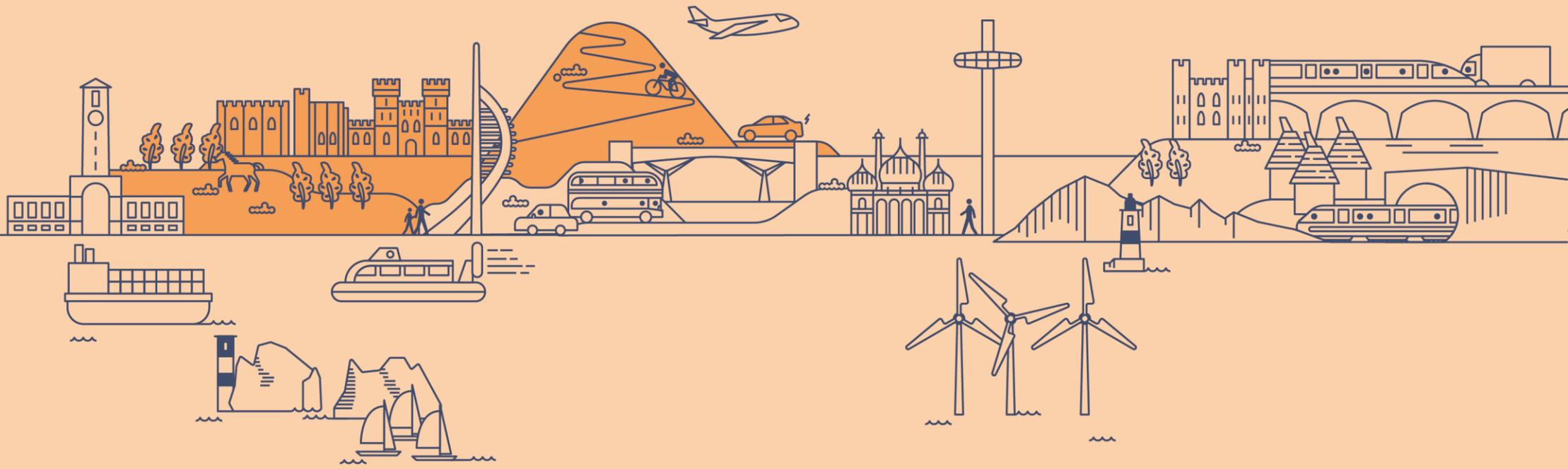




Wessex Thames Strategic Programme Outline Case

Version 2.5
June 2022



Part 1

Introduction

Background

Transport for the South East (TfSE) developed a Transport Strategy which was adopted in 2020. They are currently delivering a programme of Strategic Studies that will prioritise interventions to deliver TfSE's vision for the South East. This is a key step towards developing a Strategic Investment Plan to secure funding for the South East's transport network.

Geographic Scope

The Strategic Studies focus on the key transport corridors that serve and connect the South East's Major Economic Hubs and international gateways. They also play an important national role in connecting the rest of the UK to some of the busiest ports in the country. The map overleaf in **Figure 1.1** shows the areas covered by each SPOC. The areas are defined as follows:

- **Solent and Sussex Coast** – encompassing the strategic corridors that serve and connect the two largest conurbations in the South East, covering an area from the New Forest in Hampshire to Hastings in East Sussex.
- **London to Sussex Coast** – encompassing the corridors that share the London-Gatwick corridor in the north and fan out in the south to connect much of the Sussex coastline to the capital.
- **South East** – encompassing the transport corridors connecting the Channel Tunnel and Port of Dover to London, as well as serving Kent, Medway, and East Sussex.
- **Wessex Thames** – encompassing the strategic corridors and Major Economic Hubs in Berkshire, North Hampshire, and West Surrey.

Through development of the evidence base for each study; option identification; and option assessment, the emerging packages of shortlisted intervention were more coherent when assessed and described at a place based level, rather than describing orbital components of a package in one study and radial components in another. Whilst there is no 'perfect' geography, a more place-based approach has been endorsed for the Strategic Programme Outline Case, reducing the levels of geographical overlap.

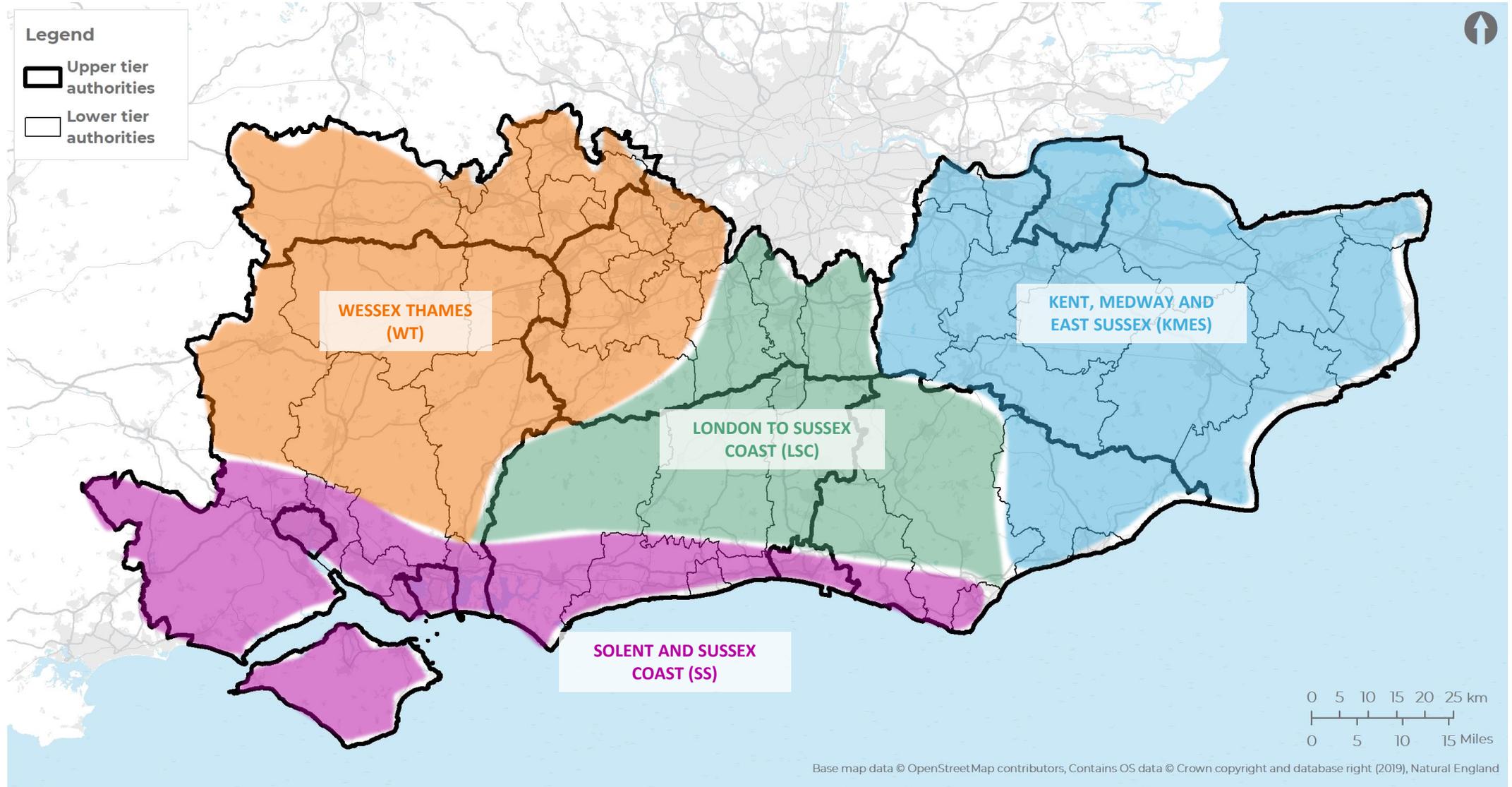
Changes in Geographic Scope

The geographical scope of the technical programme of work underpinning this study is slightly different in Stage D compared to Stages B and C. In summary

- The **Outer Orbital Area Study** has become the **Solent and Sussex Coast**. The Isle of Wight (IoW) is now within the scope of this study, whereas East Kent is no longer in scope.
- The **Inner Orbital Area Study** has been merged with the **South West Radial Area Study** to create the **Wessex Thames Study**. The Upper Tier Authorities are largely the same as for the South West Radial Area Study (minus Kent and IoW).
- The **South Central Radial Area Study** has remained the same area, but been renamed the **London to Sussex Coast Study**, but Kent is no longer in scope.
- The **South East Area Study** remains unchanged in geographical scope, but has been renamed **Kent, Medway and East Sussex Study**.

Geographic scope of the four SPOC Areas

Figure 1.1: Geography of Area Study programme's four Strategic Programme Outline Cases



Technical Scope and Structure

Technical Scope

This document is the **Strategic Programme Outline Case (SPOC)** for the **Wessex Thames**. The business case set out in this document is for a programme of interventions which has been developed to a level of detail aligned with a conventional ‘single-scheme’ Strategic Outline Case or pre-Strategic Outline Business Case. For this reason it has been given the description of Strategic Programme Outline Case (SPOC).

This document sets out the key issues, challenges and opportunities relevant to their scope, and show how targeted interventions will enable TfSE and its partners to deliver TfSE’s Transport Strategy for the South East. It describes how the Project Team has worked with stakeholders to develop Packages of Interventions that are designed to make life better for people, for businesses and, for the environment of the South East.

The Strategic Programme Outline Case has been developed in line with business case guidance set out in HM Treasury’s Green Book and Department for Transport Projects Analysis Guidance (TAG). The level of detail provided is proportionate to the current stage of programme and scheme development. The strategic dimension is at a particularly well progressed stage, with the other four dimensions being at earlier stages of development. Further detail on how this document aligns with TAG requirements is provided in a check list at the beginning of each chapter.

The outcome of these Area Studies will form the ‘blueprint’ for TfSE’s Strategic Investment Plan. This will influence and help shape investment decisions by government and national bodies, such as Network Rail and National Highways, and local bodies, including Local Transport Authorities.

Structure and Contents

The rest of this report follows the Five Case Model for Business Cases:

- **The strategic dimension (Part 2)** sets out the evidence and need for intervention and objectives. This shows clear alignment with the Transport Strategy and vision for the area.
- **The economic dimension (Part 3)** outlines the impacts of the SPOC Packages of Interventions and describes the overall costs and benefits of the whole programme.
- **The financial dimension (Part 4)** presents the funding requirement for the delivery of the programmes, their affordability and funding sources.
- **The commercial dimension (Part 5)** describes the commercial viability of the Packages of Interventions and outlines the procurement options to ensure good value for money in their delivery.
- **The management dimension (Part 6)** sets out the considerations for the effective delivery of the Packages of Interventions, including governance and risk management.

Process

This Strategic Programme Outline Case is a key deliverable for the Wessex Thames Technical Programme of work. **Figure 1.2** below shows the stages and steps that are being delivered as part of this programme of work to date.

The programme comprises five Stages, which in turn are formed of twelve steps.

The first stage, **Stage A (Mobilisation)**, was completed in September 2020. This stage helped define the leadership team, partners, Subject Matter Experts, methodology and a Delivery Plan for the technical programme.

This led onto **Stage B (Evidence Base)**, which undertook an in-depth review of the current and future issues and opportunities in the Wessex Thames. This covered a wide range of economic, social and environmental issues and opportunities.

Stage B also identified corridor specific transport issues and defined the study’s Vision, Objectives, and Problem Statements. The findings of Stage B have been published on the TfSE website alongside this report.

An **Options Assessment Report (OAR)** was then prepared, which describes how a Long List of intervention options was prioritised to develop Packages of Interventions for the Wessex Thames Area.

This SPOC is a key deliverable of Stage D, which will also deliver a **Delivery Plan**.

Stage E (Integrated Sustainability Appraisal), which runs concurrently with all stages, will seek to ensure objectives, problem statements and interventions can be achieved through sustainable measures.

Figure 1.3 overleaf shows the relationship between the SPOC and its partners SPOCs for different geographies, as well as their relationship to the underpinning evidence bases and Options and Assessment Reports, and how the feed into the Strategic Investment Plan.

Figure 1.2: Overview of the Wessex Thames Technical Programme

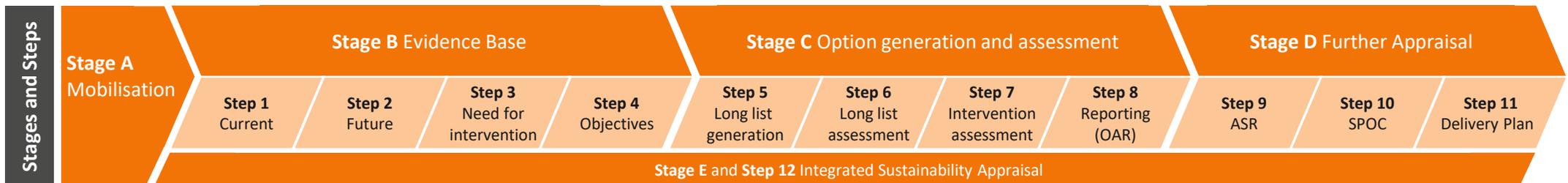
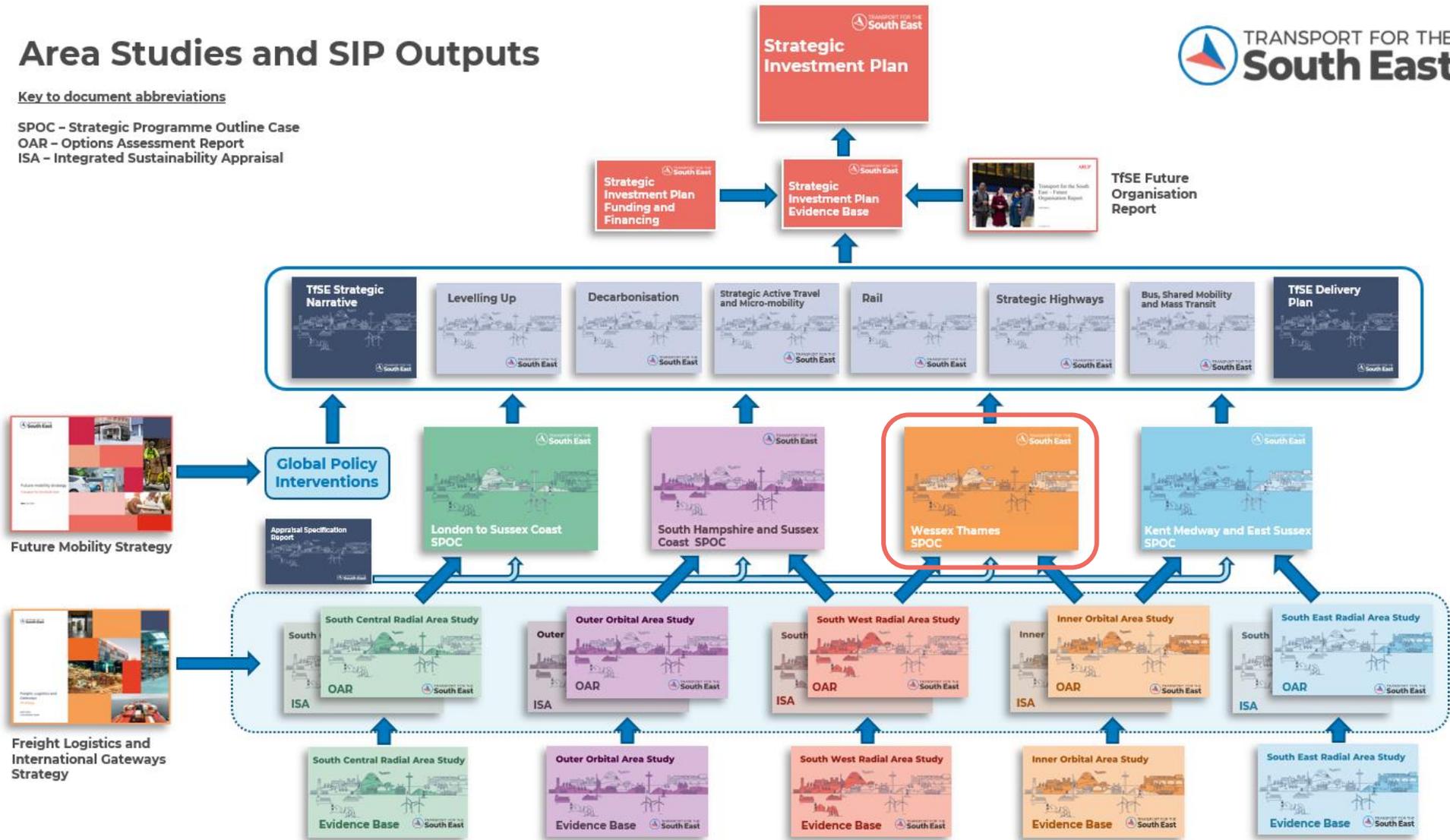


Figure 1.3: Area Studies programme and Strategic Investment Plan document hierarchy

Area Studies and SIP Outputs

Key to document abbreviations

SPOC – Strategic Programme Outline Case
 OAR – Options Assessment Report
 ISA – Integrated Sustainability Appraisal



Key Actors in this Study

Project Team

The Wessex Thames technical programme is led by a TfSE Project Management Office and is supported by a Technical Advisor Team.

The Technical Advisor Team is led by **Steer**, who led the development of the Evidence Base (Stage B of this project).

Steer is supported by:

- **Atkins**, who led the Options Stages of the project (Stage C); and
- **WSP**, who provide significant support to the Delivery (Stage D) and Integrated Sustainability Appraisal (Stage E) stages.

Most of the technical work and content delivered for the SPOC was developed by WSP and Steer. Atkins has supported this work through developing the Multi Criteria Assessment Framework (MCAF) that was used to qualitatively assess proposed interventions.

For the purposes of this report, TfSE's Project Management Office and the Steer/Atkins/WSP Technical Advisor Team are referred to as the 'Project Team'.

Stakeholders

On the mobilisation of this study, TfSE and the Technical Advisor team undertook a stakeholder mapping exercise for Wessex Thames to categorise key organisations and individuals according to their interest and influence.

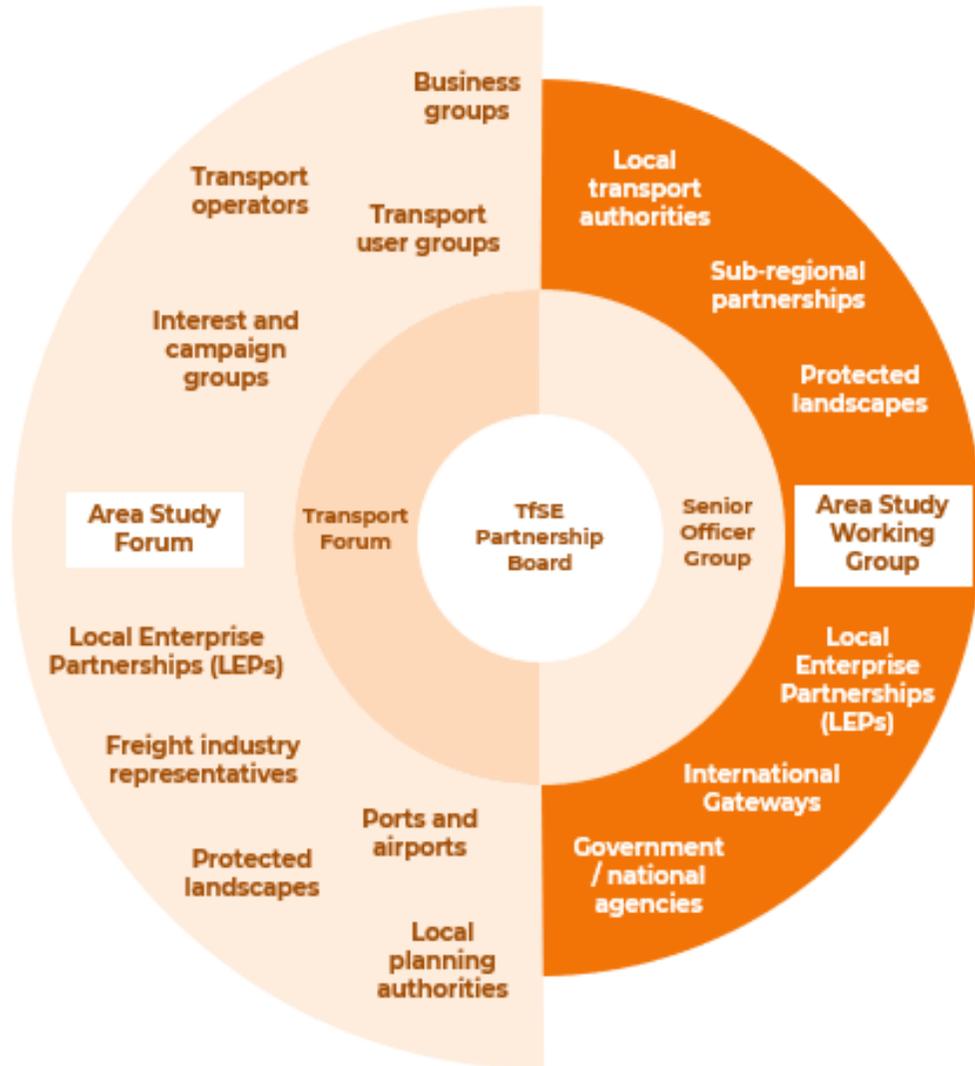
- **Tier 1 Stakeholders** have a direct interest and involvement in leading and supporting investment in the Wessex Thames area. These stakeholders include Local Transport Authorities (County Councils and Unitary Authorities), National Highways, Network Rail, a representative from a Local Enterprise Partnership, and the South Downs National Park.
- **Tier 2 Stakeholders** potentially have a direct influence over the success of the Area Studies via their development process or contents of the studies. This group includes Local Planning Authorities (Districts and Boroughs) operators, International Gateways, other statutory bodies (e.g. Homes England and Environmental/Heritage bodies), and special interest groups such as environmental groups.
- **Tier 3 Stakeholders** are those parties that may influence Tier 1 and 2 Stakeholders through their activities, including through the media/social media and public affairs. These include Town and Parish Councils, residents' groups, education and health providers, and representatives from youth councils.
- **Tier 4 Stakeholders** are any other stakeholders who have limited interest and/or influence in this work and will therefore not be directly engaged in the Area Study programme.

Most Tier 1 stakeholders at an "officer-level" have been engaged, among other channels, through an **Area Study Working Group** to help steer the direction and content of each study. The membership of this group is shown in **Figure 1.4** overleaf.

Most Tier 2 stakeholders at an "officer-level" have been engaged, among other channels, through an **Area Study Forum**, to provide input and "check and challenge". The membership of the forum is shown in **Figure 1.5** overleaf.

Stakeholder Engagement

Figure 1.4: Wessex Thames - Area Study Working Group membership



The role of the Working Group is to provide technical leadership to the Area Study, to drive the area study and make key decisions to allow the study to progress to schedule.

The group will provide professional, technical and strategic insight to TfSE and the consultants commissioned to develop the study.

Area Study Working Group

- Local transport authorities**
 - Surrey County Council
 - Hampshire County Council
 - Portsmouth City Council
 - Southampton City Council
 - Wokingham Borough Council
 - West Berkshire Council
 - Slough Borough Council
 - Royal Borough of Windsor & Maidenhead
 - Reading Borough Council
 - Bracknell Forest Council
- Sub-regional partnerships**
 - Solent Transport
- Protected landscapes**
 - South Downs National Park Authority
 - North Wessex Downs AONB
- Local enterprise partnerships**
 - Enterprise M3 LEP
 - Thames Valley Berkshire LEP
- International Gateways**
 - Port of Southampton
- Government / national agencies**
 - Department for Transport
 - Network Rail
 - National Highways

Stakeholder Engagement

Figure 1.5: Wessex Thames - Area Study Forum membership

Area Study Forum

Interest groups

Friends of the Earth
Motorcycle Action Group
Railfuture
Sustrans
Transport Action Network

Environmental groups

Campaign to Protect Rural England

Protected landscapes

North Wessex Downs AONB
Surrey Hills AONB

Public transport user groups

Buses in Fleet
South East Community Rail Partnership
Transport Focus

Rail operators

Cross Country Trains
Govia Thameslink Railway
Great Western Railway
Rail Delivery Group
South Western Railway

Bus and coach operators

Arriva
Confederation of Passenger Transport
First
Go South Coast
Reading Buses
Stagecoach

Government / national agencies

Homes England
Transport for London
England's Economic Heartland STB
Western Gateway STB

Local enterprise partnerships

Enterprise M3 LEP
Thames Valley Berkshire LEP
Solent LEP

Business groups

Confederation of British Industry (CBI)

Freight

Chartered Institute of Logistics and Transport
Logistics UK
Rail Freight Group
Road Haulage Association

International gateways

Southampton Airport
Heathrow Airport

Local government

Berkshire Local Transport Body

Local planning authorities

Basingstoke and Dean Borough Council
Bracknell Forest Council
Eastleigh Borough Council
Elmbridge Borough Council
Epsom and Ewell Council
Fareham Borough Council
Guildford Borough Council
Hart District Council
Havant Borough Council
Hillingdon Council
Kingston upon Thames Council
London Borough of Hounslow
Mole Valley Council
New Forest District Council
Runnymede Borough Council
Royal Borough of Windsor and Maidenhead
Reading Borough Council
Richmond Upon Thames Council
Rushmoor Borough Council
Slough Borough Council
Spelthorne Borough Council
Surrey Heath Borough Council
Test Valley Borough Council
Waverley Borough Council
Winchester City Council
West Berkshire Council
Woking Borough Council
Wokingham Borough Council

The role of the Area Study Forum is to provide stakeholder expertise, intelligence and advice to the Working Group and project team. The forum will add to the knowledge base of both TFSE and the consultants commissioned to develop the study.

