

REPORT

Whittlesey Relief Road Study

Business Case Inception Report

Client: Fenland District Council

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Revision History

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A1 Flood Risks

Executive Summary



Introduction

Whittlesey Town Council, with the support of Fenland District Council has commissioned this inception study from Royal HaskoningDHV for the purpose of assessing the rationale for providing a Whittlesey relief road. The study aligns with stage 0 of the Cambridgeshire and Peterborough Combined Authority (CPCA) scheme development process and is an essential preparatory step in determining the merits of proceeding to a Strategic Outline Business Case for the scheme.

The need for the study has arisen from concerns on the part of Whittlesey Town and Fenland District Councils, that immediate development pressures and the potential for long term growth could seriously overtax the road network in Whittlesey, leading to traffic congestion and wider economic and social problems

The study report contains the following:

- (i) A statement of the rationale for the scheme, covering the identified problems and opportunities addressed by a scheme;
- (ii) A description of what would happen if the scheme was not provided;
- (iii) A review of key background policies and previous work done;
- (iv) A set of critical scheme objectives;
- (v) A description of the scheme's scope and key constraints and dependencies;
- (vi) An initial view of scheme options; and
- (vii) Programme considerations.

The key findings are summarised in the form of a response to the following direct questions:

- What is the case for a relief road?
- How strong is the case likely to be?

What is the Case for a Relief Road?

Having identified the economic, social and environmental problems and opportunities, the principal benefits of the considered relief road would arise from:

- Facilitating economic growth in Whittlesey, Fenland and the wider subregion;
- Diversion of through traffic away from Whittlesey, improving journey reliability and reducing travel time;
- Relief of parallel routes when diversions are needed;
- Improved environmental conditions in the town; and,
- Road safety improvements in the town.

How Strong is the Case Likely to be?

In strategic terms, the importance of the scheme in delivering objectives set out in the Fenland DC Development Plan is established. This is supported by the Government's recommended 'Green Book' approach that *"The primary reason for implementing all proposals is not a Benefit to Cost Ratio (BCR), but it is to meet the "business need" identified early in developing the rationale for the proposal, this takes place at the start of developing the strategic (dimension of the business) case"*.

Set against this is the likely significant capital cost of the scheme, the result of the challenging fenland ground conditions in the area.

This means that in mathematical 'value for money' terms, the scheme's benefit to cost ratio (BCR) may not be high, however, this is systemic of major investment schemes. Therefore, it would be the cumulative benefits of the established strategic case and the BCR that would inform the weight of the relief road's business case.

At this early stage of development, it is not possible to undertake a standard value-for-money calculation on the relief road proposal. However, there is a possibility that a 'Dependent Development' position could occur, if it is not possible to proceed with a development scheme without sufficient infrastructure capacity being available and where the scale of expenditure required falls well beyond the viability thresholds of a development scheme to support it. This could be the case at Whittlesey.

With high level assumptions of dependency, the dependent development (benefit) value for Local Plan based residential units could be as much as £74.24m, with a further £34.85m associated with employment land, based on current Local Plan growth.

These numbers need model-based verification, but it does show the substantial value that may be derived from dependent development. When combined with benefits of environmental improvement and reduced traffic delays, a strong case appears feasible and it is recommended that further work is carried out to determine its viability.

Conclusion

Having examined the economic, social and environmental problems and opportunities and evaluated scheme options against strategic objectives, it is established that there is a sound strategic case for a Whittlesey Relief Road proposal.

Initial high-level consideration of the scheme's potential benefit to cost ratio (BCR), examining similar highway schemes in the region and value from 'Dependent Development', indicates that there is potential for the capital costs to be offset or demonstrate a viable scheme.

It is therefore concluded there is sufficient evidence to justify scheme progression, and it is recommended that the scheme proceeds to the next appraisal stage, namely, the Strategic Outline Business Case.

1 The Proposed Whittlesey Relief Road

1.1 Introduction

Whittlesey Town Council, with the support of Fenland District Council has commissioned this inception study from Royal HaskoningDHV for the purpose of assessing the rationale for providing a Whittlesey relief road. The study aligns with Gateway 0 of the Cambridgeshire and Peterborough Combined Authority (CPCA) scheme development process and is an essential preparatory step in determining the merits of proceeding to a Strategic Outline Business Case for the scheme.

The need for the study has arisen from concerns on the part of Whittlesey Town and Fenland District Councils, that immediate development pressures and the potential for long term growth could seriously overtax the road network in Whittlesey, leading to traffic congestion and wider economic and social problems in the town and possible obstacles to growth at all levels within the CPCA area. The study therefore considers the strength of case for action, the key objectives for scheme development and the options that address the objectives.

1.1.1 Background

Whittlesey is a market town of medieval origin with a population of approximately 16,000 lying immediately east of Peterborough, whose urban fringe lies some 4km from the western boundary of the town. The A605 passes west to east through Whittlesey and is the main thoroughfare connecting Peterborough and its Fenland hinterland, including Whittlesey, the principal Fenland town of March and a wide swathe of smaller settlements and rural villages.

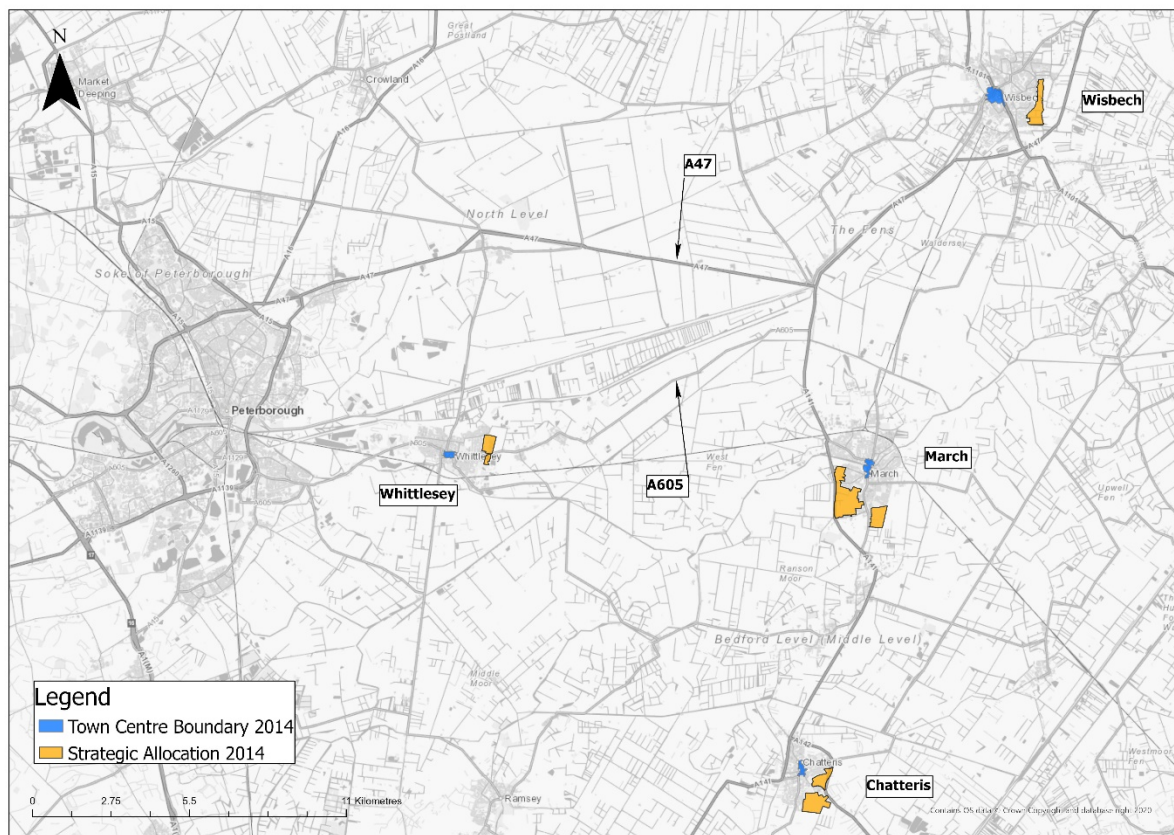
The town is otherwise served by lesser, rural roads, with the B1040 being the principal north-south route, meeting the A605 at a key town centre junction. Whittlesey is served by rail and bus services which provide frequent links with Peterborough, reflecting its proximity and influence on local travel movements. The location of Whittlesey in relation to Peterborough and the other principal Fenland towns, with their related 2014 Local Plan strategic development sites, is shown in **Figure 1.1**.

1.1.2 Why a Relief Road?

The desire for a relief road for Whittlesey has existed as an aspiration for a number of years, with its potential value rising commensurately with increasing baseline traffic over time and paralleling the growth of Peterborough. This is particularly the case after Peterborough's designation as a New Town in 1967 and its gradual rise as an outlier for London commuting.

More recently, an ambitious growth strategy has come forward in the Fenland District Council area, partly stemming from planning targets set by Government and partly owing to the CPCA's expansive view of the future based upon the Cambridgeshire and Peterborough Independent Economic Review 'CPIER'. The CPIER aspires to double the size of the economy in Gross Value Added (GVA) terms over 25 years. If such levels of growth were to be realised, there would likely be significant transport impacts for the Fenland district and within Whittlesey in particular.

Figure 1-1: The Location of Whittlesey



Source: Royal HaskoningDHV

Local opinions on transport matters were highlighted and acknowledged in the 2012 Market Town Transport Strategy (MTTS)¹. The reasoning contained in this strategy relating to a requirement for a relief road remains valid due to ongoing concerns with traffic growth in the area and underpins the continuing arguments for delivering a relief road for the town.

As part of the community surveys carried out to support the MTTS, a bypass was identified as “one of the key pieces of infrastructure that many local people would like to see for the town ... that also provides access to the industrial area to the south of the town”.

The strategy notes that “the A605 runs parallel to the A47 Trunk Road between Peterborough and Rings End but is not normally heavily used as an alternative route for through trips, although when there are incidents it is used as an alternative route”, indicating a relationship between the local and trunk routes.

The strategy identified a critical issue that relates to freight movements: “The A605 forms part of Cambridgeshire’s Strategic Advisory Freight route and as such, HCV traffic is quite heavy through the town. There is a 7.5 tonne HCV ban within the town which broadly covers the central area to the south of the A605 between High Causeway and Broad Street and London Street and the A605”.

The important link with development planning strategy and growth was also identified in the strategy as follows: “Within the (emerging) Fenland District Council Core Strategy, Whittlesey is identified as a focus for

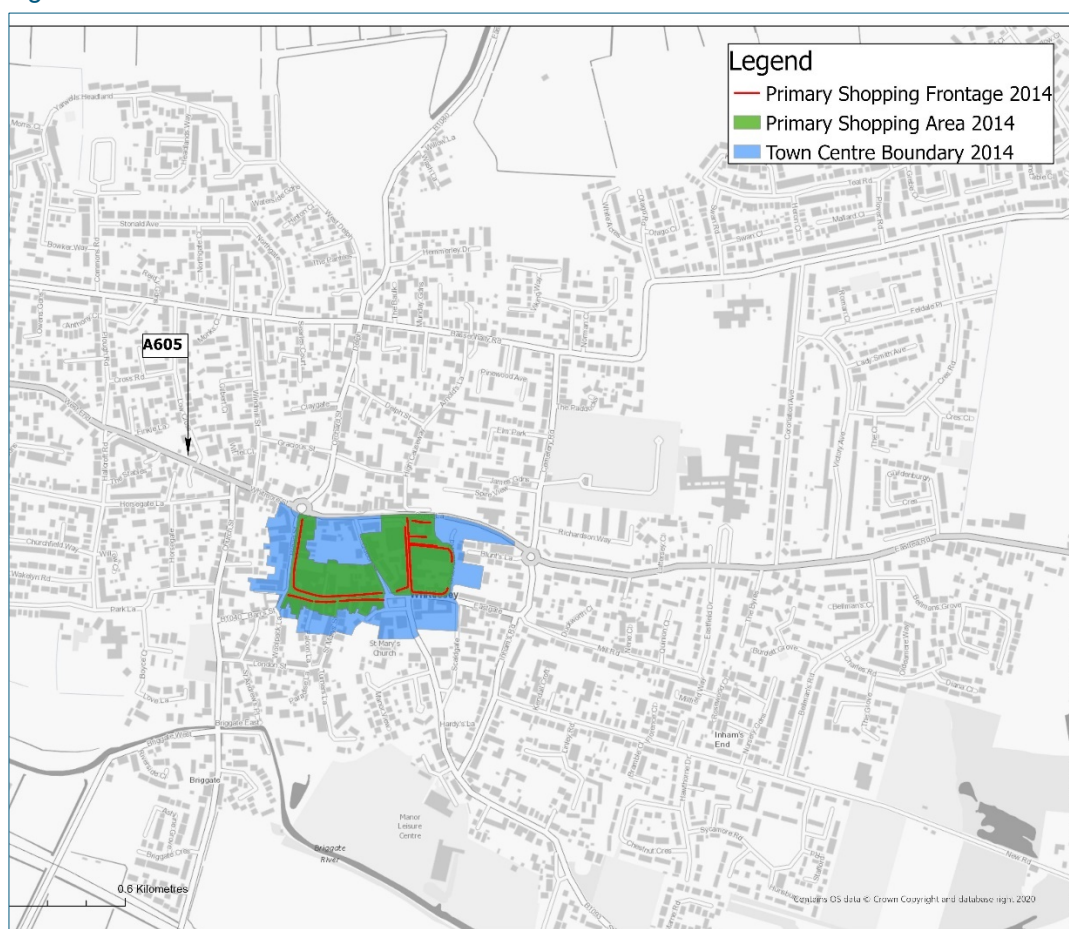
¹ Whittlesey Market Town Transport Strategy – Cambridgeshire County and Fenland District Councils: Nov 2012

housing, employment and retail growth. Between 2011 and 2031, housing growth comprising a minimum of 1,100 new homes is expected in Whittlesey”.

A key issue identified in the strategy concerns the historic environment of Whittlesey town centre, with the document stating the following: “There is scope for ‘place-making’ measures, such as environmental improvements, to enhance the physical appearance of the town centre, which is dominated by the A605 running through the town. This will also be assisted by new development contributing to retaining the character of this historic market town”.

The town centre conservation area and location of the most sensitive streets is shown in **Figure 1.2**.

Figure 1-2: Sensitive Town Centre Area



Source: Royal HaskoningDHV

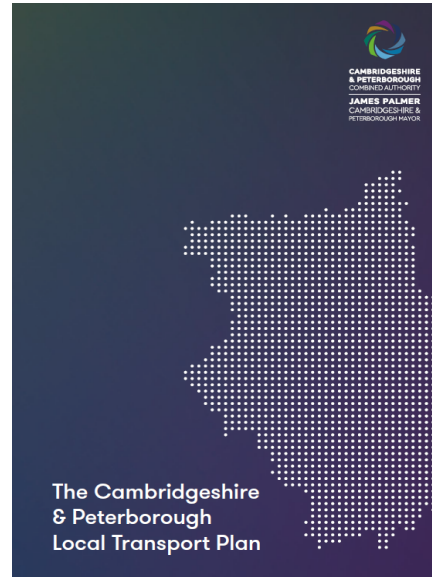
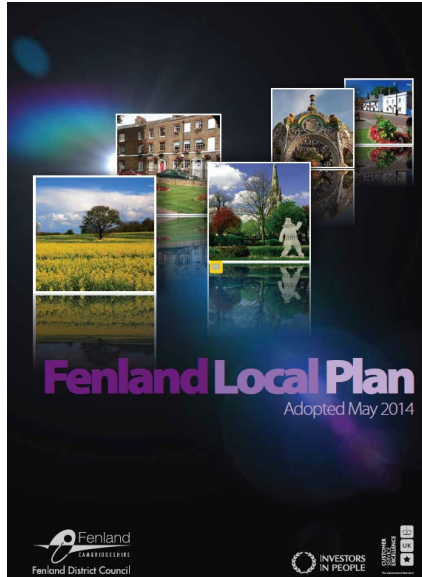
Within Whittlesey, the scheme would produce a number of benefits, most of which were originally identified by the MTTs. These include:

- The reduction of HCVs (lorries) traversing the town, including those heading to / from the trading estates located off Station Road;
- The reduction of the overall volume of traffic passing through the town;
- The enablement of local environmental improvement and economic development; and,
- The support of delivery of the local Development Strategy as expressed through the Local Plan.

The above listed benefits have both local and strategic dimensions with support of delivery of the local Development Strategy being particularly important. At a strategic level, the adopted Fenland Local Plan (2014) identifies a comprehensive framework of objectives, of which the most relevant to a relief road are:

- Minimising the irreversible loss of undeveloped land;
- Avoiding damage to designated sites and protected species;
- Preserving and enhancing buildings, monuments, sites, areas and landscapes that are designated or locally valued for their heritage interest; and protecting/ enhancing their settings;
- Creating places, spaces and buildings that are well designed, contribute to a high-quality public realm and maintain and enhance diversity and local distinctiveness of townscape character;
- Limiting or reducing vulnerability to the effects of climate change;
- Reducing emissions of greenhouse gases and other pollutants;
- Improving the quality, range and accessibility of services and facilities;
- Helping people gain access to a range of employment and training opportunities; and
- Supporting investment in people, places, communications and other infrastructure to improve the efficiency, competitiveness, vitality and adaptability of the local economy.

The importance of these plan-based objectives is that they indicate and guide how a successful scheme can be appraised, and how success can be judged upon completion.



The local approach as set out in the above documents align completely with the high-level goals of the CPCA, expressing the desired wider outcomes for the transport network in Cambridgeshire and Peterborough to:

- Deliver economic growth and opportunity for all our communities;
- Provide an accessible transport system to ensure everyone can thrive and be healthy;
- Preserve and enhance our built, natural and historic environment and implement measures to achieve net zero carbon, meeting UK Government targets and any potential stretch targets within the emerging Local Plan.

1.2 The Scheme

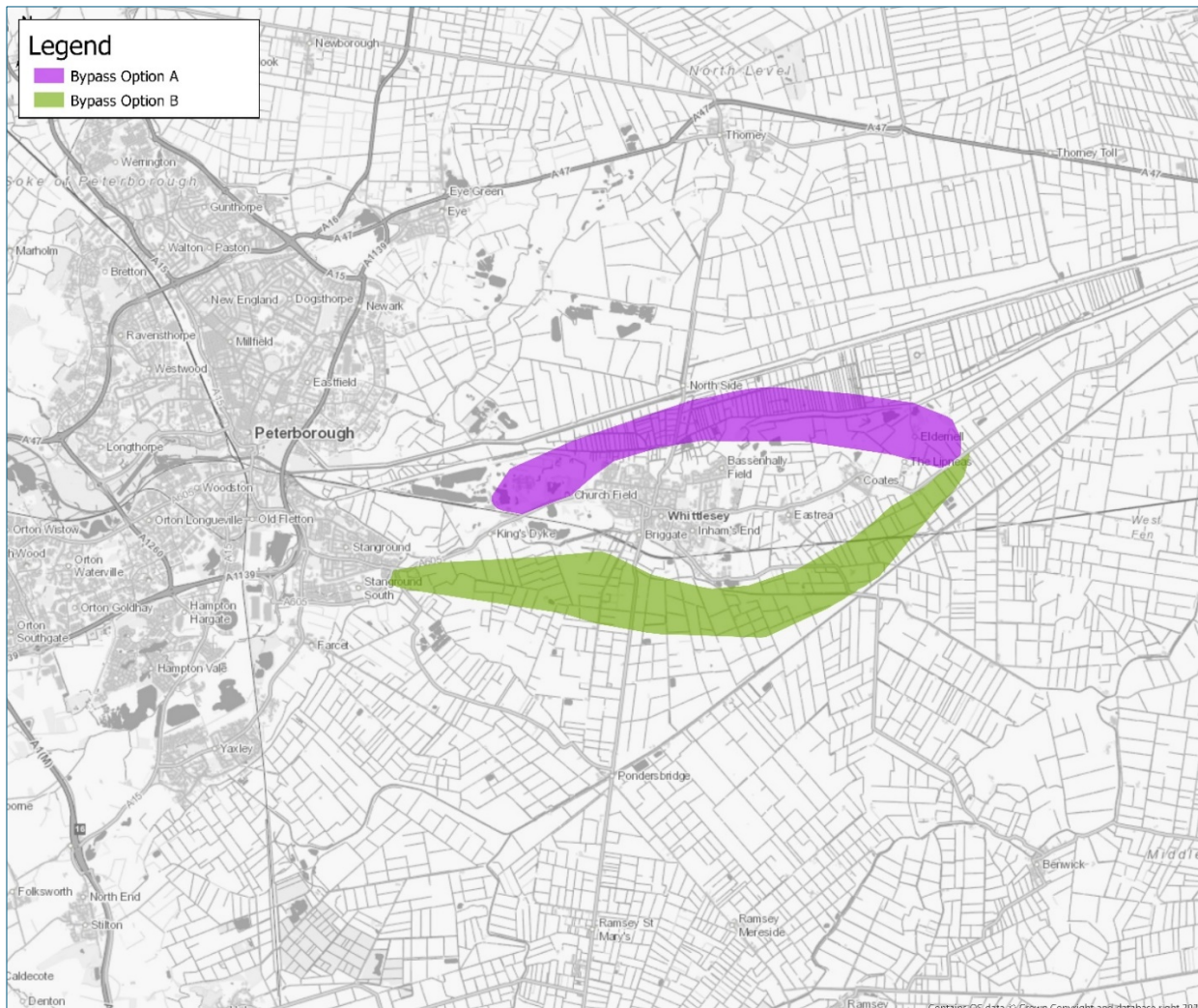
The relief road scheme initially proposed would run from the vicinity of Cardea roundabout in Peterborough to the Coates area east of Whittlesey, bypassing the town to the south. This option is set out in the 'Growing Fenland²' report on Whittlesey, produced by and on behalf of all affected Local Government stakeholders.

