West Sussex County Council

# A29 REALIGNMENT

## Transport Business Case

TBC-R4
APRIL 2019

CONFIDENTIAL

West Sussex County Council

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## Transport Business Case

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WSP

Regus House
Southampton International Business Park, George Curl Way
Southampton, Hampshire
SO18 2RZ

Phone: +44 238 030 2529

Fax: +44 238 030 2001

WSP.com

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| Prepared by | Marc Griffin<br>Chris Whitehead<br>Elaine Martin (WSCC) | Marc Griffin<br>Chris Whitehead<br>Alex Georgeson<br>Elaine Martin (WSCC) | Marc Griffin<br>Chris Whitehead<br>Alex Georgeson<br>Elaine Martin (WSCC) | Marc Griffin<br>Chris Whitehead<br>Alex Georgeson<br>Elaine Martin (WSCC) | Marc Griffin<br>Chris Whitehead<br>Alex Georgeson<br>Elaine Martin (WSCC) |
| Signature | | | | | |
| Checked by | Marc Griffin | Marc Griffin | Marc Griffin | Marc Griffin | Marc Griffin |
| Signature | | | | | |
| Authorised by | Alan Cowan | Alan Cowan | Alan Cowan | Alan Cowan | Alan Cowan |
| Signature | | | | | |
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# EXECUTIVE SUMMARY

## INTRODUCTION

This document is the Transport Business Case (TBC) for the new realignment of the A29 near Bognor Regis in West Sussex (herein referred to as “the scheme”).

It has been prepared in partnership with West Sussex County Council (WSCC) for consideration by the Coast to Capital Local Enterprise Partnership (LEP) and explains why the scheme should receive financial support from the Local Growth Deal, and provides a clear audit trail for the purposes of public accountability and the requirements of the LEP Assurance Framework.

## STRATEGIC CASE SUMMARY

### OVERVIEW

The Strategic Case describes why the A29 realignment is required. It shows how the scheme fits into a wider strategy for the ambitious growth and development of housing in Barnham, Eastergate and Westergate near Bognor Regis, and demonstrates that it aligns with national, regional and local strategic plans and programmes.

The scheme is an important part of WSCC’s strategy to support growth, development and housing. It will enable the local road network to operate more efficiently by reducing congestion, improving the reliability of journey times whilst providing more capacity for economic growth. It will support delivery of the Arun District Plan and the LEP Strategic Economic Plan and Local Growth Deal.

Having reviewed a range of options, WSCC consider this scheme to be the most effective choice in delivering the strategic objectives.

### POLICY BACKGROUND AND BUSINESS STRATEGY

The scheme is closely aligned with the following national, regional and local transport-related plans and programmes for transport, housing and economic growth:

#### National Policies

- National Transport Objectives;
- Moving Britain Ahead – the Government’s Transport Investment Strategy (July 2017);
- Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen. Local Transport White Paper (2011);
- Roads Investment Strategy 2015/16 to 2019/21;
- National Infrastructure Delivery Plan (2016 – 2021);
- Roads Investment: The Roads Funding Package (2016);
- National Planning Policy Framework (2012); and

- Draft National Planning Policy Framework (2018).

## Regional Policies

- Coast to Capital Strategic Economic Plan (2014)

## Local Policies

- West Sussex Local Transport Plan (2011); and
- Arun District Plan 2011-2031 (Adopted July 2018).

The Strategic Case considers each of the above plans and programmes in turn, and explains how the scheme will support their aims and objectives. The Strategic Case shows that:

- The scheme helps to advance the national transport objectives, set by government:
  - To enable the delivery of new housing developments;
  - To unlock economic and job creation opportunities; and
  - To ease congestion and provide upgrades on important national, regional or local routes.
- The scheme supports delivery of the Coast to Capital Strategic Economic Plan (SEP) and supporting Coast to Capital Growth Deal which states that Bognor Regis A29 re-alignment between the new Bognor Regis Relief Road and the A27 which will bridge the West Coastway railway line, avoiding congestions points and current delay points at a level crossing, and will include 4 to 5 new junctions and cycle and pedestrian facilities. The realignment will allow new development of housing, business and employment opportunities in Bognor Regis.
- The scheme will support and complement delivery of the major housing and employment allocations in the adopted Arun District Local Plan (**Figure 1**).

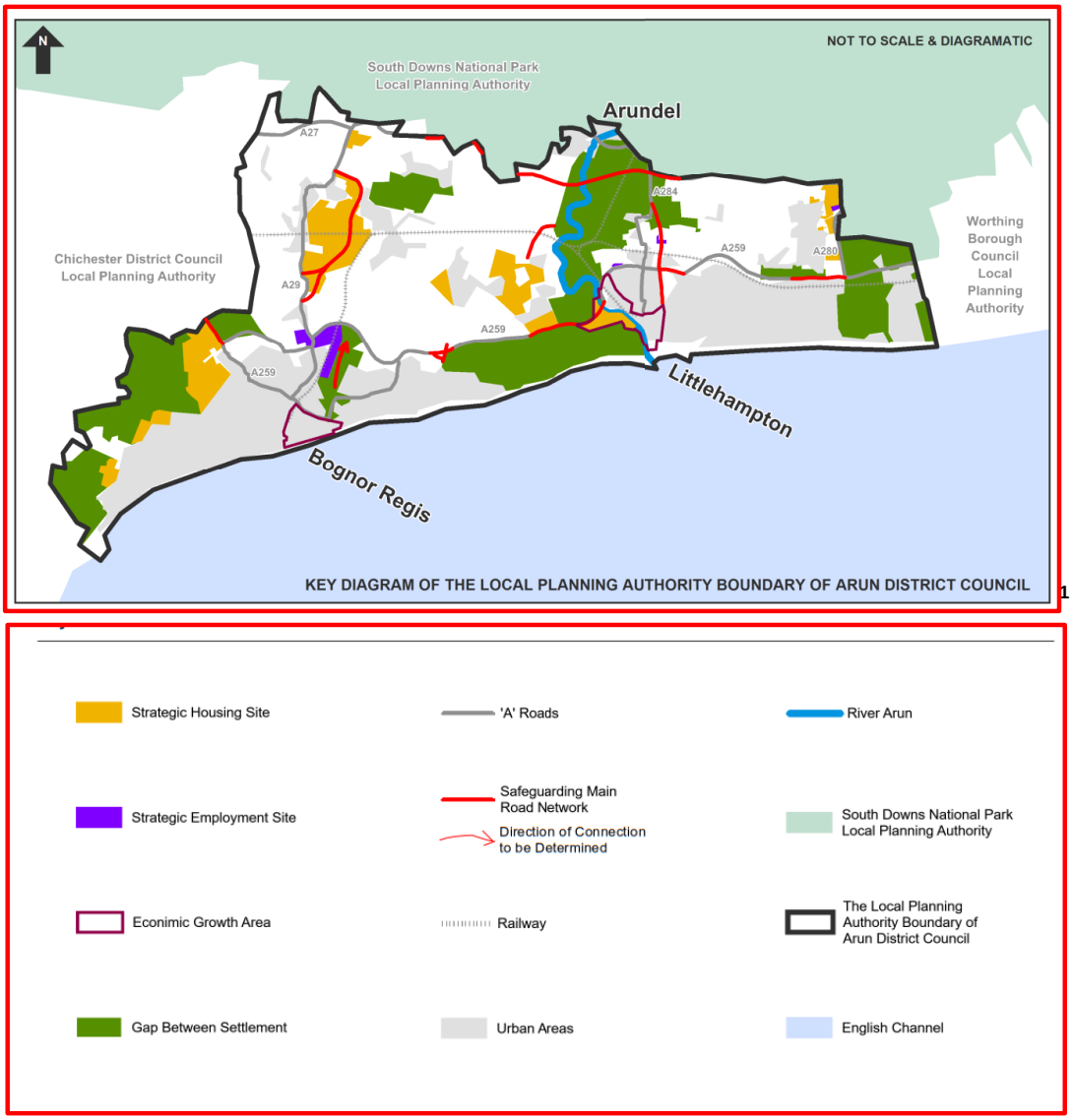



**Figure 1 - Strategic Allocation within the area of the A29 Realignment**

The A29 Realignment Scheme will deliver a 4.34km road to the east of Eastergate, Westergate and Woodgate villages. The A29 Realignment will support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District. The new road will also alleviate traffic congestion along the existing A29, notably at the Woodgate level crossing which causes delays on to a key access route into Bognor Regis.

1 Adoption Arun Local Plan 2011-2031 (July 2018)

## EXISTING TRANSPORT-RELATED PROBLEMS

The current A29 route suffers from the following existing problems which are explained in more detail under the Strategic Case:

- Congestion - during the peak periods, notably at the Woodgate level crossing and War Memorial junctions;
- Journey time unreliability - at busy times, journey times can vary considerably during peak periods, making it difficult for road users to predict the time needed for their journeys; and
- Road Accidents – experienced along the entire A29 route particularly at locations such as the Lidsey Bends.

## FUTURE TRANSPORT-RELATED PROBLEMS

Even in the absence of planned development, background traffic growth will make existing congestion problems worse, but without mitigation, the level of traffic generated by the planned development would exacerbate these issues. The A29 Realignment scheme has been identified as a key component of the Strategic Infrastructure Package to support the Arun Local Plan and ensure that impacts are satisfactorily mitigated The Strategic Case will set out when, where and by how much traffic will increase on existing roads in the “do minimum” and will highlight what this would mean for journey times, delays and accidents.

## OPTIONS AND THE PROPOSED SCHEME

### Scheme Aim & Objective

The primary aim of the scheme is “to support delivery of the SEP, the West Sussex Transport Plan and the Arun Local Plan by enabling the delivery of new homes, jobs and employment floorspace”.

To achieve this aim, the Strategic Case defines high level strategic outcomes, specific or intermediate objectives and operational objectives.

### Scope and Constraints

The Strategic Case sets out the scope of the scheme and discusses the constraints.

### Options Considered

The A29 realignment has been subject to a number of previous studies and has considered a number of route options as set out below.

- Parsons Brinckerhoff. A29 Woodgate Study, 2012;
- MVA. A29 Realignment Viability Study, 2013; and
- Systra. A29 Realignment Feasibility Study, 2014.

An option review was undertaken to gain a full understanding of the studies. These options were considered and the preferred scheme agreed prior to undertaking the Preliminary Design of the A29 realignment and the subsequent development of a Business Case ready for a WSCC Gateway 2 review.

The options considered for the A29 realignment are described in detailed within the Strategic Case and the Options review report can be found under Appendix C

## Proposed Scheme

It is proposed that Option 2 (Figure 2) will deliver the best value for money to deliver the required objectives. The proposed A29 realignment scheme will deliver a single carriageway to the east of Eastergate,Westergate and Woodgate villages. To the north it will link into the A29 (north of Eastergate), and to the south a new a new junction on the A29 Lidsey Road (north of Shripney) will be provided. A bridge will be required over the West Coastway railway line. Cycle, pedestrian and equestrian facilities along the route have also been considered.

The preferred realignment option 2, made up of sections known as Route 6 (Phase 1 (North)) and D and 12 (Phase 2 (South)), is shown as a solid purple line below at **Figure 2** below

The delivery of Phase 1 (north) will be procured and delivered by WSCC. Arrangements for Phase 2 (South) are being discussed with developers through the planning process. Although we do not have a fixed approach to Phase 2 (South).

It is expected that the development will be coming forward without the completion of the full A29 realignment scheme. Therefore, there will be a cul-de-sac style in the early stages of delivery and WSCC have already been approached for pre-app advice (trigger point analysis).by the developer

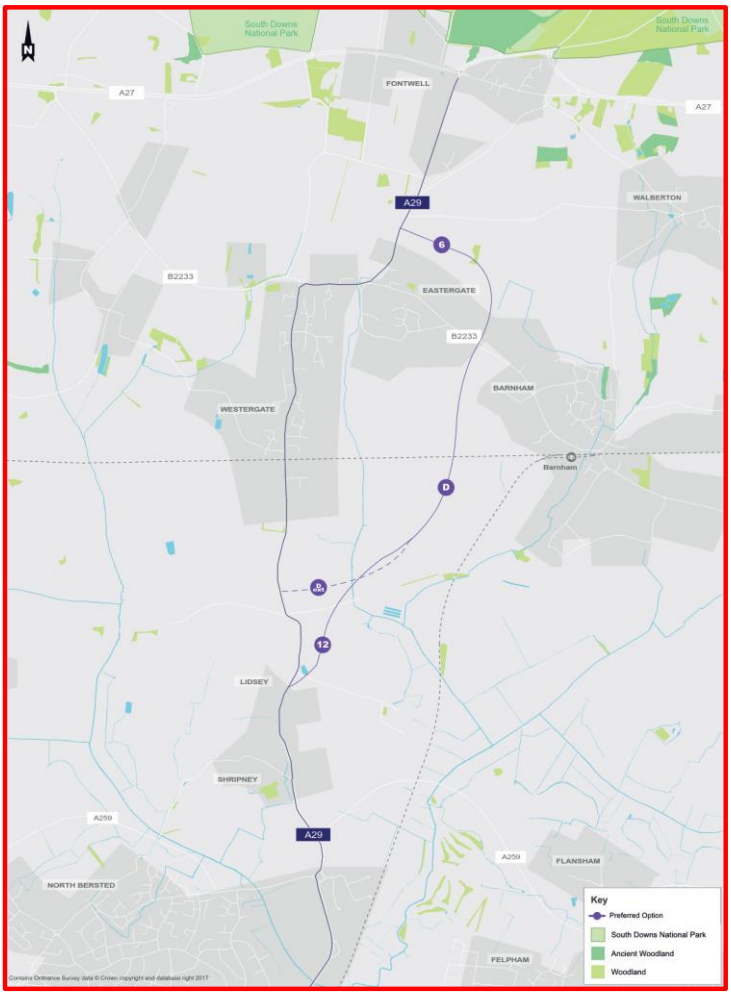



**Figure 2 - A29 Improvements Preferred Option**

### Achievement of Objectives

The scheme will create capacity for expected traffic growth, and will tackle the planned and potential development to support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District. The Strategic Case will conclude by using key forecasts from the new traffic model to demonstrate how the scheme is expected to achieve its objectives. This will complement the information presented more formally in the Economic Case which focuses on the economic value (the Present Value of Benefits (PVB)) of all the benefits that can be monetised.

## ECONOMIC CASE SUMMARY

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

### Benefit Cost Ratio

The value for money category is based on the Benefit Cost Ratio (BCR). The initial BCR is 1.5:1. The adjusted BCR is 1.8:1.

### Value for Money Category

An analysis of the monetised benefits of the scheme demonstrates that it offers medium value for money.

## FINANCIAL CASE SUMMARY

The Financial Case provides a detailed cost estimate and a breakdown of how the scheme will funded. The estimated cost of the scheme is approximately £54.2m at out-turn prices which includes an allow for Quantified Risk (£9.1m). With optimism bias, the out-turn cost is approximately £54.2 million.

A fixed sum of £13 million is being sought from the Coast to Capital LEP, which represents 24% of the scheme outturn costs. The rest of the balance of approximately £41.2 million which accounts for 76% of the scheme outturn costs, will be funded by WSCC and Developer contributions.

## COMMERCIAL CASE SUMMARY

In line with the WSCC adopted approach, the preference is to procure the scheme using the NEC3 Form of Contract with Option C. The contract will be procured through the WSCC Highways & Transport Projects Framework (Lot 2).

The scheme will be delivered in two phases. The first phase of the scheme to be delivered by WSCC is the northern section from the A29 south of Eastergate Lane to a new junction with Barnham Road. The second phase of the scheme will be the southern section from Barnham Road to a new junction on the A29 south of Lidsey Bends.

It is the intention that Phase 2 (South) will follow on from Phase 1 (North) and arrangements for delivery are being discussed with developers through the planning process.

Once appointed, the contractor will undertake the detailed design of Phase 1 (North) to commence as soon as practicable.

The delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process. Although we do not have a fixed approach to Phase 2 (South) WSCC are committed to underwriting the costs of Phase 2 within their capital budget. The options for delivery of Phase 2 (South) would be;

- Developers will deliver phase 2 (South)
- WSCC deliver the scheme as proposed for Phase 1 (North)

## MANAGEMENT CASE SUMMARY

An appropriate governance structure is essential to the delivery of the scheme. WSCC has therefore established a Project Board and a Project Delivery Team aligned with best practice guidance on project management. The Project Board's primary function is decision-making and review. The Project Delivery team has been established to deal with day to day planning and delivery of the scheme.

A project programme has been developed and sets all the key project tasks and their duration and interdependencies, key milestones and gateways. It will act as a live document, with progress being monitored on a weekly basis by the project manager.

Key stakeholders have been identified and a stakeholder management plan will be adopted based upon practice used in previous schemes.

A strategy has been developed to establish how the performance of the scheme against objectives for project success will be monitored and assessed, to demonstrate the value for money for the funding of the scheme. These objectives relate to changes in traffic flows, reductions in journey times and in variability of travel times, changes in noise and air quality levels at key locations, highway safety and wider economic indicators.

# 1 INTRODUCTION

## 1.1 PURPOSE OF THE TRANSPORT BUSINESS CASE

1.1.1 This document is the Transport Business Case (TBC) for the A29 Realignment near Barnham, in West Sussex (referred to as the scheme from here on). It has been prepared on behalf of West Sussex County Council (WSCC) for consideration by Coast to Capital Local Enterprise Partnership (LEP), and explains why the scheme should receive financial support, and provides a clear audit trail for the purposes of public accountability.

1.1.2 The TBC is more than just a bid for financial support. It also explains why WSCC has decided to put the scheme forward in the form proposed. It presents the scheme as part of a wider strategy, and shows that the case for it is based on a realistic analysis of the current situation, a clear vision of the transport needs of the future (to support growth), a proper assessment of costs and benefits, and a robust plan for delivery.

## 1.2 BACKGROUND

1.2.1 The A29 Realignment scheme was identified as a priority for investment in the County Council's Strategic Transport Investment Programme (STIP) in June 2014 (HT07 (14-15)). This investment supports the delivery of strategic growth in Arun District which is a priority in the Arun Growth Deal that identifies the A29 road improvements as a key infrastructure project for delivery as early as possible.

1.2.2 The West Sussex Transport Plan 2011-2026 (WSTP) states that transport issues are a deterrent to visitors and businesses locating in Arun District. Bognor Regis currently suffers from relatively poor connectivity by road and rail which has discouraged businesses from investing and has contributed to poor economic performance relative to the rest of West Sussex and the wider region. The aims for Arun include exploring opportunities through new development to improve access along the A29, including the potential to provide a bridge over the railway line avoiding the Woodgate level crossing.

1.2.3 The adopted Arun Local Plan 2011-2031 (ALP) identifies Bognor Regis as a strategic location where new development is expected to help deliver much needed regeneration during the lifetime of the Plan. The ALP also allocates land at Barnham, Eastergate and Westergate (BEW) for strategic housing and commercial development and associated community infrastructure.

1.2.4 The site allocation also includes an indicative route for the A29 Realignment to provide access to the site as part of a strategic infrastructure package to mitigate the cumulative impacts of development over the plan period.

1.2.5 There is also potential within the strategic site allocation for further development comprising additional housing units to be delivered beyond the end of the plan period, subject to all relevant planning decisions.

1.2.6 A breakdown of the housing trajectory associated with the transport modelling for the scheme can be found under Appendix K

1.2.7 **Figure 1-1** below is an extract of Map 2 from the Arun Local Plan – Barnham, Eastergate and Westergate Strategic Site Allocation.

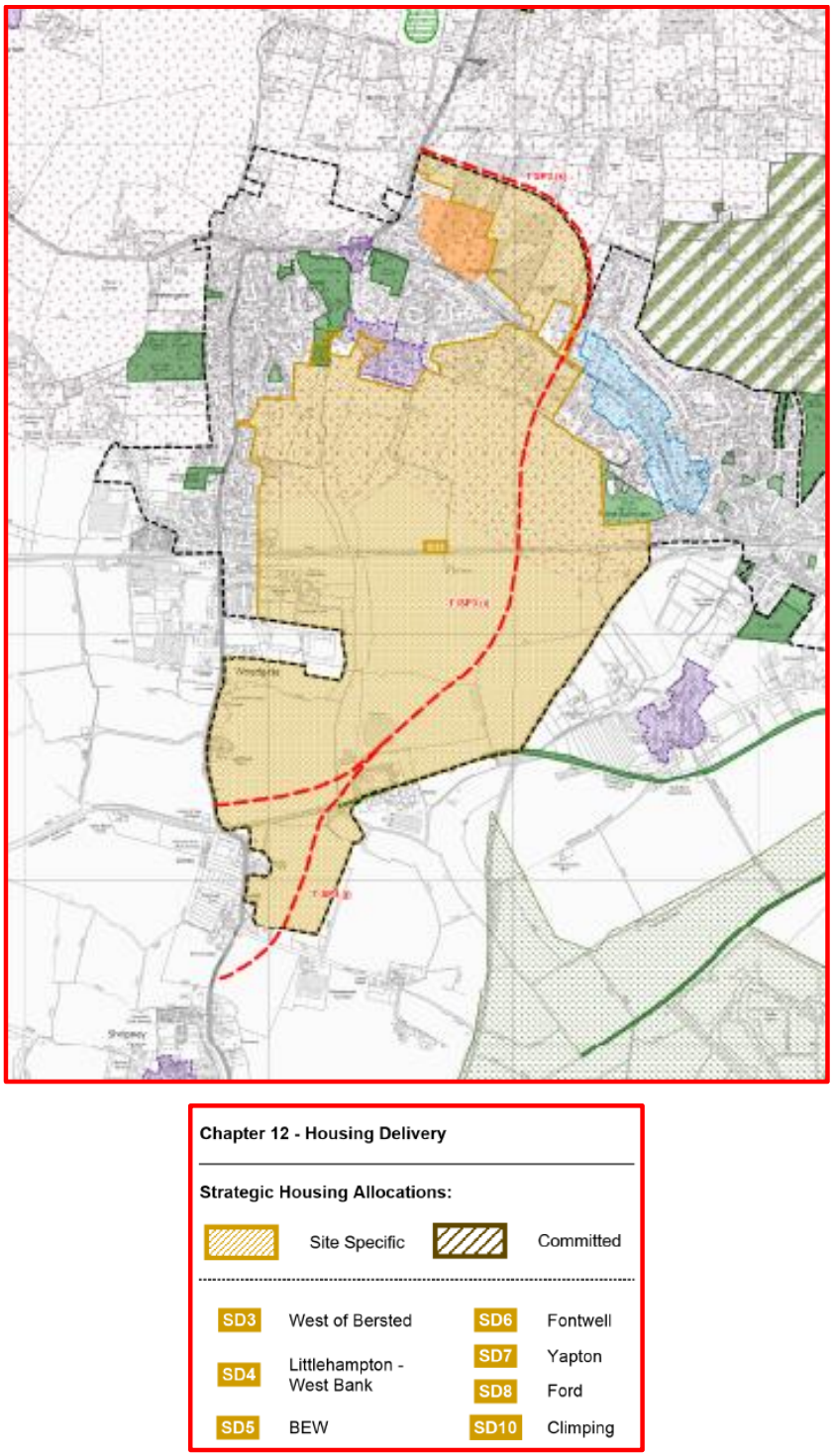



**Figure 1-1 - Arun Local Plan – Barnham, Eastergate and Westergate Strategic Site Allocation (extract from Map 2)**

1.2.8 In March 2014, the LEP identified the A29 realignment scheme as a priority in its Strategic Economic Plan (SEP) subject to confirmation of value for money and deliverability through a Business Case. LEP noted within their SEP that the A29 realignment scheme is critical to remove both the problems associated with negotiating narrow streets and traffic delays caused by the South Coast rail level crossing. This will improve the link between A259 and A27 and will open up a significant parcel of land for development.

1.2.9 LEP's objective is to generate economic growth through the creation of new jobs, homes and employment space by providing funding for appropriate schemes between 2015/16 and 2020/21 as part of a wider plan. This scheme is included within the LEP's SEP of 2014.

1.2.10 The LEP has secured an initial Growth Deal with the government based on the SEP in July 2014, and in January 2015 the deal was expanded to include funding for the scheme. The Department for Transport (DfT) has allocated £13m from the Local Growth Fund (LGF) towards the cost of the scheme. Funding is conditional on the preparation of an TBC to confirm deliverability and value for money, and the assessment and approval of the TBC

1.2.11 In August 2017, a Strategic Outline Business Case (SOBC) was submitted to the LEP which considered a range of options for the scheme.

1.2.12 WSP were commissioned by WSCC to continue developing and appraising the scheme (in the form of an options study report), and to prepare the TBC. The TBC takes into account the latest position with regard to planned development, and is based on updated modelling, design and appraisal. The TBC and its supporting documents provide all the information needed for an investment decision to be made.

## 1.3 STRUCTURE OF THE TRANSPORT BUSINESS CASE

1.3.1 The appraisal which underpins this BC follows DfT guidance, including Web-based Transport Analysis Guidance (WebTAG). The structure and content of the BC is intended to align with the best practice guidance for an Outline Business Case as described in "The Transport Business Cases" (DfT, January 2013) – the five-case model but hereafter referred to as the Transport Business Case (TBC).

1.3.2 Following a description of the scheme, the remainder of the TBC is made up of five separate cases:

- The **Strategic Case** which shows that there is a robust 'case for change', closely aligned to wider strategic and public policy objectives
- The **Economic Case** which shows that the scheme provides medium value for money, based on a formal appraisal undertaken in line with DfT guidance
- The **Financial Case** which explains how much the scheme will cost and how it will be paid for, showing that it is affordable
- The **Commercial Case** which shows that the scheme is commercially viable
- The **Management Case** which shows that the scheme is achievable in practical terms, and explains how the project will be managed to ensure it achieves its objectives

# 2 THE SCHEME

## 2.1 LOCATION OF THE SCHEME

2.1.1 Bognor Regis sits within Arun District and is approximately 6 miles east of Chichester. It has a population of approximately 64,000 (2011 census). Between Bognor Regis and the A27 is the Six Villages area of Aldingbourne, Barnham, Eastergate, Westergate, Walberton and Yapton, with a combined population of approximately 14,000 (2011 census) and a range of local services.

2.1.2 Bognor Regis can be accessed via the A29 (from the A27 Fontwell roundabout or Crokerhill junction) or the A259 which runs east-west from Chichester to Littlehampton. The area suffers from poor connectivity by road, particularly to the A27, which is perceived to discourage businesses from investing in the town, and has contributed to poor economic performance relative to the rest of West Sussex.

2.1.3 Although not forming part of the County Strategic Road Network, the A29 is south of its junction with A27 at Fontwell and is an important access route to Bognor Regis which, along with A259 provides access between Bognor Regis and the trunk road network.

2.1.4 The A29 currently suffers from severe congestion, exacerbated by the delay caused by the railway level crossing at Woodgate (between Watergate and Lidsey).

2.1.5 The scheme will provide improved connections between Bognor Regis and the A27. Between its junction with A27 and Bognor Regis, the A29 joins the small settlements of Fontwell, Eastergate, Westergate, Nyton, Woodgate, Lidsey and Shripney.

2.1.6 The scheme forms part of the commuting route to the Barnham railway station linking other surrounding towns and villages.

2.1.7 The existing A29 corridor from the A27 to Bognor Regis is shown in **Figure 2-1.**


**Figure 2-1 - Location of the A29 Realignment**

2.1.8 The existing A29 is a 7.3m wide single carriageway. There is a level crossing location on the existing A29 which can be closed up to 35 minutes in every hour during the AM and PM peaks.

2.1.9 The Scheme is approximately 4.34km in length and will be the major access road linking Bognor Regis to the A27 Strategic Road Network (SRN) as illustrated in Arun Local Plan **Figure 2-2** below supporting housing growth in the area**.**

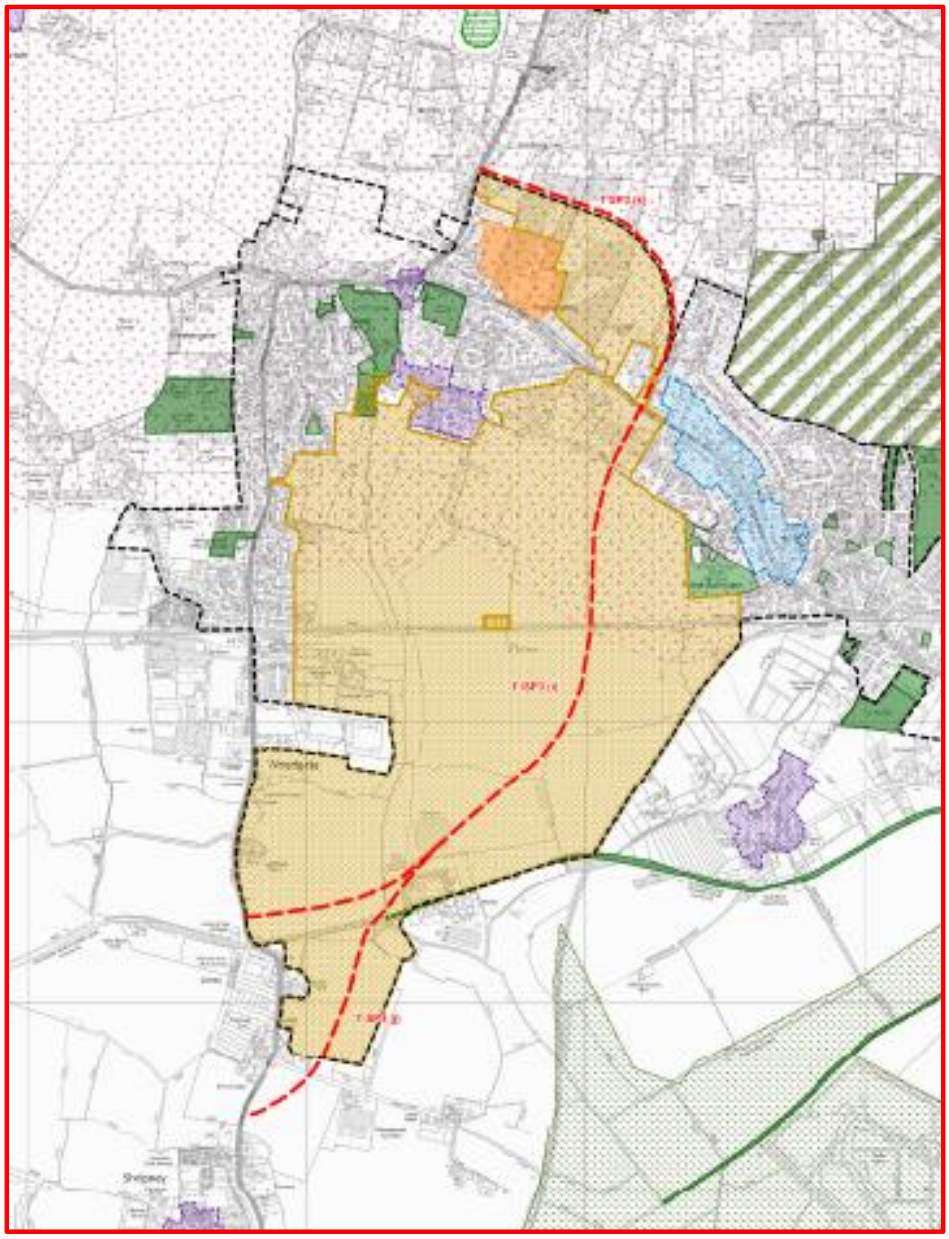


**Figure 2-2 - Location of the A29 Realignment Scheme (Local Plan) Scheme Description**

## 2.1.10 OVERVIEW

2.1.11 The scheme is broadly based upon the preferred choice (as set out in the options report noting that the route is contained within the strategic allocation) and has been developed in significantly more detail and is illustrated in a set of General Arrangement Drawings included within Appendix A. Figure 2-3 (also included in Appendix A) show plan of the proposed A29 realignment.

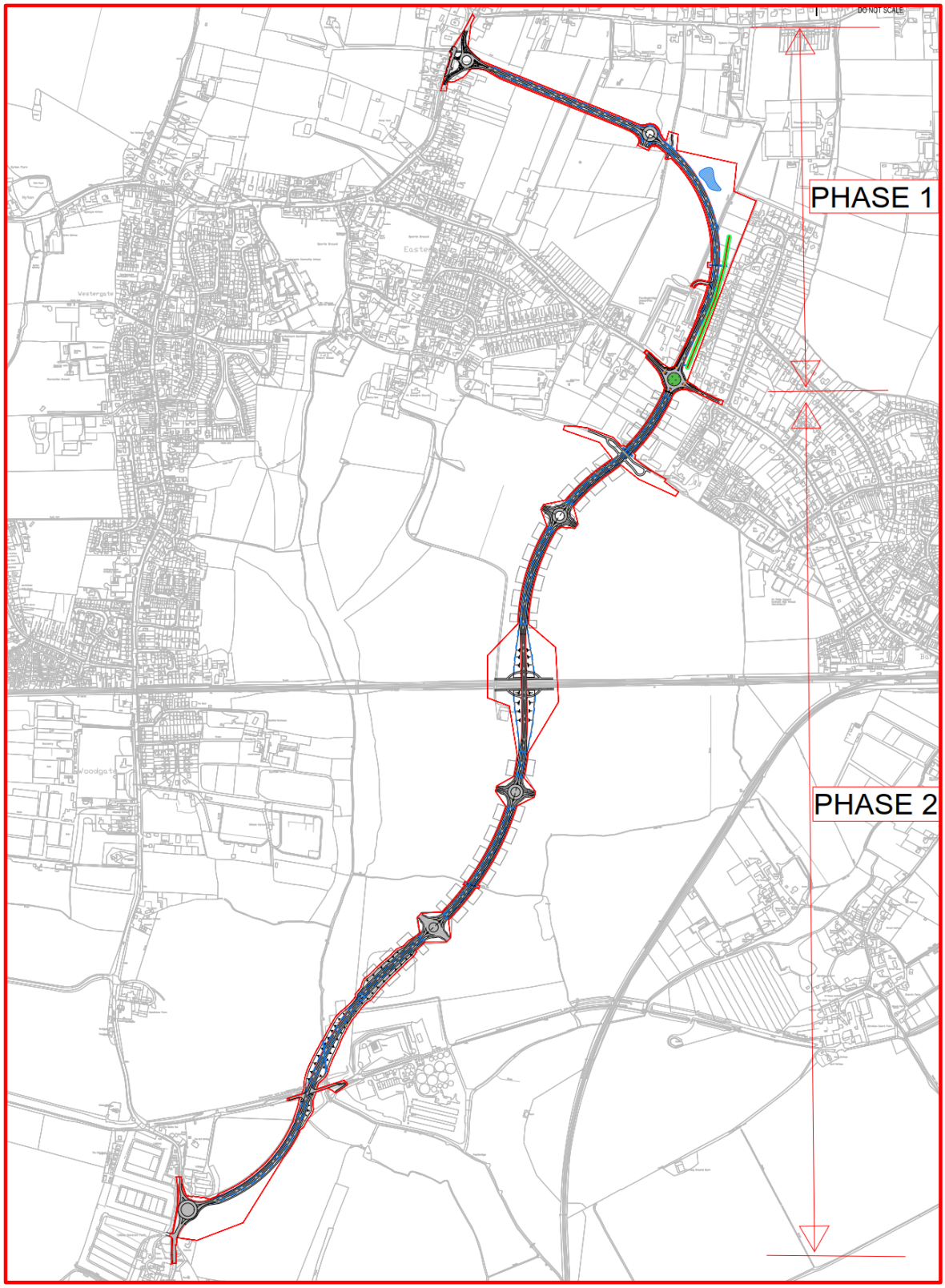



**Figure 2-3 - Proposed A29 Realignment scheme**

## 2.2 SCHEME DESIGN

2.2.1 The scheme will involve the construction of a new carriageway which has been designed in liaison with key stakeholders and through the develop of design parameters working closely between WSCC, ADC and Developers to determine the most suitable cross sections and form of the carriageway through the length of the A29 realignment whilst considering the wider strategic development. The key characteristics of the scheme include:

- A new carriageway varying in width between 6.5m and 7.3m;
- A combined cycleway/footway green corridor for the entire length of the A29 realignment. In some locations where development is only planned on one side the combined cycleway/footway will provide infrastructure the side of the development only;
- Provision of verges and planting of trees between the carriageway and combined cycleway/footway;
- Construction of a new railway bridge over the existing West Coastway railway line with provision for cycling and walking routes parallel to the railway line on both sides to support the developments;
- Construction of a footbridge to support the local school cycling and walking routes;
- Links to Public Rights of Way and provision to support future green infrastructure investment via the Arun Local Plan;
- Provision of suitable junctions based on traffic flows forecast to support development sites;
- Provision of at grade crossing points at junctions;
- Provision of street lighting;
- A mixture of drainage solutions along the route including below ground level pipes and swales; and
- Provision of noise bunds which will be developed at detailed design stage as required.

### 2.2.2 ALTERATIONS TO THE ADJACENT ROAD NETWORK

2.2.3 Several alterations are proposed for the adjacent road network (A29 and Barnham Road) including: improved junctions, review of existing speed limits, facilities for non-motorised users and proposals for junction upgrades such as the A27 Fontwell junction are either secured through the planning process or are planned to come forward in line with associated development.

### 2.2.4 PROVISION FOR OTHER USERS

2.2.5 The scheme also provides opportunities for more journeys to be made by cycle and on foot through the provision of:

- Footways and cycleways;
- Links to existing Public Rights of Way (PROWs) as appropriate;
- Bus links; and
- Link to Barnham Railway Station.

2.2.6 The scheme will also include landscaping, planting and environmental mitigation measures.

# 3 STRATEGIC CASE

## 3.1 INTRODUCTION

3.1.1 The Strategic Case has been prepared in accordance with Government guidance [2,3,4,] and is one of five cases which make up the TBC for the scheme.

3.1.2 The Strategic Case describes why the A29 Realignment is required and shows how the scheme fits into a wider strategy for the ambitious growth and development in West Sussex. The Strategic Case also demonstrates that it aligns with national, regional and local strategic plans and programmes.

3.1.3 It also describes how WSCC has considered a range of options, and has undertaken consultation with key stakeholders. The resulting scheme is one which WSCC considers the most effective choice in delivering the strategic objectives.

3.1.4 Together with the other four cases in the TBC, the Strategic Case explains why the investment is needed now, to address existing concerns about congestion and to facilitate future economic growth and development.

3.1.5 The Scheme is important to deliver the combined strategies of C2C LEP, WSCC and ADC to support growth and development. It will enable the local road network to operate more efficiently by reducing congestion, improving the reliability of journey times and providing more capacity for growth.

3.1.6 This chapter covers:

- The policy background and business strategy for the scheme;
- Opportunities for growth, development and inward investment;
- The existing problems which the scheme needs to address;
- Future problems – the impacts of not changing;
- Drivers for change;
- The aims and objectives of the scheme;
- How success will be measured;
- The scope of the scheme – what it will, and will not, include;
- Any constraints (physical, financial, political etc.) which could affect delivery of the scheme;
- Interdependencies – other factors that could affect the timely delivery of the scheme;
- The role of stakeholders – what they require from the scheme, how they have been consulted so far, and how the public and stakeholders will be consulted as part of the development and delivery of the scheme;
- Options considered and the results of assessment;
- The proposed scheme, and why it is considered the most appropriate solution; and

[2] The Transport Business Cases (DfT, January 2013)

[3] Strategic Case Supplementary Guidance: Transport Investment Strategy (DfT, December 2017)

[4] WebTAG, The DfT website for guidance on the conduct of transport studies

- The expected impacts of the scheme – how and to what extent it will achieve its objectives.

## 3.2 POLICY BACKGROUND AND BUSINESS STRATEGY

### 3.2.1 OVERVIEW

3.2.2 This section sets out the wider strategic and policy context against which the scheme has been developed, and the strategic aims and responsibilities of WSCC as promoter of the scheme. The scheme is closely aligned with the following national, regional and local transport-related plans and programmes for transport, housing and economic growth:

**National Policies**

- National transport objectives;
- Moving Britain Ahead – the Government's Transport Investment Strategy (July 2017);
- Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen. Local Transport White Paper (2011);
- Roads Investment Strategy 2015/16 to 2019/11;
- National Infrastructure Delivery Plan (2016 – 2021);
- Roads Investment: The Roads Funding Package (2016);
- National Planning Policy Framework (2012); and
- Draft National Planning Policy Framework (2018).

**Regional Policies**

- Coast to Capital Strategic Economic Plan (2014) including reference to Local Growth Deal and Bognor Regis Enterprise Zone.