Members will offer local and strategic insight to key themes, helping to develop strategic outputs that are of benefit the entire area study geography.



Stakeholder Engagement

Tier 1 Stakeholders

Most Tier 1 Stakeholders were invited to join this study's Area Study Working Group (see Figure 1.4) and play a direct role in leading and shaping the study.

These stakeholders have helped TfSE develop the Vision, Objectives, and Problem Statements for the study.

These stakeholders provided significant input into the development of the long list of interventions that were assessed using the MCAF and have moderated the initial results from the MCAF long list assessment.

They also supported the strategic assessment of each intervention and advised on the extent to which each long listed intervention aligns with their organisation's priorities.

Tier 2 Stakeholders

Further (remaining) Tier 1 Stakeholders and all Tier 2 Stakeholders were invited to join a Stakeholder Forum (see Figure 1.5).

This Forum has met three times:

The first workshop focussed on identifying stakeholder aspirations for the studies and understanding their perceptions of the strengths, weaknesses, opportunities, and challenges of the area.

The second workshop focussed on validating/amending the Vision, Objectives, and Problem statements developed by the Area Study Working Group. It also provided these stakeholders with an opportunity to contribute to the long list of interventions.

A third workshop focussed on validating packages and delivery.

Members of Parliament (MPs)

MPs have been further engaged through a bespoke process led by TfSE.

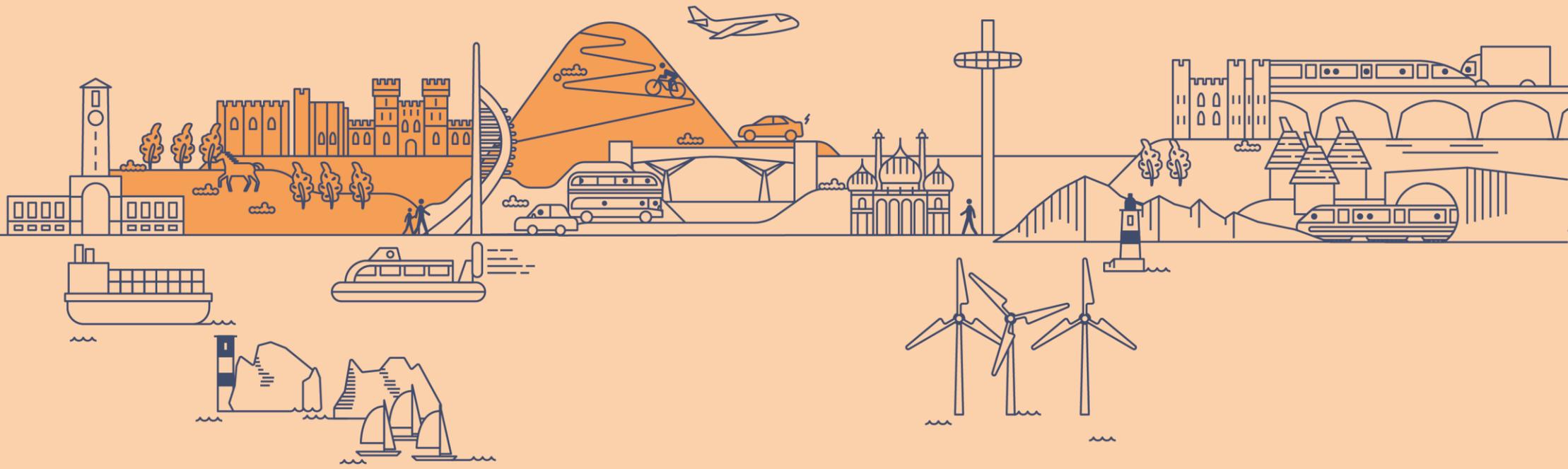
This process has engaged MPs on the Area Studies at two stages. Firstly, a questionnaire was sent to all MPs within the TfSE Area where they had the chance to identify issues, opportunities and key schemes. Any insights drawn from these discussions (e.g. whether an MP supports or does not support a particular intervention) was incorporated into the policy alignment scores.

In the latter stages of the project MPs have been invited to briefing sessions for each of the SPOC areas, where packages of interventions have been presented and feedback has been invited.

Other Stakeholders

Any other stakeholders were not directly engaged in this part of the study.

Any organisation that subscribes to TfSE's newsletter has received regular updates about study progress. These stakeholders will also have an opportunity to engage with TfSE when the Draft Strategic Investment Plan is published for consultation.



Part 2

Strategic Dimension

Introduction

Overview of the Strategic Case

The Strategic Case makes the case for change in the Wessex Thames area.

The Strategic Case includes:

- An overview of the SPOC's context and key challenges and opportunities for the SPOC area;
- The Vision, Objectives, and Problem Statements to be addressed by the SPOC;
- Articulation of the case/need for intervention;
- A description of the Interventions developed for the SPOC;
- Commentary on how the Packages were developed and sifted;
- Commentary on how the Packages align with the Vision, Objectives, Problem Statements, and National/Local/Policy alignment; and
- Evidence of local support for each Package of Interventions.

Contents

Part 2b describes the key challenges and opportunities identified for this study.

These include:

- an analysis of **socioeconomic outcomes** in the Wessex Thames area area;
- opportunities for **better mass transit** systems in the largest conurbations;
- opportunities for **better interurban and intraurban rail services** in the area; and
- a discussion of long-standing challenges with the existing **Strategic Road Network** between the two largest conurbations on the South Coast.

Part 2c outlines Problem Statements this study aims to address:

- **Problem Statements** are also important as they describe the challenges the area faces today that key stakeholders wish to see addressed.

Part 2d describes the impact of doing nothing and the “baseline” for this study.

Part 2e describes the Strategic Vision and Objectives for this study.

Part 2f describes the Packages this study proposes for the Wessex Thames area.

This includes:

- a description of the **Packages** of Interventions that have been developed for the Wessex Thames area.

Part 2g shows how the interventions outlined in Part 2f deliver the vision and objectives of the Wessex Thames area SPOC.

This includes:

- a description of the inputs, outputs, outcomes, and impacts of the packages - in line with the Theory of Change Framework; and
- commentary showing how the Packages, when combined, deliver the Vision and Objectives of this study, and address the study's Problem Statements.

Alignment with Department for Transport Business Case Guidance

The table below sets out the DfT's requirements for the Strategic Dimension and the level of detail expected at Strategic Outline Case stage. The final column of the table shows where the Strategic Dimension addresses each requirement

TAG Issue	TAG Requirement	Progress at SPOC	Reference
Organisation overview	An outline of the strategic priorities and responsibilities of the organisation(s) responsible for the proposal (for example DfT, Highways England, or the Local Authority)	Complete	Introduction (Background)
Business strategy and wider strategies	Determine the strategic fit of the proposal to the priorities of relevant organisations, the government (for example, the ambition to achieve net zero greenhouse gas emissions by 2050) and the regional, combined and local authorities in scope	Complete	Introduction (Policy Context)
Interdependencies	Set out the strategic portfolios, programmes and projects that the investment may interact with or link to: do they contribute towards achieving the same outcomes? Where does the intervention sit within this hierarchy?	Complete	Part 2a, Part 2b
Existing arrangements and the impact of not changing	Provide a clear picture of the current service model that serves as the baseline from which to measure future improvements. If applicable, set out the geographical scope of the investment and the economic, social and environmental context of the area: what is the impact of not intervening?	Complete	Part 2a, Part 2b
Business needs and service gaps	Determine the organisation's business needs: these are internal and external factors that are needed for the transport intervention to fulfil its objectives	Complete	Part 2a, Part 2b
Problem identification	Describe the problem(s) identified to determine the rationale: what is the evidence base underpinning the problem? Does it justify the need for a transport intervention?	Complete	Part 2a and 2b
SMART spending objectives	Establish SMART objectives for what the investment sets out to achieve: these should be specific, measurable, achievable, relevant and time-constrained. SMART objectives should align to the strategic priorities identified and provide clear measures of success	Complete	Part 2d
Scope	Explain the scope of the intervention: what will it deliver? What is out-of-scope?	Complete	Part 2e
Measures of success and planning for delivery	Set out what constitutes a successful delivery of the SMART spending objectives and determine the delivery arrangements. This can be conducted via workshops as per the HM Treasury business case guidance	Outline	Part 2f
Strategic assessment of investment options	Evaluate the longlist and shortlist of options against the SMART objectives and assess their impact on wider strategic priorities: options that do not contribute to achieving these priorities should be discounted	Outline	OAR
Strategic benefits	Describe, using evidence, the strategic benefits this proposal will provide through achieving the SMART spending objectives. Identify a clear theory of change that provides a comprehensive description of how the transport investment will result in those outcomes and impacts	Outline	Part 2d and 2e
Risks and constraints	Specify the main risks to achieving the SMART objectives: how will risks be mitigated and managed? Outline the constraints that could impact the successful delivery of the proposal including any relevant legislation and legal obligations that the investment engages with	Outline	Financial and management cases
Stakeholders' views and requirements	Outline the main stakeholder groups and their contribution to the development of the proposal, including their views and any conflicts between groups	Outline	Introduction (Stakeholders) Seeking views through public consultation Summer 2022

The Wessex Thames Area

The Wessex Thames area encompasses the strategic corridors that provide connectivity between conurbations in Berkshire, Surrey and North Hampshire. It includes many growing, regionally significant conurbations in the South East and boasts varied landscapes protected by national park authorities.

Socioeconomic Profile

The Wessex Thames Area is socially, economically, and environmentally diverse.

It is home to some of the country's most iconic natural and historic environments.

It includes areas of very high economic productivity and prosperity, however there are also pockets of deprivation which need addressing.

The varied strengths and weaknesses of the Wessex Thames area make planning a challenge. There are complex interdependencies, constraints and in some cases, conflict between competing pressures and aspirations in the area.

Despite these challenges, it is this diversity of the area that makes it such an appealing place to live and work. This study will seek to build on this diversity to achieve the ambitions of the people who live here.

Transport Networks

The Wessex Thames Area is served by a transport network that, at present, provides high quality road and rail infrastructure to and from London.

The South West Main line supports fast and local services between London with Southampton with routes also serving Winchester, Basingstoke and Woking. Services continue along the coast passed Southampton to Bournemouth and Weymouth. The Portsmouth Direct Line branches from the South West Main line and provides a link from Woking to Portsmouth. The Great Western Mainline links London to Reading and Newbury and onto the West Country.

The area is dependent on the M4, M3, A3, A34, and M25 South West Quadrant for strategic passenger and freight movements.

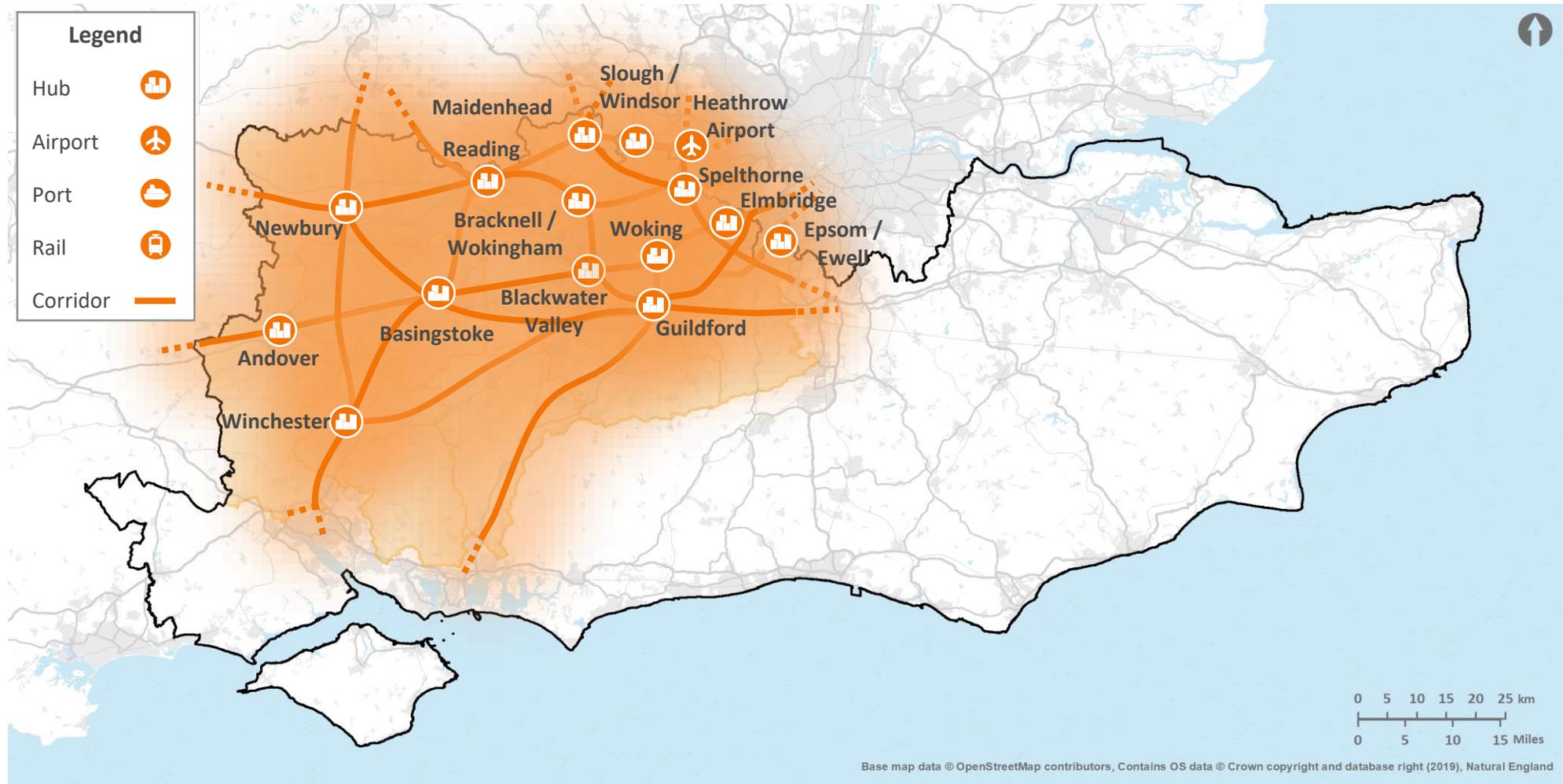
However, despite strong radial connectivity, there are a number of strategic gaps in the highway and railway network making adjacent Major Economic Hubs difficult to get to by sustainable modes.

Some of the area's cities benefit from high quality bus services. However, in general, public transport provision is currently not equitable between urban areas across the South East. Public transport provision for the largest Travel To Work flows in the area's largest conurbations is generally poor.

The area is nationally significant and plays a key role in connecting Southampton Port to the rest of Great Britain by road and rail. It is also on the boundary with London Heathrow Airport. Whilst not being in this study area, connectivity to these international gateways is very important and directly contributes to the socio-economic prosperity of the area.

Wessex Thames – Corridors, Major Economic Hubs and International Gateways

The Wessex Thames area encompasses the strategic corridors that provide connectivity between Major Economic Hubs in Berkshire, Surrey and north Hampshire. Corridors in the area also connect nearby Heathrow Airport and the Solent Ports with the rest of the country. Reading and the Blackwater Valley (Farnborough / Aldershot) are the region's fourth and fifth largest conurbations. Other Major Economic Hubs include Newbury, Bracknell, Wokingham, Maidenhead, Slough / Windsor, Andover, Winchester, Basingstoke, Guildford, Woking, Spelthorne, Elmbridge, and Epsom / Ewell.



Wessex Thames – Local Authorities

The Wessex Thames area encompasses the Local Transport Authority areas of West Berkshire, Reading, Wokingham, Windsor & Maidenhead, Bracknell Forest, Slough, and large parts of Surrey and Hampshire. The area contains strategic corridors that provide connectivity between the conurbations and other Major Economic Hubs in Berkshire, Surrey and north Hampshire. The Local Planning Authorities in this area are listed in the map below. The area is also served by three Local Enterprise Partnerships – Enterprise M3, Thames Valley Berkshire, and Coast to Capital.



National and International Policy Context

A policy review was conducted to determine the **strategic fit of the proposal** to the priorities of relevant organisations. Firstly, national and international policies, which set a framework for the future of planning, climate change and digital technology. They aspire to deliver transport networks that work better for the people, the economy, and the environment.

Climate Change/Decarbonisation Policies

The declaration of a UK climate emergency and associated legally binding net zero carbon targets (by 2050) has led to an increased focus on the importance of decarbonisation across all sectors, but particularly in transport.

Decarbonising Transport, A Better, Greener Britain (2021), sets out the political agenda for decarbonising all forms of transport and the UK's path to net zero transport. It comes in the wake of several other critical national (e.g. the **Clean Growth Strategy**). Highways England have set out their **Road Map to Net Zero (2050)** with Network Rail setting out its goal for Net Zero by 2050 in their **Environmental Sustainability Strategy**.

Understanding of how these changes will be delivered is provided in policies such as **Gear Change**, which aims to deliver significant improvements to cycling infrastructure, and **Bus Back Better**, which sets out the government's vision for bus services. We also expect to see wider adoption of placemaking policies such as "15-minute neighbourhoods" as a response to the climate change challenge.

Levelling-up and Planning Reform

In 2022, the Department for Levelling-up, Housing and Communities launched its long-awaited **Levelling-up White Paper**. Identifying 12 priorities of "Missions" for the UK to raise socio-economic outcomes of left behind communities, transport is one of the priorities and has a key role in supporting a further 10 Missions.

Planning in England is governed at a national level by a **National Planning Policy Framework**, which promotes sustainable development and has several environmental themes. This framework guides development of **Local Plans** and sets policy for the development of national and international transport networks.

The government has indicated an ambition to reform the planning system, laid out in the White Paper: **Planning for the Future (2020)**. Planning reforms are expected to focus on simplifying the planning system and making better use of data and digitalisation to help make the planning system work better.

Planning policy is increasingly emphasising the importance of building more new homes and making them more affordable and readily available to those living across the country. This closely follows the policy outlined in the **Housing White Paper 2017**.

Emerging Technology Policies

Technology will be critical for helping the transport network to continue developing over forthcoming years. Many believe recent trends in the adoption and penetration of emerging technologies have been accelerated by the advent of COVID-19.

Government policy is also evolving fast. In **Road to Growth** and the latest **Road Investment Strategy**, Highways England have emphasised the importance of using new technology across our highway network.

The DfT's policy document **Future of Mobility: Urban Strategy** (released in 2019) focuses how artificial intelligence and electrification will shape the transport network and deliver widespread benefits.

It is anticipated that the **Future of Mobility: Rural Strategy**, which is expected to be released imminently, and the encompassing **Net Zero Strategy**, due later this year, will further encourage greater uptake of low-emissions vehicles, in line with the long-term Transport Decarbonisation plan of banning the sale of petrol and diesel vehicles by 2030.

Regional and Local Policy Context

Regional and local policies recognise the strength of the South East’s natural assets and understand the importance of balancing future growth with social and environmental needs. The recently adopted Transport Strategy for the South East provides a framework for the implementation of national and regional priorities at a local level.

Economic Strengths

The region’s economic strengths are a key theme which run through several documents, for example, the **Economic Connectivity Review** showed that the area had the highest economic productivity outside London.

The importance of international gateways is noted in several policy documents, for example, the Highways England **Route Strategies**, and the several **Local Transport Plans** in the area.

The region’s proximity to London is also a key driver of economic growth. However, the area’s reliance on London is seen as a risk in documents such as the **London South East Market** network rail study and the **West Sussex Connectivity Modular Strategic Study**.

Many stakeholders in the South East wish to see its own major economic hubs, which include some of the largest conurbations in England, establish themselves as self-contained, high-performing, cities. This can be supported by improving connectivity within and between these conurbations to enable them to function (i.e. agglomerate) cohesively and efficiently.

Planning for People and Places

At a local level, the importance of places and placemaking is emphasised in several policy documents. While this is cited in all Local Transport Plans and many Local Plans in the area, it is a particular focus for the urban authorities in the Outer Orbital area.

This is a key theme of the recently developed **TfSE Transport Strategy for the South East**, which aims to shift transport planning away from “planning for vehicles” towards “planning for people” and “planning for places”, and net-zero carbon emissions by 2050 at the latest.

Planning for vehicles acknowledges that some local highways schemes may be needed to support immediate housing needs and congestion hotspots in the Outer Orbital area.

However, the focus also needs to consider **planning for people** (as a means of considering all modes of transport, especially healthy and public transport) and **planning for places** (which required much better integrated special, transport, services, and other infrastructure planning at a regional and local level.

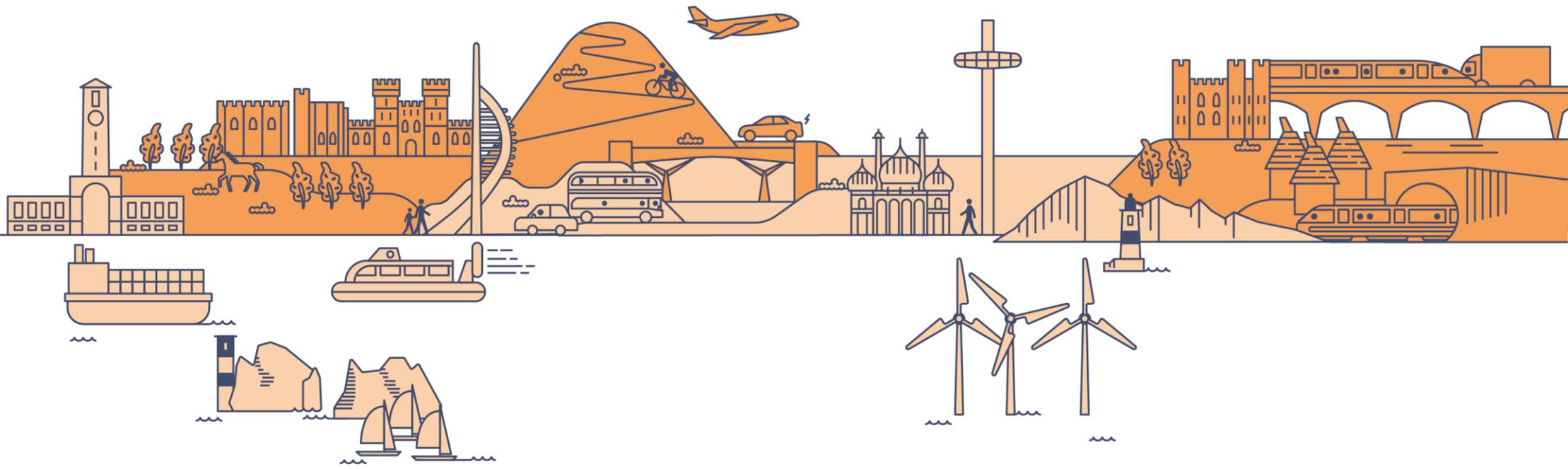
Local Response to COVID-19

The COVID-19 pandemic has clearly caused a significant rise in uncertainty around local planning. Local budgets are coming under increased pressure, and behavioral changes mean that traditional planning approaches have rapidly become obsolete.

In several areas, Local Industrial Strategies have been delayed as a result of the pandemic, and increased levels of uncertainty.

Several Local Enterprise Partnerships have released COVID-19 statements on their websites, and the South East LEP has released a formal **COVID-19 Statement** document. It explains SELEPs overall approach to the crisis and outlines how the LEP plans to help the region bounce back quickly.

Overall, however, it must be recognised that many local planning documents may quickly become obsolete as a result of the COVID-19 pandemic and the consequent economic outfall.



Part 2a

Challenges and Opportunities

Current Challenges and Opportunities

Inter-Urban Rail Opportunities

The Wessex Thames corridor has a relatively dense railway network. However, the level of service provided on east-west routes is poorer than on radial routes.

The North Downs Line between Reading, Wokingham, Guildford and Redhill provides some orbital connectivity. However, services on this line are geared towards serving the local and the London market with little focus on fast, strategic orbital connectivity.

The South West Mainline forms the railway spine of the Wessex Thames Area. It provides a crucial strategic link connecting the South Hampshire conurbation with the rest of the TfSE area, London and beyond. Furthermore, it is a nationally significant rail freight link, connecting the Port of Southampton to the rest of the country.

There is an opportunity to significantly improve journey times and frequencies within some of the largest urban areas in the Wessex Thames area.

Along the North Downs Line, several stations in urban areas have insufficient levels of passenger rail service. For example, along the Blackwater Valley, Farnborough North is only served by one train per hour to Reading and Guildford, whereas Farnborough station on the South West Main line is typically served by four trains per hour to Waterloo.

This corridor is experiencing significant population and employment growth in the medium term and there is an opportunity for rail to unlock further development and support a modal shift to more sustainable modes.

While there are relatively few 'end to end' journeys along the line, many stakeholders believe there is a market for inter-urban journeys between large conurbations such as Reading, the Blackwater Valley and Guildford.

Ambition

The Area Study Working Group aspires to see planned improvements delivered along the major railway lines in the area, offering a fast, frequent and reliable service for travellers between Major economic hubs.

There is a desire to realise faster journeys between the largest towns and cities in the Area as a means of improving the efficiency and productivity of the economy within (i.e. promoting agglomeration benefits). Improving orbital rail services will reduce reliance on London and on railways serving London to support sustainable economic growth.

It is therefore a key goal of this study to enable Network Rail and operators deliver faster, more frequent interurban and intraurban rail services between and within the largest conurbations in the Wessex Thames area and the rest of the country and unlock rail freight paths.

Current Challenges and Opportunities

Intra-Urban and Inter-Urban Mass Transit Opportunities

Figure 2.1 presents the UK's largest built-up areas by population, density, and mass transit system provision. The Area's largest conurbations are large enough and dense enough to support world class mass transit systems. However, current provision is below the quality of offer provided to other large conurbations in Great Britain.

