the short, medium, and long term including potential strategic projects of the future
- Greater opportunity to consider local issues and spread investment around the Combined Authority area
- Early investment in the development of schemes places the Combined Authority in a strong position to bid for and secure additional funding as alternative sources become available.

In order to facilitate the pipeline of work, the process includes initially exploring the feasibility of schemes, and then developing business cases. These are essential steps in defining an improvement and securing funding for its realisation.

In October 2017 the CPCA methodology was set out for prioritising investment, which was based on the criteria shown in Table 2.2 below.

Table 2.2: Combined Authority Criteria

Case	Criteria
Strategic	<ul style="list-style-type: none"> <li>• Reduce congestion</li> <li>• Unlock housing and jobs</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• Scale of impact</li> <li>• Value for money</li> </ul>
Financial	<ul style="list-style-type: none"> <li>• Other funding sources / contributors</li> </ul>
Management	<ul style="list-style-type: none"> <li>• Delivery certainty</li> <li>• Project risks</li> <li>• Stakeholder support</li> </ul>

The A16 corridor has been prioritised for investment by the CPCA, and the CPCA's investment strategy is another internal driver for change, and an enabler for a scheme to be developed at this location.

## 2.7. External Drivers for Change

External drivers for change are factors that are driving the need for change, that are outside of the scheme promoter's organisation. Examples include public opinion, legislative changes, or response from other events.

### The A47 Alliance

The A47 Alliance is an campaign group consisting of 19 organisations including Local Authorities, Local Enterprise Partnerships, Chambers of Commerce and the RAC Foundation, with wider support from businesses and stakeholders along the A47. Its primary objective is to campaign for full dualling along the A47, which will:

- Boost the regional economy as a result of new employment
- Unlock housing developments planned along the route
- Reduce additional costs to businesses from as a result of delays along the A47
- Improve productivity.

Improvements at the A16 / A47 / Welland Road Roundabout will be necessary in order to:

- Boost the attractiveness of the east of Peterborough as an employment area through reducing delays and queueing along the A47
- Unlock planned growth in the Norwood area
- Reduce additional costs to businesses in the east of Peterborough through reducing delays and queueing along the A47.

Improvements at the junction at the A16 / A47 / Welland Road Roundabout will be considerate of future aspirations for dualling from this junction to the east.

## 2.8. Scheme Objectives

A transport scheme can have both primary and secondary objectives. The primary objectives are the fundamental outputs required from the scheme and therefore must be achieved. Secondary objectives are other outputs that are achieved along the way, but are not necessary to the success of the scheme. The secondary objectives tend to be delivered as a consequence of delivering the primary objectives.

The primary objectives therefore represent the transport outcomes required by the scheme.

The objectives of for A16 Norwood improvement scheme were developed ahead of the Option Development Workshop to provide a framework against which to score potential options. The objectives are based on the goals and outcomes from local policy documents such as the Peterborough Local Plan.

Although some of these objectives pre-date those of the CPCA, all closely align to, or match existing CPCA objectives:

Primary objectives include:

- **Tackle congestion and improve journey times:** Tackle congestion and reduce delay along the A16 and on the primary approaches to the A16 / A47 / Welland Road Roundabout
- **Support Peterborough's growth agenda:** Ensure that the planned employment and housing growth at Norwood can be realised
- **Limit impact on the local environment and improve biodiversity:** Fully mitigate any adverse environmental impacts of a scheme, and ensure a biodiversity net gain within the study area.

Secondary objectives include:

- **Positively impact traffic conditions on the wider network:** Positively impact the performance of local routes impacted by the traffic and congestion in and around the A16 corridor, such as the A47, A15 Paston Parkway, A1139 Eye Road and Newborough Road.
- **Improve road safety:** Reduce accidents and improve personal security for all travellers within the study area.
- **Improve sustainable transport infrastructure:** Ensure that the scheme provides a comprehensive network of pedestrian and cycling routes where needed.

Any schemes developed for the A16 Norwood Improvement study will need to satisfy all of the primary objectives, and as many of the secondary objectives as possible.

Both the CPCA and Peterborough City Council have committed to combatting climate change and moving towards net zero carbon emission in communities and economies, as well as to protect and increase biodiversity. Any transport scheme must take this into account and work towards these objectives.

Any scheme identified for the A16 Norwood study area will look to mitigate any carbon emission and biodiversity issues throughout the design stage in a number of ways, including but not limited to:

- Tree planting
- Improvements to localised sustainable transport routes
- Use of sustainable material in construction
- Improved ways of working.

All Peterborough City Council decisions require a Carbon Impact Assessment to be undertaken prior to a project being given the go ahead. This is one of the governance steps the council has set up in relation to it declaring a climate emergency (net zero by 2030), which details what benefits and implications there could be and mitigation measures.

The scheme objectives were compared and aligned to the CPCA objectives and the Council's strategic priorities (also shared by the Council's Core Strategy, Local Plan and the CPCA Local Transport Plan), and is illustrated in Table 2.3 below.



## 2.9. Measures of Success

Table 2.3 beneath sets out the measures for success against which any potential improvements should be monitored. The primary objectives are shown in white and the secondary objectives are shown in blue.

Table 2.3: Study Objectives and Measures of Success

Objective	Scheme Outcome
Tackle congestion and improve journey times	<ul style="list-style-type: none"> <li>Reduced congestion and delay on the approaches to the A16 / A47 / Welland Road Roundabout.</li> </ul>
Support Peterborough’s growth agenda	<ul style="list-style-type: none"> <li>Ensure successful delivery of committed and statutory development at Norwood, through increasing capacity on the road network, in order to cater for existing and future traffic demand.</li> </ul>
Limit impact on the local environment and improve biodiversity	<ul style="list-style-type: none"> <li>Mitigate and offset any detrimental environmental impacts of a scheme, and enhance natural and historic features around the scheme at all opportunities.</li> </ul>
Positively impact traffic conditions on the wider network	<ul style="list-style-type: none"> <li>Positively impact the interaction the A16, A47 and A1139, and reduce delay within the wider area.</li> </ul>
Improve road safety	<ul style="list-style-type: none"> <li>Reduce accidents across all modes of transport.</li> </ul>
Improve sustainable transport infrastructure	<ul style="list-style-type: none"> <li>Provide increased pedestrian and cycling connectivity within the local area.</li> </ul>

## 2.10. Constraints

The following constraints have been identified:

- **Funding:** The cost of the scheme will need to compete with other transport infrastructure funding priorities which may exceed the CPCA’s core transport investment budget allocation
- **Environmental:** Land to the east of the A16 is identified as a being a Site of Special Scientific Interest, as shown below in Figure 2.9 (below), and is an important wildlife site. Scheme design will need to be mindful of this.
- **Structural / Highway Boundary:** Improvements will need to be achievable within the land available.
- **HE Agreement and Permissions:** Essential improvements that form part of the preferred package are located along the A47. HE agreement and permissions will be essential to deliver the scheme, and early engagement will be undertaken as a priority.
- **Disapproval from the Public or Stakeholders:** The scheme should not be considered controversial, and should be capable of gaining support during stakeholder and public consultation
- **COVID-19:** it is not yet known what long term impact the COVID-19 pandemic will have on how the general public will interact with transport systems moving forward. Data collection from the Peterborough area demonstrates that peak hour road traffic is currently back to approximately 90% of pre COVID-19 levels, and this will continue to be monitored as further work is undertaken to develop the scheme. Specific COVID-19 sensitivity tests will be undertaken as part of the Economic Assessment reported at OBC.

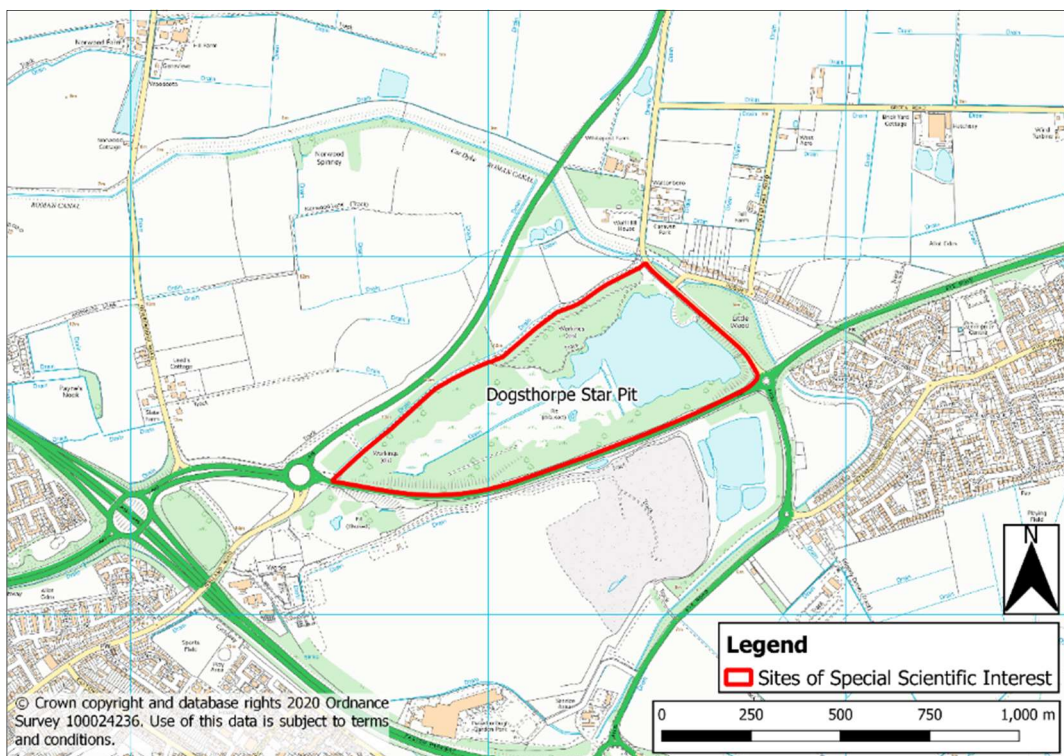


Figure 2.9: Site of Special Scientific Interest (SSSI) within the A16 Norwood Study Area

### 2.11. Interdependencies

Improvements along the A16 corridor are required as part of planning applications at the Norwood Urban Extension, to accommodate new housing. The developer is required to make the following improvements:

- New access roundabout with the A16
- New access priority junction with Newborough Road.

These improvements are being considered as part of the wider option development and assessment, and are considered necessary for traffic from the development to be able to access and interact with the wider network as planned.

### 2.12. Key Risks

The scheme is considered to be low risk in construction terms. However, the COVID-19 pandemic saw a significant drop in highway usage during the national lock-down earlier in the year. It is not yet known what long term impact the COVID-19 pandemic will have on how the general public will interact with transport systems moving forward.

Data collection from the Peterborough area demonstrates that peak hour road traffic is currently back to approximately 90% of pre COVID-19 levels, and this will continue to be monitored as further work is undertaken to develop the scheme. A low growth scenario sensitivity test has been undertaken to measure the scheme benefits against a scenario where traffic growth doesn't match pre-COVID-19 levels.

Other key strategic risks identified include:

- Delay to decision on scope of scheme
- Project progress on hold
- Delay in obtaining approval to commence the next stage
- Delay in sign off of grant agreement
- Delay to project
- Not coming to an agreement with developer
- Delay to delivery of the development

Appendix C contains the Project Key Risk Register which identifies each of these risks and considers mitigation. The Risk Register is a live document which is managed by Peterborough City Council and reviewed regularly by the CPCA.

### 2.13. Stakeholders

The key stakeholders are considered to be:

- Cambridgeshire and Peterborough Combined Authority (CPCA)
- Peterborough City Council (The Council)
- Highways England
- Norwood Developers
- Ward Councillors and local residents, including those along Newborough Road
- English Heritage
- Emergency Services
- Land owners and Businesses affected by the scheme.

Engagement and communication with key stakeholders is an essential element of the planning process for major transport schemes. Stakeholder's needs and requirements should be considered as part of the final scheme design.

The CPCA and Peterborough City Council are directly involved in developing the scheme. Public consultation will be undertaken at the next stage of the scheme development, and results from the exercise will be reported in the OBC.

Stakeholder engagement with the HE has begun as part of the SOBC, and within the context of the Leeds Farm Planning Application (part of the Norwood Development). Peterborough City Council are also in the process of formally engaging with the different land owners within the Norwood site about the proposed scheme.

### 2.14. Powers and Consents

Peterborough City Council is the local highway authority and have all the necessary powers under the Highways Act 1980 to undertake the works within their highway boundary. These powers extend to Skanska under the PHS contract, which was granted following a full competitive tendering process.

Any improvement works on the A47 will require consent from Highways England, and early dialogue has started with representatives from Highways England to look at all scheme improvements.

### 2.15. Option Development and Assessment

An option development workshop was held on the 24<sup>th</sup> February 2020 and attended by representatives from Skanska and Peterborough City Council. The workshop reviewed the existing conditions and issues within the A16 Norwood improvement scheme study area, explored its relationship with the surrounding road network and various constraints, and discussed planned growth at the site. The purpose of the workshop was to develop potential improvement options to be considered within this study.

A total of nine options were devised, with potential schemes ranging in estimated cost and potential level of impact on the network. These nine options form the ‘Long List’, and are summarised in Table 2.4.