  - *The A29 Realignment scheme was included in the 2014 Strategic Economic Plan. In the Coast to Capital Growth Deal, the Government allocated £13m from the Local Growth Fund to the scheme in-principle, subject to confirmation of value for money and deliverability through the submission and approval of a Business Case.*

**Local policies**

- Strategic Transport Investment Programme (June 2014)

  - *The A29 Realignment scheme was identified as a priority for investment in the County Council's Strategic Transport Investment Programme (STIP) in June 2014 (HT07 (14-15)). This investment supports the delivery of strategic growth in Arun District which is a priority in Arun Growth Deal that identifies the A29 road improvements as a key infrastructure project for delivery as early as possible.*

- West Sussex Local Transport Plan (2011-2026)

  - *The West Sussex Transport Plan 2011-2026 (WSTP) states that transport issues are a deterrent to visitors and businesses locating in Arun District. Bognor Regis currently suffers from relatively poor connectivity by road and rail which has discouraged businesses from investing and has contributed to poor economic performance relative to the rest of West*

*Sussex and the wider region. The aims for Arun include exploring opportunities through new development to improve access along the A29, including the potential to provide a bridge over the railway line avoiding the Woodgate level crossing.*

- Arun Local Plan (2011-2031)
  - *The adopted Arun Local Plan 2011-2031 (ALP) identifies Bognor Regis as a strategic location where new development is expected to help deliver much needed regeneration during the lifetime of the Plan. The ALP also allocates land at Barnham, Eastergate and Westergate (BEW) for strategic housing and commercial development and associated community infrastructure. The site allocation also includes an indicative route for the A29 Realignment to provide access to the site as part of a strategic infrastructure package to mitigate the cumulative impacts of development over the plan period. There is also potential within the strategic site allocation for further development to be delivered beyond the end of the plan period, subject to all relevant planning decisions.*

### 3.2.3 NATIONAL POLICIES

3.2.4 The national transport objectives, set by government, are:

- To ease congestion and provide upgrades on important national, regional or local routes;
- To unlock economic and job creation opportunities; and
- To enable the delivery of new housing developments.

3.2.5 The scheme will contribute to these objectives.

**Moving Britain Ahead – the Government's Transport Investment Strategy (TIS)**

3.2.6 The government's strategy for transport investment, published in July 2017, sets out the case for continued investment in Britain's transport infrastructure. Through this investment, the government seeks to:

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

3.2.7 The scheme will reduce congestion and will help create a better connected, more reliable transport network for those who depend on it.

3.2.8 It will also help to support local economic growth, development and connectivity, making Bognor Regis more attractive to investment, and will connect planned employment and housing development to markets and jobs.

3.2.9 In December 2017, the DfT published guidance on how the TIS should be reflected in a Strategic Case5, together with a 'Rebalancing Toolkit' for assessment6. The toolkit is not binding, and intended as a proportionate tool used in major projects where rebalancing is an objective. It is mainly applicable to larger transport projects which enhance networks, and less applicable to small maintenance and renewal projects.

3.2.10 An initial assessment, based on the toolkit, will be undertaken and updated as required for the full business case.

### Creating Growth, Cutting Carbon – Making Sustainable Local Transport Happen

3.2.11 This government White Paper, published in 2011 sets out the following:

- The government's vision for "a transport system that is an engine for economic growth, but one which is also greener, safer and improves quality of life in our communities;
- Highlights the need to make transport choices that support society as a whole, as well as needing to reduce our carbon emissions to meet national commitments;
- Highlights the Government's commitment to more equal access to employment, education and healthcare by increasing social mobility; and
- Considers that better design and management of the local network can improve traffic flow and the attractiveness of the local environment.

### The Eddington Transport Study (2006)

3.2.12 This demonstrated that a well-functioning transport system is key to continued economic success. Without an efficient transport system, economic prosperity can be hindered by unreliable travel journey times, increased congestion and reduced accessibility, all of which affect productivity and business costs.

3.2.13 The scheme will support local economic growth and development, by reducing congestion, and improving the capacity and efficiency of the local road network.

### The Road Investment Strategy (RIS) 2015/16 to 2019/20

3.2.14 The RIS sets the following:

- Highlight the need for a national network of modern roads that meets social, economic and environmental aspirations;
- Aims to achieve a network in 2040 that will be smoother for connecting people and businesses to support economic growth;
- Providing capacity and connectivity to support national and local economic activity to combat congestion; and
- Connecting communities and providing flexible travel.

[5] Strategic Case Supplementary Guidance: Transport Investment Strategy (DfT, December 2017)

[6] Strategic Case Supplementary Guidance: Rebalancing Toolkit (DfT, December 2017)

3.2.15 The scheme will complement the RIS by increasing capacity, reducing congestion, supporting economic growth, and improving connectivity between the Strategic Road Network (SRN) and Bognor Regis.

### The National Infrastructure Delivery Plan (2016 – 2021)

3.2.16 This was published in March 2016, and:

- Outlines the Government's plans for economic infrastructure over the five-year plan period to support the delivery of housing and social infrastructure;
- Outlines the Government's commitment to providing a step change in the capacity of the SRN;
- States that local roads are a crucial element of the transport system, and that their maintenance and improvement is the responsibility of Local Authorities.

3.2.17 The scheme will connect the national Strategic Road Network (SRN), the A29, to major local roads and to the proposed BEW development

### National Planning Policy Framework (NPPF, 2012 and 2018 update)

- The Government NPPF emphasises the importance of rebalancing the transport system in favour of sustainable transport modes, whilst encouraging local authorities to plan proactively for the transport infrastructure necessary to support the growth of major generators of travel demand;
- At the heart of the NPPF is the presumption in favour of sustainable development which is 'the golden thread running through both plan making and decision taking'[7]; and
- The scheme will support sustainable development by improving access to new housing and employment developments. It will incorporate improved facilities for pedestrians and cyclists, and is a good fit with a wider strategy to encourage sustainable access to new development.

## 3.2.18 REGIONAL POLICIES

### The Coast to Capital Strategic Economic Plan (SEP)

3.2.19 The Coast to Capital Local Enterprise Partnership (LEP) is one of the 38 LEPs established by Government in 2011. It is a business-led collaboration between the private, public and education providing leadership, investment and business support to increase productivity and generate sustainable and inclusive growth.

3.2.20 The LEP area (**Figure 3-1**) includes the London Borough of Croydon, East Surrey, Gatwick Diamond, Brighton & Hove, Lewes and West Sussex, including Bognor Regis. It covers a population of 2 million people, including 1.2 million of working age. It has nearly 90,000 businesses offering more than 800,000 jobs.

3.2.21 The A29 and BEW is at the heart of the LEP area and is designated by the LEP as a priority growth location.

[7] National Planning Policy framework, paragraph 14, page 4

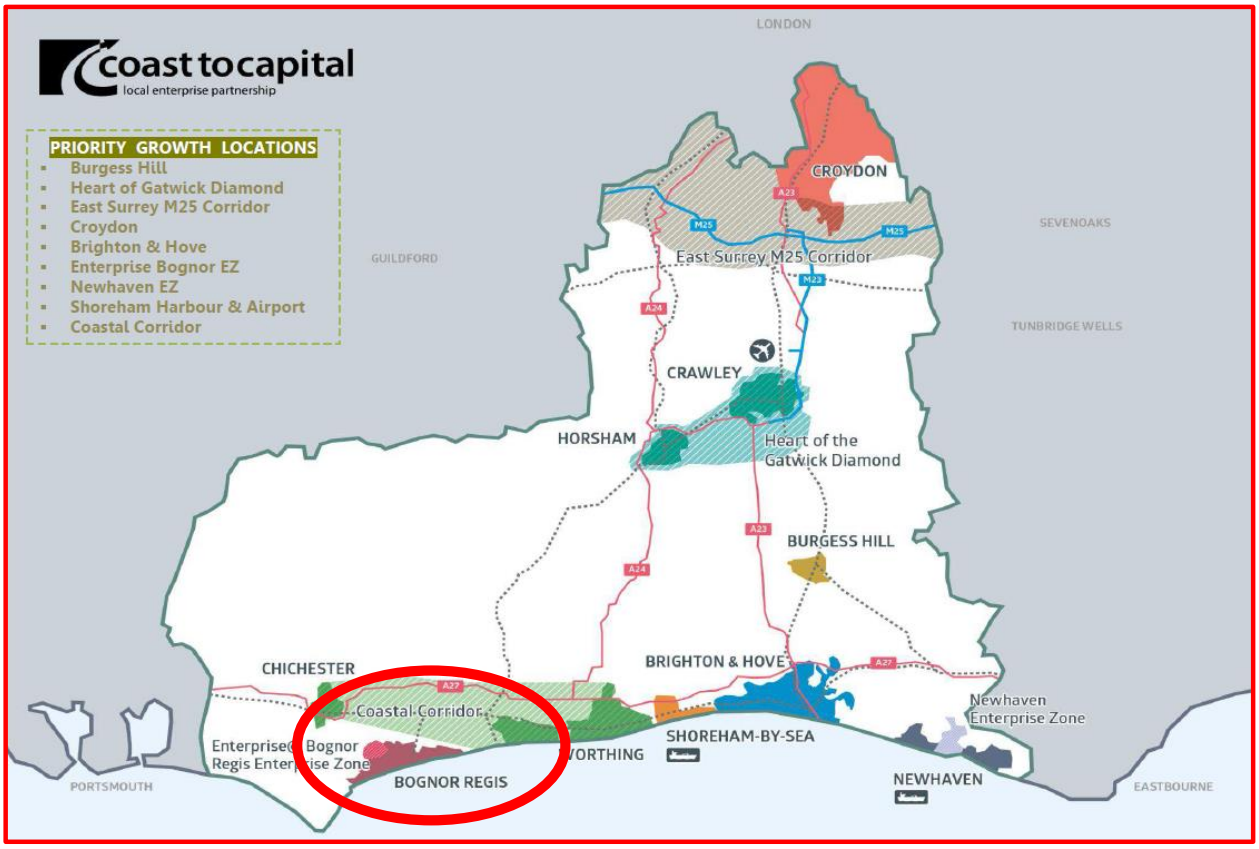



**Figure 3-1 - C2C LEP Area and Priority Growth Locations including Bognor Regis and the Enterprise Zone**

3.2.22 The LEP published its Strategic Economic Plan (SEP) in March 2014. It proposed a six-year programme of investment in business-critical infrastructure, including transport and flood defences, and delivery of extra measures to deliver vigorous business growth, backed by investment in additional housing and in communities.

3.2.23 In 2018 the LEP launched a new Strategic Economic Plan at its Annual General Meeting in Brighton. The plan – Gatwick 360˚ – sets out the scope for economic growth in an area which is hugely important for the national economy and has Gatwick Airport at its heart.

3.2.24 The LEP's vision for the area is:

*"Our vision is that Coast to Capital will deliver exceptional growth and productivity gains to deliver economic performance to rival the best in Europe and the rest of the world".*

3.2.25 The LEP mission is to remove all barriers to achieving economic performance, and its goal is:

*"to create an additional 100,000 jobs in the private sector by 2035"*.

3.2.26 Although Coast to Capital is in one of the UK's most successful regions, the SEP identifies three compelling reasons why further investment should be made:

- Performance is good – despite some deficits in infrastructure – and investment will sustain and build economic success. However, essential underpinning infrastructure - particularly transport and flood defences - are reaching capacity and are no longer robust enough to support future growth - the fragility is beginning to show;

- The UK economy needs the LEP area to perform at well above the UK average and at levels found in the best regions of Europe and in the rest of the World. If areas like this don't perform, the UK will not perform. The area can and will deliver more; and
- Through the Growth Deal it is possible to deliver the high levels of the impact desired by the Government – new jobs, additional homes and new employment space; together with exceptional levels of match funding and leverage from the public and private sectors.

The SEP establishes six strategic priorities:

- Successful growth locations, including transport investment;
- Successful businesses;
- Building competitive advantage;
- Skills and workforce;
- Growth is digital; and
- Housing and infrastructure.

3.2.27 The LEP intends to make a major investment in the area's transport network. This will include the national networks, regional routes and local infrastructure. The LEP will identify specific problem locations and bottlenecks on the national road and motorway network, and will work with Highways England to plan and implement the necessary improvements.

3.2.28 The SEP aims to make three types of transport investment which would unlock stalled economic growth:

- **Connectivity and capacity schemes** to unlock new land for housing and commercial growth by providing new and/or enhanced transport connections;
- **Sustainable transport packages** which regenerate areas by tackling congestion and improving journey quality and reliability; and
- **Resilient schemes**, "to help keep the network operating 24/7".

3.2.29 The proposed scheme will support development for housing and job creation and will improve connectivity and capacity by upgrading a key transport link on the A29. It will reduce congestion (particularly by avoiding the level crossing), improve journey quality and reliability, and will enhance the resilience of the local road network.

3.2.30 The SEP set out a six-year transport investment programme as set out in **Table 3-1** below.

| | Public sector | Private sector | Local Growth Fund | TOTAL |
|---|---|---|---|---|
| Local Transport Body schemes | £11,040,000 | £6,632,000 | £23,060,000 | £40,732,000 |
| Connectivity and capacity schemes | £20,621,000 | £73,561,000 | £142,867,000 | £237,049,000 |
| Sustainable transport packages | £11,631,000 | £1,142,000 | £88,804,000 | £101,877,000 |
| Resilience schemes | £17,884,000 | £450,000 | £48,716,000 | £67,050,000 |
| TOTAL | £61,176,000 | £82,085,000 | £303,447,000 | £446,708,000 |

*Source: SEP (2014)*

**Table 3-1 - SEP Six Year Transport Investment Programme**

3.2.31 With this investment, the SEP aims to deliver:

- 44,500 new jobs;

- 19,800 additional homes; and
- 806,000 $m^2$ of new employment space.

3.2.32 West Sussex is identified by LEP as two of the five distinctive sub-areas, each with an established Area Partnership as follows:

- ***Coastal West Sussex*** *– a mix of high quality coastal towns, including Worthing and Bognor Regis with substantial potential for employment growth in the advanced engineering, digital and tourism sectors; and*
- ***Rural West Sussex*** *– a distinctive rural area with the South Downs National Park at its heart, with high levels of enterprise, quality landscapes and popular towns and villages with strong growth potential and providing attractive communities for high skilled labour, enterprise and growing businesses. There are three Areas of Outstanding Natural Beauty.*

3.2.33 The SEP envisages that the Growth Deal supporting this scheme will create new homes, jobs and employment space.

3.2.34 The SEP considers that the most important spatial issues that need to be tackled to deliver growth at A29 BEW are:

- Provision of a significant number of new homes;
- Transport infrastructure constraints and improved journey times; and
- Exploit opportunities to develop new employment land.

3.2.35 LEP secured an initial Growth Deal with the government based on the SEP in July 2014, and in January 2015 the deal was expanded to include funding for the A29 Realignment that the scheme is essential to realising the economic growth potential.

3.2.36 LEP has allocated £13m from the Local Growth Fund (LGF) towards the cost of the scheme. Funding is conditional on the preparation of an TBC to confirm deliverability and value for money, and the assessment and approval of TBC by LEP

### 3.2.37 LOCAL POLICIES

#### Local Transport Plan (2011-2026)

3.2.38 The West Sussex Transport Plan 2011-2026 (WSTP) reports that transport issues (access by road and rail, local perception of parking provision and cost, and road congestion during peak periods affecting many parts of the highway network, especially the A27 at Arundel, the A29 and A259) are a deterrent to visitors and businesses located in the Arun District. Bognor Regis currently suffers from relatively poor connectivity by road and rail which has discouraged businesses from investing. This has contributed to poor economic performance relative to the rest of West Sussex and the wider region. There are also aspirations for regeneration of the seafront and town centre, including the expansion of the University of Chichester campus and Butlins resort.

3.2.39 The Local Transport Plan (LTP) provides the strategic direction for transport within West Sussex, and aligns itself closely with other major strategies, including the County Strategy and local Community Strategies. WSCC's third LTP covers the period up to 2026.

## Arun Local Plan (2011-2031 (Adopted July 2018)

*Background*

*3.2.40* The Arun Local Plan (adopted in July 2018) is the main planning document for Arun and covers the plan period to 2031). The Plan sets out the proposed level of development, a spatial development strategy to deliver this and several planning policies, covering Arun District.

3.2.41 The existing infrastructure deficit along the coast is widely considered by local businesses to contribute to poor economic performance in Arun District and that there is a need for regeneration. As a result, Bognor Regis has been identified in the Arun Local Plan as a strategic place where new development is expected to help deliver regeneration during the lifetime of the Plan. It has been identified that road congestion during peak periods affects many parts of the highway network, especially the A29, disrupting journey times and contributing to poor air quality.

- Significant new housing is planned in the area (the planned housing for the District outlined in the Arun Local Plan is 20,000 units up to 2031 which is equivalent to a delivery of 1,000 homes per annum), which is expected to increase demand on the A29 Fontwell Avenue/Westergate Street and the B2233 Barnham Road. An application for 400 homes on the land to the east of the A29 Fontwell Avenue accepted in July 2018. The scheme will support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District

*Vision*

*3.2.42* The Plan sets out a vision for how Arun wants to encourage sustainable development and manage future growth whilst ensuring that change across the District is appropriate to meet local need. The vision supports:

- Strategic provision of homes, employment and shops;
- Careful coordination with the services and facilities that communities rely on and which are essential to wellbeing and quality of life; and
- Protecting those aspects of the District which are important by virtue of heritage, culture or are otherwise valued by local people.

*Priorities and Objectives*

3.2.43 The Local Plan's strategic vision is underpinned by 'objectives' which set out aspirations for how Arun can change over the Plan period.

3.2.44 It contains a suite of policies which aim to achieve the vision and objectives. It promotes and guides private and public sector investment and neighbourhood planning.

3.2.45 The Local Plan's 'strategic' policies' (where policy references are prefixed with the initials 'SP') set out the overall strategy against which development proposals will be assessed as they come forward. They include:

- The amount of new employment, retail and housing development that will take place in the District up to 2031
- A strategic framework to help determine planning application
- The framework for neighbourhood development, and
- A statutory guide to help local communities deliver local change

3.2.46 The Arun Local Plan provides for significant levels of housing and economic growth over the plan period to meet the housing needs of the district. Fundamental to the Arun District Plan, is the provision of the transport and other infrastructure to support this growth.

*Employment Growth*

3.2.47 The Arun LocalPlan sets a target to strengthen Arun's economic base and provide local job opportunities by increasing, diversifying and improving the quality of employment within the District through the provision of appropriate employment sites, better infrastructure including;

- Improved Road access;
- Quality affordable accommodation; and
- The development of business support and partnerships;

*Housing Growth*

3.2.48 The District Plan sets a substantial housing target. The Local Plan sets out that:

*"The Plan and deliver a range of housing mix and types in locations with good access to employment, services and facilities to meet the District's housing requirements and the needs of Arun's residents and communities both urban and rural, ensuring that issues of affordability and the provision of appropriate levels of affordable housing are addressed while supporting the creation of integrated communities." and*

*"The Plan will promote strong, well integrated and cohesive communities, through the promotion of healthy lifestyles, provision of good quality accessible community facilities and a safe environment, which delivers an enhanced quality of life to all. This includes meeting the needs of a growing elderly population."*

3.2.49 The Local Plan sets a substantial housing target. The Plan period runs from 2011 to 2031 and the housing trajectory covering the Plan is detailed in **Figure 3-2** below:

**Figure 3-2 - Housing Requirement (Policy H SP1)**

| Supply of net additional homes | Total |
|---|---|
| Completions | 3,669 |
| Commitments (large sites) | 3,050 |
| Commitments (small sites) | 251 |
| Neighbourhood Plan Allocations | 421 |
| Deliverable HELAA sites | 530 |
| Non-Strategic Sites* | at least 1,250 |
| Windfall | 847 |
| Strategic Site Allocations | 10,750 |
| Total | 20,768 |

*Source: Arun District Plan (2018) & Schedule of Main Modifications*

3.2.50 The A29 Realignment will assist in providing sufficient transport capacity to meet the current and future wider development requirements of Arun District.

*Strategic Housing and Employment Allocations within the vicinity of the A29 Realignment – Barnham, Eastergate and Westergate*

3.2.51 The Arun Local Plan identifies the strategic allocation as set out below in **Figure 3-3**

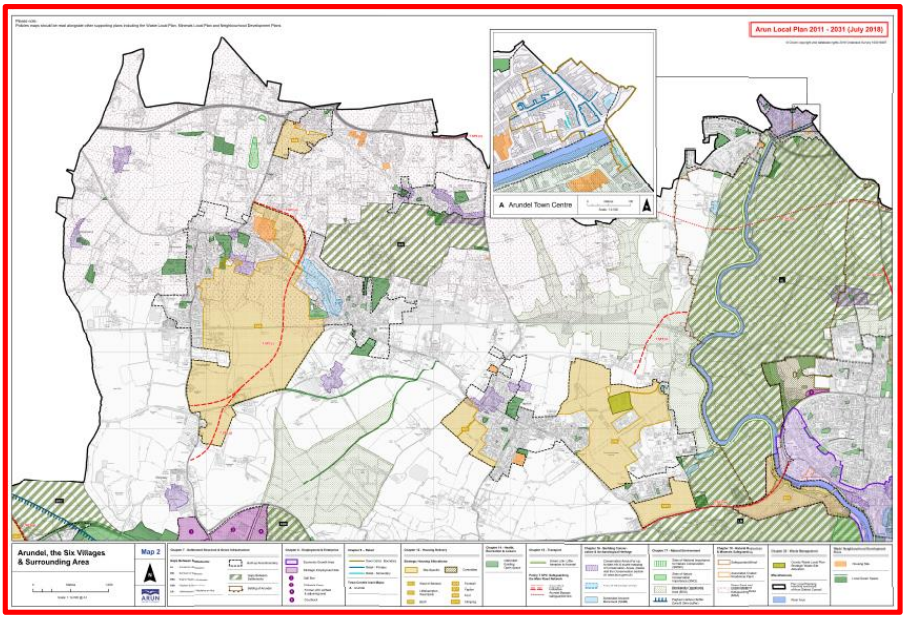



**Figure 3-3 - Strategic Allocation**

3.2.52 The strategic allocation makes provision for:

- Additional homes and associated community facilities; and
- Land for a high-quality business park.

3.2.53 The Arun Local Plan aligns with the SEP identification of the A29 Realignment as a spatial priority (growth location). It reports that the LEP has committed to investing in the new A29 Realignment between 2015/16 and 2020/21 to deliver new jobs, homes and employment space and that the LEP has secured £13 million from the Local Growth Fund for the new A29 Realignment.

3.2.54 The scheme is therefore closely aligned to the District Plan proposals for increased housing and employment growth (and associated transport infrastructure).

3.2.55 The package of growth has strong political support from the County Council and District Council. A public consultation is also planned following the submission for the BC to the C2C LEP seeking community support for the scheme.

3.2.56 The Growth Programme is supported by and recognised in many of the Governments wider policy priorities.

## 3.3 EXISTING PROBLEMS

3.3.1 The existing A29 experiences traffic congestion during the peak periods, notably at the Woodgate level crossing, leading to unreliable journey times and potentially causing poor air quality. The

congestion is caused by the Woodgate level crossing barriers being down resulted in delays of approximately 35 minutes in the peak hours.

3.3.2 To the north west of the scheme is the War Memorial junction. This junction is a critical pinch point on the existing highway network, with limited scope for capacity improvements due to the current land constraints surrounding the junction. As such the junction is likely to be a significant constraint on the level of future development.

3.3.3 To the south of the proposed scheme are the Lidsey bends. This is a section along the existing A29 through Lidsey where the alignment requires drivers to negotiate a series of significant bends in the road which have historically been a source of concern from a road safety perspective.

3.3.4 Current (2017 AM peak) traffic flows vary along the route from 803 (two way) close to the junction with A27 at Fontwell, to 1553 (two way) in Westergate[8] and there are junctions which are congested at certain times of day including:

- A29/A27 Fontwell Avenue Junction; and
- A29/B2233 War Memorial Junction.

3.3.5 The strategic site allocations identified in the ALP will generate and affect the distribution of traffic in the district. The cumulative impacts of the strategic site allocations are expected to increase demand on the existing A29 and B2233 roads by non-motorised users and motorised vehicles, including public transport.

3.3.6 The ALP is supported by an evidence base that includes the Arun District Local Plan Transport Study 2017 (Local Plan Transport Study). The Local Plan Transport Study identifies a package of strategic infrastructure to mitigate the severe residual cumulative impacts of development that includes the A29 Realignment.

## 3.4 FUTURE PROBLEMS – THE IMPACT OF NOT CHANGING

3.4.1 The key impacts of not changing the existing A29 route are:

- Increasing congestion, queuing and delay; and
- Negative impact on delivery of Arun Local Plan targets for housing, commercial development and consequently economic growth.
- Impact on future sustainable transport needs

3.4.2 Given the current traffic congestion that occurs across the local highway network it is recognised that in future, due to the impact of planned development in the area, if no improvements are delivered then once development is completed these issues will be exacerbated. These delays will be particularly evident at locations such as the A27/A29 Fontwell Avenue, the A29/B2233 War Memorial Junction, through Westergate Village and at the Woodgate railway level crossing.

[8] A29 Realignment Feasibility Study – July 2014: Transport Assessment

## 3.5 DRIVERS FOR CHANGE

### Internal Drivers for Change

3.5.1 The key internal drivers for change are

- Planned housing and employment growth; and
- Need for improved transport connectivity.

### External Drivers for Change

3.5.2 The key external drivers for change are:

- Existing levels of traffic congestion and travel time delay on the strategic county road network;
- Public and stakeholder concern about traffic congestion; and
- Base line traffic model results.

## 3.6 SCHEME AIMS AND OBJECTIVES

3.6.1 The primary aim of the scheme is:

- To support delivery of the Strategic Economic Plan and the Local Plan by enabling the delivery of new homes and jobs.
- Improve journey times on the A29 by avoiding the Woodgate level crossing, Lidsey bends and the A29/B2233 War Memorial junction.

3.6.2 To ensure the scheme supports the objectives of the WSTP and encourages the use of sustainable modes of transport and sustainable travel patterns in the strategic development, the scheme has been designed to cater for non-motorised and motorised users, including public transport. The design also integrates with the existing highway network and new routes proposed as part of the strategic development.

3.6.3 The A29 Realignment will provide access to planned strategic development at Barnham, Eastergate and Westergate (shown in Figure 1) and help to mitigate impacts on the highway network that would otherwise be severe. Additionally there have been recently completed and/or planned commercial developments north of Bognor Regis at a strategic site known as 'Enterprise Bognor Regis' that could potentially benefit from the A29 Realignment scheme.

3.6.4 In order to achieve the primary aim, and in response to the problems and opportunities identified, clear objectives have been established for the scheme. A distinction has been drawn between the desired high level or strategic outcomes, the specific or intermediate objectives, and the operational objectives.

### High Level or Strategic Outcomes

3.6.5 The desired high level or strategic outcomes are:

- To enable delivery new homes in Arun District supporting delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District;
- To ease congestion and reduce journey times;
- To support the local economy and community;
- To create a sense of place for the strategic allocation;
- To enable delivery new jobs;

- To improve road safety;
- To protect the local environment such as improvements to air quality; and
- To support sustainable modes of transport.

### Specific or Intermediate Objectives

3.6.6 The specific or intermediate objectives are:

- To improve connectivity between Bognor Regis and the wider road networks;
- To reduce congestion on the existing A29;
- To reduce journey times and delays;
- To improve journey time reliability and reduce unforeseen delays;
- To improve the resilience of the local transport network;
- To reduce the number of road collision casualties; and
- To improve conditions for pedestrians and cyclists.

### Operational Objectives

3.6.7 The operational objectives are:

- New A29 Realignment / carriageway;
- To improve journey times;
- To provide new facilities for pedestrians and cyclists;
- To improve the capacity of junctions; and
- To accommodate new roads providing access to development.

## 3.7 MEASURES FOR SUCCESS

3.7.1 It is important to consider from the outset what constitutes successful delivery of the objectives, as this informs the development and appraisal of the scheme, the selection of the preferred option, and the monitoring and evaluation of the scheme's performance after construction.

### Cause & Effect – Logic Map

3.7.2 The logic map attempts to capture and illustrate by logical steps most of the ways in which delivery of the scheme will in due course lead to achievement of the objectives. The traffic model predicts the scale of the direct and indirect impacts, and many of these will be monitored and evaluated once the scheme is in place.

### Achievement of objectives

3.7.3 The specific objectives of the scheme will have been achieved if the scheme leads to:

- Unlocking of housing and employment opportunities;
- Reductions in congestion and delay;
- Reduced journey times compared to existing A29;
- Improved journey time reliability;
- Fewer road collision casualties; and
- Improve sustainable transport offer and improve links to existing transport networks.

### 3.7.4 MONITORING & EVALUATION

3.7.5 In most cases, achievement of the specific outputs will be measured directly by means of the follow contractual and Non contractual objectives:

- Contractual
  - Traffic counts;
  - Journey time surveys;
  - Collision and casualty statistics;
  - Air quality monitoring; and
- Non-Contractual
  - Modal shift to more sustainable transport modes.
  - Delivery of housing units per annum via reporting through planning applications;

3.7.6 As noted above, improved reliability and resilience are difficult to measure directly but are predictable consequences of reduced traffic, congestion and delay and the availability of shorter routes.

3.7.7 Not all the strategic outcomes can be measured directly, but they can all be seen to be logical consequences of achieving the specific objectives. However longer-term monitoring of local development, business growth and relocations, and employment will continue to take place, and will contribute to an understanding of the success of the scheme.

3.7.8 Anecdotal information, especially in relation to perceptions of congestion, resilience and the attractiveness of the town as a place in which to live, also has a supporting role in evidencing the success of the scheme.

3.7.9 A full monitoring and evaluation plan will be developed

3.7.10 The scheme will be judged successful if it delivers the expected benefits at levels close to, or exceeding, those forecast, without any unforeseen dis-benefits.

## 3.8 SCOPE

### 3.8.1 IN SCOPE

3.8.2 The scope for the scheme will be split in 2 phases – Phase 1 (North) and Phase 2 (South) and will include the following:

**Phase 1 (Northern Section) – Delivered first.**

- Construction on new carriageway
- Unlocking of part of the Barnham, Eastergate and Westergate strategic development location;
- Provision of new junctions at locations where the new carriageway connects to Fontwell Avenue and Barnham Road;
- Provision of new cycle and pedestrian facilities;
- Earthworks, landscaping, environmental, drainage and SUDS' mitigation associated with the scheme;
- Any works necessary for the mitigation of adverse impacts (including environmental and ecological); and
- Improving economic prosperity by supporting businesses with improved travel journey times, reduced congestion and enhanced accessibility.

**Phase 2 (Southern Section) – Construction following completion of Phase 1 (North)**

- Construction on new carriageway
- Unlocking of part of the Barnham, Eastergate and Westergate strategic development location;
- Provision of new junction at the location where the new carriageway connects to A29 Lidsey Road;
- Provision of cycle and pedestrian facilities;
- Earthworks, landscaping, environmental, drainage ad SUDs mitigation associated with the scheme;
- Any works necessary for the mitigation of adverse impacts (including environmental and ecological);
- Rail overbridge to avoid the Woodgate level crossing;
- Connection to a new west/east highway link being provided as part of the associated strategic development;
- Connection to a new dedicated pedestrian / cycle link planned as part of the associated strategic development;
- Improved highway capacity to accommodate traffic growth associated with planned development of housing and commercial space as identified in the Arun Local Plan;
- an alternative route to avoid the Woodgate level crossing which causes long traffic delays resulting in improved journey times and reliability;
- Improved connectivity to/from Bognor Regis to support a programme of regeneration; and
- Improving economic prosperity by supporting businesses with improved travel journey times, reduced congestion and enhanced accessibility.

3.8.3 The delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process. Although we do not have a fixed approach to Phase 2 (South) WSCC are committed to underwriting the costs of Phase 2 (South) within their capital budget. The options for delivery of Phase 2 (South) would be;

- Developers will deliver Phase 2 (South(
- WSCC deliver the scheme as proposed for Phase 1 (North)

### 3.8.4 OUT OF SCOPE

3.8.5 The scheme will not include:

- Any alterations to the A27 trunk road.

## 3.9 CONSTRAINTS

3.9.1 The following types of constraint have been considered in developing the scheme:

- Physical;
- Environmental;
- Financial;
- Contractual;
- Public acceptability;
- Stakeholders (NwR and EA); and
- BEW development.

- A27 improvements

3.9.2 The following is a summary of the high-level constraints on the scheme.

- **Financial** – the LGF allocation for the scheme needs to be spent by 2021/ 22, the Financial Case details this further; and
- **Commercial** – Status of land ownership and delivery of Phase 2 (South).

## 3.10 INTERDEPENDENCIES

3.10.1 The key interdependencies for the A29 Realignment, as noted above in the constraints, are the delivery of the A27 improvements near to Fontwell by Developers to ensure journey time savings are achieved and the BEW development provides funding and delivery of housing units.

## 3.11 OPTIONS

### 3.11.1 BACKGROUND AND METHODOLOGY

3.11.2 Three main studies have been previously undertaken of the A29 realignment, as listed below.

**Parsons Brinckerhoff. A29 Woodgate Study, 2012**

3.11.3 In 2012, Parsons Brinkerhoff were appointed by the County Council on behalf of Arun District Council to undertake a feasibility study into bypassing the level crossing on the A29 at Woodgate.

3.11.4 The A29 Woodgate Study considered four local route options as shown in **Figure 3-4** below. Two of these of routes emerged as potential options to consider, these being route option A (a western alignment) and option D (an eastern alignment).

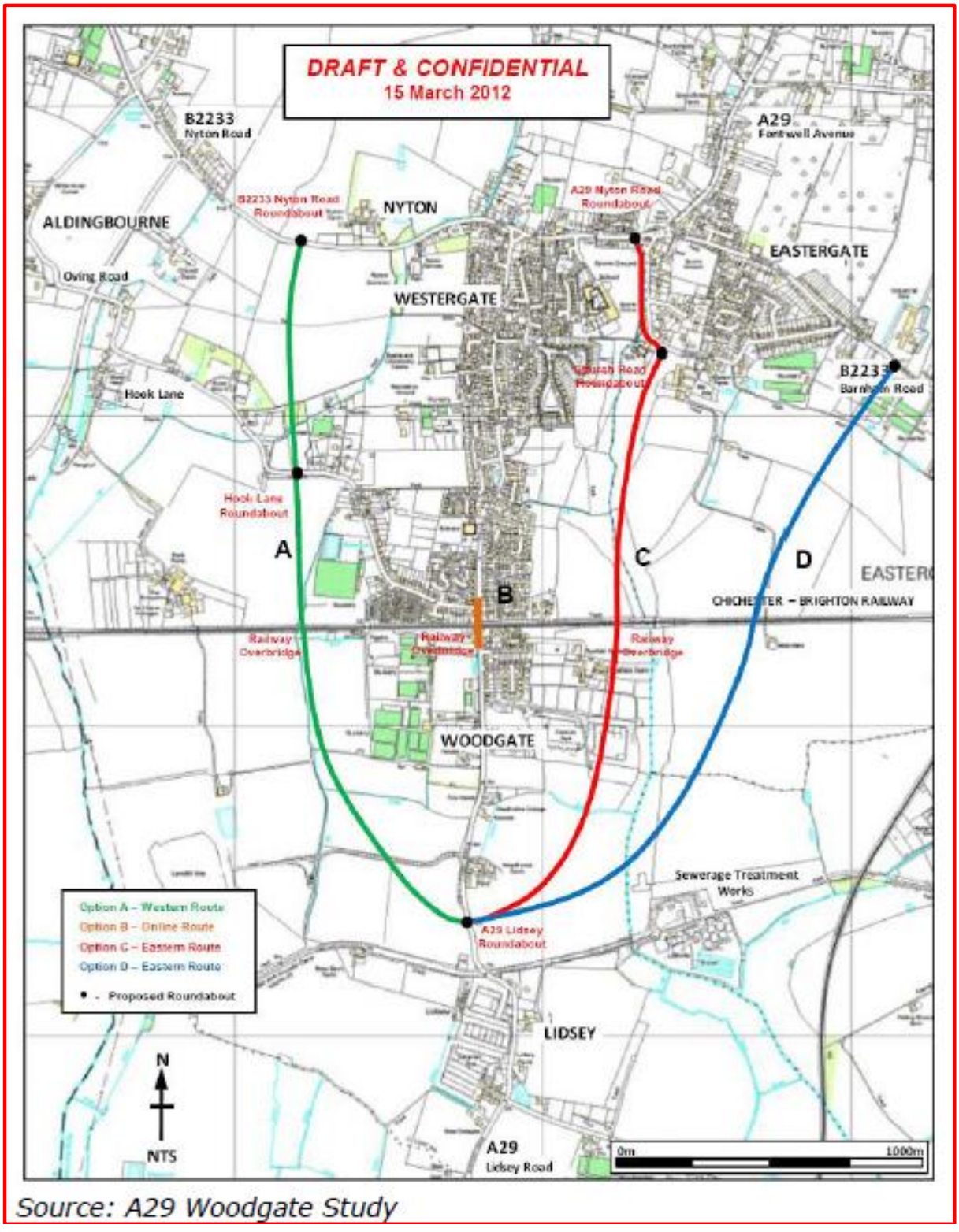



**Figure 3-4: Options identified in the A29 Woodgate Study (2012)**

3.11.5 The evidence base developed from the A29 Woodgate Study was subsequently used to inform Arun District Council's draft Local Plan, with route option D to the east of Westergate included within the draft Plan. The draft Plan stated that; "*Studies have also been carried out to investigate route*

*options and costs for the A29 realignment…which would result in significant improvements to North-South connectivity within the district. The indicated route of the A29 realignment is shown on the Proposals Map. Further technical work is required to determine the line of the route and how it would connect to the A27 to the north and the Bognor Regis Relief Road to the south*."

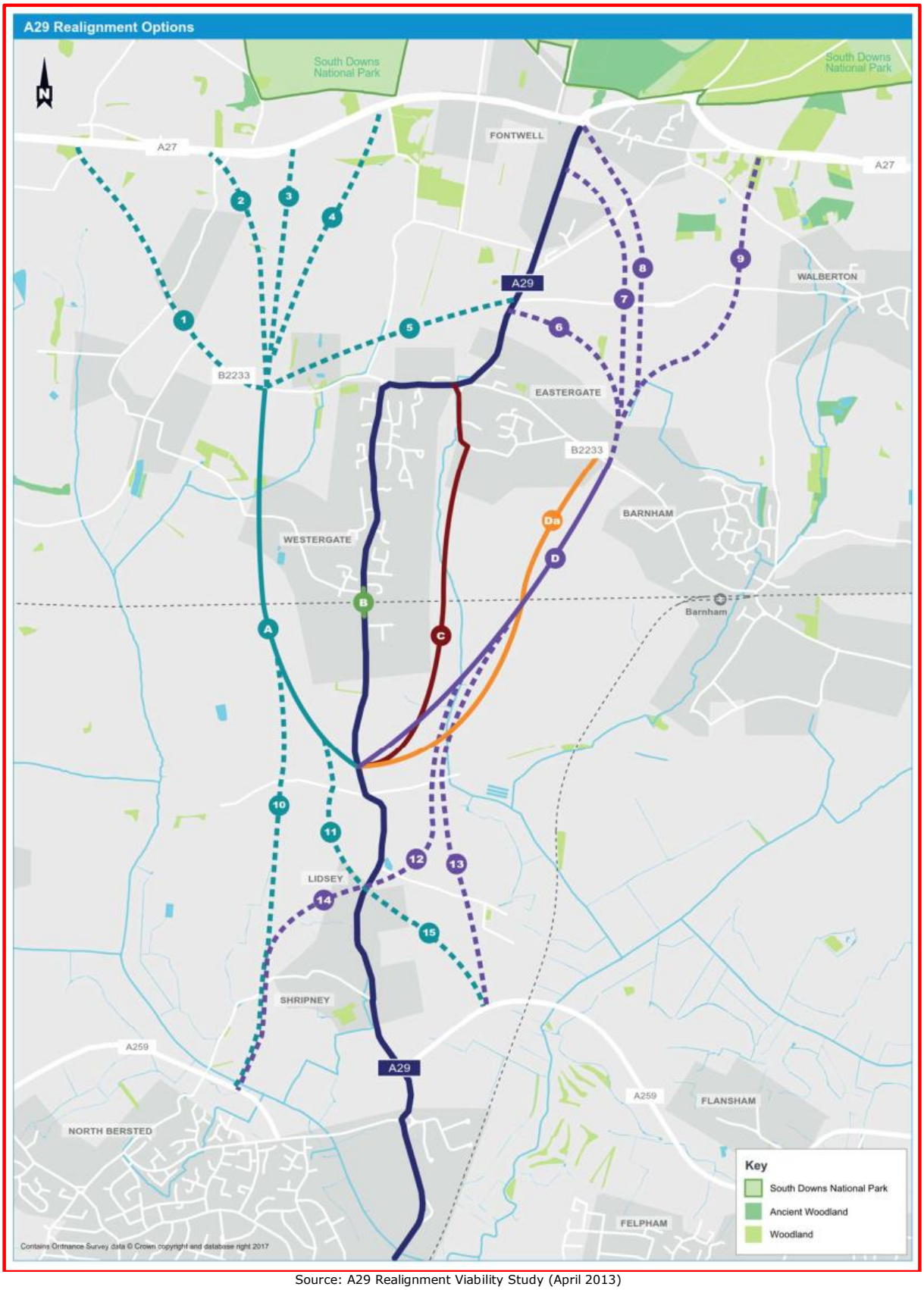
### MVA. A29 Re-alignment viability study, 2013

3.11.6 In April 2013, MVA Consultancy (now SYSTRA Ltd) were appointed by Arun District Council to undertake an A29 Realignment Viability Study. The key driver of the Study was to identify a preferred route alignment for the A29 Realignment which bypasses the railway crossing at Woodgate and ties in appropriately with the existing highway.