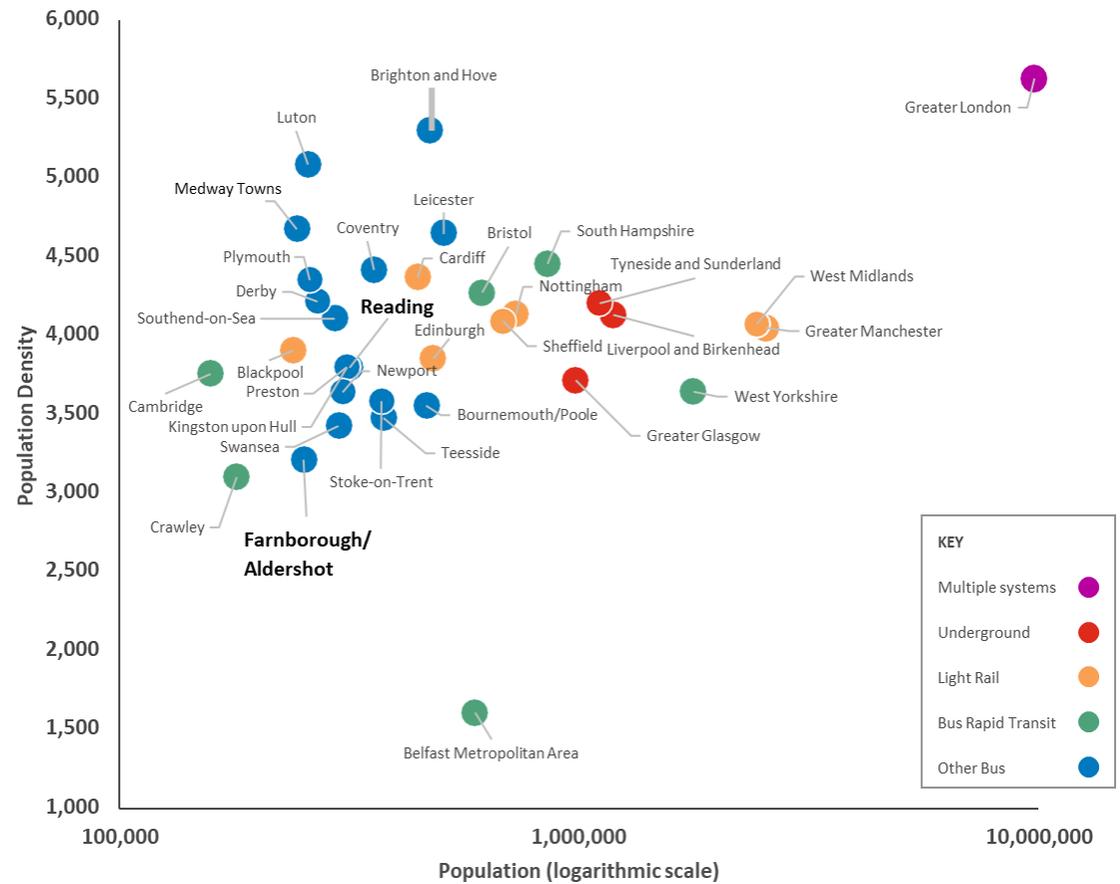
The Wessex Thames area is home to several urban conurbations with a population of over 100,000 people, including Reading (257k), the Blackwater Valley (252k), Slough/Windsor (197k), Bracknell and Wokingham (138k), Maidenhead (129k) and Basingstoke (108k).

However, despite their size and density, public transport mode share is relatively low. Trips made by bus have fallen in the past decade in most hubs in the area. Reading acts as an exemplar of what is possible if authorities invest in Mass Rapid transit, with Reading developing segregated bus corridors and increasing frequencies to make bus competitive for local journeys. Many of the conurbations listed above are in proximity to one another. The distance between Wokingham and Sandhurst is only 7km, and Sandhurst to Farnborough is a further 7km.

Short distances between centres present an opportunity for bus based Mass Rapid Transit serving both intra-urban flows within the major economic hubs and inter-urban flows connecting adjacent hubs.

It is therefore a key goal of this study to enable Local Transport Authorities and partnerships in the area to deliver world class, mass transit and active travel systems in their largest urban areas.

Figure 2.1: Mass Transit options in Major Conurbations in the UK



Current Challenges and Opportunities

International Gateway Opportunities

Despite not being in the area, Southampton Port and Heathrow Airport are significant generators of demand for the transport network in this corridor and many areas are dependent on the activity in these International Gateways for employment.

Southampton Port is the 5th most significant UK port in terms of tonnage handled and is planning for significant growth (up to 1 million tones more per annum) between now and 2050.

Highways schemes, such as upgrades to relevant junctions along the M27, M3, A3 and A34, will unlock additional freight capacity on the roads and ensure reliable freight movements away from the port, increasing the competitiveness of the Solent Ports and supporting the ambition the wider Solent Freeport initiative which aims to continue expansion and support 26,000 new jobs in the area.

However, to meet national long-term decarbonisation targets, there is a need to ensure as much freight is transported onward via electrified rail freight.

There is a need to unlock additional rail freight paths on the South West Main Line, Basingstoke to Reading line and north through Oxford to allow freight to be reliably transported from Southampton Port to key freight hubs in the Midlands and new markets in the East and North East.

There are also opportunities to increase rail freight between Southampton Port and South West England and Wales by upgrading strategic sections of railway.

A key priority of this study is to support the growth of Southampton Port and unlock capacity on the rail network to accommodate a modal shift to rail.

Discussions are also underway to introduce new heavy rail links to London Heathrow as part of the Western and Southern Access to Heathrow Scheme, which will provide the Wessex Thames Area better access to one of the worlds busiest and well-connected airports.

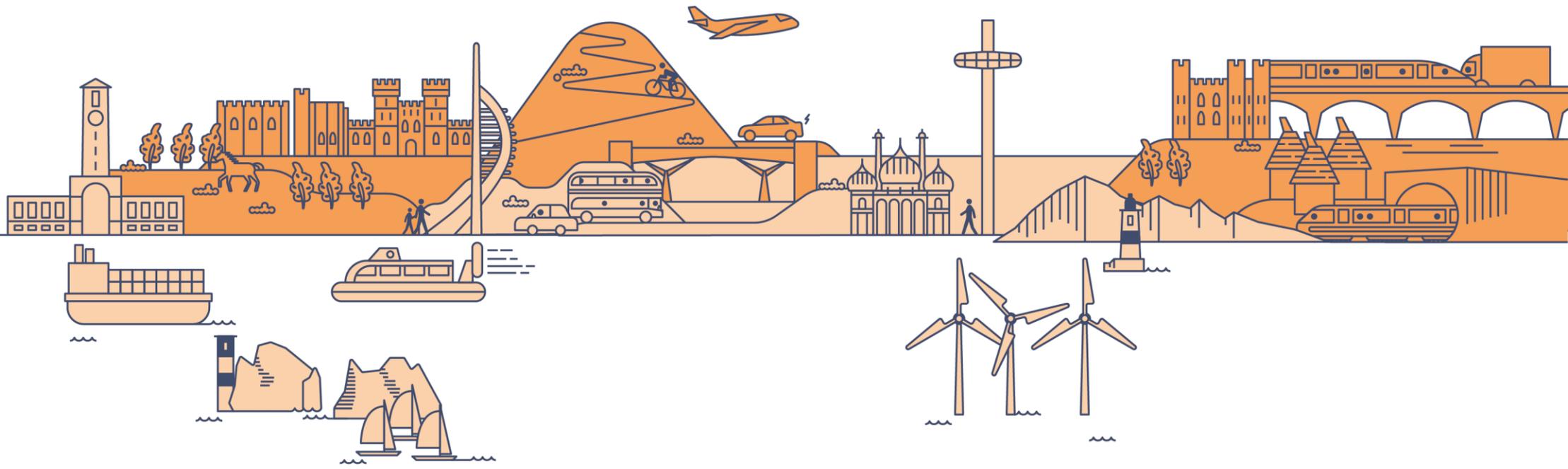
A key goal of this study is to enable sustainable access to Heathrow Airport and make the area attractive for international investment.

Highway Opportunities

Local Transport Authorities and Highways England are developing interventions to build on existing good connectivity along the M4, M3, A3, M4, A34 and M25 strategic highway corridors and support freight growth.

However, there are several congestion hotspots on strategic and major road network. Stakeholders in this area desired solutions which made the most of the existing infrastructure. This included providing resilience on strategic links and supporting freight. This also included re-envisaging the role of A roads on the approach to Major Economic Hubs, implementing multi-modal solutions where possible to deliver a better strategic highway between Major Economic Hubs.

Key stakeholders in this area wish to see long term multi modal solutions that utilise the existing strategic highway network, embrace new mobility innovations and strengthen connectivity with international gateways.



Part 2b

Problem Statements

Problem Statements

Global issues

1. Transport is not decarbonising fast enough
2. Climate change threatens the resilience of transport networks
3. Housing affordability presents a barrier to achieving social equity objectives
4. There is a need for better coordination between land-use and transport planning
5. Demand for public transport has been negatively affected by COVID-19

Rail

6. Orbital rail journey times are slow
7. Rail capacity allocation prioritises radial journeys over orbital trips
8. Level crossings on orbital railway lines reduce the capability of the service provided
9. Rail connectivity to Heathrow and other nationally significant destinations is poor
10. Portsmouth to London by rail is slower than most radial services in the wider South East area
11. The Inner South West Mainline between Woking and London is particularly capacity constrained
12. There are opportunities to improve rail connectivity between major economic hubs
13. Infrastructure constraints in the area are a barrier to more freight being carried by rail

Urban and intra-urban transport

14. Urban highway congestion is a problem in several major economic hubs
15. The current transport network does not adequately provide for strategic local trips
16. In many areas, bus services do not provide a competitive sustainable alternative to cars
17. The benefits of Park and Ride infrastructure in the area could be better optimized
18. Cycling accounts for a small proportion of small proportion of local utility trips

Highways

19. The M25 South West Quadrant is at capacity

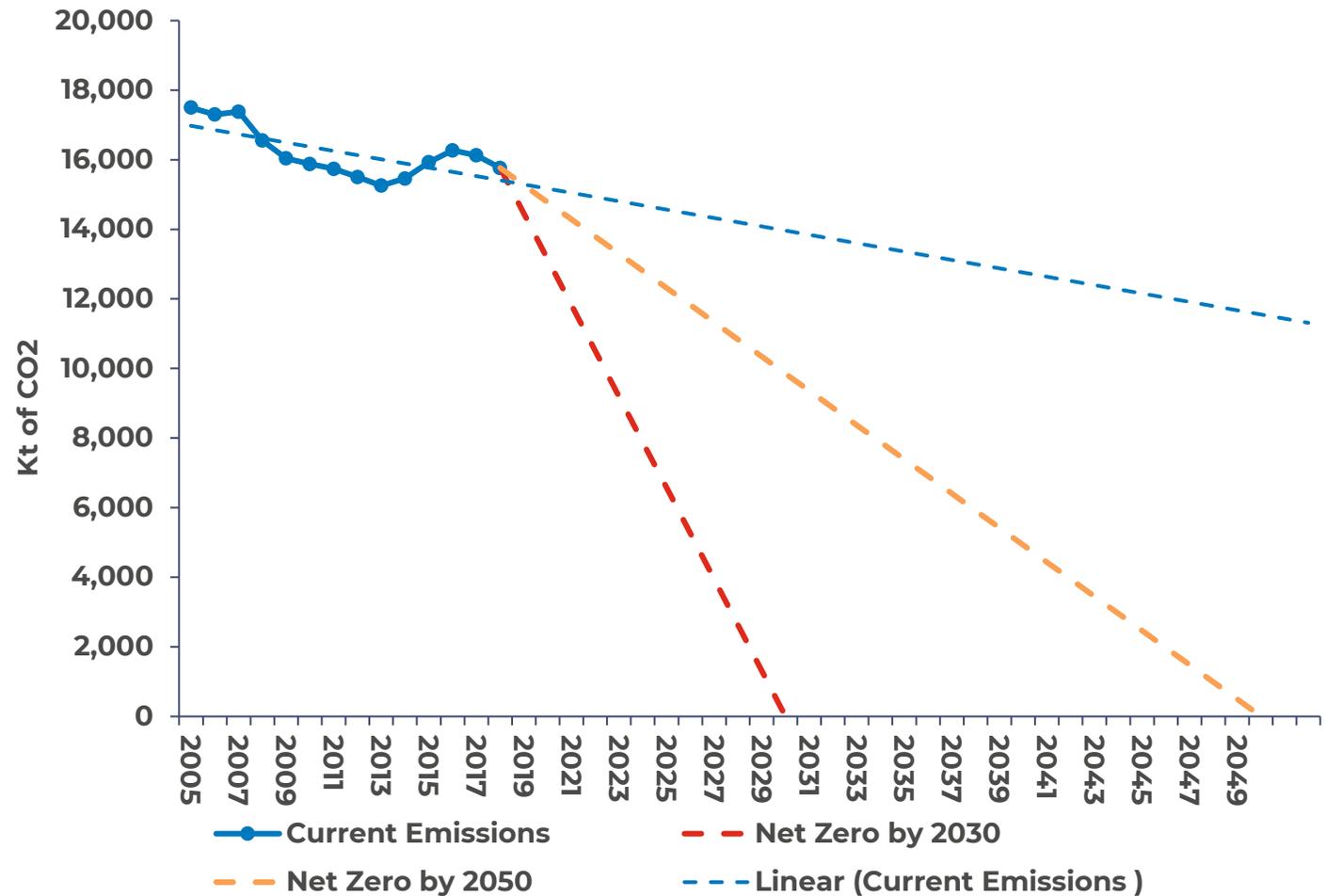
1 Transport is not de-carbonising fast enough

While key stakeholders in the Wessex Thames area recognise the need to decarbonise their transport systems, this is not happening fast enough.

The trajectory shown in **Figure 2.2** to the right indicates, the South East will not reach a position of net-zero carbon emissions by transport by 2050.

Electric vehicle uptake is low and there are some areas with very poor access to charging points. A step change in the electrification of highway transport, reduction in levels of trip-making activity, and modal shift away from fossil fuel transport to electric/healthy transport is needed if the area is to reach its climate commitments.

Figure 2.2: Carbon Emissions Trajectory for the South East Area



Source: Steer analysis

2 Climate change threatens the resilience of the transport network

The transport networks serving the area are vulnerable to the effects of climate change and in many areas are showing signs of poor resilience (see examples in Figure 2.3).

The South East's railway network is relatively old and features numerous tunnels and cuttings. There have been several incidents of flooding and landslides closing key road and rail links in the region in recent years. Climate change is likely to increase the frequency and strength of weather events, and this risks undermining the resilience of the transport network.

The South East is already seeing the damaging impacts of climate change, with the region expected to warm more rapidly than the rest of the UK over the next 50 years, we need to implement maintenance measures as well as specifying infrastructure requirements to ensure future resilience of the transport network.

Figure 2.3: Extreme Weather Events in the South East

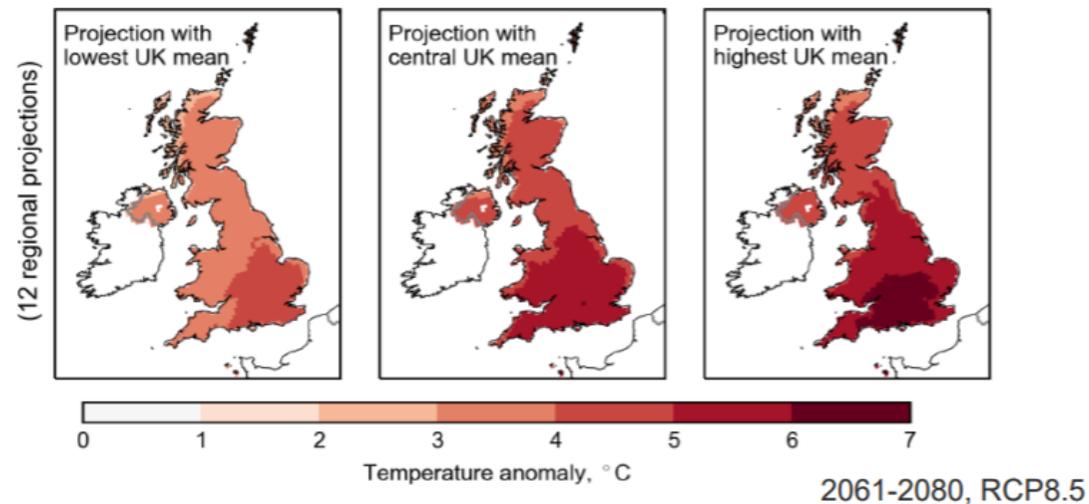
Electric power lines overheating between London and Gatwick



Flooding of the M23 preventing access to Gatwick Airport



Projected Mean Temperature Increase in the UK



3 Housing affordability presents a barrier to achieving social equity objectives

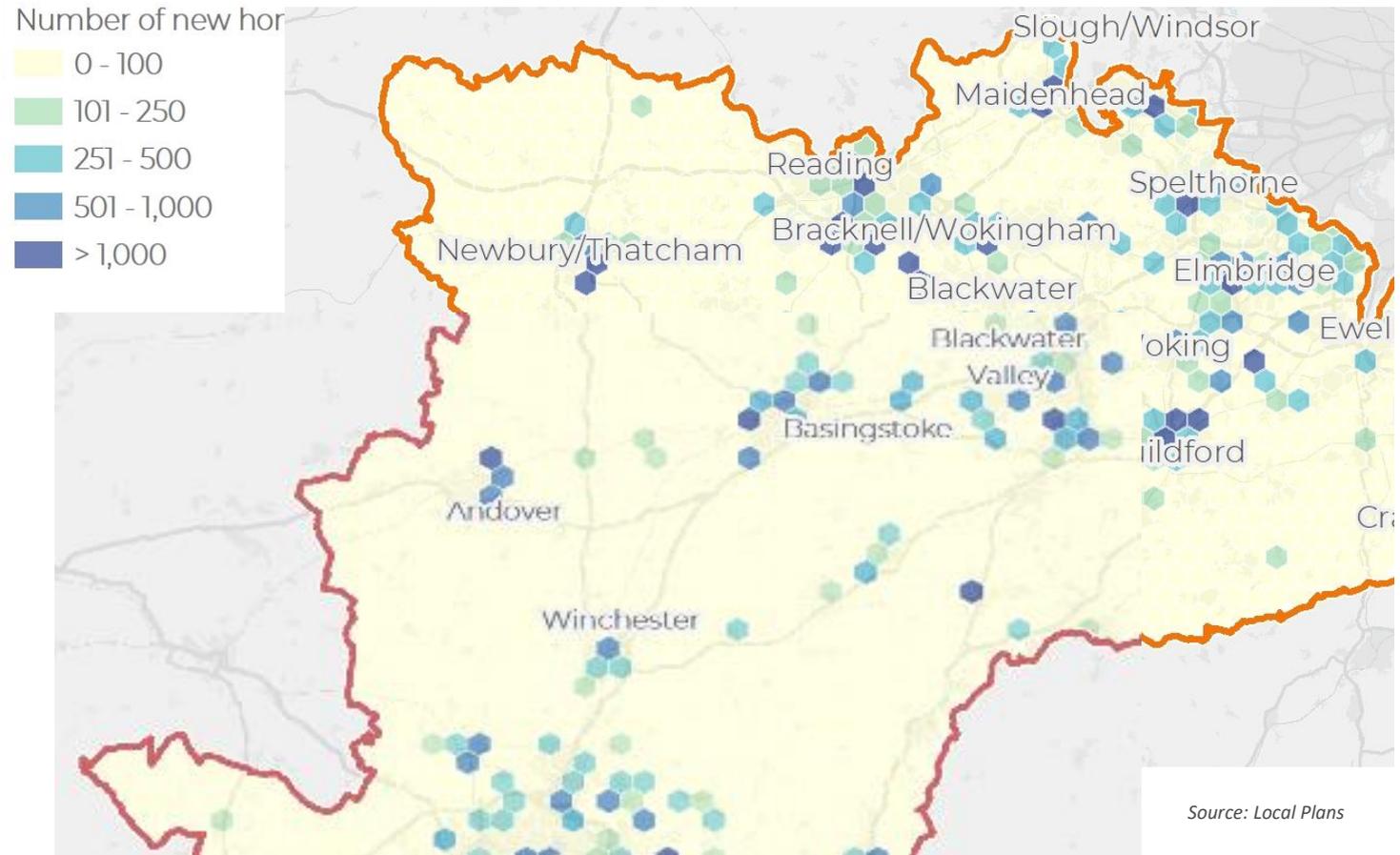
There is a recognised need for housing in the area – and for housing to be in the right places, supported by the right infrastructure, and planned to deliver sustainable travel outcomes.

The fragmented nature of the planning system and lack of effective strategic planning makes it difficult to integrate spatial, transport, and economic planning. The area is also heavily constrained by the landscape and layout of urban areas.

Many of the Major Economic Hubs across the area have high levels of population and employment growth planned in the area (See housing forecasts in **Figure 2.4**). Recent discussions with Local Authorities suggest this figure may grow.

There is risk that housing growth will result in unsustainable transport patterns as many housing developments are being delivered, some distance away from shops, town/city centres, commercial services, public services, employment sites, and transport hubs.

Figure 2.4: Planned Housing Developments and the current Housing Affordability Ratio



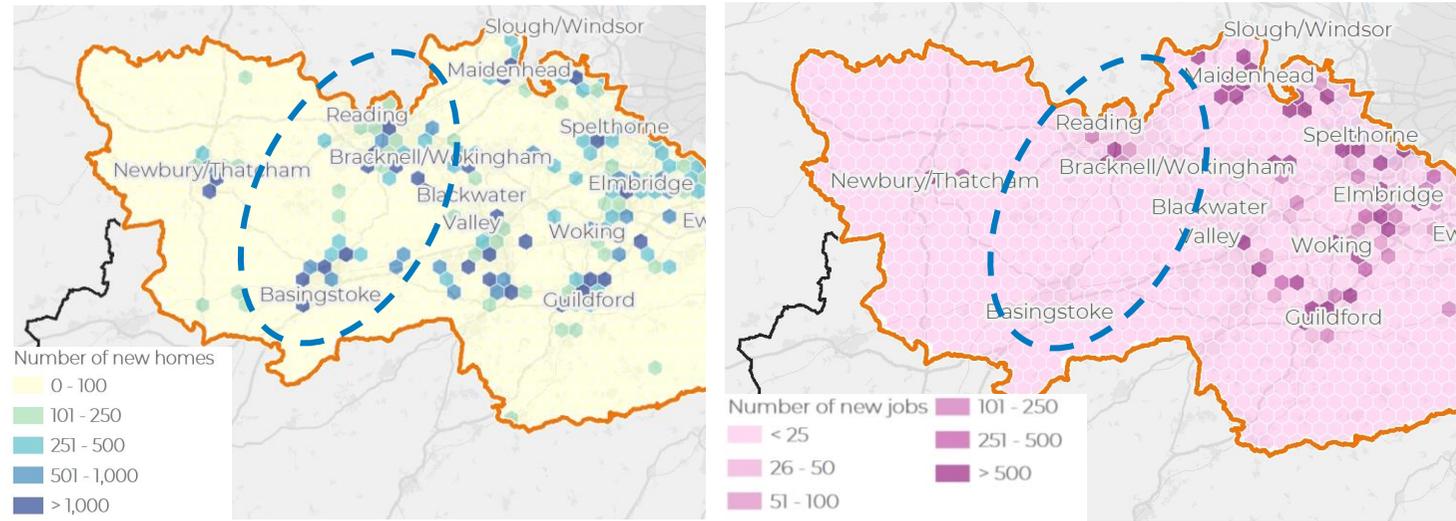
Analysis of travel to work trips between major economic hubs, particularly in Berkshire and Surrey has shown that there is a need to encourage the use of sustainable modes for strategic local trips. This will reduce congestion on strategic roads connecting urban centres and within urban centres.

There is a disparity in the future planned growth in residential versus employment areas in this corridor (see **Figure 2.5**).

For example, there is significant housing development growth planned along the Basingstoke to Reading corridor, whereas there are few new employment sites planned. There is a risk that this imbalance means residents in this area will need to travel further to access employment. It is expected that this would further constrain the local transport network between these two locations.

Stakeholders have identified the need for spatial planning and transport planning to be more aligned in approach and more directed towards decarbonisation and social equity goals.