Table 2.4: Long List of Options for A16 Norwood Improvement Scheme Study

<b>A47 / Newborough Road Priority Junction</b>
Signalisation of A47 / Newborough Road Junction to make it all movement
Creation of a roundabout at the A47 / Newborough Road Junction
Tunnel Newborough Road under the A47
Closure of Newborough Road between the A47 and Norwood Lane
<b>A16</b>
Roundabout on the A16 at Norwood eastern development access
Dual A16 between A16 / A47 / Welland Road Roundabout and Norwood Development Access
<b>A16 / A47 / Welland Road Roundabout</b>
Full signalisation of A16 / A47 / Welland Road Roundabout
Expand existing roundabout and create a ‘Hamburger’ style junction
Dedicated left turn from A47 to A16

**EAST Assessment**

The DfT’s Early Assessment and Sifting Tool (EAST) was used to assess the Long List of options against objectives to discount any schemes that are not considered to meet the fundamental scheme objectives.

The objectives used in the EAST assessment were formulated to reflect CPCA, Peterborough City Council and scheme objectives, as well as other factors which can influence the deliverability of a scheme (such as likely public and stakeholder support). Scores were based on the discussion and collective opinion of the workshop delegates. The objectives used are outlined in Table 2.5 beneath.

Table 2.5: Scheme Objectives

Strategic Objectives
Ability to reduce congestion/ improve journey times
Making the best use of existing infrastructure
Ability to make Safety Improvements
Ability to support the local growth agenda, including housing and employment growth
Economic Objectives
Affordability (Value for Money)
Scale of impact on local environment (ecology, noise, air)
Management / Deliverability Objectives
Land Acquisition and CPO
Scheme Risk / Buildability
Stakeholder Support and public acceptability

The EAST scoring assessment is reported within the OAR. Scores were given in relation to the proportion of the expected impact on the entire junction and not just the section of road it occurs on. A neutral score was given when the score against an objective is uncertain, or there is a comparable negative and a positive element associated with the scheme.

## 2.16. Shortlisting Summary

Table 2.6 summarises the EAST assessment and identifies which options were shortlisted for inclusion within the traffic modelling. Following the Option Development Workshop, discussions between Peterborough City Council and developers confirmed that Option 5 (Roundabout on the A16 at Norwood eastern development access) would be delivered by the developer as part of their planning obligation. Consequently this has been removed from the option testing and included within the DM scenario.

Table 2.6: Option Shortlisting Summary

Option	Option Description	EAST Score	Shortlisted
1	Signalisation of A47 / Newborough Road Junction to make it all movement	10	✓
2	Creation of a roundabout at the A47 / Newborough Road Junction	3	✓
3	Tunnel Newborough Road under the A47	-1	✗
4	Closure of Newborough Road between the A47 and Norwood Lane	16	✓
5	Roundabout on the A16 at Norwood eastern development access	7	✓
6	Dual A16 between A16 / A47 / Welland Road Roundabout and Norwood Development Access	11	✓
7	Full signalisation of A16 / A47 / Welland Road Roundabout	11	✓
8	Expand existing roundabout and create a 'Hamburger' style junction	0	✗
9	Dedicated left turn from A47 to A16	7	✓

### Technical and Economic Assessment (Shortlisting)

The technical assessment of shortlisted options has been undertaken using the PTM3 model, and is reported in the A16 Norwood OAR. Note that the improvements discussed within this chapter are highway improvements, but that further design work will also identify sustainable transport improvements to compliment the internal layout of the Norwood Development (once known). These will provide pedestrians and cyclists with a high standard of connectivity between the development and the wider transport network.

PTM3 has been developed using SATURN (Version 11.4.07), a traffic and assignment model which can be used to evaluate potential traffic schemes. Saturn focuses on whether a defined network can cope with a defined vehicle demand in a defined period of time.

The Saturn traffic model has been constructed to represent the morning (AM) peak hour from 08:00 to 09:00, and an evening (PM) peak hour from 17:00 to 18:00, in order to represent the most congested time periods. In addition, an Inter-Peak (14:00 to 15:00) model has also been constructed to understand the impact of any improvements outside of the congested periods of the day.

PTM3 has a 2019 baseline, and the model is validated and calibrated to ensure it represents the traffic conditions experienced on the network during the survey period.

To understand traffic conditions in future years, growth factors have been derived from the DfT's Trip End Model Presentation Program (TEMPro) from the appropriate National Trip Ends Model (NTEM) zone for each traffic input zone to the network in the forecast years 2026, 2031 and 2036. Local growth of LGV and HGV traffic has been estimated using 2015 Road Traffic Forecast data produced from the National Transport Model (NTM).

Do-Minimum (DM) models for 2026, 2031 and 2036 have been produced to enable an assessment of the options and a comparison to what would happen if no transport intervention(s) were delivered.

The technical assessment undertaken at this stage of the Norwood Access Study has concentrated on the 2036 future year to capture the full impact of the Local Plan growth.

### Package Development

Two packages of options were developed to address the existing and future issues identified within the study area, and were based on options considered within the Option Development Workshop. The Packages differ in the improvements proposed for the A16 / A47 / Welland Road Roundabout.

Each of the packages build from a common starting point, which has been broken down into a series of stages that are discussed below.



## Stage 1

Based on the observations from existing conditions, and the DM modelling, the first stage in the package development was to close Newborough Road's access onto the A47, effectively removing this junction from the Strategic Network. As a result of this closure, access to the Norwood area (and beyond) is provided via the following locations:

- A16 and Developer Roundabout (predominantly for Norwood)
- Junction 21 (A15 Paston Parkway) and Manor Drive (predominantly for Paston Reserve)
- A16 / A15 and B1443 (predominantly for Newborough).

## Stage 2

To address the delay caused by an increase in traffic flow from the Norwood site, the 500m section of the A16 between the developer roundabout the A16 / A47 / Welland Road Roundabout was then dualled (in both directions).

This option successfully removed the link delay along the A16 between the two roundabouts, and expectedly increased the level of delay on the A16 southbound approach to the A16 / A47 / Welland Road Roundabout as reduced congestion on the A16 meant that vehicles were moved more efficiently along the link.

## Stage 3

Having addressed the distribution and routing issues created by the Newborough Road access onto the A47, different options were considered to reduce delay at the A16 / A47 / Welland Road Roundabout. It is at this point that the two packages emerged, each containing the interventions discussed above, but differing in their approach to addressing delay at the A16 / A47 / Welland Road Roundabout. The different packages were based on:

- **Package 1:** Partial signalisation of the A16 / A47 / Welland Road Roundabout (at-grade improvements)
- **Package 2:** New Grade Separated Junction (grade separated improvements)

Each package was developed iteratively, with different components added to address specific issues identified by the transport modelling. For example, partial signalisation of the A16 / A47 / Welland Road Roundabout led to an increase in delay during the PM peak hour on the A47 eastbound approach, with left turning vehicles (towards A16 northbound) disproportionately affected. Consequently a Left Dedicated Lane (LDL) from the A47 to the A16 was incorporated into the package, which removed the delay.

The packages in full consisted of the following schemes.

### Package 1:

- Closure of Newborough Road access onto A47

- Dualling of A16 between A16 / A47 / Welland Road Roundabout and the Norwood Development Access
- Partial signalisation of A16 / A47 / Welland Road Roundabout on the A16 southbound approach
- A 50 metre flare added to the A47 westbound approach to provide additional capacity for left turning traffic to Welland Road
- Dedicated Left Turn Lane (LDL) from the A47 eastbound to the A16 northbound.

Package 2:

- Closure of Newborough Road access onto A47
- Dualling of A16 between A16 / A47 / Welland Road Roundabout and the Norwood Development Access
- Creation of a Grade-separated junction at the existing A16 / A47 / Welland Road Roundabout.

The technical and economic assessment of both options identified that Package 1 was the preferred option. These assessments are reported in full in the OAR, and are summarised beneath.

Technical Assessment

Figure 2.10 below shows the change in delay (per vehicle) between the 2036 DM scenario and Package 1 during the AM peak hour. Note that blue denotes a decrease in delay as a result of Package 1, and green an increase in delay.

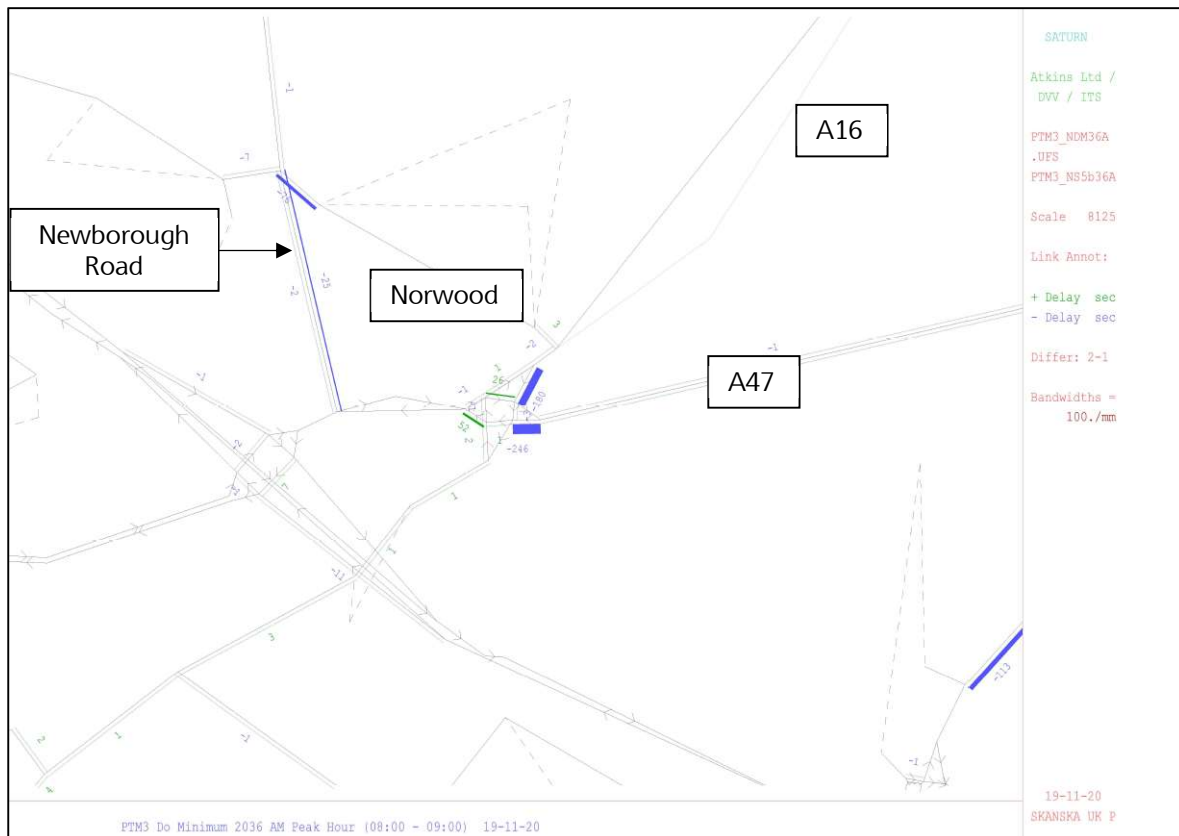


Figure 2.10: 2036 AM Peak Hour Change in Total Delay (seconds per vehicle) – Package 1 impact on DM Scenario

Figure 2.10 shows that Package 1 is expected to have a significant improvement to the level of delay experienced on the A16 southbound approach to the A16 / A47 / Welland Road Roundabout, with delay reduced by 180 seconds per vehicle compared to the DM scenario.

The A47 westbound approach also demonstrates a decrease in delay of 256 seconds per vehicle compared to the DM Scenario.

Figure 2.11 below shows the change in traffic demand flow between the DM scenario and Package 1 in the AM peak hour.

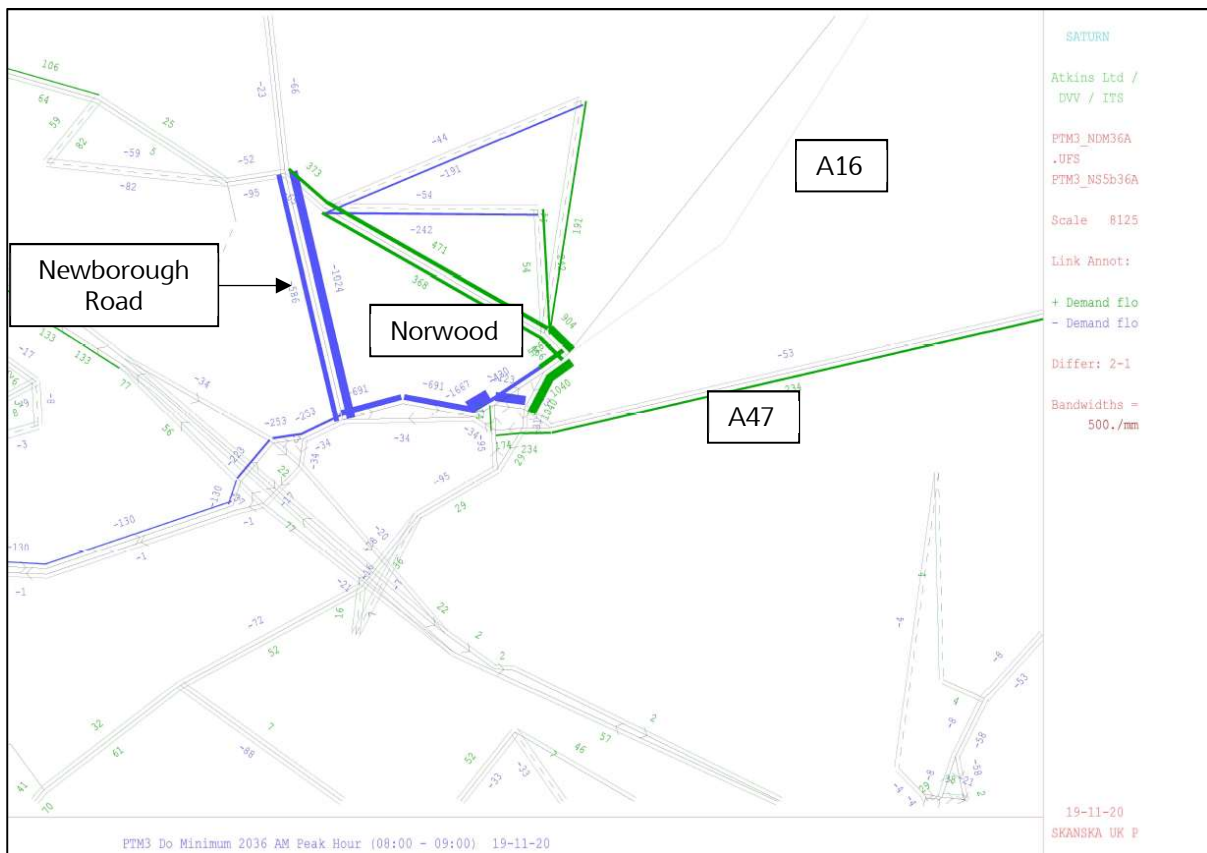


Figure 2.11: 2036 AM Peak Hour Change in Demand Flow – Package 1 impact on DM Scenario

Figure 2.11 demonstrates that the measures contained within the package successfully remove trips from Newborough Road, including u-turning traffic at the A16 / A47 / Welland Road Roundabout. As these trips re-route, there is an increase in traffic flow along the A16, however delay along this route is significantly reduced as demonstrated in Figure 2.10.