3.11.7 The A29 Realignment Viability Study identified a number of potential route alignments options which could extend from the routes A and D (both routes previously identified as part of the A29 Woodgate Study), connecting them back into the existing highway network. These initial alignment options are shown in **Figure 3-5** and were based on:

- Five extensions north from Route A;
- Four extensions north from Route D;
- Two extensions south from Route A, one of which has a further option to extend the alignment to provide a direct access to the Bognor Regis Relief Road to the east of the existing A29; and
- Two extensions south from Route D, one of which has a further option to extend the alignment to provide a direct access to the Bognor Regis Relief Road to the west of the existing A29.

3.11.8 The A29 Realignment Viability Study used a two-stage evaluation process to assess the performance of the options and refine the long list of options.




Source: A29 Realignment Viability Study (April 2013)

**Figure 3-5: Options identified in the A29 Realignment Viability Study (2013)**

3.11.9 The initial 'high level' assessment was then carried out for each alignment option which ranked them on an evaluation criteria consisting of:

- Environmental Impact;
- Deliverability (in engineering terms);
- Traffic Impacts;
- Road Safety Impacts; and
- Scheme Costs.

| | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 |
|---|---|---|---|---|---|
| Environmental Impact | Good | Average | Very Good | Good | Poor |
| Deliverability | Very Good | Average | Very Good | Good | Poor |
| Traffic Impact Benefits | Average | Good | Good | Good | Average |
| Road Safety Benefits | Average | Very Good | Very Good | Very Good | Average |
| Scheme Costs | Very Good | Poor | Good | Poor | Poor |

Source: A29 Realignment Viability Study (April 2013)

**Table 3-2: First Stage Evaluation Summary Table (Northern Extensions to Route A)**

| | Option 6 | Option 7 | Option 8 | Option 9 |
|---|---|---|---|---|
| Environmental Impact | Good | Average | Poor | Very Poor |
| Deliverability | Very Good | Poor | Poor | Good |
| Traffic Impact Benefits | Poor | Good | Very Good | Good |
| Road Safety Benefits | Average | Good | Very Good | Very Good |
| Scheme Costs | Good | Average | Poor | Average |

Source: A29 Realignment Viability Study (April 2013)

Table 3.2.2:

**Table 3-3: First Stage Evaluation Summary Table (Northern Extensions to Route D)**

| | Option 10 | Option 11 | Option 11 & 15 |
|---|---|---|---|
| Environmental Impact | Good | Good | Good |
| Deliverability | Average | Very Good | Very Good |
| Traffic Impact Benefits | Very Good | Average | Very Good |
| Road Safety Benefits | Very Good | Good | Very Good |
| Scheme Costs | Poor | Good | Good |

Source: A29 Realignment Viability Study (April 2013)

**Table 3-4: First Stage Evaluation Summary Table (Southern Extensions to Route A)**

| | Option 12 | Option 13 | Option 12 & 14 |
|---|---|---|---|
| Environmental Impact | Good | Good | Good |
| Deliverability | Very Good | Very Good | Average |
| Traffic Impact Benefits | Average | Very Good | Very Good |
| Road Safety Benefits | Good | Very Good | Very Good |
| Scheme Costs | Good | Good | Poor |

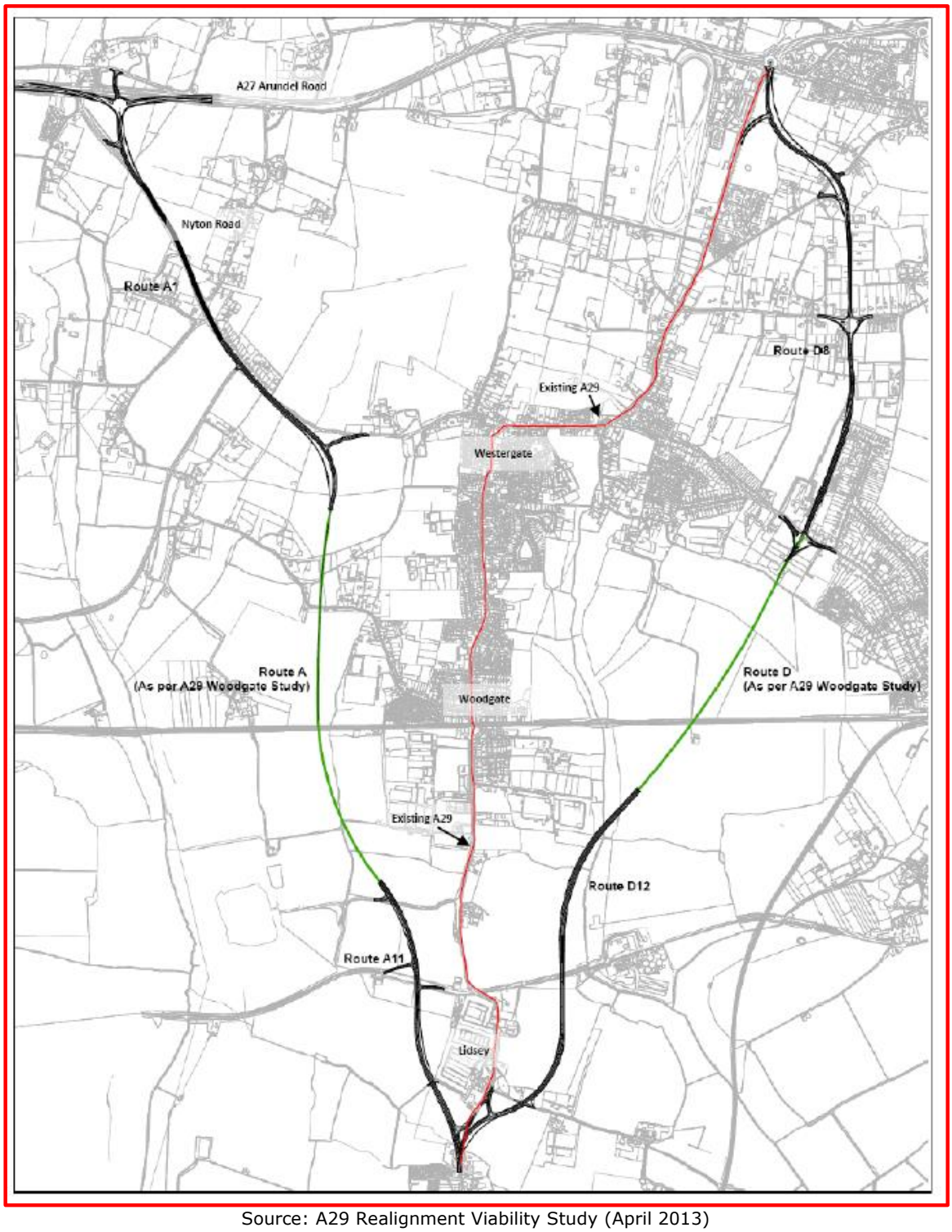
Source: A29 Realignment Viability Study (April 2013)

**Table 3-5: First Stage Evaluation Summary Table (Southern Extensions to Route D)**

As a result of the first stage evaluation, the following alignment extensions were identified to be taken forward to the second stage of assessment. These alignment options were renamed as follows to take into account their links with the routes A and D identified within the previous A29 Woodgate Study. The location of these route alignments are also shown in **Figure 3-6**.

- Northern extension to Route A = A1 (also referred to as part of the A29 western bypass option);
- Southern extension to Route A = A11 (also referred to as part of the A29 western bypass option);

- Northern extension to Route D = D8 (also referred to as part of the A29 eastern bypass option); and
- Southern extension to Route D = D12 (also referred to as part of the A29 eastern bypass option).




Source: A29 Realignment Viability Study (April 2013)

**Figure 3-6: Second stage options from A29 Realignment Viability Study (2013)**

| | A29 Western Bypass Scenario (Routes A1, A and A11) | A29 Eastern Bypass Scenario (Routes D8, D and D12) |
|---|---|---|
| Traffic impact | Provides good benefits with significant reductions in traffic forecast across some parts of the local highway network. | Provides very good benefits with significant reductions in traffic forecast across the local network, including junctions within Westergate. |
| Road safety impact | Should provide reductions in PIAs as a result of significant traffic reductions across parts of the local highway network. | Should provide reductions in PIAs as a result of more significant traffic reductions across the local network. |
| Environmental impact | Northern Extension (Option A1) – Flood plain constraints need to be considered within design. | Northern Extension (Option D8) – Least environmental constraints although greatest local impacts on built environment with property demolitions likely. |
| | Central Section (Option A) – Minimal environmental issues but floodplain constraints. (*) | Central Section (Option D) – Minimal environmental issues but floodplain constraints. (*) |
| | Southern Extension (Option A11) – Flood plain constraints and impact on West Sussex Internal Drainage District to be considered within design. | Southern Extension (Option D12) – Floodplain constraints, impact on West Sussex Internal Drainage District and crossing of Lidsey Rife river need to be considered within design. |
| Viability | Potential to secure significant funding from the private sector. However, likely to be a funding gap which will need to be filled by the public sector. | Given the location of proposed development, the eastern route alignment is more likely to secure greater developer Section 106 contributions. |
| Cost | £46.3 million | £50.8 million |

**Table 3-6: Option Assessment Summary**

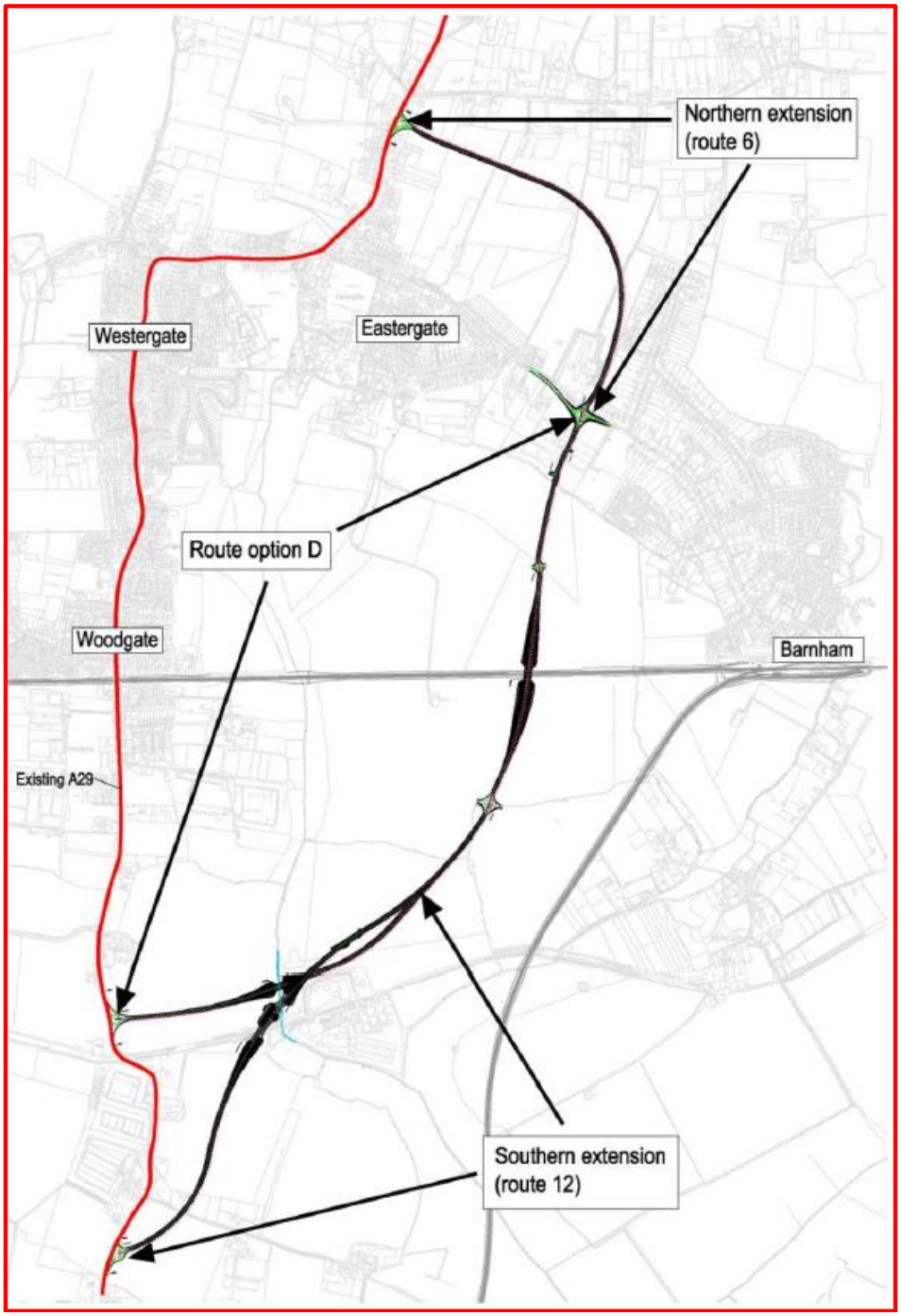
3.11.10 Following a second stage evaluation, the A29 eastern bypass scenario (alignments D8, D and D12) emerged as the preferred route alignment of the A29 Realignment Viability Study. Further details can be found in Appendix C– Option Review Report

### Systra. A29 Re-alignment Feasibility Study, 2014

3.11.11 In July 2014, SYSTRA Ltd in association with Campbell Reith Hill Ltd and Temple Group were commissioned by Arun District Council to prepare the A29 Realignment Feasibility Study to establish the feasibility, viability and deliverability for a proposed A29 realignment highway scheme. The A29 Realignment Feasibility Study was prepared following recognition that the alignment (D8, D and D12) identified in the A29 Realignment Viability Study (April 2013) would have required demolition of a number of properties and the associated higher costs with its delivery. Specifically, the purpose of the A29 Realignment Feasibility Study was to:

- Establish the feasibility, viability and deliverability of route option D as a ‘standalone’ option;

- Establish the feasibility, viability and deliverability of a Northern Tie-in 'Route D6' (which ties in the northern end of the new route D alignment and back into the existing A29); and
- Establish the feasibility, viability and deliverability of a Southern Tie-in 'Route D12' (which ties in the southern end of the new route D alignment and back into the existing A29).




Source: A29 Realignment Feasibility Study (July 2014)

**Figure 3-7: Option D6, D, D12 from A29 Realignment Feasibility Study**

3.11.12 The A29 Realignment Feasibility Study sought to assess;

- whether the proposed alignment is feasible in engineering terms;

- whether the proposed alignment is likely to provide transport benefits;
- the extent of environmental impacts; and
- whether the proposed alignment is financially viable.

3.11.13 In 2014 in preparation for the Arun Draft Local Plan, Arun District Council commissioned Systra to undertake the A29 Realignment Viability Study. This study developed a preferred route which considered the findings of the previous 2013 study together with northern and southern tie-in extensions. It was acknowledged that the northern section of the route (D8) would have required demolition of many properties and have associated higher costs with its delivery. Route D6 was therefore considered as a more viable option.

3.11.14 More detailed information on the consideration of the options contained within the three studies about can be found under Appendix C**– Options Review Report**

### 3.11.15 OPTION DEVELOPMENT (FOLLOWING PREVIOUS STUDIES)

3.11.16 Since the last study in 2014, Arun District Council and West Sussex County Council continued to work with developers to prepare a Masterplan vision for the area to allow the land to be opened up for housing, schools and other uses.

3.11.17 Building upon the 2014 Systra Report, an Option Summary Table was prepared focusing on the pros and cons of the following route options.

- Option 1 – Option 6, D (never considered as a standalone option within any previous study);
- Option 2 – Option 6, part D, 12;
- Option 3 – Option 6, full D, 12 (never considered as an option within any previous study);

3.11.18 A map of the options listed above can be found in Figure 3-8 below

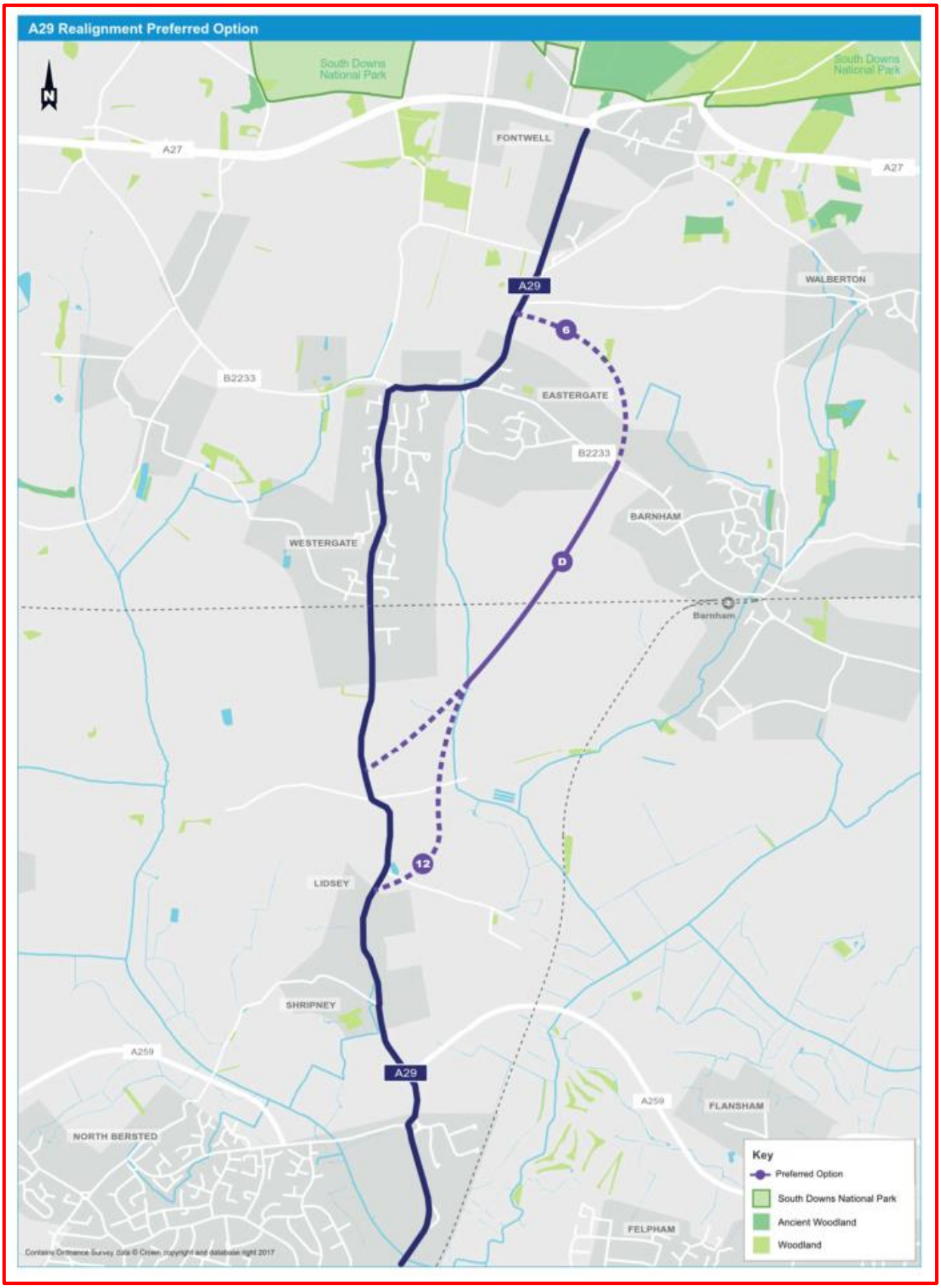



**Figure 3-8 - A29 Realignment preferred option**

## 3.11.19 OPTIONS ASSESSED

3.11.20 The results of assessing the three shortlisted options are set out below and include assessment of:

- Costs;
- Economic benefits
- Safety;
- Journey times; and
- Achievement of scheme objectives

3.11.21 **Table 3-7** below provides a high-level summary of the three options:

| | 1. Section 6 & Option D | 2. Section 6, Part Option D & section 12 | 3. Section 6, Option D (with extension) & section 12 |
|---|---|---|---|
| **Finance** | **£32.65m**<br>Option D = £23m<br>Route 6 = £9.65m | **£35.75m**<br>Option D = £23.1m<br>Route 6 = £9.65m<br>Route 12=£3m | Additional watercourse bridge on top of option 2. |
| **Route length** | 3.8km | 4.34km | Circa 5.34km |
| **Negatives** | • Limited housing delivery.<br>• Oil extraction and waste treatment site close by.<br>• Railway Bridge + Watercourse bridge.<br>• Flood plain remediation<br>• Noise mitigation to north<br>• Safety benefits reduced, as southern tie in doesn't avoid 'Lidsey bends'.<br>• Grade I & II agricultural land required | • Oil extraction and waste treatment site close by.<br>• Railway Bridge + Watercourse and road bridge<br>• Flood plain remediation<br>• Noise mitigation to north.<br>• Terrain near old canal could be challenging<br>• Grade I & II agricultural land required.<br>• Section 12 crosses a PRoW – additional planning issues if diverted.<br>• Ecology – addition hedgerows taken in section 12 – possible issues with net biodiversity gain/loss. | • Oil extraction and waste treatment site close by.<br>• Railway Bridge + Watercourse and road bridge<br>• 1 x additional structures<br>• Flood plain remediation, additional area required due to additional structure<br>• Noise mitigation to north.<br>• Terrain near old canal could be challenging.<br>• When compared to 2, an additional 1.2ha Grade I and 1.4ha Grade II of agricultural land, to allow for Option D extension (circa 1km in length).<br>• Additional access point onto A29 will need to be agreed with WSCC highway authority.<br>• Parcel of land between D Ext and route 12 might not be attractive.<br>• Additional conservation Land required.<br>• Section 12 crosses a PRoW –planning issues if diverted.<br>• Ecology – addition hedgerows taken in section 12 – possible issues with net biodiversity gain/loss. |
| **Benefits** | • Open up housing delivery but not as much as option 2.<br>• Improved journey time reliability.<br>• Improves cycle / pedestrian facilities. | • Opens up housing delivery<br>• Improved journey time reliability.<br>• Resolves issue of HGVs negotiating right turn into Fontwell Av from Barnham Rd.<br>• Safety benefits increased, as southern extension avoids 'Lidsey bends'.<br>• Improves cycle / pedestrian facilities. | • Opens up housing delivery but not as well as 2.<br>• Improved journey time reliability.<br>• Resolves issue of HGVs negotiating right turn into Fontwell Av from Barnham Rd.<br>• Safety benefits reduced, as 1st Route D Ext doesn't avoid 'Lidsey bends'.<br>• Having additional access point onto A29 may raise safety concern from highway authority (WSCC).<br>• Improves cycle / pedestrian facilities. |

**Table 3-7: A29 Realignment preferred option**

3.11.22 To forecast traffic flows and trip patterns across the network for each scenario highlighted above, information was extracted from the West Sussex County Traffic Model (WSCTM) SATURN Highway Assignment Model. The WSCTM has been validated to a base year of 2009 for the AM peak period 8:00-9:00.

3.11.23 The A29 Realignment Feasibility Study (July 2014) compared the existing conditions on the road network with the following 2031 future year scenarios:

- 2031 Future Scenario 1 - Route option D as a standalone scheme and the existing A29 Woodgate railway crossing remaining open to general traffic;
- 2031 Future Scenario 2 - Route option D as a standalone scheme and the existing A29 Woodgate railway crossing closed to general traffic;
- 2031 Future Scenario 3 - Route option D together with northern tie in (route 6) and southern tie in (route 12) with the existing A29 Woodgate railway crossing remaining open to general traffic; and
- 2031 Future Scenario 4 - Route option D together with northern tie in (route 6) and southern tie in (route 12) with the existing A29 Woodgate railway crossing closed to general traffic.

3.11.24 At that time of the design process, a full economic appraisal of the shortlisted options had not been carried out. However, **Table 3-8** showed that the shortlisted options had the potential to attract a significant proportion of traffic from the existing A29 which suggests they are likely to offer good value for money through a full economic appraisal. The attractiveness of the route is greatest with the addition of northern and southern tie-ins and closure of the Woodgate level crossing.

3.11.25 Since the various feasibility studies were undertaken, additional development has been permitted in the area and Arun District Council have carried out further technical work to support the examination of the Arun Local Plan which is likely to result in additional sites being allocated for development in the District.

| SCENARIO | TRAFFIC FLOWS (2-WAY) | |
|---|---|---|
| | A29 WESTERGATE STREET | NEW A29 ROUTE ALIGNMENT |
| Existing (2012) | 1,197 | n/a |
| 2031 Forecast Scenario 1 (Option D with Woodgate Railway Level Crossing Open) | 884 | 883 |
| 2031 Forecast Scenario 2 (Option D with Woodgate Railway Level Crossing Closed) | 429 | 1,687 |
| 2031 Forecast Scenario 3 (Option D, 6 & 12 with Woodgate Railway Level Crossing Open) | 339 | 1,468 |
| 2031 Forecast Scenario 4 (Option D, 6 & 12 with Woodgate Railway Level Crossing Closed) | 430 | 1,742 |

Source: A29 Realignment Feasibility Study (July 2014)

**Table 3-8: A29 Realignment preferred option – Comparison of AM Peak Traffic Flows on existing A29 and New A29 Realignment**

3.11.26 During the Option Review an economic appraisal had not previously been carried out and additional development was committed or planned in the area, therefore it was recommended that at an early stage in developing the Transport Business Case, an initial economic appraisal would be undertaken. This would be based on updated assumptions and inform the identification of the shortlisted options which was then subjected to further appraisal through this Transport Business Case.

## 3.12 CONSULTATION WITH KEY STAKEHOLDERS

3.12.1 During the development of the preferred option, engagement took place with key stakeholders. As part of the Feasibility Study commissioned by Arun District Council (ADC) in 2014 consultation was

undertaken with statutory consultee groups and included representatives of the Highways Agency, Environment Agency, Natural England and Network Rail, and Council Officers from Arun DC and WSCC. Consultation was undertaken with the Church Commissioners for England (CCE), a key local landowner for the scheme. The stakeholder responses to the consultation are included in Appendix A of the A29 Realignment Feasibility Study (July 2014). [9]

3.12.2 WSP was commissioned by WSCC in 2018 to engage with stakeholders as part of the Option Review Report for the scheme. At this early stage, this was an initial engagement to seek the views of key stakeholders to develop and refine the options presented to inform the Business Case.

### 3.12.3 KEY STAKEHOLDERS

3.12.4 Key stakeholders were invited to comment on the Options Summary Table either virtually or through attendance at a risk and opportunity workshop held on the 22nd January 2018.

3.12.5 Stakeholders whom provided comments included representatives from:

- Police (separate meeting);
- Historic England (virtually);
- Natural England (virtually);
- West Sussex County Council (virtually as well as attendance at workshop);
- Arun District Council (workshop);
- Chichester District Council (workshop);
- Highways England (workshop);
- Environment Agency (workshop);
- Angus Energy Plc (workshop);
- Network Rail (workshop); and
- Southern consortium (virtually).

3.12.6 The outcome of the stakeholder engagement to review the options confirmed that option 6 & D (part) and 12 would provide the best fit with key stakeholders' objectives for the scheme taking account of known impacts and deliverability issues at that time.

| 6 & D only | 6 & D (part) and 12 | No preference |
|---|---|---|
| 20% | 40% | 40% |

3.12.7 The option review report findings were presented to the Barnham, Eastergate and Westergate northern and southern developer consortiums and major landowners to review risks and opportunities in the design of the A29 realignment scheme.

[9] https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n4752.pdf&ver=4443

### Members

3.12.8 A Cabinet Member Decision Report has been circulated through the Highways and Transportation HUB and Capital and Assets Board for approval…..Approval from the Cabinet Member is expected at the Cabinet Board on the 22 January 2019.

3.12.9 The outcomes of the Option Review Report weres discussed at the BEW Advisory Group this group includes District, Parish members and the Local County Councillor. The Group provides an opportunity for local timely input into the phasing and design of the road and development.

### External

3.12.10 Arun District Council is a Senior User on the A29 Realignment Project Board. External stakeholders identified in section 5.1 have been engaged in the process of developing the scheme.

### Public

3.12.11 A Cabinet Member Key Decision report recommends that consultation with the public commences in spring 2019. The Key Decision is due to be taken in early January 2019 and consultation will take place once the decision is confirmed.

3.12.12 Consultation has previously taken place on the Arun Local Plan at various stages during its development, resulting in the BEW site being allocated for strategic development and an indicative alignment for the A29 Realignment being included in the adopted Arun Local Plan. Although it is recognised that some local stakeholders are critical of the consultation that took place, it still demonstrates that opportunities have been given for the public and other local stakeholders to submit comment on the emerging proposals. Furthermore, a Government-appointed Planning Inspector has concluded that the consultation on the Arun Local Plan was legally compliant.

### Internal

3.12.13 WSCC and ADC internal technical teams provided technical input to ensure the scheme compliance and quality during the development of the A29 Realignment preliminary design and development of the Business Case.

### 3.12.14 FURTHER CONSULTATION

3.12.15 WSCC will now undertake further, more detailed, consultation and engagement on the scheme following the submission of the TBC. This will include consultation with the public, as well as with a wide range of stakeholders. It will involve publication of a leaflet describing the proposals, public exhibitions and presentations, use of the Council's website, and on-going engagement and face-to-face discussions with businesses, local councils and elected representatives, statutory consultees, and other stakeholder groups.

## 3.13 EXPECTED IMPACTS OF THE PROPOSED SCHEME

### 3.13.1 LOCAL MODEL VALIDATION REPORT

3.13.2 As part of the development of the TBC a model scoping exercise was undertaken to review the existing modelling tools available for assessing the proposed scheme. The existing tools available for scheme assessment were determined to be Highways England's Southeast Regional Traffic Model (SERTM) and the Chichester Area Transport Model (CATM).

3.13.3 Both SERTM and CATM contained the study area within the extents of the models. However, neither model was considered to be suitable in their current state for this scheme's appraisal due to the lack of suitable model validation and network detail within the local area of the scheme.

3.13.4 This meant that an updated version of a base year model would be required, using one of SERTM or CATM as a starting point.

3.13.5 The model scoping exercise revealed that CATM contained greater network and zone structure detail for the study area, which as a result would require less zone disaggregation and fewer updates to the network to develop an updated WebTAG compliant version of the base year model for scheme assessment.

3.13.6 It was therefore decided to update the CATM for this study for the TBC.

### 3.13.7 OPTION DEVELOPMENT - TRANSPORT BUSINESS CASE

3.13.8 As part of this process, a new traffic model has been built to assess the scheme. The methodology used to develop the model is described in more detail in the document 'A29 Realignment - Local Model Validation Report (5th October 2018)'. The models have been used to assess the proposed options for the A29 Realignment scheme and a more technical detailed narrative (including data) can be found under Appendix E Traffic Forecasting Report

3.13.9 The purpose of the Traffic Forecasting Report (TFR) is to:

- present the traffic forecasts required for operational, economic and environmental appraisal for this Transport business case;
- discuss any differences with previous forecasts if appropriate;
- detail and justify all assumptions required in the forecasting process; and
- discuss the sensitivity of the forecasts to planning and network assumptions.

3.13.10 **Figure 3-9** shows the highway modelled network and the area covered in the model and **Figure 3-10** shows the extent of the simulation network.

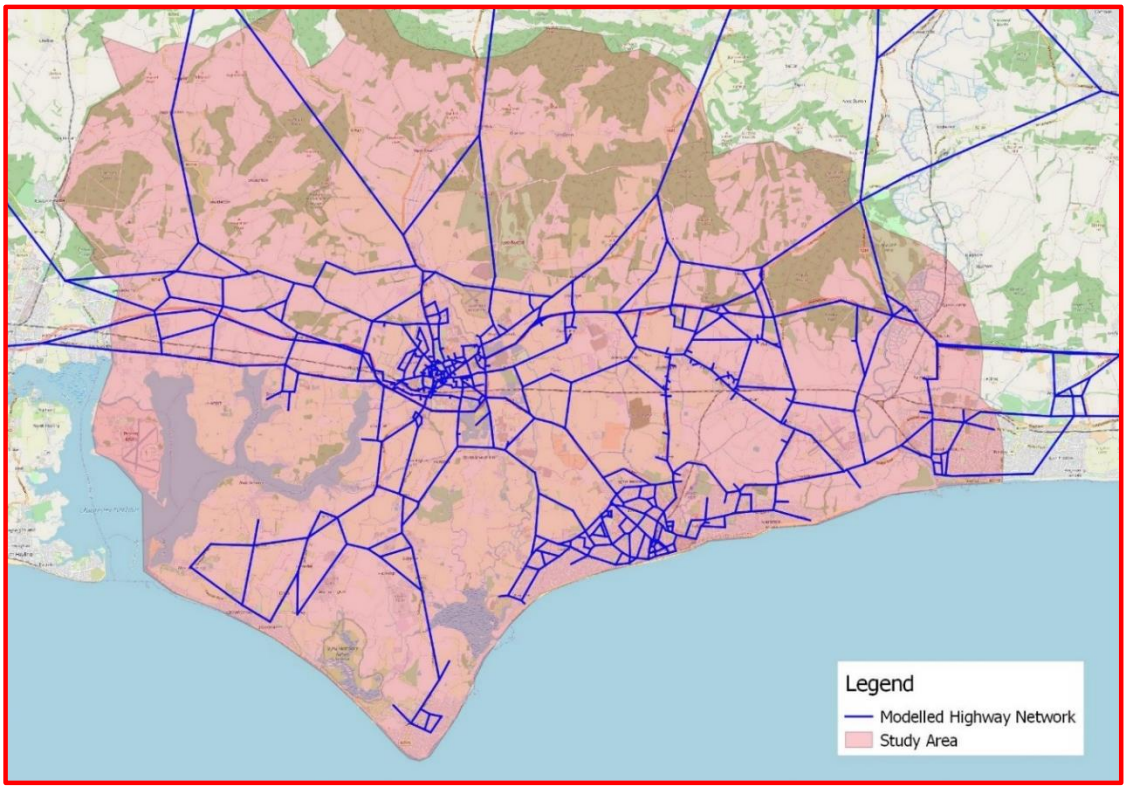



**Figure 3-9 – Modelled Highway Network and Study Area**

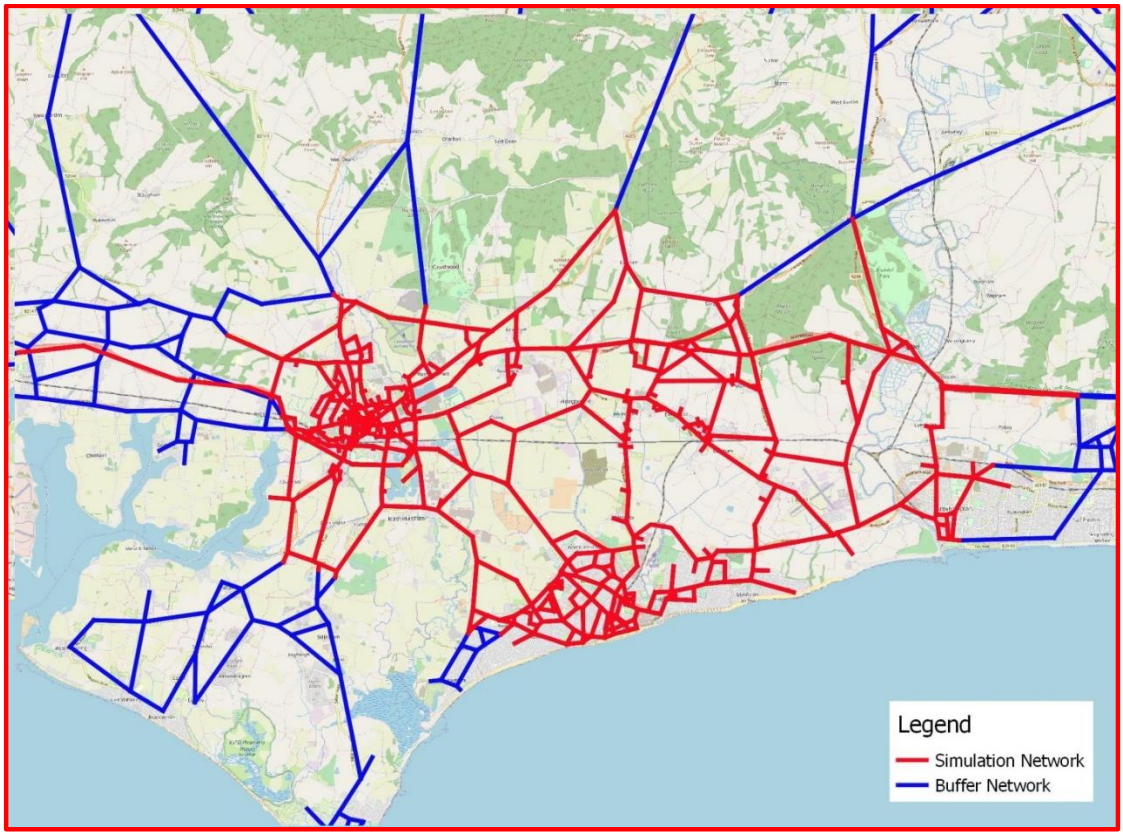



**Figure 3-10 – Extent of simulation network**

3.13.11 In establishing the geographical coverage of the model, WebTAG unit M3.1 Section 2.2.1 has been followed in that the geographic coverage of highway assignment models generally needs to:

- allow for the strategic re-routing impacts of interventions;
- ensure that areas outside the main area of interest, which are potential alternative destinations, are properly represented; and
- ensure that the full lengths of trips are represented for the purpose of deriving costs.

3.13.12 Future year traffic flows and journey times are required for design development, economic analysis and environmental assessment purposes.

3.13.13 The general method for forecasting future year travel uses factors constrained to TEMPRO growth to update origin and destination trip ends for each zone for each time period/purpose/mode combination. These factors are applied to Base Year Origin and Destination demand matrices through a furnessing process to obtain a pivot point demand matrix (which represents updated travel demand in respect of population, car ownership and employment changes under a no travel cost change scenario).

3.13.14 The above approach gives uniform growth over NTEM zones and does not necessarily reflect the locations of developments which are often focused at particular sites.

3.13.15 Engagement with Chichester District Council, Arun District Council, South Downs National Park and West Sussex County Council ascertained the latest planning assumptions, drawing on local development. The data collected from these authorities was collated in an Uncertainty Log which is described in more detail within Appendix E

3.13.16 There are two forecast years that have been modelled for scheme appraisal. These are:

- 2023 – Opening year; and
- 2038 – Design year.

3.13.17 For the purposes of economic, environmental and operational assessment, a comparison between traffic forecast scenarios with and without the scheme is required. Thus, Do Minimum and Do Something networks must be prepared for each modelled forecast year (namely 2023 and 2038)

3.13.18 For each forecast year, Do Minimum and Do Something scenarios have beeen created as follows:

- The Do Minimum network includes any committed infrastructure schemes within the area of detailed modelling expected to be completed by the modelled year. Schemes that are considered to be 'near certain' or 'more than likely' as identified in the Uncertainty Log are included in the Do Minimum model; and
- The Do Something networks contain the committed infrastructure developments included in the Do Minimum network for the corresponding year as well as the changes to the network associated with the schemes under assessment.

### 3.13.19 TRAFFIC FLOWS

3.13.20 This section provides a summary of traffic information produced for the Do Minimum (Existing A29 Network) and the Do Something (Phase 1 (North) and Phase 1 (North) + 2) scenarios of the strategic model for the A29 Realignment Scheme for the 2023 and 2038 forecast years.

3.13.21 The following outputs comprise the following:

- Link flow on the A29;
- Flow difference plots (comparison of 'with scheme' to 'without scheme'); and
- Journey time analysis.

3.13.22 The assignment results in this section focus on the model outputs from the 'core' forecast scenarios.

### 3.13.23 DO MINIMUM AND PHASE 1 (NORTH)

- Link Flows on A29.

3.13.24 A summary of vehicle flows travelling on the A29 is detailed in **Table 3-9** to **Table 3-11** for both directions for the AM, IP and PM peak respectively for both the 2023 and 2038 forecast years. The tables compare the respective 2023 and 2038 'do minimum' scenario against the 'with scheme' scenario.