Figure 2.5: Planned housing and employment growth based on local plans up to 2050



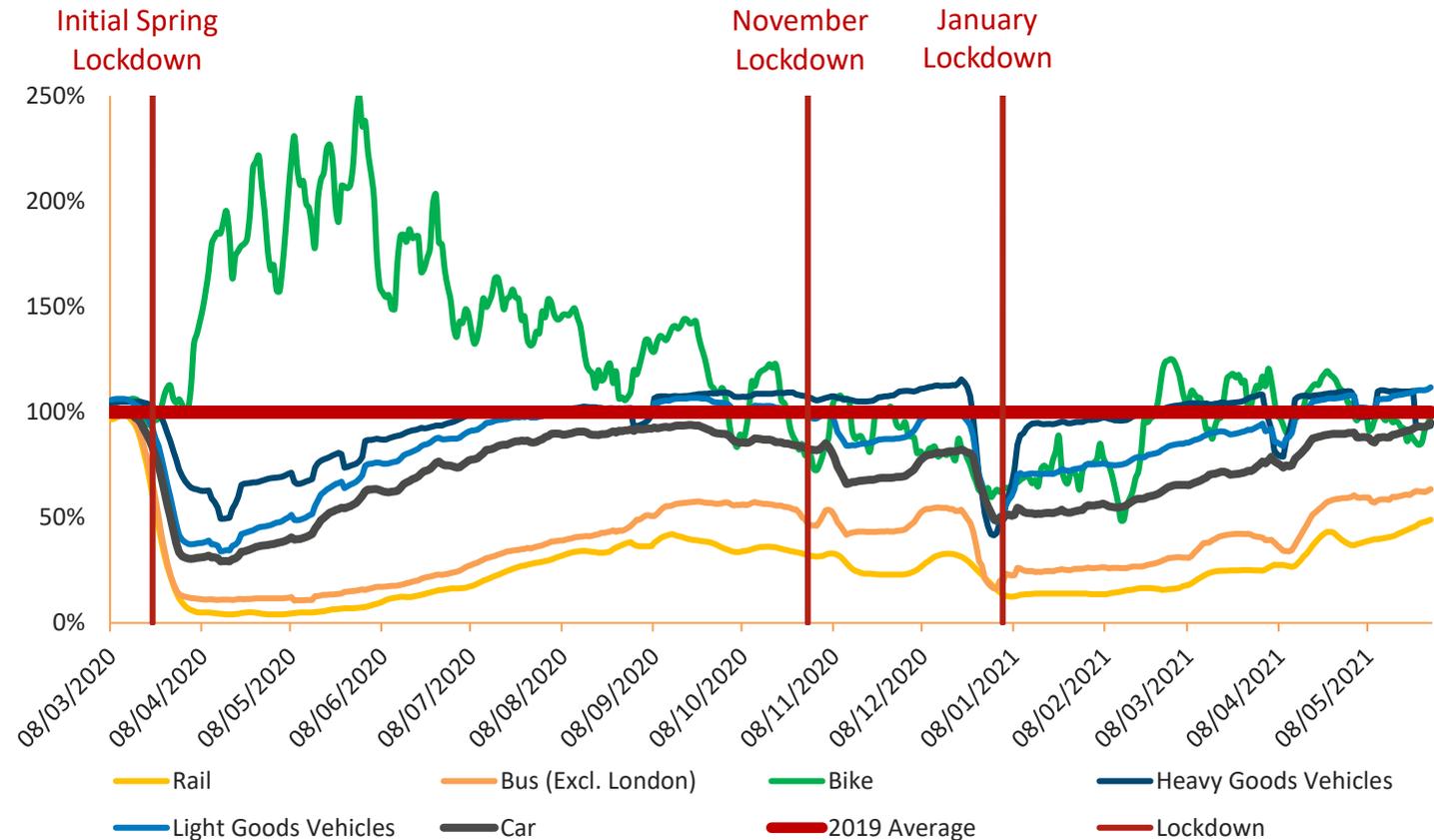
Source: Local Planning Growth Data

Public transport patronage has dropped significantly due to COVID-19, causing some operators to cut services and increase fares.

The transport behavioural changes as a result of COVID-19 has increased private car usage, to the detriment of public transport (see **Figure 2.6**). There is a risk that if proactive interventions are not made to preserve service quality, these changes may have a long-term legacy impact upon public transport planning and patronage.

However, COVID-19 also presents an opportunity to rethink spatial planning in the area. For example, more space can be created for active transport. This crisis represents a moment when there are positive behavioural shifts which should be capitalized upon.

Figure 2.6: National demand for transport in the past year by mode



6 Orbital rail journey times are slow

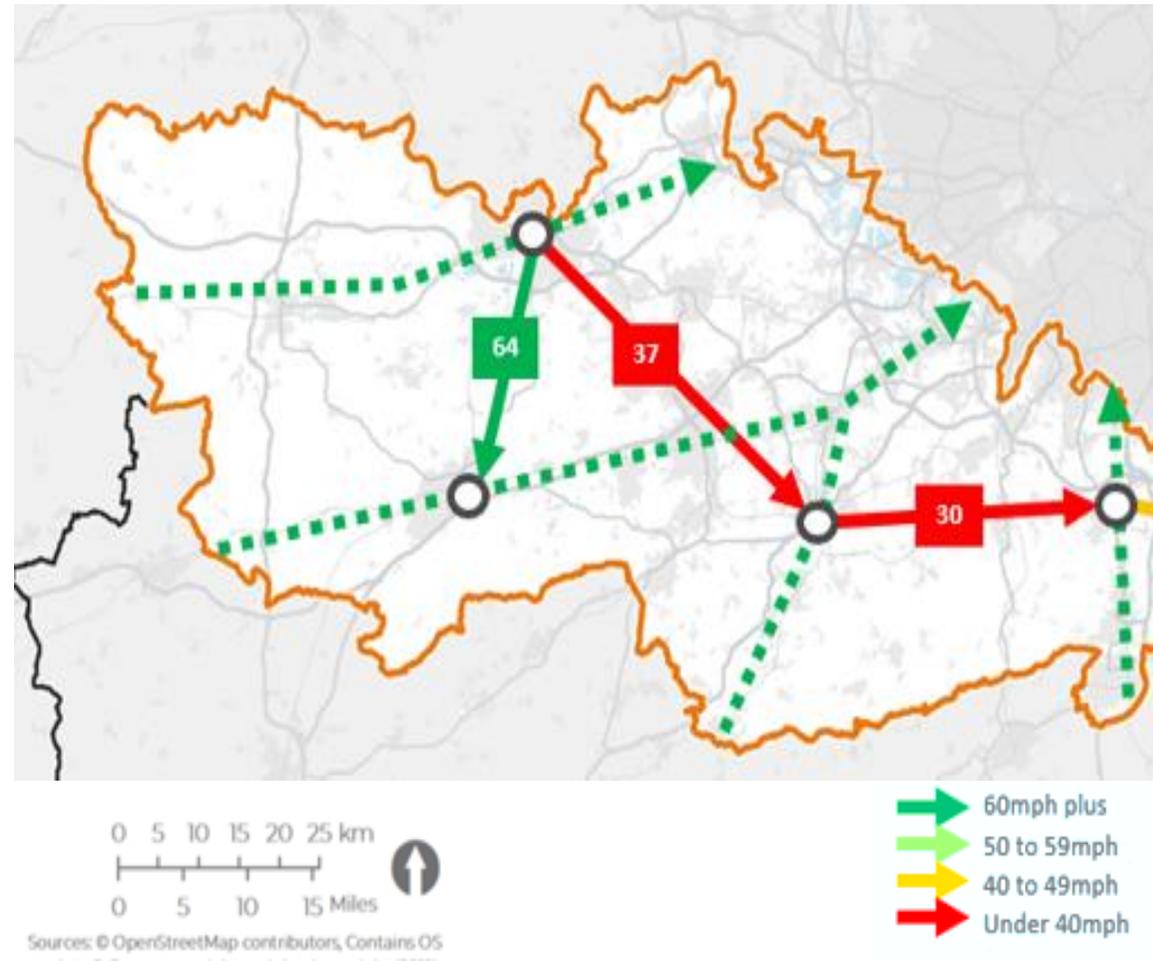
Journey speeds along orbital rail lines are slow when compared to the intersecting radial lines (see Figure 2.7).

Additionally, some stations along the rail arc are under-served, such as Farnborough North only receiving one train per hour in each direction.

Journey times between strategic orbital pairs are slow due to services typically providing both a local and regional service by stopping at several intermediate stops. However, the demand along these corridors cannot justify separate faster services akin to those typically on radial corridors to London.

The need to interchange also makes rail a poor option for many trips.

Figure 2.7: Line speeds of the typical fastest service between major economic hubs

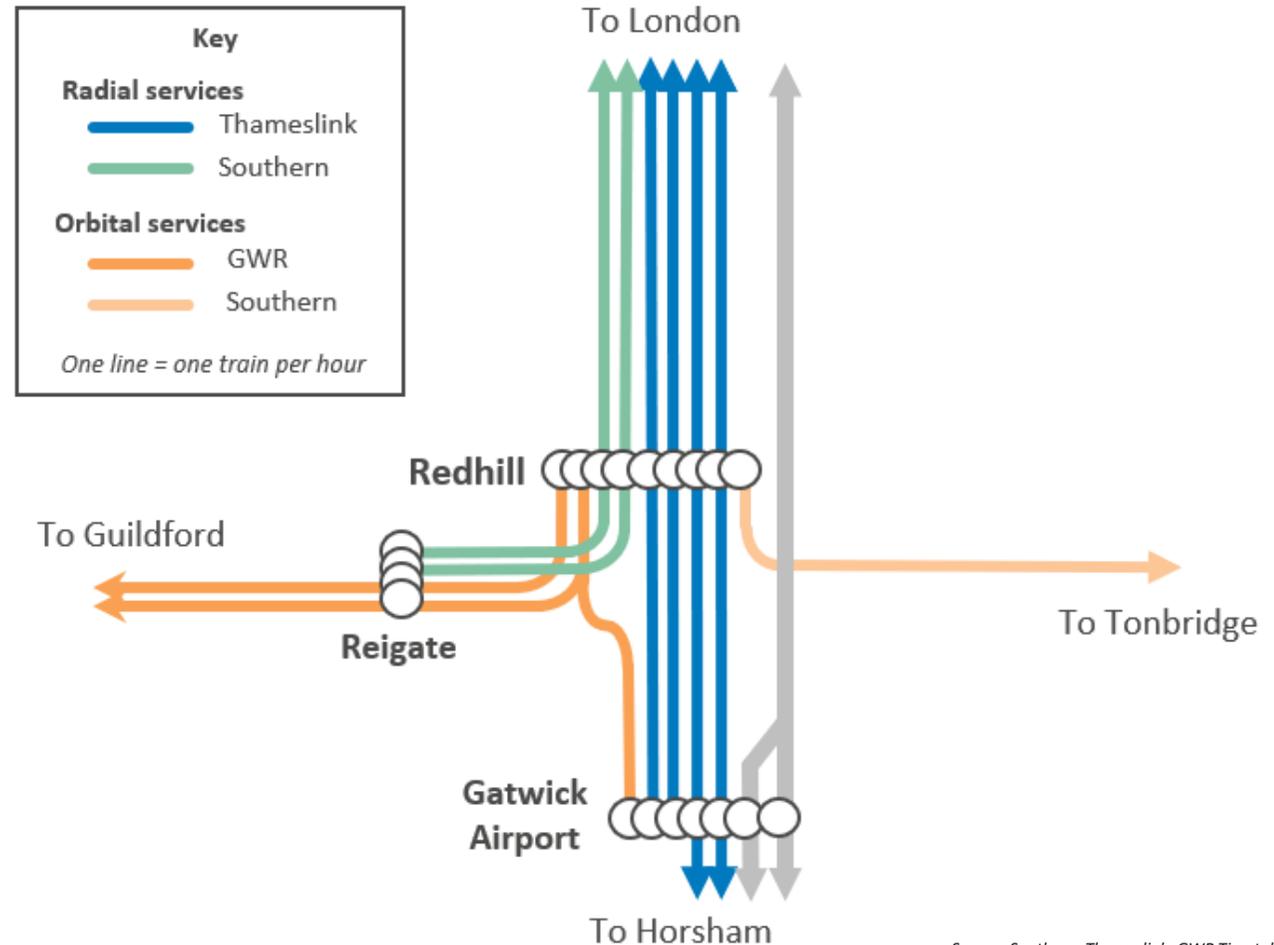


Orbital rail services are often an afterthought, with radial connectivity to London prioritised at key interchanges such as Redhill and Guildford.

Figure 2.8 illustrates the number of radial services operating on the Brighton Main Line between London and Gatwick Airport which call at Redhill. Discounting fast services which do not stop at Redhill, there are typically six trains per hour between Redhill and London and five trains an hour southbound to Gatwick. In comparison, there are only two trains per hour towards Guildford and only a one train per hour shuttle service operating on the Redhill to Tonbridge line. For services that are available, journey times are typically not competitive with private car.

In recent years, several train paths that used to support orbital and cross-country services (most notably from Portsmouth/Brighton to Reading/Midlands/North via the Wessex Thames area) have been reassigned to radial services. This means the Wessex Thames area and the rest of the South East is less well connected to the rest of the country than it used to be, which undermines the competitiveness of the railway and encourages longer distance travelers to drive instead.

Figure 2.8: Orbital vs Radial Railway services calling at Redhill



Source: Southern, Thameslink, GWR Timetables (2020)

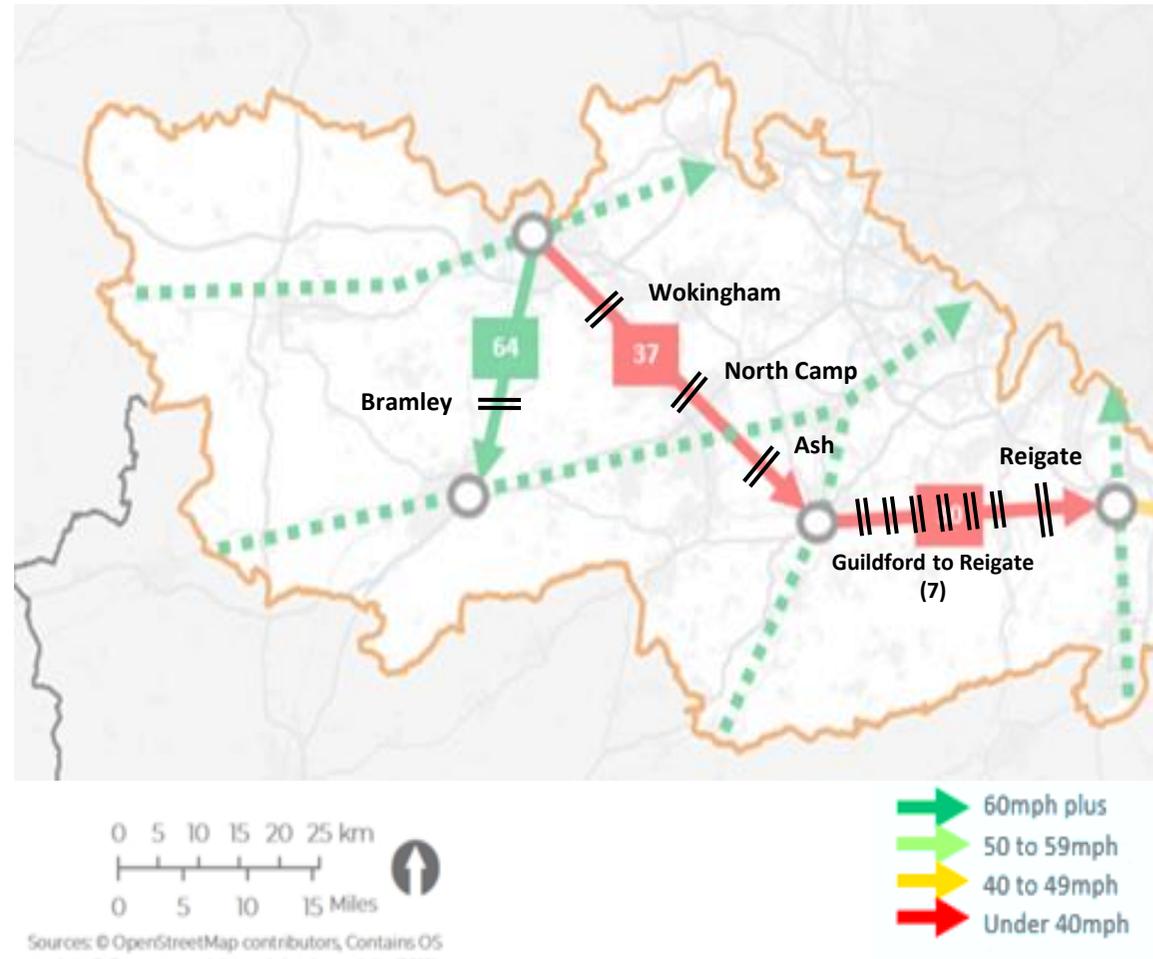
It would seem the orbital railway lines have spare capacity, with only a few local trains per hour utilising the infrastructure, however several constraints exist which limit the ability to run more services, most notably level crossings and constraints at key interchange stations such as Guildford and Redhill (see Figure 2.9).

There are also alignment issues in some sections, which influence the theoretical speed of services along this corridor.

Level crossings present significant safety risks for all users along this corridor. There are examples of urban and rural level crossings, most notably in the town of Reigate, which have significant highway impacts on the local area, with the A217 regularly experience queuing causing congestion at Junction 8 of the M25.

There is an opportunity to realign the highway at Reigate to enable removal of the level crossing, however, affordability currently presents a barrier to further scheme development. Closure of level crossings can also cause severance where no alternative routes are provided.

Figure 2.9: Location of level Crossings along the primary Wessex Thames Rail Arc



There is no direct connection between the **Great Western Main Line** or **South Western Main Line** and **Heathrow** (see **Figure 2.10**).

Two schemes have been proposed to overcome this connectivity gap, the **Western Rail Air Link** and **Southern Rail Access to Heathrow**.

The schemes can play a dual role: enabling access to the airport for employees and travellers who are relatively closely located to the airport, living in places such as Reading and Woking as well as those from the wider South East, parts of England's Economic Heartland and towards Bristol and the South West.

They can also unlock the potential for Heathrow to become a railway hub. However, both proposed schemes were first envisaged over a decade ago and are still facing barriers which include getting access to funding from HM Treasury / Department for Transport and local stakeholder opposition.

Additionally, connectivity to other regions of Great Britain by sustainable modes is poor. There are slow and infrequent rail services between the area and the Midlands and South West.

Figure 2.10: Gaps in rail connectivity to Heathrow



Source: Open Street Map (2021)

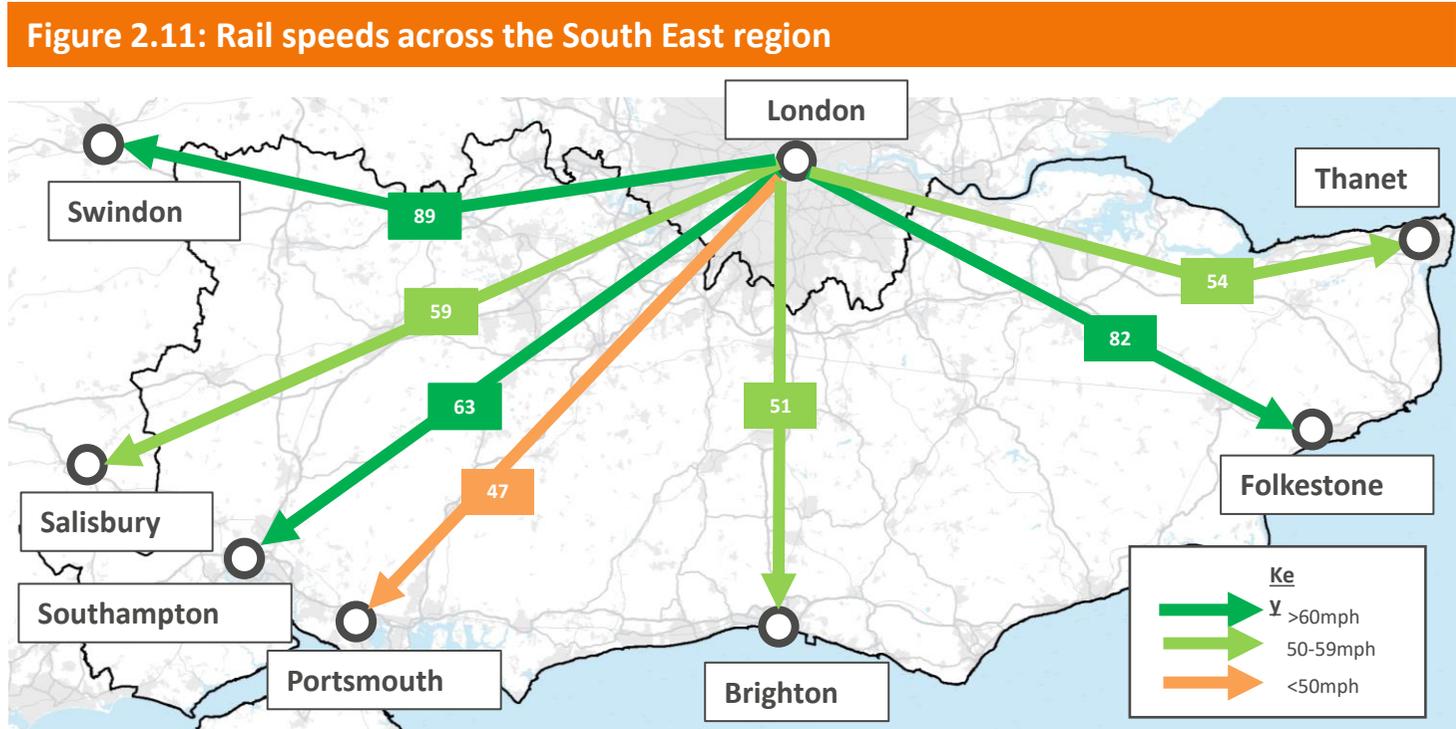
10 Portsmouth to London by rail is slower than most radial rail services in the South East area

Portsmouth to London is significantly slower than other radial routes in the South East.

The differences in rail speeds for Portsmouth is especially stark when compared to the much faster speeds of other routes, in particular Southampton (see **Figure 2.11**). Travel time from London to Portsmouth is slower than it was in the early 2000's with a number of stops being added along the route increasing the journey time to London.

It routes through the Surrey Hills and goes through steep gradient changes and so achieving faster journey times is challenging. In order to achieve faster journey times, local stops would need to be removed from the route. It is a two-track route and so there are limited chances for overtaking if a fast service with fewer stops is introduced.

As well as increasing social and economic interaction with between Portsmouth and London, faster journey times could stimulate increased tourism on the Isle of Wight if the train times were well integrated with the Portsmouth to Ryde ferries.



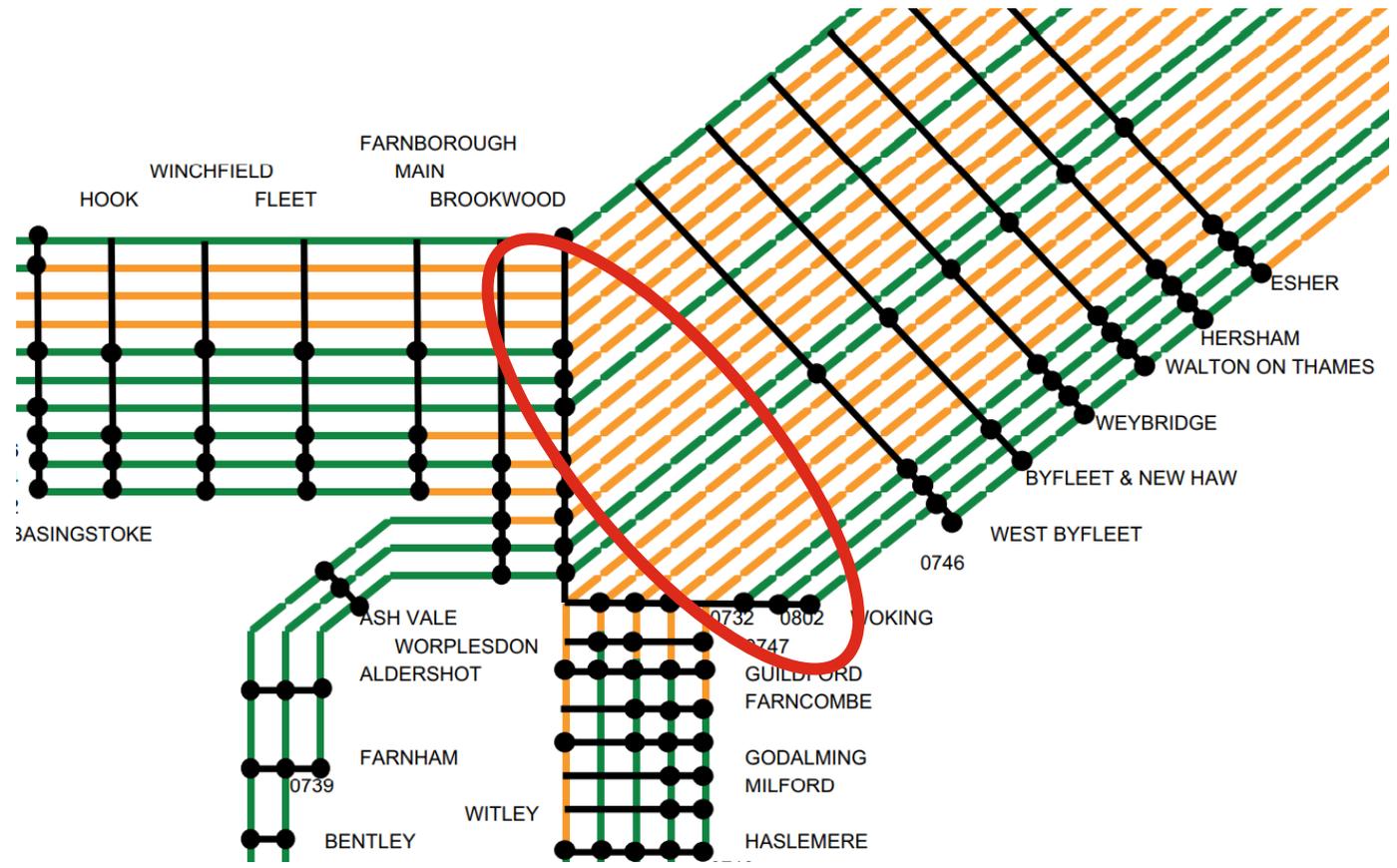
The Inner South West Mainline between Woking and London is capacity constrained

Services from Woking to London are capacity constrained.

Woking Junction, where the Portsmouth Direct Line meets the South West Main Line, is one of the most utilised at-grade junctions in the country. The current configuration means that trains travelling from Portsmouth or Guildford and heading towards London have to cross the South Western Main Line tracks prior to entering Woking station (see **Figure 2.12**). A grade separation has been proposed to remove this complication several times, however the local constraints and the high capital costs have, to date been a barrier to work the scheme progressing.

Grade separation provides some relief at Woking, but there are also other constraints on the approach to London Waterloo which need to reduce the resilience and reliability of the services, most notably near Clapham Junction. With uncertainty around the extent to which peak demand on the South West Mainline will return to the levels seen before Covid-19, there may be an opportunity for a timetable simplification and service pattern changes aimed at improving journey time reliability through incremental and appropriate capacity reduction.