Within the Growing Fenland scheme description there are a number of potential options to be considered, including:

- i. The possibility of aligning the road north of the town, rather than to the south;
- ii. The exact route alignment to be followed; and,
- iii. Details of the tie-ins to existing highways.

The potential route corridors around Whittlesey are shown in Figure 1.3 below.

Figure 1-3: Corridor Options North and South of Whittlesey



Source: Royal HaskoningDHV

²Growing Fenland: Whittlesey, A market town for the future - CPCA, FDC, CCC & Whittlesey TC (2020)

Construction of either alignment would require significant capital expenditure, owing to the prevailing Fenland ground conditions and the number of structures that would be needed to cross the railway and various dykes along either respective route.

With cost and affordability of new construction being a key issue, it is necessary to consider if any other options of lower cost may also address the key problems and opportunities of Whittlesey and the Fenland District Council area more widely.

Work carried out as part of the MTTs and for the former Cambridgeshire Local Transport Plan (LTP) both pointed to alternative packages of investment to improve Whittlesey's transport situation without immediately seeking to promote a relief road.

This approach has led to the development of an investment package including replacement of the Kings Dyke level crossing with a bridge and the planned improvement of Whittlesea station.

1.3 Stakeholders

Relevant project stakeholders extend beyond the previously identified Town and District Councils, comprising neighbouring and strategic Local Government, organisations with commercial interests and others relevant parties. Key stakeholders are summarised in **Table 1.1**.

Table 1.1: Key Stakeholders

Stakeholder	Role
CPCA + Elected Mayor	The strategic authority for Cambridgeshire, with a specific remit covering transport. Strategy and programme development, approvals and assurance are ultimately the responsibility of the Combined Authority and its elected mayor.
Whittlesey Town Council	Directly represents the local community's interests in respect of all key matters affecting local life in Whittlesey. The funder of this study who works closely with Fenland D.C. on local initiatives.
Fenland District Council	The key stakeholder in facilitating development of the scheme as Local Planning Authority.
Peterborough City Council	Unitary authority neighbouring Whittlesey which works closely with the County Council, CPCA and related Districts on transport and planning matters.
Cambridgeshire County Council	Upper tier local authority with responsibilities including 'Highway Authority' (management + operation) function, necessarily covering Whittlesey
Internal Drainage Board (IDB)	Drainage is managed by IDBs. Those concerned in this case are the North Level IDB and the Whittlesey Consortium of Internal Drainage Boards (WCIDB)
Highways England	Manager of the strategic highway network. In Cambridgeshire responsible for promoting and developing proposals for upgrading the A47 (A1 - Peterborough – Wisbech – Kings Lynn) in conjunction with the CPCA, a route which may interact in traffic management terms, with the A605 through Whittlesey.

Stakeholder	Role
Network Rail	Network Rail run, maintain and develop Britain's national rail tracks, signalling, bridges, tunnels, level crossings and key stations. Scheme options could interface with the rail network at several points.
Rail Operators	Operators will have an interest if development options interrupt normal rail service provisions
Department for Transport (DfT)	DfT works with agencies and partners to support and develop the transport network. They will have a strong interest as the ultimate funding body for local transport expenditure and as a sponsor of national infrastructure proposals.
Environment Agency	Responsible, with local authorities for flood management and prevention work in an area vulnerable to seasonal and exceptional water environment risk events
Local businesses	Engagement with landowners and local businesses affected by the scheme is needed to manage any impacts arising from the development work, particularly construction. Businesses will ultimately benefit from the enhanced connectivity provided to market their services and to draw new employees.
Development interests	Development interests may be attracted to Whittlesey to bring forward schemes to take advantage of the improved accessibility within the town and through its proximity to Peterborough and other areas in the County and beyond.

Source: Royal HaskoningDHV

At present, the lead stakeholder who could act as scheme promoter has not been identified although it is assumed the CPCA would be best placed to take this role.

1.4 Development Methodology

The report includes the following items:

- A statement of the rationale for the scheme, covering the identified problems and opportunities addressed by a scheme;
- A description of what would happen if the scheme was not provided;
- A review of key background policies and previous work done;
- A set of critical scheme objectives;
- A description of the scheme's scope and key constraints and dependencies;
- An initial view of scheme options; and
- Programme considerations.

Identifying the scheme objectives is a critical output as it is these which define how well different options might perform (i.e. critical success factors), with this consideration demonstrating whether it is likely that one or more options could offer potential for more detailed development and evaluation. The critical objectives in practice will need to be developed in consultation with Fenland District Council and the CPCA. An initial view of what the critical objectives might include is provided in this document.

As this is an early-stage study, it would not be possible to provide a definitive answer on the best option for a relief road, nor its potential value for money. However, it has been possible to present the outcome of structured consideration relating to scheme options and to conduct a qualitative assessment of such options.

This includes an evaluation of the critical objective and the relative impacts (both positive and negative) of the options expressed in economic, social and environmental terms.

1.5 Business Case Methodology

Business cases provide the results of a structured methodology, with a view to supporting (or otherwise) an intervention in a specific field. The approach starts from a position where an issue is recognised but a potential promoter is agnostic as to the solution, enabling an objective approach to be adopted.

Business cases proceed through a staged approach, with increasing levels of detail incorporated in the analysis as work progresses. The staged approach comprises an interdependent set of five elements, as follows:

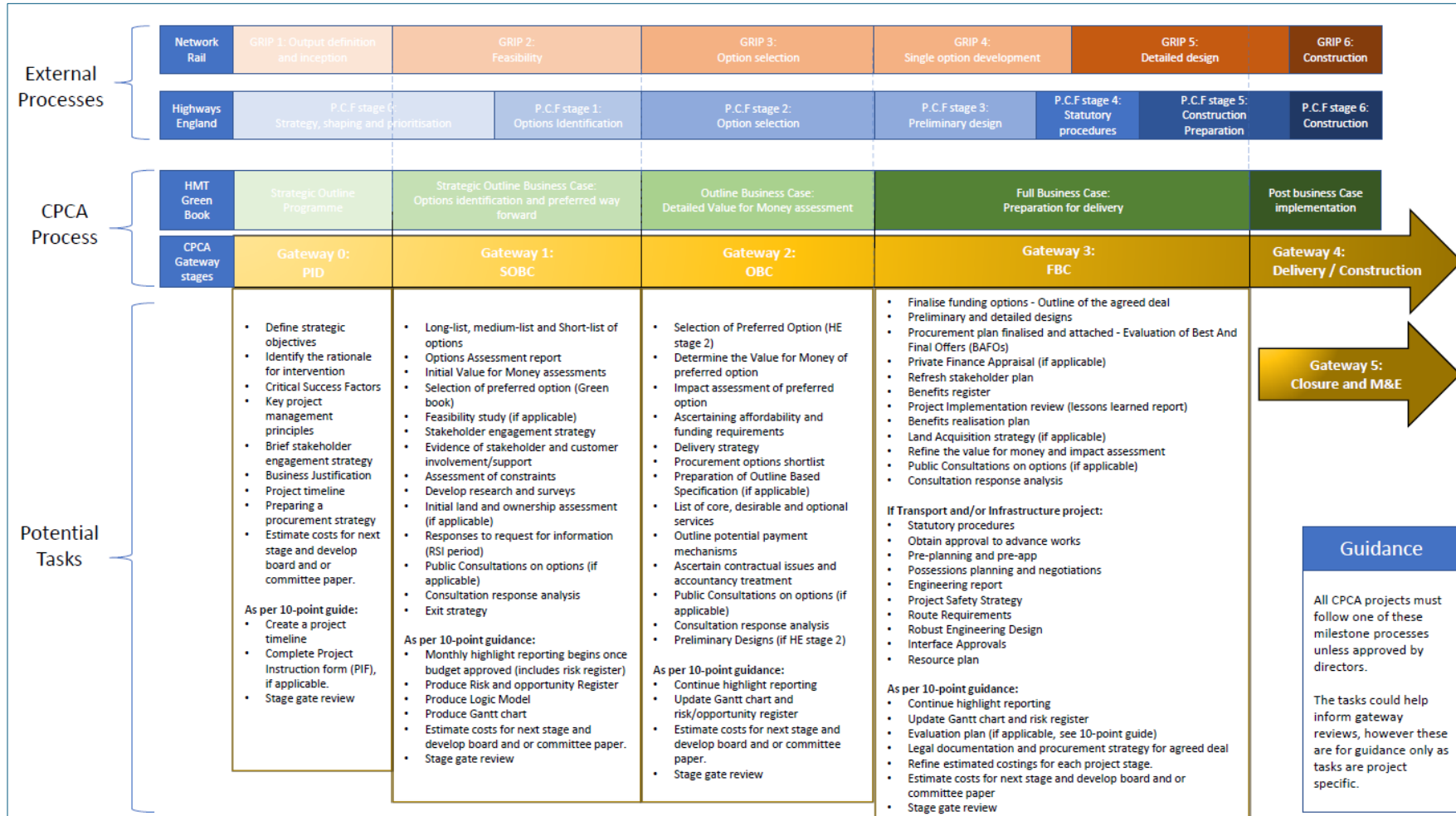
1. **Strategic Case** – demonstrates that the scheme fits within wider public policy objectives. Identifies the core scheme, provides a justification for how it will address issues and sets out the key objectives;
2. **Economic Case** – based on a range of assessment criteria the Value for Money case seeks to demonstrate (or otherwise) that the scheme is Value for Money;
3. **Financial Case** – assesses whether the scheme is financially affordable. This case provides a synopsis of the proposed schemes costs and how it is to be funded and financed;
4. **Commercial Case** – assesses whether a scheme is commercially 'viable'. Provides a client position with regards to procurement, risk, contracts and human resources in relation to the scheme; and
5. **Management Case** – Assesses whether the scheme is achievable. Details the project programme and the necessary governance for its delivery, thereby providing direction and assurance.

Stage 0 of the CPCA scheme appraisal process is tied to the Strategic Case phase, therefore the other elements are not covered in the present document.

Figure 1.4 sets out the CPCA processes for transport scheme progression, aligned against HM Treasury Green Book, Network Rail and Highways England project development stages. This inception study is compliant with the Treasury Green Book³ guidance and informs Gateway Stage 0 on the CPCA scale, permitting the Authority to determine if the scheme is eligible for development of a business case.

³ <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2020>

Figure 1-4: CPCA Transport Delivery (Assurance) Process



Source: CPCA

2 The Policy Context

2.1 Overview

The policy backdrop to the Whittlesey relief road proposal is relatively straightforward, with clear guidance relevant to the scheme emanating separately from national and local sources. Accompanying the policy framework is the partnering local government organisational set up and its funding system which are of critical importance to how schemes are progressed in practice.

The philosophy and direction of national policy is geared towards economic recovery, particularly in the post-Covid context. 'Build Back Better' has been coined as the motivational brand and adopted as the title of a co-operative Business Council involving key figures from Government and business. Schemes aiming to build back better can therefore fairly claim support in principle from the national policy direction and relevant details applying locally.

2.2 Key National Policies

2.2.1 National Planning Policy Framework (NPPF)

The NPPF was first issued by Government in March 2012 (latest iteration dates from 2019) as a guide on plan preparation and decision-making guidance for local planning bodies.

The document includes the significant statement that *"The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs"*.

This definition of sustainability is not 'anti-growth' but is instead intended to ensure that developments should aim to achieve net gains across economic, social and environmental objectives. The policy positions 'sustainable development' as the means to that end.

Relevant to the Whittlesey relief road proposal, the main import from NPPF is that such a scheme should clearly:

- be linked to local economic strategies and the spatial planning policies;
- support meeting anticipated needs;
- address barriers to investment, such as inadequate infrastructure;
- be able to respond to changes in circumstances; and
- recognise and address the specific locational requirements of different sectors.

The NPPF notes that the planning system should take full account of flood risk and help to "minimise vulnerability and improve resilience".

It is also noted that "Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere⁴".

This is particularly important given Whittlesey's context and the limitations it places for locating new development and supporting infrastructure.

⁴ National Planning Policy Framework (DCLG Feb 2019 - para. 155)

2.2.2 Climate Change

The UK government signed up to a series of international agreements (notably the EU Climate and Energy Package, first adopted in 2008, and later in the 2015 Paris Agreement) to mitigate global warming and tackle local pollution through a more intensive use of clean energy as opposed to fossil fuels. To that end the Government has signed up to a 'net zero' commitment on greenhouse gas emissions by 2050.

In parallel, the Government has also defined its national environmental targets (Climate Change Act, 2008) which are annually assessed by the Committee on Climate Change.

The Committee's Sixth Carbon Budget report (December 2020) contains an assessment of progress towards achieving the national goal and setting out the suggested pathway to achieving the goal in the future. In respect of surface transport, it is noted in the report that:

- Total emissions from surface transport in 2019 were 113M tonnes CO₂e, comprising 22% of total UK greenhouse gas emissions.
- These are primarily tailpipe emissions from fossil-fuelled road vehicles, with cars (68M tonnes), vans (20 M tonnes) and heavy-goods vehicles (19M tonnes) the largest contributing types.

Transport activities, due to their interaction with energy, environment and land use, have a direct impact on both local atmospheric pollution and global warming but also impact on wider definitions of sustainability, such as the economic vitality of territories impacts on social inclusion.

With relevance to the Whittlesey relief road project, the policy alignment must be based on the way the infrastructure proposal supports development strategically as an engine for delivering a more sustainable future and locally in facilitating development of a less carbon-intensive lifestyle. This stance, coupled with the direction of technological change, tends to offset arguments that road building inevitably leads to increased greenhouse gas emissions.

2.2.3 Rebalancing the UK Economy

In 2017, the Department for Transport released a suite of documents addressing the issue of rebalancing the UK economy⁵. Though Cambridgeshire is not usually considered an area of deprivation, this is not true of the Fenland District Council area, which qualifies for rebalancing under the Government's levelling up agenda.

Using the toolkit included in the rebalancing document enables the economic implications of a Whittlesey scheme to be clearly set out, as shown below.

Table 2.1: Rebalancing Implications of the Whittlesey Scheme

Ref	Rebalancing Toolkit Questions	Commentary
1.1	What is the geographical scope of the scheme	The immediate vicinity of Whittlesey town
1.2	What is the economic and social context of the area	Whittlesey's highway network is unsuited to cope with any significant increase in traffic + economic growth, resulting in poorer conditions within the town for the local community and those travelling through it

⁵ *Strategic Case Supplementary Guidance – Transport Investment Strategy and Rebalancing Toolkit (DfT Dec 2017)*

Ref	Rebalancing Toolkit Questions	Commentary
1.3	Is the scheme expected to have impacts in an area of local or regional deprivation or below average productivity	Yes, the wider area of Fenland and Peterborough affected by the scheme encompasses noted areas of multiple deprivation (IMD)
2.1	What transport barriers are limiting growth in the local area or region	Limited residual capacity on the existing highway network (A605 + A47) will constrain future, planned growth. Alternative modes could offer some relief but also require investment to increase their capacity and effectiveness
2.2	To what extent does the scheme address these barriers, raising economic performance in the local area or region	The proposed relief road would remove immediate barriers to growth in the Fenland market towns and offer local opportunities for environmental and economic activity in Whittlesey
3.1	How have strategic alternatives and options been considered for their impact on regional growth	Considered in the longer-term scheme development context of the CPCA LTP – work is ongoing
4.1	What does the analysis in the economic case and economic narrative say about local and national impacts	Pending: requires future analysis as part of Outline Business Case work
4.2	What are the assumptions and uncertainties of these impacts? Scenarios and sensitivities should be consistent with the economic case	As above
5.1	How is the scheme aligned with other local growth plans	Consistent with FDC adopted local plan and growth strategy. Aligned with principles of the CPCA LTP
5.2	Is there a plan in place with local partners to maximise its overall impact on regional growth	This would be developed using the auspices of the CPCA Growth Board if the scheme achieved Programme Entry
6.1	What are the attitudes of key regional stakeholders (individuals, businesses, Local Authorities, sub-national transport bodies)	The key stakeholders (Fenland DC, Peterborough UA, Cambridgeshire CC and CPCA) are substantively supportive in desiring further development of the concept
6.2	What wider strategic objectives does the project align with, e.g. those in the Transport Investment Strategy	Supportive of the national approach to sustainable development (NPPF) and ‘build back better’ approach, plus positive relationship with Highways England inputs to A47 improvement initiative

Source: Strategic Case Supplementary Guidance Rebalancing Toolkit (DfT Dec 2017 / Royal HaskoningDHV)

2.2.4 Covid recovery

Aside from the evolving picture of national policies to support economic recovery in general, the long-term impacts of Covid on travel demand and changes to travel behaviour need to be considered whenever traffic forecasting and peak travel demand are required. These are live issues for all transport interventions and more so where larger schemes are concerned.

The impact of Covid on traffic levels is a matter of uncertainty and national guidance on traffic growth over the medium term, such as that contained within the national trip end model (NTEM) has not been released. Though guidance will undoubtedly emerge, one possibility arising from the devolution of responsibility for transport expenditure to the CPCA is that local forecasts can be produced and have material ‘weight’ in decision making. This is particularly true bearing in mind the programme of larger schemes that have been proposed for the area.

2.3 Planning and the Cambridgeshire and Peterborough Combined Authority (CPCA)

2.3.1 Local Government Structure

The structure of Local Government in Cambridgeshire has experienced significant change in recent years, with the process of devolution leading to the creation of an administration combining elements of both a fully unitary and a tiered system.

'The 'County' area today is administered by five district councils (Cambridge, East Cambridgeshire, Fenland, Huntingdonshire, and South Cambridgeshire - all traditional lower-tier Districts), Cambridgeshire County Council as upper tier partner to the Districts and then Peterborough, a unitary council. The CPCA has an elected Mayor and a range of strategic powers including transport.

Economic development responsibilities falling under the former Local Enterprise Partnership (LEP) are fully integrated into the CPCA, although the boundaries of the LEP extend beyond those of the CPCA into neighbouring County areas

The resulting pattern of responsibilities within Cambridgeshire is complex, with different elements falling upon different organisations to discharge. The existing arrangement is set out in **Table 2.1** for the main planning and transport responsibilities. The importance of the context is that the prospective Whittlesey scheme must satisfy the planning and funding criteria of this system and the assurance process established to guide development in a logical manner.

Table 2.1: Disposition of Transport Responsibilities in the CPCA Area

	CPCA	County Council	District Councils	Peterborough UA
Non-statutory spatial planning	✓	✓	✓	✓
Infrastructure funding	✓			
Local transport planning	✓			
Public transport	✓			
KRN management	✓			
Business rates	✓	✓	✓	✓
Council tax precepts	✓	✓	✓	✓
Growth Fund allocations	✓*			
Highway authority responsibilities		✓		✓

Development plan making			✓	✓
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Source: Cambridgeshire and Peterborough Independent Economic Review (2018)

* Growth Funding is devolved to the LEP, integrated with the CPCA.

2.3.2 Cambridgeshire and Peterborough Independent Economic Review (CPIER)

The Economic Review was produced by an Independent Economic Commission established by the CPCA in June 2017. Its formation was timed to support the recently formed CPCA and terms of reference were informed by a requirement to develop an authoritative evidence base on the economic performance and potential of the Authority's area. The Review seeks to inform choices on policy priorities and strategic investment that are made locally, regionally and at national and European levels.

The formation of the Commission was in part informed by concerns that the growth performance of the economy, though very healthy in recent years, may be impacted by Brexit and other factors. Under the circumstances it was felt important to identify what was required to enable the growth trend of recent years to continue. A target of doubling the CPCA GVA (Gross Value Added) in 25 years was stated and later adopted by the CPCA.

Though not generally focused on transport proposals, it is acknowledged within the Review that an ambitious economic agenda would need to be accompanied by a proportionate investment in transport, noting that *"It is vital in our view that the Combined Authority develop an approach to infrastructure in which its ambitious goals are matched by a strategic approach and principles as well as a prioritisation programme and a funding package which will best enable those goals to be achieved"*.

2.4 Regional and Local Plans

2.4.1 Fenland Local Plan

Fenland District Council's adopted Local Plan covers the period 2014 – 2031 and is underpinned by a desire to strengthen the health and wellbeing of Fenland's residents. The Plan:

- Aims to support the building of 11,000 new homes in the period up to 2031, with large new housing areas on the edge of Wisbech, March, Chatteris and Whittlesey;
- Provides land allocations to attract new businesses and jobs;
- Sets out policies to ensure development is of high quality, sustainable and meets the needs of everyone;
- Sets out policies to ensure all the infrastructure, such as play areas, new schools and upgraded sewerage disposal, are provided at the same time as the new homes;
- Refers to an aspirational aim of reducing or removing through traffic on the A605 through Whittlesey. The introduction of a bypass would help achieve this.