Package 1: 2036 PM Peak Hour Results

Figure 2.12 below shows the change in delay (per vehicle) between the 2036 DM scenario and Package 1 during the PM peak hour. Note that blue denotes a decrease in delay as a result of Package 1, and green an increase in delay.

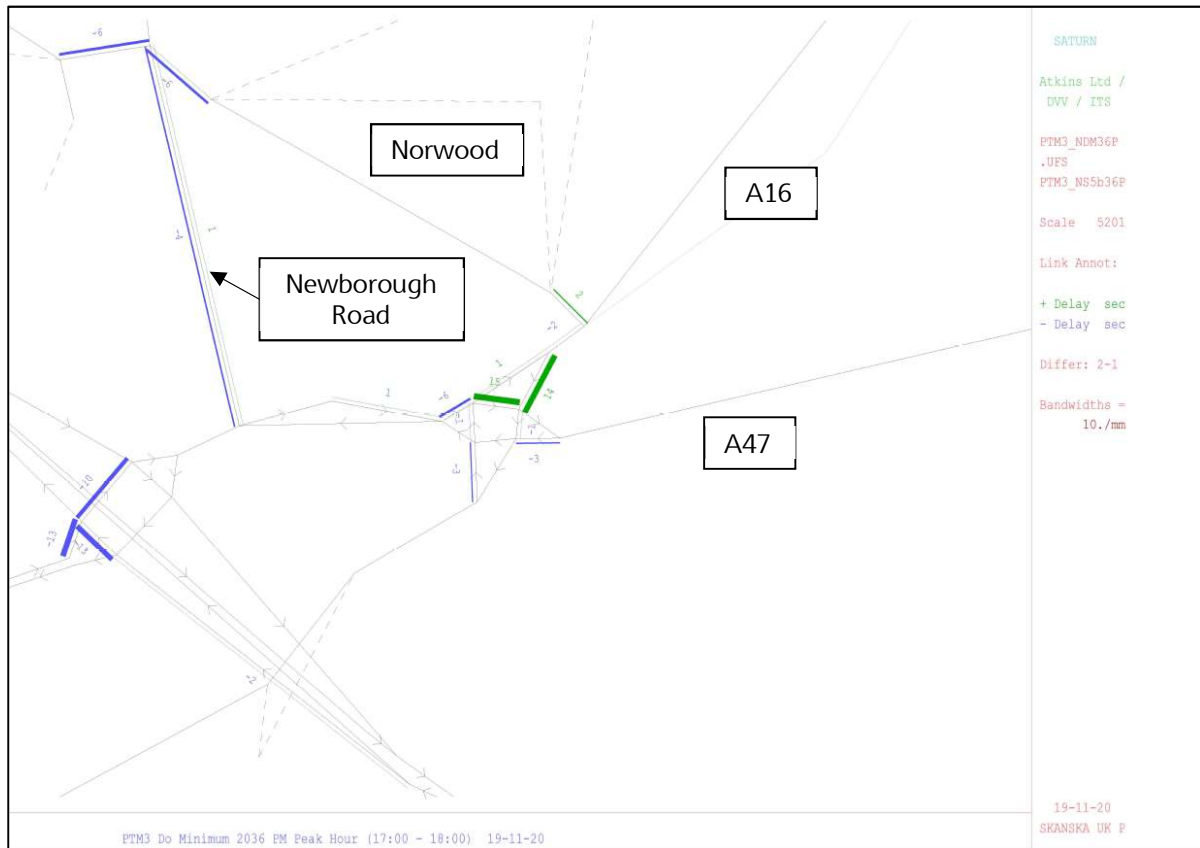


Figure 2.12: 2036 PM Peak Hour Change in Total Delay (seconds per vehicle) – Package 1 impact on DM Scenario

Figure 2.12 shows that Package 1 has a negligible impact on delay during the PM peak hour as the issue of congestion is less pronounced in this time period. There is a 15 second increase on the northern circulatory of the A16 / A47 / Welland Road Roundabout which is transient delay associated with the installation of traffic signals.

Economic Assessment

The Economic Assessment undertaken as part of the Option Assessment Report calculated a Benefit to Cost Ratio (BCR) for Package 1 (including a sensitivity test) and Package 2. The sensitivity test considered the impact of operating the partial signalisation of the A47 / A16 in Package 1 on a part time basis (i.e. signals switched off outside of peak hours, and the junction reverts back to priority rules). From this point on the

scenario in which the Package 1 traffic signals operate full time is named Package 1a, and the scenario in which the traffic signals operate on a part time basis is named Package 1b.

A comparison of the results from this assessment are presented in Table 2.7 beneath.

Table 2.7: Economic Assessment AMCB Comparison

Value (£'000s) 2010 prices, benefits discounted to 2010	Package 1a (Full Time Signals)	Package 1b (Part Time Signals)	Package 2
<b>Benefits</b>			
Greenhouse Gases	-1	13	-17
Consumer Users (Commuting)	4,168	4,531	1,521
Consumer Users (Other)	5,442	7,657	5,144
Business Users/Providers	5,476	6,656	6,601
Indirect Taxes	53	23	56
<b>Present Value of Benefits (PVB)</b>	<b>15,138</b>	<b>18,880</b>	<b>13,305</b>
<b>Costs</b>			
Broad Transport Budget	4,757	4,757	22,035
<b>Present Value of Costs (PVC)</b>	<b>4,757</b>	<b>4,757</b>	<b>22,035</b>
<b>Net Benefit / BCR Impact</b>			
<b>Net Present Value (NPV)</b>	<b>10,381</b>	<b>14,123</b>	<b>-8,730</b>
<b>Benefit/Cost Ratio (BCR)</b>	<b>3.182</b>	<b>3.969</b>	<b>0.604</b>
<b>Value for Money Statement</b>	<b>High</b>	<b>High</b>	<b>Poor</b>

The Economic Assessment within the OAR demonstrated that Package 1 (both 1a and 1b) will provide **High Value for Money**. Package 2 is expected to provide Poor value for money, due to the significantly higher cost compared to Package 1.

### 2.17. Option Assessment Summary

The Option Assessment identified two packages of options to remove u-turning trips from Newborough Road and address existing and future delay on the A16 southbound and A47 westbound approach to the A16 / A47 / Welland Road Roundabout.

Both packages of options performed quite similarly within the technical assessment, and successfully resulted in transferring trips from Newborough Road onto the A16, and reducing delay on the two approaches where significant delay is forecast in the DM scenario.

An Economic Assessment was undertaken on the two packages, as reported in the OAR, and identified that Package 1 is the preferred option as it returned a positive value for money (in both the 1a and 1b tests). Further details of the Package 1 Economic Assessment are reported in the Economic Case in the following chapter.

## 3. The Economic Case

### 3.1. Introduction

This section sets out the approach taken to assess the economic case for the A16 Norwood improvement scheme, and demonstrates that the proposed scheme would offer **High Value for Money**.

The scheme appraisal focuses on the aspects of scheme performance that are relevant to the nature of the intervention and uses the latest WebTAG guidance (July 2020). These impacts are not limited to those directly impacting on the economy or those which can be monetised. The economic, environmental, social and distributional impacts of the proposal are all examined, using qualitative, quantitative and monetised information where appropriate.

### 3.2. Options Appraised

Details of the option development and assessment process are summarised in the Strategic Case and full details are provided in the OAR.

The technical assessment documented in the OAR has identified that both packages assessed within the modelling offered network wide benefits and performed similarly, and so an Economic Assessment was undertaken for each package. The Economic Assessment concluded that only Package 1 would return a positive value for money. The Economic Assessment for Package 1 is reported throughout this chapter, and details of the Economic Assessment undertaken for Package 2 (which offered Poor Value for Money) are contained within the OAR.

For reference, Package 1 consisted of the following components:

- Closure of Newborough Road access onto A47
- Dualling of A16 between A16 / A47 / Welland Road Roundabout and the Norwood Development Access
- Partial signalisation of A16 / A47 / Welland Road Roundabout on the A16 southbound approach
- A 50 metre flare added to the A47 westbound approach to provide additional capacity for left turning traffic to Welland Road
- Dedicated Left Turn Lane (LDL) from the A47 eastbound to the A16 northbound.

Note that two variants of Package 1 have been tested. The first is Package 1a which operates the A47 / A16 Welland Road traffic signals on full time, and the second is Package 1b which operates these signals during the peak hours only, beyond which the junction reverts to priority rules.

### 3.3. Economic Assessment

#### Approach to Appraisal

Given the nature of the scheme, which consists of highway improvements to existing road infrastructure, the Economic Case is focused on the following aspects:

- Assessing the monetised direct, localised and economic efficiency benefits of the scheme
- Qualitative appraisal of wider scheme benefits, such as an environmental, noise, and enablement of planned development
- Offsetting identified benefits against the scheme costs to provide a Benefit to Cost (BCR) ratio.

Details regarding the benefits and costs are presented beneath.

The transport benefits of the scheme were assessed using the SATURN based PTM3. The model / appraisal forecast years developed in the SATURN model are 2021, 2026 and 2031, which have been used to appraise the impacts of the core scenario.

Full details relating to the calibration and validation of the model can be found in the Local Model Validation Report (LMVR), and details about the forecasting procedure can be found in the Forecasting Report.

The key objective of the SATURN model is to forecast, accurately, the likely transport impacts that the proposed schemes would have on highway users of the surrounding road network. User benefits can be calculated by modelling the highway network, in various years, and comparing with / without scheme scenarios to determine how introducing a scheme will impact on travel behaviour and patterns.

The model analysis provided in the OAR demonstrates that Package 1 will reduce congestion, leading to less delay and travel time. The difference between the DM and Package 1 scenario demonstrates the benefits of implementing the scheme.

The model output files were then entered into the Transport User Benefits Appraisal (TUBA, 1.9.13) software to undertake the Economic Assessment and calculate a BCR. The annualisation factors shown below in Table 3.1 were specified within TUBA to calculate the likely annual transport user benefits for the AM, Inter and PM peak hours and have been derived from nearby Highways England WebTRIS data. It was found that the 07:00 – 08:00 and 16:00 – 17:00 hour flows closely resembled the total flows observed within the modelled AM and PM peak hours. AM and PM annualisation factors have therefore been calculated that convert the single peak hour demand to annual peak period demand.

Table 3.1: Annualisation Factors

Time Slice	Duration (min)	Annualisation	Period	Description
1	60	488	1	Convert from 08:00 – 09:00 to annual 07:00 – 09:00 period
2	60	525	2	Convert from 17:00 – 18:00 to annual 16:00 – 18:00 period
3	60	1,624	3	Convert from 14:00 – 15:00 to annual 10:00 – 16:00 period

A proportionate approach focused on transport user benefits (Transport Economic Efficiency, TEE) has been undertaken to demonstrate the value for money that can be expected from the scheme.

### Package Phasing

The technical and economic assessment undertaken in the OAR identified the need to phase delivery of the various components within Package 1. This determined that Package 1 should include the closure of the Newborough Road access onto the A47 by 2026, and the remaining schemes within the package from 2031 onwards (built between 2026 – 2031), as shown in Table 3.2 beneath.

Table 3.2: Package Phasing within Strategic Modelling

Assessment Year	Package 1
2026	<ul style="list-style-type: none"> <li>Closure of Newborough Road access onto A47.</li> </ul>
2031 & 2036	<ul style="list-style-type: none"> <li>Closure of Newborough Road access onto A47</li> <li>Dualling of A16 between A16 / A47 / Welland Road Roundabout and the Norwood Development Access</li> <li>Partial signalisation of A16 / A47 / Welland Road Roundabout on the A16 southbound approach</li> <li>A 50 metre flare added to the A47 westbound approach to provide additional capacity for left turning traffic to Welland Road</li> <li>Dedicated left turn lane from the A47 eastbound to the A16 northbound.</li> </ul>

Table 3.3 shows the cost profile used within the Economic Assessment for Package 1, which is derived from the broader project programme.