Figure 2.12: Woking Typical Service Pattern



Service Map from 2013-14 Timetable (Note, the service level remains similar today)
 Source: Network Rail, Wessex Route Study, <https://www.networkrail.co.uk/wp-content/uploads/2016/11/Wessex-Route-Study-Final-210815-1-1.pdf>

— Passengers standing for greater than 20 minutes into London Waterloo
 — Passenger loads within funder's guidelines

There are opportunities to improve rail connectivity between major economic hubs

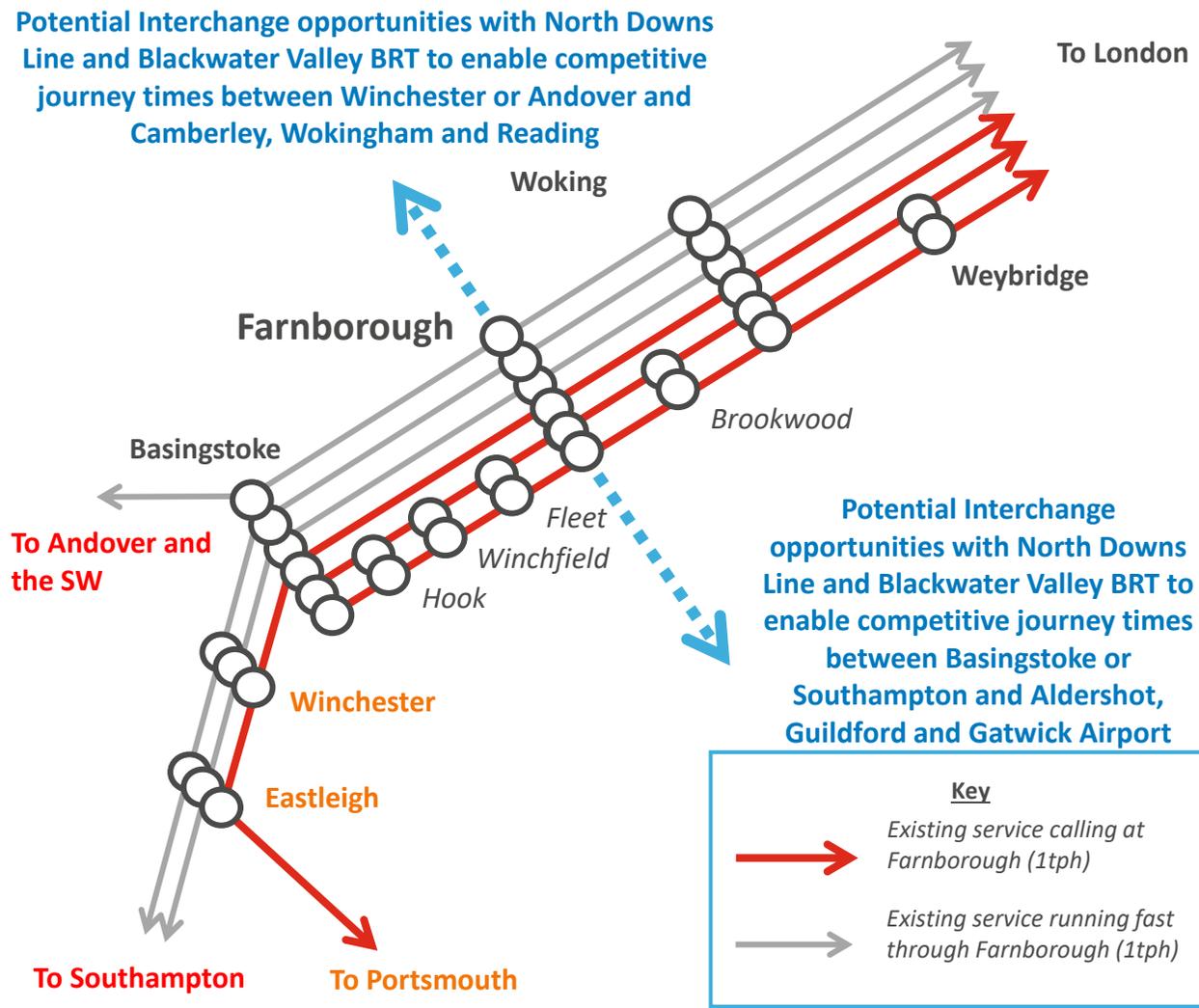
Rail journeys between intermediate major economic hubs along the South West Mainline do not offer competitive journey times compared to the car.

Major Economic Hubs along on the same radial corridor, such as Woking, Farnborough, Basingstoke and Winchester, often have infrequent services between them (see **Figure 2.13**). This is primarily due to the focus of existing services along the South West Mainline past Woking being on delivering faster journey times between Southampton and London.

With planned growth in housing and employment along the corridor, changing working patterns and a reduced reliance on London commuting, there may be a stronger appetite for more local services.

A Strategic Mobility Hub is proposed at Farnborough facilitating interchange between the South West Mainline and North Downs line as well as onward bus and highway connectivity in the Blackwater Valley. This opens up new options for connectivity to Wokingham, Guildford and Gatwick Airport from stations on the South West Mainline which could stimulate more rail demand for these intermediate flows.

Figure 2.13: Destinations served by Farnborough Main Railway Station



13 Infrastructure constraints in the area are a barrier to more freight being carried by rail

Freight is very reliant on highways and the infrastructure is not currently in place to enable rail freight to be competitive.

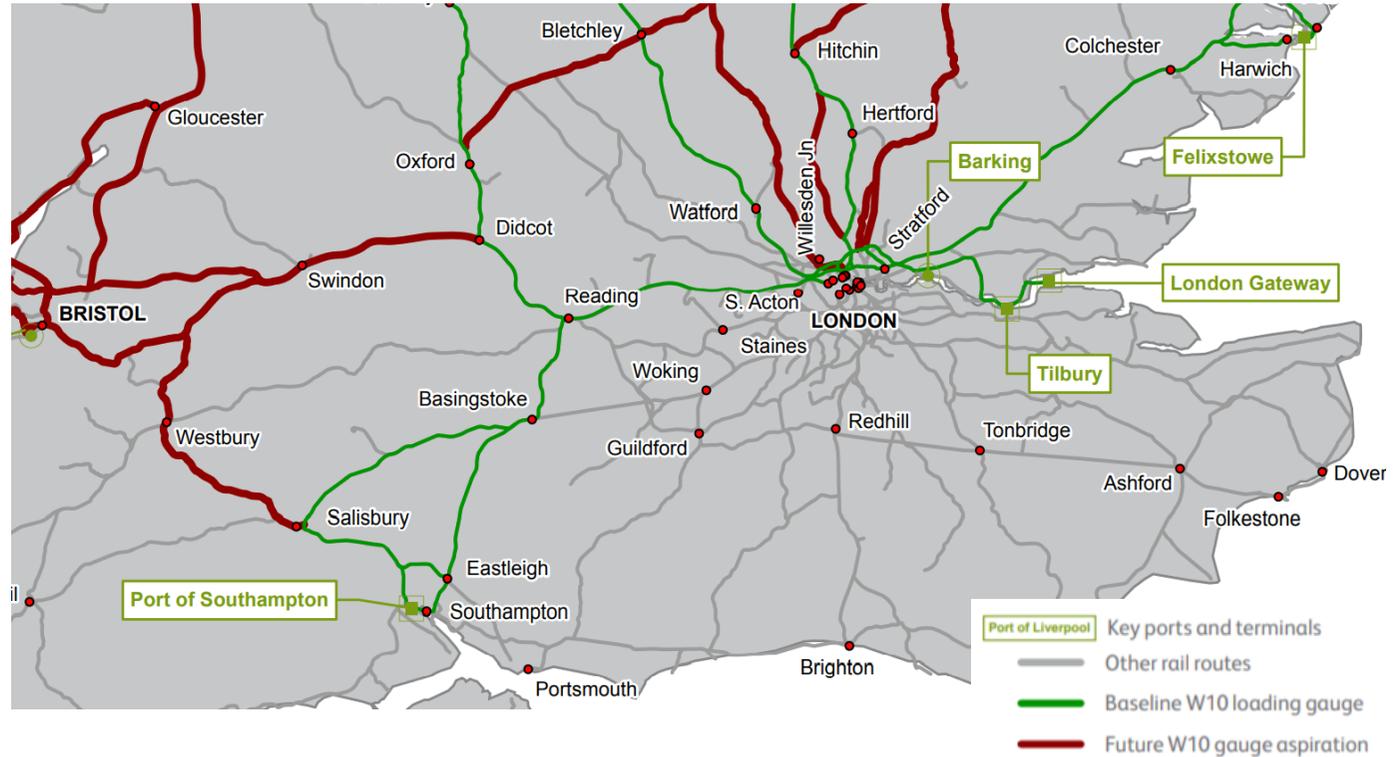
Orbital routes are not currently suitable for significant rail freight volumes, with gauging and load restrictions preventing freight trains from using the existing rail infrastructure present between the Channel Ports and the rest of the country. Inadequate gauge clearance also affects rail routes serving Dover.

Rail freight mode share is low nationally (around 5%, based on tonnage). Freight train movements on the national network has fallen by 50% since 2004, although this is predominantly due to lower coal traffic. Intermodal and construction freight traffic on rail has increased in recent years.

There are no easy options for decarbonising the road haulage fleet. Moreover, reducing its impact on air quality, particularly as it relies so heavily on diesel combustion, is of paramount importance.

Furthermore, there are significant other barriers to rail freight in the South East including a lack of freight terminals, no available routes across London, and high access charges on High Speed 1 and the Channel Tunnel (see **Figure 2.14**).

Figure 2.14: Rail Network Gauges



Map source: Network Rail, freight Network Study, <https://www.networkrail.co.uk/wp-content/uploads/2017/04/Freight-Network-Study-April-2017.pdf>
Freight statistics source: <https://dataportal.orr.gov.uk/media/1738/freight-rail-usage-performance-2019-20-q4.pdf>

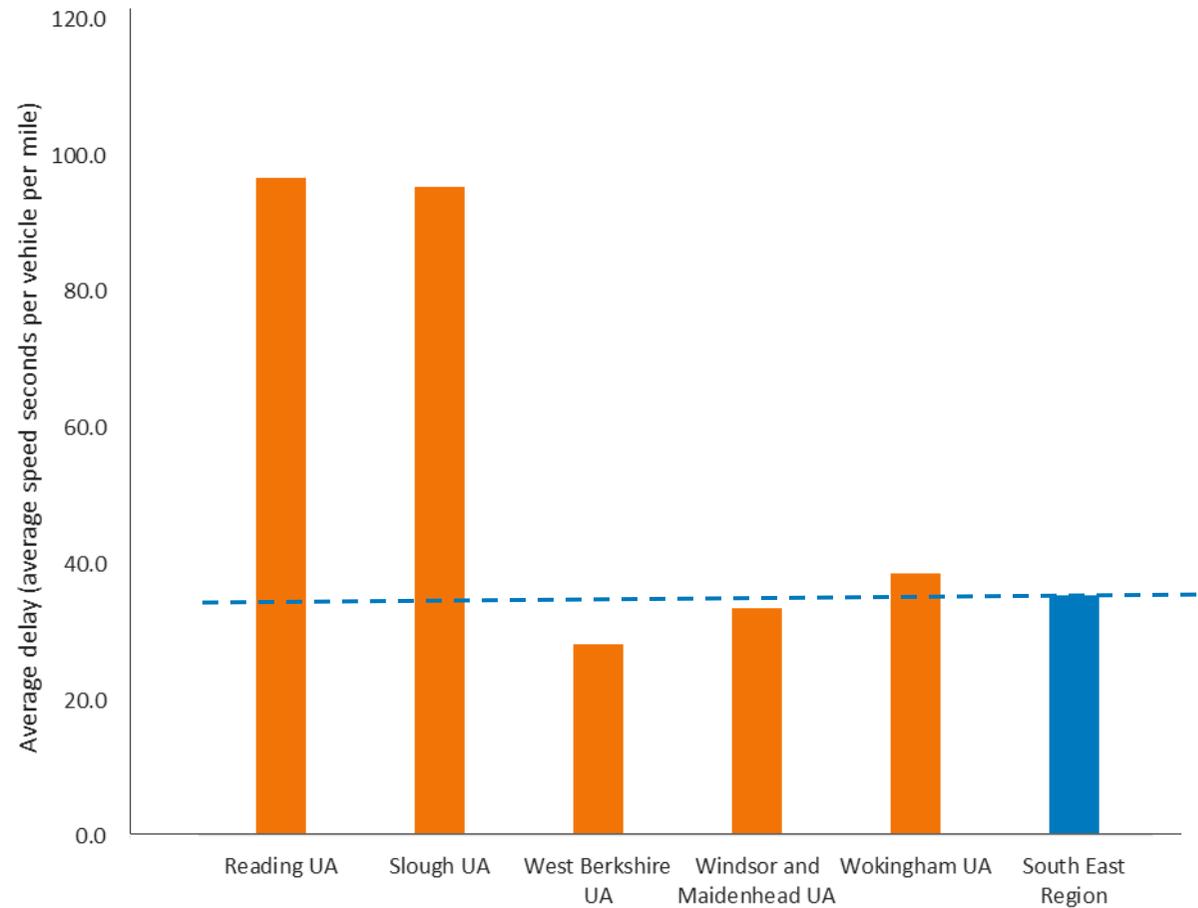
14 Urban highway congestion is a problem in several major economic hubs

Many stakeholders across the corridor have raised the fact that commercial and residential growth in regional centres has not been accompanied by the necessary improvements in public transport.

Figure 2.15 shows that in 2019, road users in Reading and Slough experienced the highest average delay. In these towns we see many instances of local roads serving both strategic and local function which results in these severe congestion levels.

Not only does regular congestion cause delay to users, it has negative consequences for local air quality, carbon emissions, road safety, causes severance and acts as a disincentive for people to use more sustainable modes. This problem is set to worsen as many major economic hubs continue to expand through new developments on the urban fringe. Some improvements have been made to this in recent years. Reading has reduced delays by 10% since 2015. In addition to strategic, targeted improvements in addressing highway bottlenecks in the area; the change is partly attributed to the increase in modal shift to bus during this time period, with bus patronage in Reading being among the highest in the South East.

Figure 2.15: Average delay experienced on locally managed A Roads by Unitary Authority



Source: DfT Road Congestion Statistics – Table CGN0502b (Jan-Dec 2019)

15 The current transport network does not adequately provide for strategic local trips

Within the corridor, there are a number of significant major economic hubs closely located to one another. However, in many instances, sustainable modes of transport are not competitive with private car use. Where rail does exist, it is slow and infrequent.

A Regional Gravity Model was developed which identified the key highway and rail connectivity gaps. Gaps exist where two areas of relatively large population are located relatively close together, but journey times between them are relatively poor. To the right the most significant highway “gaps” are shown (see **Figure 2.16**). In many cases these poor journey time exist because highway links between the major economic hubs are on slow, local roads. The rail connectivity improvements which could address these gaps are show (see **Figure 2.17**).

The North Downs Line carries local services between Reading and Guildford for residents travelling between the economic centres of Wokingham and the Blackwater Valley. It also carries more strategic, orbital services for users between Reading, Guildford and Gatwick Airport. Improvements on this line would improve sustainable connectivity between many major economic hubs in the area.

Figure 2.16: Most significant highway connectivity “gaps”

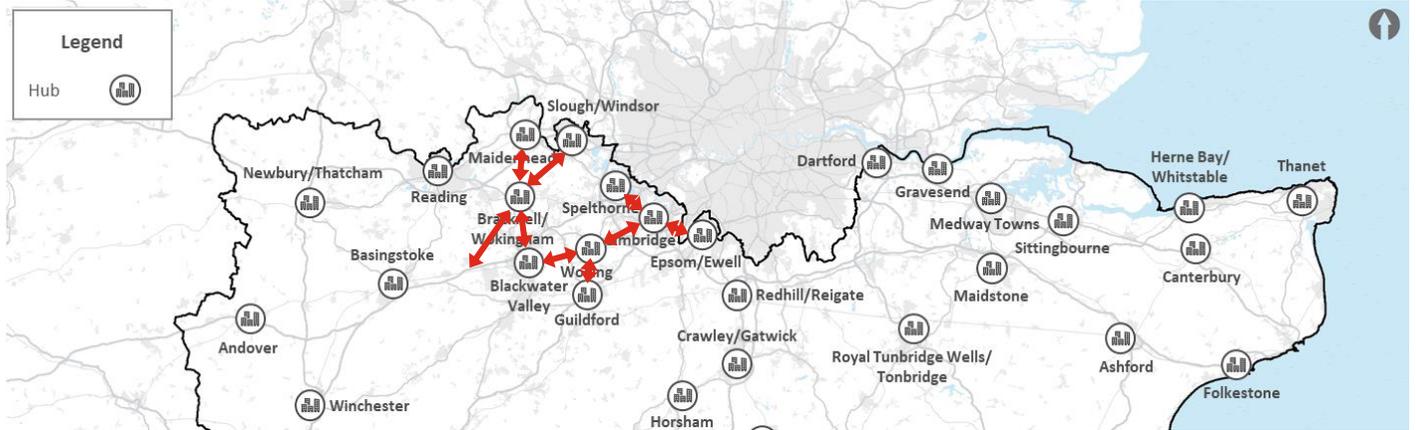


Figure 2.17: Rail connectivity “opportunities”



16 In many areas, bus services do not provide a competitive sustainable alternative to cars

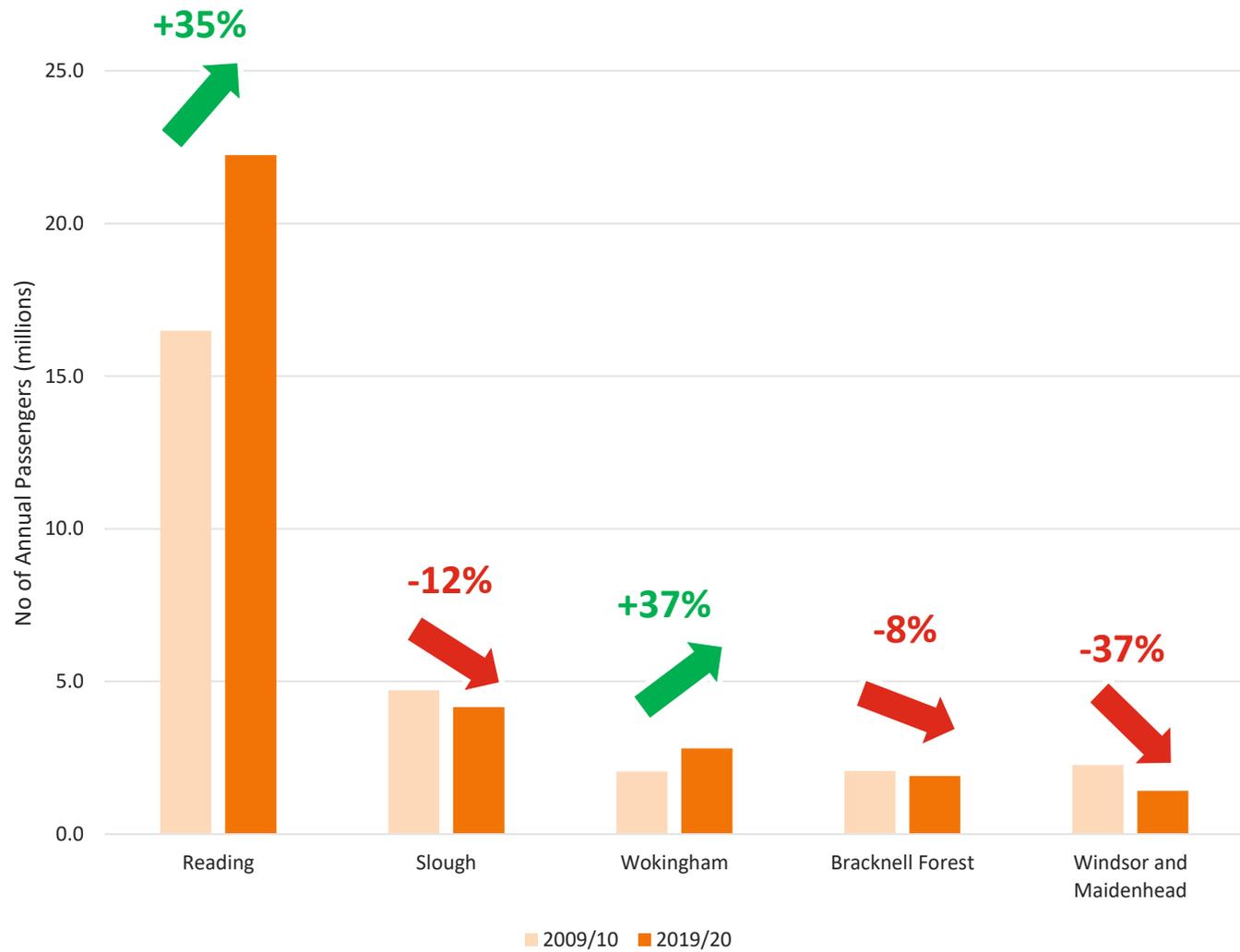
Even prior to COVID-19, bus patronage was falling in some areas (see Figure 2.18). Buses form a key component of an effective, sustainable transport network.

Bracknell, for example, has suffered from poor bus uptake in recent years, with local stakeholders citing the design of the town as a barrier to implementing commercially viable and effective bus services. Stakeholders highlight the need to challenge the negative perception of bus use and encourage behavioural shift of residents in Bracknell away from private car use.

There are a number of approaches which may encourage greater bus patronage. Demand Responsive Transport (DRT) is being trialled in towns across Kent in which scheduled bus services are not commercially viable, such as the Go2 DRT programme in Sevenoaks.

Following recent successes in implementing bus priority in Reading, there are opportunities for Bus Rapid Transit in other urban areas to provide journey times that are competitive with the car.

Figure 2.18: Annual local bus passengers in major Economic Hubs



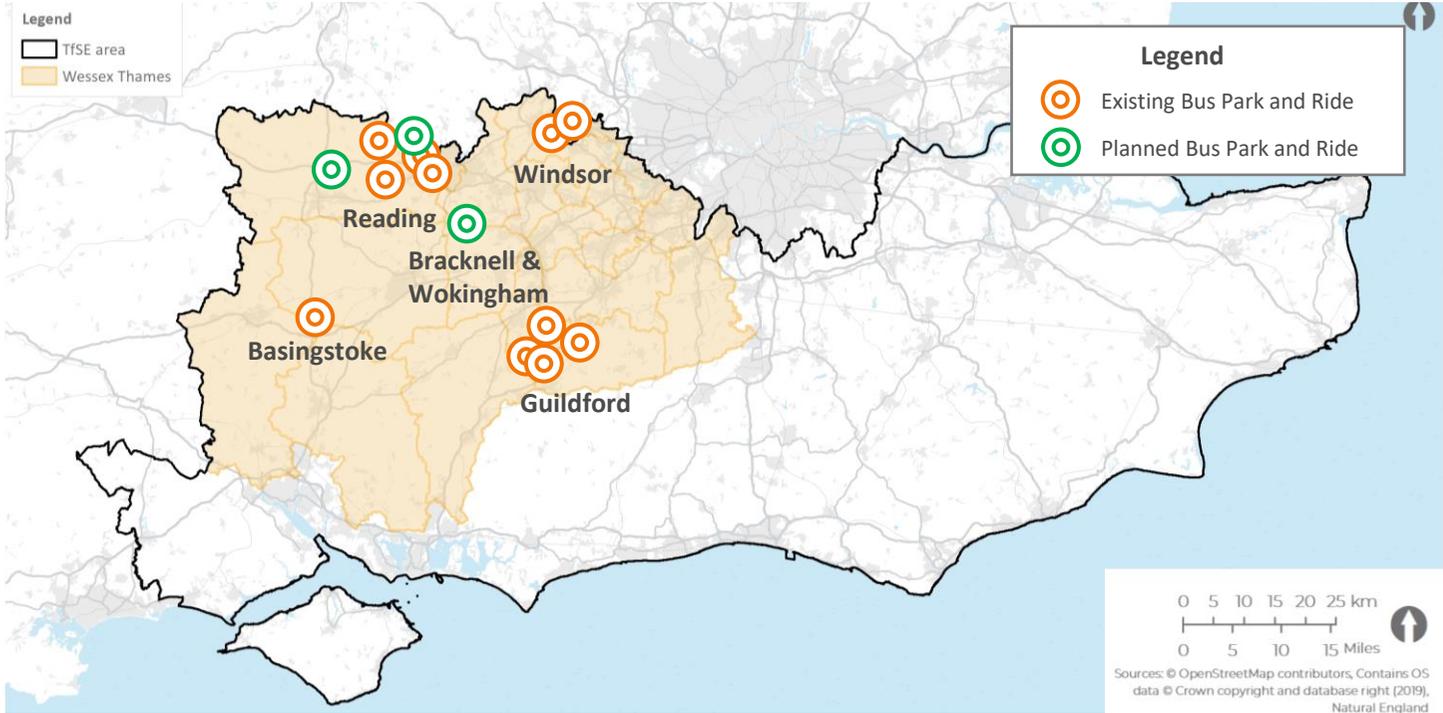
17 The benefits of Park and Ride infrastructure in the area could be better optimised

Many of the major economic hubs have bus Park and Ride infrastructure in place (see Figure 2.19). This presents an opportunity for the development of Strategic Mobility Hubs to provide a facility that enables interchange between transport modes as well as other services.

Strategic mobility hubs can offer easy access to strategic highways, railways, and local public transport services. Many existing hubs take the form of Park and Ride facilities, but the vision for these hubs is that they evolve to include freight interchange as well as offering a single site for the location of services such as “click and collect”, bikeshare hubs, car club vehicles, electric vehicle infrastructure, and local convenience shops.