3.13.25 Schemes such as the A27 at Fontwell have been included for all forecast years including DM. A full details of the schemes considered within the modelling can be found under section 4.2 of the Forecast Model Report under

**Table 3-9: Comparison of Flows on A29 (AM peak)**

| Dir. | Link No. | Link Description | Vehicle Flow | | | | % Diff to Do Min | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023 | | 2038 | | 2023 | 2038 |
| | | | DM | Phase 1 (North) | DM | **Phase 1 (North)** | **Phase 1 (North)** | **Phase 1 (North)** |
| Northbound | 1 | A29 south of Lidsey Bends | 622 | 616 | 747 | 722 | -1% | -3% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 624 | 619 | 833 | 812 | -1% | -3% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 754 | 749 | 836 | 817 | -1% | -2% |
| | 4 | A29 Nyton Rd. | 881 | 866 | 908 | 876 | -2% | -3% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 715 | 660 | 768 | 672 | -8% | -12% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 756 | 676 | 826 | 696 | -11% | -16% |
| | 7 | A29 between Eastergate Ln. and A27 | 540 | 556 | 432 | 462 | 3% | 7% |
| | 8 | A29 Realignment (southern section) | - | - | - | - | - | - |
| | 9 | A29 Realignment (northern section) | - | 141 | - | 285 | - | - |
| Southbound | 9 | A29 Realignment (northern section) | - | 151 | - | 189 | - | - |
| | 8 | A29 Realignment (southern section) | - | - | - | - | - | - |
| | 7 | A29 between Eastergate Ln. and A27 | 385 | 422 | 466 | 487 | 10% | 4% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 517 | 423 | 681 | 561 | -18% | -18% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 583 | 461 | 785 | 594 | -21% | -24% |
| | 4 | A29 Nyton Rd. | 1007 | 994 | 1160 | 1189 | -1% | 3% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 527 | 526 | 632 | 647 | 0% | 2% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 614 | 613 | 791 | 797 | 0% | 1% |
| | 1 | A29 south of Lidsey Bends | 629 | 628 | 898 | 899 | 0% | 0% |

**Table 3-10: Comparison of Flows on A29 (IP)**

| Dir. | Link No. | Link Description | Vehicle Flow | | | | % Diff to Do Min | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023 | | 2038 | | 2023 | 2038 |
| | | | DM | Phase 1 | DM | **Phase 1** | **Phase 1** | **Phase 1** |

| | | | | (North) | | (North) | (North) | (North) |
|---|---|---|---|---|---|---|---|---|
| Northbound | 1 | A29 south of Lidsey Bends | 478 | 477 | 648 | 648 | 0% | 0% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 462 | 461 | 581 | 581 | 0% | 0% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 443 | 442 | 535 | 532 | 0% | -1% |
| | 4 | A29 Nyton Rd. | 633 | 605 | 665 | 608 | -4% | -9% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 430 | 390 | 570 | 461 | -9% | -19% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 407 | 325 | 583 | 425 | -20% | -27% |
| | 7 | A29 between Eastergate Ln. and A27 | 348 | 388 | 515 | 616 | 11% | 20% |
| | 8 | A29 Realignment (southern section) | - | - | - | - | - | - |
| | 9 | A29 Realignment (northern section) | - | 138 | - | 307 | - | - |
| Southbound | 9 | A29 Realignment (northern section) | - | 170 | - | 394 | - | - |
| | 8 | A29 Realignment (southern section) | - | - | - | - | - | - |
| | 7 | A29 between Eastergate Ln. and A27 | 422 | 470 | 634 | 692 | 11% | 9% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 486 | 383 | 740 | 500 | -21% | -32% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 457 | 394 | 675 | 480 | -14% | -29% |
| | 4 | A29 Nyton Rd. | 707 | 701 | 876 | 774 | -1% | -12% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 471 | 475 | 587 | 590 | 1% | 1% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 511 | 510 | 687 | 689 | 0% | 0% |
| | 1 | A29 south of Lidsey Bends | 529 | 527 | 761 | 763 | 0% | 0% |

**Table 3-11: - Comparison of Flows on A29 (PM peak)**

| Dir. | Link No. | Link Description | Vehicle Flow | | | | % Diff to Do Min | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023 | | 2038 | | 2023 | 2038 |
| | | | DM | Phase 1 (North) | DM | Phase 1 (North) | Phase 1 (North) | Phase 1 (North) |
| Northbound | 1 | A29 south of Lidsey Bends | 580 | 577 | 852 | 843 | -1% | -1% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 565 | 563 | 725 | 715 | -1% | -1% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 569 | 565 | 785 | 752 | -1% | -4% |
| | 4 | A29 Nyton Rd. | 830 | 815 | 941 | 947 | -2% | 1% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 543 | 466 | 675 | 562 | -14% | -17% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 487 | 416 | 615 | 535 | -14% | -13% |
| | 7 | A29 between Eastergate Ln. and A27 | 327 | 378 | 439 | 614 | 16% | 40% |
| | 8 | A29 Realignment (southern section) | - | - | - | - | - | - |
| | 9 | A29 Realignment (northern section) | - | 158 | - | 339 | - | - |
| Southbound | 9 | A29 Realignment (northern section) | - | 339 | - | 527 | - | - |
| | 8 | A29 Realignment (southern section) | - | - | - | - | - | - |
| | 7 | A29 between Eastergate Ln. and A27 | 653 | 738 | 722 | 879 | 13% | 22% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 794 | 600 | 881 | 705 | -24% | -20% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 724 | 566 | 772 | 652 | -22% | -16% |
| | 4 | A29 Nyton Rd. | 861 | 853 | 962 | 910 | -1% | -5% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 648 | 649 | 675 | 729 | 0% | 8% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 655 | 652 | 734 | 733 | -1% | 0% |
| | 1 | A29 south of Lidsey Bends | 679 | 675 | 747 | 748 | -1% | 0% |

- Flow Difference Plots

3.13.26 The flow difference plots illustrated in this section compare the respective 2023 and 2038 'with scheme' against the 'without scheme' scenarios. A green line denotes an increase in flow whereas a blue line denotes a decrease in flow. It should be noted that where the 'without scheme' and 'with scheme' networks differ there will be no flow difference displayed.

3.13.27 It should be noted that the units used in the flow difference plots are pcus and the bandwidth scale is the same for all plots.

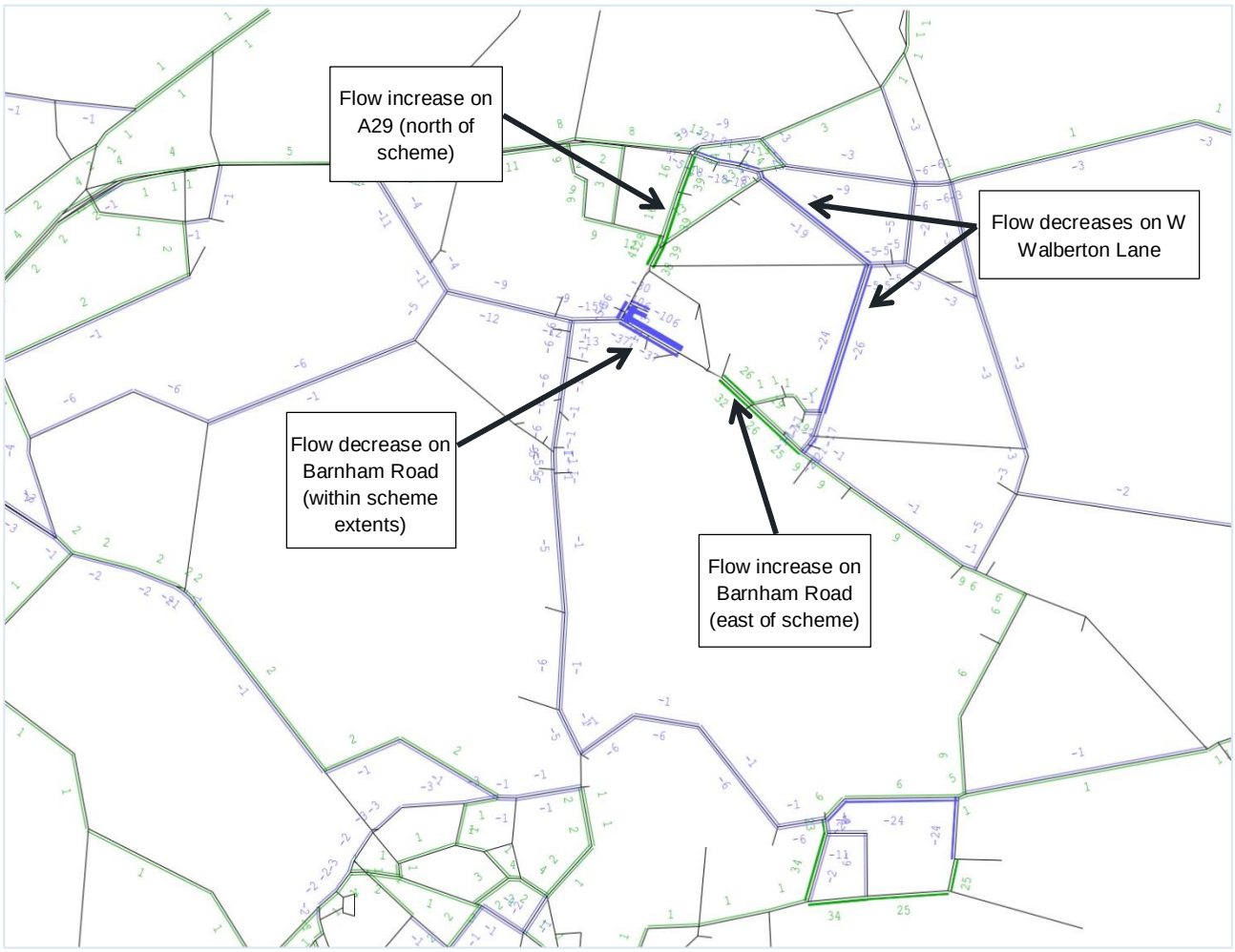



**Figure 3-11 - Flow comparison '2023 do minimum' - '2023 Phase 1 (North)' (AM peak)**

3.13.28 **Figure 3-11** shows that there are flow increases on Barnham Road (east of the scheme) and on the A29 (north of the scheme). This flow increase is traffic re-assigning from Yapton Lane, that is travelling between the A27 and Barnham Road, to the Barnham Road and the A29 realignment route. The largest decrease in flow occurs on Barnham Road within the extent of the scheme. This is where traffic has reassigned onto the new A29 realignment.

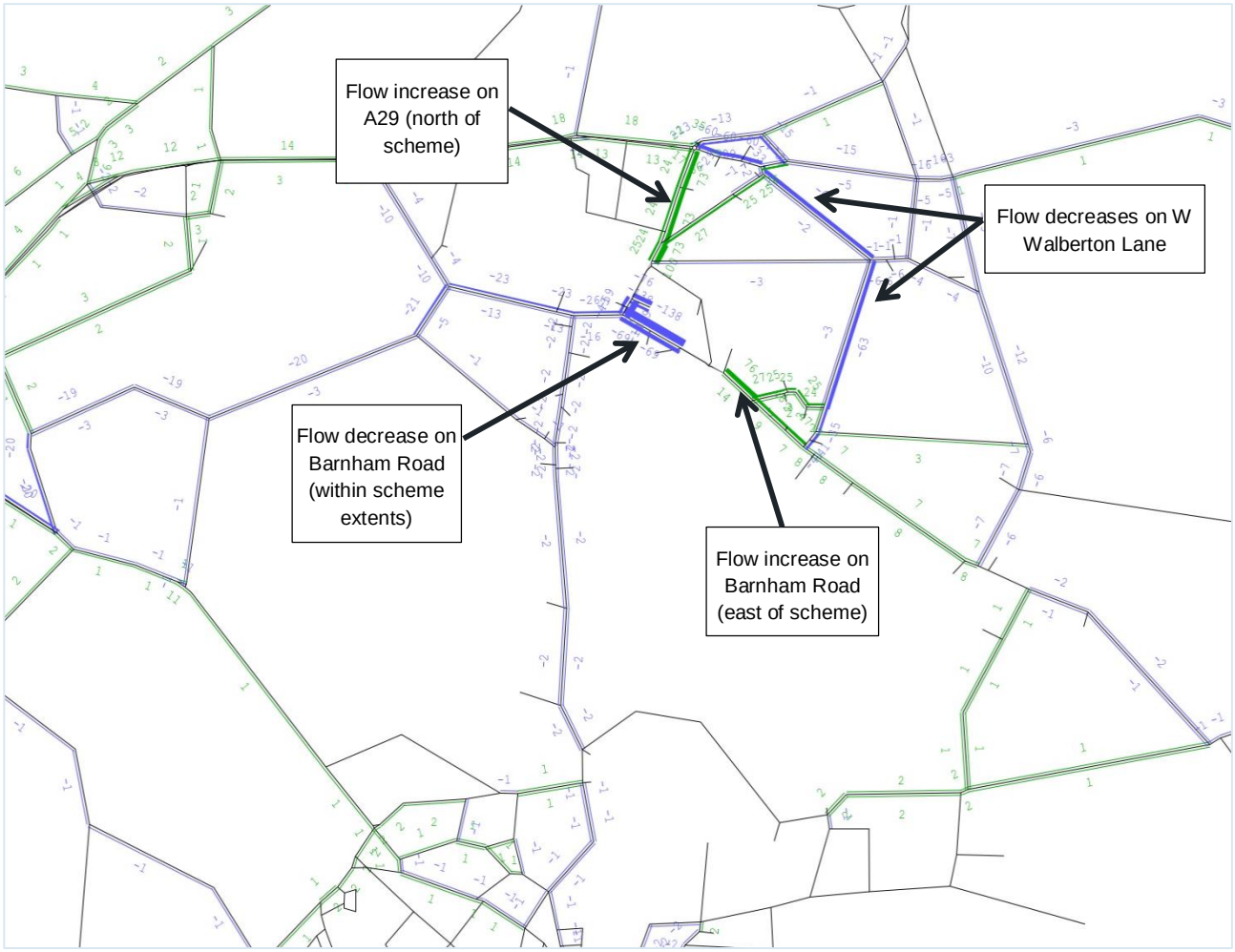



**Figure 3-12 - Flow comparison '2023 do minimum' - '2023 Phase 1 (North)' (PM peak)**

3.13.29 The 2023 PM peak comparison (**Figure 3-12**) shows a similar pattern to that seen in the corresponding AM peak flow difference comparison with the largest increases in flow occurring on A29 (north of the scheme) and on Barnham Road (east of the scheme). There is a corresponding decrease in flow on Walberton Lane.

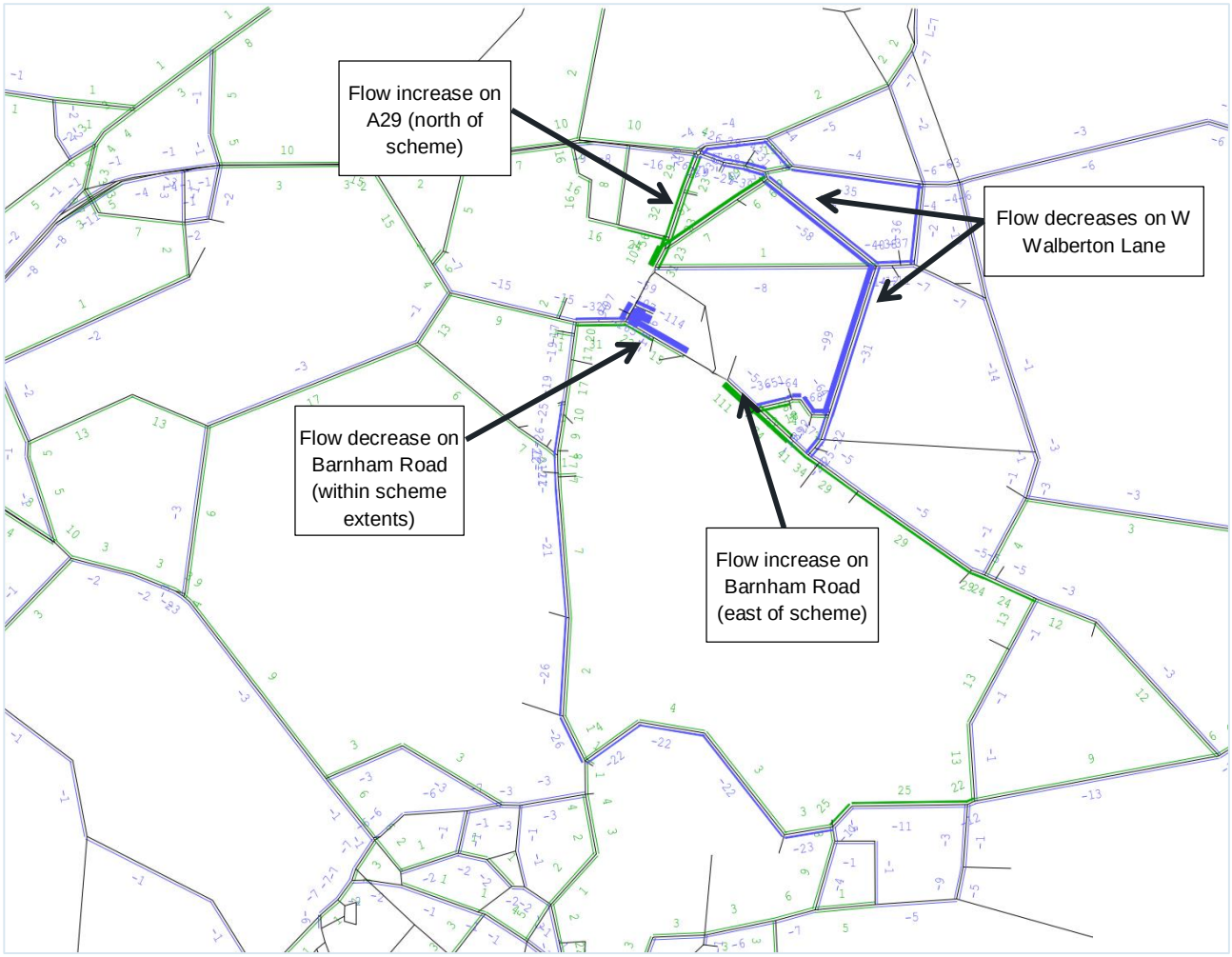



**Figure 3-13 - Flow comparison '2038 do minimum' - '2038 Phase 1 (North)' (AM peak)**

3.13.30 The 2038 AM peak comparison (**Figure 3-13**) shows a similar pattern to the 2023 forecast year. There are flow increases on the A29 (north of the scheme) and Barnham Road (to the east of the scheme). Flow on Yapton Lane decreases as a result of traffic travelling between the A27 and Barnham Road (east) reassigning onto the new A29 realignment.

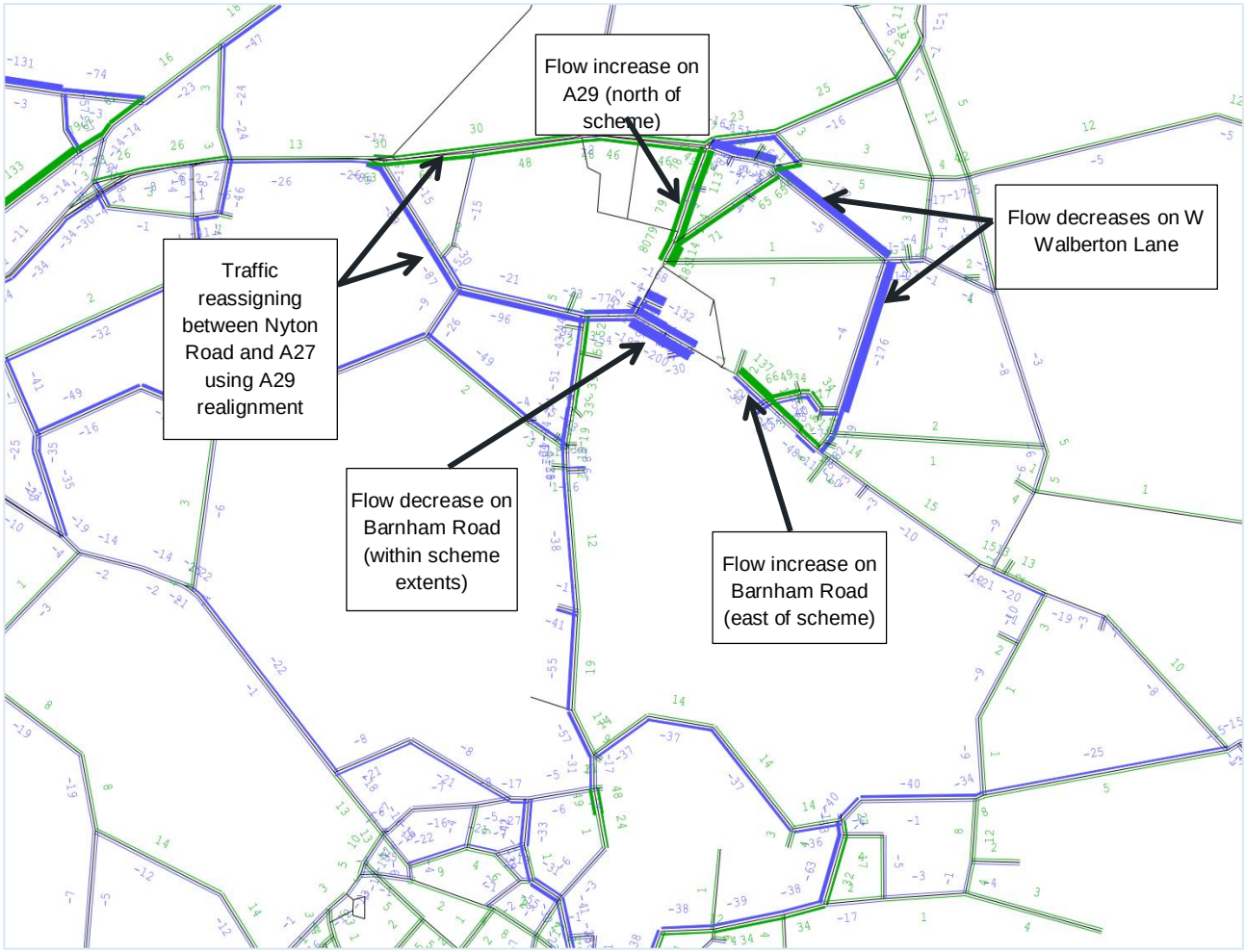



**Figure 3-14 - Flow comparison '2038 do minimum' - '2038 Phase 1 (North)' (PM peak)**

3.13.31 **Figure 3-14** shows there are flow increases on the A29 north of the scheme and on the A27 between the A29 and Nyton Road. The increase in traffic on the A27 is traffic, travelling to/from the A27 west, reassigning from Nyton Road to now use the A27 / A29 route.

### 3.13.32 DO MINIMUM AND PHASE 1 (NORTH) AND 2 (SOUTH)

- Link Flows on A29

3.13.33 A summary of vehicle flows travelling on the A29 is detailed in Table 3-12, Table 3-13 and Table 3-14 for both directions for the AM, IP and PM peak respectively for both the 2023 and 2038 forecast years. The tables compare the Do Minimum scenario with the Do Something scenario.

**Table 3-12- Comparison of Flows on A29 (AM peak)**

| Dir. | Link No. | Link Description | Vehicle Flow | | | | % Diff to Do Min | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023 | | 2038 | | 2023 | 2038 |
| | | | DM | Phase 1 (North) & 2 (South) | DM | **Phase 1 (North) & 2 (South)** | **Phase 1 (North) & 2 (South)** | **Phase 1 (North) & 2 (South)** |
| Northbound | 1 | A29 south of Lidsey Bends | 614 | 722 | 671 | 901 | 18% | 34% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 615 | 177 | 693 | 213 | -71% | -69% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 743 | 290 | 750 | 294 | -61% | -61% |
| | 4 | A29 Nyton Rd. | 864 | 369 | 916 | 378 | -57% | -59% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 727 | 349 | 797 | 348 | -52% | -56% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 886 | 361 | 994 | 362 | -59% | -64% |
| | 7 | A29 between Eastergate Ln. and A27 | 838 | 987 | 651 | 888 | 18% | 36% |
| | 8 | A29 Realignment (southern section) | - | 601 | - | 986 | - | - |
| | 9 | A29 Realignment (northern section) | - | 664 | - | 819 | - | - |
| Southbound | 9 | A29 Realignment (northern section) | - | 455 | - | 658 | - | - |
| | 8 | A29 Realignment (southern section) | - | 500 | - | 684 | - | - |
| | 7 | A29 between Eastergate Ln. and A27 | 405 | 497 | 487 | 612 | 23% | 26% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 553 | 130 | 730 | 152 | -76% | -79% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 516 | 179 | 717 | 200 | -65% | -72% |
| | 4 | A29 Nyton Rd. | 936 | 536 | 1098 | 661 | -43% | -40% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 538 | 113 | 684 | 187 | -79% | -73% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 618 | 193 | 774 | 219 | -69% | -72% |
| | 1 | A29 south of Lidsey Bends | 633 | 701 | 971 | 1101 | 11% | 13% |

**Table 3-13- Comparison of Flows on A29 (IP)**

| Dir. | Link Description | Vehicle Flow | % Diff to Do Min |
|---|---|---|---|

| | Link No. | | 2023 | | 2038 | | 2023 | 2038 |
|---|---|---|---|---|---|---|---|---|
| | | | DM | Phase 1 (North) & 2 (South) | DM | Phase 1 (North) & 2 (South) | Phase 1 (North) & 2 (South) | Phase 1 (North) & 2 (South) |
| Northbound | 1 | A29 south of Lidsey Bends | 478 | 578 | 648 | 793 | 21% | 22% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 462 | 151 | 581 | 205 | -67% | -65% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 443 | 130 | 535 | 144 | -71% | -73% |
| | 4 | A29 Nyton Rd. | 633 | 230 | 665 | 218 | -64% | -67% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 430 | 204 | 570 | 175 | -53% | -69% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 407 | 98 | 583 | 111 | -76% | -81% |
| | 7 | A29 between Eastergate Ln. and A27 | 348 | 586 | 515 | 760 | 68% | 48% |
| | 8 | A29 Realignment (southern section) | - | 430 | - | 632 | - | - |
| | 9 | A29 Realignment (northern section) | - | 528 | - | 720 | - | - |
| Southbound | 9 | A29 Realignment (northern section) | - | 537 | - | 824 | - | - |
| | 8 | A29 Realignment (southern section) | - | 460 | - | 700 | - | - |
| | 7 | A29 between Eastergate Ln. and A27 | 422 | 540 | 634 | 804 | 28% | 27% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 486 | 100 | 740 | 148 | -79% | -80% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 457 | 151 | 675 | 156 | -67% | -77% |
| | 4 | A29 Nyton Rd. | 707 | 230 | 876 | 316 | -67% | -64% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 471 | 111 | 587 | 113 | -76% | -81% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 511 | 146 | 687 | 201 | -72% | -71% |
| | 1 | A29 south of Lidsey Bends | 529 | 605 | 761 | 871 | 15% | 14% |

**Table 3-14- Comparison of Flows on A29 (PM peak)**

| Dir. | Link No. | Link Description | Vehicle Flow | | % Diff to Do Min | |
|---|---|---|---|---|---|---|
| | | | 2023 | 2038 | 2023 | 2038 |

| | | | DM | Phase 1 (North) & 2 (South) | DM | **Phase 1 (North) & 2 (South)** | **Phase 1 (North) & 2 (South)** | **Phase 1 (North) & 2 (South)** |
|---|---|---|---|---|---|---|---|---|
| Northbound | 1 | A29 south of Lidsey Bends | 580 | 686 | 852 | 1001 | 18% | 17% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 565 | 155 | 725 | 176 | -73% | -76% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 569 | 149 | 785 | 239 | -74% | -70% |
| | 4 | A29 Nyton Rd. | 830 | 433 | 941 | 530 | -48% | -44% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 543 | 242 | 675 | 261 | -55% | -61% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 487 | 150 | 615 | 182 | -69% | -70% |
| | 7 | A29 between Eastergate Ln. and A27 | 327 | 554 | 439 | 682 | 69% | 55% |
| | 8 | A29 Realignment (southern section) | - | 539 | - | 738 | - | - |
| | 9 | A29 Realignment (northern section) | - | 519 | - | 687 | - | - |
| Southbound | 9 | A29 Realignment (northern section) | - | 716 | - | 1007 | - | - |
| | 8 | A29 Realignment (southern section) | - | 650 | - | 995 | - | - |
| | 7 | A29 between Eastergate Ln. and A27 | 653 | 777 | 722 | 971 | 19% | 35% |
| | 6 | A29 between Collins Cl. and Eastergate Ln. | 794 | 231 | 881 | 251 | -71% | -72% |
| | 5 | A29 between Nyton Rd. and Collins Cl. | 724 | 239 | 772 | 250 | -67% | -68% |
| | 4 | A29 Nyton Rd. | 861 | 287 | 962 | 354 | -67% | -63% |
| | 3 | A29 between Hook Ln. and Nyton Rd. | 648 | 156 | 675 | 172 | -76% | -74% |
| | 2 | A29 between Lidsey Bends and Hook Ln. | 655 | 170 | 734 | 214 | -74% | -71% |
| | 1 | A29 south of Lidsey Bends | 679 | 787 | 747 | 1002 | 16% | 34% |

- Flow Difference Plots

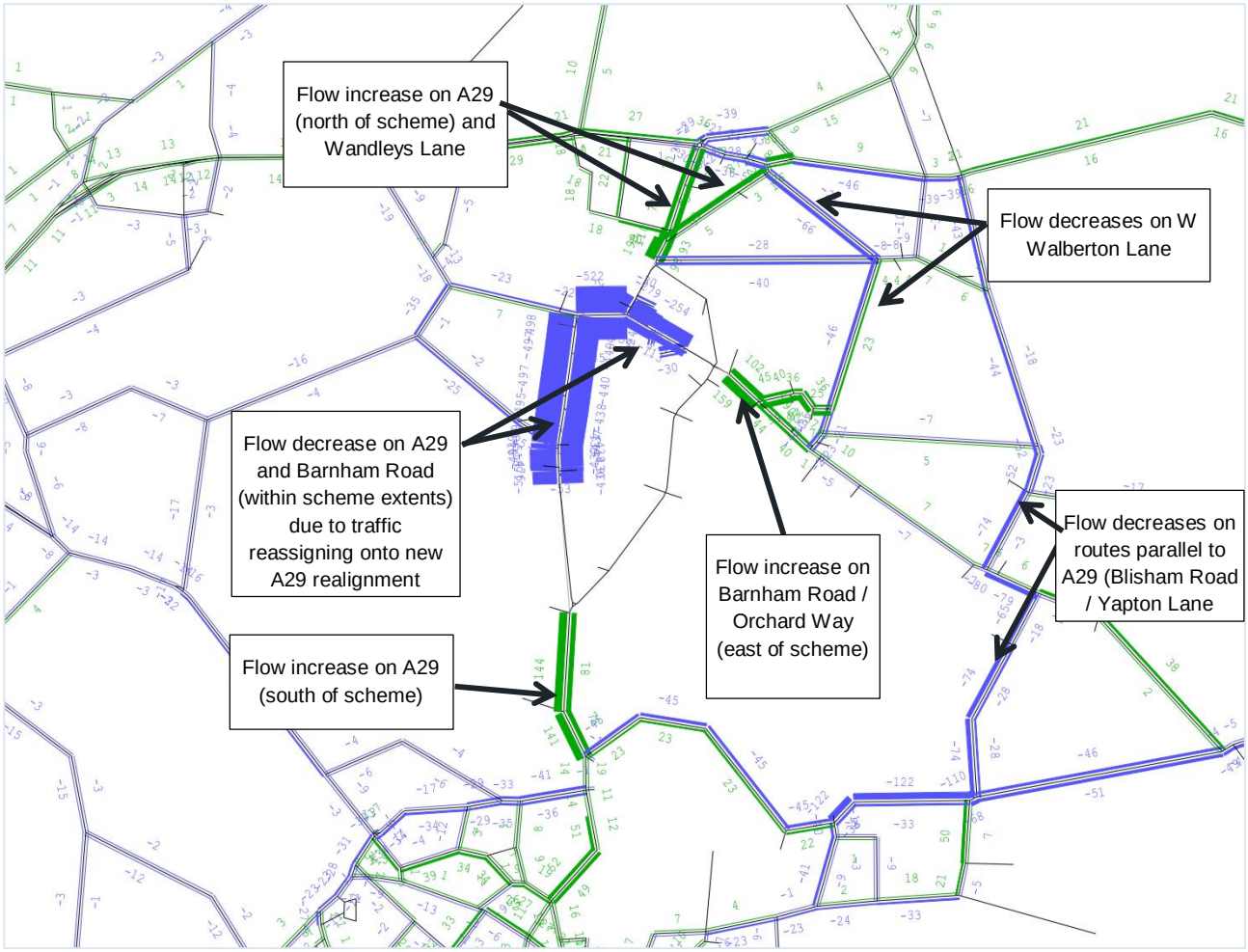



**Figure 3-15 - Flow comparison '2023 do minimum' - '2023 Phase 1 (North) & Phase 2 (South)' (AM peak)**

3.13.34 **Figure 3-15** shows that with the introduction of the full realignment scheme the largest reduction in traffic flow occurs on the existing A29 and Nyton Road within the extents of the A29 realignment scheme. This is expected as traffic that was previously using this route has reassigned on to the new A29 realignment road.

3.13.35 There are flow decreases occurring on the A29 both north and south of the scheme extents. This is traffic travelling between the Bognor Regis area and the A27 reassigning from other parallel routes (Bilsham Road / Yapton Lane) onto the A29. This can be seen by a corresponding decrease in flow on these links

3.13.36 Flow increases occur on Barnham Road and Orchard Way, to the east of the scheme. This is vehicle flow that was previously travelling on Eastergate Lane and West Walberton Lane that has reassigned on to these routes with the introduction of the full A29 realignment scheme.

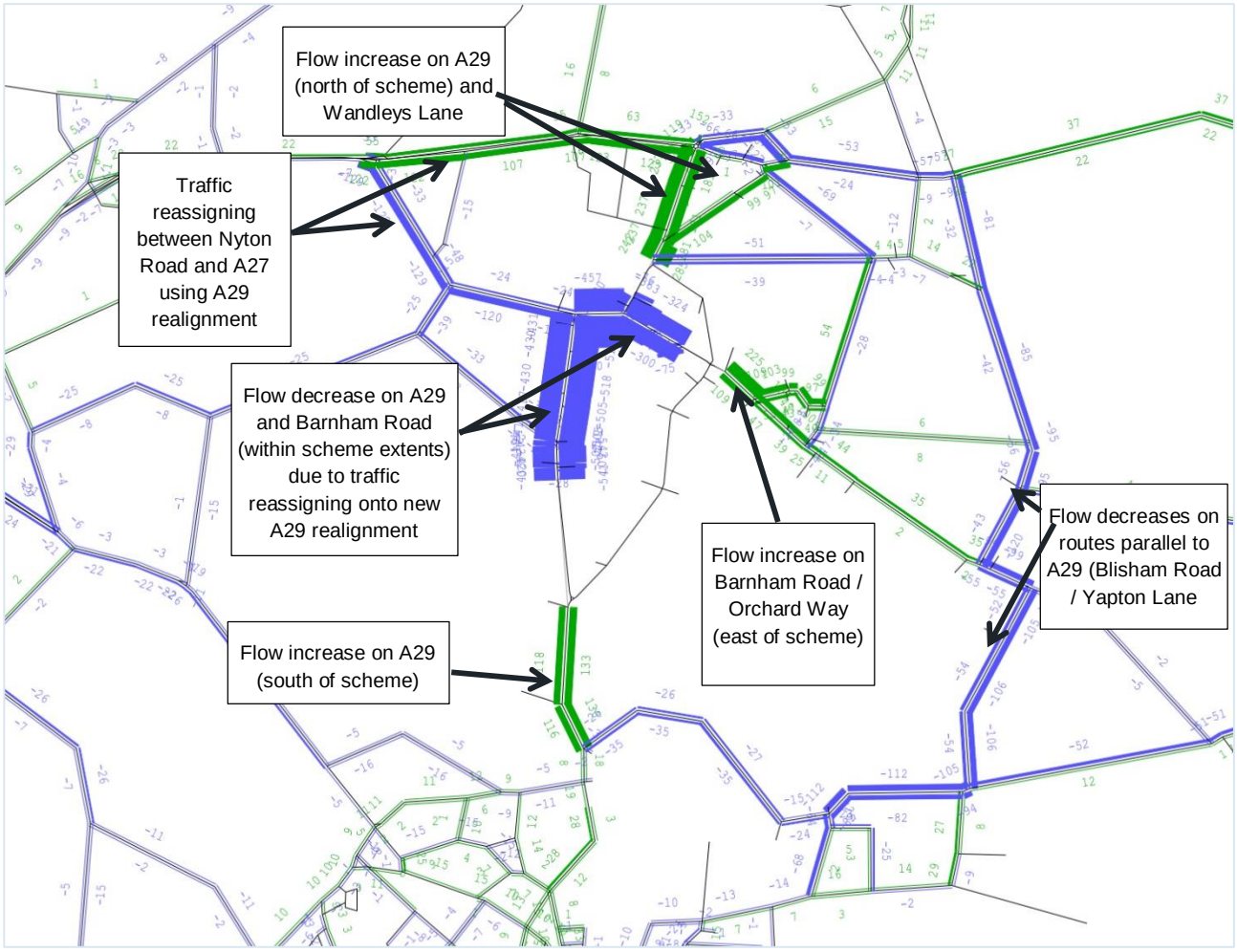



**Figure 3-16- Flow comparison '2023 do minimum' - '2023 Phase 1 (North) & Phase 2 (South)' ' (PM peak)**

3.13.37 The 2023 PM peak comparison (**Figure 3-16**) shows a similar pattern to that seen in the AM peak. There is a reduction in flow on the existing A29 alignment, within the extents of the A29 realignment scheme and also on routes parallel to the A29 where traffic is reassigning on to the A29 as a result of the reduction in journey time on this route.

3.13.38 Flow increases occur on Barnham Road and Orchard Way. As can be seen in the AM peak, this is vehicle flow that was previously travelling on Eastergate Lane and West Walberton Lane that has reassigned on to these routes with the introduction of the full A29 realignment scheme.

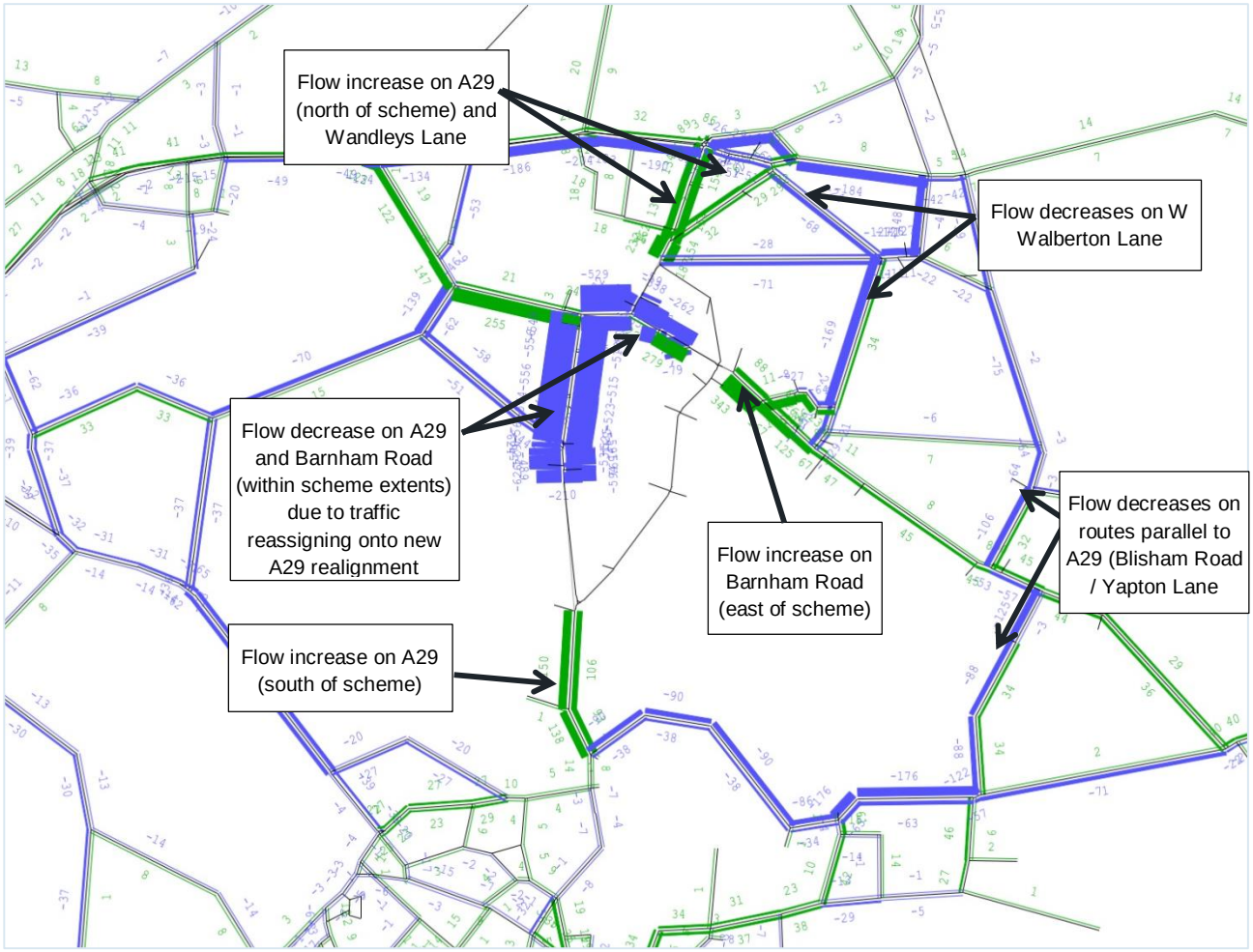



**Figure 3-17- Flow comparison '2038 do minimum' - '2038 Phase 1 (North) & Phase 2 (South)' (AM peak)**

3.13.39 **Figure 3-17** shows that there are flow decreases on the A29, within the extent of the A29 realignment scheme, and also on routes parallel to the A29. There is an increase in flow travelling in both directions on Barnham Road and Nyton Road. This is a result of the decrease in delay at the Westergate Street / Nyton Road and Barnham Road junctions.