Of the planned increase of 11,000 houses⁶ between 2011-2031 in the District, the intention includes at least 1,000 houses in Whittlesey⁶. In the same period an additional 85ha⁷ of employment space is planned to be provided in the District, including 5ha in Whittlesey⁷.

⁶ Fenland Local Plan, 2014, Page 19

⁷ Fenland Local Plan, 2014, Page 26

Given the challenges of flood risk across the district, Whittlesey is likely to remain a focus for growth in the new Local Plan, for both homes and jobs. The market town has the potential to play a significant role in helping to deliver the CPCA and the district's growth ambition with investment in necessary infrastructure to support that growth.

2.4.2 Peterborough Local Plan

The Peterborough Unitary Authority Local Plan states that Peterborough will require 19,440 homes between 2016 and 2036⁸, together with a planned 76ha of employment land. In the eastern area of Peterborough approximately 1,860⁹ dwellings have been allocated in the Local Plan. This includes developments in Stanground, East of England Showground, and Fengate. In the same area of Peterborough, approximately 18.4 ha¹⁰ of land has been allocated for employment use, this includes developments in Newark Road, and Fengate. The Peterborough Local Plan identifies two areas of growth ('urban extension allocations') to the east of Peterborough. Stanground South (Cardea) is located to the south-east of Peterborough and is proposed to include 558 dwellings. East of England Showground is also located to the south-east of Peterborough and is proposed to include 650 dwellings.

There are a number of significant constraints to growth in Peterborough beyond the existing Local Plan period. Given the proximity of Whittlesey to the city there could be an opportunity to explore how a relief road could help to meet the strategic needs of both areas

2.5 Transport Planning

2.5.1 CPCA LTP

The CPCA assumed responsibility for transport planning in Cambridgeshire and Peterborough and has developed an Interim and then a Long Term LTP for its area, intended to act as an overarching strategic document covering the period to 2050, with short and medium term plans to be developed to fill-in policy and investment strategy details dovetailing with expenditure priorities and funding availability.

The LTP identifies a number of major highway and sustainable transport schemes, but not so far, a Whittlesey bypass. Planned expenditure in the area includes upgrades to Whittlesea station and the Kings Dyke level crossing replacement scheme.

The plan does not raise any issues of 'presumption against' a Whittlesey relief road, and therefore a scheme could be categorised as 'for development during the LTP period', assuming a business case has been prepared and the scheme prioritised within the Authority's spending programme.

2.5.2 Fenland Infrastructure Delivery Plan (IDP)

As an intervention plan, the IDP runs in parallel with the adopted Local Plan and links it to the Local Transport Planning context. Certain items of infrastructure and aspirational ideas are featured in the IDP, including:

- Major improvements to the A47, including significant additional dualling;
- Further, major improvements to the public transport infrastructure network, including better train stations, considerably increased services and connections from Wisbech on to the March railway system;
- Reducing, or removing, through traffic on the A605 through Whittlesey.

⁸ Peterborough Local Plan, 2019, Page 87

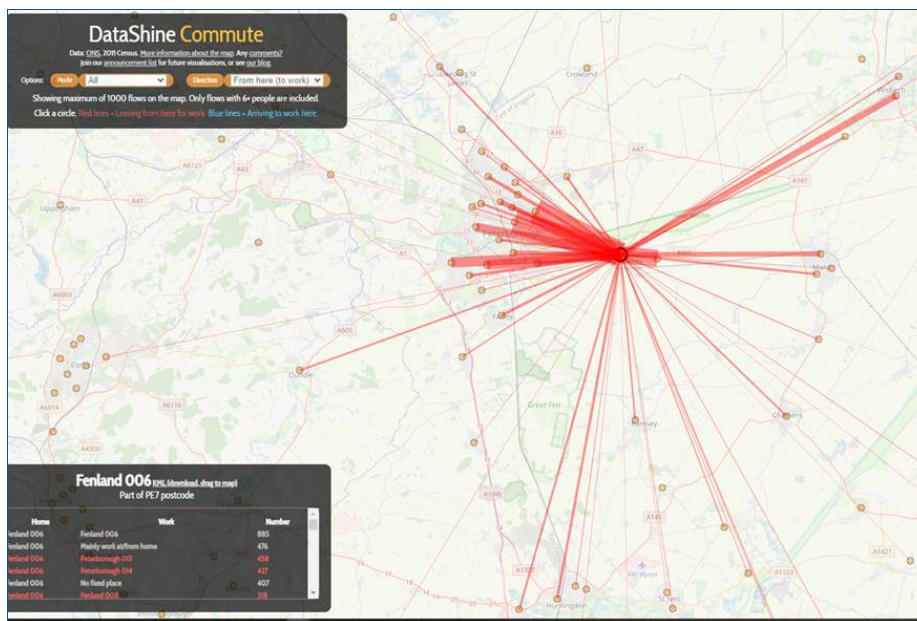
⁹ Peterborough Local Plan, 2019, Page 92/93/94

¹⁰ Peterborough Local Plan, 2019, Page 101

2.5.3 Local Traffic Movements

The current picture of local movement is strongly influenced by the close proximity of Peterborough, as demonstrated in Figure 2.1, with comparatively lower volumes linking the town with other places in Fenland and beyond.

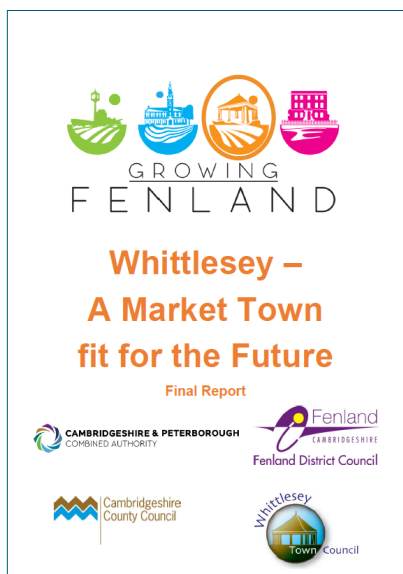
Figure 2-1: Commuting Flows from Whittlesey (based on 2011 Census)



Source: DataShine Commute

2.5.4 Whittlesey - Specific Strategies

The Whittlesey MTTs set out the aspiration for building a bypass for the A605, to divert the road to the south of the town. The document states that an initial feasibility study revealed that the large cost of the scheme would stop a bypass being funded in the short to medium term. However, the strategy does recognise the benefits a bypass would bring, and that Cambridgeshire County Council and Fenland District Council will continue to consider how a bypass scheme can be delivered.



The MTTTS document, produced in 2012 has been followed up in 2018 by one of the 'Growing Fenland' suite of market town plans entitled "Whittlesey, a Market Town fit for the Future".

Paralleling the earlier work, a package of suggested improvements is identified, including a relief road, pointing out that the route should run from Coates to the Cardea Roundabout, so that Heavy Goods Vehicles (HGVs) can access industrial sites from the east rather than adding to the congestion of residential routes, particularly along Inhams Road and Station Road. As well as removing HGVs from the traffic flow and relieving congestion, the benefits of reduced highway maintenance requirements and improved air quality would result from delivery of the proposed relief road.

3 Drivers of Change

3.1 The Local Growth Context

Fenland district covers approximately 200 square miles within Cambridgeshire. It is a rural and sparsely populated district with many diverse communities, each with very different needs. The sub-regional centres of Cambridge, Peterborough and Kings Lynn have a considerable influence on various parts of the district in terms of employment, retail and health provision.

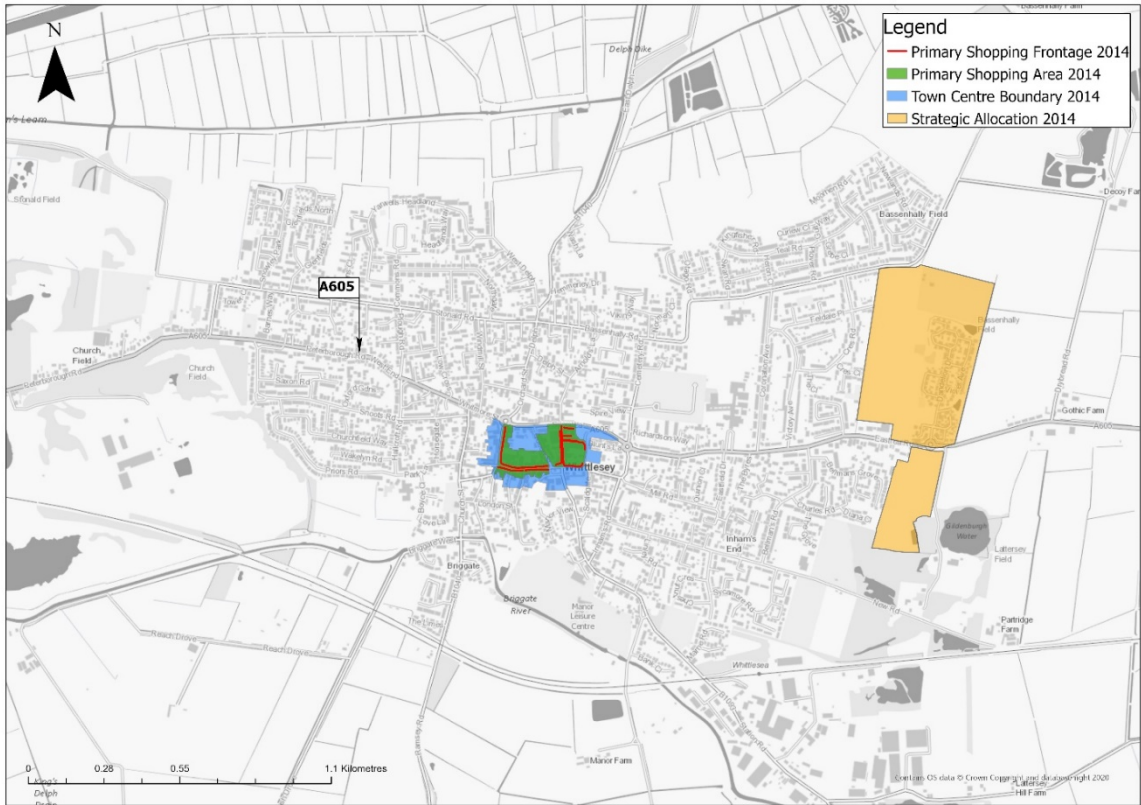
Fenland has experienced considerable housing and population growth in recent years. The 2018 population estimate of 101,500 (ONS) shows considerable growth from the 2011 figure of approximately 95,300, 83,700 in 2001 and 75,500 in 1991. This growth is expected to continue and needs to be planned for.

Despite Whittlesey's proximity to Peterborough, it has a distinct identity and a clear local development agenda separate from that of its neighbour. This is a consequence of its location in bordering Local Planning Authority area, however close interaction between the areas in traffic terms is inevitable.

The adopted Fenland Local Plan of 2014 envisaged a growth strategy focussed on the four main market towns of March, Wisbech, Chatteris and Whittlesey, with lesser growth targets for residential and commercial land uses in selective rural communities.

Whittlesey's principal growth area is located to the east of the town centre on the boundary of the current built up area, as shown in **Figure 3.1**.

Figure 3-1: Whittlesey growth from 2014 Local Plan



Source: Royal HaskoningDHV

The population growth implications arising from this strategy would see Whittlesey's current population of just over 16,000 (including outlying villages) potentially expand by at least 2,370 (15%) assuming an average household size of 2.37 persons¹¹.

The same growth projections also apply to the wider development context, with the possible growth of March being four times that of Whittlesey in real population terms. **Figure 1.1** shows the relative location of March to Whittlesey.

The emerging Local Plan to 2040 currently being progressed reopens the issue of the quantum of growth. As noted, this may well see growth and possibly stretch targets adopted for residential units and employment land.

This growth context represents both a problem and an opportunity for the town of Whittlesey and Fenland District Council. Without infrastructure investment, there is a risk of serious congestion problems being generated in the town and/or a throttling of development in the town (both could occur). The wider implications for Fenland District Council are underperformance against its own targets, increasing pressure in other locations and on the CPCA's targets. By relieving pressures, the opportunity of growth within Fenland and Whittlesey may be unblocked, whilst simultaneously creating local economic growth potential within the town itself.

The presumptive Whittlesey growth targets for residential and employment land have underpinned a series of applications since 2014, the larger ones of which are noted in **Table 3.1**.

Table 3.1: Recent Larger Planning Applications in Whittlesey

Planning Ref.	Development site	Status
F/YR14/0365	Land off Snowley Park – 150 dwellings	Granted
F/YR15/0134	East Delph – 220 dwellings	Granted
F/YR15/0997	Lattersey Field, Benwick Rd – 26,000 m ² B1 + B2 + B8	Granted
F/YR16/0704	North of Syers Lane – 20 dwellings	Granted
F/YR17/1231	East Delph – 220 dwellings (from above)	Granted
F/YR18/0128	Westhaven Nursery – 68 dwellings	RM: Granted
F/YR18/0331	Bassenhally Farm Phase 3 – 110 dwellings	Granted
F/YR19/0264	Westhaven Nursery – 68 dwellings (from above)	VOC: Granted
F/YR19/0761	Lattersey Field, Benwick Rd – 6,094 m ² B1 / B2 / B8 (from 15/0997 above)	Granted
F/YR20/0471	Eastfield Nursery, Eastrea Rd – 169 Dwellings	Granted
F/YR20/0861	Bassenhally Farm Phase 4 – 130 dwellings	Granted
F/YR20/0357	Churchfields Farm, Kings Dyke – 7,432 m ² B1(c) + B8	Granted, but revised down to mitigate high trip generation

Source: Fenland DC Planning Portal

¹¹ ONS UK household size 2019 (Nov 2019)

It has been noted the most recent of these applications raised comments from the County Council's Highways service, that Whittlesey's road network was coming under pressure and that essential mitigation was needed. This issue is further analysis below.

3.2 Transport Challenges

The transport situation in Whittlesey presents a number of challenges to policy makers and the local community. These are a direct result of the volume of flows on the A605 and other local roads impacting road users themselves, the wider group of residents and businesses in the town and those external to Whittlesey. Drawing on the evidence presented in this study, a summary of the local transport challenges and impacts is shown in **Table 3.2**.

Table 3.2: Transport Challenges for Whittlesey

Challenge	Impact
<p>Traffic impacts on Whittlesey – road users and local community</p> <p>Slow speeds and congestion on the A605 within Whittlesey and its surroundings, compared to a 'free flow' situation</p>	Journey delays to through trips and those with either an origin or destination in Whittlesey
	Local environmental problems in Whittlesey and the A605 corridor, particularly noise transmission and poorer air quality
	Safety and severance issues for pedestrians
	Damage to buildings from HCVs particularly
<p>Need for improved resilience</p> <p>Highway network 'level of service' reliability</p>	Journey time unreliability for trips using the A605 within and through Whittlesey
	Potential for diverted trips to use the A605 if other routes are obstructed – A47 and Kings Dyke area (level crossing operation) noted as sources
<p>Release of constraints on growth</p> <p>Network capacity constraining the development potential of Whittlesey</p>	Grounds for refusing applications which would otherwise be acceptable and/or welcomed
	Potential difficulties fulfilling desired Fenland DC growth strategy
	Lowered rates of development
	Approvals could exacerbate problems downstream
<p>Environmental and Social impacts of traffic</p> <p>Lower quality of life attributes in Whittlesey from high traffic presence</p>	Constraints placed on economic activities in the town centre and development of more attractive environment
	Direct environmental and social impacts noted above (safety, noise etc) – not to be double counted
	Poorer accessibility to employment, education, key services and leisure opportunities
	Poorer perception of Whittlesey to local residents and upon potential visitors

Challenge	Impact
	More difficulties developing and realising sustainable transport and living initiatives

Source: Royal HaskoningDHV

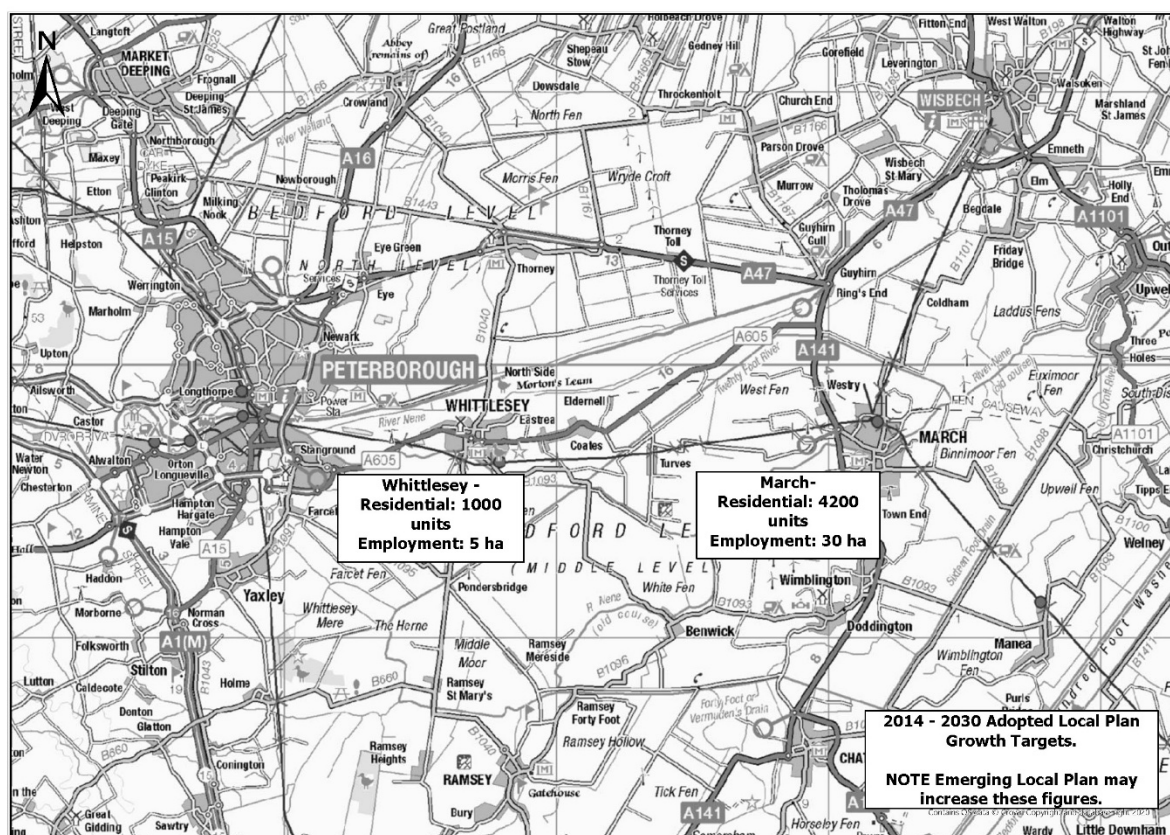
3.2.1 The Strategic Transport Baseline

Two aspects have been identified which are particularly relevant to the relief road proposal, one relates to the level of growth in Fenland district and the other concerns the relationship between the A605 and the A47. Both issues have an underlying link, that of traffic growth in general stemming from the growth of Fenland's main towns.

Transport implications of longer-term development in Fenland

Fenland's ambitious growth strategy was expected to be town-focussed in the Adopted 2014 Local Plan. The plan is currently being updated, so with the caveat that the former approach and targets may be amended, Whittlesey likely faces exposure to both local and strategic transport impacts stemming from the growth agenda. This is partly due to the location of Whittlesey relative to March, which is planned to accommodate significant growth, with traffic demand between March and Peterborough and the wider regional road network likely to impact Whittlesey.

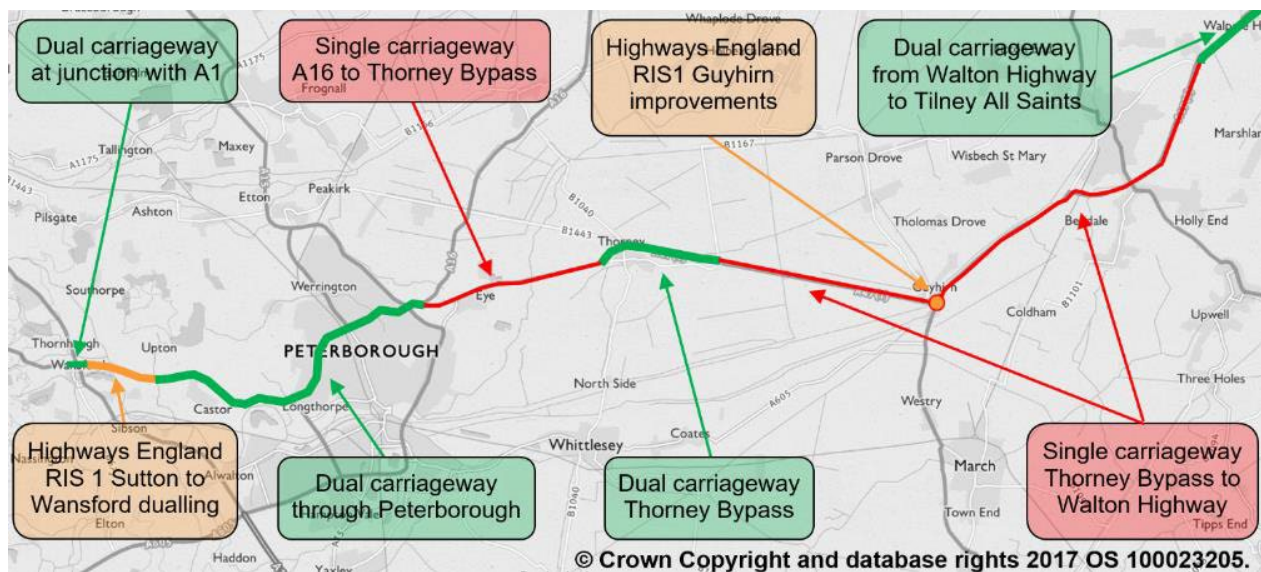
Figure 3-2: March, Whittlesey, Peterborough, Traffic Corridor



The relationship of the A605 and the A47

East-west traffic movements with origins or destinations in Peterborough or further afield can use either the A47 or the A605 to access destinations in Fenland and Norfolk. The A47 is a trunk road and Highways England have been working with CPCA on a prospective improvement scheme that would dual the entire section in Cambridgeshire, filling in those sections currently not meeting that standard. The sections shown in **Figure 3.3** were the subject of a Strategic Outline Business Case, completed in 2018, which shortlisted proposal options for more detailed study.