Even with advances in rail freight, there would still a need for freight on highways to provide last-mile connectivity. Strategic mobility hubs can be a location for delivery consolidation centres from which freight can be carried the “last mile” to the town centre using sustainable and active modes.

Figure 2.19: Existing and Planned Bus Park and Ride sites



Source: Park and Ride.net and Google

18 Cycling accounts for a small proportion of local utility trips

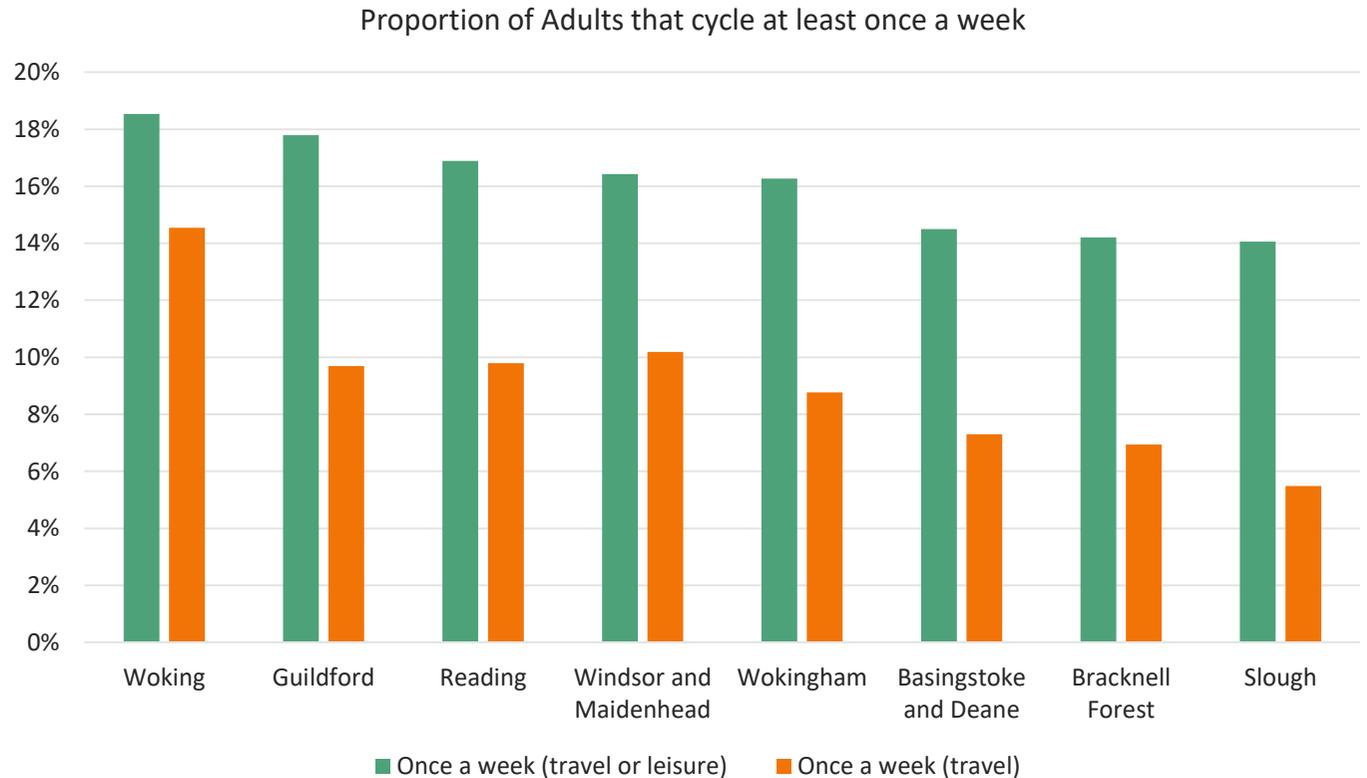
Despite cycling being a very efficient and sustainable transport method, in this area people tend to cycle for leisure, rather than for local utility trips (see Figure 2.20).

Many Local Transport Authorities on this corridor wants to see a step change in cycling participation in their areas, but the infrastructure is not available to support this ambition.

Furthermore, cycling infrastructure is seen as an enabler for new technologies such as electric bikes/scooters. A lack of adequate cycling infrastructure could be holding the region back from the opportunities these technologies offer. The propensity to commute by bike is correlative with a number of factors including topography, trip length and household income and this explains in part the variance between different parts of the Wessex Thames area. A key driver of cycling uptake however is the level of cycling infrastructure in place. Woking, for example, benefits from both NCN route 221 and 223 as well as having been a Cycle Demonstration Town.

Improved infrastructure or policy measures could encourage leisure users from other parts of the area to use their bike for local utility trips as well as leisure.

Figure 2.20: Proportion of adults that cycle at least once a week for travel and leisure



19 Key links of the Strategic and Major Road Network are at or will be at capacity

Even under projections for a future scenario with radical shifts to sustainable transport called *Sustainable Route to Growth*, critical parts of the highway network will continue to be at capacity including M25 South West Quadrant, M4 around Reading, and the M3 to the south and west of Guild, as well as orbital links between the M3 and M4 to the south west of the M25 segment (see Figure 2.21).

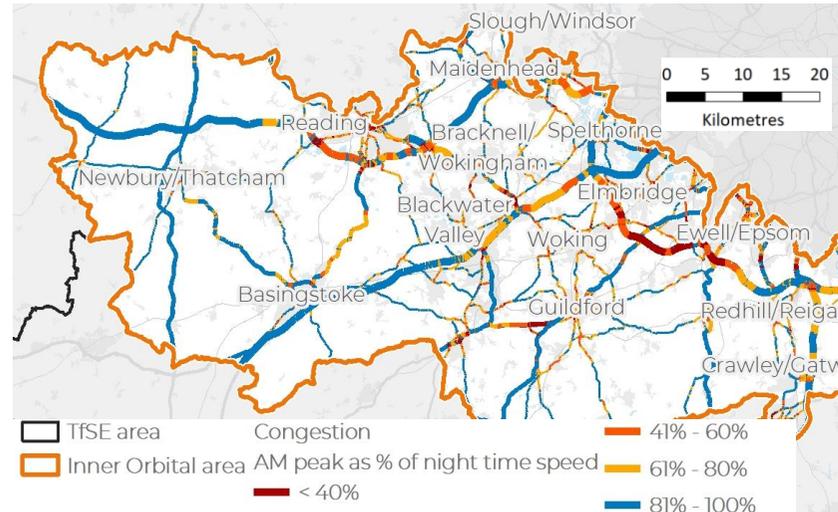
Currently, the South West Quadrant of the M25 is at capacity, with traffic flowing at less than 40% of the national speed limit during the morning peak. Orbital routes designed to provide relief to the M25 in this area such as the A329(M)/A322 corridor are also subject to considerable congestion.

The projected future highway traffic shows the M25 South West quadrant will likely remain at capacity. With limited option for expansion, our modelling forecasts that other orbital roads becoming busier in response.

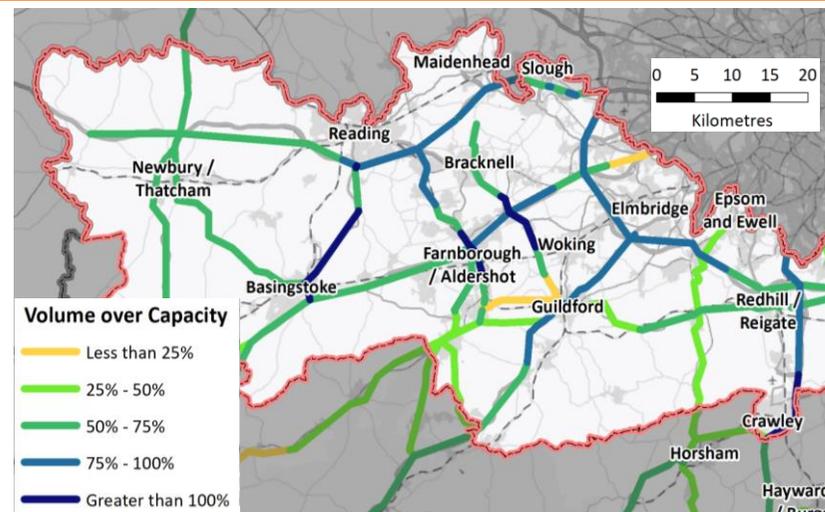
A number of studies have been carried out to identify options for relieving congestion on this part of the strategic highway network and it has been concluded that rather than focusing on providing additional capacity on the M25, the solution may lie in considering local network interventions to mitigate the negative impacts of congestion on the wider corridor.

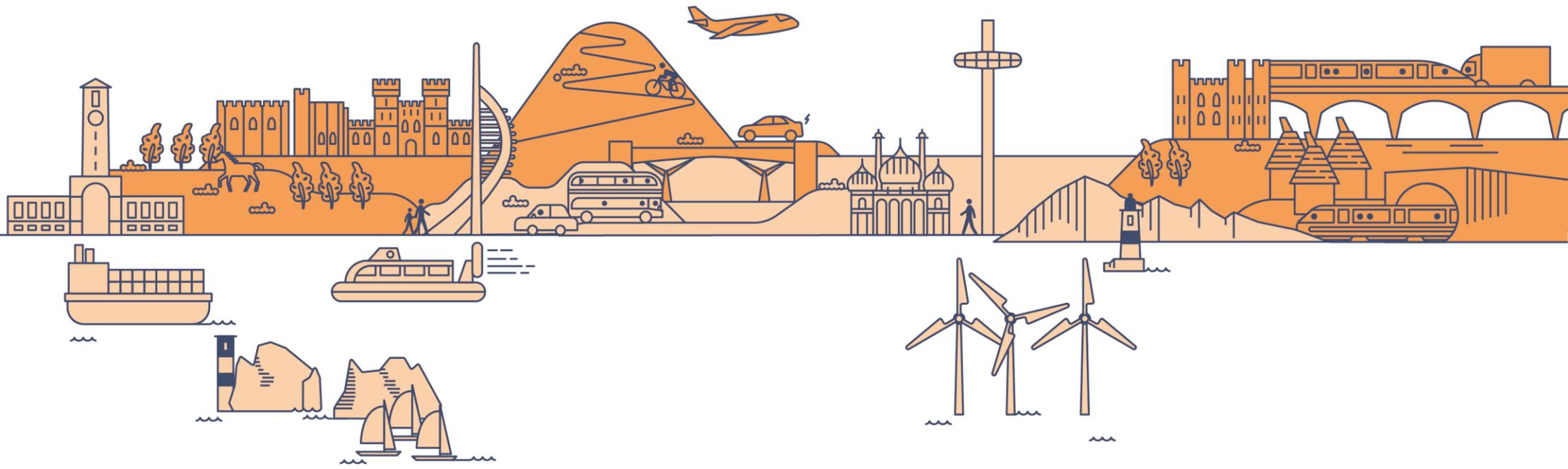
Figure 2.21: Current and future highway capacity constraints

Current Highway Congestion hotspots in the Inner Orbital Area



Projected Future Highway Capacity under SEELUM "Sustainable Route to Growth" Projections





Part 2c

Baseline

Introduction

Baseline and Business As Usual

In 2018, TfSE commissioned Steer to develop a model to test the impact of the scenarios Created to support the development of the Transport Strategy for South East England.

This model, known as the South East Economy and Land Use Model (SEELUM), is a transport and land use model that simulates the interaction of transport, people, employers and land use over periods of time.

This model has been used to establish a baseline for socioeconomic, environmental, and transport indicators 2018 to 2050. The baseline forecasts of population and employment growth used by SEELUM were taken from the Department for Transport's National Trip End Model (NTEM).

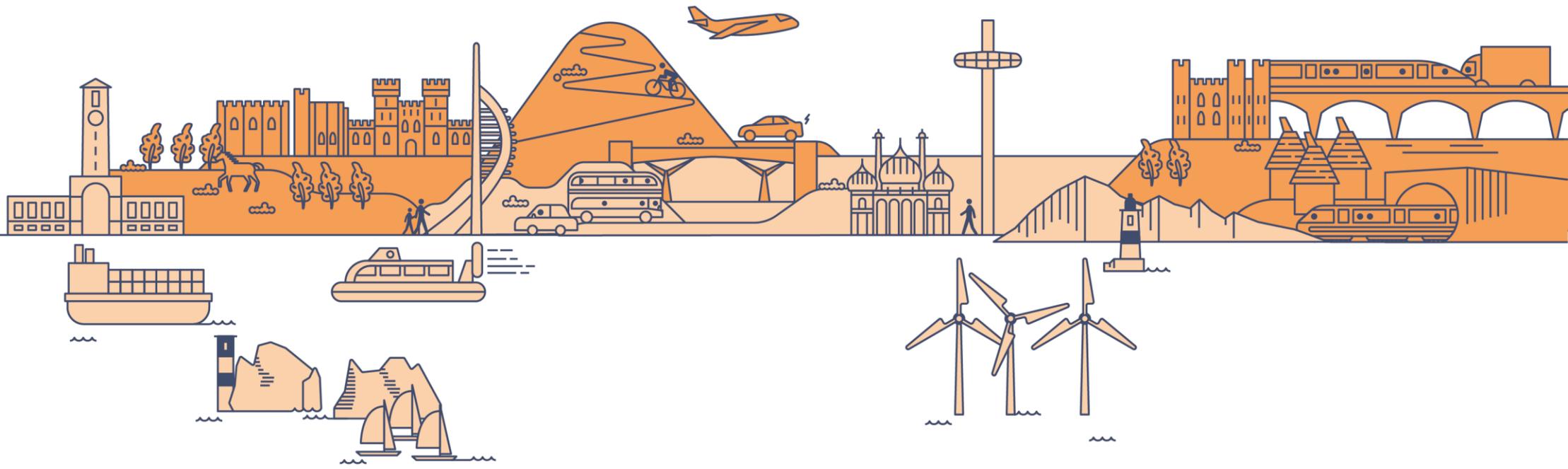
To stimulate and accommodate this growth, SEELUM was supplied with proportional increases in the land available for housing and commercial use in each zone, equal to the proportional growth implied by NTEM. The new land is assumed to become available linearly from 2018 to 2050.

Table 2.1: Baseline projections in SEELUM for the Wessex Thames area area

Metric	Baseline (2018)	Business As Usual (2050)	Change (%)
Socioeconomic metrics			
Population	2,581,708	2,971,404	15%
Employment	1,178,578	1,339,726	14%
GVA (£'000)	82,506	181,611	120%
Transport metrics			
Car trips	5,810,209	7,329,829	26%
Rail trips	261,299	351,214	34%
Bus trips	361,629	460,066	27%
Active travel trips	1,455,673	1,274,304	(12%)

All outputs of the modelling of Packages of Interventions included in this study are presented as comparisons against the Business As Usual metrics for the year 2050, as presented in **Table 2.1** above.

Further information about how SEELUM was developed and used to model Packages of Interventions for this study is provided in Part 3 (Economic Dimension).



Part 2d

Strategic Vision and Objectives

Vision

TfSE has published a Transport Strategy for the South East that sets a bold vision for 2050. The Wessex Thames Study Working Group and TfSE have also agreed a Vision for the area. These are set out below.

TfSE Vision

By 2050, the South East of England will be a leading global region for net-zero carbon, sustainable economic growth where integrated transport, digital and energy networks have delivered a step change in connectivity and environmental quality.

A high-quality, reliable, safe and accessible transport network will offer seamless door-to-door journeys enabling our businesses to compete and trade more effectively in the global marketplace and giving our residents and visitors the highest quality of life.

Wessex Thames Vision

We will leverage technology and behavioural change paired with the economic assets of high growth, high value industries, international gateways and proximity to London to deliver carbon neutrality, sustainable economic growth and improved opportunities for residents.

We will use integrated transport, digital, and energy networks and technologies to progress interventions that:

- Deliver strategic and local access and connectivity within the South-East and to the rest of the UK to ensure the needs of the Wessex Thames area's residents, businesses, visitors and international gateways are met;
- Facilitate increased interaction between major economic hubs to optimise knowledge sharing and collaboration opportunities; and
- Support the creation of healthy, accessible and high-quality places where people are put first.

Provide cross-cutting solutions that support the development of sustainable communities, improve socioeconomic and health outcomes and capitalize on the successes of the corridor.

We will use innovative and exemplar delivery models, schemes, investment packages and funding mechanisms that – through tailored governance and funding models – support integrated high-quality, reliable, safe and accessible transport networks.

This will ensure that the businesses will thrive, trade effectively and maximise the opportunities of the corridor for residents, visitors and investors.

Objectives

A high performing, multi-modal transport system will ensure this study helps deliver the following six objectives:

Climate Change

Minimise disruption from climate change and move to net zero carbon by:

- Shifting travel from fossil fuel traction to non-carbon emitting traction;
- Encouraging active and sustainable transport modes;
- Reducing the need to travel; and
- Reducing fossil fuel dependent trips.

Economy

Reduce poverty and boost prosperity for all residents by:

- Attracting investment in high growth, high value opportunities;
- Boosting productivity through better skills matching, knowledge sharing and agglomeration;
- Reducing costs for businesses; and
- Improving transport network resilience

Society

Enable the “levelling up” of socioeconomic outcomes by:

- Increasing access to employment opportunities;
- Enabling residents to access affordable housing and services;
- Improving access for all members of society, especially individuals of reduced mobility; and
- Enabling deprived communities to attract investment and achieve more equitable socioeconomic outcomes.

Natural and Historic Environment

Protect and enhance the natural and historic environment by:

- Adopting the principles of biodiversity net gain / no-net loss by avoiding interventions and operations that adversely impact protected environments; and
- Improving public and active mode transport to protected environments.

Freight

Support sustainable and efficient movement of goods through the region, to and from the wider UK by:

- Improving freight connectivity and resilience through sustainable modes, including electric rail freight; and
- Balancing the needs of passenger and freight demand.

Health and Wellbeing

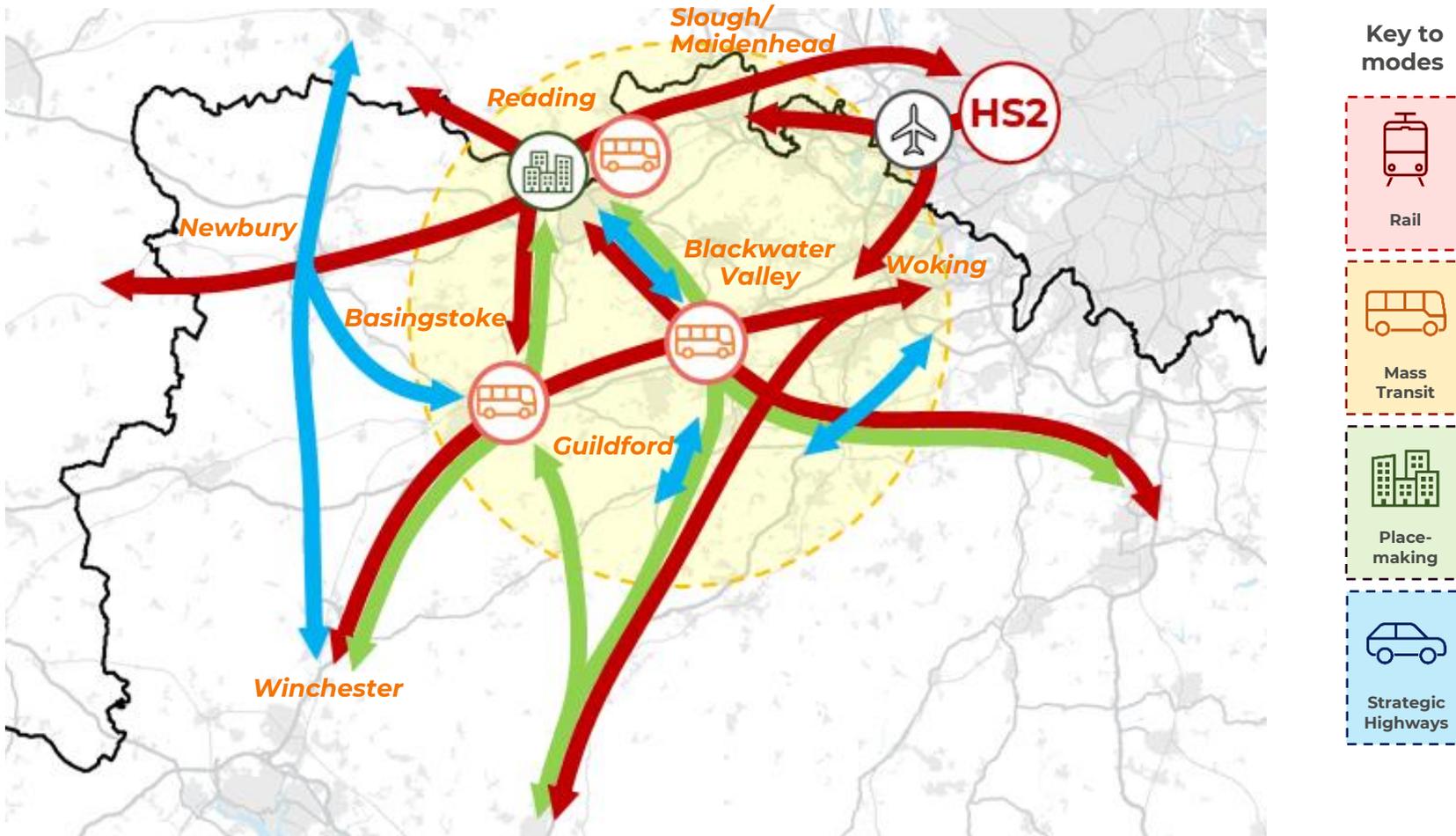
Minimise adverse impacts on human health and promote healthy living by:

- Shifting from higher to lower polluting transport options (all modes);
- Minimising the impacts of transport-related air and noise pollution on people and local communities; and
- Creating better places in which to live work and visit.

Vision for the Wessex Thames area

By the year 2050 the two largest conurbations in the Wessex Thames area – Reading and Blackwater Valley – will be served by world class urban mass transit systems and will be an attractive environment for active travel. Both conurbations will be joined together by high-quality rail, public transport, and highway infrastructure that are sensitive to the area’s outstanding natural and historic environment. This will deliver sustainable and equitable economic growth for the area’s residents and businesses. This is shown in Figure 2.22.

Figure 2.22: Vision for the Wessex Thames Area’s transport system



Strategic Themes

Multi Modal Solutions

Transport is too often planned, funded and delivered within modal silos. TfSE and its partners propose a multi modal solution which takes account of complementarities between modes, but also integrates demand management and wider policy measures.

Our vision acknowledges that people do not think about modes of transport that make up their journey, they think about the journey as a whole. Our vision is for a transport network that enables seamless trips: a faster and more reliable strategic network paired with improvements to first mile last mile connectivity.

Our vision is for the current transport network to better serve different people journey purposes and modes. Improvements to the highway network, for instance, will improve car trips but will also enable faster and more frequent mass transit and increased active travel participation.

This vision seeks a move away from modally siloed planning, governance and funding, to a multi modal transport solution.

Climate Change and Sustainability

Transport has a crucial role to play in delivering on environmental, social and economic goals. This vision seeks to address these goals by supporting people to shift to more sustainable modes.

Transport accounts for a more than a quarter of the UK's carbons emissions. With faster, safer and more reliable rail, bus and active travel journeys, our vision seeks to increase the attractiveness of transport modes which have a positive impact on the environment.

Our vision acknowledges issues of deprivation and affordability and promotes sustainable transport interventions to improve connectivity to housing and employment locations.

We have also identified opportunities where transport can stimulate regeneration and placemaking. For instance, we propose moving some strategic highway routes away from a town centres, enabling a more people-friendly urban realm to be created and a step change in the quality of place.

The rest of this section sets out the key strategic themes of the Wessex Thames vision.

Freight and Global Gateways

The Solent Ports are growing and this is increasing the pressure on the key freight corridor between Southampton, the West Midlands and the North West. TfSE and its partners have taken a multi-modal approach to freight with a vision which increases connectivity, safety and resilience of both rail and highway routes on the corridor.

There are aspirations to significantly increase the proportion of freight transported by rail from the area. These growth aspirations and the resulting decarbonization of freight transport can be facilitated through our rail freight package which will increase the number of freight paths between Southampton and Reading and will electrify the Basingstoke to Reading line.

Despite growth of rail freight mode share, road freight continues to account for a large proportion of freight movements on the Solent – West Midlands corridor. Improvements to the A34 including strategic junction improvements and climber lanes will support safety, resilience and reliability of this route.

Strategic Themes

World Class Mass Transit Systems

The Wessex Thames area is home to several urban conurbations which are large enough and dense enough to support world class mass transit systems. Our vision will deliver the quality of provision to stimulate a step change in sustainable transport mode share.

We will build on the success of existing bus systems in Reading, Blackwater Valley and Basingstoke, proposing greater levels of segregation and bus priority, improved journey times, higher quality buses and better network integration.

To better connect the major centres of the corridor our vision is for increased inter-urban bus frequencies and bus priority at key junctions and pinchpoints to safeguard journey time reliability.

Acknowledging the complementarities between active travel and MRT we also propose segregated walking and cycling routes connecting major centres. This will increase the safety and comfort of inter urban active travel trips and will support an increase in the use of these modes for utility trips.

Resilient Radial Corridors

The Wessex Thames area benefits from high quality, strategic transport infrastructure connecting major centres between London and the South Coast. TfSE and its partners propose a vision which will support these corridors to continue to operating efficiently.

Particular pinch points and bottlenecks have been identified on both the strategic rail and highway network which limit the connectivity and reliability that these radial routes can offer for the whole length of route.

At both Woking and Basingstoke stations several railway lines converge. Junction improvements are proposed to alleviate the conflicts that this causes and bring greater reliability to journeys passing through these stations.