Table 3.3: Package 1 Cost Profiles

Calendar Year	Preparation Costs (%)	Construction Costs (%)	Supervision Costs
2021	57%		
2022	33%		
2023	10%		
2024		10%	9%
2025			
2026			
2027		90%	91%

The activities shown in Table 3.3 include:

- 2021 – Preliminary Design and Outline Business Case
- 2022 / 2023 – Detailed Design and Full Business Case
- 2024 – Construction / Supervision of Closure of Newborough Road
- 2027 – Construction / Supervision of Remaining Schemes (Package 1)
- 2028 – Construction complete and scheme open for use.

### Present Value Costs

A scheme cost estimate has been produced. The Base Investment Costs are detailed in Table 3.4 below, and the subsequent steps taken to calculate the Present Value Costs (PVC) are described beneath.

The Economic Assessment has undertaken for a 60 year assessment period (2020 to 2080).

The Base Investment Cost is the capital cost required to construct the scheme in current year (2020) prices, without a risk allowance. This is derived from the scheme cost estimate based on initial design information. All Sunk Costs (those already incurred) have been omitted from the Economic Assessment.

Table 3.4 shows the Base Investment Cost profiled over calendar years, and broken down into Construction, Land, Design and Supervision costs.

Table 3.4: Base Investment Cost (2020 Prices)

Calendar Year	Construction Costs (£)	Land & Property Costs (£)	Preparation / Supervision Costs (£)	Total (£)
2021			465,000	<b>465,000</b>
2022			264,684	<b>264,684</b>
2023			78,346	<b>78,346</b>
2024	350,000		21,000	<b>371,000</b>
2025				
2026				
2027	2,929,714		186,046	<b>3,115,760</b>
<b>Total</b>	<b>3,279,714</b>		<b>1,015,076</b>	<b>4,294,790</b>

Note that there are not expected to be any land or property costs associated with the scheme at this stage, and that the Preparation and Supervision Costs include Business Case development, all design work including site surveys and supervision during the construction phases.

The PVC for use in the Economic Assessment has been calculated using the following steps:

- Real Cost increases were calculated based on the Base Investment Cost spend profile. The Base Cost adjustment factor was calculated by dividing the Construction Industry Inflation Rate (5%) by the Annual GDP Factor derived from the TAG Databook (July 2020) for each of the years within the assessment period. The inflation rate of 5% was derived from construction output price indices as well as knowledge of costs associated with past schemes in Peterborough. Peterborough Highways Services works is measured using BCIS indices, Table 3.5 shows the categories and price increase (%) for 2019-2020.

Table 3.5: Inflation increases on Construction Costs 2019-2020

Category	Price increase 2019-2020
WC10/ 1 Routine, Cyclic and Time Charge Works	3.25%
WC10/ 2 Renewals and Construction Works	1.81%
WC10/ 3 Professional Services	3.62%
WC10/ 4 Machine Surfacing	4.23%
WC10/ 5 Hand Surfacing/Patching	3.04%
WC10/ 6 Surface Dressing	5.38%
WC10/ 7 Road Markings	1.76%
WC10/ 8 Street Lighting	1.56%

- A Risk Allowance of 20% (10% Construction Risk, 10% COVID-19 working practices) was then applied during the years of construction. The total cost of the Risk Allowance is £655,943. The risk associated with post-COVID19 includes altered working practices that meet social distancing requirements, such as additional welfare facilities on site and increased site compound size.

- Optimism Bias was then applied in line with guidance provided in TAG unit A1.2 (July 2017). An Optimism Bias of 44% was applied to represent the maturity of the design. The total Optimism Bias applied was £2,564,308.
- Costs were then rebased back to 2010 using factors derived from the TAG Databook (July 2020) GDP Deflator.
- Costs were then discounted to 2010 in line with guidance provided in TAG unit A1.2 (July 2017).
- Finally, costs were converted to 2010 Market Prices using a factor of 1.19.

Table 3.6 beneath shows the costs described above.

Table 3.6: Economic Case Scheme Cost Estimates

Description of Cost Type	Cost (£)
Base Investment Cost	4,294,790
Base Cost with Real Cost Increases	5,172,029
Risk Adjusted Base Cost with Real Cost Increases	5,827,972
Risk Adjusted Base Cost with Real Cost Increases and Optimism Bias	8,392,279
Rebased to 2021 Price Year	7,057,681
Discounted to 2010 Prices	4,087,731
Adjusted to Market Prices	4,864,399

### Present Value Benefits

The transport benefits of the scheme were assessed using the SATURN based PTM3 (built in v11.4.07H).

Full details relating to the calibration and validation of the model can be found in the Local Model Validation Report (LMVR), and details about the forecasting procedure can be found in the Forecasting Report.

Two core network scenarios were developed for the Economic Assessment, these were the Do Minimum (DM) and Do Something (DS) scenarios. The DM scenario represents future growth without highway intervention (without scheme), and the DS scenario includes the package of schemes within the model network (with scheme) with the same level of future traffic growth.

The difference between the DM and DS scenarios demonstrate the benefits of implementing the scheme. These benefits are measured using:

- Network assignment statistics
- Link flow changes
- Journey times
- Journey routing.

The Model output files were then entered into the Transport User Benefits Appraisal (TUBA, 1.9.14) software to undertake the Economic Assessment and calculate a BCR.

TUBA produces figures for a number of benefits, including Greenhouse Gases, Transport User benefits, and Indirect Taxation. Indirect taxation often provides a negative benefit figure. This is a result of the reduced fuel being purchased as journeys become more efficient with the improvements. This in turn reduces the money the government receives in fuel taxes.

This identifies the Present Value Benefits (PVB) to be £15,138,000. A breakdown of these benefits are shown in Table 3.6 beneath.

### Benefit Cost Ratio

The Benefit Cost Ratio (BCR) is the ratio of PVB to PVC. Table 3.7 beneath summarises the BCR for the scheme (Package 1a) as calculated using TUBA.

Table 3.7: A16 Norwood Improvement Scheme AMCB Table (Package 1a)

Value (£'000s) 2010 prices, benefits discounted to 2010	
<b>Benefits</b>	
Greenhouse Gases	-1
Consumer Users (Commuting)	4,168
Consumer Users (Other)	5,442
Business Users/Providers	5,476
Indirect Taxes	53
<b>Present Value of Benefits (PVB)</b>	<b>15,138</b>
<b>Costs</b>	
Broad Transport Budget	4,757
<b>Present Value of Costs (PVC)</b>	<b>4,757</b>
<b>Net Benefit / BCR Impact</b>	
<b>Net Present Value (NPV)</b>	<b>10,381</b>
<b>Benefit/Cost Ratio (BCR)</b>	<b>3.182</b>

The DfT uses the following thresholds to determine the Value for Money statement associated with a BCR:

- Poor Value for Money if BCR < 1.0
- Low Value for Money if BCR = 1.0 to 1.5
- Medium Value for Money if BCR = 1.5 to 2.0
- High Value for Money if BCR = 2.0 to 4.0
- Very High Value for Money if BCR > 4.0.

Based on transport user benefits alone, this scheme will provide **High Value for Money**.

A sensitivity test undertaken on Package 1a to determine the impact of operating the partial signalisation of the A16 / A47 / Welland Road Roundabout on a part time basis (peak hour only) identified that this would increase the PVB to £18,880,000, generating a BCR of 3.969. The results from this Sensitivity Test, named Package 1b, are provided beneath, and further details are provided in the OAR.

Table 3.8: A16 Norwood Improvement Scheme AMCB Table (Package 1b - Part Time Signals)

Value (£'000s) 2010 prices, benefits discounted to 2010	
<b>Benefits</b>	
Greenhouse Gases	13
Consumer Users (Commuting)	4,531
Consumer Users (Other)	7,657
Business Users/Providers	6,656
Indirect Taxes	23
<b>Present Value of Benefits (PVB)</b>	<b>18,880</b>
<b>Costs</b>	
Broad Transport Budget	4,757
<b>Present Value of Costs (PVC)</b>	<b>4,757</b>
<b>Net Benefit / BCR Impact</b>	
<b>Net Present Value (NPV)</b>	<b>14,123</b>
<b>Benefit/Cost Ratio (BCR)</b>	<b>3.969</b>

Whilst the sensitivity test shows that part-time signals provide a higher BCR than full-time signals, the implementation of full-time signals would be preferable from an operational point of view and would still provide high value for money. Part-time signals, such as those on the A1 / A47 Wansford Junction, could lead to increased driver confusion.

Spread of Benefits

The TUBA results include a detailed breakdown of the scheme benefits including (but not limited to) benefits by time saving and benefits by distance. These benefits are broken down by vehicle type and journey purpose to better understand how different user types will benefit from the scheme. Table 3.9 below shows the time benefits saving by vehicle type.

Table 3.9: Non-monetised Time Benefits by Time Saving

NON MONETISED TIME BENEFITS BY TIME SAVING							
Time benefits (thousands of person hours) by size of time saving							
Vehicle Type	Purpose Type	< -5 mins	-5 to -2 mins	-2 to 0 mins	0 to 2 mins	2 to 5 mins	> 5 mins
Car	Business	0	-61	-515	692	85	1
Car	Commuting	0	-306	-2091	2890	428	0
Car	Other	-2	-477	-6076	8136	1119	0
LGV Freight		-1	-71	-650	998	208	1
OGV1		-7	-51	-290	459	157	7

Table 3.9 shows that car users experience the greatest time benefit from the implementation of the scheme and that within car users, those that are undertaking other journeys (not for business or commuting) experience the greatest impact, which is in keeping with the composition of trip types across the model.

Table 3.10 below shows the journey time benefits by distance.

Table 3.10: Non-monetised Time Benefits by Distance

NON MONETISED TIME BENEFITS BY DISTANCE									
Time benefits (thousands of person hours) by distance									
Vehicle Type	Purpose Type	< 1 km	1 to 5 kms	5 to 10 kms	10 to 25 kms	25 to 50 kms	50 to 100 kms	100 to 200 kms	> 200 kms
Car	Business	4	6	1	86	79	13	-1	14
Car	Commuting	16	-3	13	449	406	22	9	9
Car	Other	50	55	16	1146	816	244	61	311
LGV Freight		1	4	27	188	238	1	10	16
OGV1		0	-4	-4	30	50	6	68	129

The table shows that those making trips of between 10km - 25km and 25km – 50km benefit most from the proposed scheme. As with the time savings, car users experience the greatest level of benefit, and these apply mostly to those who commute or travel for other purposes.

Table 3.11 below shows that the scheme benefits are greater in the AM peak hour than in the PM peak hour, but that both peak hours have benefits.

Table 3.11: User Benefits by Time Period

User Benefits and Changes in Revenues (£'000s)	
Vehicle Type	User Time
AM	11,378
PM	1,838

### 3.4. Additional Qualitative Appraisal

The scheme appraisal has focussed on the impacts directly impacting on the economy or those which can be monetised. An initial qualitative analysis has been undertaken for environmental, social and distributional impacts of the proposed scheme, and input in to an Appraisal Summary Table (AST) in Appendix B.

The additional appraisal elements are detailed in Table 3.12 overleaf, along with the proposed assessment approach for the next stage of the Business Case process.

Table 3.12: Additional Appraisal Elements

Element	Approach to Assessment at OBC	Comments
Road Safety (Social)	Safe design and qualitative assessment	A qualitative assessment will be undertaken at OBC to provide an assessment of the likely impact that the scheme will have on Road Safety (which is listed as an objective).
Noise (Environmental)	Quantitative assessment made using the SATURN model outputs	A quantified assessment of the impact of the scheme on Noise will be undertaken at OBC using outputs from the PTM3 model.
Air Quality (Environmental)		A quantified assessment of the impact of the scheme on Air Quality will be undertaken at OBC using outputs from the PTM3 model.
Landscape, Townscape, Historic Environment, Ecology and Water Environment	Qualitative assessment to be undertaken at OBC stage to inform the design process	The scheme is not expected to have any detrimental impact on any of these elements, and provides the opportunity to enhance the landscape and biodiversity.
Physical Activity (Social)	Qualitative	The scheme will include improvements to pedestrian and cycle infrastructure to improve provision and increase connectivity. A qualitative assessment of these will be undertaken at OBC.
Access/Severance	Qualitative	

Due to the nature of the scheme, the appraisal and Value for Money statement has focused on TEE benefits at this stage of the assessment.

### 3.5. Key Risks, Sensitivities and Uncertainties

The scheme is considered to be low risk in construction terms, especially since the required land is within ownership of Peterborough City Council or Highways England.

As the benefits of the scheme largely relate to reducing delay to existing and future traffic, a lower than anticipated future growth in traffic levels, or a delay / reduction to the growth at Norwood, is considered to be the greatest risk to the scheme. Sensitivity tests considering the impact of these scenarios on the Business Case have been undertaken using the low growth methodology outlined within WebTAG Unit M4.



Table 3.13 below summarises the results of the low growth economic assessment for Packages 1a and 1b.