Figure 3-3: Proposed A47 Dualling Scheme



Source: A47 Dualling Study SOBC (CPCA / Capita – Jun 2018)

Delivery of the Cambridgeshire section has not been confirmed. CPCA wished to see progress within Highways England's RIS3 programme (post 2025) but this has not been confirmed. The current status means that improving the A605 could be a more critical piece of infrastructure in supporting Fenland's overall growth strategy than previously envisaged. How critical this is will require more investigation to determine the strength of relationships between the corridors and the capacity of the infrastructure to accommodate indicated future growth.

3.2.2 The Local Traffic Baseline

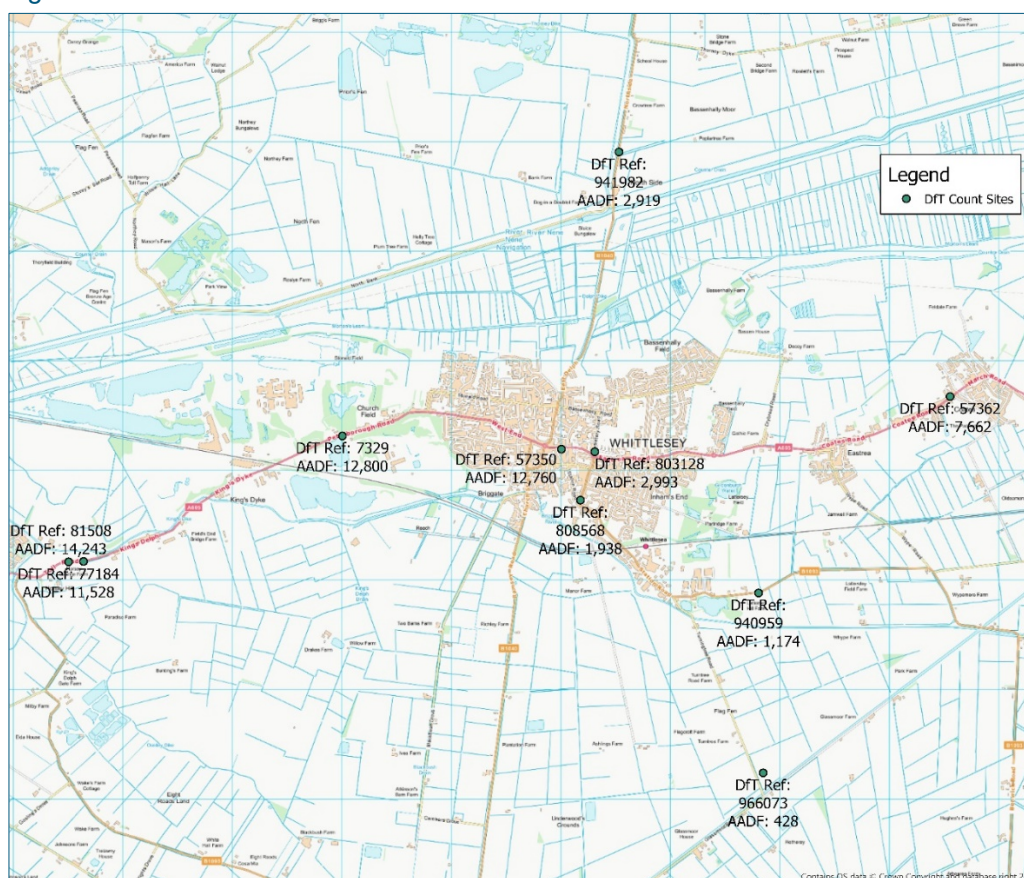
Local traffic levels on key routes in and out of the town are periodically collected by the DfT, with the relevant data and locations shown in **Table 3.3**.

Table 3.3: Surveyed Local Traffic Levels

DfT Ref no.	Location	Most recent AADF	Survey Date
7329	A605 Kings Dyke, N of Level Crossing	12,800	2019
57362	A605, Coates Road, Coates	7,662	2019
77184	A605, East of Cardea roundabout	11,528	2011
81508	A605 East of Cardea roundabout	14,243	2019
57350	A605 Syers Lane Whittlesey Town Centre	12,760	2019
803128	Cemetery Road Whittlesey Town Centre	2,993	2018
808568	B1093 Inhams Rd Whittlesey Town Centre	1,938	2019
941982	B1040 North Side	2,919	2019
940959	B1093 Benwick Road	1,174	2019
966073	Turningtree Road	428	2009

Source: Department for Transport

Figure 3-44: Location of traffic counts



Source: DfT Road Traffic Statistics (available via: <https://roadtraffic.dft.gov.uk/#/6/55.254/-6.053/basemap-regions-countpoints>)

Traffic levels on the A605 differ noticeably east and west of the town centre, suggesting that upwards of 40% of movements disperse at that point onto the local network, including the B1040 north and south of the town.

There are two immediate challenges arising from the nature of the network and the way it functions as follows:

- The local network's capacity to handle diversions (network resilience); and
- The capacity of the A605/B1040 junction in Whittlesey town centre.

These challenges are discussed in more detail below.

Resilience and diversionary capacity

Whittlesey's principal road network comprises the A605 and B1040. There is limited scope for diversions if any of the main routes into and out of the town are congested or blocked and as such the network exhibits limited resilience.

A particular local issue is that the B1040 north of Whittlesey at North Bank is prone to seasonal flooding, leading to closure of this route.

Figure 3-55: Floodwaters north of Whittlesey in 2021

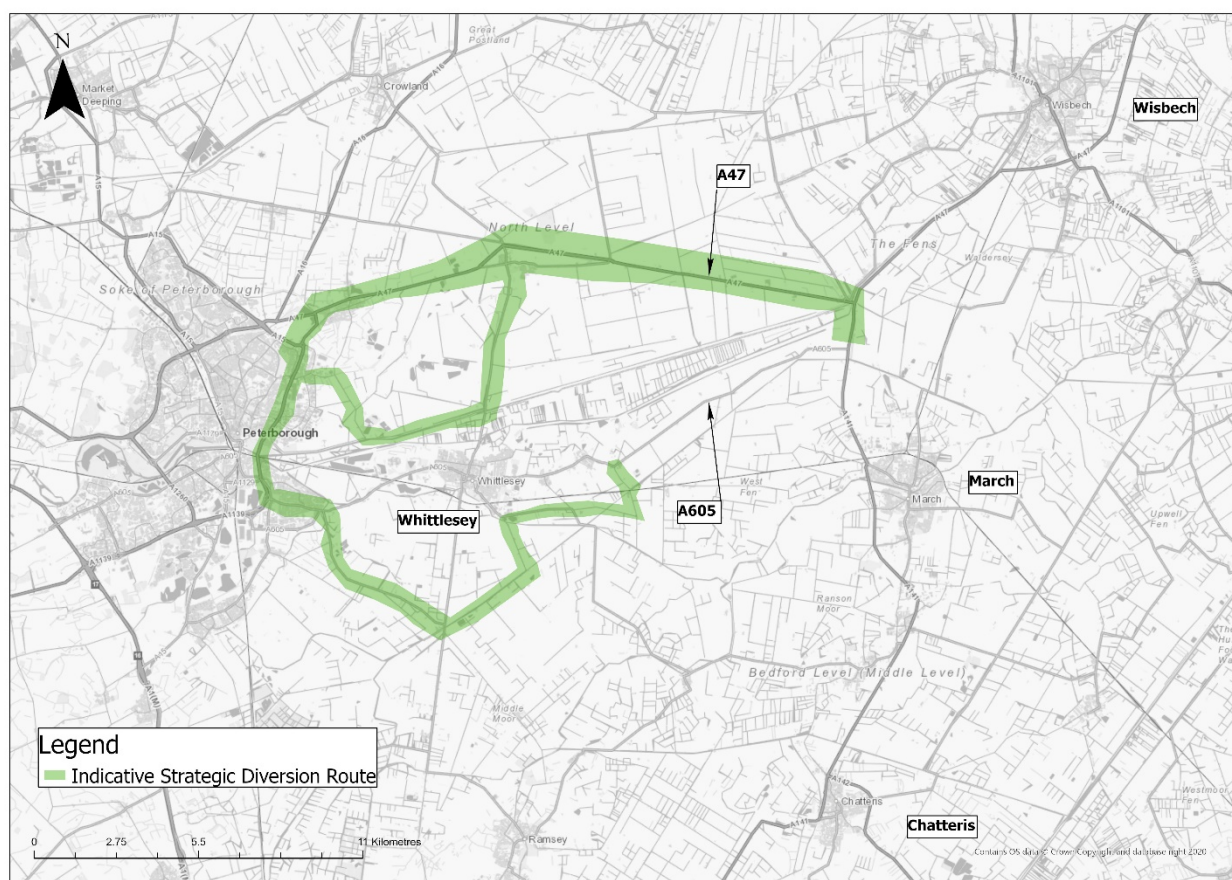


Source: Whittlesey Town Council

Work carried out in support of a development application in 2015¹² judged that “closure of the B1040 is likely to occur probably on an annual basis and most likely in winter months and for an average duration of around 7 days”.

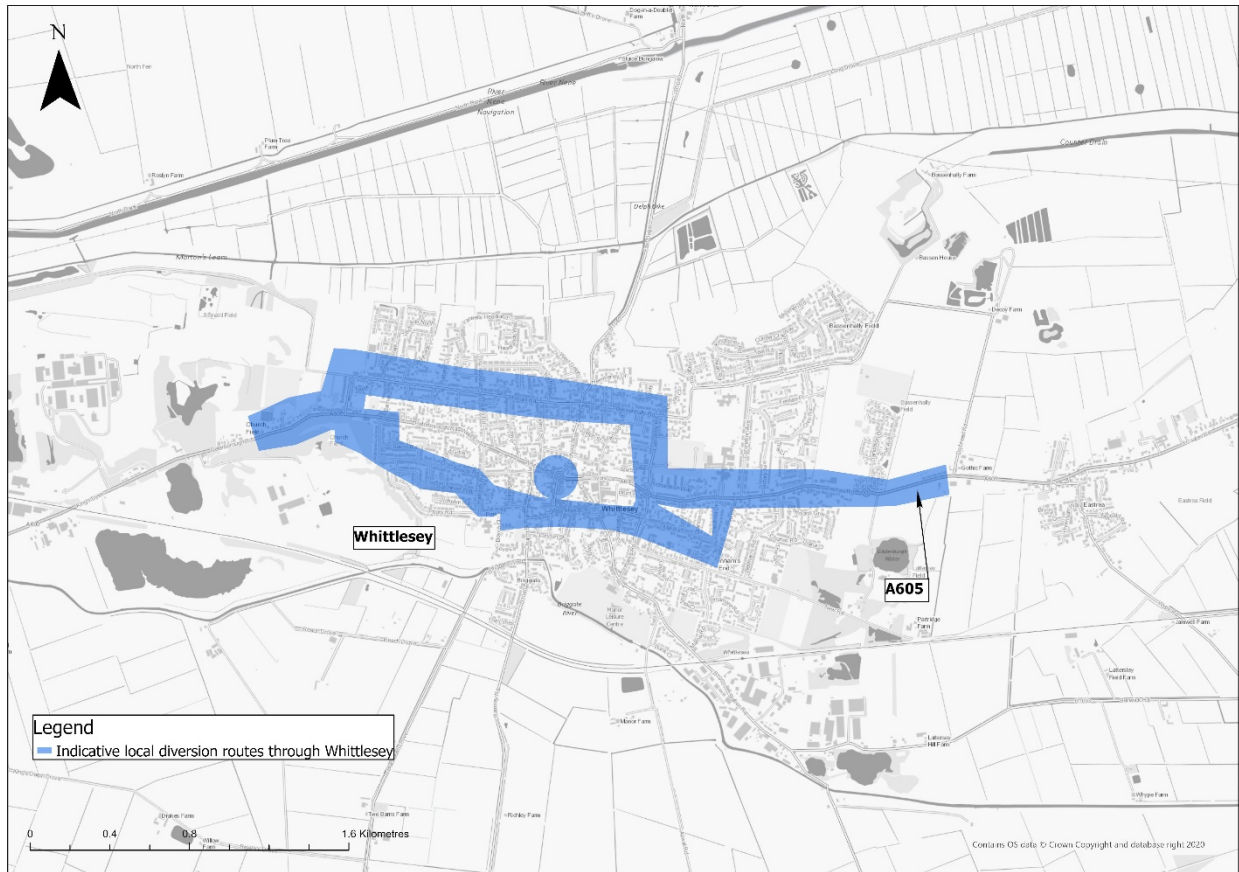
There are sub regional and local dimensions to the traffic diversionary issue, as illustrated on **Figure 3.6** and **Figure 3.7**. For the former, avoiding Whittlesey for any reason would entail the use of rural roads unsuited to carrying high volumes of traffic and the diversion would be longer and slower to traverse. Locally, in the event of a blockage to either of the main local routes (the A605 and B1040), journey time impacts would result in diverted flows on unsuitable residential roads.

Figure 3-6: Sub regional Diversionary Routes



¹² Report on flooding on East Delph Road (JPP Consulting Jan 2015)

Figure 3-7: Local Diversionary Routes



Capacity of the key A605 / B1040 crossroads

The capacity of this key junction, currently comprising an uncontrolled roundabout, is limited, as revealed in a recent planning application for commercial development in the west of Whittlesey¹³. The accompanying Transport Assessment revealed that the roundabout was forecast to operate above its theoretical capacity in the 2020 Baseline scenario. The impact of background growth and committed developments is forecast to push the roundabout further over its practical capacity in the 2025 and 2030 scenarios.

It is worth noting that the development in question is located on the western periphery of Whittlesey at King’s Dyke, some distance from the sensitive crossroads but still close enough to make a difference.

¹³ FYR20/0357 Kings Dyke Business Park

Table 3.4: Junctions 9 assessment of A605/B1040 junction in 2020 and 2025

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2020								
1 - A605 Whitmore Street	0.6	3.17	0.36	A	1.0	3.84	0.48	A
2 - B1040 Orchard Street	0.4	4.92	0.29	A	1.0	7.37	0.50	A
3 - A605 Syers Lane	11.7	47.57	0.97	E	9.5	50.08	0.95	F
4 - B1040 Broad Street	0.7	13.15	0.40	B	4.5	30.51	0.85	D
2025 + Com								
1 - A605 Whitmore Street	0.8	3.50	0.41	A	1.4	4.68	0.58	A
2 - B1040 Orchard Street	0.5	5.57	0.34	A	1.6	10.54	0.62	B
3 - A605 Syers Lane	49.6	246.23	1.22	F	50.3	225.78	1.14	F
4 - B1040 Broad Street	1.2	18.00	0.56	C	11.5	74.53	0.97	F

Source: Churchfields Farm Transport Assessment Traffic Modelling (WSP/Kings Dyke Business Park Ltd 2020)

With one of the arms at the key junction already theoretically over-capacity in the 2020 baseline scenario, the County Council highlighted concerns over the operation of this junction. Their observations are quoted in full below:

“With regards to the A605 Whitmore Street/B1040 Orchard Street/A605 Syers Lane/Broad Street roundabout, we are in disagreement with the agent as to the level of mitigation required. We consider the impact of development traffic at the roundabout to be ‘severe’. As both the A605 Syers Lane and Broad Street arms are observed to operate over capacity under all assessment scenarios, given 47% of development traffic (32 additional vehicle trips) is anticipated to use this junction in the peak periods, the development would essentially add traffic to the back of the existing queues on an already at/over-capacity junction”.

“Development traffic would therefore have a cumulative impact to the junction capacity and hence our reasoning as to why we consider the impact of development traffic on the junction to be severe. The development is anticipated to impact RFC values on the A605 Syers Lane arm from 1.22 RFC to 1.25 RFC and 1.27 RFC to 1.30 RFC in the 2025 and 2030 future year scenarios respectively. We consider the development will contribute to capacity issues at this roundabout”¹⁴.

Note that in the above table, ‘delay’ is the maximum value of average delay per arriving vehicle, so each of the vehicles (PCUs) in the queue would experience the indicated level of delay.

Also, it is noted that the increment of additional traffic generated by the development is comparatively small (32 vehicles) so that a comparatively minor adjustment to the application served to reduce trip generation to an ‘acceptable’ level. The implications of more development traffic associated with further applications pursuant to the Local Plan are likely to have detrimental effects that are far less easy to mitigate.

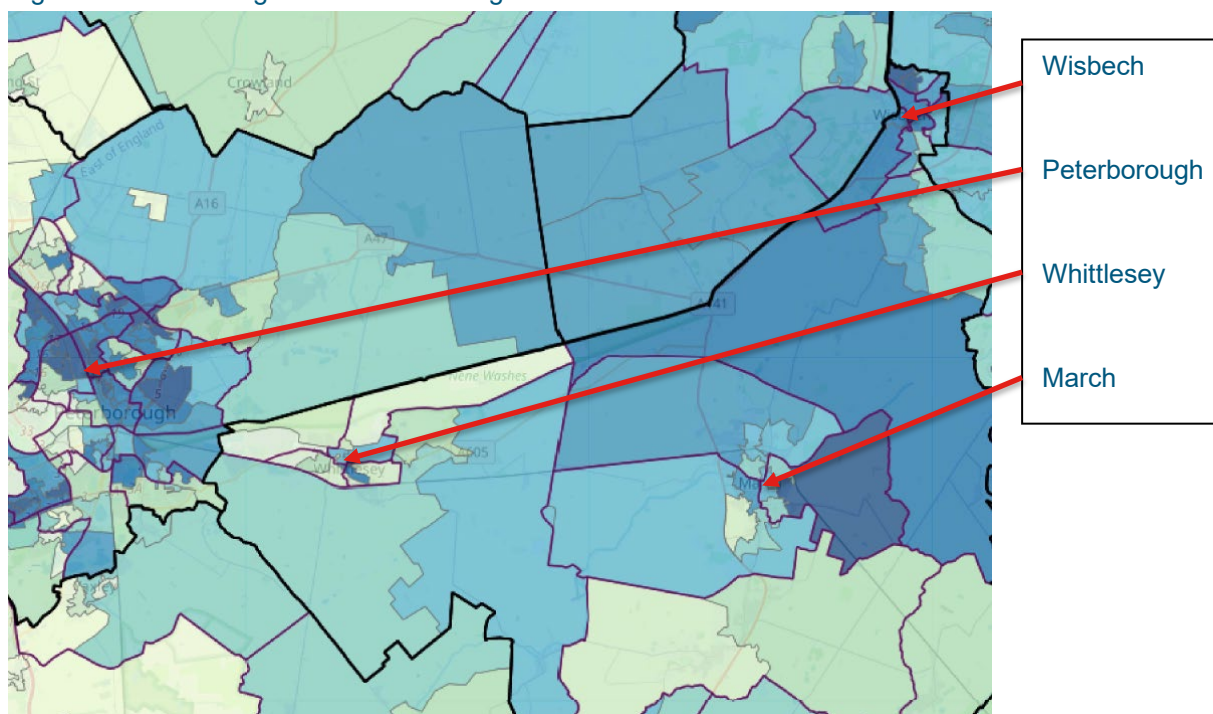
3.3 Economic and Social Challenges

The transport and growth challenges previously discussed in this report are accompanied by a number of social and environmental issues which were highlighted in the MTTs and the Growing Fenland report as follows:

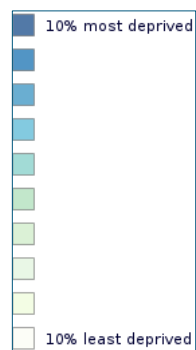
¹⁴ Email of 08/09/2020

- A perceived lack of diversity and distinctiveness in the local retail offer and a lack of retail capacity overall. This has led to more reliance on Peterborough and possibly an underperforming local economy;
- General concerns about transport and accessibility, with better public transport to and from the town desired;
- Growth in employment in Fenland has not matched workforce expansion and out-commuting is increasing. Currently, almost 40% of Fenland’s working population commute out of the district for work and Whittlesey has experienced this trend locally and in movements through the town;
- Based on the Index of Multiple Deprivation (IMD) 2019, Fenland is Cambridgeshire’s most deprived district (ranking as 94th most deprived authority out of 326 nationally).

Figure 3-8: IMD ratings for the Peterborough / Fenland area



Source: DCLG IMD explorer



Whittlesey is located between areas in Cambridgeshire that lie in the lower 50% of Output Areas (LSOAs) for deprivation. The economic development and growth imperative is therefore an important consideration for the area, with good accessibility to education and employment opportunities a key factor for the local population.