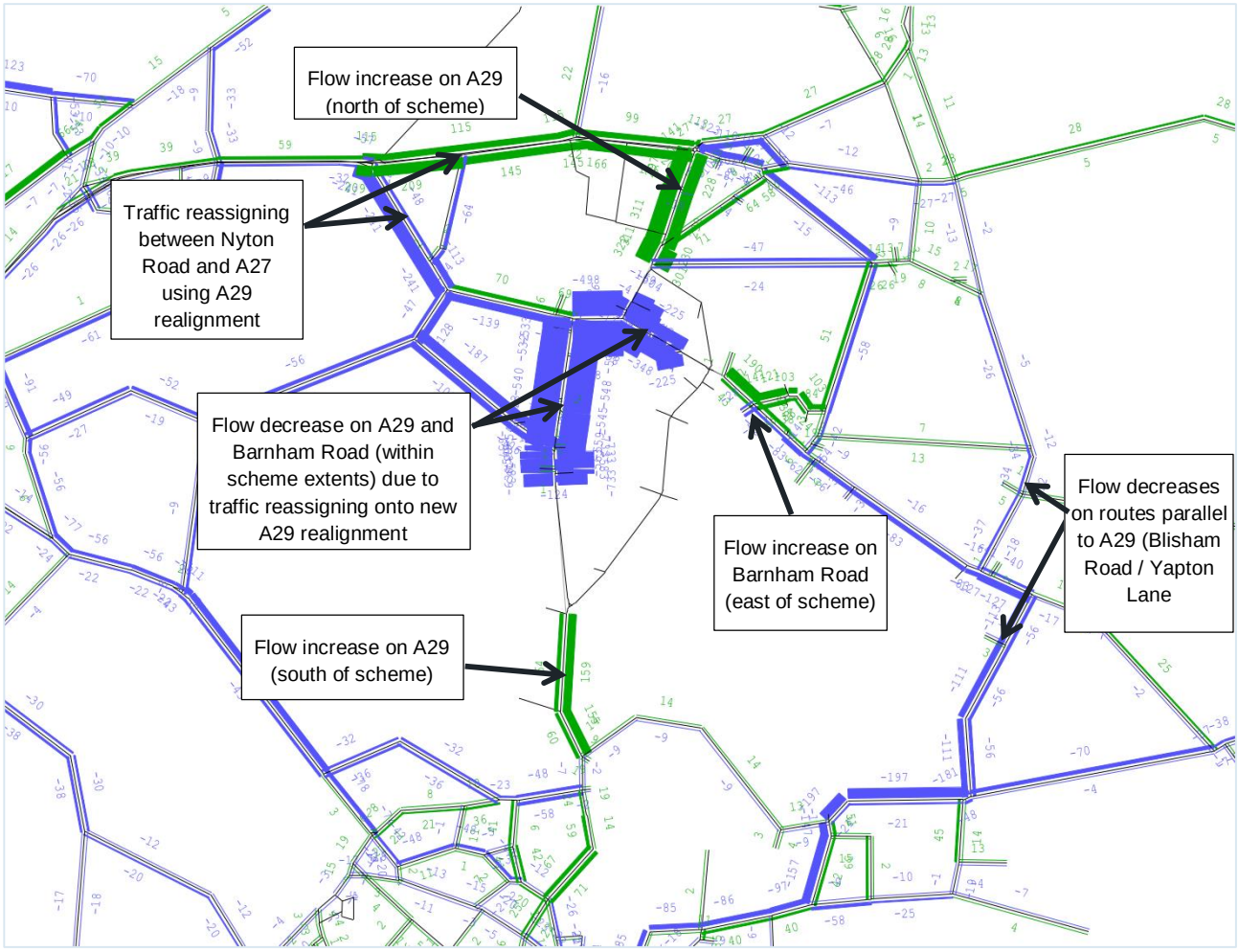



**Figure 3-18- Flow comparison '2038 do minimum' - '2038 Phase 1 (North) & Phase 2 (South)' (PM peak)**

3.13.40 The 2038 PM peak comparison (**Figure 3-18**) shows that there are flow decreases on the A29, within the extent of the A29 realignment scheme and also on local parallel routes to the A29. There are flow increases on the A29 both north and south of the scheme extents.

3.13.41 The future year traffic forecasts detailed within Appendix Eprovides an estimate of the traffic flows that are likely to occur within the study area for the A29 Realignment scheme.

3.13.42 The future traffic flows from the traffic model have been used for economic, environmental and operational assessments for this Transport business case to confirm the choice of the A29 Realignment preliminary design.

### 3.13.43 JOURNEY TIMES

3.13.44 This section compares the ***average*** journey times for fixed routes on the network between the Do Minimum and Do Something scenario to gain an understanding of the impact of the scheme in the opening year (2023) and design year (2038). The ten journey time routes identified for analysis are shown in **Figure 3-19**.

3.13.45 As well as congestion, the level crossing at Westergate most likely contributes a negative effect on journey time variability on the A29. With the introduction of the proposed A29 realignment scheme it is anticipated that the journey time variability would decrease as traffic using the new alignment will be able to cross the railway line without impediment

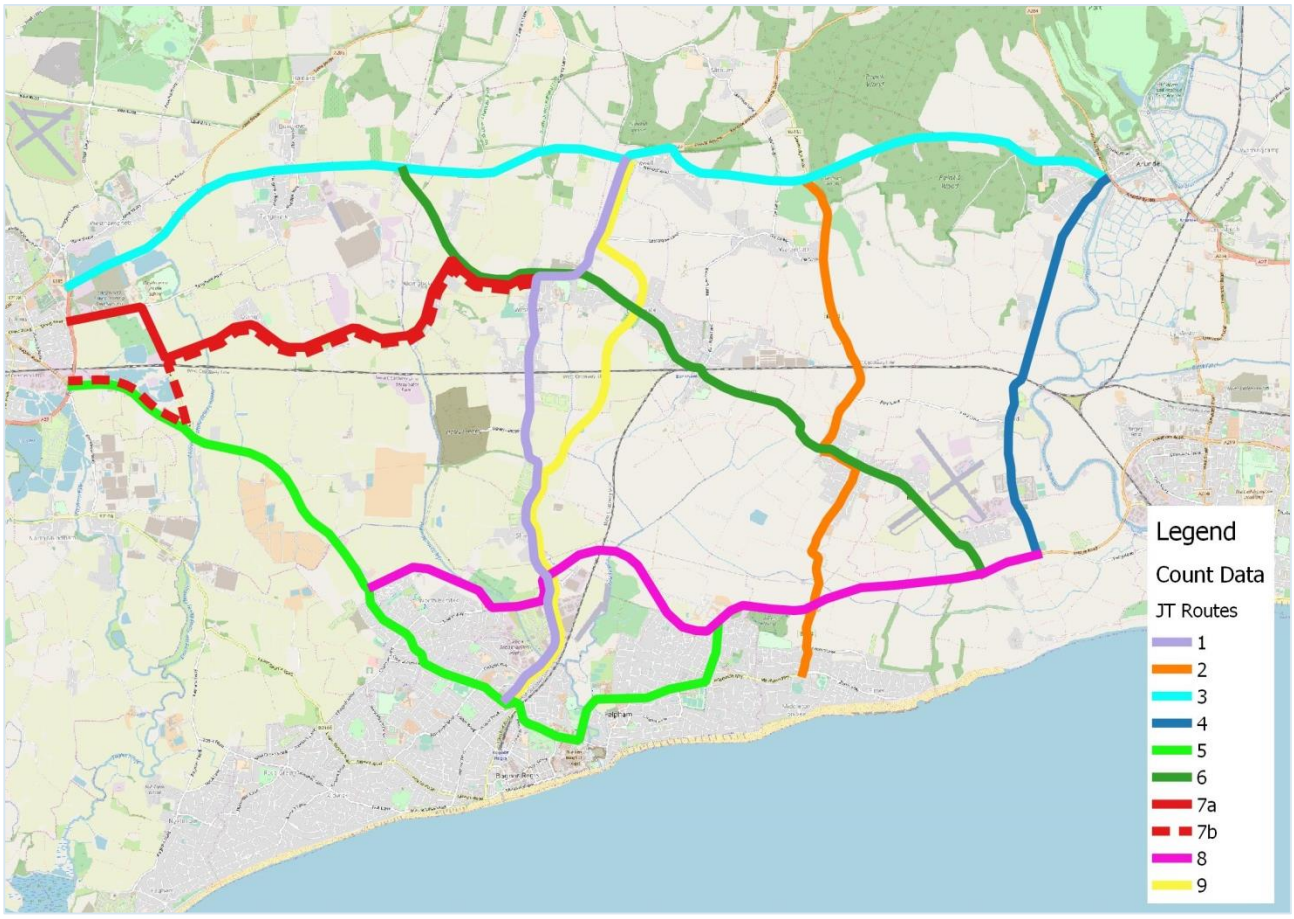



**Figure 3-19 – Journey Time Routes**

### 3.13.46 2023 DO MINIMUM AND DO SOMETHING

3.13.47 Journey time information is presented for the Do Minimum and Do Something in **Table 3-15**, **Table 3-16** and **Table 3-17** for the AM, Interpeak and PM peak respectively for the 2023 year.

3.13.48 For the purposes of comparison, route 9 which covers the A29 with the full realignment scheme was compared against the existing route 1 in the Do Minimum scenario, which covers the existing A29 alignment.

**Table 3-15 - 2023 DM vs DS AM Peak - Journey time comparison**

| Journey Time Route | Direction | Travel Time (mm:ss) | | | % Difference to Do Min | |
|---|---|---|---|---|---|---|
| | | DM | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) |
| Route 1 | NB | 12:01 | 12:08 | 11:29 | 1% | -4% |
| | SB | 11:13 | 11:15 | 10:38 | 0% | -5% |
| Route 2 | NB | 12:15 | 12:13 | 11:11 | 0% | -9% |
| | SB | 11:53 | 11:54 | 10:57 | 0% | -8% |
| Route 3 | EB | 11:42 | 11:42 | 11:43 | 0% | 0% |
| | WB | 11:46 | 11:46 | 11:49 | 0% | 0% |
| Route 4 | NB | 08:03 | 08:09 | 08:06 | 1% | 1% |
| | SB | 07:42 | 07:42 | 07:30 | 0% | -3% |
| Route 5 | EB | 14:10 | 14:10 | 14:06 | 0% | 0% |
| | WB | 19:52 | 19:54 | 19:51 | 0% | 0% |
| Route 6 | EB | 15:23 | 15:18 | 14:53 | -1% | -3% |
| | WB | 13:46 | 13:37 | 13:21 | -1% | -3% |
| Route 7a | EB | 07:09 | 07:09 | 07:09 | 0% | 0% |
| | WB | 10:32 | 10:30 | 10:17 | 0% | -2% |
| Route 7b | EB | 07:49 | 07:49 | 07:49 | 0% | 0% |
| | WB | 12:58 | 12:59 | 12:59 | 0% | 0% |
| Route 8 | EB | 08:41 | 08:42 | 08:47 | 0% | 1% |
| | WB | 08:19 | 08:19 | 08:23 | 0% | 1% |
| Route 9 | NB | 12:01* | - | 10:41 | - | -11% |
| | SB | 11:13* | - | 09:39 | - | -14% |

**Journey time from route 1 used for comparison purposes (existing A29 alignment)*

**Table 3-16- 2023 DM vs DS Interpeak - Journey time comparison**

| Journey Time Route | Direction | Travel Time (mm:ss) | | | % Difference to Do Min | |
|---|---|---|---|---|---|---|
| | | DM | PHASE 1 (North) | PHASE 1 (North) & | PHASE 1 (North) | PHASE 1 (North) & |

| | | | | Phase 2 (South) | | Phase 2 (South) |
|---|---|---|---|---|---|---|
| Route 1 | NB | 10:44 | 10:46 | 10:27 | 0% | -3% |
| | SB | 10:54 | 10:57 | 10:29 | 0% | -4% |
| Route 2 | NB | 10:09 | 10:08 | 10:02 | 0% | -1% |
| | SB | 11:13 | 11:14 | 10:32 | 0% | -6% |
| Route 3 | EB | 10:34 | 10:35 | 10:40 | 0% | 1% |
| | WB | 10:19 | 10:19 | 10:21 | 0% | 0% |
| Route 4 | NB | 07:07 | 07:06 | 07:06 | 0% | 0% |
| | SB | 07:16 | 07:17 | 07:12 | 0% | -1% |
| Route 5 | EB | 14:18 | 14:18 | 14:17 | 0% | 0% |
| | WB | 16:19 | 16:19 | 16:16 | 0% | 0% |
| Route 6 | EB | 13:17 | 13:15 | 12:57 | 0% | -3% |
| | WB | 12:54 | 12:53 | 12:41 | 0% | -2% |
| Route 7a | EB | 07:06 | 07:06 | 07:06 | 0% | 0% |
| | WB | 08:08 | 08:08 | 08:08 | 0% | 0% |
| Route 7b | EB | 07:42 | 07:42 | 07:41 | 0% | 0% |
| | WB | 09:51 | 09:51 | 09:50 | 0% | 0% |
| Route 8 | EB | 07:58 | 07:59 | 07:57 | 0% | 0% |
| | WB | 07:53 | 07:52 | 07:51 | 0% | 0% |
| Route 9 | NB | 10:44* | - | 09:33 | - | -11% |
| | SB | 10:54* | - | 09:33 | - | -12% |

**Journey time from route 1 used for comparison purposes (existing A29 alignment)*

**Table 3-17- 2023 DM vs DS PM Peak - Journey time comparison**

| Journey Time Route | Direction | Travel Time (mm:ss) | | | % Difference to Do Min | |
|---|---|---|---|---|---|---|
| | | DM | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) |
| Route 1 | NB | 11:25 | 11:27 | 11:18 | 0% | -1% |
| | SB | 12:26 | 12:21 | 11:49 | -1% | -5% |
| Route 2 | NB | 10:55 | 10:55 | 10:27 | 0% | -4% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | SB | 10:51 | 10:50 | 10:37 | 0% | -2% |
| Route 3 | EB | 11:19 | 11:23 | 11:27 | 1% | 1% |
| | WB | 10:30 | 10:30 | 10:31 | 0% | 0% |
| Route 4 | NB | 07:13 | 07:13 | 07:13 | 0% | 0% |
| | SB | 09:35 | 09:34 | 09:21 | 0% | -2% |
| Route 5 | EB | 14:47 | 14:46 | 14:43 | 0% | -1% |
| | WB | 14:57 | 14:55 | 14:48 | 0% | -1% |
| Route 6 | EB | 15:24 | 15:05 | 14:28 | -2% | -6% |
| | WB | 13:05 | 13:03 | 12:48 | 0% | -2% |
| Route 7a | EB | 07:14 | 07:14 | 07:14 | 0% | 0% |
| | WB | 08:22 | 08:22 | 08:21 | 0% | 0% |
| Route 7b | EB | 07:52 | 07:51 | 07:52 | 0% | 0% |
| | WB | 08:26 | 08:24 | 08:19 | -1% | -1% |
| Route 8 | EB | 09:00 | 09:02 | 09:02 | 0% | 0% |
| | WB | 08:50 | 08:49 | 08:59 | 0% | 2% |
| Route 9 | NB | 11:25* | - | 10:28 | - | -8% |
| | SB | 12:26* | - | 11:08 | - | -11% |

**Journey time from route 1 used for comparison purposes (existing A29 alignment)*

3.13.49 For Phase 1 (North) there are insignificant differences in journey times for all peak periods when compared against the Do Minimum scenario.

3.13.50 For Phase 1 (North) & Phase 2 (South) the largest reduction in journey times is for route 9, that covers the new A29 realignment, when compared against the existing alignment in the Do Minimum scenario. The reduction in journey time for this route ranges between 10% and 15% (approximately 1-2 minutes).

### 3.13.51 2038 DO MINIMUM AND DO SOMETHING

3.13.52 Journey time information is presented for the Do Minimum and Do Something in Table 3-18,

3.13.53 Table 3-19 and Table 3-20 for the AM, Interpeak and PM peak respectively for the 2038 year.

**Table 3-18- 2038 DM vs DS AM Peak - Journey time comparison**

| Journey Time Route | Direction | Travel Time (mm:ss) | | | % Difference to Do Min | |
|---|---|---|---|---|---|---|
| | | DM | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) |
| Route 1 | NB | 14:40 | 14:30 | 12:23 | -1% | -16% |
| | SB | 13:38 | 13:32 | 11:29 | -1% | -16% |
| Route 2 | NB | 16:38 | 16:25 | 14:30 | -1% | -13% |
| | SB | 14:29 | 14:03 | 11:48 | -3% | -18% |
| Route 3 | EB | 12:44 | 12:44 | 12:53 | 0% | 1% |
| | WB | 13:31 | 13:34 | 13:51 | 0% | 3% |
| Route 4 | NB | 10:47 | 10:45 | 09:50 | 0% | -9% |
| | SB | 09:12 | 09:10 | 08:09 | 0% | -11% |
| Route 5 | EB | 14:34 | 14:31 | 14:15 | 0% | -2% |
| | WB | 21:09 | 21:10 | 21:22 | 0% | 1% |
| Route 6 | EB | 17:02 | 16:53 | 15:31 | -1% | -9% |
| | WB | 15:30 | 14:50 | 14:11 | -4% | -8% |
| Route 7a | EB | 07:17 | 07:16 | 07:16 | 0% | 0% |
| | WB | 12:37 | 12:38 | 12:33 | 0% | 0% |
| Route 7b | EB | 07:56 | 07:56 | 07:54 | 0% | 0% |
| | WB | 14:16 | 14:19 | 14:27 | 0% | 1% |
| Route 8 | EB | 09:16 | 09:16 | 09:12 | 0% | -1% |
| | WB | 09:16 | 09:13 | 09:28 | 0% | 2% |
| Route 9 | NB | 14:40* | - | 11:54 | - | -19% |
| | SB | 13:38* | - | 10:50 | - | -20% |

**Journey time from route 1 used for comparison purposes (existing A29 alignment)*

**Table 3-19- 2038 DM vs DS Interpeak - Journey time comparison**

| Journey Time Route | Direction | Travel Time (mm:ss) | | | % Difference to Do Min | |
|---|---|---|---|---|---|---|
| | | DM | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) |
| Route 1 | NB | 11:33 | 11:35 | 11:12 | 0% | -3% |
| | SB | 12:02 | 12:03 | 11:16 | 0% | -6% |
| Route 2 | NB | 10:29 | 10:29 | 10:14 | 0% | -2% |
| | SB | 12:44 | 12:44 | 11:27 | 0% | -10% |
| Route 3 | EB | 11:08 | 11:10 | 11:19 | 0% | 2% |
| | WB | 10:51 | 10:52 | 10:55 | 0% | 1% |
| Route 4 | NB | 07:11 | 07:11 | 07:10 | 0% | 0% |
| | SB | 07:56 | 07:56 | 07:27 | 0% | -6% |
| Route 5 | EB | 14:26 | 14:26 | 14:22 | 0% | 0% |
| | WB | 17:18 | 17:18 | 17:11 | 0% | -1% |
| Route 6 | EB | 15:00 | 14:53 | 13:49 | -1% | -8% |
| | WB | 13:10 | 12:57 | 12:49 | -2% | -3% |
| Route 7a | EB | 07:11 | 07:09 | 07:08 | 0% | -1% |
| | WB | 08:58 | 08:58 | 08:56 | 0% | 0% |
| Route 7b | EB | 07:48 | 07:47 | 07:45 | 0% | -1% |
| | WB | 10:41 | 10:41 | 10:37 | 0% | -1% |
| Route 8 | EB | 08:52 | 08:53 | 08:58 | 0% | 1% |
| | WB | 08:18 | 08:18 | 08:22 | 0% | 1% |
| Route 9 | NB | 11:33* | - | 10:33 | - | -9% |
| | SB | 12:02* | - | 10:43 | - | -11% |

**Journey time from route 1 used for comparison purposes (existing A29 alignment)*

**Table 3-20- 2038 DM vs DS PM Peak - Journey time comparison**

| Journey Time Route | Direction | Travel Time (mm:ss) | | | % Difference to Do Min | |
|---|---|---|---|---|---|---|
| | | DM | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) | PHASE 1 (North) | PHASE 1 (North) & Phase 2 (South) |
| Route 1 | NB | 13:07 | 13:08 | 12:18 | 0% | -6% |
| | SB | 14:40 | 14:01 | 11:48 | -4% | -20% |
| Route 2 | NB | 13:14 | 13:13 | 12:19 | 0% | -7% |
| | SB | 12:37 | 12:42 | 11:01 | 1% | -13% |
| Route 3 | EB | 11:22 | 11:25 | 11:27 | 0% | 1% |
| | WB | 11:04 | 11:05 | 11:05 | 0% | 0% |
| Route 4 | NB | 07:19 | 07:20 | 07:18 | 0% | 0% |
| | SB | 11:25 | 11:24 | 10:30 | 0% | -8% |
| Route 5 | EB | 15:08 | 15:06 | 14:42 | 0% | -3% |
| | WB | 16:03 | 15:59 | 15:54 | 0% | -1% |
| Route 6 | EB | 17:56 | 17:26 | 14:57 | -3% | -17% |
| | WB | 13:27 | 13:08 | 13:00 | -2% | -3% |
| Route 7a | EB | 07:32 | 07:27 | 07:25 | -1% | -1% |
| | WB | 09:14 | 09:11 | 08:55 | -1% | -3% |
| Route 7b | EB | 08:12 | 08:07 | 08:08 | -1% | -1% |
| | WB | 09:31 | 09:26 | 09:20 | -1% | -2% |
| Route 8 | EB | 09:45 | 09:44 | 09:29 | 0% | -3% |
| | WB | 08:47 | 08:51 | 08:59 | 1% | 2% |
| Route 9 | NB | 13:07* | - | 11:48 | - | -10% |
| | SB | 14:40* | - | 11:41 | - | -20% |

**Journey time from route 1 used for comparison purposes (existing A29 alignment)*

3.13.54 For the 2038 forecast year there are decreases in journey times for the majority of routes in all peak periods for both of the A29 realignment scheme options. For Phase 1 (North) & Phase 2 (South) scenario the reduction in journey time for the new A29 realignment road are in the region of 16% to 23% when compared against the existing A29 alignment in the Do Minimum scenario.

3.13.55 There are also reductions for journey time route 2 and 6. Route 2 extends from the A27 to the north to Middleton-on-sea to the south and travels on Blisham Road and Yapton Lane which is parallel to the A29. This journey time has reduced due to a reduction in flow using this route as traffic has reassigned to using the A29 as a result of the additional capacity the new realignment road has provided.

3.13.56 Route 6 extends from the A27 to the west to the junction of B2233 and A259 to the east. The route travels on the B2233 for its entirety. The decrease in travel time for this route is attributed to the decrease in delay experienced at the junctions of Westergate Street / Nyton Road / Barnham Road as a result of the decrease in flow travelling through these junctions on the existing A29.

3.13.57 The time savings observed are greater for Phase 1 (North) & Phase 2 (South) compared to those seen for Phase 1 (North)

## 3.14 DEPENDENT DEVELOPMENT

3.14.1 As stated in guidance provided by WebTAG, Unit A2.3 "Transport Appraisal in the Context of Dependent Development" – 'Dependent development refers to new development that is dependent on the provision of a transport scheme and for which, with the new development but in the absence of the transport scheme, the existing transport network would not provide a reasonable level of service to existing and/or new users'.

3.14.2 TAG unit A2.3 sets out the approach to be used to estimate the benefits of the dependent development. This two-part process firstly includes estimation of the 'planning gain' arising from the dependent new homes; then secondly subtracting the net external costs caused by the dependent new homes.

3.14.3 There is no precise definition of 'reasonable level of service'. However, if additional traffic can be accommodated by the network without significant increases in the costs of travel for existing users, then the network can be assumed to be providing a reasonable level of service.

3.14.4 In the case of the A29 Realignment, the dependent development test was undertaken for the BEW development for the Phase 1 (North) and Phase 2 (South) and the northern part (BEW development north of Barnham Road) of the development in isolation.

3.14.5 6.4.5. In the absence of the A29 realignment scheme. The BEW development located north of Barnham Road accesses the highway network from Fontwell Avenue. BEW development located between Barnham Road and the railway line accesses the highway network from Barnham Road while development south of the railway line will access the highway network from the A29.

3.14.6 , Table 3-22 and Table 3-24 below compare journey times for the 'Do minimum without BEW development' against the 'Do Minimum with BEW northern development' scenarios for the AM, Interpeak and PM peak respectively. Neither of these scenarios includes any form of highway mitigation associated with the A29 realignment scheme. The journey time analysis has been undertaken for routes 1 and 6 which cover the A29 and B2233.

3.14.7 It is expected that the development will be coming forward without the completion of the full A29 realignment scheme. Therefore, there will be a cul-de-sac style in the early stages of delivery and WSCC have already been approached for pre-app advice (trigger point analysis).

**Table 3-21 - Comparison of Journey Times between 'Do Minimum with northern BEW development' and 'Do Minimum without northern BEW Development' scenarios – AM peak**

| Journey Time Route | Direction | Journey Time (mm:ss) | | % Difference |
|---|---|---|---|---|
| | | Do Min without BEW | Do Min with BEW | |
| Route 1 | NB | 13:00 | 12:58 | 0% |
| | SB | 11:23 | 11:56 | 5% |
| Route 6 | EB | 16:59 | 17:28 | 3% |
| | WB | 13:53 | 14:08 | 2% |

**Table 3-22- Comparison of Journey Times between 'Do Minimum with northern BEW development' and 'Do Minimum without northern BEW Development' scenarios – Interpeak**

| Journey Time Route | Direction | Journey Time (mm:ss) | | % Difference |
|---|---|---|---|---|
| | | Do Min without BEW | Do Min with BEW | |
| Route 1 | NB | 10:50 | 11:09 | 3% |
| | SB | 10:40 | 11:25 | 7% |
| Route 6 | EB | 14:19 | 15:34 | 9% |
| | WB | 12:52 | 12:56 | 1% |

**Table 3-23- Comparison of Journey Times between 'Do Minimum with northern BEW development' and 'Do Minimum without northern BEW Development' scenarios – PM peak**

| Journey Time Route | Direction | Journey Time (mm:ss) | | % Difference |
|---|---|---|---|---|
| | | Do Min without BEW | Do Min with BEW | |
| Route 1 | NB | 11:22 | 12:11 | 7% |
| | SB | 11:53 | 13:17 | 12% |
| Route 6 | EB | 16:36 | 17:30 | 5% |
| | WB | 13:04 | 13:13 | 1% |

3.14.8 **Table 3-24, Table 3-23** and **Table 3-25** compares journey time for the 'Do minimum without BEW development' against the 'Do Minimum with Full BEW development'.

**Table 3-24 - Comparison of Journey Times between 'Do Minimum with full BEW development' and 'Do Minimum without full BEW Development' scenarios – AM peak**

| Journey Time Route | Direction | Journey Time (mm:ss) | | % Difference |
|---|---|---|---|---|
| | | Do Min without BEW | Do Min with BEW | |

| | | | | |
|---|---|---|---|---|
| Route 1 | NB | 13:00 | 14:40 | 13% |
| | SB | 11:23 | 13:38 | 20% |
| Route 6 | EB | 16:59 | 17:02 | 0% |
| | WB | 13:53 | 15:30 | 12% |

**Table 3-25 – Comparison of Journey Times between 'Do Minimum with full BEW development' and 'Do Minimum without full BEW Development' scenarios – Interpeak**

| Journey Time Route | Direction | Journey Time (mm:ss) | | % Difference |
|---|---|---|---|---|
| | | Do Min without BEW | Do Min with BEW | |
| Route 1 | NB | 10:50 | 11:33 | 7% |
| | SB | 10:40 | 12:02 | 13% |
| Route 6 | EB | 14:19 | 15:00 | 5% |
| | WB | 12:52 | 13:10 | 2% |

**Table 3-26 – Comparison of Journey Times between 'Do Minimum with full BEW development' and 'Do Minimum without full BEW Development' scenarios – PM peak**

| Journey Time Route | Direction | Journey Time (mm:ss) | | % Difference |
|---|---|---|---|---|
| | | Do Min without BEW | Do Min with BEW | |
| Route 1 | NB | 11:22 | 13:07 | 15% |
| | SB | 11:53 | 14:40 | 23% |
| Route 6 | EB | 16:36 | 17:56 | 8% |
| | WB | 13:04 | 13:27 | 3% |

3.14.9 The above tables show that for the Do Minimum scenario including the full BEW development, without any form of transport mitigation measures, the transport network does not provide a reasonable level of service which is evident by the increase in delay experienced on the A29 journey time route for all time periods.

3.14.10 The future year traffic forecasts detailed within Appendix E provides an estimate of the traffic flows that are likely to occur within the study area for the A29 Realignment scheme.

3.14.11 The future traffic flows from the traffic model have been used for economic, environmental and operational assessments for this Transport business case to confirm the choice of the A29 Realignment preliminary design.

## 3.15 ACCIDENT REDUCTIONS

3.15.1 By providing a new road designed to modern safety standards – will mean that there will be fewer collisions and injuries with the scheme in place, compared with the DM scenario. These benefits are monetised in the Economic Case, whilst the number of accidents expected to be saved is set out below for the whole study area.

3.15.2 There are a number of accidents clustered at the Lidsey Bends. By implementing the scheme there will be a reduction in accidents as traffic flows will be less with the scheme in place.

**Table 3-27 - Forecast Reductions in Collisions and Casualties**

| | DM | DS – Phase 1 (North) | DS Phase 1 (North and Phase 2 (South) | Phase 1 (North)Saving | Phase 1 (North) & Phase 2 (South) Saving |
|---|---|---|---|---|---|
| Collisions over 60 years | 3,440.1 | 3,420.8 | 3,377.9 | 19.30 | 62.20 |
| Casualties over 60 years | 4,704.50 | 4,686.00 | 4,633.00 | 18.50 | 71.50 |
| Slight | 4,227.9 | 4,214.3 | 4,170.3 | 13.60 | 57.60 |
| Serious | 433.7 | 429.0 | 420.5 | 4.70 | 13.20 |
| Fatal | 42.9 | 42.7 | 42.2 | 0.20 | 0.70 |

3.15.3 The scheme for Phase 1 (North) is expected to save 19.30 collisions involving 18.50 casualties over the 60-year appraisal period. The schemes for Phase 1 (North) and Phase 2 (South) is expected to save 62.2 collisions and 71.50 casualties over the 60-year appraisal period

## 3.16 STRATEGIC CASE SUMMARY

### 3.16.1 OVERVIEW

3.16.2 The Strategic Case describes why the A29 realignment needs to be constructed. It shows how the scheme fits into a wider strategy for the ambitious growth and development outside of Bognor Regis in West Sussex, and demonstrates that it aligns with national, regional and local strategic plans and programmes.

3.16.3 The scheme is an important part of Arun District Council and WSCC's strategy to support growth and development. It will enable the local road network to operate more efficiently by reducing congestion, improving the reliability of journey times whilst providing more capacity for economic growth. It will support delivery of the Arun Local Plan, and the Strategic Economic Plan.

3.16.4 Having considered a range of options, the scheme is the one which WSCC considers the most effective choice in delivering the strategic objectives.

### 3.16.5 POLICY BACKGROUND AND BUSINESS STRATEGY

3.16.6 The scheme is closely aligned with national, regional and local transport-related plans and programmes for transport, housing and economic growth:

3.16.7 The Strategic Case considers each of the related plans and programmes in turn, and explains how the scheme will support their aims and objectives. The Strategic Case shows that:

- The scheme helps to advance the national transport objectives, set by government:
  - To ease congestion and provide upgrades on important national, regional or local routes
  - To unlock economic and job creation opportunities
  - To enable the delivery of new housing developments
- The scheme will support delivery of the Coast to Capital Strategic Economic Plan (SEP) which highlights the A29 realignment as a priority location for housing and employment growth, and emphasises the need for infrastructure investment to support this
- The scheme will support and complement delivery of the major housing and employment allocations in the Arun Local Plan.

3.16.8 The scheme will provide a new road realignment for the A29. It will provide a high standard transport link between the A27 and Bognor. It will provide excellent access to proposed housing, employment and retail development and ensure a good level of service for users of the A29.

### 3.16.9 EXISTING TRANSPORT-RELATED PROBLEMS

3.16.10 The current A29 route suffers from the following existing problems

- Congestion - during the peak periods, notably at the Woodgate level crossing and War Memorial junctions;
- Journey time unreliability - at busy times, journey times can vary considerably during peak periods, making it difficult for road users to predict the time needed for their journeys; and
- Road Accidents – experienced along the entire A29 route particularly at locations such as the Lidsey Bends.

### 3.16.11 FUTURE TRANSPORT-RELATED PROBLEMS

3.16.12 Even in the absence of planned development, background traffic growth will make existing problems worse, but the level of traffic generated by the planned development will have an even more significant impact. The Strategic Case will set out when, where and by how much traffic will increase on existing roads in the “do minimum” and will highlight what this would mean for journey times, delays and accidents.

### 3.16.13 OPTIONS AND THE PROPOSED SCHEME

#### Scheme Aim & Objective

3.16.14 The primary aim of the scheme is “to support delivery of the SEP and the District Plan by enabling the delivery of new homes and jobs”.

3.16.15 To achieve this aim, the Strategic Case defines high level strategic outcomes, specific or intermediate objectives and operational objectives.

#### Scope and Constraints

3.16.16 The Strategic Case sets out the scope of the scheme and discusses the constraints including

- **Financial** – the LGF allocation for the scheme needs to be spent by 2021/ 22, the Financial Case details this further
- **Commercial** – Status of land ownership and delivery of Phase 2 (South).

#### Options from previous study to establish Phase 1 (north) and Phase 2 (south) scheme.

3.16.17 3 options were considered for the A29 realignment following a number of previous feasibility studies (described and assessed in detail in the Strategic Case):

- Option 1 – Route 6, D
- Option 2 – Route 6, Part D, 12
  - Noting Phase 1 (North) = Route 6;and
  - Phase 2 South = Part D,12
- Option 3 – Route 6, full Part D, 12

#### Proposed Scheme

3.16.18 Further to the review of the shortlisted options it was agreed with the client that the preferred option to progress for further design development and full appraisal was Option 2 (Phase 1 (north) and Phase 2 (south).

3.16.19 Part 12 permits additional development which is needed in the local area; and Part D allows the route to avoid introducing traffic north of the accident hotspot of Lidsey bends and avoids the need for an additional crossing over the watercourse.

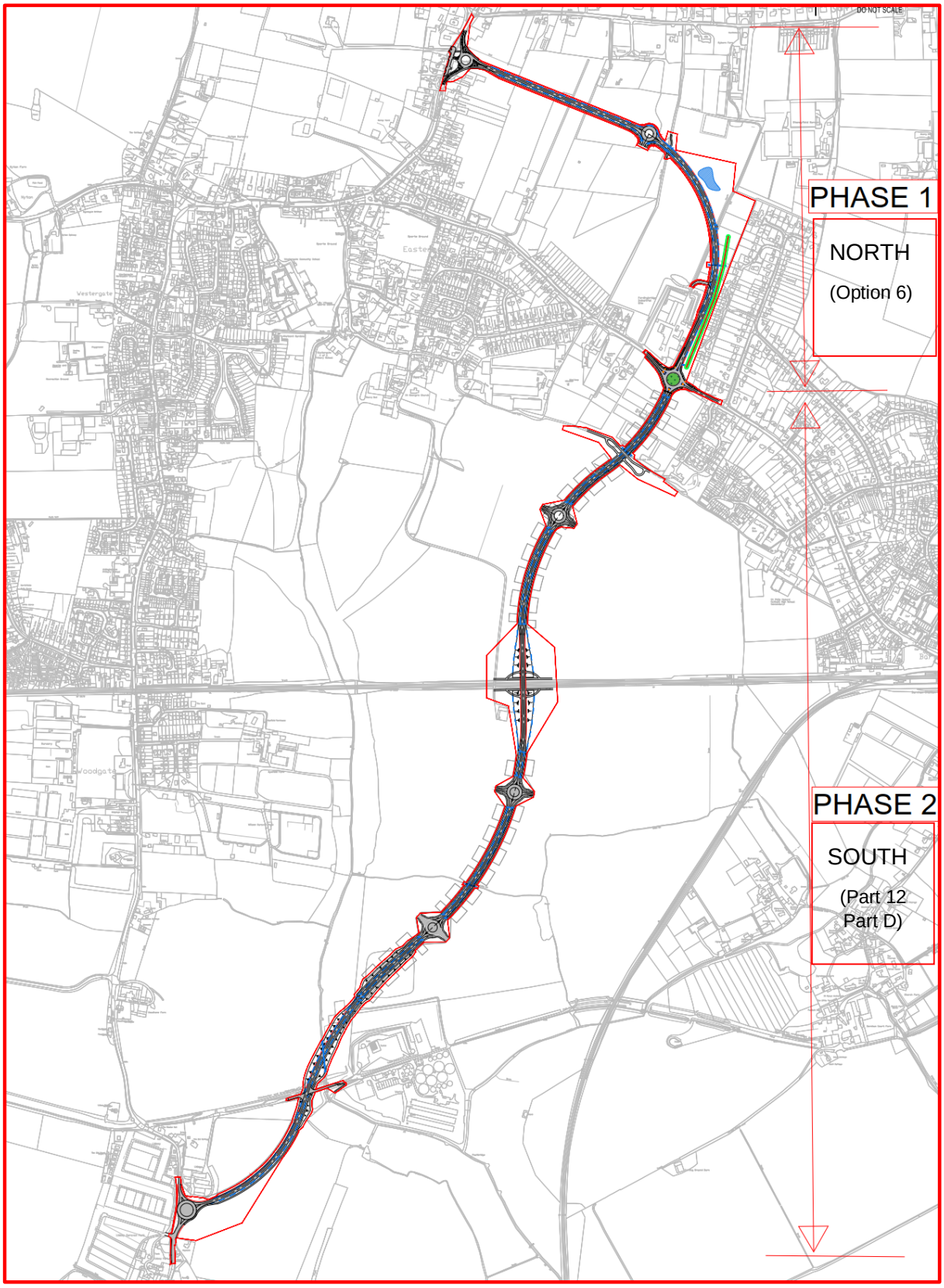



**Figure 3-20 - A29 Realignment – (Preferred Option) – Phase 1 (North) and Phase 2 (South)**

### Achievement of Objectives

3.16.20 The scheme will create capacity for expected traffic growth, and will tackle the planned and potential development to 2037. The Strategic Case will conclude by using key forecasts from the new traffic model (currently being finalised) to demonstrate how the scheme is expected to achieve its objectives.

3.16.21 This will complement the information presented more formally in the Economic Case which focuses on the economic value (PVB) of all the benefits that can be monetised.

# 4 ECONOMIC CASE

## 4.1 INTRODUCTION

4.1.1 The Economic Case assesses the value for money of the proposed scheme based upon its forecast impacts. The assessment takes account of the costs of developing, building, operating and maintaining the scheme and its impacts, which can be monetised, as well as quantitative and qualitative impacts that cannot be monetised. The Economic Case has been developed in-line with DfT's requirements as set out in WebTAG.