As the A3 passes through Guildford, capacity and speed limit reduce resulting in considerable congestion. A package of interventions across highway, bus and active travel modes is proposed to reduce demand and increase safety and resilience through this section of the strategic road network.

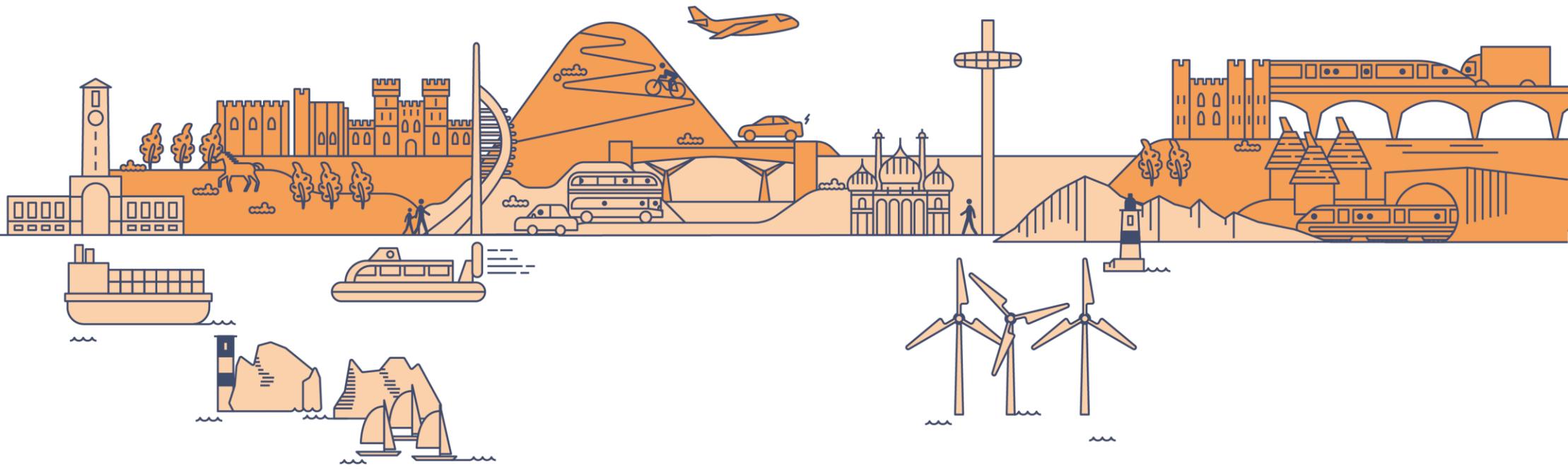
East – West Connectivity

The M25 south west quadrant and the densely populated parts of north Hampshire Berkshire and Surrey suffer from poor orbital connectivity and inter-urban congestion. TfSE and its partners propose a vision which addresses these issues, **increasing social and economic interection between neighbouring towns.**

The North Downs line connects many hubs in this area, but currently offers insufficient frequency and journey times to be competitive with car. Intervention to remove a number of level crossings will enable a material increase in frequency on this line.

Step change bus service improvements, enabled by implementation of bus priority and segregation will quickly and seamlessly connect major centres into the North Downs Line as well as the radial railway lines. This will be further supported by safety and resilience improvements on existing highway links between the M3 and M4 to support bus, cycle and car trips.

This multi modal approach will increase agglomeration between the major centres supporting further productivity growth.



Part 2e

Packages of Interventions

Combined Approach to Package Development

A Top Down and Bottom Up View

TfSE has worked with key stakeholders and technical advisors to develop a set of coherent Packages that, together, are designed to deliver TfSE's vision and objectives for the Wessex Thames area area.

These Packages have been developed through workshops, discussions, and careful analysis of results of the assessment of the long list of interventions described earlier.

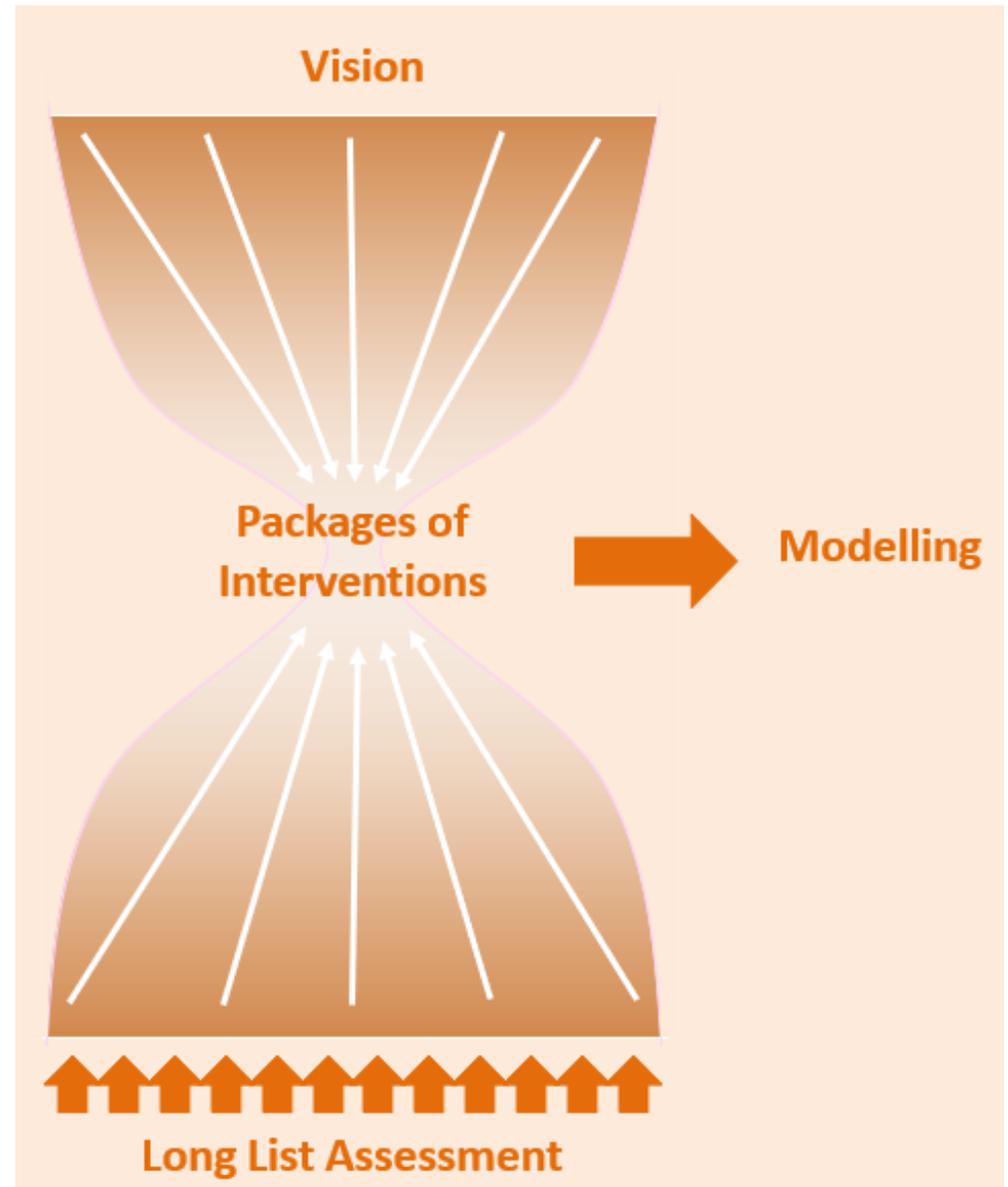
The Packages combine an overarching vision for the Wessex Thames area with the results of the Multi Criteria Analytical Framework.

In essence, this reflects both a 'top down' i.e., vision led approach and a 'bottom up' i.e., individual intervention assessment approach. While planning has taken place considering multi-modal options and how Packages group and integrate, they are presented in the following narrative by mode or groups of modes. This is partly as a product of how they needed to be modelled, but also to talk directly to key stakeholders and modal-based planners of national networks (e.g. Network Rail and National Highways), and possible funding sources – often siloed.

Figure 2.23 to the right illustrates the essence of this combined approach.

As discussed earlier, we have used a land use and transport interaction model to simulate the impacts of these Packages of Interventions. The results from this modelling exercise are presented in Part 3 (Economic Dimension).

Figure 2.23: Approach to Package development



Packages of Interventions

The Options Assessment Report for the Wessex Thames area recommended the following Packages of Interventions to be considered in the Strategic Programme Outline Case. These are listed below and described in detail in the following pages.

Package O: Wessex Thames Rail

- O1** Western Rail Link to Heathrow
- O2** Southern Rail Link to Heathrow
- O3** Reading to Basingstoke Electrification
- O4** North Downs Line - Electrification
- O5** North Downs Line - Level Crossing Removals
- O6** North Downs Line - Service Level and Capacity Enhancements
- O7** Guildford Station Upgrade
- O8** Redhill Station Upgrade
- O9** Dorking Deepdene Station Upgrade
- O10** South West Main Line / Portsmouth Direct Line - Woking Enhancement Scheme
- O11** South West Main Line / Basingstoke Branch Line - Basingstoke Enhancement Scheme
- O12** Cross Country Service Enhancements
- O13** Portsmouth Direct Line - Line Speed Enhancements
- O14** Portsmouth Direct Line - Buriton Tunnel Upgrade
- O15** South West Main Line - Dynamic Signalling
- O16** Theale Strategic Rail Freight Terminal
- O17** West of England Main Line - Electrification from Basingstoke to Salisbury
- O18** Reading to Waterloo Service Enhancements

Package P: Wessex Thames Mass Transit

- P1** Basingstoke Mass Rapid Transit
- P2** Blackwater Valley Mass Rapid Transit
- P3** Bracknell/Wokingham Bus Enhancements
- P4** Elmbridge Bus Enhancements
- P5** Epsom/Ewell Bus Enhancements
- P6** Guildford Bus Enhancements
- P7** Slough/Windsor/Maidenhead Area Bus Enhancements
- P8** Newbury/Thatcham Bus Enhancements
- P9** Reading Mass Rapid Transit
- P10** Spelthorne Bus Enhancements
- P11** Woking Bus Enhancements
- P12** A4 Reading - Maidenhead - Slough - London Heathrow Airport Mass Rapid Transit
- P13** A329/B3408 Reading - Bracknell/Wokingham Mass Rapid Transit
- P14** Winchester Bus Enhancements
- P15** Andover Bus Enhancements
- P16** Runnymede Bus Enhancements
- P17** London Heathrow Airport Bus Access Enhancements
- P18** Berkshire, Hampshire and Surrey Inter-urban Bus Enhancements

Package Q: Wessex Thames Active Travel

- Q1** Berkshire, Hampshire and Surrey Urban and Inter-urban Cycleways

Package R: Wessex Thames Highways

- R1** M3 Junction 9 (RIS2)
- R2** M3 Junction 9 - Junction 14 Smart Motorway (SMP)
- R3** A404 Bisham Junction (RIS2)
- R4** A3/A247 Ripley South (RIS3 Pipeline)
- R5** A31 Farnham Corridor (LLM)
- R6** New Thames Crossing East of Reading (LLM)
- R7** A320 North Corridor (HIF)
- R8** M4 Junction 10 Safety Enhancements
- R9** M3 Junction 6 - Junction 8 Safety Enhancements
- R10** A3 Guildford Local Traffic Segregation
- R11** A3 Guildford Long Term Solution
- R12** A34 Junction and Safety Enhancements
- R13** A322 and A329(M) Smart Corridor
- R14** A339 Newbury to Basingstoke Safety Enhancements
- R15** M4 Junction 3 to Junction 12 Smart Motorway (SMP)

Global Policy Package: To be defined separately but likely to include new mobility, rural connectivity, demand management, and accelerated decarbonisation interventions

Package O: Wessex Thames Rail

Overview

TfSE, in collaboration with Network Rail and local stakeholders, have developed a comprehensive package of interventions that will deliver greater capacity and resilience to strategic railways which will translate to a higher number of passenger and freight services to be run across the Wessex Thames area.

This package includes new infrastructure interventions, the largest of which involve establishing new rail links to Heathrow, possibly via interchange Reading in the medium-term.

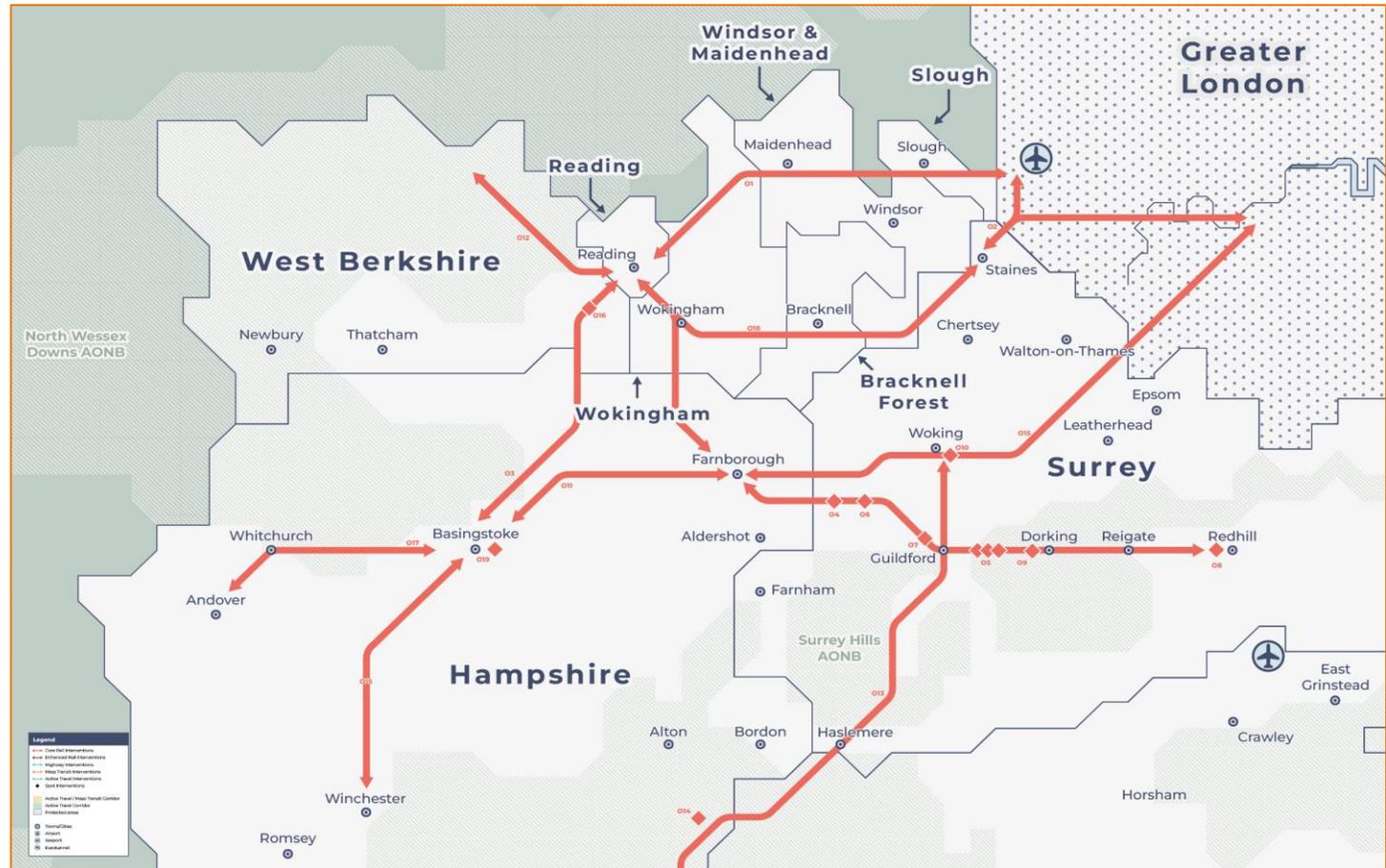
This package also includes targeted infrastructure enhancements at known bottlenecks along Strategic Rail corridors including Woking, Guildford and Basingstoke. This will translate to more capacity for both passenger and freight services to the Solent Ports.

This package delivers a transformational change in orbital rail connectivity, connecting Major Economic Hubs across the area. Additionally, there is a focus on out-of-region connectivity to other prominent regions in Great Britain.

Benefits

- Increased capacity on key corridors
- Increased resilience and reliability
- Faster, more frequent services connecting Major Economic Hubs
- Faster, more frequent services connecting the area to Global Gateways

Modelling Results



Package P: Wessex Thames Mass Transit

Overview

TfSE and local stakeholders are committed to providing an alternative to car use in urban centres across the area.

Mass transit options have been considered for Major Economic Hubs across the area. Enhancements include increasing the frequency, operating hours, reliability and catchment of bus services, supported with bus priority infrastructure where appropriate. Corridors with strong existing bus patronage, sufficient density and an appropriate network for bus priority include the Slough-Maidenhead-Windsor corridors, on corridors within Reading and in the Blackwater Valley – Farnham, Aldershot, Farnborough, Frimley, Camberley, Owlsmoor, Sandhurst, Yately and Blackwater.

There is a focus on ensuring Mass Rapid Transit interventions are supported by Strategic Mobility Hubs in Major Economic Hubs to provide an integrated network which facilitates seamless journeys between modes across the area.

Benefits

- Improvement in the speed, frequency and connectivity of mass transit services
- Better interchange and service quality at Strategic Mobility Hubs
- Better service quality
- Significant mode shift from car to bus

Modelling Results



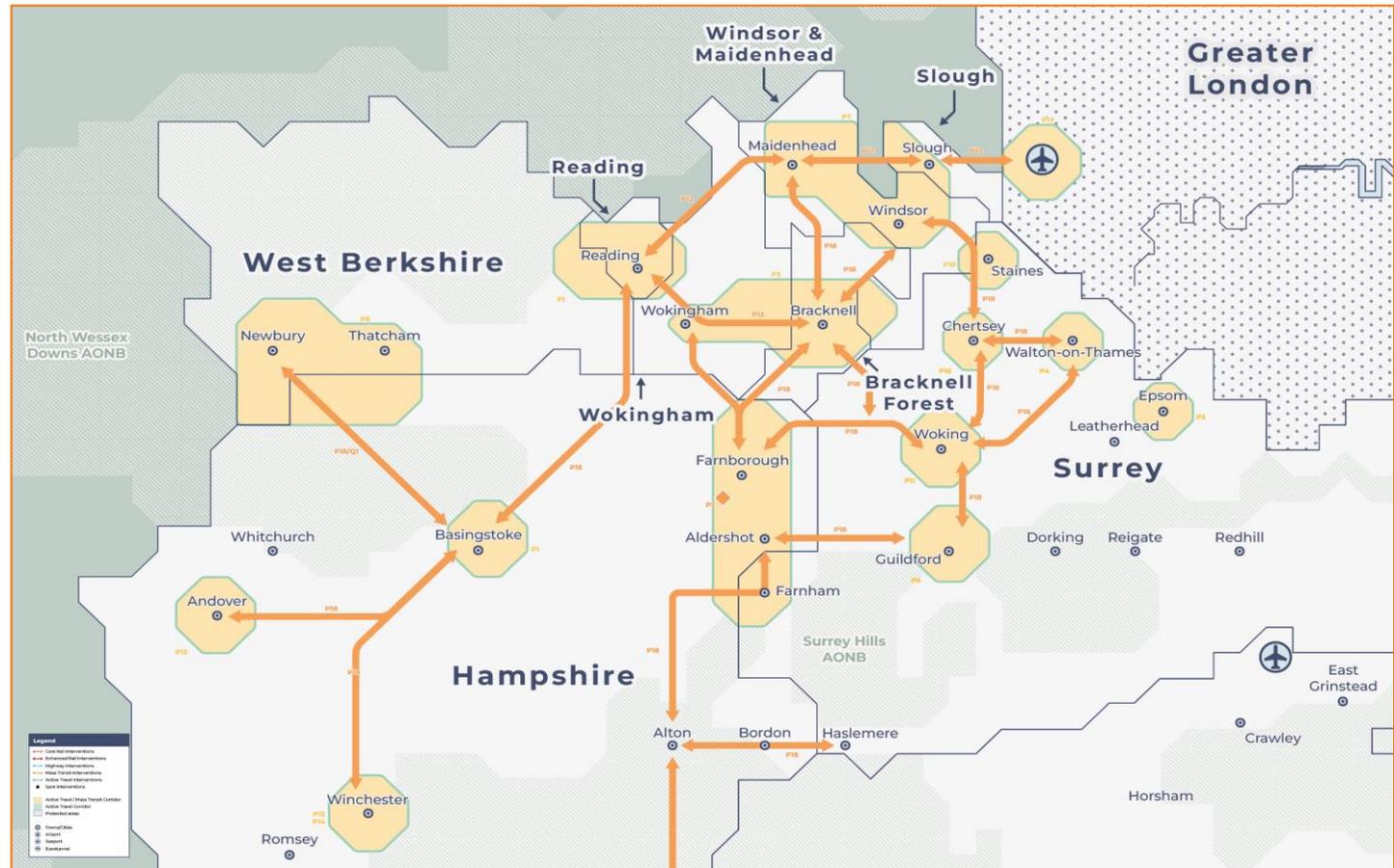
£245m

GVA uplift per annum (by 2050, 2020 prices)



225,000

More return mass transit trips per weekday



Package Q: Wessex Thames Active Travel

Overview

Local Transport Authorities supports the creation of extensive walking and cycling networks that serve the requirements of local residents and connect key destinations within centres such as railway stations, schools, hospitals and promote local placemaking.

For each of the centres and corridors identified previously which stand to benefit from bus service enhancements, priority, and Mass Transit, the opportunity for a series of urban mobility interventions which increase the attractiveness of active travel have been identified. Innovations such as e-bikes now make cycling longer-distances between centres possible. Through providing segregated cycling infrastructure in line with LTN 1/20 where capacity permits, there is opportunity to make these cycle trips safer, more accessible and faster for users. Inter-urban mobility corridors can also support cycling for leisure and other purposes for those who live along or near corridors. Lastly, they can support local placemaking, with new mobility infrastructure acting as the spine which supports a transformation of public places.

Benefits

- Significant mode shift from car to active travel, with associated health benefits
- Improvements in air quality
- Improvements to the urban and rural public realm, improving quality of life and unlocking regeneration opportunities

Modelling Results



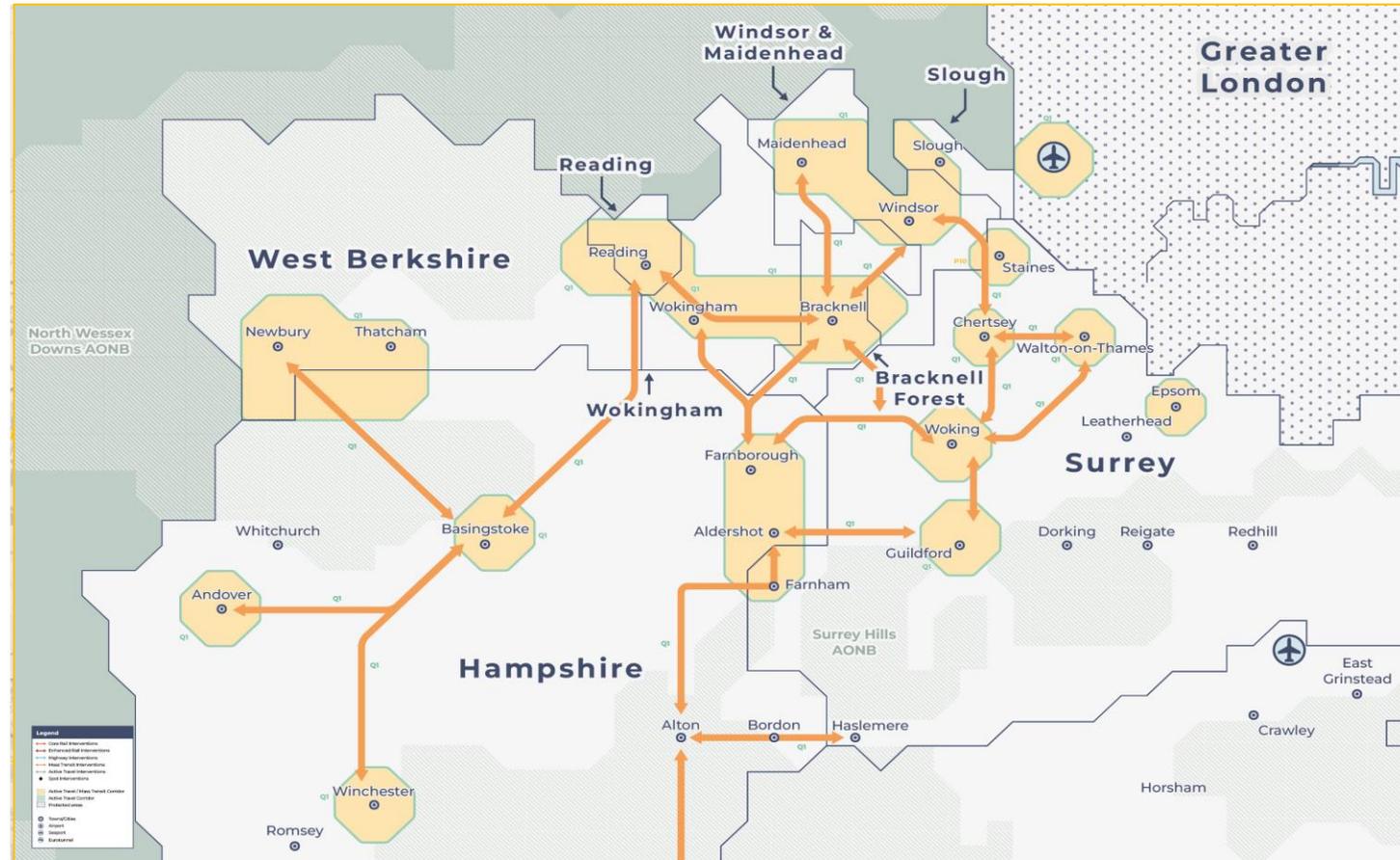
£35m

GVA uplift per annum (by 2050, 2020 prices)



135,000

More return active travel trips per weekday



Package R: Wessex Thames Highways

Overview

The Wessex Thames highways package delivers targeted improvements which support strategic passenger and freight movements through de-conflicting local and longer-distance traffic, and support safety and air quality objectives. They should support (and be supported by) public transport improvements.