The Government’s ‘Levelling Up’ agenda to tackle deprivation is very relevant to Fenland and investment in infrastructure would address needs directly, supporting key access movements between towns where development is needed and supported in policy.

3.4 Impacts of Not Changing - Summary

The impacts identified in are likely to become more pronounced over the course of time, specifically in the event that no significant transport interventions are delivered, either in the form of a relief road or a major package of sustainable measures.

As the economy recovers post-Covid 19 and traffic levels begin to rise the following consequences might be expected:

- The quality of vehicular movement will deteriorate in reliability and ease of transit;
- The environmental impacts of traffic become more of an issue in the town;
- It becomes less easy to accommodate reasonable, planned levels of local growth;
- Access to employment, training, education and services becomes less easy for residents;
- Reduced attractiveness of the town as a residential or recreational destination
- Reduced potential to meet regeneration objectives for the town, particularly the town centre;
- Failure to reduce harmful transport atmospheric pollution and greenhouse gas emissions.

It is not possible to definitively state when the sum of these impacts will become a critical concern for Whittlesey, as quantitative analysis would be required in the form of development of traffic models. However, the impact of growth-related town centre congestion and the chance of negative wider knock-on consequences could be realised as soon as the pandemic's effects are overcome, as the economy recovers.

4 Constraints and Dependencies

4.1 Project Constraints

4.1.1 Local Planning

A series of potential constraints exist derived from the local planning context for the scheme. These are summarised below:

The adopted Local Plan contains:

- Specific sites allocated for development;
- Sensitive areas where the natural environment needs protection; and,
- Sensitive areas where the built environment needs protection.

Similarly, the Minerals and Waste plan contains:

- Existing sites for minerals extraction, waste management or transport;
- Minerals extraction and waste management and transport consultation and safeguarding areas;
- Areas of search for waste management;
- Minerals safeguarding areas of different classes.

Relevant extracts from the adopted Local Plan for the Whittlesey area are shown in **Figure 4.1** and **Figure 4.2**.

Figure 4-1: Fenland Local Plan Constraints

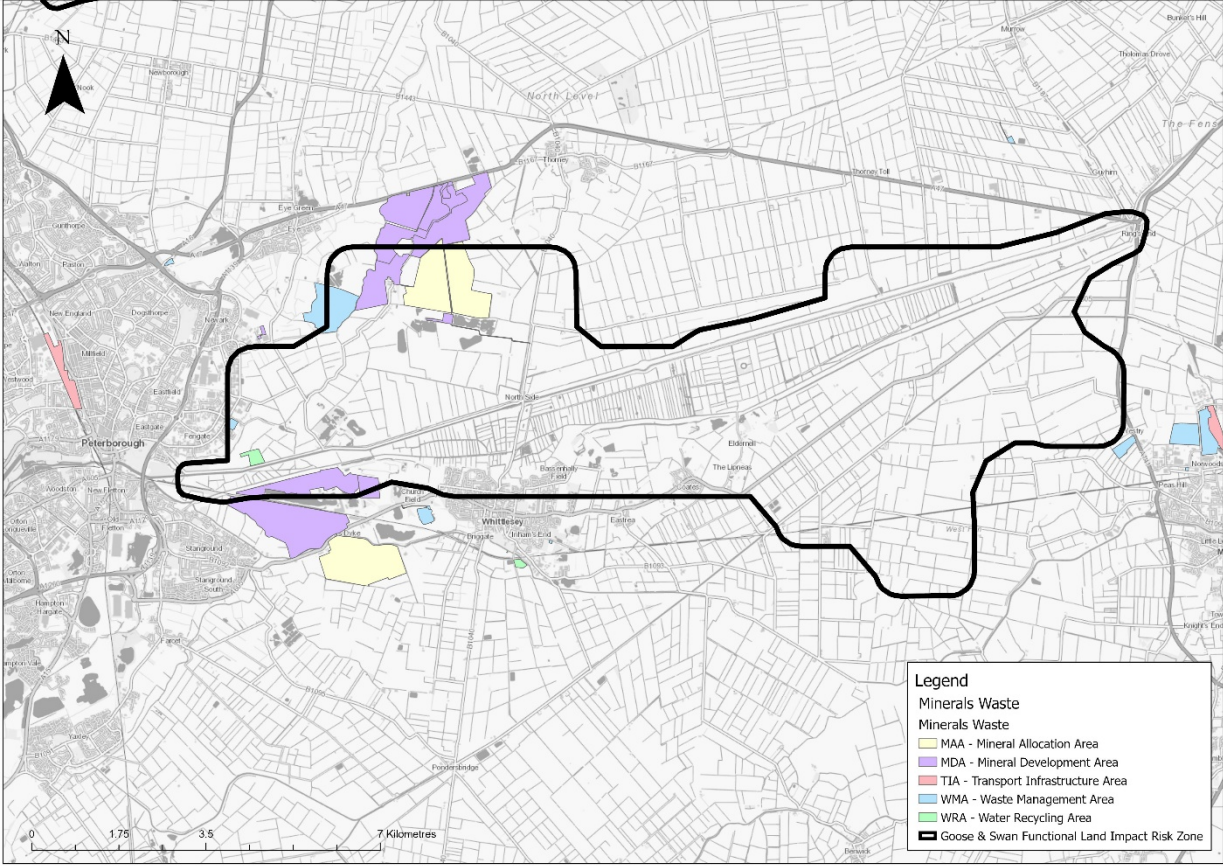
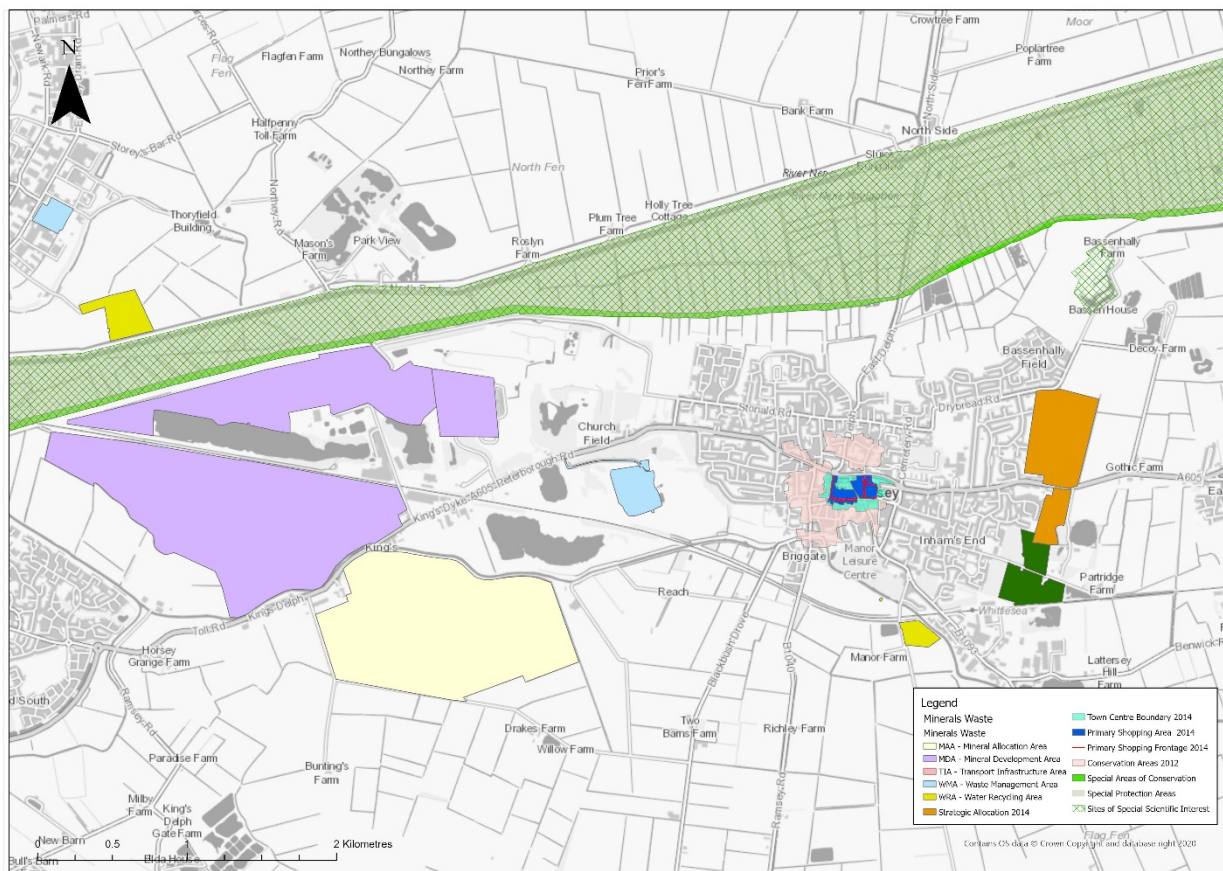


Figure 4-2: Cambridgeshire and Peterborough Minerals and Waste Plan Constraints



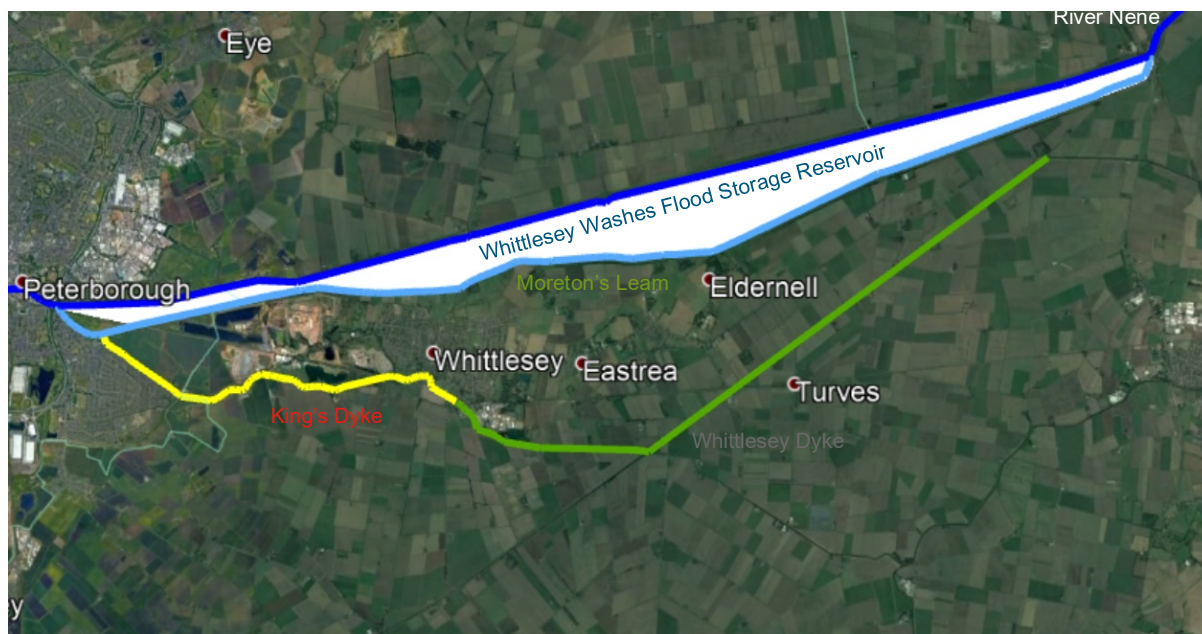
Source: Royal HaskoningDHV

A specific series of constraints exist relating to the water environment, which are covered in more detail below and in **Appendix 1**.

4.1.2 Flood Risk

The most significant flood risk management feature in the area under consideration is the Whittlesey Washes, which are located immediately to the north of Whittlesey, as shown in **Figure 4.3**. The Whittlesey Washes act as a flood storage reservoir when high tides and high river levels coincide. The area is internationally designated as a Ramsar site for its ecologically sensitive wetland habitats. Due to its large size the reservoir is also covered by the Reservoir Act which places strict controls on works to or adjacent to the feature.

Figure 4-3: Key Flood Risk Management Features of Area under Consideration



Source: Royal HaskoningDHV

Drainage ditches are a feature of the low-lying land to the north and south of Whittlesey. Drains to the north of the town are managed by the North Level Internal Drainage Board (IDB). Drains to the south and east are managed by the Whittlesey Consortium of Internal Drainage Boards (WCIDB).

Northern route

Considering the potential route of a relief road to the north of Whittlesey, the main constraint from the perspective of flood risk management is that the route would be located within areas of Flood Zone 3a and Flood Zone 3b as defined by the Environment Agency.

The central part of the potential route would be located within Flood Zone 3b, which is defined as a functional flood plain and is within the defined Whittlesey Washes flood storage area. This part of the flood storage area is not served by an embankment; the southern boundary of the Whittlesey Washes in this area is defined by the higher ground levels which occur to the north of Whittlesey.

The feasibility of routing a relief road to the north of Whittlesey depends on whether the capacity of the Whittlesey Washes could be maintained in this scenario, and if it could be demonstrated, that flood risk elsewhere would not be increased as a result of the scheme.

Southern route

The route to the south of Whittlesey would be located within Flood Zone 3a, in an area that is defined as being protected by flood defences.

For the southern route, it may not be necessary to construct the relief road on a raised embankment in order to address flood risk to the road, however this assumption would need to be subject to a more detailed study.

Conclusion

Both of the potential routes for the proposed relief road have constraints relating to flood risk and water management, which would impact on the consents process and costs for any future project. Based on this initial high-level assessment, the constraints on the northern route are considered to be very significant and as such this route is unlikely to be viable. The southern route has fewer constraints in terms of flood risk, and it is expected to be possible to manage those constraints in the design of the proposed relief road.

A full version of the option assessment in relation to flooding is provided in **Appendix A**.

4.2 Dependencies and Programme

4.2.1 Link to the Fenland Local Plan

With the importance of the scheme to Fenland's development planning, the scheme's progress ideally would be supported by a suitable protective allocation being made within the emerging Fenland Local Plan. To be certain of the route details and that the scheme had a reasonable likelihood of progress within the plan period, development work up to Outline Business Case level would be needed, or at least a Strategic Outline Case with additional work on the prospective value for money of the scheme. These are Stages 2 and '1c+' on CPCA's assurance framework shown in **Figure 1.1**.

4.2.2 Dependent Development

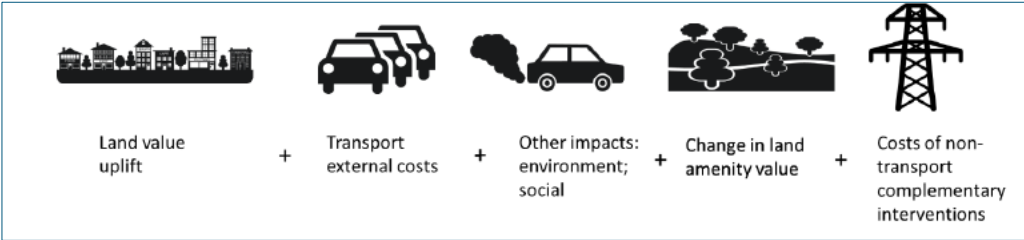
A potential issue for a major intervention in Whittlesey is that of the dependency of development on additional transport capacity being available. Where this situation occurs, it is termed 'dependent development' and a value for money methodology exists to capture the identified value and add it to the benefit side of a value for money calculation.

The value arising from transport schemes unlocking new developments is independent of other sources of value, such as time savings by removing queues or lowering CO₂ emissions.

The fundamental question to be asked is whether a private-sector investment decision would or would not occur without the scheme. If not, the impacts cannot be attributed to the scheme. In the case of Whittlesey, it has been pointed out previously in this report that a substantial amount of new development is expected to occur in Whittlesey and March, in addition to development in other Fenland market towns. If it is determined that the existing and planned transport improvements cannot suitably accommodate the additional volume of trips expected to be generated, some dependency may exist. It will require model-based testing to determine this outcome for certain, however the traffic constraints already noted in Whittlesey may suggest the network could become overloaded without too much additional traffic movement in the area.

The DfT TAG methodology follows the principle that dependency value is best captured by considering the land value uplift that occurs once a permission is granted. This does not include the actual value of the development (e.g. 100 houses at £250K = £2.5m), but assumes the critical value is reflected in the land value, with three additional attributes as shown below, also to be taken into account, which could either add to or detract from the case.

Figure 4-4: Development Dependency Elements



Source: Department for Transport TAG unit A2.2 Appraisal of Induced Investment Impacts

5 Scheme Objectives

5.1 Identifying the objectives

Identifying suitable scheme objectives is a key part of any appraisal, as once established these inform all stages of the appraisal and evaluation process. Identified objectives must draw on existing objectives for transport planning in the area, in this case referring to the work of CPCA, and should be appropriate to the Whittlesey context.

With reference to **Table 3.2** ('Transport Challenges and Impacts'), the scheme should aim to address the challenges and impacts and should realise the potential identified. **Table 5.1** links the identified problems to potential opportunities which would be realised by means of suitable interventions.

Table 5.1: Linking Problems and Opportunities

Ref.	Current problems affecting Whittlesey	Potential opportunities to be realised
1	Journey delays to through trips and those with either an origin or destination in Whittlesey	Improved journey times and reduced frequency of delay incidents: more reliable and predictable journey times
2	Local environmental problems in Whittlesey and the A605 corridor, particularly noise transmission and poorer air quality	Lower pollution emissions and noise impacts in vicinity of sensitive receptors, particularly A605 frontage properties
3	Safety and severance issues for pedestrians	Improved road safety – lower numbers of incidents Ease of crossing the road
4	Damage to buildings, particularly from HCVs	Reduced effect of vibration transmission affecting buildings, particularly historic ones: lower risk of collision damage
5	Potential for diverted trips to use the A605 if other routes are obstructed – A47 and Kings Dyke area (level crossing operation) noted as sources	Much lower frequency of the use of the A605 as a diversionary route: lower traffic impacts on Whittlesey
6	Grounds for refusing applications which would otherwise be acceptable and/or welcomed	Improved development potential of Whittlesey
7	Potential difficulties fulfilling desired Fenland DC growth strategy	Planned level of growth rendered more achievable
8	Lowered rates of development	Improved perception of Whittlesey as a location where appropriate development does not face unreasonable difficulties
9	Constraints placed on economic activities in the town centre and development of more attractive environment	Improves the economy of town centre business and facilitates environmental / place making schemes there
10	Poorer accessibility to employment, education, key services and leisure opportunities	Improved accessibility: ease of travel to key locations and services facilitated by more reliable travel by all modes

Ref.	Current problems affecting Whittlesey	Potential opportunities to be realised
11	Poorer perception of Whittlesey to local residents and upon potential visitors	Improved perception of the town leading to greater level of economic activity and quality of life enhancement
12	More difficulties developing and realising sustainable transport and living initiatives	Developing of sustainable transport and living initiatives achieved

Source: Royal HaskoningDHV.

The improvements identified will lie at the heart of value generation, with ideally each identified benefit being capable of being measured and evaluated both pre and post scheme implementation. From this hypothesis emerges three elements critical to progressing the initiative:

1. Agreeing objectives from the identified problems, opportunities and requirements (see below);
2. Identifying a longlist of scheme options which could meet these objectives (**Chapter 5**); and,
3. Sifting the options to create a shortlist for more detailed appraisal.

5.2 Draft Primary Objectives

Developing primary objectives for the scheme should draw upon the framework of objectives established for the CPCA LTP and the CPIER in order to ensure consistency with the overarching transport development framework within Cambridgeshire and Peterborough.

The CPEIR sets out a series of high-level goals defining the wider outcomes sought from the transport network in Cambridgeshire and Peterborough to achieve the following objectives:

- **Economy:** Deliver economic growth and opportunity for all our communities.
- **Society:** Provide an accessible transport system to ensure everyone can thrive and be healthy.
- **Environment:** Preserve and enhance our built, natural and historic environment and implement measures to achieve net zero carbon.

The CPEIR additionally identifies that proposed schemes should have the following key attributes:

- **People** – Ensure people are equipped with the right skills and access to opportunities.
- **Quality of Life** – Enhance the area as an enjoyable place to live and to visit.
- **Place** – Make the most of Cambridgeshire and Peterborough’s physical, environmental and cultural assets and infrastructure.
- **Business** – Focus on businesses where the opportunity for growth is greatest.

It is proposed that the seven goals listed above, with some minor wording amendments to better capture the local context, are sufficient to rely upon as primary objectives for a major transport intervention for Whittlesey. These are set out in the following table.

Table 5.2: Proposed Primary Objectives

Primary Objective	Adjusted Wording	Value Creation Logic	Consistency with LTP
(1) Economy	Deliver economic growth and opportunity for communities in Fenland, Peterborough and the wider Combined Authority area	Supports / underpins Local Plan growth strategy Facilitates beneficial economic changes in Fenland DC and at CPCA level	Correspondence with LTP objectives (A), (B), (C) and (D)
(2) Society	Provide an accessible transport system to ensure the Whittlesey community can thrive and be healthy	Traffic reduction produces monetisable environmental and health benefits	Correspondence with LTP objectives (B), (C) and (F)
(3) Environment	Preserve and enhance the local built, natural and historic environment and facilitate measures to achieve the CPCA and UK net zero carbon target	Consistent with net zero (monetisable greenhouse gas impacts) compared to situation without the transport intervention	Correspondence with LTP objectives (E), (G), (H) and (K)
(4) People	Ensuring the local community has a good level of access to facilities, services and opportunities	Facilitates access to employment, education and services, directly and indirectly via all modes	Correspondence with LTP objectives (B), (C) and (F)
(5) Quality of Life	Enhancing the Whittlesey area as an enjoyable place to live and to visit	Supports growth of local economy, increased local land values and environmental and health benefits	Correspondence with LTP objectives (C), (G) and (J)
(6) Place	Making the most of Whittlesey's physical, environmental and cultural assets and infrastructure	Supports growth of local economy and increased local land values	Correspondence with LTP objectives (G) and (J)
(7) Business	Focusing on businesses in Whittlesey with good opportunities for growth	Supports growth of local economy; reduces costs of deprivation	Correspondence with LTP objective (C)

Source: CPIER / Royal HaskoningDHV

These main high-level evaluation objectives align with the CPCA's LTP objectives in the manner shown below.