Table 3.13: Low Growth Economic Assessment AMCB Comparison

Value (£'000s) 2010 prices, benefits discounted to 2010	Package 1a (Full Time Signals)	Package 1b (Part Time Signals)
<b>Benefits</b>		
Greenhouse Gases	-42	-53
Consumer Users (Commuting)	4,185	4,529
Consumer Users (Other)	-82	2,526
Business Users/Providers	2,529	3,886
Indirect Taxes	151	162
<b>Present Value of Benefits (PVB)</b>	<b>6,741</b>	<b>11,050</b>
<b>Costs</b>		
Broad Transport Budget	4,757	4,757
<b>Present Value of Costs (PVC)</b>	<b>4,757</b>	<b>4,757</b>
<b>Net Benefit / BCR Impact</b>		
<b>Net Present Value (NPV)</b>	<b>1,984</b>	<b>6,293</b>
<b>Benefit/Cost Ratio (BCR)</b>	<b>1.417</b>	<b>2.323</b>
<b>Value for Money Statement</b>	<b>Low</b>	<b>High</b>

The COVID-19 pandemic resulted in a significant drop in highway usage as part of the national lockdown. Although it is not yet known what the long term impact of this will be, Peterborough has seen a steady increase in traffic levels since restrictions were eased over the summer months and peak hour traffic flow on the strategic network within Peterborough has returned to approximately 90% (October 2020) of pre-pandemic levels. Monitoring of the impacts of COVID-19 will continue across Peterborough. It is considered that the low growth scenario most closely resembles the impact of COVID-19 on local traffic.

### 3.6. Value for Money Statement

#### VFM Category

Based on the Economic Assessment reported within the Economic Case, it is considered reasonable that the proposed A16 Norwood Improvement Scheme will achieve **High Value for Money**.

## 4. The Financial Case

### 4.1. Introduction

This section presents the Financial Case for the A16 Norwood Improvement Scheme. It concentrates on the affordability of the proposal and its funding arrangements.

### 4.2. Scheme Costing

The scheme cost estimates for the Financial Case have been prepared in line with WebTAG guidance set out in TAG Unit A1-2 Scheme Costs (DfT, May 2019). Each of the steps taken to produce the cost estimates are explained beneath. The estimate has been costed based on high level design information, and include a 20% Risk Allowance which includes COVID-19 related construction risk costs.

The scheme costs have been prepared using the parameters shown in Table 4.1 beneath.

Table 4.1: Scheme Costing Parameters

Input		
<b>Years</b>	DfT Base Year	2010
	Scheme Cost Estimate Year	2020
	Present Year (Assessment Year)	2020
	Scheme Start Year	2021
	Scheme Year of Opening	2028
	Analysis Period (Years)	60
<b>Economic Values</b>	Market Price Factor (Indirect Taxation)	1.19
	Normal Inflation Rate	1.025
	Construction Inflation Rate	1.05
<b>Risk &amp; Optimism Bias</b>	Risk Allowance	£655,943
	Optimism Bias Total	£2,564,308
	Optimism Bias Rate - Highways	44%
	Optimism Bias Rate - Structures	66%
	Optimism Bias Rate - Maintenance	0%

The initial scheme cost estimates are presented in Table 4.2 beneath, and each is explained in further detail beneath. Note that Optimism Bias is not included within the Financial Case.

Table 4.2: Financial Case Scheme Cost Estimates

Cost Stage	Cost (£)
Base Investment Cost	4,294,790
Risk Adjusted Base Cost	4,950,733
Risk Adjusted Base Cost with Construction Industry Inflation <b>(Outturn Cost)</b>	<b>6,615,466</b>

#### Base Investment Cost

The Base Investment Cost is the capital cost required to design and construct the scheme in current year (2020) prices, without a risk allowance or inflation. This is the scheme cost estimate based on the initial design estimates.

Table 4.3 shows the Base Investment Cost broken down into Construction, Land, Design and Supervision costs (note that there are no 'Land' or 'Other' costs).

Table 4.3: Base Investment Cost (2020 Prices)

Calendar Year	Construction Costs (Highways) (£)	Preparation and Supervision Costs (£)	Total Base Investment Cost (£)
2021		465,000	465,000
2022		264,684	264,684
2023		78,346	78,346
2024	350,000	21,000	371,000
2025			
2026			
2027	2,929,714	186,046	3,115,760
<b>Total</b>	<b>3,279,714</b>	<b>1,015,076</b>	<b>4,294,790</b>

The scheme Base Investment Cost in 2020 prices is £4,294,790. This includes £3,279,714 of Construction related costs and £1,015,076 of Design and Supervision costs (£808,030 Design and Surveys / £207,046 Supervision). The Design costs include all necessary surveys required to undertake Preliminary and Detailed Designs.

The cost profile assumes the following:

- 2021 – Preliminary Design and Outline Business Case
- 2022 / 2023 – Detailed Design and Full Business Case
- 2024 – Construction / Supervision of Closure of Newborough Road
- 2027 – Construction / Supervision of Remaining Schemes (Package 1).

There are no land or property costs associated with this scheme, as all the required land is within the Council’s ownership, or that of Highways England.

### Risk Adjusted Base Cost

The Risk Adjusted Base Cost includes a component for risk. A 20% Risk Allowance has been included within the cost estimate, which includes 10% for construction risk and 10% for COVID-19 related risk.

Table 4.4: Risk Adjusted Base Costs (2020 Prices)

Calendar Year	Construction Costs (Highways) (£)	Preparation and Supervision Costs (£)	Risk Allowance (£)	Risk Adjusted Base Cost (£)
2021		465,000		<b>465,000</b>
2022		264,684		<b>264,684</b>
2023		78,346		<b>78,346</b>
2024	350,000	21,000	70,000	<b>441,000</b>
2025				
2026				
2027	2,929,714	186,046	585,943	<b>3,701,703</b>
<b>Total</b>	<b>3,279,714</b>	<b>1,015,076</b>	<b>655,943</b>	<b>4,950,733</b>

The addition of the Risk Allowance (£655,943) takes the Risk Adjusted Base Cost to £4,950,733.

### Inflated Risk Adjusted Cost (Outturn Cost)

The Inflated Risk Adjusted Cost, or Outturn Cost, is the Risk Adjusted Base Cost with construction industry inflation applied. An inflation rate of 5% per annum has been used based on the Office for National Statistics (ONS) Construction Output Price Indices<sup>6</sup> (2019 / Q4) for ‘New Work / Infrastructure’. The inflation rate of 5%, as well as being derived from Construction Output Price Indices, has been derived using knowledge of costs associated with recent schemes in Peterborough. Peterborough Highways Services works are measured using BCIS indices.

Inflation has been applied in line with the construction profile assumed within the scheme costing and the Economic Assessment, and the cost of this is presented beneath in Table 4.5.

6

<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/interimconstructionoutputpriceindices>

Table 4.5: Inflated Risk Adjusted Cost (2020 Prices)

Calendar Year	Risk Adjusted Base Cost (£)	Cost of Inflation (£)	Total with Inflation (£)
2021	465,000	23,250	488,250
2022	264,684	27,130	291,815
2023	78,346	12,349	90,695
2024	441,000	95,038	536,038
2025			
2026			
2027	3,701,703	1,506,965	5,208,668
<b>Total</b>	<b>4,950,733</b>	<b>1,664,732</b>	<b>6,615,466</b>

The cost of inflation is £1,664,732, which brings Scheme Outturn Cost to £6,615,466. The Outturn Cost represents the amount required by Peterborough City Council to deliver the scheme.

**Maintenance**

Future maintenance costs have not been included for the scheme. All maintenance costs associated with the existing infrastructure will continue to occur separate to the Norwood scheme, and so have not been included within the assessment.

The addition of new infrastructure, such as the new lanes on the A16, is considered to be offset by the closure of Newborough Road. Newborough Road is considered to be a significant maintenance liability, like many of the Fen roads in the area. The single carriageway is built on a soft soil embankment flanked by drainage ditches. Subsidence is common on these roads as a result of ground conditions in the Fens, and movement caused by the regular rise and fall of the water table. This subsidence causes the road haunches to fail more often than on other roads, and regularly require expensive maintenance. The A16 and A47 by contrast, are built on wider embankments with offset drains, meaning that the damage caused by subsidence (and subsequent maintenance) is much less of a concern on routes where the new infrastructure will be provided.

**Further Cost Estimate Refinement**

The scheme cost estimate will be revaluated based on more mature design information, including site surveys, Preliminary Designs and a Quantified Risk Assessment, as the preferred scheme is carried forward to OBC. The scheme cost will then be used to identify and secure funding, and to undertake further economic assessment using the Transport User Benefit Appraisal package (TUBA) at the OBC stage to re-determine value for money.

Future maintenance costs / works associated with the schemes will also be considered and added to the maintenance inventory and funded from the Council’s maintenance budgets. However, it is anticipated that the provision of new or upgraded assets will not significantly impact upon future maintenance liabilities.

### 4.3. Budgets and Funding Cover

#### Funding Cover

It is anticipated that the full scheme Outturn Cost of £6,615,466 will be funded by the CPCA from the Single Investment Fund.

The CPCA have an infrastructure delivery budget of £20 million per year, allocated for the next 30 years. This funding will be invested into the Cambridgeshire and Peterborough Single Investment Fund, in order to boost growth within the region. The CPCA have committed to providing £16 million of funding within its first four years, to complete major highway improvements that decrease congestion and support local growth. No local or developer contribution have yet been confirmed to support this scheme, although developer funded commitments, including the Norwood internal access road and the new A16 Norwood Development Roundabout, will support the delivery of this package.

There are not known to be any financial constraints beyond the availability of funding from the CPCA Single Investment Fund.

#### Completion of the Business Case

Subject to acceptance of the SOBC, Peterborough City Council intend to move to Preliminary Design and production of an OBC.

Costs for the further design and Business Case tasks are included within the scheme costs reported within this chapter and the Value for Money assessment undertaken within the Economic Case, however funding to progress the Preliminary Design and OBC needs to be secured to enable this work to progress.

Peterborough City Council request that the design cost of £620,000 is released in advance of the funds required for construction, in order to undertake the Preliminary Design and produce an OBC.

## 5. The Commercial Case

### 5.1. Introduction

The Commercial Case demonstrates that the scheme can be reliably procured and implemented through existing channels whilst ensuring value for money in delivery of the scheme.

### 5.2. Output Based Specification

The A16 Norwood Option Assessment Report (OAR) details the work undertaken to develop multiple improvement options at this location, and the modelling undertaken to identify the preferred scheme.

The OAR discusses the process through which the preferred scheme has been identified. The scheme will include the following outputs:

- Closure of Newborough Road Junction with A47
- Dualling of the A16 between the Norwood Development Roundabout and the A16 / A47 / Welland Road Roundabout
- Partial Signalisation of the A16 / A47 / Welland Road Roundabout (A16 approach)
- Creation of a flare to provide a third lane on the A47 westbound approach
- Creation of a Left Dedicated Left (LDL) from the A47 eastbound approach to the A16 northbound exit.

The scheme will meet all of the primary scheme objectives outlined in the Strategic Case. Details of how the scheme will be measured against these objectives are discussed within the Management Case.

### 5.3. Procurement Strategy

All phases of the scheme, including Design, Construction and Site Supervision will be delivered in house by Peterborough Highway Services (PHS).

PHS is a ten-year NEC3 Term Service Contract between Peterborough City Council and Skanska, with responsibility for improving and maintaining Peterborough's highway network. The collaboration began in 2013 and runs to 2023, with the possibility of a further ten-year extension.

The contract is built upon a collaborative and multi-disciplined team capable of developing schemes from policy concept right through to design and construction, and then maintaining them.

## Market Maturity

The team has successfully developed and delivered multiple highway schemes around Peterborough since the beginning of the contract in 2013, including several schemes on behalf of the CPCA. PHS has been responsible for all planning and design work undertaken on the A16 Norwood Improvement Scheme to date. All skills and competencies to deliver this scheme are available within the local PHS contract.

To ensure that the procurement remains commercially competitive and offers value for money, all subcontract packages will be subject to competitive tendering.

### 5.4. Risk Allocation and Transfer

Because the PHS contract is already established there is limited opportunity to modify the allocation of risk, however the contract does include inherent features that encourage effective risk management and mitigation, such as:

- Each party is required to notify each other of any matter which could affect the cost, completion, progress or quality of the project through Early Warning Notices. This is to promote early intervention which could reduce the impact of any potential risk
- In the case of Option C (Target Price) both parties are incentivised to reduced cost through the pain / gain mechanism.

The above will also be supplemented with good project management practices during the delivery of the scheme. Both parties will maintain a shared Risk Register, which will be reviewed regularly at project progress meetings. Further details on the management of risk are provided in the Management Case.

Detail about the allocation of project risk between the CPCA and PCC, and the responsibilities for managing this, can be found within Chapter 6 of the CPCA's Assurance Framework.

However, in summary, risk is allocated to the CPCA by default, but the CPCA reserve the right to reallocate this risk to PCC in the event that the risk has not been managed appropriately. The signed Funding Agreement, and Project Initiation Document, will be used to determine whether PCC has managed the project risk appropriately, and therefore where the risk should be allocated.



## 6. The Management Case

### 6.1. Introduction

The Management Case explains how the scheme promoter will successfully manage delivery of the proposed scheme and achieve the expected outcomes.

### 6.2. Evidence of Similar Projects

Peterborough has a long history of significant growth spanning back to its designation as a New Town in 1967, and consequently the City is used to managing and delivering large highway infrastructure projects.

The Council, through PHS, has completed the following highway improvement schemes in recent years. Both of these schemes are located on the Parkway Network at strategically sensitive locations, and demonstrate PHS' ability to successfully manage and deliver highway schemes of this scale.