4.1.2 The Case covers:

- Options Appraised
- Cost Estimation
- Benefits Modelling
- Appraisal Assumptions
- Appraisal Results
- Sensitivity Testing
- Appraisal Summary Table
- Social and Distributional Impacts
- Wider Economic Impacts
- Land Value Uplift
- Value for Money statement

## 4.2 OPTIONS APPRAISED

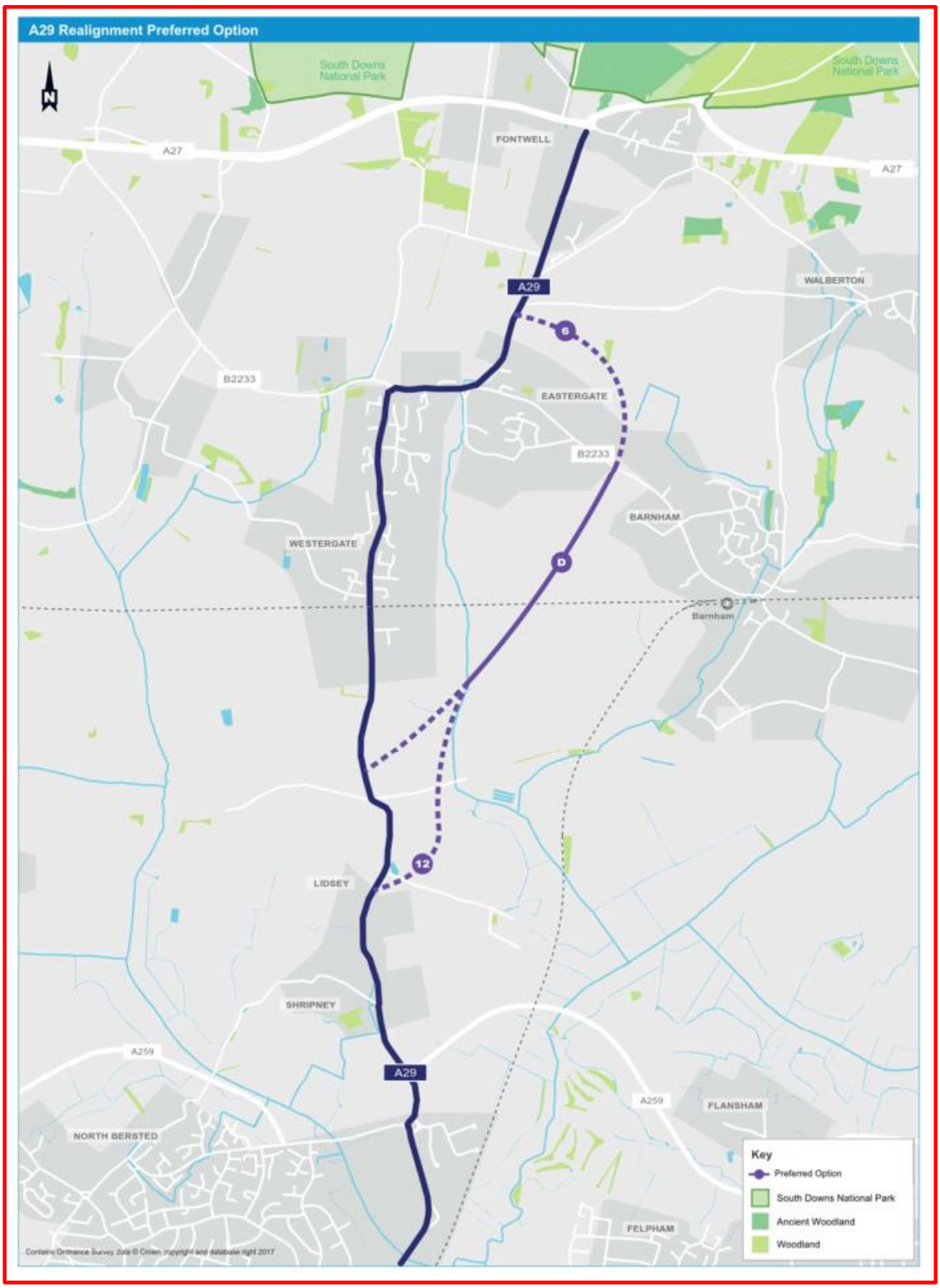
4.2.1 The appraisal of options for the scheme, leading to the identification of a preferred scheme, has been described in detail in the Strategic Case, and is summarised briefly below.

### 4.2.2 OPTION IDENTIFICATION AND SHORTLISTING

4.2.3 A range of options were considered for the realignment of the A29 as part of the earlier stages of the development of this scheme. These were narrowed down to three shortlisted options (illustrated below):

- Option 1 – Route 6, D
- Option 2 – Route 6, part D, 12 ***– Preferred Option (Phase 1 (North) and Phase 2 (South)***
- Option 3 – Route 6, full D, 12

**Figure 4-1 - Short listed options**



### 4.2.4 OPTION ASSESSMENT

4.2.5 For each of the options a high level Appraisal Summary Table (AST) was produced. These incorporate the findings of the technical assessments, stakeholder feedback and risk workshop. The ASTs identify that for all three of the options:

- **Economy** – Will likely be beneficial to the economy.
- **Environment** – The environmental impact will likely be neutral. The exception is air quality, which is likely to be beneficial, as the scheme would reduce traffic flows within the vicinity of Westergate residential housing, and also remove or reduce the quantity of stationery traffic at the railway level crossing, dependant on whether it is closed or remains open.
- **Social** – Will likely be beneficial in terms of social impacts.

4.2.6 The only slight adverse qualitative assessment is with regard to Options 2 and 3, which may have a slight adverse impact to the historic environment. As identified by WSCC heritage officers, Section 12 of Options 2 and 3 potentially severs the line and configuration of the old canal, a heritage feature in its own right, which should be protected. However, this could potentially be mitigated by providing an overbridge.

### 4.2.7 PREFERRED OPTION – OPTION 2 = PHASE 1 (NORTH) AND PHASE 2 (SOUTH)

4.2.8 Further to the review of the shortlisted options it was determined that Option 2 was the preferred option to progress for further design development and full appraisal. The was based on the following considerations:

- Part 12 permits additional development which is needed in the local area
- Part D allows the route to avoid introducing traffic north of the accident hotspot of Lidsey bends and avoids the need for an additional crossing over the watercourse

4.2.9 This TBC presents the case for the preferred option, Option 2, following its further development.

## 4.3 COST ESTIMATION

4.3.1 A cost estimation has been developed for the preferred option design. The cost estimation (as set out in Table 4-1) presents the two proposed phases for the scheme. As illustrated in Figure 4-2 below, Phase 1 (North) comprises a single carriageway running from the A29 Fontwell Avenue and connects to the B2233 Barnham Road. Phase 2 (South) continues on the B2233 Barnham Road, connecting to the A29 Lidsey Road.

4.3.2 The delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process. Although we do not have a fixed approach to Phase 2 (South) WSCC are committed to underwriting the costs of Phase 2 (South) within their capital budget. The options for delivery of Phase 2 (South) would be;

- Developers will deliver Phase 2 (South(
- WSCC deliver the scheme as proposed for Phase 1 (North)

**Table 4-1 – A29 Preliminary Design Cost Estimate**

| | Estimate (£ Q4 2018) | | |
|---|---|---|---|
| **Cost item** | **Phase 1 (North)** | **Phase 2 (South)** | **Total** |
| Construction costs (incl. prelims) | 4,577,496 | 15,871,760 | 20,449,256 |
| Design Fees, Supervision and Surveys | 915,499 | 3,174,352 | 4,089,851 |
| Land Costs | 915,499 | 3,174,352 | 4,089,851 |
| Public Inquiry | 228,875 | 793,588 | 1,022,463 |
| Statutory Undertakers | 686,624 | 1,587,176 | 2,273,800 |
| Total Base Cost | 7,323,993 | 24,601,228 | 31,925,221 |
| Quantified Risk Assessment @28.5% (p80) | 2,088,327 | 7,014,673 | 9,103,000 |
| Total Cost (without OB) | 9,412,320 | 31,615,901 | 41,028,221 |
| Total Cost (with OB and Inflation) | 11,650,350 | 42,593,030 | 54,242,380 |

4.3.3 A construction spend profile has been developed based upon the proposed phasing of the delivery of the scheme (as presented in the Financial Case). Real cost inflation has been accounted for by rebasing the outturn costs, which assume 3% per annum, by the GDP deflator.

4.3.4 For the purposes of the economic appraisal an optimism bias (OB) uplift has been applied to the base cost estimate and Quantified Risk Assessment (QRA) value for the scheme. Consistent with WebTAG, an uplift of 15% has been used.

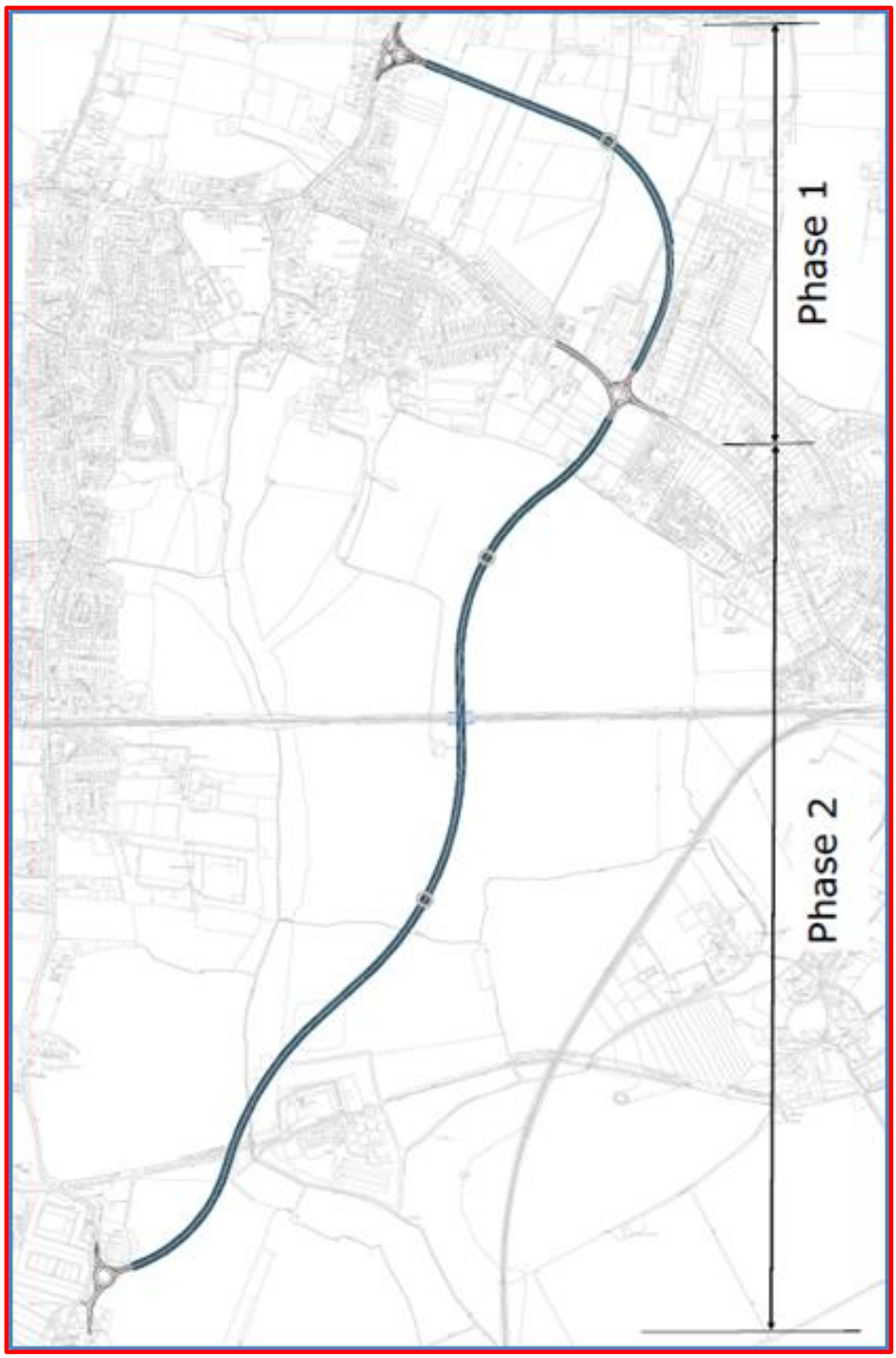
4.3.5 An allowance of 1% of the total construction cost estimate (including QRA and OB) has been assumed for highway maintenance costs over the appraisal period.

## 4.4 BENEFITS MODELLING

4.4.1 The preferred scheme has been modelled in the Chichester Area Transport Model (CATM), developed using the SATURN highway assignment software package. Full details of the model and the forecasting of the impacts on demand, journey time and journey distance are described in the Local Model Validation Report (October 2018) and Traffic Forecasting Report (October 2018).

4.4.2 Two forecast years have been modelled for the scheme appraisal. These are 2023 and 2038. For each of these years, benefits forecasting for 'with' and 'without' the scheme was produced to enable the incremental impact of the proposals to be appraised. Additionally, for each forecast year benefits for both Phase 1 (North) and the full scheme (Phases 1 and 2) were produced.

**Figure 4-2 - Phase 1 (North) and Phase 2 (South) of Preferred Option**



### 4.4.3 FORECAST BENEFITS

4.4.4 Tables 4-2 and 4-3 set out the modelled forecasts for the economic appraisal.

**Table 4-2 – Model Forecasts (2023, weekday hour)**

| | Phase 1 (North) | | | Phases 1 (North) & Phase 2 (South) | | |
|---|---|---|---|---|---|---|
| | DM ('without') | DS ('with) | Change | DM ('without') | DS ('with) | Change |
| *Journey time (PCU-hours)* | | | | | | |
| AM peak hour (0800-0900) | 6,255 | 6,253 | 2 | 6,255 | 6,199 | -57 |
| IP avg. hour (1000-1600) | 4,747 | 4,746 | 1 | 4,747 | 4,708 | -39 |
| PM peak hour (1700-1800) | 6,774 | 6,774 | 0 | 6,774 | 6,725 | -49 |
| *Journey distance (PCU-kms)* | | | | | | |
| AM peak hour (0800-0900) | 292,545 | 292,622 | 77 | 292,545 | 292,151 | -394 |
| IP avg. hour (1000-1600) | 245,842 | 245,796 | -46 | 245,842 | 245,825 | -17 |
| PM peak hour (1700-1800) | 305,646 | 305,777 | 131 | 305,646 | 305,192 | -454 |

**Table 4-3 – Model Forecasts (2038, weekday hour)**

| | Phase 1 (North) | | | Phases 1 (North) & Phase 2 (South) | | |
|---|---|---|---|---|---|---|
| | DM ('without') | DS ('with) | Change | DM ('without') | DS ('with) | Change |
| *Journey time (PCU-hours)* | | | | | | |
| AM peak hour (0800-0900) | 7,541 | 7,525 | -16 | 7,541 | 7,405 | -137 |
| IP avg. hour (1000-1600) | 5,714 | 5,711 | -3 | 5,714 | 5,656 | -58 |
| PM peak hour (1700-1800) | 8,323 | 8,304 | -19 | 8,323 | 8,237 | -86 |
| *Journey distance (PCU-kms)* | | | | | | |
| AM peak hour (0800-0900) | 321,391 | 321,390 | -1 | 321,391 | 320,736 | -655 |
| IP avg. hour (1000-1600) | 279,282 | 279,379 | 97 | 279,282 | 279,200 | -82 |
| PM peak hour (1700-1800) | 333,003 | 333,188 | 185 | 333,003 | 331,953 | -1,050 |

4.4.5 As illustrated in the tables, the introduction of Phase 1 (North) of the scheme has limited impact on journey times and distances, with an increase in some time periods. The Full scheme (Phase 1 (North) and Phase 2 (South)) is forecast to achieve a reduction in both journey distances and times across both forecast years and all time periods.

### 4.4.6 USER BENEFITS

4.4.7 The model forecasts are processed to convert the generalised minutes and journey distances into economic values based on WebTAG's values of time and vehicle operating costs for inclusion in the

economic appraisal. The Department for Transport's Transport Users Benefit Appraisal (TUBA, v1.9.11) software has been used.

4.4.8 The forecast benefits are presented in the tables below. They demonstrate the substantial increase in benefit levels from delivering the combined scheme, rather than only Phase 1 (North).

**Table 4-4 – Forecast User Benefits (2023)**

| | Phase 1 (North) | Phases 1 (North) & Phase 2 (South) |
|---|---|---|
| *Journey time benefits (£k 2010 PV)* | | |
| AM peak hour (0800-0900) | 23 | 235 |
| IP avg. hour (1000-1600) | 11 | 293 |
| PM peak hour (1700-1800) | -7 | 160 |
| *Vehicle Operating Cost benefits (£k 2010 PV)* | | |
| AM peak hour (0800-0900) | 3 | 56 |
| IP avg. hour (1000-1600) | 4 | 65 |
| PM peak hour (1700-1800) | -13 | 34 |

**Table 4-5 – Forecast User Benefits (2038)**

| | Phase 1 (North) | Phases 1 (North) & Phase 2 (South) |
|---|---|---|
| *Journey time benefits (£k 2010 PV)* | | |
| AM peak hour (0800-0900) | 58 | 510 |
| IP avg. hour (1000-1600) | 20 | 342 |
| PM peak hour (1700-1800) | 78 | 216 |
| *Vehicle Operating Cost benefits (£k 2010 PV)* | | |
| AM peak hour (0800-0900) | 9 | 91 |
| IP avg. hour (1000-1600) | 0 | 58 |
| PM peak hour (1700-1800) | -4 | 48 |

### 4.4.9 MARGINAL EXTERNALITIES

4.4.10 Changes in highway demand and routing will have an impact on levels of local air quality emissions, noise, greenhouse gas emissions and the cost of highway maintenance due to highway 'wear and tear'. These have been estimated using the forecast change in journey distances and WebTAG values (for May 2018) for each impact.

4.4.11 For the forecast years these monetised impacts (for the Full scheme (Phase 1 (North) and Phase 2 (South))) amount to around £3,000 (2010 PV) in 2023 and £6,500 in 2038.

### 4.4.12 ACCIDENT ASSESSMENT

4.4.13 The assessment of the impact of the scheme in relation to accidents has been undertaken using the DfT's CoBALT (Cost – Benefit-Analysis Light Touch) software. COBALT version 2013.2 was used to undertake the assessment. The COBALT parameter file was updated to match the May 2018

WebTAG Databook. Accident data provided by WSCC for the five-year period from 2013 to 2017 inclusive was used to populate the model.

4.4.14 Based on the forecast change in traffic flows between the Do Minimum and Do Something modelled networks, and the likelihood of an accident occurring given the quality of the road section and the type of junction, an improvement in safety was forecast following the introduction of the scheme.

### 4.4.15 DELAYS DURING CONSTRUCTION

4.4.16 Delays during construction have not been assessed for the TBC. It is proposed that they will be considered as part of the development of a more detailed construction schedule.

## 4.5 APPRAISAL ASSUMPTIONS

4.5.1 An Excel-based spreadsheet appraisal model has been developed to undertake the economic appraisal consistent with WebTAG requirements and to produce the TEE, PA and AMCB tables. The benefit inputs described above have been, as appropriate, profiled for the 60 year appraisal period on the basis of:

- Annualisation factors of:
  - 649 for AM peak hour
  - 1,518 for IP average hour
  - 693 for PM peak hour
- Phase 1 (North) benefits from January 2022
- Full scheme (Phase 1 (North) and Phase 2 (South)) benefits from October 2025
- Benefits ramp up of:
  - Year 1 50%
  - Year 2 75%
  - Year 3 100%
- No demand growth after 2038 (second forecast year)
- Benefits discounted and rebased to 2010 values and prices
- Annual value of time growth applied
- Market price adjustment applied

4.5.2 The cost estimate inputs have been treated in a consistent manner to produce present values of costs in 2010 prices (and market prices) for the appraisal period.

## 4.6 APPRAISAL RESULTS

4.6.1 A summary of the appraisal results for delivering only Phase 1 (North) of the scheme and the Full scheme (Phase 1 (North) and Phase 2 (South)) is presented in Table 4.6. The TEE, PA and AMCB tables are included in section 4.11.

**Table 4-6 – Appraisal Results Summary**

| £k, 2010 PV | | Phase 1 (North) only | Full scheme – Phase 1 (North) + Phase 2 (South) |
|---|---|---|---|
| Travel time benefits | a | 6,750 | 49,822 |

| | | | |
|---|---|---|---|
| Vehicle operating cost benefits | b | 124 | 7,619 |
| Marginal external cost impacts | c | -131 | 693 |
| Accident benefits | d | 1,333 | 3,762 |
| *Total benefits* | *e* | *8,076* | *61,896* |
| Capital cost | f | 7,948 | 32,806 |
| Operating cost | g | 1,369 | 6,183 |
| Indirect tax impact | h | 139 | 2,893 |
| | | | |
| PV of Benefits (PVB) | j = e – h | 7,936 | 59,003 |
| PV of Costs (PVC) | k = f + g | 9,317 | 38,989 |
| Net Present Value (NPV | = j - k | -1,381 | 20,014 |
| Benefit:Cost Ratio (BCR) | = j / k | 0.9:1 | 1.5:1 |

4.6.2 The economic appraisal results clearly demonstrate that delivery of only Phase 1 (North) does not provide a value for money solution, with its benefit to cost ratio (BCR) below 1:1, and a negative net present value.

4.6.3 The BCR for the full scheme – Phase 1 (North) + Phase 2 (South) is 1.5:1. The main contributor to the benefits is the average travel time savings resulting from the A29 realignment and the avoidance of Woodgate level crossing. This provides drivers with faster and more direct journeys. This exceeds the cost of constructing the scheme and its ongoing maintenance.

## 4.7 SENSITIVITY TESTING

4.7.1 Sensitivity testing has been undertaken to assess the sensitivity of the case for the Full scheme (Phase 1 (North) and Phase 2 (South)) to key variables within the economic appraisal, along with the extent of changes required to switch the value for money category. The Forecast Report provides further information which can be found under Appendix E

### 4.7.2 COST AND BENEFIT SENSITIVITIES

4.7.3 This case assumes a QRA value of 28.5% and an optimism bias uplift of 15%. Assuming a higher level of OB of 25% reduces the BCR for the Full scheme (Phase 1 (North) and Phase 2 (South)) from 1.5:1 to 1.4:1 – Medium benefit. Applying 3% OB, the level expected at near construction stage, increases the BCR to 1.7:1.

4.7.4 The greatest contribution to economic benefits results from the forecast average journey time savings achieved, for example, from rerouting traffic away from the Woodgate level crossing onto the new A29 Realignment. If all other benefit streams are excluded the PVB reduces from £59.0m to £49.8m. This lowers the BCR to 1:3:1. If there was to be a 5% increase in average travel time savings the BCR would increase from 1.5:1 to 1.6:1.

### 4.7.5 SWITCHING VALUES

4.7.6 For the Full scheme (Phase 1 (North) and Phase 2 (South)) is assessed as achieving medium value for money (VfM), i.e. a BCR between 1.5:1 and 2.0:1. For the VfM to decrease to low the NPV would need to reduce by £519,799, or just under 1%. For the VfM to increase to high the NPV would need to increase by £18,974,719, or around 32%.

## 4.8 APPRAISAL SUMMARY TABLE

4.8.1 In addition to the economic benefits of the proposed scheme, as set out above, there will be wider social and environmental impacts. For the Full scheme (Phase 1 (North) and Phase 2 (South)), these are summarised in the Appraisal Summary Table (AST), provided in Appendix G, and described below.

### 4.8.2 ENVIRONMENTAL

4.8.3 An Environmental Scoping Report has been produced for the Phase 1 (North) section of the scheme. Drawing on the findings of the Scoping Report, an initial assessment of the environmental elements for the AST has been undertaken. Further environmental work will be undertaken as the scheme is progressed, leading to the production of an Environmental Statement.

4.8.4 To mitigate the risk of negative environmental impacts during construction a Construction Environmental Management Plan (CEMP) will be produced once the construction strategy is determined. The CEMP will detail the environmental controls/protection measures and safety procedures that would be adopted during the construction of the scheme.

#### 4.8.4.1 Noise

4.8.5 The introduction of traffic to the area following the opening of the scheme will result in an increase in noise levels, but at this stage they are anticipated to be non-significant. A formal noise assessment will be undertaken. Where traffic is abstracted from the current highway network to use the realigned A29, there may be a decrease in traffic noise.

4.8.6 Based on the change in highway kilometres, the monetised impact of the Full scheme (Phase 1 (North) and Phase 2 (South)) is estimated to be £200,681 (2010, PV) for the appraisal period.

#### 4.8.6.1 Air Quality

4.8.7 Consistent with the impacts on noise levels, the re-distribution of traffic in the local area will have an impact on air quality. Based on the change in highway kilometres, the monetised impact for the Full scheme (Phase 1 (North) and Phase 2 (South)) is estimated to be £10,208 (2010, PV) for the appraisal period.

#### 4.8.7.1 Greenhouse gases

4.8.8 The re-distribution of traffic in the local area will have an impact on greenhouse gas emissions. Based on the change in highway kilometres, the monetised impact for the Full scheme (Phase 1 (North) and Phase 2 (South)) is estimated to be £482,576 (2010, PV) for the appraisal period.

#### 4.8.8.1 Landscape & Townscape

4.8.9 The scheme will introduce linear infrastructure to a currently rural environment on the periphery of the South Downs National Park. While the route is adjacent to existing settlements, characterised by two-storey housing and bungalows (and will unlock land for planned future housing developments), the Scoping Report has identified potentially moderate, or greater, negative impacts to landscape from the scheme.

4.8.10 These relate to the potential permanent change in land use and loss of established vegetation, the change in the existing view resulting from the demolition of Folly Foot Farm, and the impact of light pollution from vehicles at night into a previously unlit area, including the introduction of street lighting along the new carriageway.

4.8.11 As the area is rural, no impacts on townscape are considered.

#### 4.8.11.1 Historic Environment

4.8.12 As identified in the Scoping Report there are a number of listed buildings in the vicinity of the scheme, including the Grade II* Parish Church of St George. Potentially the setting of some of these could be adversely affected by the scheme as a result of traffic and lighting.

#### 4.8.12.1 Biodiversity

4.8.13 The habitats in the area of the scheme are characterised by arable fields, traditional orchards, and deciduous and broadleaved woodland. The Scoping Report identifies a variety of managed and semi-natural habitats within the area and a range of protected and notable species that might be adversely affected either during the construction or the operation of the new infrastructure.

4.8.14 Potentially sensitive ecological features are also identified, along with the applicable development stages and the likelihood of mitigation. The Scoping Report concludes that with certain avoidance, mitigation and enhancement measures, it is expected that the negative ecological features of the scheme can be reduced so as to be negligible. Furthermore, with the refinement of designs as the scheme is developed, the recommendations of the Scoping Report can also allow the scheme to achieve a net gain for biodiversity, in line with national planning policy.

#### 4.8.14.1 Water Environment

4.8.15 The Strategic Flood Risk Assessment indicates that watercourses are not present within the site boundary, however wetland habitat is provided by the Barnham Rife and Lidsey Rife along with a

number of drainage ditches within a 1 km radius of the scheme. The area also hosts aquifers with permeable strata capable of supporting local water supplies and in some cases forming an important source of base flows to rivers. There are no drinking water protected areas within the noted water body.

4.8.16 During construction, there is potential for contamination of ground water resources through leaks and spillages and a short-term potential increase of flood risk due to earthworks. The likely effects during the operation phase are a potential increase in flood risk due to an increase in impermeable surface covering and potential pollution due to accidental spillage.

4.8.17 The sensitivity of various water receptors and the magnitude of the effects of new infrastructure will be assessed in further stages of the environmental analysis.

## 4.8.18 SOCIAL

### 4.8.18.1 Physical activity

4.8.19 The volume of cyclists and pedestrians affected by the scheme (based on informal observations) is not anticipated to be significant. However, improved cycle and pedestrian facilities will be provided by the scheme with a shared cycle/pedestrian path proposed along the route benefitting those who do use them. Appropriate crossing facilities will also be incorporated at intersections or provided by the associated strategic development.

### 4.8.19.1 Journey quality

4.8.20 The scheme will provide journey quality benefits due to reduced traveller stress as the congestion and delays on the existing route, exacerbated by the level crossings along the route, will be removed enabling users to make good progress on their journey and lower frustration levels when travelling.

### 4.8.20.1 Accidents

4.8.21 As described above, DfT's CoBALT software has been used to estimate the change in accidents resulting from the redistribution of traffic on the new A29 alignment, which will be designed to current safety standards, therefore reducing the risk of accidents for motorists. The estimated accident benefit, using WebTAG values is £3,762,400 for the Full scheme (Phase 1 (North) and Phase 2 (South)) for the appraisal period.

### 4.8.21.1 Security

4.8.22 The scheme has no impact on security for users of the realigned A29, or the existing route.

### 4.8.22.1 Access to services

4.8.23 The scheme will not impact the accessibility of services as it does not materially change the availability or affordability of transport and hence the opportunity people have for connecting with jobs, services, friends and families.

### 4.8.23.1 Affordability

4.8.24 The reduction in vehicle operating costs, resulting from smoother flowing traffic and reduced highway-kilometres will benefit affordability for motorists, but the impact is not anticipated to be significant.

#### 4.8.24.1 Severance

4.8.25 No change is proposed for the level crossings on the existing route. Therefore, there will be no impact on the severance caused to pedestrians when the barriers are down.

#### 4.8.25.1 Option and non-use values

4.8.26 The realignment of the A29 will provide an improved journey experience for those using it, compared with the existing route. However, as it is redistributing existing journeys the new route will not introduce a new opportunity to make such a journey for those currently not doing so and therefore will have no impact on option value.

### 4.8.27 DISTRIBUTIONAL IMPACTS

4.8.28 As identified in the AST, consideration of the distributional nature of a number of the impacts is required. With respect to vulnerable and minority groups there is not anticipated to be any social impact as the existing A29 will be retained, no changes to public transport are proposed and the lowering of motoring costs will be experienced by all users. The new alignment for the A29 is largely rural, limiting the impact of the local population from local environmental impacts.

## 4.9 WIDER IMPACTS

4.9.1 In addition to the conventional economic benefits assessed, as presented in Table 4.6, there are estimated to be further impacts resulting from the scheme's benefits to the economy. These arise from:

- **Agglomeration**: changes in economic production as a result of changes in connectedness and accessibility
- **Output change in imperfectly competitive markets**: a reduction in transport costs to businesses allows for an increase in output of goods and services that use transport
- **Tax revenues arising from labour market impacts**: changes in labour supply or a move to more or less productive jobs due to a change in commuting cost.

4.9.2 Agglomeration benefits and labour supply impacts are a function of changes in generalised travel costs between the 'with' and 'without' scheme scenarios and may typically generate 10 – 30% of the conventional travel time impacts. The impact in relation to output change in imperfect market conditions may generate a further 10% of the value of conventional business user benefits.

4.9.3 Applying these assumptions (15% for agglomeration and labour supply) to estimate additional benefits increases the 'Initial BCR' of 0.9:1 to 1.0:1 for the 'Adjusted BCR' for Phase 1 (North) and from 1.5:1 to 1.8:1 for the Full scheme (Phase 1 (North) and Phase 2 (South))

4.9.4 Although not applied within the BCR calculation (as part of an Economic Case calculation) the strategic development offers wider benefits for unlocking opportunities for the development of schools, GPs, commercial, recreational space and a sense of place

## 4.10 LAND VALUE UPLIFT

### INTRODUCTION

4.10.1 The proposed realignment of the A29 will unlock land for major residential development. As a result of Phase 1 (North) of the scheme it is anticipated that around 600 residential units over an area of

approximately 41.3 hectares will be delivered. Phase 2 (South) is forecast to deliver around 3,500 units (over 207.3 hectares, which includes 30 hectares of employment land).

4.10.2 The value to society resulting from the provision of new housing can be estimated using MHCLG's appraisal guidance[10], which is based upon the residual valuation model. This compares the post permission residential land value estimates with the land value estimates for the current use.

4.10.3 A net Present Value for the land value uplift (LVU) can be derived and compared with the quantum of benefits and costs estimated in the economic appraisal. However, consistent with DfT guidance on assessing value for money, the LVU is not included in either the 'Initial' or 'Adjusted' benefit to cost ratios as the valuations are subject to considerable uncertainty.

## 4.10.4 LAND VALUE UPLIFT ESTIMATE

### 4.10.4.1 Assumptions

4.10.5 A high-level indicative LVU estimate for Phase 1 (North) and the Full scheme (Phase 1 (North) and Phase 2 (South)) has been undertaken. Illustrative land values provided by MHCLG[11] have been used. It has been assumed that the current use is 90% agricultural and 10% light industrial, with the future use being 90% residential and 10% green space (for which no land value is ascribed).

**Table 4-7 – Land Valuation Estimate**

| Land use | Value per hectare (2015) |
|---|---|
| Post permission residential land (Table 1, Arun) | £2,930,000 |
| Average agricultural land by region (Table 2, South East) | £22,000 |
| Average industrial land by region (Table 3, South East) | £1,100,000 |

4.10.6 It has been assumed that the uplift is a one-off, occurring in the opening year of the scheme, namely 2022 for Phase 1 (North) and 2027 for Phase 2 (South).

### 4.10.6.1 Results

4.10.7 The estimate of the Phase 1 (North) gross LVU is around £60m PV (2010 prices) and for the full scheme (Phases 1 (North) and Phase 2 (South)) £280m PV. These estimates take no account of the counterfactual and if the public sector funding for the A29 realignment scheme is not provided, whether residential units would be delivered in this area, or elsewhere.

4.10.8 MHCLG therefore requires an assumption for additionality to be made. Without detailed analysis to underpin an estimate, the MHCLG guidance provides a framework for assessing additionality.

[10] Department for Communities and Local Government (December 2016), *'The DCLG Appraisal Guide'*

[11] Department for Communities and Local Government (December 2015) *'Land value estimates for policy appraisal'*

4.10.9 Applying an assumption of 50% additionality, the net LVU for Phase 1 (North) is around £30m PV and around £140m PV for the Full scheme (Phase 1 (North) and Phase 2 (South)). In both cases the quantum of these benefits is multiple times greater than the conventional benefits estimated for Phase 1 (North) and for the Full scheme (Phase 1 (North) and Phase 2 (South)) respectively.

## 4.11 VALUE FOR MONEY STATEMENT

4.11.1 The results of the economic appraisal, as presented in the Economic Efficiency of the Transport System (TEE), Public Accounts (PA) and Analysis of Monetised Costs and Benefits (AMCB) tables below, show that the 'Initial BCR' of the Full scheme (Phase 1 (North) and Phase 2 (South)), based on conventional monetised benefits, is 1.5:1. For Phase 1 (North) it is 0.9:1.

## Figure 4-3 - Economic Appraisal Results

**Economic Efficiency of the Transport System (TEE)**

| **Non-business: Commuting** | ALL MODES | | ROAD | BUS and COACH | RAIL | OTHER |
|---|---|---|---|---|---|---|
| ***User benefits*** | TOTAL | | Private Cars and LGVs | Passengers | Passengers | |
| Travel time | 22,233,821 | | 22,233,821 | | | |
| Vehicle operating costs | 1,546,855 | | 1,546,855 | | | |
| User charges | - | | | | | |
| During Construction & Maintenance | - | | | | | |
| **NET NON-BUSINESS BENEFITS: COMMUTING** | 23,780,676 | *(1a)* | 23,780,676 | - | - | - |

| **Non-business: Other** | ALL MODES | | ROAD | BUS and COACH | RAIL | OTHER |
|---|---|---|---|---|---|---|
| ***User benefits*** | TOTAL | | Private Cars and LGVs | Passengers | Passengers | |
| Travel time | 13,974,177 | | 13,974,177 | | | |
| Vehicle operating costs | 1,675,360 | | 1,675,360 | | | |
| User charges | - | | | | | |
| During Construction & Maintenance | - | | | | | |
| **NET NON-BUSINESS BENEFITS: OTHER** | 15,649,537 | *(1b)* | 15,649,537 | - | - | - |

| **Business** | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***User benefits*** | | | Goods Vehicles | Business Cars & LGVs | BUS AND COACH Passengers | RAIL Passengers | RAIL Freight |
| Travel time | 13,613,629 | | 2,781,198 | 10,832,431 | | | |
| Vehicle operating costs | 4,396,647 | | 2,178,437 | 2,218,210 | | | |
| User charges | - | | | | | | |
| During Construction & Maintenance | - | | | | | | |
| **Subtotal** | 18,010,276 | *(2)* | 4,959,635 | 13,050,641 | - | - | - |
| **Private sector provider impacts** | | | | | | RAIL Passengers | RAIL Freight |
| Revenue | - | | | | | | |
| Operating costs | - | | | | | | |
| Investment costs | - | | | | | | |
| Grant/subsidy | - | | | | | | |
| **Subtotal** | - | *(3)* | | | | - | - |
| ***Other business impacts*** | | | | | | | |
| Developer contributions | - | *(4)* | | | | | |
| **NET BUSINESS IMPACT** | 18,010,276 | *(5) = (2) + (3) + (4)* | | | | | |

| **TOTAL** | | |
|---|---|---|
| Present Value of Transport Economic Efficiency Benefits (TEE) | 57,440,489 | *(6) = (1a) + (1b) + (5)* |

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.

All entries are discounted present values, in 2010 prices and values

**Public Accounts (PA) Table**

| | ALL MODES | | ROAD | BUS and COACH | RAIL | OTHER |
|---|---|---|---|---|---|---|
| **Local Government Funding** | TOTAL | | INFRASTRUCTURE | | | |
| Revenue | - | | | | | |
| Operating Costs | 6,183,207 | | 6,183,207 | | | |
| Investment Costs | - | | | | | |
| Developer and Other Contributions | - | | | | | |
| Grant/Subsidy Payments | - | | | | | |
| **NET IMPACT** | 6,183,207 | *(7)* | 6,183,207 | - | - | - |
| **Central Government Funding: Transport** | | | | | | |
| Revenue | - | | | | | |
| Operating costs | - | | | | | |
| Investment Costs | 32,805,829 | | 32,805,829 | | | |
| Developer and Other Contributions | - | | | | | |
| Grant/Subsidy Payments | - | | | | | |
| NET IMPACT | 32,805,829 | *(8)* | 32,805,829 | - | - | - |
| **Central Government Funding: Non-Transport** | | | | | | |
| Indirect Tax Revenues | 2,893,000 | *(9)* | - | | | |
| **TOTALS** | | | | | | |
| **Broad Transport Budget** | 38,989,036 | *(10) = (7) + (8)* | | | | |
| **Wider Public Finances** | 2,893,000 | *(11) = (9)* | | | | |

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.
All entries are discounted present values in 2010 prices and values.

## Analysis of Monetised Costs and Benefits

| | | |
|---|---|---|
| Noise | 200,681 | *(12)* |
| Local Air Quality | 10,208 | *(13)* |
| Greenhouse Gases | 482,576 | *(14)* |
| Journey Quality | - | *(15)* |
| Physical Activity | - | *(16)* |
| Accidents | 3,762,400 | *(17)* |
| Economic Efficiency: Consumer Users (Commuting) | 23,780,676 | *(1a)* |
| Economic Efficiency: Consumer Users (Other) | 15,649,537 | *(1b)* |
| Economic Efficiency: Business Users and Providers | 18,010,276 | *(5)* |
| Wider Public Finances (Indirect Taxation Revenues) | - 2,893,000 | *- (11) - sign changed from PA table, as PA table represents costs, not benefits* |
| Present Value of Benefits (see notes) (PVB) | 59,003,353 | *(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)* |
| Broad Transport Budget | 38,989,036 | *(10)* |
| Present Value of Costs (see notes) (PVC) | 38,989,036 | *(PVC) = (10)* |
| OVERALL IMPACTS | | |
| **Net Present Value (NPV)** | 20,014,317 | NPV=PVB-PVC |
| **Benefit to Cost Ratio (BCR)** | 1.513 | BCR=PVB/PVC |

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

4.11.2 As shown in Table 4-8 the economic appraisal results equate to the Full scheme (Phase 1 (North) and Phase 2 (South)) achieving medium value for money and Phase 1 (North) being categorised as poor value for money.

**Table 4-8 – DfT Value for Money Categories**

| BCR Range | Value for Money Category |
|---|---|
| < 1.0:1 | Poor |
| 1.0 – 1.5:1 | Low |
| 1.5 – 2.0:1 | Medium |
| 2.0 – 4.0:1 | High |
| > 4.0:1 | Very High |

4.11.3 The inclusion of the wider impacts increases the Net Present Values for both Phase 1 (North) and for the full scheme (Phase 1 (North) and Phase 2 (South). These 'adjusted BCRs' are 1.0:1 and 1.8:1 respectively. For Phase 1 (North), this is just within the category of low value for money. For

the full scheme (Phase 1 (North) and Phase 2 (South). it remains in the medium value for money category.

4.11.4 As shown in the sensitivity tests, the value for money of the Full scheme (Phase 1 (North) and Phase 2 (South)) could deteriorate due to higher costs or lower benefits, but it would not be expected to be less than 1:1. As the scheme is progressed, the opportunity to identify cost efficiencies and address current uncertainties should allow the current level of OB to be reduced, which would improve the value for money level (all else being equal).

4.11.5 However at this stage, cost escalation and the identification of significant negative environmental impacts as the project progresses present the main risks to achieving the current assessed value for money level.

## 4.12 ECONOMIC CASE SUMMARY

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

### 4.12.2 BENEFIT COST RATIO

4.12.3 The value for money category is based on the Benefit to Cost Ratio (BCR). The initial BCR (assuming only conventional benefits) is 1.5:1. The adjusted BCR (including wider impacts) is 1.8:1.