Table 5.3: CPCA LTP Objectives

Economy	LTP Description	Scheme Objectives
(A) Housing	Support new housing and development to accommodate a growing population and workforce, and address housing affordability issues	Correspondence with scheme objectives (1) and (7)
(B) Employment	Connect all new and existing communities sustainably so all residents can easily access a good job within 30 minutes by public transport, spreading the region's prosperity	Correspondence with scheme objectives (1) (2) and (7)

Economy	LTP Description	Scheme Objectives
(C) Business and Tourism	Ensure all of our region's businesses and tourist attractions are connected sustainably to our main transport hubs, ports and airports	Correspondence with scheme objectives (1) (5) and (7)
(D) Resilience	Build a transport network that is resilient and adaptive to human and environmental disruption, improving journey time reliability	Correspondence with scheme objectives (1) and (2)
Society		
(E) Safety	Embed a safe systems approach into all planning and transport operations to achieve Vision Zero – zero fatalities or serious injuries	Correspondence with scheme objectives (2) and (5)
(F) Accessibility	Promote social inclusion through the provision of a sustainable transport network that is affordable and accessible for all	Correspondence with scheme objectives (2) and (4)
(G) Health and Wellbeing	Provide 'healthy streets' and high-quality public realm that puts people first and promotes active lifestyles	Correspondence with scheme objectives (4), (5) and (6)
(H) Air Quality	Ensure transport initiatives improve air quality across the region to exceed good practice standards	Correspondence with scheme objectives (3) and (5)
Environment		
(J) "Environment"	Deliver a transport network that protects and enhances our natural, historic and built environments	Correspondence with scheme objectives (3) and (6)
(K) Climate Change	Reduce emissions to 'net zero' by 2050 to minimise the impact of transport and travel on climate change	Correspondence with scheme objective (3)

Source: CPCA Local Transport Plan

Using the primary objectives identified in this section and as listed in **Table 5.2**, it is possible, when combined with a scoring system, to sift all possible long listed transport options with the outcome of producing a short list. This process is explored in the following chapter.

5.3 Secondary Objectives and Downstream Evaluation

Production of a set of secondary objectives is advisable, as these have two important uses when a business case is prepared as follows:

- In cases where it is not possible to separate the possible options in a meaningful way using the primary objectives, use of a secondary set of criteria is acceptable. These criteria could be assigned a lower weighting, while still contributing to the overall sifting scores;
- After a scheme is completed, it is expected that its impact and ultimate outcome will be evaluated using 'measures of success' to determine performance against expectations. This is not the same as sifting through a series of options, but secondary, detailed objectives may also form part of a downstream approach to long term evaluation.

The Whittlesey scheme would ultimately be subject to a full WebTAG appraisal at a later stage of development, and as such it is not immediately deemed necessary to identify secondary objectives or indeed the long-term evaluation mechanism.

It is recommended that FDC. and Whittlesey Town Council be involved as stakeholders in agreeing the final schedule of objectives to be used in any future WebTAG-complaint SOBC.

6 Initial View of Scheme Options

6.1 Green Book and DfT Guidance

The generation and testing of scheme options is an essential part of an appraisal process. The HM Treasury Green Book provides guidance on how to appraise public sector policies, programmes and projects. Appraisal of alternative policy options is an inseparable part of scheme development and design.

The DfT's approach relies on the Green Book as the basis for an assessment methodology specific to transport schemes, noting that selection of a shortlist should utilise sifting methods to identify any 'showstoppers' which are likely to prevent an option progressing at a subsequent stage in the process.

In accordance with the HM Treasury approach, the process should discard any options that:

- would clearly fail to meet the key objectives identified for intervention;
- do not fit with existing local, regional and national programmes and strategies, and do not fit with wider government priorities, and,
- would be unlikely to pass key viability and acceptability criteria (or that represent significant risk) in that they are unlikely to be:
 - deliverable in a particular economic, environmental, geographical or social context e.g. options which would result in severe adverse environmental impacts which cannot be mitigated against or where the cost of doing so is too high;
 - technically sound;
 - financially affordable; and,
 - acceptable to stakeholders and the public.

The primary objectives identified previously in this report address the first two of the above points. Once an SOBC exercise is underway, the third bullet, representing more detailed secondary objectives, would be determined.

For all option development work, it is necessary to define what if anything, would happen were there to be no scheme intervention. This is the 'do-minimum' position covering all expenditures outside of major interventions, which are defined as 'do-something' options.

6.2 The Do Minimum Position

The current CPCA LTP and Infrastructure Delivery Plan (IDP) make no reference to improvement schemes for the A605 in Whittlesey or provision of a relief road for the town. This suggests a do-minimum position of delivery only on maintenance and minor improvements within regular minor works programmes (traffic management, lighting, safety) in the period up to at least 2023 and possibly 2050, the horizon year of the LTP.

Highways England/ CPCA progress in upgrading the A47 to full dual carriageway status between Peterborough and Wisbech may have an impact in drawing away some through movement traffic from the A605 in Whittlesey. The programme for the above scheme has not yet been defined, although completion of the Cambridgeshire section post-2025 seems likely. Any abstraction effects on A605 flows would therefore take place after that point.

6.3 Do Something Options

An understanding of Whittlesey's transport problems, specifically those relating to the potential for relief of congestion and delay in the town centre, has led to the identification of a single carriageway relief road as a possible solution. Details of the route, including the location of tie-ins with the existing network and delivery options are yet to be identified.

6.3.1 Highway Options

The position when considering possible highway infrastructure options in relation to delivering a relief road at Whittlesey include the following:

- There are northern and southern alignment options;
- Within each, numerous opportunities will exist for route alignment details;
- Within each option, numerous opportunities will exist for the location of tie-ins with the existing network;
- The option of constructing either the northern or southern alignments in sections east and west of the B1040.

6.3.2 Other Options

Aside from consideration of new highway options, the possibility of promoting an alternative approach avoiding immediate new construction needs to be considered. The basis for such an approach has been determined both in the MTTs and the Cambridgeshire County Council LTP3. The following types of traffic-reducing and other mode interventions have been proposed:

- Better local bus services;
- Schemes to improve walking and cycling in Whittlesey;
- Development of community transport services;
- Road safety schemes;
- Better signage and publicity;
- Improved level of rail services;
- Improved station facilities;
- Parking controls;
- Consideration of speed limits;
- Residential and commercial site travel planning;
- HCV routing options and weight limits;
- Works to facilitate remote working / working from home;
- Environmental improvements in Whittlesey;
- Improved design of new developments to facilitate accessibility;
- Improved information on travel choices available to local residents.

Developing a traffic management and reduction strategy based on measures relating to local Whittlesey traffic and traffic originating from a wider geography should be included in any consideration of infrastructure needs. These measures may or may not ultimately be capable of suitably mitigating traffic impacts within Whittlesey, however the potential impact and duration of any such mitigation would need to be given careful consideration given the influence on potential programmes for developing new highway infrastructure.

The CPCA LTP adopts a vision-led approach to thinking about such matters which is prescient, bearing in mind the changes to transport behaviour that have taken place during the Covid-19 pandemic. A possible conclusion may be that future transport conditions would be significantly different to that historically experienced, for the following reasons:

- Increased working from home and less commuting;
- Increased off-peak travel, lower volumes in the peak;
- Home locations less tied to work locations;
- Decentralised organisation of work in general;
- Lower levels of car ownership, more use of rental / short time hire / taxi and “Mobility as a Service” alternatives;
- Application of more technology to travel choice decision making;
- Electric and autonomous vehicle operation;
- More ‘modally agnostic’ behaviour;
- More use of sustainable modes for local and longer distance trips;
- More delivery-based products and services, less individual shopping trips;
- Greater value placed on accessibility to places rather than mobility.

The extent of change over the LTP period is unknown, however, the possibility of significant change in transport conditions would be a material consideration in a scheme’s development process.

Proposals such as those noted above would need to be fully explored within an SOBC and specifically evaluated within the schedule of available options. For the present exercise, they are summarily described as the ‘Reducing Traffic’ or RT option in the table below.

6.3.3 Option List Summary

Table 6.1 presents a high-level summary of scheme options for alleviating traffic problems in Whittlesey and facilitating subregional growth in the CPCA area.

Table 6.1: Optional Approaches

Ref	Option	Development considerations
A	Do-minimum position	Existing traffic management, safety, maintenance and sustainable transport expenditure for Whittlesey
S.1	Southern bypass options: Cardea roundabout to Coates	Tie in at Cardea roundabout – design options Options for remodelling Cardea roundabout Alternative tie in locations on A605 south and east of Cardea roundabout
		Tie in at Coates – design options Alternative eastern tie in location east or west of March Road / A605 junction
S.2	Southern bypass options: Routeing options	Alternative detailed alignments, either closer or further south of the Peterborough – March railway line, avoiding Plan constraints
S.3	Southern bypass options: Lesser options	Shorter alignments e.g. west of Whittlesey - B1040 / B1093 / A605 in Eastrea area Inner bypass commencing at Kings Dyke
N.1	Northern bypass options: Kings Dyke – Coates	Tie in at Kings Dyke Tie in at Coates design Alternative eastern tie in location east or west of March Road / A605 junction

Ref	Option	Development considerations
N.2	Northern bypass options: Routeing options	Shorter alignment e.g. Kings Dyke - A605 in Eastrea area
RT	'Reducing Traffic' options: Package of alternatives to major highway capacity uplift	Improved information collection on local needs Sustainable transport measures within Whittlesey to reduce need for short car trips Sustainable transport measures for interurban movement – bus, rail and cycling Traffic management measures to restrict through movements HCV weight limits Environmental improvements Marketing and information improvements

Source: Royal HaskoningDHV

6.4 Assessing the Option Long List

A Strategic Case should include the production of an option long list, as set out in Table 5.1, which can then be assessed against key criteria derived from the objectives, resulting in production a short list. The short list would then progress to be assessed quantitatively at Outline Business Case stage.

Given the early stage nature of this exercise, we would advise that both the objectives and the scoring included in this report be considered by the stakeholders and agreed, with any changes incorporated into a finalised scoring matrix. This is an essential aspect of a Strategic Outline Business Case.

The following section is intended to present the general format of such a sifting exercise, with an initial view of how the options may be scored in practice.

6.5 Initial Scoring Against Objectives

The initial scoring of solutions against the seven primary objectives noted in Chapter 4 has been undertaken using a seven-point scale (-3 to +3) to indicate whether the solution would be expected to have a large / moderate / slight adverse or beneficial impact against the objectives.

Note in this illustration, objective 1 (economic development) is weighted double, so that a score of '+3' is shown as +6, emphasising the collective policy drive for economic recovery and growth, whilst all the rest have the same weight.

This comprises the initial sift, with poorly performing options capable of being removed from the list and permitting more detailed SOBC evaluation work to determine ranking. The outcome of the initial sifting is presented in **Table 6.2**.

Table 6.2: Initial Sift - Option Scoring Against Primary Objectives

Ref	Option	High-level description	1	2	3	4	5	6	7	Tot
A	Do-minimum position	Existing transport expenditure for Whittlesey	0	0	0	0	0	0	0	0
S.1	Southern bypass main options	Cardea – Coates	+6	+1	+2	+2	+3	+2	+1	+17
		Cardea – Eastrea alternative	+4	+1	+1	+2	+2	+2	+1	+13

Ref	Option	High-level description	1	2	3	4	5	6	7	Tot	
S.2	Southern bypass options - routeing	Alternative detailed alignments, either closer or further south of the Peterborough – March railway line, avoiding Plan constraints	<i>Not scored at this stage.</i>								
S.3	Southern bypass options - Lesser options	Shorter alignments e.g. west of Whittlesey - B1040 / B1093 / A605 in Eastrea area	+4	+1	+1	+1	+2	+1	0	+10	
		Inner bypass commencing at Kings Dyke	+4	+1	+1	+1	+2	+1	+1	+11	
N.1	Northern bypass main option	Kings Dyke – Coates	+6	+1	-3	+2	+1	+1	+1	+9	
N.2	Northern bypass options - routeing	Shorter alignment e.g. Kings Dyke - A605 in Eastrea area	+4	+1	-3	+2	+1	+1	+1	+7	
RT	'Reducing Traffic' option	Assumed single package of all conceivable sustainable transport measures within Whittlesey to reduce traffic levels in the town	0	+3	+2	+3	+2	+1	0	+11	

Source: Royal HaskoningDHV

From the above, the S1 main option scores 17 points and the RT alternative 11 points, the do-minimum is benchmarked at 0 and all other highway options fall into a range between +7 and +13.

As the purpose of sifting is to remove solutions from the long-list where they are considered not to align well with the objectives, it may be possible to remove consideration of the northern alignment at this stage, with all others passing through to a more detailed assessment stage.

Consistent with the findings of the Flood Risk Assessment detailed in Appendix 1, the Northern bypass options N1 / N2 feature a negative score against the environmental objective. These could be rejected at this stage for this reason.

In practice, with the S2 / S3 alignments defined, it may also be possible to sift out some of those before moving on to the second stage.

Further work could be carried out in relation to the scoring work, including possible use of secondary objectives and varying the weighting used for each. As with agreeing the objectives, it is recommended that FDC. and Whittlesey Town Council are involved in detailed consideration of the options and in the scoring exercise.

7 Conclusions, Key Questions and Next Steps

7.1 What is the Case for a Relief Road?

For a case to be made relating to commissioning of strategic highway infrastructure, it is necessary to show that the sum of all benefits is sufficient to justify the capital expense.

For cautious context, the Kings Dyke bridge and access improvement project is reportedly costed at £39m¹⁵ for a bridge and 1000m of new road. By comparison the outturns costs of the A16 Peterborough to Spalding highway scheme which measured over 13km, was £80m (2008)¹⁶.

The prospective relief road south of Whittlesey could be up to some 10.8km in length incorporating several structures along its length.

The principal benefits of the considered relief road would arise from:

- Facilitating economic growth in Whittlesey, Fenland and the wider subregion;
- Diversion of through traffic away from Whittlesey, improving journey reliability and reducing travel time;
- Relief of parallel routes when diversions are needed;
- Improved environmental conditions in the town; and,
- Road safety improvements in the town.

7.2 How Strong is the Case Likely to be?

From the investigations carried out and presented in this report, it is contended that there are viable arguments supporting the need for intervention relating to the provision of a Whittlesey relief road. These include those stemming from Fenland District Council's development agenda for Whittlesey and March, combined with the need to address the current negative transport issues experienced in the town and the associated resilience and environmental improvements that can be developed if the road scheme is implemented.

In strategic terms, the importance of the scheme in delivering objectives set out in the Fenland District Council Development Plan is established. The latest iteration of the HM Treasury Green Book (appraisal and evaluation guidance) stresses the importance of this point, stating that:

“The primary reason for implementing all proposals is not a Benefit to Cost Ratio (BCR), but it is to meet the “business need” identified early in developing the rationale for the proposal, this takes place at the start of developing the strategic (dimension of the business) case”.

The accompanying review¹⁷ also notes that:

“(there is a) common failure of those writing appraisals to engage properly with the strategic context in which their proposal sits. (Without this). a lack of strategic direction is baked into the appraisal process, the

¹⁵ <https://www.bbc.co.uk/news/uk-england-cambridgeshire-53474258>

¹⁶ <https://www.bbc.co.uk/news/uk-england-lincolnshire-10883564>

¹⁷ Green Book Review 2020: Findings and Response – HM Treasury Nov 2020

selection of the option to be presented as the best becomes heavily reliant on a Benefit Cost Ratio (BCR) that is not aligned to the decision makers' objectives. The BCR instead focuses on benefits that it is easy to put a monetary value on".

Set against this is the likely significant capital cost of the scheme, the result of the challenging fenland ground conditions in the area.

This means that in mathematical 'value for money' terms, the scheme's benefit to cost ratio (BCR) may not be high, however, this is systemic of major investment schemes. Therefore, it would be the cumulative benefits of the established strategic case and the BCR that would inform the weight of the relief roads business case.

It is not possible to undertake a standard value for money calculation on the relief road proposal at this time, however two simple illustrations provide context for the report's conclusion.

7.2.1 A47 SOBC Illustration

As an illustration of what might be expected for the A605, some comparative BCR scores for sections of the A47 dualling - upgrade are shown in **Table 7.1**. The levels are generally low although for the most part these are above 1.0, demonstrating that value is generated overall compared to the cost. Note that these value for money scores require final confirmation.

Table 7.1: A47 Cambridgeshire Dualling, SOBC Value for Money Scores

Section	Route	BCR
Section 1: A16 to Thorney Bypass	1.1 – Immediately north of present route	1.19
	1.2 – part online and part offline north of present route	1.37
	1.4 – as 1.1 but using existing route for westbound traffic	1.56
Section 2: Thorney Bypass to Guyhirn	2.2 - parallel to existing alignment, south of present road	0.92
	2.3 - parallel to existing alignment, north of present road	0.87
	2.4 – Thorney – Wisbech direct, omits Guyhirn village area	1.44

Source: A47 Dualling Study SOBC (Skanska/Capita) – CPCA June 2018

The addition of dependent development benefits should be noted, and these could be significant to the overall strength of the case.

7.2.2 Dependent Development Illustration

The addition of dependent development benefits should be noted, and these could be significant to the overall strength of the business case.

Dependent development occurs when it is not possible to proceed with a development scheme without sufficient infrastructure capacity being available and where the scale of expenditure required falls well beyond the viability thresholds of a development scheme to support it. This could be the case at Whittlesey.

To illustrate the methodology, the following assumptions are made on development blocked by lack of highway capacity.

Table 7.2: Dependent Development Assumptions

Residential units – Whittlesey	1,800 (dialogue with FDC planning service)
Employment floorspace – Whittlesey	9 ha (proportionate increase over 2014 level, from above)
Residential units – March	5,435 (proportionate increase over 2014 level)
Employment floorspace – March	38.8 ha (proportionate increase, as per housing target)

Source: Fenland DC Local Plan 2019-2040 Issues and Options Consultation (Oct 2019)

From the Dept. for Transport's TAG Unit A2.2 Data Book (May 2019), the value of residential land in Fenland district is given as £485,000 per hectare (2017 values).

The equivalent value of agricultural land is £21,000, so the difference is £464,000 per hectare. If all residential units entailed change of use from agricultural to residential land use, the following should be noted.

If all the indicated 1,800 dwellings in Whittlesey and 5,435 in March were deemed dependent development and were built out at a typical density of 45 per hectare¹⁸, the 7,235 units would occupy 160 hectares. This equates to a dependent development (benefit) value for the residential units of (160 x £464k) = £74.24m

The TAG Data Book also gives values for commercial employment land (out of town sites near Peterborough) in Fenland district is given as £750,000 per hectare (2017 values). The equivalent difference for commercial land is £729,000 per hectare. If all commercial development was blocked, the land valuation benefit would be (47.8 x £729k) = £34.85m

These numbers should be treated with extreme caution and would need model-based verification, but it does illustrate the substantial value that may be derived from dependent development. When combined with benefits of environmental improvement and reduced traffic delays, a viable business case appears feasible.

7.3 When Would a Relief Road be Needed?

With the need for the relief road being strongly linked to development timescales in Whittlesey (and Fenland district more widely), the scheme would benefit from being viewed in the context of the relevant planning periods with their associated development targets.

The Fenland District Council adopted Local Plan (2014) has a horizon year of 2031 and encompasses the critical growth targets for Whittlesey and March. The emerging Local Plan moves the horizon year to 2040 and the revised, increased growth targets are awaited, with the importance for Fenland District Council lying in the need to support the growth strategy and not impede its achievement.

The evidence reviewed in this report suggests that an intervention early in the plan period would be required to realise growth ambitions. This would see completion of the highway well before 2040 and would need a supporting business case to be in place and the scheme prioritised by CPCA. Planning and preparation would then take place.

Matters to be considered include:

- (i) the ongoing effects of Covid-19, depressing travel demand and affecting travel patterns; and

¹⁸ Residential Density Evidence Paper (Havant B.C. Jan 2019)

- (ii) the availability of funding from affected stakeholders, specifically given that the scheme does not feature in spending plans at the present time.

7.4 What Further Work is Needed?

As the scheme has not been formally studied within a business case format, this process would need to commence to more definitely assess the scheme's viability and look to establish it in CPCA's programme. In short, a business case covers these main activities at escalating levels of detail as the scheme moves forward:

- Creating standing management arrangements
- Transport analysis following Green Book / TAG principles
- Model building and operation
- Outline and detailed design
- Costing and risk analysis
- Programme development
- Site surveying
- Community and stakeholder consultation
- Securing statutory approvals
- Procurement

It is important to realise that with the case not being 'proven' at the present, the possibility exists that as work develops, it may ultimately reveal a less than solid case. The risks of this happening are offset by having formal break points for review at the end of the Strategic Outline and Outline business case stages and indeed any others deemed necessary.