#### [Junction 20 Improvement Scheme \(A47 Soke Parkway / A15 Paston Parkway\) - £5.7m](#)

This scheme was constructed between summer 2016 and spring 2017, and involved fully signalling a grade separated roundabout and adding significant capacity through the creation of additional lanes on the approaches and the circulatory of the roundabout. The scheme was required to relieve congestion and to enable nearby housing growth.

Since completion, the scheme has met its objectives and reduced congestion and improved journey times at a crucial section of the network. It has also provided additional network capacity, enabling the initial phase of development at Paston Reserve to be progressed, which will ultimately include 945 homes and a secondary school.

Junction 20 is a major interchange on Peterborough's network, located approximately 500 metres to the west of the A16, and at the time of construction up to 4,500 vehicles an hour passed through it. With such a high traffic demand, the careful planning and implementation of the traffic management required to construct the scheme was crucial. Close collaboration between all delivery partners meant that this was achieved with limited disruption to the highway network.

The Junction 20 scheme was completed on time and within the £5.7m budget. Funding for the scheme was secured from the Greater Cambridgeshire and Greater Peterborough Local Enterprise Partnership.



Figure 6.1: Junction 20 Improvement (Post Scheme)

#### Junction 17 – Junction 2 Improvement Scheme (A1139 Fletton Parkway) - £18m

This scheme was constructed between spring 2014 and summer 2015 and consisted of the widening of the A1139 Fletton Parkway from two to three lanes between the A1 (M) and Junction 2 in Peterborough to provide significant and critically needed capacity improvements. The total cost of the scheme was £18 million, funded through the Greater Cambridgeshire and Greater Peterborough Local Enterprise Partnership, Developer Funding and Council Capital Funding.

The scheme successfully delivered a major upgrade to Peterborough's Parkway network. Despite extensive ground investigations during the design phase, abnormally high levels of soil contamination were discovered during construction throughout the site, and significant volumes of soil had to be sent for specialist treatment and disposal. However, through careful management and collaborative working amongst all partners, there was a minimal impact on the scheme delivery programme, and additional funding was provided by the DfT due to the severity of the contamination which had not been detected despite all of the industry standard Waste and Contamination (WAC) tests being undertaken.



Figure 6.2: Junction 17 (A1M) Improvement (Post Scheme)

### 6.3. Programme / Project Dependencies

The scheme programme will need to consider the following key dependencies:

- **Norwood Development:** The proposed package is intended to facilitate growth at the Norwood site, and beyond. The Local Plan currently expects this growth to occur between 2019 (Local Plan adoption year) and 2036, however the Business Case and scheme programme will need to adjust if the development programme changes.
- **Programme Constraints:** the construction programme will need to carefully consider any other infrastructure works that may be underway on the highway network during the same period. The programme will be planned to avoid works that may compound the disruption caused to road users as a result of the A16 Norwood Improvement Scheme, although this will be limited through the careful planning of traffic management arrangements. Careful liaison with Highways England will be necessary to ensure that the scheme does not conflict with any planned works that they have along this section of the route.
- **Construction Disruption:** The Council have significant recent experience of undertaking maintenance and delivering improvements on its highway network, particularly on strategic routes, and is proficient in mitigating the impact of this.

## 6.4. Governance, Organisational Structures, and Roles

The CPCA are the organisation ultimately responsible for the delivery of the A16 Norwood Improvement Scheme, and the Council are nominated as the delivery partner.

Delivery of the scheme will be managed by a Project Team led by a Peterborough City Council Project Manager, and consisting of all the key project delivery partners. The Project Team will be responsible for the daily running of the project, coordinating with all key stakeholders, and managing the delivery programme.

The existing PHS Project Board will be used to oversee the continued development and delivery of the scheme by the Project Team, and to make key decisions relating to the delivery of the project. The Project Board will be supported by technical specialists, and key stakeholders will be invited to attend as necessary.

### Project Management Team

The Project Management Team will report to the Project Board and ultimately to the CPCA Board.

The Project Management Team will be responsible for delivery and day-to-day management of the consultants and contractors. They will co-ordinate inputs from technical advisors responsible for the delivery of key work streams within an agreed programme, including:

- Stakeholder Engagement
- Design Development
- Transport Modelling
- Environmental Assessment
- Business Case Development
- Early Contractor Involvement (ECI) and Scheme delivery.

The key roles and lines of accountability for the development and delivery of the scheme are shown beneath in Figure 6.3.

The team has successfully developed and delivered multiple highway schemes around Peterborough since the beginning of the contract in 2013, including several CPCA schemes. PHS has been responsible for all planning and design work undertaken on the A16 Norwood Improvement Scheme to date. All skills and competencies to deliver this scheme are available within the local PHS contract.

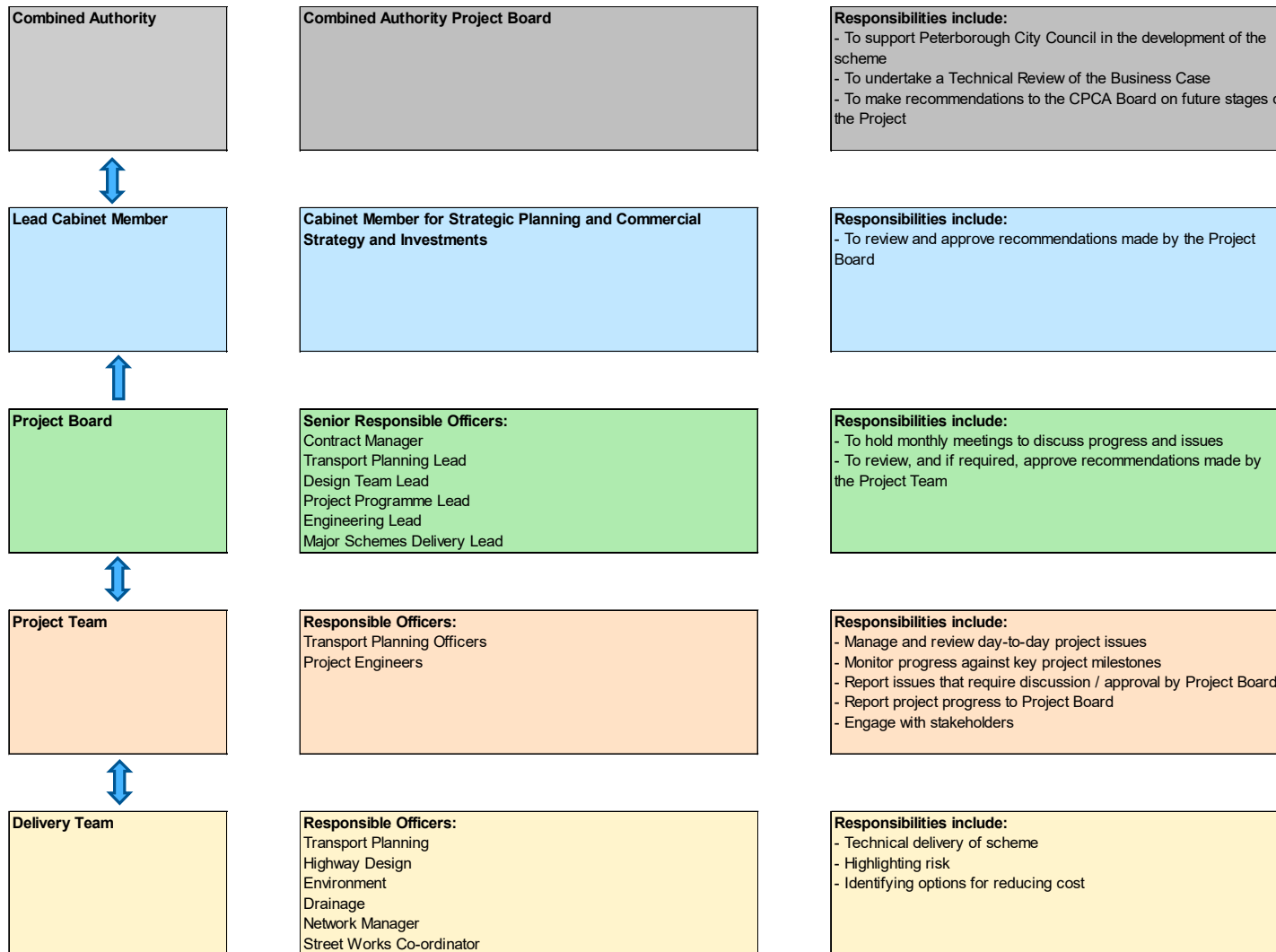


Figure 6.3: Key Project Roles and Responsibilities

## 6.5. Programme / Project Reporting

The Project Manager will report how the project is performing against the project objectives / key milestones. This will be completed using established finance and programme management tools such as Verto and reported on a regular basis to the Project Board.

Every month the Project Manager will also submit a highlight report to the CPCA recording what progress has been made and whether there are any new risks that could impact the scheme. Financial progress will be reported to the PHS Dashboard, which monitors the progress of work delivered through the PHS contract, and approval for any key decisions is made by the Project Board.

Regular Project Progress Meetings will be held throughout the duration of the scheme to allow key staff to discuss important issues that could affect the delivery of the scheme.

Delivery of the scheme through the PHS Framework contract ensures that all stages of work are conducted in-house, ensuring a smooth transition of information and communication between the different delivery teams.

## 6.6. Programme / Project Plan

Key project milestones for progressing to scheme delivery are outlined in Table 6.1 overleaf.

Table 6.1: Key Project Milestones

Timescale	Milestone Activity
November 2020	Strategic Outline Business Case and Option Assessment Report Submitted.
January 2021	Strategic Outline Business Case reviewed by CPCA and approval sought from CPCA board for the release of funding to undertake an Outline Business Case and Preliminary Design.
April 2021 – March 2022	Outline Business Case produced and Preliminary Design undertaken.
April 2022	Outline Business reviewed by CPCA and approval sought from CPCA board for the release of funding to undertake Detailed Design and produce a Full Business Case.
June 2022 – May 2023	Detailed Design undertaken and Full Business Case produced.
2024	Closure of Newborough Road Access to A47 delivered in conjunction with Developer schemes including Norwood internal access road and A16 Norwood Developer Roundabout.
2027	Construction of the remaining schemes, including A16 Dualling and A16 / A47 / Welland Road Roundabout improvements.

These dates are indicative only and assume that funding will be available to progress each of the stages. The milestones shown above may change as the scheme evolves, or to reflect changes in external factors, such as the Norwood development programme.

## 6.7. Assurance and Approvals Plan

The Council will manage the project in line with their existing assurance and approvals process. The Project Manager will be responsible for the daily running of the project, and any approvals required will be provided by the Project Board.

The Cambridgeshire and Peterborough Combined Authority Assurance Framework sets out the fundamental principles in relation to the use and administration of the Cambridgeshire and Peterborough Investment and outlines a culture underpinned by processes, practices and procedures. The Assurance Framework sits alongside a number of other Cambridgeshire and Peterborough Combined Authority documents including the Constitution and Devolution Deal.

Further to the above the Combined Authority has developed the 10 Point Guide which outlines project management governance requirements which should be followed throughout the life cycle of the project. It details the requirements at project initiation including, establishing a Project Board with the Combined Authority and delivery partners. The purpose of the Project Board is to provide oversight to the project, ensure appropriate governance, risk management and to provide assurance in accordance with the scope, budget and programme.

The Project board is to be held monthly and should be attended by the Combined Authority's head of Transport and Transport Programme Manager alongside Peterborough City Council's Project manager and by Group Manager for Highways and Transport. The project board should also establish a RACI chart, a copy of the RACI template is in the Combined Authority's 10 Point Guide.

## 6.8. Communications and Stakeholder Management

Communication and Stakeholder engagement will consist of:

- Providing regular updates on delivery progress and key activities for the local community, businesses, and key stakeholder
- Engaging with the local community, businesses, and key stakeholders regarding delivery. This is to ensure local needs are taken into account throughout the duration of the project
- Ensuring information is shared using appropriate methods of communication to all sectors of the community, business, and key stakeholders.

### Project Liaison Officer

A designated Project Liaison Officer (PLO) will be assigned to the scheme throughout the public consultation period and during construction and act as a single point of contact for outgoing and incoming communication. The PLO will be attached to the scheme delivery team and their responsibilities will include issuing progress updates via email and social media in the lead up to, and during construction, and coordinating responses to members of the public and key stakeholders when queries are raised.

## Stakeholder Consultation

Stakeholder consultation will be undertaken by the Project Team as part of the Outline Business Case and Preliminary Design. This consultation will enable feedback from key stakeholders to be taken into consideration ahead of the Detailed Design stage.

The key stakeholders identified for this consultation event include:

- Cambridgeshire and Peterborough Combined Authority (CPCA)
- Peterborough City Council (The Council)
- Highways England
- Norwood Developers
- Ward Councillors and local residents, including those along Newborough Road
- English Heritage
- Emergency Services
- Land owners and Businesses affected by the scheme.

All key Stakeholders will be consulted via email for comments. Key Stakeholders will also be communicated to regularly throughout the construction phase by the PLO.

Stakeholder engagement with Highways England has begun as part of the SOBC, and within the context of the Leeds Farm Planning Application (part of the Norwood Development). Peterborough City Council are also in the process of formally engaging with the different land owners within the Norwood site about the proposed scheme.

## Public Consultation

Public consultation on the concept of a scheme at this location has already been undertaken as part of the CPCA Local Transport Plan<sup>7</sup> that was adopted in January 2020.

An online consultation exercise will be undertaken at the next stage of scheme development, and results from this consultation will be reported in the OBC and used to inform future Detailed Design., and ahead of the Detailed Design. Subject to Covid-19 restrictions, it is anticipated that a public consultation event will be held ahead of construction.