### 4.12.4 VALUE FOR MONEY CATEGORY

4.12.5 The results of the economic appraisal demonstrate that the Full scheme (Phase 1 (North) and Phase 2 (South)) offers medium value for money. In addition to this assessment of value for money, both Phase 1 (North) and the Full scheme (Phase 1 (North) and Phase 2 (South)) are estimated to deliver very significant additional benefits through land value uplift.

### 4.12.6 DISTRIBUTIONAL IMPACT APPRAISAL

4.12.7 Distributional impact appraisal considers whether the benefits and dis-benefits of a scheme have a disproportionate impact on a particular social group that is different to the impact on the population as a whole. Given the nature of the scheme, it is not anticipated that there will be any distributional impacts. This assessment will be reviewed following the more detailed environmental analysis.

# 5 FINANCIAL CASE

## 5.1 INTRODUCTION

5.1.1 This chapter sets out the Financial Case for the scheme to demonstrate its affordability and describes:

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

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

## 5.2 COSTS

5.2.1 The option review and development of the preliminary design and business case has been funded by the WSCC Corporate Feasibility Fund allocation of £150,000 2017/18 and £530,000 in 2018/19. These are revenue costs and thus do not feature in the capital scheme estimates.

5.2.2 The A29 Realignment (Phase 1 and 2) was shown as a £35.1m pipeline scheme in the WSCC Capital Programme 2018/19 – 2022/23 approved by Full Council in December 2017.

5.2.3 These costs were based on the high-level viability study carried out by Systra in 2014. More recent technical work carried out for the Preliminary Design and Transport Business Case has significantly revised the cost estimate for structures and inflation for the entire scheme.

5.2.4 The estimated cost of the scheme, at out-turn prices (**excluding non-recoverable VAT**), is £54.2m. For Phase 1 (North) the estimated cost is £11.6m and for Phase 2 (South) the estimated cost is £42.6m

5.2.5 This covers both phases of the scheme and includes spending which falls beyond the end of the existing capital programme period. This revised estimate has been included in the draft capital programme for 2019/20—2023/24 which has been recommended by Cabinet for approval by the full County Council on 15 February 2019.

5.2.6 Through approval of the SOBC the scheme has been allocated in principle £13m of Local Growth Funding (LGF) from the C2C LEP in the current Government spending period that ends in March 2021. However it can only be accessed through the submission and acceptance of a Business Case.

5.2.7 It is the intention that Phase 1 (North) will be fully funded and delivered by WSCC from the £13m LGF funding allocation together with an element of funding Phase 2 (South) due to the time constraints of the LGF funding window of spend prior to March 2021

5.2.8 Due to the time constraints of the LGF funding window of spend prior to March 2021 there is the opportunity to vire the difference between the cost and the LGF allocation to the A284 Lyminster bypass scheme. This would allow for two critical infrastructure projects to be taken forward with no risk to the spend of the LGF money.

5.2.9 The delivery of Phase 2 (South) (and appropriate funding envisaged as being met through allocation of strategic development within the Arun area),will be funded through developer and WSCC contributions

5.2.10 The delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process. Although we do not have a fixed approach to Phase 2 (South) WSCC are committed to underwriting the costs of Phase 2 (South) within their capital budget. The options for delivery of Phase 2 (South) would be;

- Developers will deliver Phase 2 (South(
- WSCC deliver the scheme as proposed for Phase 1 (North)

5.2.11 The build-up of the cost estimate is in Table 5-1.

**Table 5-1- Breakdown of Estimated Costs for the Scheme & Spend Profile**

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | Total |
|---|---|---|---|---|---|---|---|---|
| **Phase 1 (North)** | | | | | | | | |
| Construction Costs | 0 | 1,144,374 | 3,433,122 | 0 | 0 | 0 | 0 | 4,577,496 |
| Professional Fees | 457,750 | 366,200 | 91,550 | 0 | 0 | 0 | 0 | 915,499 |
| Public Inquiry | 228,875 | 0 | 0 | 0 | 0 | 0 | 0 | 228,875 |
| STATS | 0 | 549,299 | 137,325 | 0 | 0 | 0 | 0 | 686,624 |
| Land | 0 | 549,299 | 183,100 | 183,100 | 0 | 0 | 0 | 915,499 |
| Risk | 195,781 | 743,967 | 1,096,372 | 52,208 | 0 | 0 | 0 | 2,088,327 |
| Future Inflation | 26,472 | 204,206 | 458,208 | 29,533 | 0 | 0 | 0 | 718,419 |
| Optimism Bias | 136,332 | 533,602 | 809,951 | 39,726 | 0 | 0 | 0 | 1,519,611 |
| **Phase 2 (South)** | | | | | | | | |
| Construction Costs | 0 | 0 | 0 | 0 | 5,555,116 | 7,142,292 | 3,174,352 | 15,871,760 |
| Professional Fees | 0 | 0 | 634,870 | 1,587,176 | 476,153 | 317,435 | 158,718 | 3,174,352 |
| Public Inquiry | 0 | 0 | 793,588 | 0 | 0 | 0 | 0 | 793,588 |
| STATS | 0 | 0 | 0 | 1,269,741 | 158,718 | 158,718 | 0 | 1,587,176 |
| Land | 0 | 0 | 0 | 1,904,611 | 317,435 | 317,435 | 634,870 | 3,174,352 |
| Risk | 0 | 0 | 407,304 | 1,357,679 | 1,855,494 | 2,262,798 | 1,131,399 | 7,014,673 |
| Future Inflation | 0 | 0 | 170,225 | 768,014 | 1,331,996 | 1,979,077 | 1,172,205 | 5,421,516 |
| Optimism Bias | 0 | 0 | 300,898 | 1,033,083 | 1,454,237 | 1,826,663 | 940,732 | 5,555,613 |
| **Outturn Cost** | **£1,045,209** | **£4,090,947** | **£8,516,512** | **£8,224,871** | **£11,149,148** | **£14,004,418** | **£7,212,275** | **£54,243,380** |
| **Ex Opt Bias** | £908877 | £3557345 | £7405662 | £7152062 | £9694911 | £12177754 | £6271544 | £47,168,156 |

## 5.2.12 SCHEME PREPARATION AND CONSTRUCTION

5.2.13 The cost of scheme preparation and construction has been estimated by WSP with input from WSCC.

### 5.2.14 RISK BUDGET

5.2.15 The cost of delivering both Phase 1 (North) and Phase 2 (South) will not be known until the detailed design has been completed, land purchased, and tender prices have been received. To reflect the uncertainty associated with known risks, a Quantified Risk Assessment (QRA) has been undertaken and appended. The QRA is further described in the Commercial Case.

### 5.2.16 SPEND PROFILE

5.2.17 The assumed annual profile of expenditure is shown in **Table 5-2**

### 5.2.18 OUT-TURN PRICE ADJUSTMENT

5.2.19 The cost estimates assume a price base of 2018 Q3. An allowance is therefore made for expected inflation between the date of the estimate and the date when the expenditure is expected to occur. This depends on the profile of expenditure, as set out in Table 5-2. The uplift factors to reflect price inflation have been estimated based on the Gross Domestic Product (GDP) deflator methodology recommended by WebTAG as well as inflation calculations undertaken by WSP in line with the latest British Cost Information Service (BCIS) information available.

## 5.3 BUDGETS AND FUNDING COVER

5.3.1 An estimated funding profile, split by financial year and for both Phase 1 (North) and Phase 2 (South), is outlined in **Table 5-2** . The assumed spend profile will require agreement with the C2C LEP.

**Table 5-2– Funding Profile for the Scheme (excluding non recoverable VAT)**

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | Total |
|---|---|---|---|---|---|---|---|---|
| | £ | £ | £ | £ | £ | £ | £ | £ |
| Phase 1 Totals | 1,045,210 | 4,090,947 | 6,209,628 | 304,567 | | | | 11,650,350 |
| Phase 2 Totals | | | 2,306,885 | 7,920,304 | 11,149,149 | 14,004,418 | 7,212,276 | 42,593,030 |
| Scheme total | 1,045,209 | 4,090,947 | 8,516,512 | 8,224,871 | 11,149,148 | 14,004,418 | 7,212,275 | 54,243,380 |
| Developer contributions | | | | 6,023,947 | 8,694,911 | 11,177,754 | 4,103,388 | 30,000,000 |
| WSCC contribution - capital programme | | 1,336,156 | 16,512 | 2,200,924 | 2,454,237 | 2,826,664 | 3,108,887 | 11,943,380 |
| Virement from A284 | | | 8,500,000 | | | | | 8,500,000 |
| LGF spend on A29 | 1,045,209 | 2,754,791 | | | | | | 3,800,000 |
| A284 virement | | 8,500,000 | | | | | | |

5.3.2 The estimated scheme cost excluding non-recoverable VAT and optimism bias is **£47,168,156** and the C2C LEP will provide **£12,300,000 (**which includes £8.5m that will be vired to the A284 scheme)

towards this cost, Developer contributions of **£30,000,000** and WSCC will fund the remaining **£11,943,380.** Local Growth Funding

5.3.3 Due to the time constraints on the use of LGF, which must be spent prior to end of March 2021, it is proposed that priority is given to spending LGF in 19/20 and 20/21. Therefore, if agreed by the LEP, of the £12.3m LGF allocation for the A29 scheme £8.5m will be vired to the A284 Lyminster bypass scheme. This would allow for two critical infrastructure projects to be taken forward and allows the LGF to be spent by the deadline of March 2021 on a scheme which is further advanced in delivery.

5.3.4 The corporate borrowing which would otherwise have been used to support the A284 will instead be used to support the A29 scheme from 2021/22. This does not affect the cost of either scheme or the County Council's aggregate borrowing, while maximising the chances of the LGF being spent in line with the grant conditions.

5.3.5 Funding vired to A284 Lyminster Bypass will be replaced by a WSCC contribution towards the scheme in 2021/22.

5.3.6 No final decision has yet been taken about the arrangements for delivery of Phase 2(South) of the scheme as this is being discussed with developers through the planning process. The programme however is detailed within this Transport Business Case. As negotiations with developers are not yet complete and legal agreements have not been signed for many of the sites that will be contributing to the scheme, the level of developer contribution towards the scheme may vary.

5.3.7 In order to secure the LGF allocation in full, there is a need to demonstrate that Phase 2 (South) of the scheme will be delivered. As the C2C LEP requires match funding, WSCC will need to demonstrate its commitment to delivering Phase 2 of the scheme in order to secure the Local Growth Funding contribution. This is likely to mean delivery of Phase 2 of the scheme by 2025 (as this is understood to be a Government requirement). Therefore, it is proposed that in order to secure a Funding Agreement with C2C LEP, WSCC commit to underwrite the cost of Phase 2 of the scheme, subject to future budget approval decisions.

5.3.8 Any funding awarded through the submission of this business case will require the County Council to enter into a funding agreement; the council will therefore be committed to delivery of the scheme and potentially face penalties by the LEP in the event of not delivering the scheme.

### Developer Contributions

5.3.9 There are several differences to the funding agreed in the pipeline. The major assumption is that developer contributions will increase significantly to £30m+; however, given the size of the proposed development this still represents a reasonable and achieveable assumption per unit.

5.3.10 Developer contributions towards the scheme are expected from at least the BEW and Fontwell strategic site allocations and any windfall sites that come forward in close proximity to the A29 Realignment. These are the sites where it can be demonstrated that a contribution towards the A29 Realignment will mitigate the impacts of the development and also comply with the CIL Regulations. While contributions from sites further afield in for example Bognor Regis, will be sought these as less likely to be secured as there are other routes for traffic to use. Based on the developers' current proposed housing trajectory, this is expected to generate the £30m+ contribution and this has been used for planning purposes. However, it should be recognised that at present most of these sites are still to come forward and the level of contribution will be subject to commercial

considerations and planning decisions. As a consequence, the developer contribution towards the scheme could be higher or lower than this figure.

5.3.11 To date, contributions of £3,072,680 have already been secured from sites in the area, specifically towards the A29 Realignment or could be spent on A29 Realignment, through S106 agreements and contributions. These will be collected as development takes place in line with the trigger points specified in the agreements. Several applications are currently awaiting determination by the Local Planning Authority and pre-application discussions are taking place with developers of the remaining parts of the BEW strategic site allocation. As a result, the risk of contributions not coming forward or being lower than expected is currently considered to be low but this risk will need to continue to be managed. Although there is also potential for secure contributions from commercial development as this is typically less viable, this has not though been assumed in the calculations to date.

### Forward Funding

5.3.12 As developer contributions will be paid in line with trigger points in the S106 agreements, there may be a need to forward fund developer contributions that have not yet been paid. Opportunities to secure forward funding from for example, Homes England and Church Commissioners for England are being explored but it is proposed that as a last resort, the County Council underwrites the match funding towards the scheme in full.

### Gap funding

5.3.13 There is expected to be a funding gap between the LGF and expected developer contributions of £11,943,380. It is proposed that this is funded by a WSCC contribution between 2021-26. Provision has been made for this WSCC contribution towards this project in the Capital Programme.

## 5.4 WHOLE LIFE COSTS

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

## 5.5 CAPITAL RENEWAL COSTS

5.5.1 Capital renewal costs have not been calculated for the TBC but can be provided at a later stage once construction costs and material types have been confirmed. These costs will be for the purpose of resurfacing / renewing the new highway infrastructure over a 60-year period.

## 5.6 ANNUAL MAINTENANCE AND OPERATING COSTS

5.6.1 Annual maintenance and operating costs have been estimated for the TBC on the basis of a proportion of capital costs and will be confirmed once the detailed design is completed. These costs are to meet annual maintenance liabilities including drainage clearance, lighting operation, infrastructural and safety inspections.

5.6.2 The whole life costs identified are factored into the economic appraisal, and these costs would be covered by WSCC's annual maintenance budget.

## 5.7 ACCOUNTING IMPLICATIONS: CASH FLOW STATEMENT

5.7.1 The scheme is expected to have the following implications on public accounts:

- Funding from the LEP is sought to fund the scheme implementation costs for Phase 1 (North) and part of Phase 2 (South), with majority of the funds being spent during the financial years 2021 – 2022; and
- Local contribution for the scheme implementation costs is required for Phase 2 (South).

5.7.2 As a commitment of support for the delivery of Phase 1 (North), WSCC's Section 151 Officer will provide a Letter of Intent for the TBC to reinstate and reinforce the WSCC's financial obligations in ensuring compliance with the Assurance Framework requirements and the Growth Deal requirements

## 5.8 SUMMARY OF THE FINANCIAL CASE

5.8.1 The estimated cost out-turn prices of the scheme excluding VAT is £**54,243,380** including an allowance for quantified risk (P50). A fixed sum of **£12,300,000** is being sought from the LEP, which represents **22.7%** of the scheme out-turn costs. The remaining balance of **£41,943,380**, which accounts for **77.3%** of the scheme out-turn costs, will be funded by WSCC and Developer contributions There is also an opportunity for additional funding sources which WSCC are currently seeking.

5.8.2 It is the intention that Phase 2 (South) will follow on from Phase 1 (North) and arrangements for delivery are being discussed with developers through the planning process.

5.8.3 Once appointed, the contractor will undertake the detailed design of Phase 1 (North) to commence as soon as practicable.

5.8.4 The delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process. Although we do not have a fixed approach to Phase 2 (South) WSCC are committed to underwriting the costs of Phase 2 within their capital budget. The options for delivery of Phase 2 (South) would be;

- Developers will deliver phase 2 (South)
- WSCC deliver the scheme as proposed for Phase 1 (North)

# 6 COMMERCIAL CASE

## 6.1 INTRODUCTION

6.1.1 This chapter outlines the commercial viability of the scheme, and the procurement strategy which has been developed to achieve the procurement objectives. It also provides:

- The intended approach to risk allocation and transfer;
- Contract and implementation timescales; and
- How the capability and technical expertise of the team delivering the project will be secured.

6.1.2 The following information was taken into consideration when developing the procurement strategy and form of contract:

- The timescales for the preparation and submission of the full planning application of the new road;
- The current construction estimates for the scheme (Phase 1 (North) and Phase 2 (South)) is £**54,243,380** (when including design services, land costs, statutory undertaker costs and Optimism Bias) at outturn costs, which means the contract will need to be procured through an OJEU route or via frameworks which themselves have already gone through the OJEU process; and
- The type of procurement options and contracts which provide the greatest degree of 'cost certainty'.

6.1.3 The identified procurement strategy also aligns with WebTAG requirements which include:

- Provision of a robust contracting and procurement strategy;
- Risk Transfer supported by incentives;
- A developed market for proposed procurement approach; and
- A mechanism to incentivise performance, efficiency and innovation.

6.1.4 The procurement and subsequent award of the scheme to a design and build contractor from the WSCC framework forms a contractual arrangement.

6.1.5 Once the route is approved it will be protected from other developments that could compromise its future delivery. This will be achieved by providing information of the route of the scheme in response to land charge requests. There is potential for statutory blight claims from land owners who are directly affected by the scheme.

## 6.2 PROCUREMENT STRATEGY

6.2.1 This section outlines the procurement strategy for the scheme. The strategy has been developed addressing the following considerations in turn:

- Form of Contract – the standard suite of documents which will be used to deliver the scheme;
- Form of Procurement – the fundamental procurement type and delivery model;
- Contract Strategy – within the selected Form of Contract, the contractual mechanism for delivering the scheme; and
- Procurement Route – the mechanism used to procure the works, aligned to the procurement strategy objectives.

## 6.3 FORM OF CONTRACT

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

### 6.3.2 FORM OF CONTRACT OPTIONS

#### Infrastructure Conditions of Contract

6.3.3 The ICC suite of contracts is one of the main forms of standard contracts for UK civil engineering and infrastructure work. The ICC provides a clear and standardised contract specifically tailored for civil engineering and infrastructure projects. It is endorsed by the sponsoring bodies, Association for Consultancy and Engineering and the Civil Engineering Contractors Association.

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

#### NEC Engineering and Construction Contract

6.3.5 The NEC Engineering and Construction Contract suite of contracts, originally known as New Engineering Contract, has been used to deliver building and engineering schemes globally since its first publication in 1993. The NEC suite uses plain language and promotes good communication and management to deliver projects. The NEC3 suite has been endorsed by governments and industry with the current revision, NEC4, published in 2017.

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

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

### 6.3.8 FORM OF CONTRACT DISCUSSION

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

6.3.10 Both the ICC and NEC offer a range of Conditions of Contract which would enable WSCC to select a Contract that best align to the schemes procurement objectives. The procurement strategy will be reviewed throughout the delivery of the scheme and will consider cost certainty, risk and programme

at key milestones. The factors affecting the strategy may alter as the scheme progresses and the preferred Conditions of Contract may need to be reconsidered. The NEC suite of documents offers a common set of core clauses across its contract suite making it more flexibility should the procurement strategy change.

6.3.11 WSCC currently operates a construction Highways Projects Framework which has been through an OJEU process. This framework uses the NEC3 suite of documents.

### 6.3.12 PREFERRED FORM OF CONTRACT

6.3.13 WSCC has selected the New Engineering and Construction Contract NEC Form of Contract (NEC3) for the scheme through their work on the Highways Projects Framework for Contractors (Lot 2). The additional flexibility and existing in-house familiarity with NEC suite makes it the preferred option for the delivery of the scheme.

6.3.14 The NEC suite offers flexibility in both the form of procurement and Conditions of Contract; these are discussed in more detail in the following sections.

## 6.4 FORM OF PROCUREMENT

6.4.1 The form of procurement defines the procurement type and delivery model for the scheme. There are three main forms of procurement for the A29 Realignment - Traditional, Design and Build (D&B) and Early Contractor Involvement (ECI).

6.4.2 A further option, making use of WSCC Highways Projects Framework has also been explored as previously described. Each procurement type offers advantages and disadvantages which are described in more detail below.

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

- Programme Certainty– time for overall delivery (including programme certainty), time for procurement, consideration of key milestones, particularly in terms of the funding arrangements;
- Complexity of arrangements – dependency on third parties, separate contracts and sub-contractors;
- Complexity and scope of the scheme – extent of unique or unusual features, scale of the project;
- Potential for change – fixity of design achievable prior to procurement;
- Cost certainty – requirement for cost certainty and most economically advantageous delivery;
- Design responsibility – expertise and capacity for design delivery existing within different parties;
- Risk appetite – appetite to retain risk or incentivise contractor to manage project risk; and
- Control – desire to retain control over the final scheme details.

6.4.4 The consideration of these factors against each of the procurement options is outlined below.

### 6.4.5 PROCUREMENT OPTIONS

#### Traditional Contract

6.4.6 Traditional contracts are the most commonly used method of procurement and are suitable for complex projects where functionality is a prime objective, especially those that require specialist services for design and construction. This method provides time predictability and cost certainty, although it is not always suitable for fast-track projects where time is a key consideration.

6.4.7 Traditional contracts typically require certainty of detailed design input, which inevitably warrants the allocation of adequate time to provide the contractor with sufficient buildable design information. Efficacy of this tendering approach is therefore dependant on full design documentation being in place before the contractor can be invited to tender.

### Design and Build

6.4.8 This method of procurement involves the contractor being responsible for the design as well as construction. Design and Build (D&B) can be suitable for cost certainty and fast track construction. This approach is not suitable where the client brief is developing or for very complex projects. The main contractor takes responsibility for both design and construction and will use either in-house designers or employ consultants to carry out the design. The main contractor has a direct influence over the design process and as such takes on the associated risks.

### Early Contractor Involvement

6.4.9 Early Contractor Involvement (ECI) is a derivative of design and build but is used when engaging the contractor at an earlier stage of the programme.

6.4.10 This form of procurement allows supplier engagement at an early stage of a project in order to draw in industry experience at the design and preparation stages. ECI contracts remain an option for major highways schemes where there is significant scope for input from the supply chain. Suppliers' engagement will be on a partnering basis. Their knowledge and abilities to influence project decisions will have maximum impact in terms of project timing, quality and cost.

6.4.11 The timing of the appointment of the contractor in the project development is important; the design should be sufficiently developed to enable estimates and assumptions to be prepared and the client brief sufficiently developed.

6.4.12 An ECI contract is generally split into two phases. Phase 1 (North) is the planning and design development, through the Statutory Planning process up to Notice to Proceed to Construction. Phase 1 (North) is further divided into two sub-phases:

- Phase 1A – design development up to publication of Draft Orders, or submission of Planning Application; and
- Phase 1B – the project team would take the scheme through the Statutory Process, including Public Inquiry if necessary.

6.4.13 Phase 2 (South) is from the Notice to Proceed to Construction through detail design, construction of the scheme and potentially through to and including the aftercare and maintenance. Phase 2 (South) is further divided into three sections:

- Section 1 – is Detail Design development similar to that of a D&B form of procurement;
- Section 2 – comprises the Construction stage. Detail design will have been programmed at a much earlier time to enable fast and efficient construction to commence; and
- Section 3 – is the landscaping and general aftercare stage of the project delivery.

### WSCC – Term Maintenance Contract

6.4.14 West Sussex County Council is currently in the process of procuring a new single contractor for their Term Maintenance Contract (TMC) as the current contract is due to expire. The TMC has no upper OJEU limit and could potentially be used for construction of this scheme.

- WSCC currently operates a Highways Projects Framework for construction. This framework has been through an OJEU process. The Highway Projects Framework Contractor Lot 2 – designed for more complex projects, and with a construction value over £2m (total cost excluding external design fees). It is expected to be used as a D&B contract, where the contractor takes over from the initial design created by the Professional Services Contract (PSC)1 provider. In exceptional circumstances, it can be used as a build only contract with the PSC1 provider doing all the design, but this is expected to be the exception rather than the rule. It also has a feature, which is expected to be used only occasionally, whereby the contractor can be appointed for ECI for design or buildability advice. This is carried out by using one of the PSC options shown below. The contract procurement options are:
  - the ECC Option C contract– target contract with activity schedule

6.4.15 For ECI Support, the contract procurement options are:

- PSC Option A contract – priced (lump sum) contract with activity schedule
- PSC Option C contract – target cost contract with activity schedule
- PSC Option E contract – time based contract

### 6.4.16 PROCUREMENT DISCUSSION

6.4.17 All the considered main forms of procurement, Traditional, D&B and ECI are initially considered viable delivery models for the scheme.

6.4.18 The TMC is principally intended as a vehicle to deliver maintenance activities across the County. The tender evaluation for the contract was based on the provision of these services and not construction of major new infrastructure such as the scheme. The value for money demonstrated through the tender process is therefore likely not to be directly transferable to the delivery of the scheme. Further work would be necessary to ensure transparency and demonstrate that the TMC is the most economically advantageous procurement type and delivery model. The Term Maintenance Contract is therefore an uncertain form of procurement for the scheme and will not be considered further.

6.4.19 The remaining procurement options have been assessed against the time constraints of the scheme, specifically the overall programme duration and any statutory processes including the potential need for Compulsory Purchase Orders. The funding window for the scheme requires the scheme be substantially completed in the financial year 2021-22. This requires advanced design development (already undertaken to an extent through the Transport Business Case process) and condensed early programme activity, achieved through overlapping tasks.

6.4.20 The ECI model, whereby the Design and Build team can have the greatest influence over the scheme proposals, is most effective when procurement is undertaken pre-planning. To achieve the scheme delivery programme, early commencement is essential.

6.4.21 The Design and Build and ECI models offer advantages in the delivery of logistically complex works where the contractor and his designer work closely to provide an optimum solution. Given timescales and the work is currently pre-planning, this would be a sensible option to achieve the best overall value for construction. However, given the time constraints for delivery and the low risk nature / low need for innovation of the scheme, ECI will not be considered further.

6.4.22 Additionally, it should be noted that immediately post Transport Business Case, the design is being reviewed to eliminate all land acquisition where possible. Work is currently being undertaken on identifying any further land acquisition with negotiation being the preferred engagement model with land owners. Given most of land, where land acquisition is currently required, is owned or optioned by developers, this is not considered to be a major risk as we have already undertaken significant work to engage with landowners.

6.4.23 The D&B model will generally require a reduced design period compared to a traditional form of procurement as design and construction activities can overlap. Using D&B is therefore most suitable for the time constraints for delivery of the scheme.

### 6.4.24 PREFERRED PROCUREMENT ROUTE

6.4.25 The preferred procurement route is via the Highway Projects Framework Lot 2 with ECI included to provide price and programme certainty, particularly for the project to achieve the desired funding window. To enable the selection of a contractor for the scheme within the timescales required, this is the only option available. WSCC have engaged with contractors regularly and given the simplicity of Phase 1 (North) and regular contractors meeting an element of ECI has been undertaken already.

## 6.5 CONTRACT STRATEGY

6.5.1 The WSCC Highway Projects Framework Lot 2 only allows the use of the NEC3 Form of Contract with Option C Target Price conditions.

6.5.2 Option C being a target cost contract with an activity schedule where the out-turn financial risks are shared between the client and the contractor in an agreed proportion.

6.5.3 A target cost contract strategy, through Option C, provides a more balanced allocation of risk between the client and contractor and incentivises both parties to work together to achieve an efficient delivery. In practice target cost contracts are usually tendered with activity schedules, Option C.

6.5.4 The contract strategy looks to take programme benefit from the reduced need for design maturity, and the contractors input in to the final scheme proposals. However, the scheme is seen as being low risk in terms of engineering design, and the use of ECI will allow the contractor and WSCC to work to achieve a robust, low risk design.

## 6.6 SELECTED PROCUREMENT STRATEGY

6.6.1 WSCC has selected the NEC3 Form of Contract with Option C Target Price conditions for delivery of the scheme. This will be undertaken through the Highway Projects Framework Lot 2 as the method for procurement of the works.

6.6.2 The overall procurement strategy balances the WSCC attitude to numerous delivery factors including risk appetite and programme constraints. The strategy incorporates a robust contracting platform demonstrated through successful delivery of similar schemes. The transfer of risk between WSCC and the contractor has been assessed based on scheme maturity at the point of tender and the low risk nature of the project with the selected strategy incentivising efficient delivery.

6.6.3 The preferred model has been market tested with contractors capable and interested in delivering the scheme via the three contractors available on the Highway Projects Framework. As well as

confirming market appetite for the scheme generally, WSCCs preferred strategy is seen as appropriate and would not discourage any contractor from tendering for the scheme.

## 6.7 DESIGN ORGANISATION

6.7.1 WSCC are currently using their PSC1 provider, WSP, to undertake scheme development and to prepare the Pre-Contract Information (PCI) required. Upon appointment of the D&B contractor, their designer will take on board the design.

## 6.8 PAYMENT MECHANISMS

6.8.1 WSCC will tender the works contract based upon a target price. Control of costs throughout the scheme development will be achieved through the use of the NEC3 Option C (Target Cost with Activity Schedule) contract whereby the contactor will be paid following the submission of monthly accounts. Payment would be made to the contractor by monthly valuation with a BACS payment within 28 days of issue of the initial valuation.

## 6.9 PRICING FRAMEWORK AND CHARGING MECHANISMS

6.9.1 An NEC3 contact will be used for the scheme, agreed at a target price. The contract provides for specified risks which, if realised, will result in the target price being adjusted to account for change.

## 6.10 RISK ALLOCATION AND TRANSFER

6.10.1 WSCC will seek tenders via the Highway Projects Framework Lot 2. The collaborative relationships that have been fostered over the life of the Framework to date will facilitate the transfer to the contractor of some risk associated with costs increasing above those predicted in the Financial Case. The estimated scheme costs currently include optimism bias (in the Economic Case) and risk-adjustment (in both the Economic Case and Financial Case), following the risk assessment. The risk of costs being higher than currently predicted remains throughout the project until completion although an important staging post will be the tendering process and the agreement of the target cost post design development.

6.10.2 At this stage of design and prior to the appointment of a contractor, the scheme cost estimate contains a greater proportion of risk borne by WSCC than will remain after the contractor appointment. Some of the risk is captured and quantified within the QRA process (a requirement of the DfT transport business case guidance). The detailed description of this process is outlined within the Management Case.

6.10.3 Once the tendering process is complete, and through use of NEC3 Option C, some of the risk (such as scheme cost increases associated with the design and construction) can be transferred to a degree to the contractor. Other risks, such as the identification of statutory undertaker equipment, and mitigation costs associated with these, can be removed from the “risk pot” completely if they do not materialise, or transferred to “actual” scheme costs if they do materialise, rather than remaining as risk.

## 6.11 CONTRACT LENGTH

6.11.1 The tender invitations will currently assume a construction period of 240 days (excluding land purchase and mobilisation).

6.11.2 The contract programme is considered in further detail within the Management Case and appended (See Appendix I) . The key contract dates are included in Table 6-1

6.11.3 The delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process and the proposed dates below could be brought forward. Although there is not a fixed approach to Phase 2 (South) WSCC are committed to underwriting the costs of Phase 2 (South) within their capital budget. The options for delivery of Phase 2 (South) would be;

- Developers will deliver Phase 2 (South(
- WSCC deliver the scheme as proposed for Phase 1 (North)

**Table 6-1 - Key Anticipated Contract Dates**

| Programme Activity | Start Date | End Date |
|---|---|---|
| Phase 1 (North) | | |
| Completion and submission of TBC (Covering Phase 1 (North) and 2) | Nov 2017 | Jan 2019 |
| Consultation | Jan 2019 | Mar 2019 |
| LEP Submission and Approval | Jan 2019 | April 2019 |
| Planning Application Process | Jan 2019 | Sept 2019 |
| Procurement of D&B | Jan 2019 | Nov 2019 |
| Detailed design (D&B) | Nov 2019 | Aug 2020 |
| Construction (D&B) | Nov 2020 | Dec 2021 |
| **Phase 2 (South)** | | |
| **Planning Application Process** | **Mar 2021** | **Dec 2021** |
| Procurement of D&B | Mar 2021 | Mar 2022 |
| Detailed design (D&B) | Mar 2022 | Mar 2023 |
| Construction (D&B) | Mar 2023 | Sept 2025 |

## 6.12 HUMAN RESOURCE ISSUES

6.12.1 No significant human resources issues have been identified that could affect the deliverability of the scheme. Further details of the required capabilities and assigned resources are set out in the Management Case.

## 6.13 CONTRACT MANAGEMENT

6.13.1 Design, procurement, and construction supervision will be managed by West Sussex County Council in conjunction with the Contractor and appointed Consultant for NEC3 Project Management. The NEC3 Project Management will be provided by the consultant appointed under the Professional Services Contract Lot 2.

6.13.2 The Principal Designer at Construction will be the appointed Contractor.

## 6.14 SUMMARY OF THE COMMERCIAL CASE

6.14.1 In line with the WSCC adopted approach, the preference is to procure the scheme using NEC3 and a target price contract (Option C). The contract will be procured through the WSCC Highways & Transport Projects Framework (Lot 2).

6.14.2 It must be noted that the delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process and the procure process for Phase 2 (South) may differ from Phase 1 (North).

# 7 MANAGEMENT CASE

## 7.1 INTRODUCTION

7.1.1 This chapter forms the Management Case for the scheme. It describes how the scheme will be delivered through project management best practice, confirming that the timescales are realistic, and demonstrating that an appropriate governance structure is in place to oversee the project.

7.1.2 Specifically, the section provides and sets out:

- Evidence of similar projects;
- The project plan;
- The governance structure (management framework);
- How the project will avoid conflict of interests between consultants, Developers and Council officers;
- The project scheduling (i.e. the project programme, and the process for monitoring progress against the milestones within the programme);
- The financial plan;
- The stakeholder management process (how stakeholders have been identified, and their influence on the project managed);
- The risk management process; and
- How the benefits set out in the economic case will be monitored and realised.

## 7.2 EVIDENCE OF SIMILAR PROJECTS

7.2.1 The delivery of the scheme will build upon the experiences from a number of major highways schemes undertaken by WSCC in recent times. WSP, as a leading global engineering consultancy have delivered/are delivering local authority schemes of this type and will be providing significant support to WSCC.

7.2.2 **Table 7-1** summarises the scope of works, capital costs, timescales for implementation and the procurement strategy employed for two recent major schemes completed by WSCC.

**Table 7-1- Evidence of Similar Projects**

| No. | Contract | Description | Construction Date | Form of Contract | Approx. Total Project Value |
|---|---|---|---|---|---|
| 1 | Adur Ferry Bridge | Construction of a new footbridge over the River Adur from the A259 Shoreham High Street/Bridge Road to Lower Beach Road on Shoreham Beach | August 2012 - November 2013 | NEC3 – Option C | £10m |
| 2 | Real Time Passenger Information, Crawley | Upgrading 52 of the existing RTPI displays with new technology and installing a limited number of additional RTPI displays at locations in and around Crawley | November 2017 - March 2018. | NEC3 – Option A | £0.9m |
| 3 | Haslett Avenue, Crawley | Refurbishment and upgrade of traffic control systems at seven junctions between the Paymaster Generals Roundabout and Worth Road along the Haslett Avenue East alongside Three Bridges Station. The control systems will be upgraded to MOVA to enhance junction capacity and physical works will also be carried out to improve cycling access. | 1st September 2017 to 31st March 2018 | Contract was Procured through the WSCC Traffic Signals Maintenance Contract which was awarded through a competitive OJEU 3 Procurement process | £0.7m |
| 4 | Eastern Gateway, Crawley | The scheme will deliver better public space and connectivity improvements to support key development opportunities at the Town Hall, County Buildings, Telford Place and Crawley College. | April 2020 – October 2021 | NEC3 – Option C | £8.3 million |
| 5 | Manor Royal, Crawley | A programme of significant sustainable transport infrastructure improvements in Manor Royal, targeting in particular the Gatwick Road Corridor and The London Road Corridor. | April 2020 – October 2021 | NEC3 – Option C | £ 2.28 m |

### 7.2.3 DELIVERY TEAM EXPERIENCE

7.2.4 WSCC and its term consultant, WSP, have significant experience in taking large infrastructure schemes through the development and delivery process. Since May 2016, WSP has been providing multi-disciplinary services to WSCC to deliver infrastructure projects including highways and bridge structures totalling over £120m. Funding for these projects came from a variety of sources.

7.2.5 The WSP team provide staff for highways, transport, environment and structures with co-located managers for each discipline and project teams responsible for technical delivery. A management team is also provided with integrated working between WSCC and WSP to ensure a 'right first time' service to hit key milestones and programme tasks to achieve timely delivery.

7.2.6 A WSP delivery team has been established for the A29 Realignment scheme, and profiles for key staff are available if required. The WSP team has significant experience in delivering major schemes from concept through to construction.

### 7.2.7 CONTRACTOR EXPERIENCE

7.2.8 As important as the promoter's experience in delivering the scheme will be the selection of a contractor with significant experience of delivering similar highway construction schemes. The selection, procurement and management of the contractor is summarised in the Commercial Case.

## 7.3 THE PROJECT PLAN

7.3.1 The Association of Project Managers (APM) defines the Project Plan as the "plan of plans". It is a series of plans setting out the objectives, methods, deliverables, programme and resources of a project. The purpose of the Project Plan is to document the outcomes of the entire planning process and to provide the reference document for managing the project. It will include the following plans:

- The organisational structure / resource plan;
- The project programme;
- Assurance and approvals plans;
- A cost / financial plan;
- A communication plan (strategy);
- A risk management plan (strategy); and
- Benefits realisation plan.

7.3.2 Each of these plans will be discussed further in the following sections.

## 7.4 GOVERNANCE, ORGANISATIONAL STRUCTURE & ROLES

### 7.4.1 PROJECT BOARD

7.4.2 An appropriate governance structure is essential to delivery of the scheme. WSCC has therefore established a Project Board aligned with best practice guidance on project management. The Project Board is the decision-making body for the project. It provides overall direction to the project and is accountable for its success. It approves all major plans and authorises any significant deviations from agreed plans. The Project Board ensures that the required resources are committed and arbitrates on any conflicts in the project.

7.4.3 The Project Board's primary function is decision-making and review. The Board will be responsible for:

- Approval of project / scheme objectives and scope;
- Authorisation of expenditure on the project in line with the Project Plan ;
- Briefing senior officials and other executives on the status of the project;
- Communication of information about the project to other parts of WSCC and key stakeholder groups;
- Project assurance;
- Signing off any changes to the Project Plan, Business Case or project budget;
- Monitoring quality control;
- Managing key risks highlighted in the Risk Register;
- Signing off key stages of the project and approval to proceed to the next phase; and
- Monitoring the project as it develops to ensure that it meets the scheme objectives.

7.4.4 **Figure 7-1** illustrates a high-level governance structure, depicting how the Project Board fits within the overall delivery framework, and the inter-relationship between various entities and their strategic roles in the delivery of the scheme.

7.4.5 Project reporting to the Project Board will include the necessary detail to inform the Project Board's primary function of decision-making and review. The reporting will be delivered through the Project Delivery Team in advance of the Project Board meetings. The reporting will provide updates on scheme progress including programme review, financial matters, Health and Safety, environmental issues, risks and opportunities, partnering and consultation. Particular emphasis will be given to change controls and highlighting any key decision or actions required by the Project Board.

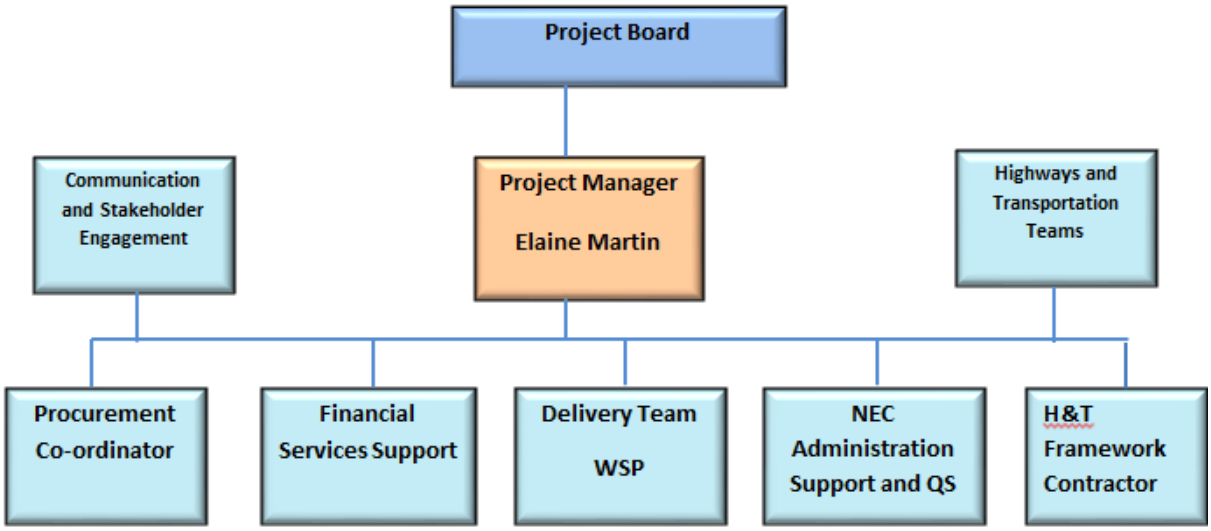



**Figure 7-1– A29 Project Team Structure**

7.4.6 The Senior Responsible Officer (SRO) will be Matt Davey, who is the Executive Director for Economy, Infrastructure and Environment at WSCC. The SRO will be responsible for chairing Project Board meetings and providing guidance and support to the Project Manager as required. The SRO will ensure that the scheme is progressing in line with the originally envisaged project programme and that key deliverables and milestones agreed by the Project Board are achieved.