7.5 What Provisions Should be Made Now?

It is recommended that the following actions are considered, with the specific aim of taking the inception study forward into development of a Strategic Outline Business Case.

- If scheme development takes place, it would need to be included in the CPCA funding strategy, which projects forwards three years to 2023/24. Discussions to that end are needed;
- Discussion and agreement on the scheme lead will be required. This facilitates bringing a 'Project Board' together to act as reference decision making body;
- In the absence of a suitable highway model, it would still be possible to commission illustrative model testing in advance as part of an SOBC;
- Stakeholders should agree on the scheme objectives
- The selection of routes / options in detail, perhaps using a Planning for Real approach may be useful. This could be accompanied by a Scoring Workshop;
- A follow-up to the MTTs would help develop the local evidence base, including matters such as real-world delay instances, public perceptions of the scheme and what package of complementary measures could be brought forward for Whittlesey.

7.6 Conclusion

Having examined the economic, social and environmental problems and opportunities and evaluated scheme options against strategic objectives, it is established that there is a sound strategic case for a Whittlesey Relief Road proposal.

A high-level illustration of the scheme's benefit to cost ratio (BCR) examining similar highway schemes in the region and value from 'Dependent Development' indicates that there is potential for the capital costs to be offset to demonstrate a viable scheme.

It is therefore concluded there is sufficient evidence to justify scheme progression, and it is recommended that the scheme proceeds to the next stage evaluation, namely, Strategic Outline Business Case.

APPENDIX

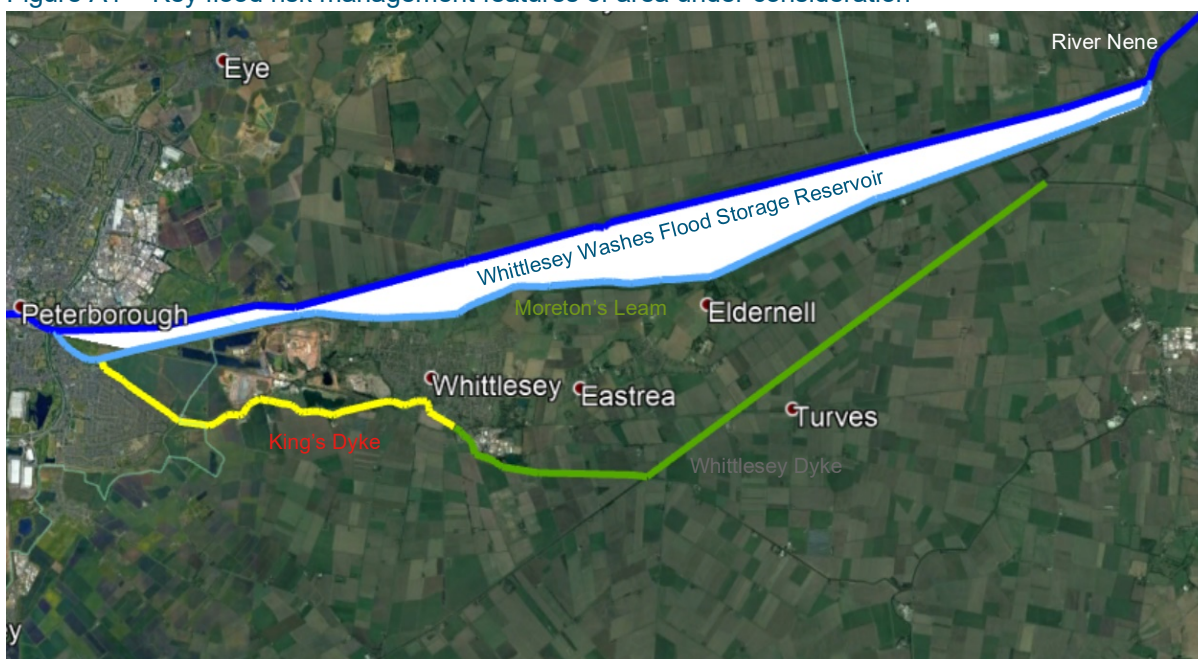
A1 Flood Risks

A1.1 Context

Whittlesey Town Council and Fenland District Council are considering potential options for a relief road around Whittlesey. Two alternative route options are under consideration, to the north and to the south of Whittlesey. Royal HaskoningDHV has been asked to review the potential routes in the context of flood risk management issues for the area.

The most important flood risk management feature in the area under consideration is the Whittlesey Washes, which are located immediately to the north of Whittlesey, as shown in Figure A1. The Whittlesey Washes act as a flood storage reservoir when high tides and river levels coincide. The area is internationally designated as a Ramsar site for its ecologically sensitive wetland habitats. Due to its large size the reservoir is also covered by the reservoir act which places strict controls on works to or adjacent to it.

Figure A1 – Key flood risk management features of area under consideration



Drainage ditches are a feature of the low-lying land to the north and south of Whittlesey. Drains to the north of the town are managed by the North Level Internal Drainage Board (IDB). Drains to the south and east are managed by the Whittlesey Consortium of Internal Drainage Boards (WCIDB).

This assessment has considered three sources of flood risk; fluvial surface water, groundwater and failure of a flood alleviation assets, e.g. reservoir embankment or a pumping station.

Whilst not considered in detail, environmental and construction constraints are identified that should be investigated further.

A1.2 The northern route

Considering the potential route of a relief road to the north of Whittlesey, the main constraint from the perspective of flood risk management is that the route would be within Flood Zone 3a and Flood Zone 3b based on the Environment Agency's Flood Map for Planning, as shown in Figures A2 and A3.

Figure A2 – Flood zones in relation to the proposed northern route

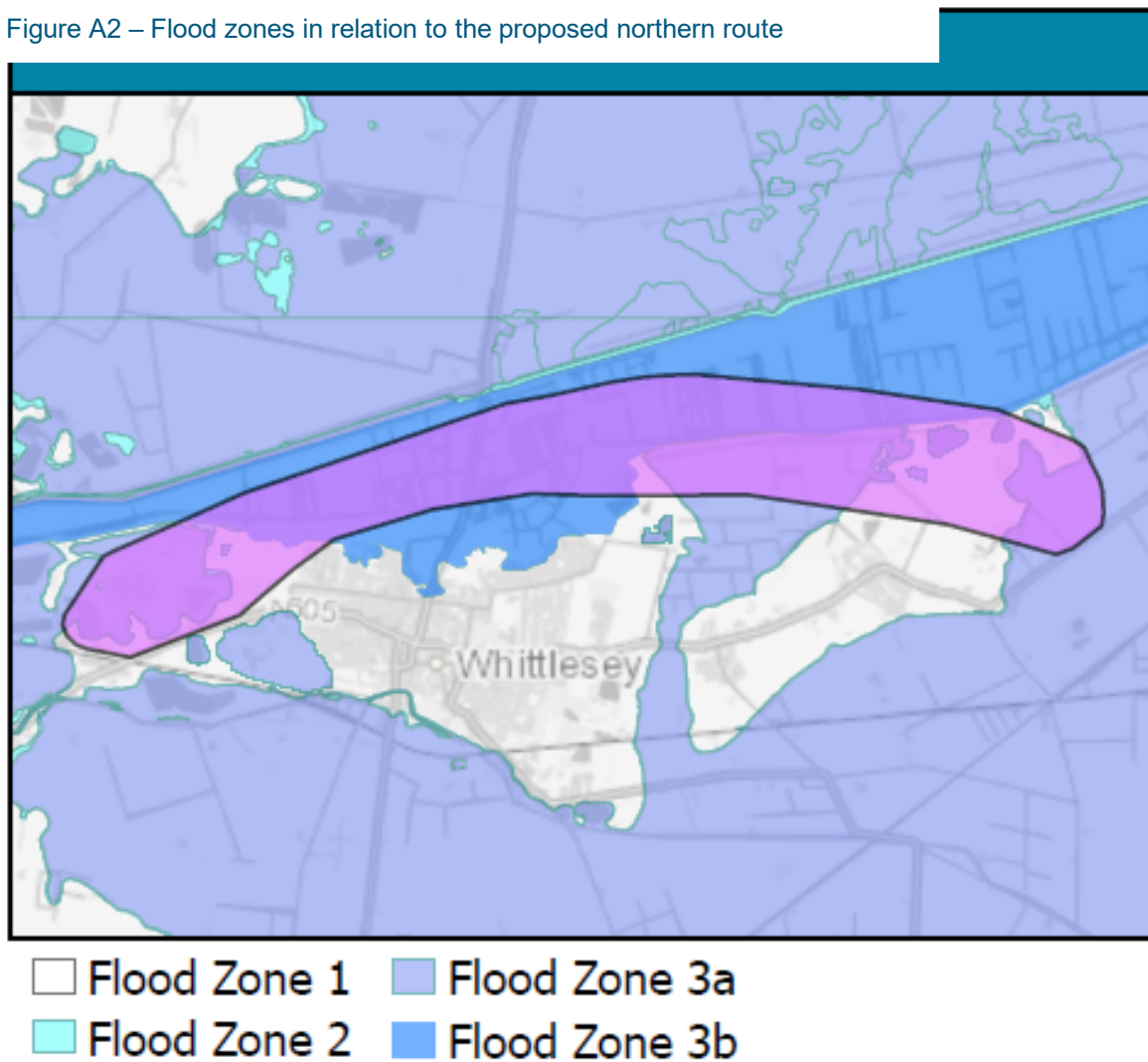
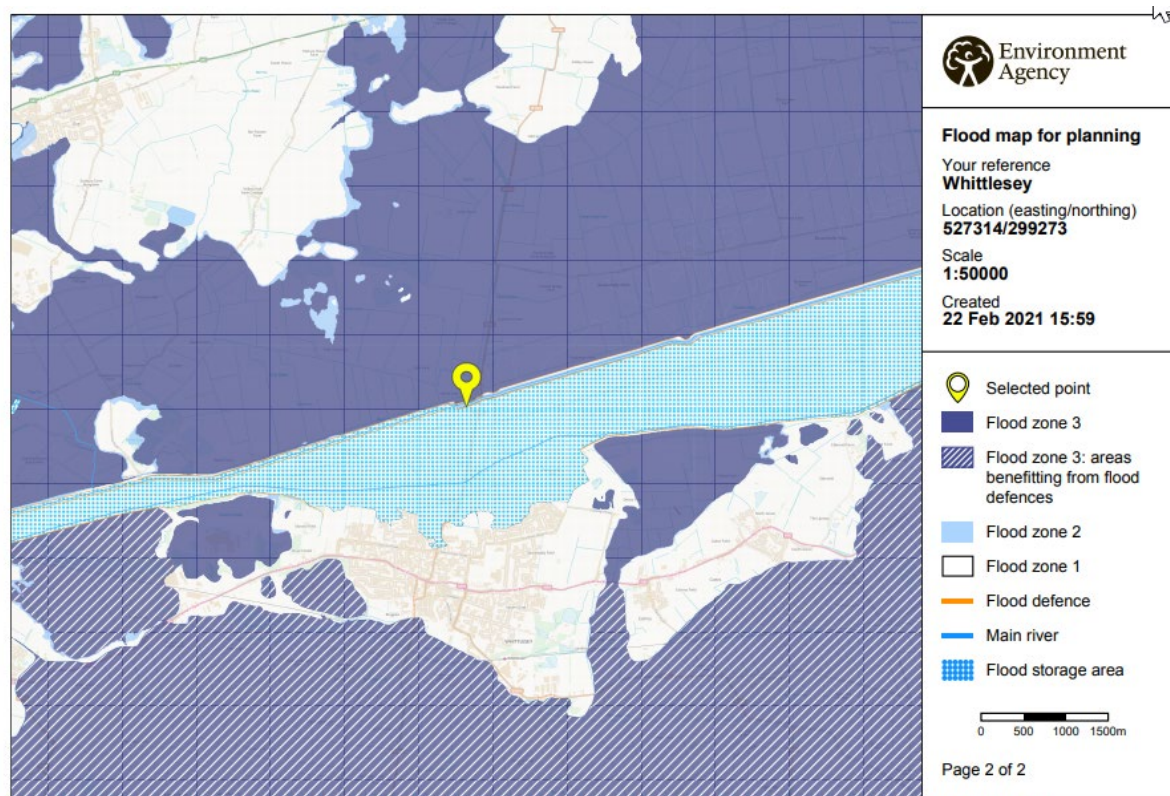


Figure A3 – Environment Agency Flood Map for planning



A Sequential and Exception Test approach in accordance with the NPPF would be needed to justify any development in the flood zone.

As shown in Figures A2 and A3, the central part of the potential route would be within Flood Zone 3b, which is functional flood plain (as defined by the local authority) and is within the defined Whittlesey Washes flood storage area. This part of the flood storage area does not have an embankment; the southern boundary of the Whittlesey Washes in this area is defined by the higher ground levels which occur to the north of Whittlesey.

The feasibility of routing a relief road to the north of Whittlesey depends on whether the capacity of the Whittlesey Washes could be maintained, and if it could be demonstrated that flood risk elsewhere would not be increased. The route of the relief road should need to be aligned as far to the south as possible to minimise the volume of the flood plain that is occupied and therefore the amount of compensatory flood storage that would need to be provided.

Detailed hydraulic modelling would need to be undertaken, and associated consultation with the Environment Agency, to understand how flood risk in the area might change. Environment Agency consent to the proposals would depend on there being no increase in flood risk elsewhere.

The capacity of the Whittlesey Washes could possibly be increased to offset any volume occupied by the relief road by reducing ground levels within the washes, either immediately to the north of the new road embankment, or elsewhere within the washes. However, the sensitive ecological habitats of the Whittlesey

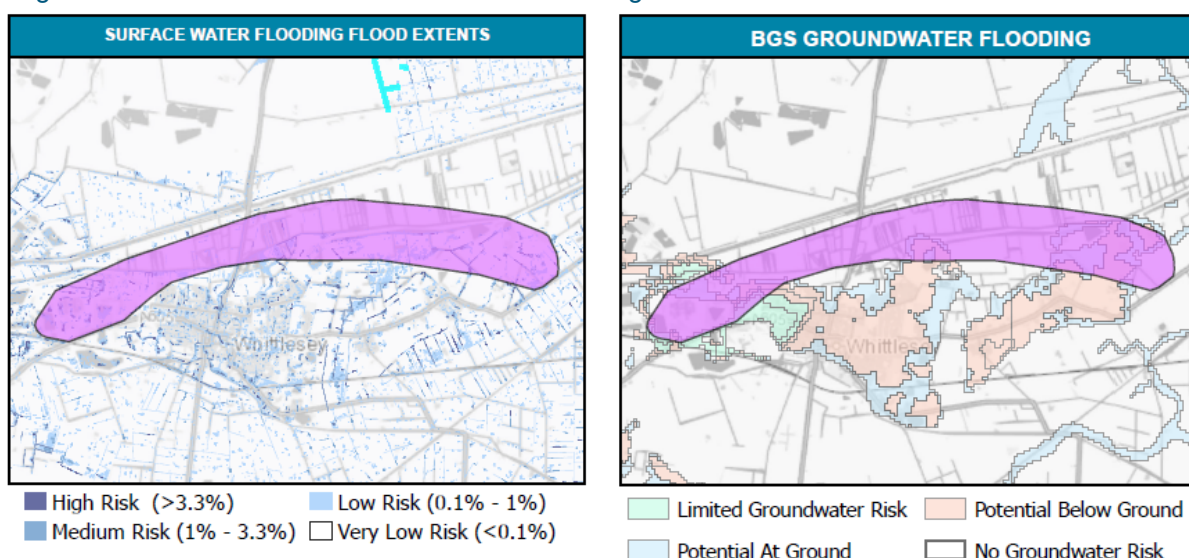
Washes are designated as a Ramsar site (a wetland of international importance), and a Site of Special Scientific Interest (SSSI). Any modifications to the washes would be subject to environmental consultation, assessment and consents. Suitable compensatory habitat would also need to be provided. All of these requirements would add significant cost to the project.

Alternatively, the capacity could be increased by incorporating an additional adjacent area into the washes, to the south of the existing wash embankments. This would require construction of a new embankment around the new washland area, and removal of a section of the existing embankment. Whilst this solution might have fewer environmental constraints, there would be a high cost associated with the embankment construction which would all be tightly controlled due to the requirements to comply with the reservoirs act. The eastern part of the relief road could possibly be aligned to form this new embankment.

The relief road would need to be constructed on an embankment to address the risk of flooding to the road itself, so this could form a new southern boundary to the washes and provide improved flood protection to properties in the north of Whittlesey. Design of the road embankment would need to consider potential future flood risk over a long time-horizon based on current Environment Agency guidance, accounting for the impact of climate change on future flood levels. This requirement might significantly increase the required level of the road embankment, and associated costs. The significant constraints of building road embankments on highly compressible Fenland soils would also need to be addressed. For comparison, it has been assessed that if the A47 was to be re-routed in the future, it would need to be constructed on a 6m high embankment.

The Environment Agency's surface water flood map (Figure A4) shows that there is low to very low risk of surface water flooding to the route of the proposed road. Figure A4 also shows that there is limited risk of groundwater flooding, which would be further reduced through the construction of the road on an embankment, so groundwater flows would pass beneath the road.

Figure A4 – Surface Water and Groundwater flooding risks to northern route



The design of the proposed relief road would need to allow for surface water drainage. Although data from the British Geological Survey (BGS), included in Figure A5, indicates that the northern route could be suitable for bespoke designs of infiltration SuDS, we consider that it could be difficult to achieve sufficient infiltration drainage in this area due to the potential for high groundwater levels. Drainage via attenuation methods is also likely to be difficult due to high groundwater levels; it would be hard to keep the attenuation

pond empty. As the road would need to be constructed on a raised embankment, this could possibly be designed to create space for an elevated attenuation pond which wouldn't be as susceptible to the challenges posed by high groundwater levels.

If surface water drainage from the road will be into any of the drainage channels maintained by the either the North Level or WCIDB, arrangements will need to be made with the appropriate IDB to accept that intake, which could have associated costs because of the increased pumping cost to the IDB even if the peak flow has been attenuated.

Figure A5 – Potential suitability for SuDS (northern route)

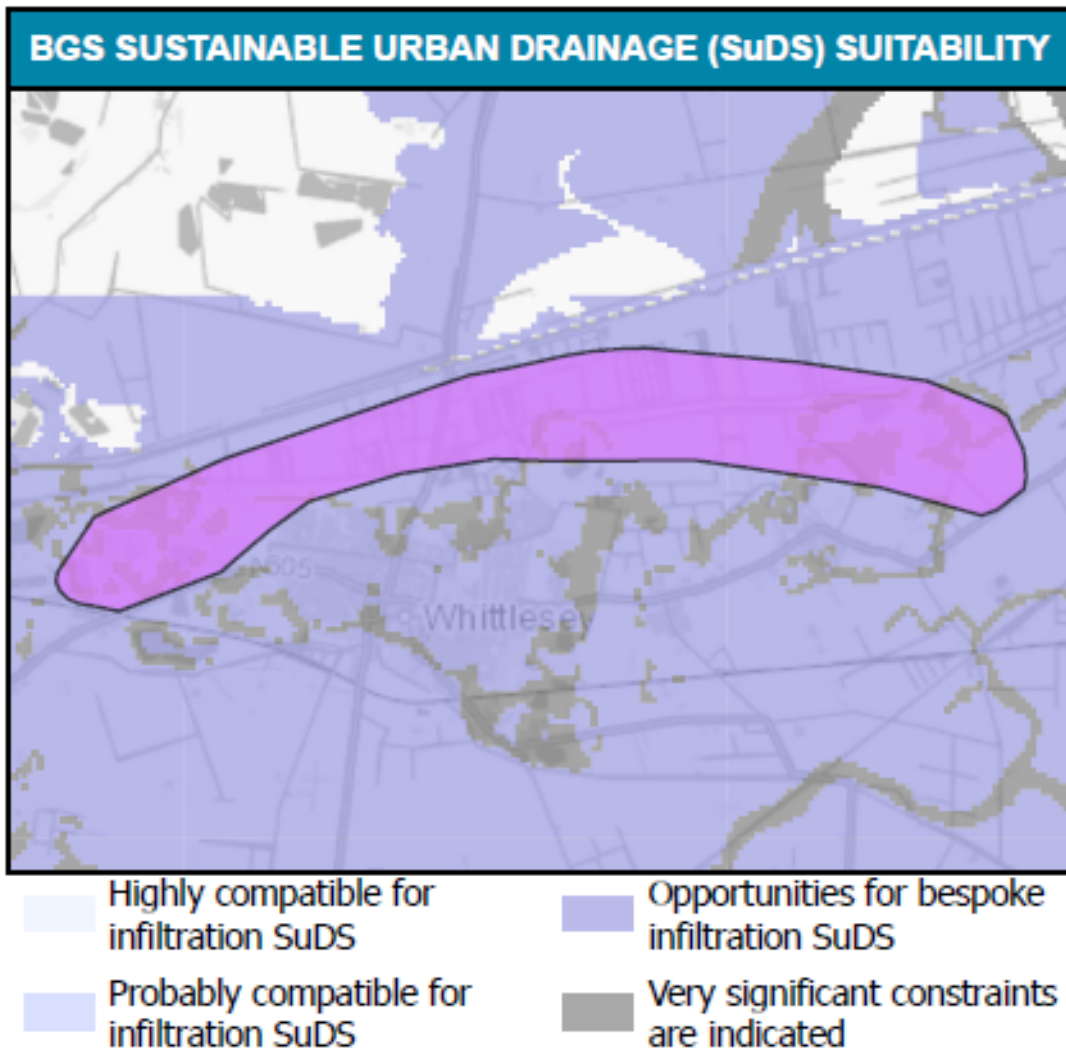
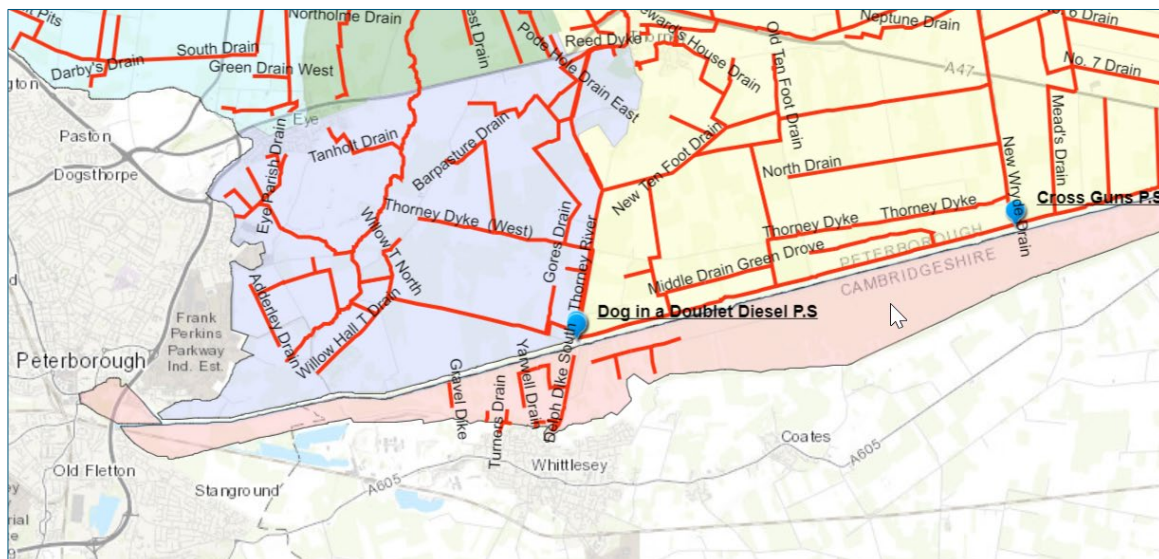


Figure A6 – North Level IDB drainage network



The northern route crosses drainage channels located to the north of Whittlesey, which are the responsibility of the North Level IDB (Figure 6). It may also cross Morton's Leam (Figure A1), which is classified as a main river and therefore the responsibility of the Environment Agency. Suitable culverts would need to be provided to carry these watercourse through the road embankment. Another design consideration could be surface water drainage from the residential areas in the north of Whittlesey.