## 6.9. Risk Management Strategy

A Risk Register was produced during project initiation to identify potential risks and to evaluate factors that could have a detrimental effect on the project. The Risk Register identifies potential risks, considers the impact they may have, the likelihood of them occurring, and the measures that will be taken to mitigate these.

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<sup>7</sup> <https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf>



The Risk Register is a live document and is reviewed regularly at progress meetings and updates are reported to the CPCA through the monthly Highlight Reports. A copy of the Risk Register has been provided in Appendix C.

### 6.10. Scheme Evaluation Plan (Benefits Realisation and Monitoring)

This Scheme Evaluation Plan for the A16 Norwood Improvement Scheme will be prepared prior to scheme construction to set out guidance detailing how this scheme’s effects should be evaluated following implementation of the scheme.

The Scheme Evaluation Plan comprises the Benefits Realisation Plan and the Monitoring and Evaluation Plan.

The purpose of the Scheme Evaluation Plan is to clearly set out which indicators should be monitored to verify that the scheme achieves its objectives. Post monitoring is important for determining that the scheme has been successful.

#### Expected Benefits

The scheme objectives, outputs and outcomes are summarised below. These objectives are described within the Strategic Case and explain what the scheme is expected to deliver.

Primary objectives include:

- **Tackle congestion and improve journey times:** Tackle congestion and reduce delay along the A16 and on the primary approaches to the A16 / A47 / Welland Road Roundabout
- **Support Peterborough’s growth agenda:** Ensure that the planned employment and housing growth at Norwood can be realised
- **Limit impact on the local environment and improve biodiversity:** Fully mitigate any adverse environmental impacts of a scheme, and ensure a biodiversity net gain within the study area.

Secondary objectives include:

- **Positively impact traffic conditions on the wider network:** Positively impact the performance of local routes impacted by the traffic and congestion in and around the A16 corridor, such as the A47, A15 Paston Parkway, A1139 Eye Road and Newborough Road.
- **Improve road safety:** Reduce accidents and improve personal security for all travellers within the study area.
- **Improve sustainable transport infrastructure:** Ensure that the scheme provides a comprehensive network of pedestrian and cycling routes where needed.

### Benefits Monitoring and Evaluation

The Monitoring and Evaluation plan for the A16 Norwood Improvement Scheme will take a proportionate and targeted approach, which will aim to demonstrate how the scheme has performed in relation to its objectives and intended outcomes. The principal aims of Monitoring and Evaluation are to determine whether a scheme has been delivered as planned, and whether it has delivered the expected benefits. Where outcomes differ from those expected, data collected for the Monitoring and Evaluation evidence base will assist in understanding the reasons for this and the lessons that can be learnt.

Monitoring and evaluation of the schemes performance against its objectives must be undertaken to determine whether the scheme has been a success. Initial details of how this will be measured are provided in Table 6.2 beneath.

Table 6.2: Benefits Realisation Monitoring

	Indicator / Metrics	Source	Reporting Programme			Ownership	Indicative Cost
			Baseline	Implementation	Post Implementation		
<b>Inputs</b>							
Scheme Funding	CPCA Funding	CPCA Funding submission Final Scheme Cost Data	Planned	Actual	-	CPCA / PCC	
<b>Outputs</b>							
Infrastructure	Infrastructure delivered as part of the scheme	Site Inspection	2023	2024 - 2026	2028	PCC / HE	£1,000
<b>Outcomes</b>							
Tackle congestion	Average AM and PM peak journey time	Trafficmaster / Tom Tom data	2022 - 2024		Summer 2028	PCC	£500 cost to process the data
Address journey time reliability on the primary approaches to the A47 / A16 roundabout	Queue Length Data	Automatic Traffic Counters Video survey footage	2022 - 2024		Summer 2028	PCC	£1000 cost of surveys and processing data
Improve walking and cycling routes	New walking and cycling infrastructure	Site Inspection / Video survey footage	2022 - 2024		Summer 2028	PCC	
Improved Road Safety	Number of KSI incidents	Peterborough database of road traffic records	2022 - 2024		Summer 2028	PCC	£250 cost to process the data
Mitigate any negative impacts on the local environment (Noise / Air Quality)	Air quality / noise surveys	Air quality / noise monitoring	Available at PCC		Summer 2028	PCC	£1,000 cost to process the data
Improve Biodiversity	Biodiversity Calculation	Site Survey and desk based assessment	2022 – 2024		2028	PCC	£2,000
Support Growth Agenda encouraging new homes and jobs	Local economic growth and development figures post scheme opening	PCC Planning Portal Local and regional economic reports	Available on-line		2036	PCC/CPCA	£250 cost to process the data
<b>Reporting</b>							
Baseline and Year 1 reports summarising the outcomes of the monitoring and evaluation work			2024		2030	PCC	£3,000
Year 5 report summarising local economic growth, scheme impacts and development figures prior and post opening of the scheme					2036	PCC	£3,000
<b>Total Monitoring and Evaluation Budget</b>							<b>£12,000</b>

## Scheme Logic Mapping

The logic map detailed in Figure 6.4 highlights the links between context, inputs, outputs, outcomes and impacts of the scheme and gives a visual representation of where Monitoring and Evaluation should be focused. The logic model outlines the causal chain of events that represent the process by which the desired outcomes and scheme objectives are to be achieved. The logic model has informed the approach proposed in this M&E plan and will help ensure monitoring resources are targeted appropriately through the timeline of scheme development and provide effective measurement of objectives and outcomes.

The implementation of the Monitoring and Evaluation Plan will help provide an understanding of the following:

- Inputs (did we apply the money and resources that we said we would?)
- Outputs (how much did we build / provide?)
- Outcomes (what changes in behaviour came about as a result?)
- Impacts (what effect did the outcomes have on the economy, society and environment?).

The logic model also incorporates the use of bounding objectives which represent positions beyond which it is not proposed to attribute effects resulting from the scheme. However, the outcomes of the Monitoring and Evaluation plan will help understand the potential for wider impacts resulting from the scheme as outlined in the Logic Map.

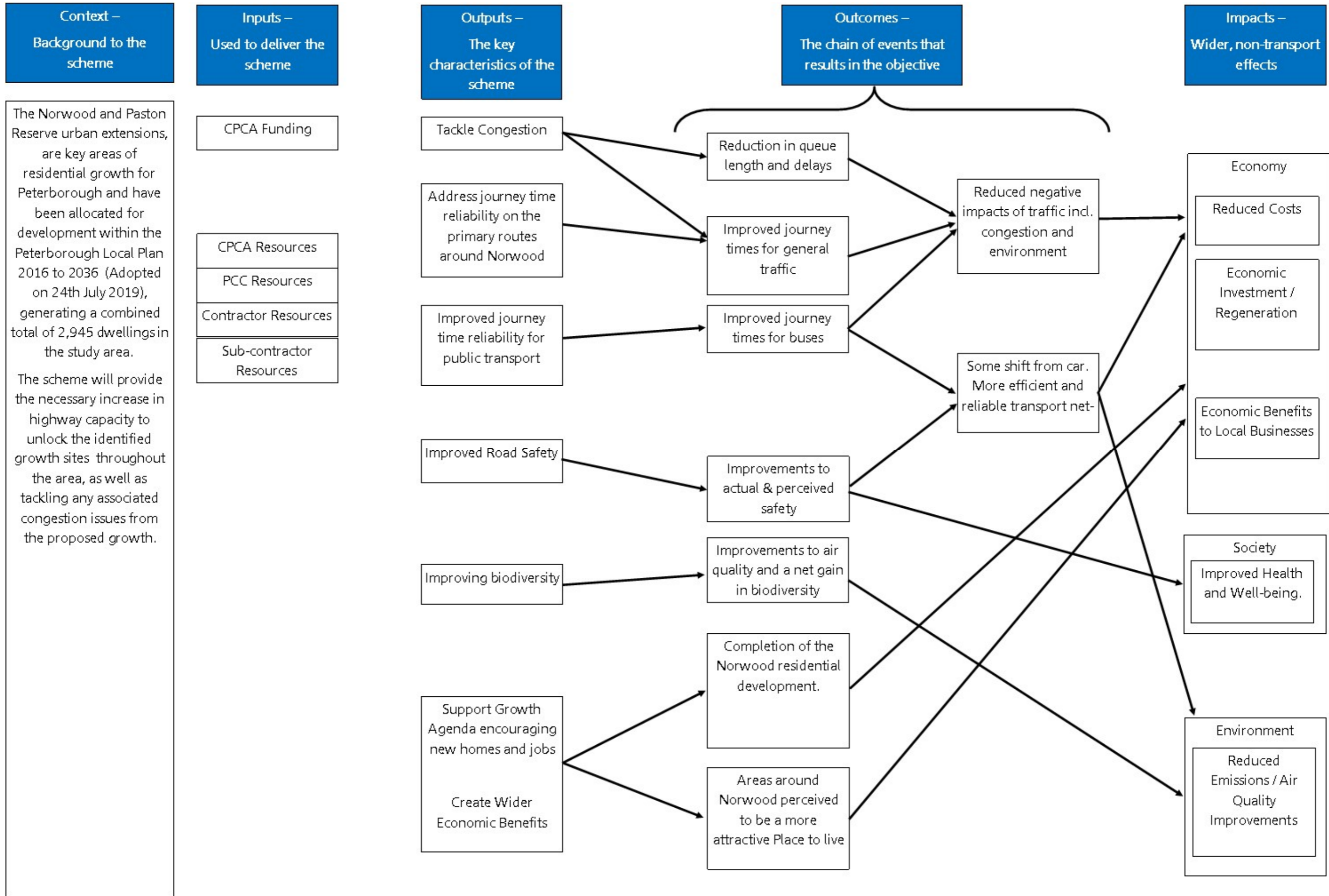


Figure 6.4: Norwood Access Study Monitoring and Evaluation Logic Map

## Appendices

### Appendix A: Wider Policy Context

## Appendix A: Wider Policy Context

### National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and should be considered in the preparation of development plans. Proposed development that accords with an up to date Local Plan should be approved unless other material considerations indicate otherwise.

The NPPF states that all plans are expected to be based upon and to reflect the presumption in favour of sustainable development with clear policies that will guide how the presumption should be applied locally.

The scheme will contribute to delivering the following NPPF objectives:

- **Delivering a sufficient supply of homes.** The scheme will provide crucial transport capacity along the network which will support the housing growth set out for Peterborough within the Local Plan.
- **Building a strong, competitive economy.** The NPPF states that development proposals should support economic growth and productivity. The scheme will provide essential network capacity at a crucial location to enable Peterborough to deliver the homes set out in the Local Plan.
- **Promoting healthy and safe communities and sustainable transport.** The NPPF stipulates that communities should be safe, accessible and supportive of a healthy lifestyle through the provision of cycling and walking facilities. The scheme not only provides highway capacity for strategic trips, but will also include local sustainable transport infrastructure improvements to the immediate area.

### Department for Transport Single Departmental Plan

The single departmental plan for the Department for Transport sets out the strategic objectives to 2020 and the plans for achieving them. The DfT's overall mission is to create a safe, secure, efficient and reliable transport system that works for the people who depend on it; supporting a strong productive economy and the jobs and homes people need.

The objectives outlined in the plan are:

- Support the creation of a stronger, cleaner more productive economy
- Help to connect people and places, balancing investment across the country
- Make journeys easier, modern and reliable
- Make sure transport is safe, secure and sustainable
- Prepare the transport system for technological progress, and a prosperous future outside the EU
- Promote a culture of efficiency and productivity in everything we do.

## Peterborough City Council's Vision and Strategic Priorities

The Council's vision is to

*'Create a bigger and better Peterborough that grows the right way and through truly sustainable development and growth:*

- *Improves the quality of life of all its people and communities, and ensures that all communities benefit from the growth and the opportunities it brings*
- *Creates a truly sustainable Peterborough, the urban centre of a thriving sub-regional community of villages and market towns, a healthy, safe and exciting place to live, work and visit, famous as the environmental capital of the UK'.*

The strategic priorities for the Council are:

- Drive growth, regeneration and economic development
- Improve education attainment and skills
- Safeguard vulnerable children and adults
- Implement the Environment Capital agenda
- Support Peterborough's culture and leisure trust Vivacity
- Keep all our communities safe, cohesive and healthy
- Achieve the best health and wellbeing for the city

## Peterborough City Council Local Plan

The Local Plan (adopted July 2019) updates the 2011 Core Strategy and looks to deliver 21,315 new homes between 2017 and 2036, and 17,600 jobs between 2015 and 2036. The development strategy for the new Local Plan is to focus the majority of new housing development in, around and close to the urban area of the city of Peterborough. Only a small percentage of residential development is allocated to the villages and rural area. Similarly, employment development will be focussed on the city centre, urban area or urban extensions.



The Local Plan will deliver the council's corporate priorities (listed below) which aim to improve the quality of life for all residents and communities.

- Drive growth, regeneration and economic development
- Improve education attainment and skills
- Safeguard vulnerable children and adults
- Implement the Environment Capital agenda
- Support Peterborough's culture and leisure trust Vivacity
- Keep all our communities safe, cohesive and healthy
- Achieve the best health and wellbeing for the City.

Policy LP13: Transport states that the impact of growth on the city's transport infrastructure will require careful planning and that new development must ensure that appropriate provision is made for the transport need that it will create.

Policy LP14: Infrastructure identifies that the major growth and expansion of Peterborough will be supported by necessary infrastructure such as roads, schools and health and community facilities is in place to help the creation of sustainable communities.