7.4.7 The Project Board will consist of key WSCC staff, in addition to the Delivery Team Project Director. The roles and those responsible for those roles are presented in **Table 7-2**:

**Table 7-2 - A29 Project Board**

| Attending | Company | Position | Project Board Role |
|---|---|---|---|
| Matt Davey | WSCC | Director of Highways and Transport | Senior Responsible Officer and Chairman |
| Darryl Hemmings | WSCC | Transport Planning & Policy Manager | Project Sponsor |
| Elaine Martin | WSCC | Project Manager – Major Projects H&T | Project Manager |
| Darren Pacey | WSP | Technical Director (Team Director Design) | Senior Supplier |
| Marc Griffin | WSP | Technical Director (Team Manager Design) | Senior Supplier |
| Karl Roberts | Arun DC | Director of Place | Senior User |
| Alex Sharkey | WSCC | Highways Improvements Manager | Senior Supplier |
| Paul Castle | LEP | Commercial Manager | Senior User |
| Cali Gasson | LEP | Investment Programme and Risk Manager | Senior User |
| Alex Hall | WSCC | Senior Finance Officer | Senior User |
| Alan Cowan | WSP | WSCC Highways | Programme Manager |
| Tony Middleton | LEP | Chief Operating Officer | Senior User |
| Duncan Barratt | WSCC | Economy Manager | Senior User |

### 7.4.8 WSP PROJECT DELIVERY TEAM

7.4.9 The WSP project delivery team undertakes the following tasks:

- Project management of the project delivery team;
- Progressing the technical designs;
- Negotiating with the key stakeholders and partners where the scheme impacts upon their assets, and incorporating any feedback (and developing statements of common ground);
- Managing risk; and
- Preparing for and taking the project through the planning process from the promoter side of the scheme.

7.4.10 The Project Delivery Team responsible for the delivery of this project through to construction tender and through planning

### 7.4.11 AVOIDING CONFLICTS OF INTEREST

7.4.12 In order to avoid conflict of interests between consultants and WSCC officers on the promoter side of the scheme, and those WSCC officers undertaking statutory duties in assessing the impact on the scheme, such as highway and transport development control officers, or environmental protection officers, WSCC will implement an ‘organisational wall’ to maintain clear separation of roles. All

WSCC officers or consultants will be assigned either to the promoter/ delivery arm of the scheme, or the assessment/ protection arm of the scheme. Individuals working on one side will not be able to work on the other.

### 7.4.13 WSCC ASSESSMENT TEAM

7.4.14 This team comprises WSCC officers undertaking statutory duties in assessing the impact on the scheme, protecting council assets, and protecting the interests of the public and the environment has been identified.

## 7.5 THE PROJECT PROGRAMME

7.5.1 A project programme has been developed for the Business Case (shown in Appendix I) and it sets out all the key project tasks and their duration, the interdependencies between each of the tasks, and key milestones and gateways. Certain elements of the programme have built in tolerance/ contingency to account for risks identified within the risk register (which could have an impact upon the programme).

7.5.2 The programme key dates are shown in **Table 6-1** in the Commercial Case.

## 7.6 PROGRAMME DEPENDENCIES

7.6.1 The scheme is, however, dependent upon a number of other activities (outlined within the Strategic Case and the project programme), the agreed delivery model for Phase 2 (South) with developers and stakeholders and is subject to risks (as set out in the risk register). The scheme is also dependent upon the receipt of government funding.

## 7.7 ASSURANCE AND APPROVALS PLAN

### 7.7.1 GATEWAY REVIEWS

7.7.2 A gateway review is an independent, peer-reviewed assessment of a project carried out at crucial stages of its development. It focuses on whether the project can progress successfully to the next stage and was recommended by the former Office for Government Commerce (OGC) for schemes with a total cost of £50m or more. However, WSCC, as part of their internal procedures, undertake gateway reviews on all projects.

7.7.3 WSCC gateway reviews are carried out throughout the lifecycle of the project with Gateways 1 and 2 being carried out between Strategic Outline Business Case and Transport Business Case and Gateway 3 being carried out following submission of the Business Case. The process is shown in below

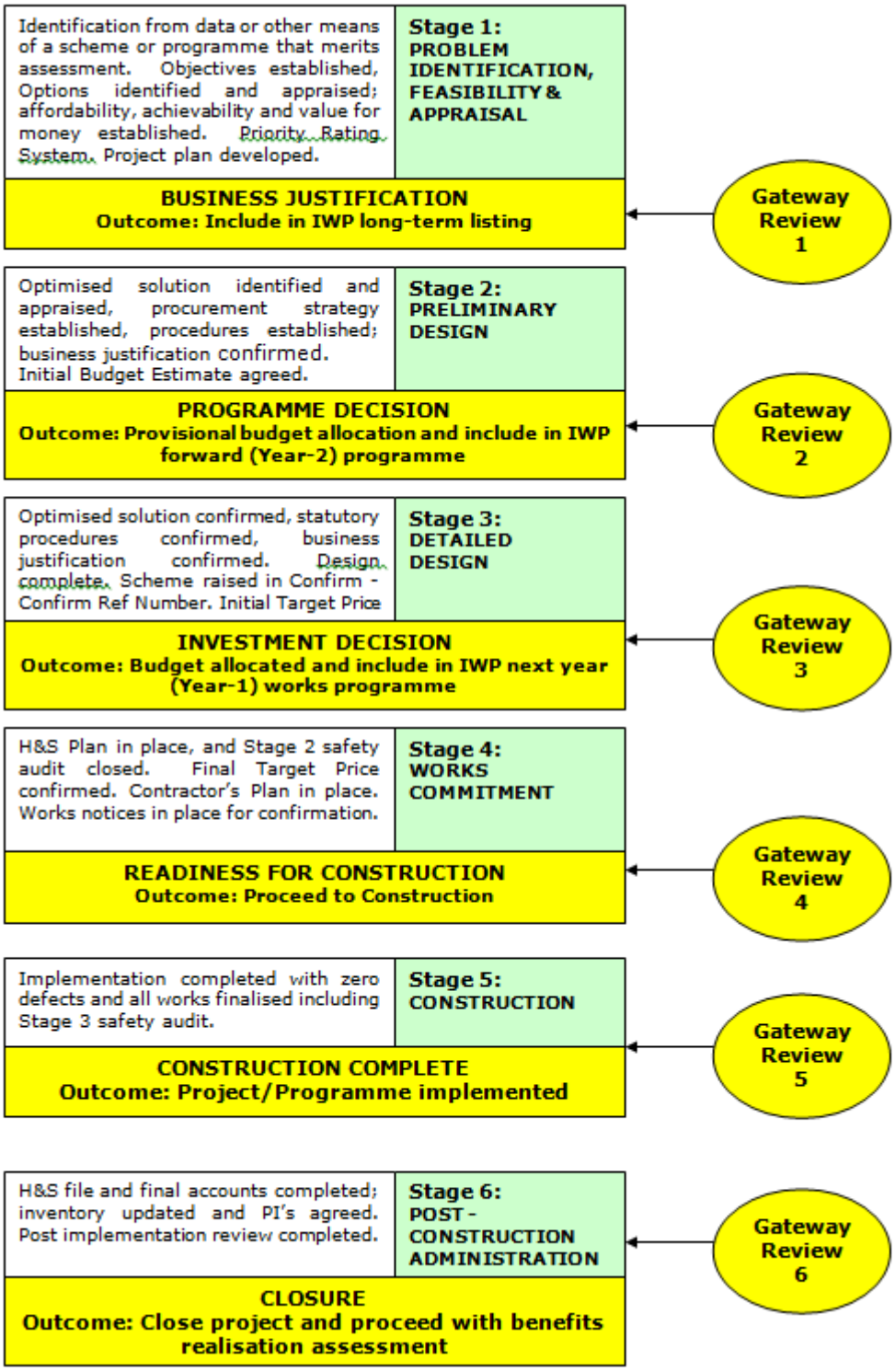



**Figure 7-2– WSCC Gateway Review process**

### 7.7.4 PROGRAMME FOR GATEWAY REVIEWS

7.7.5 Gateway reviews are held at key development stages of a project.

### 7.7.6 FUNDING ASSURANCE

7.7.7 The local funding contribution is discussed within the Financial Case. Funding assurance will be provided via the Letter of Intent when final tendered costs have been confirmed, and the Section 151 Officer will approve the release of local funding, when satisfied and appropriate to do so.

## 7.8 FINANCIAL PLAN

7.8.1 The financial plan is set out within the Financial Case. The Project Manager will monitor projects costs, cash flow, funding draw down on a monthly basis (during scheme development) and on a weekly basis (during construction) against that provided in the financial plan.

## 7.9 COMMUNICATIONS AND STAKEHOLDERS MANAGEMENT PLAN

7.9.1 WSCC has engaged with key local stakeholders as part of the preparation of the TBC. Further public consultation on the scheme is to be undertaken immediately following the submission of the TBC as per the scheme programme.

### 7.9.2 COMMUNICATION AND ENGAGEMENT STRATEGY

7.9.3 WSCC has developed a robust Communication and Stakeholder Management Strategy for the scheme. This makes clear how and when information will be placed in the public domain, and how WSCC will communicate with stakeholders throughout the development and delivery of the scheme. It includes protocols to ensure that enquiries from the press, members of the public, elected councillors, stakeholders and other interested parties are dealt with in the right way and any information released is accurate, timely and informative.

7.9.4 As the design for the scheme is developed in more detail and the project progresses in terms of key milestones, information will be shared with stakeholders, together with information about how this project links with the wider infrastructure improvements and investment being planned regionally.

7.9.5 The stakeholder activity will provide opportunities to give timely feedback on the proposals so that the plans can be refined to take into account opinion.

7.9.6 The stakeholder engagement process will provide further evidence of the local and political support for the scheme. WSCC will build upon the key stakeholder engagement undertaken for the Feasibility Study, Options Review Report and TBC, and on the relationships developed. Stakeholders will continue to be involved throughout the delivery phase.

7.9.7 Stakeholders will continue to have an important role as the scheme develops. Public engagement on the scheme is to be undertaken immediately following the submission of the TBC to raise awareness of the project and its progress among the local community.

### 7.9.8 STAKEHOLDER MANAGEMENT PLAN

7.9.9 Stakeholders have a crucial role in the successful delivery of the scheme. Engagement and consultation give all stakeholder groups a voice that is heard, and allows for concerns to be addressed at an early stage to ensure a successful outcome.

7.9.10 The stakeholder engagement process will provide further evidence of the strong local and political support for the scheme. Stakeholders will continue to be involved throughout the delivery phase. A stakeholder management plan has been developed as part of the wider communication and engagement strategy for the scheme.

7.9.11 A list of key stakeholders has been presented in the Strategic Case. Table 7-3 summarises the key stakeholder groups and approach to be adopted when communicating and engaging with them.

**Table 7-3- Engagement with Key Stakeholder Groups**

| Key Groups | Interests | Method of Engagement |
|---|---|---|
| **Political** | Interest in all aspects of the scheme that will have an impact on their constituents. | Chief Executive or Senior Responsible Officer (SRO) or Project Manager of WSCC will meet with the local MP and the Minister as required. |
| **C2C LEP** | Responsible for the Strategic Economic Plan in West Sussex and has previously identified the A29 realignment scheme as a priority to support local economic growth. Part funder of scheme. | Provide quarterly updates on progress. The LEP will also form part of the Project Board. |
| **Arun District Council inc. Councillors** | Interest in the formal planning processes if required, stakeholder engagement, political engagement, design, scheme delivery and its wider impact on the Arun Growth Programme. | SRO, WSCC's Strategic Planning Manager or the Project Manager will meet with ADC officers as required. ADC Officers also form part of the Project Board. |
| **West Sussex County Council inc. Councillors** | Interest in all aspects of the scheme that will have an impact on their constituents. | Chief Executive or Senior Responsible Officer (SRO) or Project Manager of WSCC will meet with the local MP and the Minister as required. |
| **Statutory bodies eg Highways England, Network Rail, Natural England, Environment Agency, English Heritage, DEFRA, utility companies etc** | Interest in issues related to their jurisdiction and/or impact on services | WSCC's senior manager or the Project Manager will meet with organisations as required. |
| **Emergency Services** | Interest mainly in how the A29 scheme will impact on their service response times. | WSCC's senior manager or the Project Manager will meet with organisations as required. |
| **Transport Operators (bus companies, freight associations)** | Interest in issues surrounding transport companies such as route changes and disruption due to construction. | WSCC's senior manager or the Project Manager will meet with organisations as required. |

| Key Groups | Interests | Method of Engagement |
|---|---|---|
| **Parish Councils** | Interest in how the A29 scheme directly or indirectly affects the parish and its residents. | A variety of communications tools will be used including face to face meetings, letters, press releases, website and public exhibition. |
| **Affected Landowners** | Interest in how the alignment and detail of the A29 scheme will impact upon them during both the construction and operation phases. | A variety of communications tools will be used including face to face meetings, letters, press releases, website and public exhibition. |
| **Businesses** | Interest in how the A29 scheme directly or indirectly affects the businesses in the vicinity of the site. | A variety of communications tools will be used including face to face meetings, letters, press releases, website and public exhibition. |
| **Residents and community groups** | Interest in the impact on their property through issues such as air quality, noise pollution and traffic implications during the construction and operational phases of the A29 scheme.<br>Interest in issues surrounding all aspects of the A29 scheme, such as noise pollution, air quality, traffic implications, planning and procedures, environmental impacts, environmental enhancement, design, traffic management and construction delivery. | A variety of communications tools will be used including face to face meetings, letters, press releases, website and public exhibition. |
| **Developers** | Interest in how the A29 scheme directly or indirectly affects the current and future developments in the vicinity of the site. | It is expected that ADC will co-ordinate consultation with developers but WSCC's Strategic Planning Manager and the Project Manager will support this consultation primarily with face to face meetings. |
| **Environment interest groups** | Interest in issues relating to pollution control, protection of natural environment. | A variety of communications tools will be used including face to face meetings, letters, press releases, website and public exhibition. |
| **Cycle, Walking and equestrian groups** | Interest in promoting equestrian, cyclists and walkers use within the scope of the A29 scheme. | A variety of communications tools will be used including face to face meetings, letters, press releases, website and public exhibition. |
| **Disabled Group/s** | Interest in creating a more accessible environment through scheme development and design. | A variety of communications tools will be used including face to face |

| Key Groups | Interests | Method of Engagement |
|---|---|---|
| | | meetings, letters, press releases, website and public exhibition. |

## 7.10 RISK MANAGEMENT STRATEGY

7.10.1 Risk management is methodical approach to identifying, quantifying and managing risks that occur during the lifecycle of a project. The key to effectively mitigating risks is to develop a series of well-defined steps to support better decision-making through an in-depth comprehension of the potential risks inherent in a scheme and their likely impact. Annex 4 of the HM Treasury Green Book emphasises that "effective risk management helps the achievement of wider aims, such as: effective change management; the efficient use of resources; better project management; minimising waste and fraud; and supporting innovation". It also recommends a four-stage process which is broadly cyclical (plan-do-review) requiring on-going review and update of risks to ensure that effective controls are implemented during scheme development and delivery. The risk management strategy is illustrated in Figure 7-3


**Figure 7-3 – Risk Management Strategy Overview**

### 7.10.2 RISK MANAGEMENT PROCESS

7.10.3 Risk management is as a key process underpinning good scheme governance and achievement of scheme objectives in a cost-effective manner. TAG Unit A1.2 requires all project related risks, which may impact on the scheme costs, to be identified and quantified in a Qualitative Risk Assessment (QRA) to produce a risk-adjusted cost estimate.

7.10.4 The outcome of the QRA process is the prediction of an 'expected' risk value which provides confidence levels of the risk outcomes, factoring in the various probabilities of these risks materialising. The confidence levels are reviewed to notice any trends with the P80 confidence level used here to provide the 'expected' risk value. The P80 is the 80th percentile and is the risk exposure used as part of the business case. This effectively informs the 'risk adjusted cost estimate'. The risk assessment has been undertaken using the following process:

- Risk identification;
- Risk quantification;
- Assessing the impacts of risk and the likelihood of risk; and
- Managing risk.

### 7.10.5 RISK IDENTIFICATION

7.10.6 For this scheme, risks have been identified during multi-disciplinary discussions, including inputs from technical experts in highway and structural engineering, geotechnical, planning, transport planning, quantity surveyors and environmental disciplines.

7.10.7 Risk workshops were held on 22/1/18 and 4/12/18 to review and align the risks to the latest information available. A risk identification session was held to ensure new risks were captured and existing risk information was reviewed ensuring completeness, integrity and accuracy of data during the review. Likelihood and impact of each risk to the scheme were assessed in terms of its possible monetary, programme and reputational effects. Owners have been assigned to each risk, based on the type of risk and the team member best placed to manage the risk as the scheme is developed. The risk register will be maintained as a live document with regular updates during project design review meetings.

7.10.8 The most recent version of the project risk register is appended. The scheme risks can largely be grouped into the following categories:

- Construction;
- Design;
- Financial;
- Environment;
- Land;
- Stakeholders;
- Statutory process; and
- Consultation.

7.10.9 The risk register then evaluates the impacts to highlight:

- Risks to the project schedule and cost;
- Political risks including third parties;
- Risks to scheme funding;
- Health and safety risks ;
- Reputational risks; and
- The risk to impacts on existing highway network.

## 7.10.10 QUANTIFICATION OF RISKS

### Assessing the Impact of Risk (Costs)

7.10.11 Each risk has been evaluated in terms of the cost, schedule and reputational impact of the risk. Whilst DfT recommends the use of empirical evidence to estimate a range of cost outcomes, wherever possible, it is noted that 'common sense approximations' should be used when such empirical data is not available, rather than aiming for unrealistic levels of accuracy. At this stage, the cost range associated with the consequences of each risk was estimated, where the 80th percentile is the risk exposure used as part of the business case (the P80). Note that the P50 value has been calculated as required by the DfT for the Economic Case which is an allowance for quantified risk.

7.10.12 The estimates have been derived following input from each discipline specialist working alongside the quantity surveyor and risk management team, to ensure estimates of cost (and probability, discussed within the next section) are complete and accurate, and consistent with the basis of the base cost estimate.

### Estimating the Likelihood of the Outcomes Occurring

7.10.13 Having estimated the likely impact (in cost terms), the likelihood (probability) of the risk occurring also needs to be estimated. The project delivery team's technical specialists, including Quantity Surveyors, have had to apply a degree of judgement based experience gained from working on other similar projects.

7.10.14 Once the 'impacts' and 'probabilities' have been estimated, the risks are mapped onto a risk matrix to generate an overall 'risk score'.

7.10.15 Each risk has been assigned a likelihood rating, which is expressed in terms of a percentage. This has been multiplied by the estimated financial value of the risk occurring, to give an expected value. The sum of these expected values forms the total included in the Financial Case as the 'cost of risks identified in quantified risk assessment'.

| | Cost Impact | Schedule Impact | | | Very High | High | Medium | Low | Very Low | Very Low | Low | Medium | High | Very High | | | Schedule Impact | Cost Impact |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | > 70 % | 50 % - 70 % | 20 % - 50 % | 5 % - 20 % | < 5 % | < 5 % | 5 % - 20 % | 20 % - 50 % | 50 % - 70 % | > 70 % | | | | |
| | | | | | VH | H | M | L | VL | VL | L | M | H | VH | | | | |
| | | | | | 5 | 4 | 3 | 2 | 1 | 1 | 2 | 3 | 4 | 5 | | | | |
| | | | | | | | | | | | | | | | 6 | SS | Showstopper | |
| Very High | >£1.62m | >11 wks | VH | -5 | -25 | -20 | -15 | -10 | -5 | 5 | 10 | 15 | 20 | 25 | 5 | VH | >11 wks | >£1.62m |
| High | £0.81m - £1.62m | 8 wks - 11 wks | H | -4 | -20 | -16 | -12 | -8 | -4 | 4 | 8 | 12 | 16 | 20 | 4 | H | 8 wks - 11 wks | £0.81m - £1.62m |
| Medium | £540k - £0.81m | 3 wks - 8 wks | M | -3 | -15 | -12 | -9 | -6 | -3 | 3 | 6 | 9 | 12 | 15 | 3 | M | 3 wks - 8 wks | £540k - £0.81m |
| Low | £162k - £540k | 0 wks - 3 wks | L | -2 | -10 | -8 | -6 | -4 | -2 | 2 | 4 | 6 | 8 | 10 | 2 | L | 0 wks - 3 wks | £162k - £540k |
| Very Low | <£162k | <0 wks | VL | -1 | -5 | -4 | -3 | -2 | -1 | 1 | 2 | 3 | 4 | 5 | 1 | VL | <0 wks | <£162k |

**Figure 7-4– Probability Impact Risk Matrix (Opportunities & Threats from left to right)**

## 7.10.16 MANAGING RISKS (RESPONSE PLANS AND MITIGATION)

7.10.17 Following the initial assessment of scheme risks, a systematic approach was adopted to respond to risks and allocate responsibility to the most appropriate party in line with governance arrangements

set out in this chapter. One of the following four strategies has been adopted for each risk when developing a suitable response plan:

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

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

### 7.10.19 IMPLEMENTATION AND REVIEW

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

### 7.10.21 SIGNIFICANT PROJECT RISKS IDENTIFIED

A total of 24 risks (threats and opportunities) have been identified in the project risk register (appended to this document) with 27 remaining active at the time of the Transport Business Case. The risk register below shows the Top 5 pre-mitigation project risks with the highest risk rating in the risk register. The risks and the potential impacts for the top 5 risks are described below along with their proposed mitigation:

## 7.11 BENEFITS REALISATION PLAN

7.11.1 A Benefits Realisation Plan will be prepared for the scheme. The plan is designed to enable benefits, and minimise dis-benefits, that are expected to be derived from the scheme, to be planned for, managed, tracked and realised. The plan will help demonstrate whether the scheme objectives identified are able to generate the desired measures for success. This can be assessed by tracking and realising the desired outputs and outcomes of the scheme.

7.11.2 Desired outputs are those tangible effects that are funded and produced directly because of the scheme. Desired outcomes are the final impacts brought about by the scheme in the short, medium and long-term. The scheme objectives, together with the desired outputs and outcomes, are summarised in Table 7-4

7.11.3 The Project Manager will develop a Benefits Realisation Plan, intrinsically linked to the Monitoring and Evaluation Plan set out in below. The DfT guidance sets out a five-stage cycle for the evolution of benefits, their maintenance and monitoring during the lifecycle of a programme, highlighted in Figure 7-5 below

**Figure 7-5– The Benefits Management Cycle** *(Source: DfT Programme and Project Management Portal)*

**Figure 7-6– Top 5 Project Risks (Pre Mitigation with Post Mitigation Shown)**

| | | | | Pre-mitigation | | | | | Post-mitigation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Type | Risk Catego | Risk Title | Likelihood (%) | Cost Impact | Schedule Impact | Reputational Impact | Score | Likelihood (%) | Cost Impact | Schedule Impact | Reputational Impac | Score |
| 001 | Threat | Financial | LEP - Funding is not forthcoming (Phase 1) | 4. High | 5. Very High | 5. Very High | 4. High | 20 | 3. Medium | 5. Very High | 3. Medium | 4. High | 15 |
| 002 | Threat | Financial | Consortium - Funding is Insufficient and/or Missaligned timescales (Phase 2) | 4. High | 5. Very High | 5. Very High | 4. High | 20 | 3. Medium | 5. Very High | 5. Very High | 5. Very High | 15 |
| 003 | Threat | Construction | Route 12 Southern Section - Additional earthworks (Design / Geotech) | 4. High | 4. High | 3. Medium | 2. Low | 16 | 3. Medium | 4. High | 3. Medium | 2. Low | 12 |
| 004 | Threat | Environmental | Flooding - Crossing the Rife (EA Objections / Timescales) | 4. High | 3. Medium | 4. High | 2. Low | 16 | 2. Low | 4. High | 4. High | 4. High | 8 |
| 005 | Threat | Land | Land ownership (inc buildings) and transfer - Dedicated Land vs CPO | 3. Medium | 5. Very High | 5. Very High | 4. High | 15 | 2. Low | 5. Very High | 5. Very High | 4. High | 10 |

**Table 7-4- Scheme Objectives, Output and Outcomes**

| Strategic Scheme Objectives | Desired Outputs | Desired Outcomes | Scheme Target | Timing of Review |
|---|---|---|---|---|
| To support the local and regional economy | A scheme which improves connectivity between the Strategic Road Network and new and existing development in BEW | Improved perceptions of accessibility to areas of land in and around BEW identified for commercial and residential development | All of the targets below | 1 year post scheme opening<br><br>5 years post scheme opening |
| To ease congestion and to new A29 realignment | A scheme which improves traffic flows along the A29 corridor and reduces journey times<br><br>A scheme that improves journey time reliability and reduces unforeseen delays | Reduced congestion on the existing A29<br><br>Journey time savings for road users into Bognor Regis and the BEW area | Reduction in peak hour journey times on the A29 | 1 year post scheme opening<br><br>5 years post scheme opening<br><br>2031 |
| To enable delivery of xxx new homes in xxx by 2031 | A scheme which is in place as per programme which supports the delivery of new homes by 2031 | As per desired output | A29 built by 2021 (Phase 1 (North)) and 2025 (Phase 2 (South)) with new homes by 2031 | Scheme opening (Phase 1 (North) and Phase 2 (South))<br>2031 thereafter |
| | | | | |
| To enable delivery of new jobs | A scheme which is in place as per programme which supports the delivery of 3,600 new jobs by 2031 | As per desired output | A29 built by 2021 (Phase 1 (North)) and 2025 (Phase 2 (South)) with xxx new jobs by 2031 | Scheme opening (Phase 1 (North) and Phase 2 (South))<br>2031 thereafter |
| Deliver wider benefits to the area of BEW and Bognor Regis | Achieve targets as sat out in C2Cs LEP, WSCC Transport plan and ALP. | Delivery of the Coast to Capital Strategic Economic Plan which aims to create new jobs and facilitate delivery of new homes across the Coast to Capital area;<br>Delivery of the Arun Local Plan by enabling delivery of 3,720 new homes and 4,160 new jobs and 30ha of employment land by 2031;<br>Regeneration of Bognor Regis by increasing business productivity and attracting additional investment into the town; | As set out in SEP, ALP and WSCC plans | Scheme opening (Phase 1 (North) and Phase 2 (South))<br>2031 thereafter |
| Significant Transport benefits | Improved connectivity between Bognor Regis and labour and customer markets<br>Improved journey times and journey time reliability on the A29 between its junction with A27 at Fontwell and Bognor Regis by reducing congestion and providing an alternative to the current A29 which is impeded by the Woodgate level crossing | | | |
| To improve road safety | A scheme that reduces the number of road collision casualties | Reduced number of fatalities and severe or slight injuries on the A29 | 10% reduction in casualties in the 5 years after Phase 1 (North) and Phase 2 (South) | 5 years post scheme opening |

| | | | | |
|---|---|---|---|---|
| | A scheme which has been designed to minimise the risk of road accidents | | opening in the study are compared with the previous 5 years | |
| To protect the local environment | A scheme that contributes to an enhancement in air quality<br><br>Avoidance of any adverse environmental impacts, where possible, through the design of the scheme<br><br>Environmental improvement to existing properties adjacent to t the existing A29 by providing an alternative route and avoiding the level crossing at Woodgate<br><br>Provision of mitigation measures to minimise unavoidable environmental impacts of the scheme | Reduced concentrations of nitrogen dioxide in the BEW and Bognor area<br><br>Through a robust approach to environmental appraisal, in line with all relevant local, national and international legislation, ensure that any protected species are protected | Compared to the scheme without the A29 | 5 years post scheme opening |
| To support sustainable modes of transport | Enhanced sustainable transport infrastructure<br><br>A scheme that releases network capacity to allow the planned growth to take place<br><br>A scheme that provides for sustainable modes of transport | Reduce congestion within the BEW and Bognor Regis areas<br><br>Increased usage of the A29 for cycling & walking | Increase in cyclists and walkers using the A29 | 1 year post scheme opening<br><br>5 years post scheme opening |

7.11.4 WSCC and its partners will undertake a full assessment of potential benefits, in accordance with the DfT guidance set out above. The process will be based on the following:

- **Identify** – the stakeholders impacted by the scheme, and the beneficiaries of each benefit; any additional enablers required over-and-above the scheme; the responsible body or individual for delivering the benefits; target dates for the achievement of the anticipated benefits
- **Analyse** – once the potential benefits have been identified, they need to be systematically analysed to calculate their financial value and the level of risk associated with the calculations
- **Plan** – implement a clear timetable for delivering the scheme. The timetable will be a live document throughout the delivery process and will be informed of any necessary steps that are planned to maximise the benefits
- **Deliver** – the programme will ensure that the identified benefits are delivered by working closely with stakeholders and delivery partners.
- **Review** – the benefits will be reviewed at pre-determined stages that fit into the wider programme delivery. This part of the process is where the monitoring and evaluation most clearly overlaps with the benefits realisation.

7.11.5 The owners will be responsible for tracking the identified benefits and for reporting any exceptions to the Project Manager. This will allow early identification of any expected benefits that may become un-realised to be remedied.

## 7.12 MONITORING AND EVALUATION PLAN

7.12.1 The HM Treasury Magenta Book provides the following definition of Monitoring and Evaluation:

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

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

- Standard monitoring
- Enhanced monitoring
- Fuller evaluation

7.12.3 All schemes are required to conduct the 'standard monitoring' approach, whereas schemes costing more than £50 million are expected to follow the 'enhanced' guidance. Only selected schemes, identified by the DfT are expected to conduct 'fuller' evaluation. As the scheme will have an

expected outturn cost of above £50 million, it will follow the DfT's Enhanced monitoring guidance[12]. The measures that fall into the 'standard monitoring' category are summarised in the table below .

**Table 7-5 - Enhanced Monitoring Measures**

| Item | Stage | Collection Timing | Rationale |
|---|---|---|---|
| Scheme Build | Input | During Delivery | Knowledge |
| Delivered Scheme | Output | During Delivery / Post Opening | Accountability |
| Costs | Input | During Delivery / Post Opening | Accountability |
| Scheme Objectives | Output/Outcome/Impact | Pre or during Delivery / Post Opening (up to 5 years) | Accountability |
| Travel Demand | Outcome | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |
| Travel Times and Reliability of Travel Times | Outcome | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |
| Impacts on the Economy | Impact | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |
| Carbon Impacts | Impact | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |
| Noise | Impact | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |
| Local Air Quality | Impact | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |
| Accidents | | Pre or during Delivery / Post Opening (up to 5 years) | Accountability / Knowledge |

[12] DfT's Enhanced monitoring guidance

## 7.12.4 DESCRIPTION

7.12.5 A full description of the scheme has been provided in the Strategic Case.

## 7.12.6 LOGIC MODEL

7.12.7 A logic model is shown in **Figure 7-7**. It provides an illustrative overview of the inputs and activities of the scheme, and refers to its outcome measures of performance.

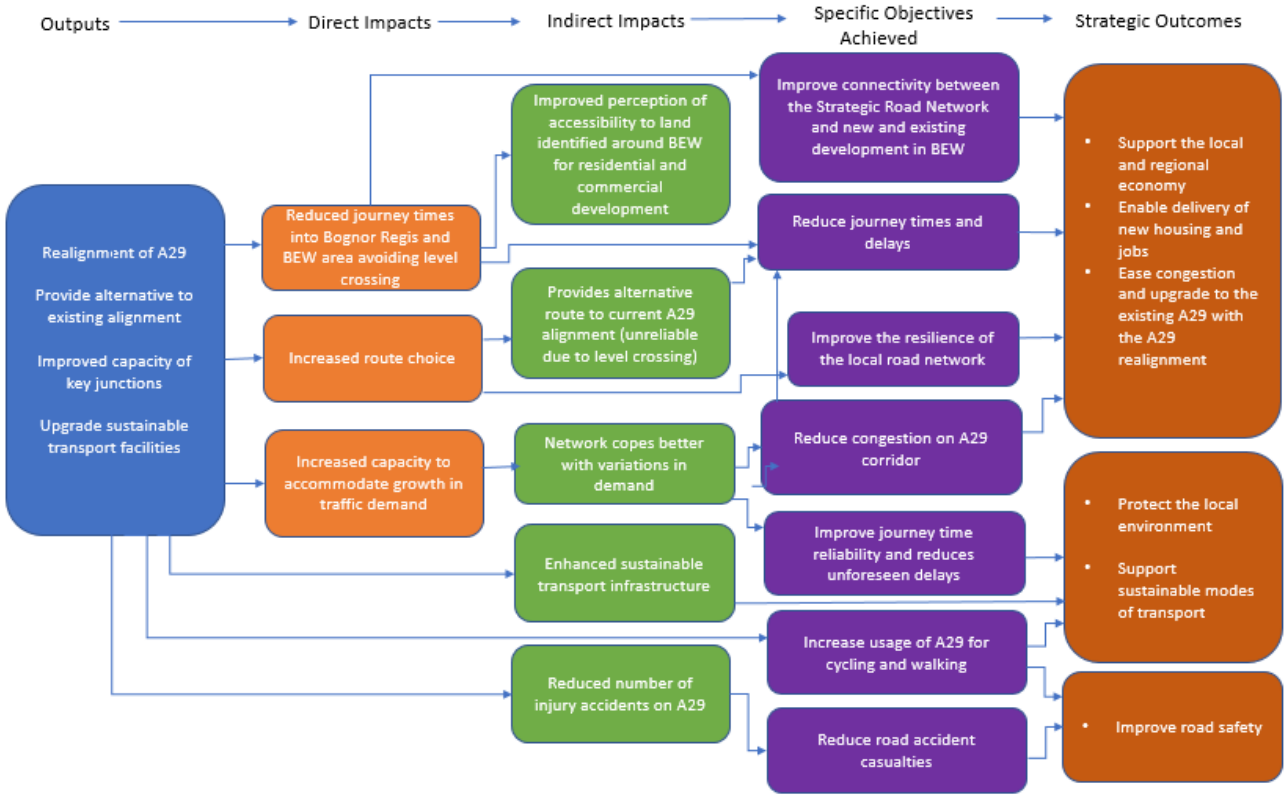



**Figure 7-7– Logic Model**

## 7.12.8 TYPE OF EVALUATION

7.12.9 The type of evaluation method proposed to evaluate the scheme will be an 'outcome evaluation'. Outcome evaluations compare the existing situation, i.e. before the intervention (before the scheme has been introduced) against the situation with the intervention in place. Any observed changes (in the metrics described in Table xx below) are assumed to be the result of the intervention.

## 7.12.10 DATA REQUIREMENTS

7.12.11 The metrics proposed to evaluate the scheme; associated data collection requirements and frequency of data collection are presented in Table 7-6

**Table 7-6- Data Collection Metrics**

| Metric | Frequency | Data |
|---|---|---|
| **Inputs** | | |
| Expenditure | Post Opening | Financial monitoring of the project |

| | | |
|---|---|---|
| Funding Breakdown | Post Opening | Financial monitoring of the project |
| In Kind Resources Provided | During Delivery | Monitoring of resources delivering the project (use of project diary) |
| **Outputs** | | |
| Delivered Scheme | Post Opening | Full description of implemented scheme outputs including design changes post funding approval with reasons for such changes, post scheme as built drawings of works completed |
| **Outcomes** | | |
| Air Quality | Pre and post construction, Annual up to 5 years post opening | Data from the WSCC review and assessment of Local Air Quality |
| Average daily traffic and by peak / non-peak periods | Pre and post construction, Years 1 and 5 post opening | Annual Automatic Traffic Counts (ATCs) and turning counts, collected at junctions where interventions are and wider ATCs across the network |
| Accident and casualty rates | Pre and post construction, Years 1 and 5 post opening | Annual monitoring of accidents (STATS 19) |
| Average AM and PM peak journey time on key routes (journey time measurement) | Pre and post construction, Years 1 and 5 post opening | Journey time surveys and DfT Congestion Statistics on local authority A Roads |
| Average annual CO2 emissions | Pre and post construction, Years 1 and 5 post opening | DfT's Local Authority Carbon Toolkit |
| Number of housing units | Years 1, 5 and 10 post opening | Data from ADC and WSCC review |

## 7.12.12 SOURCES OF DATA

7.12.13 The following surveys will be undertaken by WSCC:

- Automatic Traffic Counts (ATCs) and Manual Classified Turning Counts (MCCs) to obtain volumetric and classified traffic count data;
- Trafficmaster data / or ANPR data, to obtain journey time data;
- STATS19 accident data;
- Air quality data from roadside diffusion tubes; and

- Annual expenditure on construction, land, maintenance, design fees and monitoring and evaluation surveys
- Monitoring of development build numbers within the “zone”

### 7.12.14 IMPLEMENTATION

- Resourcing

7.12.15 The monitoring and evaluation for the scheme will be undertaken by WSCC, being brought into the current traffic survey and environmental monitoring programmes.

- Timing

7.12.16 Prior to starting on site, any gaps in the required baseline evidence will be collected. A baseline evidence report will be completed, prior to construction of the scheme. Regular monitoring reports will be provided on a quarterly basis to the LEP in terms of progress against programme, costs and risks. In addition, an annual monitoring summary will be provided.

### 7.12.17 RESPONSIBILITY

7.12.18 Details of the individual responsible for implementing the monitoring and evaluation plan will be provided at D&B Stage.

### 7.12.19 SETTING TARGETS

7.12.20 WSCC recognises the importance of setting specific indicators and targets. These targets are set out in Table 7-4

7.12.21 The monitoring and evaluation will be used to answer the following key questions:

1. Have the anticipated outcomes and impacts been achieved?

- To what extent are the observed changes additional to what would have happened in the absence of the intervention?
- Were there any unanticipated impacts / displacement effects?
- Which elements of the scheme were particularly influential in achieving the overall goals?
- What lessons can be learnt for future scheme / policy development?
- What is the contribution of the policy to the LEPs strategic goals?

2. To what extent did the anticipated costs and benefits match the actual outcome?

3. Has the scheme been successful? If not, why not?

7.12.22 The evaluation of the scheme will:

- Measure the level of traffic congestion on the existing network
- Measure the level of traffic congestion on the improved network
- Measure the levels of accidents on the existing and improved network
- Measure the number of dwellings constructed

7.12.23 Impact assessments will be undertaken in year 1 and year 5 after opening.

### 7.12.24 LINKING INDICATORS TO OUTCOMES

7.12.25 It is important to demonstrate how the proposed indicators relate to the desired outcomes. The Monitoring and Evaluation Plan will therefore be updated near to construction. The logic map /

causal chain diagram shows the expected relationship between the outputs of the scheme, the achievement of objectives, and the delivery of the strategic outcomes.

7.12.26 It is generally easier to measure achievement of the objectives than the strategic outcomes because the latter often take time to achieve and could be influenced by factors other than the scheme.

7.12.27 A full Monitoring and Evaluation plan will be developed and updated as the scheme progresses towards construction. It will consider attribution of outcomes to the intervention and whether a clear link between the delivery of the scheme and the wider economic benefits can be achieved. WSCC will consider any additional longer-term evaluation work to undertake case studies or meta-analysis in order to further understand the economic benefits arising from the scheme, subject to availability of resources.

## 7.13 SUMMARY OF THE MANAGEMENT CASE

7.13.1 An appropriate governance structure is essential to the delivery of the scheme. WSCC has therefore established a Project Board and a Project Delivery Team aligned with best practice guidance on project management. The Project Board's primary function is decision-making and review. The Project Delivery team has been established to deal with day to day planning and delivery of the scheme.

7.13.2 A project programme has been developed and sets all the key project tasks and their duration and interdependencies, key milestones and gateways. It will act as a live document, with progress being monitored on a weekly basis by the project manager.

7.13.3 Key stakeholders have been identified and a stakeholder management plan will be adopted based upon practice used in previous schemes.

7.13.4 A strategy has been developed to establish how the performance of the scheme against objectives for project success will be monitored and assessed, to demonstrate the value for money for the funding of the scheme. These objectives relate to changes in traffic flows, reductions in journey times and in variability of travel times, changes in noise and air quality levels at key locations, highway safety and wider economic indicators.

# Appendix A

## SCHEME DRAWINGS

# Appendix B

## LETTERS OF SUPPORT

# Appendix C

## OPTIONS REVIEW REPORT

# Appendix D

## LOCAL MODEL VALIDATION REPORT

# Appendix E

## FORECAST REPORT

# Appendix F

## AMCB, TEE, PA TABLES

# Appendix G

## APPRAISAL SUMMARY TABLES

# Appendix H

## SCHEME COSTS

# Appendix I

## PROGRAMME

# Appendix J

## RISK REGISTER & QRA

# Appendix K

## HOUSING TRAJECTORY INFORMATION

Regus House
Southampton International Business Park, George Curl Way
Southampton, Hampshire
SO18 2RZ

**wsp.com**