Drainage through the road embankment would also need to be provided to address the risk of flooding due to a breach of an embankment to the Whittlesey Washes, or failure of an IDB pump, as shown by the Environment Agency's reservoir flood risk map (Figure A7). This reservoir flood risk also means that there is a risk of high hazard from flooding of the road, and the potential need to evacuate residents. This issue would need to be fully assessed, but it could be addressed through the design of the road embankment or with a suitable flood plan.

A1.3 The southern route

The alternative route to the south of Whittlesey would be within Flood Zone 3a, in an area that is defined as being protected by flood defences (Figure A3 and Figure A8). A Sequential and Exception Test approach would be needed to justify any development in Flood Zone 3a. Hydraulic modelling would be required to demonstrate to the Environment Agency that the proposed road does not increase flood risk, accounting for future climate change impacts.

Figure A7 – Flood risk due to potential reservoir embankment failure (northern route)

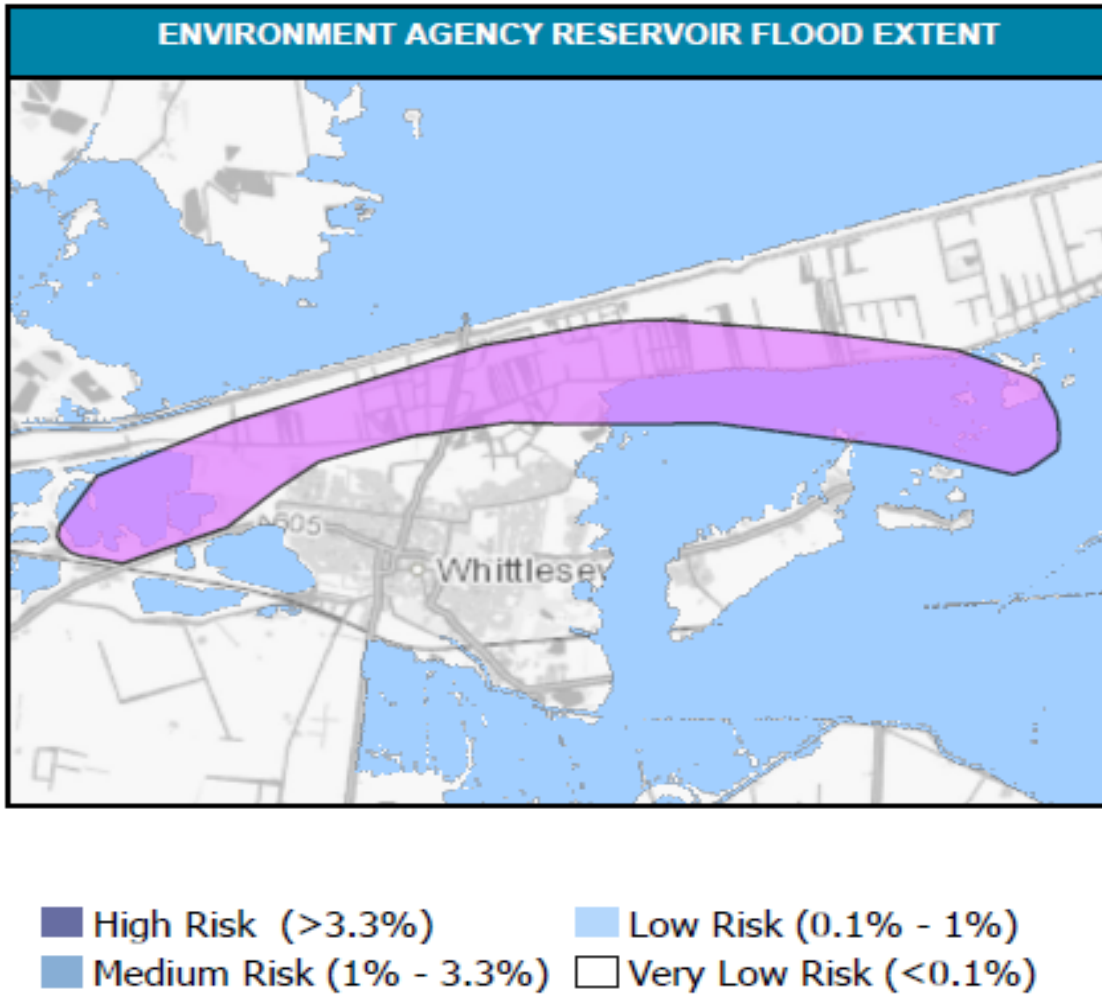


Figure A8 – Flood zones in relation to the proposed southern route

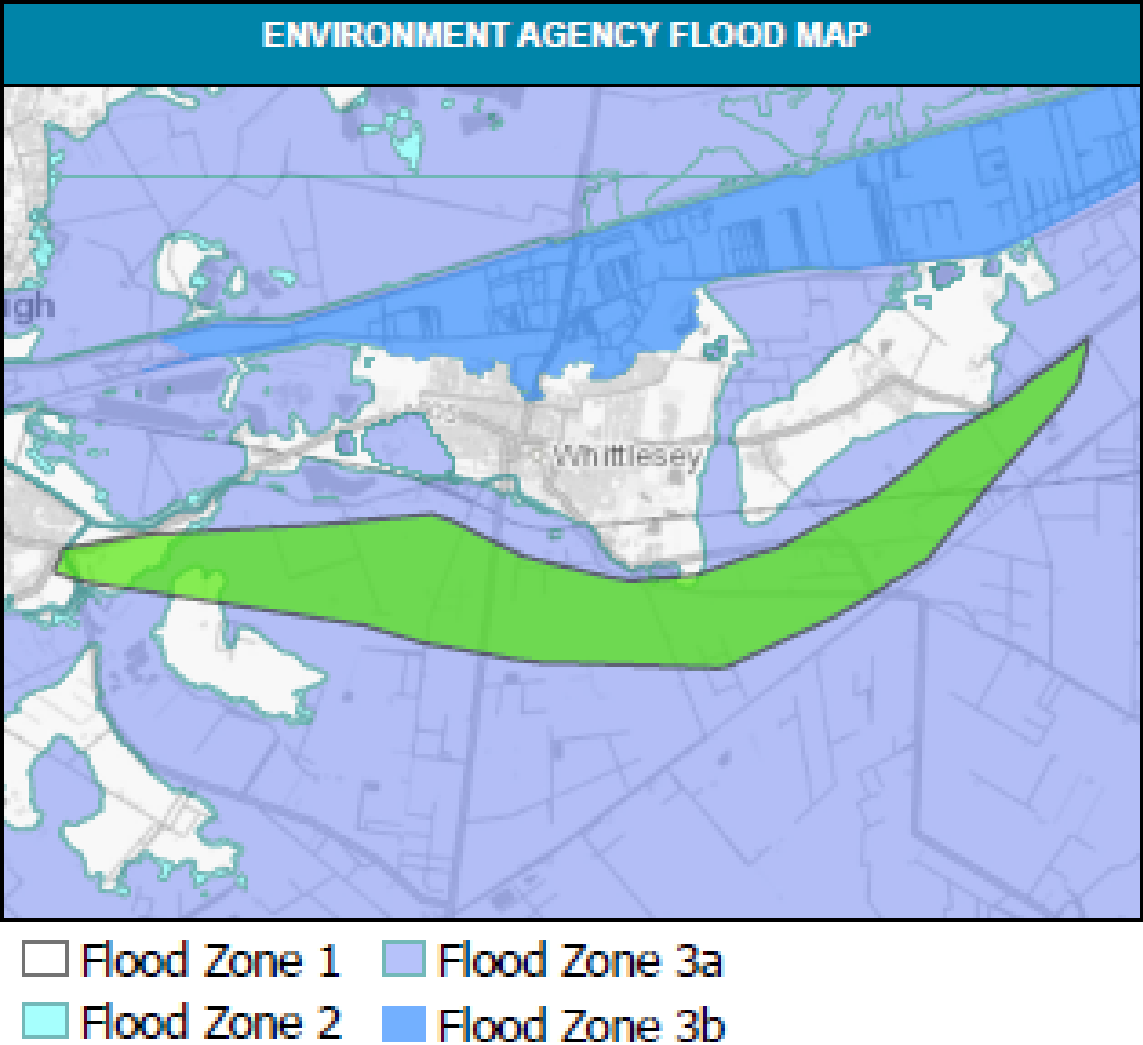
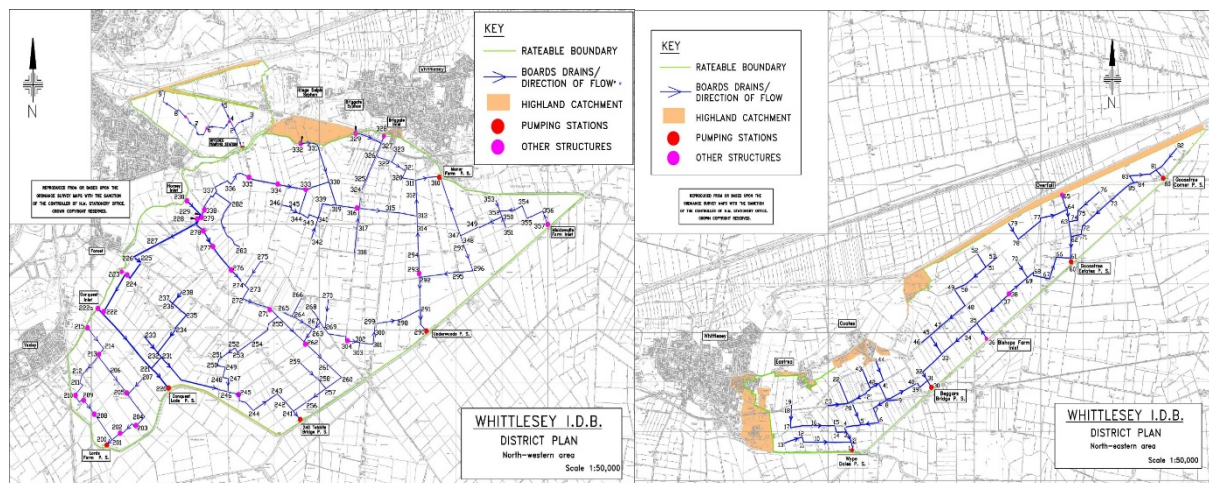


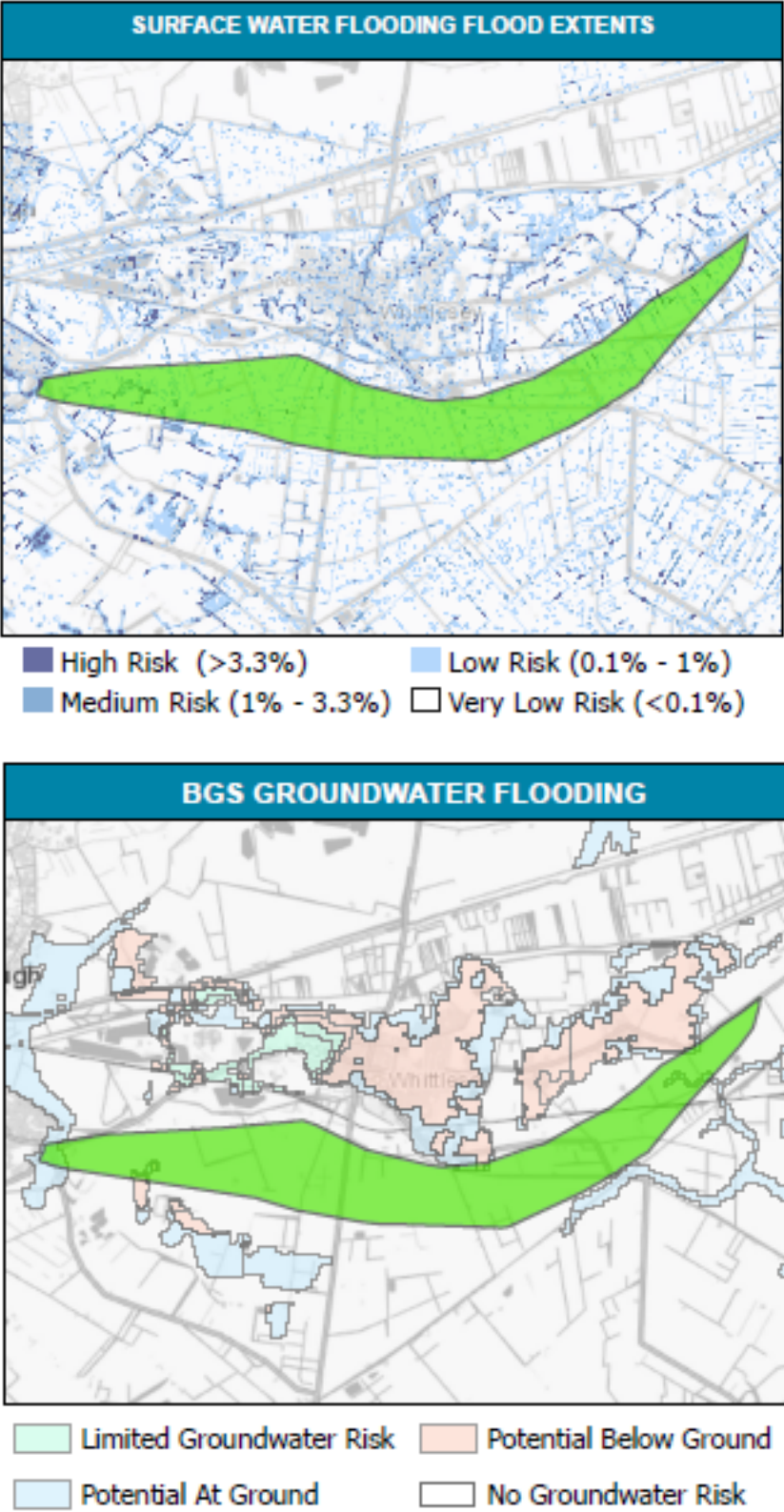
Figure A9 – Whittlesey IDB assets



The main water and flood risk management constraint on the southern route is the IDB drainage network, as shown in Figure A9. The route of the proposed road would need to be optimised to minimise impact on these drains and associated pumping stations. In particular, the road may need to cross the major drains of the King’s Dyke and the Whittlesey Dyke (Figure A1). These drains would need to be bridged or culverted beneath a raised road embankment. Modifications would also be needed to the IDB network including the cutting of new drains and construction of culverts to provide new drainage routes to any severed by the embankment.

For the southern route, it may not be necessary to construct the relief road on a raised embankment in order to address flood risk to the road. The potential need to evacuate residents in the event of a flood (e.g. due to the failure of an embankment to the Whittlesey Washes) would need to be assessed in detail, but it is currently expected that a relief road on the southern alignment would not be designated a strategically important route. Figure A10 shows that there is low to very low risk of surface water or groundwater flooding to the route of the proposed road. The risk of groundwater flooding would be further reduced if the road was constructed on a raised embankment, in which case groundwater flows would pass beneath the road.

Figure A10 – Surface Water and Groundwater flooding risks to southern route



The design of the proposed relief road would need to allow for surface water drainage. Although data from the British Geological Survey (BGS) indicates that the southern route could be suitable for bespoke designs of infiltration SuDS, we consider that it would be difficult to achieve sufficient infiltration drainage in this area due to high groundwater levels. Drainage via attenuation methods is also likely to be difficult due to high groundwater levels; it would be hard to keep the attenuation pond empty.

If surface water drainage from the road will be into any of the drainage channels maintained by WCIDB, arrangements will need to be made for the IDB to accept that intake, which could have associated costs because of the increased pumping cost to the IDB even if the peak flow has been attenuated.

Figure A11 – Potential suitability for SuDS (southern route)

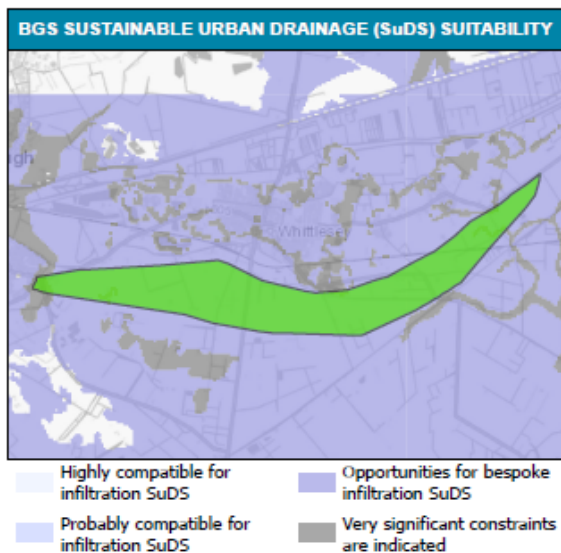
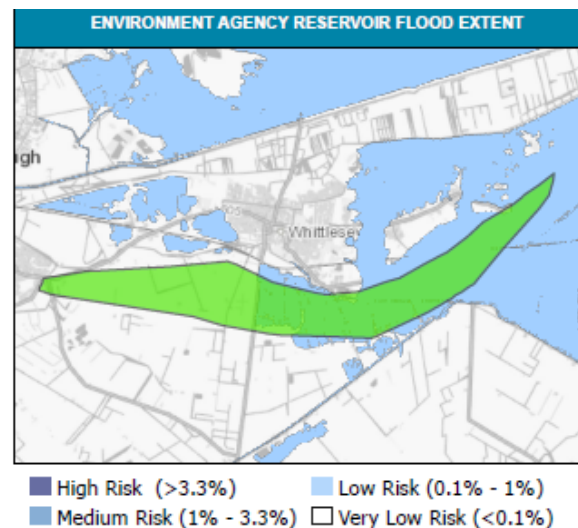


Figure A12 – Flood risk due to potential reservoir embankment failure (southern route)



Drainage through the road embankment may need to be provided to address the risk of flooding due to a potential breach of an embankment to the Whittlesey Washes, , as shown by the Environment Agency's reservoir flood risk map or failure of an IDB pump. If the relief road is not designated as a strategically important route for evacuation if a flood occurs, then flooding of the road may be allowable.

Conclusion

Both of the potential routes for the proposed relief road have constraints relating to flood risk and water management, which would impact on the consents process and costs for any future project. Based on this initial high-level assessment, the constraints on the northern route are considered to be very significant and as such this route is unlikely to be viable. The southern route has fewer constraints in terms of flood risk, and it is expected to be possible to manage those constraints in the design of the proposed relief road.



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