Appendix B: A16 Norwood Improvement Scheme Appraisal Summary Table (AST)

Impacts		Summary of key impacts	Assessment	
			Qualitative	Quantitative (Monetary)
Economy	Business Users & Transport Providers	Transport user benefits have been calculated using the Peterborough Transportation Model 3 (PTM3) and Transport User Benefits Appraisal (TUBA) tool. Benefits have been discounted to the 2010 base year and expressed in 2010 market prices. This identifies that the benefit to Business Users & Transport Providers is expected to be £5,476,000.	Not Assessed	<b>£ 5,476,000 (PVB)</b>
	Reliability Impact on Business Providers	Commuters are expected to benefit from more reliable journey times because of congestion and delay reductions.	Not Assessed	Not Assessed
	Regeneration	No regeneration proposals in the vicinity of the scheme	Not Assessed	Not Assessed
	Other impacts – impact on local business	The Study Area is a large residential development to the north-east of Peterborough. Any proposed measures to improve journey time reliability and reduce congestion should help to keep the area as an attractive location for homes and businesses.	<b>Slight Beneficial</b>	Not Assessed
Environmental	Noise	The reduction in queueing, and therefore idling is anticipated that the overall impact will be neutral, however further noise assessment may be required as the scheme progresses.	<b>Neutral</b>	Not Assessed
	Air Quality	The reduction in queueing, and therefore idling, may have a beneficial impact on air quality at receptors near the scheme site. However, further assessments will be required as the scheme progresses.	<b>Slight Beneficial</b>	Not Assessed
	Greenhouse Gases	Although a decrease in AM Peak Hour congestion, there is a small negative impact on greenhouse gas emissions will be seen upon scheme completion. Further assessments will be undertaken as the scheme progresses to mitigate this dis-benefit	<b>Slight dis-benefit</b>	<b>£-1,000 (PVB)</b>
	Landscape	Most of the works are within the highway boundary and designs will be sensitive to local area – neutral impact	<b>Neutral</b>	Not Assessed
	Townscape	Most of the works are within the highway boundary and designs will be sensitive to local area – neutral impact	<b>Neutral</b>	Not Assessed
	Historic Environment	Most of the works are within the highway boundary and designs will be sensitive to local area – neutral impact	<b>Neutral</b>	Not Assessed
	Biodiversity	Biodiversity will be assessed as the scheme progresses and any mitigation measures identified.	<b>Neutral</b>	Not Assessed
	Water Environment	Water environment will be assessed as the scheme progresses	<b>Neutral</b>	Not Assessed
Social	Commuting & Other Users	Transport user benefits have been calculated using the Peterborough Transportation Model 3 (PTM3) and Transport User Benefits Appraisal (TUBA) tool. Benefits have been discounted to the 2010 base year and expressed in 2010 market prices. This identifies that the benefit to Commuting & Other users is expected to be £9,610,000. Users are expected to benefit from improved journey times because of reduced congestion.	Not Assessed	<b>£ 9,610,000 (PVB)</b>
	Physical Activity	Improvements for pedestrians and cyclists will be considered as part of the scheme.	<b>Slight Beneficial</b>	Not Assessed
	Journey Quality	Driver's frustration caused by unreliable journey times is likely to be reduced significantly. Overall improvement in safety.	<b>Slight Beneficial</b>	Not Assessed
	Accidents	Scheme improvements at junctions is expected to have a slight benefit on road safety.	<b>Slight Beneficial</b>	Not Assessed
	Personal Security	No improvements yet identified for walking and cycling, but these will be included at FBC.	<b>Slight Beneficial</b>	Not Assessed
	Access to the transport system	No significant improvements in accessibility to the transport network, however journeys will be more reliable	<b>Slight Beneficial</b>	Not Assessed
	Affordability	No specific changes to the cost of travel (public transport fares, road user pricing or car parking increases	<b>Neutral</b>	Not Assessed
	Severance	Improvements in pedestrian facilities could ease severance,	<b>Neutral</b>	Not Assessed
Option & Non-Use Values	Not Applicable	Not Assessed	Not Assessed	
Public Accounts	Cost to Broad Transport Budget	The cost to the Broad Transport Budget (PVC) has been calculated as £4,790,000.	Not Assessed	<b>£4,790,000 (PVC)</b>
	Indirect Tax Revenues	Calculated to be £53,000.	Not Assessed	<b>£53,000</b>

Appendix C: Project Risk Register

Risk ID	Date Identified	Cause(s)	Risk Event	Effect(s)	Risk Type	Risk Status	Proximity	Date Last Review	Mitigation Plan	Action Owner	Date Mitigation Due	Date Action Closed	Likelihood (1-5)	Impact (1-5)	RAG score (likelihood x impact)	Approx. Financial Impact (£k) TOTAL £0	Comments/Notes/Assumptions	Risk Owner	Escalation Required?	Date Closed
9	Feb-20	Budget escalation	<b>More funding required</b> Work to develop options or time take to model the options may take longer than originally anticipated	Likely effect is that more funding would be required	Financial	Open	Imminent	Oct-20	Programme has allowed for additional time for option development and modelling tasks based on experience of previous projects. Overall budget for project is being managed closely to ensure it is to programme, and early warnings can be given if an overspend is likely.	Lewis Banks	Aug-20		3	3	9		Spend is close to budget, this will be monitored.	Lewis Banks	Yes	
15	May-20	Limited benefits compared to costs	<b>Low score BCR</b> Potential for poor scheme BCR (due to limited benefits compared to costs).	Risk scheme may not offer value for money or achieve the outcomes desired	Financial	Open	Close	Jul-20	Will monitor closely during economic assessment and wider benefits explored if necessary.	Lewis Banks	May-20		2	3	6		This is a possible risk and will therefore be closely monitored.	Lewis Banks	No	
3	Mar-20	Delay to project	<b>Coronavirus outbreak</b> There is risk that with the rise of coronavirus cases that some of the staff working on the project may become infected and would have to self isolate.	Likely effect is that a delay would be caused	Internal	Open	Imminent	Oct-20	Government guidance would be followed. Any member of staff or their family do become unwell, they would be recommended to work from home for a 14 day period/self isolate.	Lewis Banks	Mar-20		2	2	4		This will be closely monitored with the number of cases rising.	Lewis Banks	Yes	
6	Dec-19	Results of surveys which may necessitate alterations to proposed works scope or methodology	<b>Change in proposals</b> There also is a possibility that the data may provide results that may require change in what we propose as improvements.	Likely effect is that a delay would be caused	Strategic	Open	Distant	May-20	Ensure all investigations are carried out at an early design stage	Lewis Banks	Mar-20		2	2	4		This risk will be monitored	Lewis Banks	No	
8	Dec-19	Public and stakeholder objections	<b>Consultation</b> There is good possibility that we may receive objections for the improvements that we may decide to undertake for the project.	Likely effect is that a delay would be caused	Political	Open	Distant	Dec-19	Early consultation/notification as deemed necessary by PCC. Develop publicity strategy and liaise with businesses/residents affected by the works and scheme mobilisation	Lewis Banks	TBC		2	2	4		This is a possible risk, but we feel confident that it can be dealt with should it arise.	Lewis Banks	No	
10	Feb-20	Failure to achieve project outcomes	<b>Not meeting outcomes</b> Preferred option does not deliver the original project outcomes	likely effect is the scheme will not resolve the original problems identified.	Political	Open	Distant	Feb-20	Scheme objectives will be developed based on the problems identified at the junction and the wider policy objectives. Options will be scored against scheme objectives to ensure that they fit with what is to be achieved.	Lewis Banks	TBC		2	2	4		Not an issue at the moment, but will be monitored.	Lewis Banks	Yes	
11	Feb-20	Poor value for money	<b>BCR Score</b> BCR for scheme is poor/low value for money.	Likely effect is the scheme will not be deliverable/funded	Financial	Open	Approaching	Feb-20	Options are developed with a good understanding of the existing problems, including an understanding of the current congestion/delay at the junction. There is a possibility that a preferred scheme would deliver a positive BCR. If a only a poor BCR is achievable, the project will be halted at SOBC stage and not progressed further.	Lewis Banks	TBC		2	2	4		This is a possible risk, but we feel confident that it can be dealt with should it arise.	Lewis Banks	No	
12	Feb-20	Unknown STATS	<b>Unknown Stats</b> STATS may be found at the junction and cause a delay to design or construction if not found early enough	Likely effect is that a delay would be caused	External	Open	Approaching	Feb-20	STAT Plans are being requested at an early stage of the project prior to design to ensure engineers are aware of the STATS that are present within the vicinity of the junction	Lewis Banks	TBC		2	2	4		This is a possible risk and will therefore be monitored.	Lewis Banks	No	
13	Feb-20	Unknown Environmental Issues	<b>Environmental Issues</b> Environmental issues such as noise, air or ecology may cause a delay to design and construction if suitable mitigation approaches not considered	Likely effect is that a delay would be caused	External	Open	Approaching	Feb-20	Desktop Environmental study will be undertaken at SOBC stage to identify any possible environmental issues. At OBC stage an environmental report will be undertaken to identify any environmental impacts and mitigation measures	Lewis Banks	TBC		2	2	4		This is a possible risk and will therefore be monitored.	Lewis Banks	No	
14	Feb-20	Adverse publicity	<b>Disruption to network</b> There is possibility that adverse publicity may be received due to the disruption to the network during construction	Likely effect is that a delay would be caused	External	Open	Distant	Feb-20	Advise the public as early as possible about the construction timetable. Avoid busy periods such as christmas to minimise the delays to travelling public	Lewis Banks	TBC		2	2	4		This is a possible risk and will therefore be monitored.	Lewis Banks	No	
16	Oct-20	Delay in obtaining approval to commence next stage of the project - OBC Raising order to Skanska	<b>Delay to start of OBC</b> Due to not receiving approval it becomes difficult to set time frames for programme of works.	We will not be in a position to raise an order. Skanska will not be able to start work on the Outline Business Case.	External	Open	Approaching	Oct-20	We will monitor when the review of the SOBC will be completed and will then look for the upcoming board meeting where we can request approval to commence the next stage. A draft programme will be prepared looking at timescales for each of the tasks.	Lewis Banks	Jan-21		2	2	4		This is a possible risk and will therefore be monitored.	Lewis Banks	No	
2	Nov-19	Delay in obtaining approval to commence project Raising order to Skanska	<b>Fully spending grant within financial year</b> Due to the project starting late, it will become difficult to spend all of the grant allocated (£150k) before end of March 2020.	There will be grant unspent, which could impact future grant allocations for other projects.	Financial	Closed	Imminent	Mar-20	To hold a meeting with Skanska to discuss what can be achieved within funding period. Also inform CPCA at the earliest opportunity so that the necessary processes and approvals are obtained in order to slip the unspent grant allocation into 2020/21.	Lewis Banks	Feb-20	Apr-20	3	3	9		We are currently working with our internal finance team and Skanska colleagues to understand how much we think we are likely to spend in 2019/20 - UPDATE Project is to continue into 2020/21.	Lewis Banks	Yes (Corporate)	Apr-20
5	Oct-19	Delay in obtaining approval to commence project Raising order to Skanska	<b>Time frames for delivery</b> Due to not receiving approval it becomes difficult to set time frames for programme of works.	Skanska will not be able to provide accurate programme of works for the project. Therefore it will not be known how much of the budget will be spent.	Financial	Closed	Imminent	Jan-20	Utilise Peterborough Highways contract to ensure best use of available time and resources. Getting the programme confirmed early so that arrangements can be made to slip money if required.	Lewis Banks	Dec-19		2	3	6		We are working closely with our Skanska colleagues and providing them with an update as to how we are progressing with the approval process.	Lewis Banks	No	Jan-20
1	Feb-20	Delay in use of PTM3	<b>Modelling Issues</b> The PTM3 Saturn Model is still being validated and therefore any delays to the PTM3 programme will impact on this programme	Likely effect is that a delay would be caused	External	Closed	Imminent	Oct-20	Priority is being given to the PTM3 project in terms of resources to ensure it is ready to test options for this project.	Lewis Banks	Apr-20	Oct-20	2	2	4		There is a delay to the PTM and we are monitoring this risk. - UPDATE issues are still being experienced hindering progress therefore score has been increased. FURTHER UPDATE - model now validated, therefore score has been reduced.	Lewis Banks	No	Oct-20
4	Dec-19	Inaccuracy or delay in receiving survey information	<b>Data Issues</b> Issues with the data such as a road closure/accident may not provide accurate data.	If needed we may decide to undertake another survey to provide us with more data to analyse.	Strategic	Closed	Close	Oct-20	We will plan to schedule the survey at a time when there are no other road works on the network close to the site of the survey. We will contact survey company at an early stage so they can provide a date when the survey can be carried out to avoid a delay, if there is a delay then we will contact other survey companies to ask if they have availability/resource to carry out the survey.	Lewis Banks	Feb-20	Oct-20	2	2	4		This is a possible risk, but we feel confident that it can be dealt with should it arise.	Lewis Banks	No	Oct-20
7	Sep-19	Delay in obtaining approval to commence project	<b>Unable to raise order to Skanska</b> Without approval to start the project we will not be able to get a works order over to Skanska.	Skanska will not be able to start work on business case.	Financial	Closed	Imminent	Jan-20	To hold a meeting with Skanska to discuss order and schedule of works for rest of the financial year	Lewis Banks	Dec-19		2	2	4		Currently working on internal governance process to get approval to raise order.	Lewis Banks	No	Jan-20

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