This package includes interventions that support better access to the Solent Ports, a significant contributor economic growth in the region. These include Smart Motorway enhancements along the M3 and targeted junction enhancements and climber lanes for HGVs and other slower vehicles, where appropriate, on the A34.

This package also includes interventions which support the sustainable regeneration of areas and local placemaking, such as A3 Guildford, the A320 North Corridor and a new Thames River Crossing to the east of Reading. These schemes are designed to unlock opportunities to reallocate road-space to active travel and public transport.

Benefits

- More reliable and resilient highway network
- Safer highways, notably in urban areas
- Improved air quality in urban areas
- Scope to reallocate road space to active travel and public transport

Modelling Results



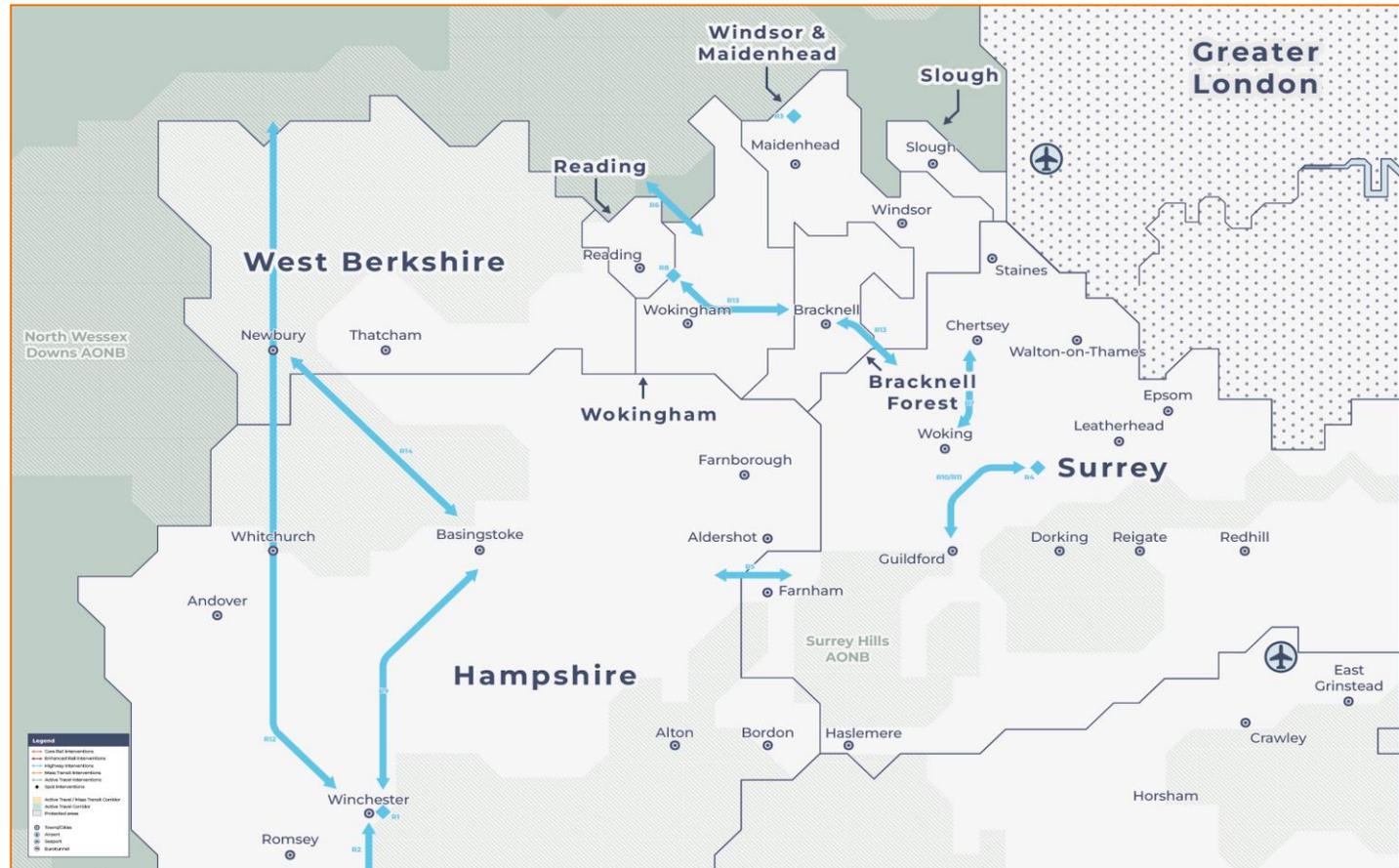
£90m

GVA uplift per annum
(by 2050, 2020 prices)



5,000

More car journeys
per weekday



Global Policy Packages

Overview

In addition to the location specific interventions, the Area Studies also identified a list of policy interventions that, in general, would apply across a large area (if not all) of South East England. These are known as Global Policy Interventions.

The Global Policy Interventions have been assessed separately to the Area Specific interventions by using a consistent framework for the whole of the South East to reduce a long list of typologies to the short list of proposed interventions.

In total, 57 interventions were assessed by a:

- **Strategic Assessment:** Each intervention was assessed against the 15 Priorities included in TfSE's Transport Strategy for South East England. These priorities were grouped and are presented on the following page.
- **Economic Assessment:** Each intervention was against the 18 Criteria included in the DfT's Early Assessment and Sifting Tool (EAST).

The best performing interventions were grouped into typologies and are listed below.

Approach

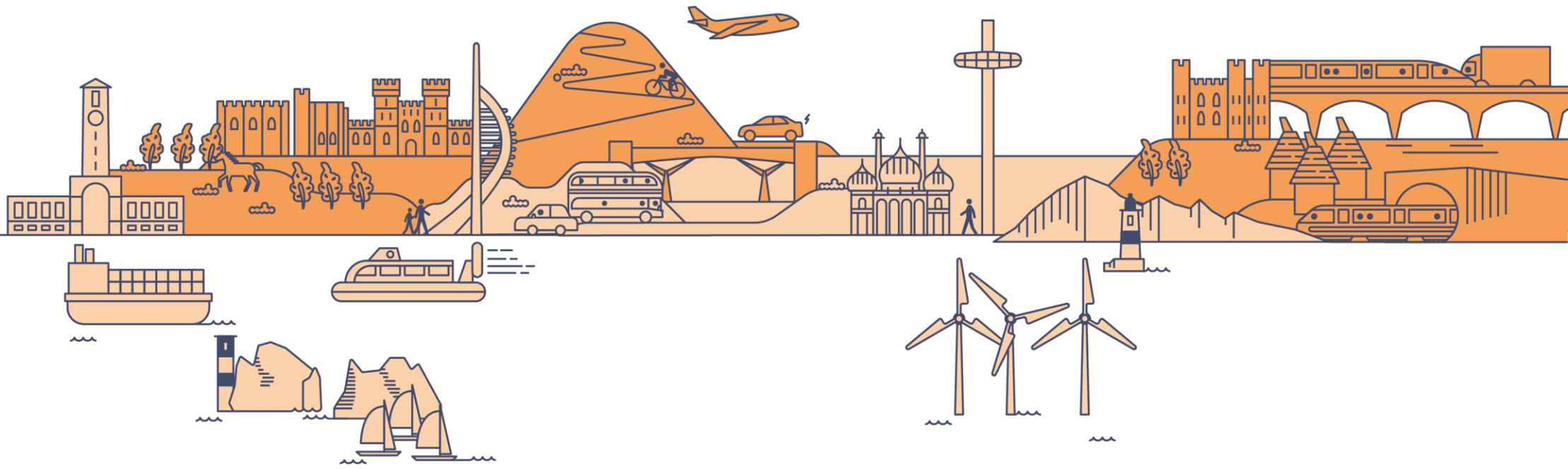
They were sourced from:

- **Area Study Working Groups** – the Steering Groups formed of representatives from Local Transport Authorities, infrastructure providers, and other key stakeholders.
- **Area Study Forums** – workshops attended by a much larger group of stakeholders representing operators, user groups, planning authorities, environmental groups, and others with an interest in each area.
- **TfSE's Future Mobility Study** – this work was commissioned in parallel with the earlier stages of the Area Study Programme and has produced a Draft Final Report and short list of recommended interventions.
- **TfSE's Freight and International Gateways Study** – which has also produced a short list of recommended interventions that cut across the whole of the South East.
- **Client and Project Teams** – capturing other relevant interventions

Short Listed Global Policy Interventions

The Global Policy Packages are:

1. **Decarbonisation:** This delivers a faster trajectory towards net-zero than current trends are expected to yield.
2. **Public Transport Fares:** This reverses the real terms increase in the cost of public transport compared to motoring through fares subsidy.
3. **Road User Charging:** This assumes the UK government develops a national road user charging system to replace funding currently raised from fuel duty.
4. **New Mobility:** This reflects the potential for new mobility (e.g., electric bikes) to boost active travel.
5. **Virtual Living:** The pandemic has shown how virtual working can help reduce demand for transport services.
6. **Integration and Access:** This delivers improvements in transport integration, and accessibility across and between all modes of transport. It also supports better integration between transport and spatial planning.



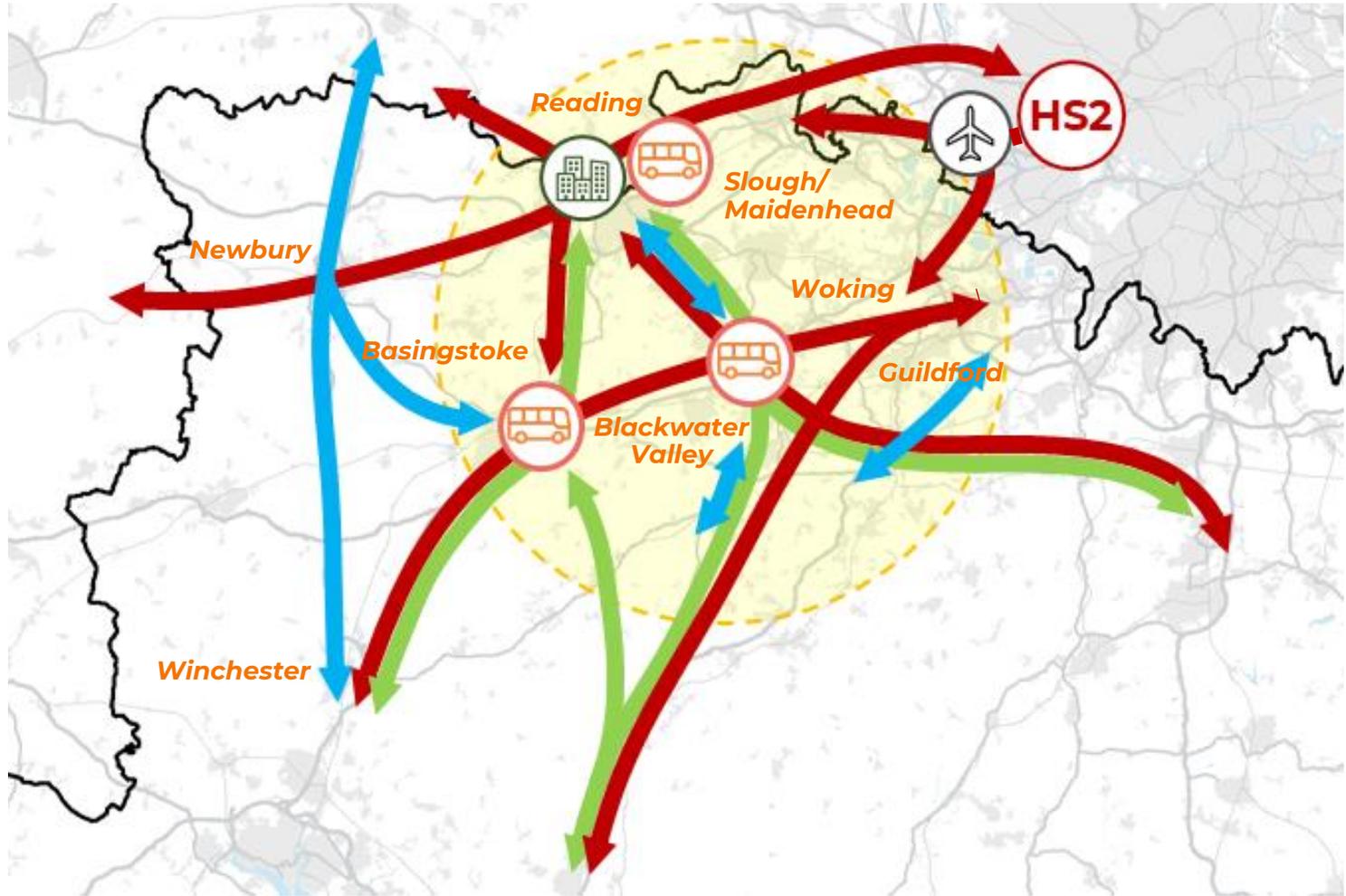
Part 2f

Theory of Change

Delivering our Vision for the Wessex Thames area

Figure 2.24. below summarizes how each package contributes to delivering our vision for the Wessex Thames Area.

Figure 2.24: Vision for the Wessex Thames Area’s transport system



Package 1

1 Rail
Increased capacity and resilience on radial corridors. Faster and more frequent services on orbital routes. New interchanges between rail lines and connecting modes. Better connectivity to global gateways.



Package 2

2 Mass Transit
Urban Mass Rapid Transit Systems connected by higher frequency and faster bus routes, complementing the rail network.



Package 3

3 Active
Improvements and additions to the National Cycle Network and urban networks, supporting local and inter-urban journeys and first-mile / last-mile access to public transport.



Package 4

4 Highways
Targeted improvements which support strategic multi-modal passenger and freight movements through de-conflicting local and strategic traffic, improving safety, and enhancing access to global gateways.

Package Alignment to Problem Statements and Objectives

Alignment with Problem Statements

Part 2b sets out 19 Problem Statements that the Wessex Thames SPOC aims to address.

Table 2.3 on the following page presents a qualitative assessment on the extent to which each package of interventions address each Problem Statement.

This assessment uses a simple scale shown below:

- ✓✓✓ Fully addresses Problem Statement
- ✓✓ Mostly addresses Problem Statement
- ✓ Partially addresses Problem Statement

Table 2.3 includes a column on the right under the heading 'All Packages'. The scores in this column represent the highest score assigned to each of the individual packages. If one package scores two ticks and all other packages score none, then the column 'All Packages' is also assigned two ticks.

Table 2.3 shows that – when Global Policies are included – all Problem Statements are addressed by the Packages presented in this report. It also shows that no single intervention or Package addresses all the problems, subsequently requiring a multi-modal solution.

Theory of Change Framework

We have also mapped the Packages of Interventions to a Theory of Change Framework.

This framework includes:

- **Issues:** What problems does the package of intervention address and what objectives does it hope to achieve?
- **Inputs:** What resources are needed to deliver the changes required to address the issues described above?
- **Outputs:** What will be the direct outputs of the inputs described above?
- **Outcomes:** What are the effects of the outputs?
- **Impacts:** What are the wider socioeconomic impacts delivered by the outcomes?

The Theory of Change Framework is presented in **Tables 2.4 to 2.7** overleaf with examples of how the Packages of Interventions address the multi-modal elements of the framework.

It demonstrates that together the Packages in the SPOC deliver **strategic benefits** to achieve the study's **multi-modal objectives**. All of the Packages are required in conjunction with one another for maximum success in delivering positive outcomes.

Table 2.3: Problem Statement Mapping to Packages

Problem Statement	Strategic Railways Package	MRT Package	Active Mobility Package	Strategic Highways Package	Global Packages	All Packages
Decarbonisation	✓✓✓	✓✓✓	✓✓✓	✓	✓✓✓	✓✓✓
Climate resilience	✓✓	✓	✓✓	✓	✓✓✓	✓✓
Housing affordability	✓✓	✓✓	✓✓	✓✓		✓✓
Land use and transport interaction	✓✓✓	✓✓✓	✓✓	✓✓		✓✓✓
Covid-19	✓✓✓	✓✓✓	✓		✓✓	✓✓✓
Orbital Rail journey times	✓✓✓	✓	✓	✓		✓✓✓
Orbital Rail capacity	✓✓✓	✓	✓	✓		✓✓✓
Level crossings	✓✓✓	✓		✓		✓✓✓
Connectivity to Heathrow	✓✓✓	✓✓✓		✓✓		✓✓✓
Portsmouth line constraints	✓✓✓					✓✓✓
SWML Constraints	✓✓✓					✓✓✓
Enhanced rail connectivity	✓✓✓					✓✓✓
Rail freight	✓✓✓					✓✓✓
Urban Highway Congestion	✓✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓✓
Strategic local trips	✓✓	✓✓✓	✓✓✓	✓✓		✓✓✓
Uncompetitive MRT	✓	✓✓✓	✓	✓	✓	✓✓✓
Strategic Mobility Hubs	✓✓	✓✓	✓✓	✓		✓✓
Active Mobility	✓	✓✓	✓✓✓	✓✓	✓	✓✓✓
M25 and strategic highway constraints	✓✓	✓		✓	✓✓	✓✓

Railway Package (1a, 1b, 1c, 1d and 1e) – Theory of Change Framework

Table 2.4: Theory of Change Framework - Railway Package

Issues	Inputs	Outputs	Outcomes	Impacts
<p>Global Issues</p> <ul style="list-style-type: none"> • There are pockets of high growth in the area which need to be better connected by sustainable transport. • In contrast, there are pockets of economic disparity in the area and local housing affordability presents a barrier to achieving social equity objectives. Transport can play a role in overcoming these issues. • There is a need to encourage a modal shift of longer-distance passenger and rail journeys to rail to meet decarbonisation goals. • Demand for public transport has been negatively affected by COVID-19, this is especially the case on the SWML which historically had high business and commuter flows into London and Southampton. However, this also presents opportunities. <p>Rail Issues</p> <ul style="list-style-type: none"> • The South West Mainline is constrained, particularly between Woking and London. • Portsmouth to London by rail is slower than most radial services in the wider South East area. • Poor rail connectivity by sustainable modes to Heathrow from the area. • Poor orbital rail connectivity between Major Economic Hubs in Berkshire, North Hampshire and Surrey. • Poor interchange between orbital rail, radial rail and other modes. 	<p>Rail Package</p> <ul style="list-style-type: none"> • Electrification, capacity and line speed infrastructure on North Downs Line, Reading to Basingstoke line and Test Valley Line. • Heathrow Western and Southern Access schemes • Woking Enhancement Scheme Basingstoke Enhancement Scheme • Station/Junction improvements at Guildford • Passing loops and turnback facilities • Programme of level crossings • Farnborough Strategic Rail and Multi-Modal Hub • Improved interchange at Dorking • Introduction of dynamic signalling to further increase capacity. • Service Enhancements including simplification of service pattern to enable faster, more reliable services and demand responsive services • Faster and more frequent long-distance rail to Outside TfSE. • Improved Rail Freight Access to Solent Ports. • Strategic and Local Rail Freight Consolidation Centres. • Freight service enhancements to the Midlands and South West. 	<ul style="list-style-type: none"> • At least 5-10% improvements in journey time on all rail journeys between London and Southampton, London and Portsmouth and London to Bracknell and Bracknell to Reading. • Further journey time improvements on select services which cater to specific longer-distance flows at certain times where end-to-end demand is high. • New, direct services to Heathrow from centres in Berkshire, North Hampshire, Surrey and beyond. • Up to a doubling of frequency and 10-20% reduction in journey times along North Downs line. • More frequent services calling at intermediate stations ensuring better connectivity between smaller Major Economic Hubs. • Improved interchange between Orbital and Radial services with a reconfigured interchange at Farnborough and Dorking. • Improved operating performance and reliability for rail users, e.g. through services less likely to be held up at Woking. • At least 3tph dedicated freight paths on SWML and Reading-Basingstoke line between Solent and the Midlands. • More freight paths to SW England. 	<ul style="list-style-type: none"> • Shifting travel from fossil fuel traction to non-carbon emitting traction / Encouraging active and sustainable transport modes. • Boosting productivity through better skills matching, knowledge sharing and agglomeration. • Reducing costs for businesses. • Reduce serious (KSI) collisions. • Increasing access to employment opportunities and services. • Improving access for all members of society, especially individuals of reduced mobility. • Enabling deprived communities to attract investment. • Adopting the principles of biodiversity net gain / no-net loss. • Improving freight connectivity and resilience through sustainable modes, including electric rail freight. • Maintain and strengthen economic and social relationships with locations outside of the Transport for the South East area and improving access to international gateways. • Minimise adverse impacts on human health and promote healthy living by shifting to lower polluting transport options and minimising the impacts of transport-related air and noise pollution on local communities. 	<ul style="list-style-type: none"> • Minimise disruption from climate change and move to net zero carbon. • Reduce poverty and boost prosperity for all residents. • Increase safety for all. • Enable the “levelling up” of socioeconomic outcomes. • Protect and enhance the natural and historic environment. • Support sustainable and efficient movement of goods through the region, to and from the wider UK. • Improve cross-boundary interactions • Improve health and well-being

Mass Rapid Transit Package (2a and 2b) – Theory of Change Framework

Table 2.5: Theory of Change Framework (Package 2)

Issues	Inputs	Outputs	Outcomes	Impacts
<p>Global Issues</p> <ul style="list-style-type: none"> • Pockets of high growth planned in the area with several new housing developments outside historical urban centres which need to be connected by sustainable transport. • Pockets of economic disparity in the area where transport can play a role in overcoming these issues. • Need to encourage a modal shift to more sustainable modes to meet decarbonisation goals. <p>Public Transport Issues</p> <ul style="list-style-type: none"> • Bus patronage and Active Travel take up is historically low in many of the Major Economic Hubs in this area outside Reading. • Urban highway congestion is a problem. • Despite this, in many areas, bus services do not provide a competitive sustainable alternative to cars • There are significant gaps in the local and regional cycle networks in the area. • The current transport network does not adequately provide for strategic local and inter-urban trips. • Lack of Strategic Mobility Hubs outside city centres. • Lack of integration between modes, most notably between Rail and other modes where Rail stations aren't in central locations, e.g. In Elmbridge. • Expensive and unreliable services. 	<p>Mass Transit Package</p> <ul style="list-style-type: none"> • Bus Based Mass Rapid Transit – Bus service enhancements and bus priority infrastructure where applicable on the following corridors including Maidenhead – Slough – Heathrow ; Reading – Wokingham – Bracknell – Ascot and in the Blackwater Valley. • Bus Based Mass Rapid Transit – Bus service enhancements within the following Major Economic Hubs and between adjacent Hubs: <ul style="list-style-type: none"> • Maidenhead, Reading, Bracknell, Wokingham, Slough, Windsor, Reading, Basingstoke, Newbury, Thatcham, Blackwater Valley Woking, Guildford, Spelthorne, Elmbridge, Runneymede, Epsom, Ewell, Winchester, Andover, Cosham, Waterlooville, Petersfield, Alton, Bordon, Haslemere and Andover. • Integrated and simpler fares, ticketing, and marketing 	<ul style="list-style-type: none"> • Bus services delivering a “turn-up-and-go” level of public transport service frequencies delivered through at least 4 buses per hour connecting adjacent Major Economic Hubs and over 6 buses per hour on corridors where bus priority infrastructure is recommended. • More express services with fewer stops and faster journey times between adjacent Major Economic Hubs to ensure journey times are competitive with the private car. • Even faster mass transit journeys on identified corridors where buses can utilise new bus priority infrastructure. • Improvements in the quality of mass transit provision (e.g. accessibility, information, comfort, internet connectivity). • Improvements in the quality of interchange between bus services and other Public Transport modes 	<ul style="list-style-type: none"> • Shifting travel from fossil fuel traction to non-carbon emitting traction / Encouraging active and sustainable transport modes. • Boosting productivity through better skills matching, knowledge sharing and agglomeration. • Reducing costs for businesses. • Improving transport network resilience. • Reduce serious (KSI) collisions. • Increasing access to employment opportunities. • Enabling residents to access affordable housing and services. • Improving access for all members of society, especially individuals of reduced mobility. • Enabling deprived communities to attract investment. • Adopting the principles of biodiversity net gain / no-net loss. • Improving public and active mode transport to protected environments. • Minimise adverse impacts on human health and promote healthy living by shifting to lower polluting transport options and minimising the impacts of transport- related air and noise pollution on local communities. 	<ul style="list-style-type: none"> • Minimise disruption from climate change and move to net zero carbon. • Reduce poverty and boost prosperity for all residents. • Increase safety for all. • Enable the “levelling up” of socioeconomic outcomes. • Protect and enhance the natural and historic environment. • Improve health and well-being

Active Mobility Package (3a and 3b) – Theory of Change Framework

Table 2.6: Theory of Change Framework (Package 3)

Issues	Inputs	Outputs	Outcomes	Impacts
Global Issues				
<ul style="list-style-type: none"> • Pockets of high growth planned in the area with several new housing developments outside historical urban centres which need to be connected by sustainable transport. • Pockets of economic disparity in the area where transport can play a role in overcoming these issues. • Need to encourage a modal shift to more sustainable modes to meet decarbonisation goals. 	Active Mobility Package			
Public Transport Issues				
<ul style="list-style-type: none"> • Bus patronage and Active Travel take up is historically low in many of the Major Economic Hubs in this area outside Reading. • Urban highway congestion is a problem. • Despite this, in many areas, bus services do not provide a competitive sustainable alternative to cars • There are significant gaps in the local and regional cycle networks in the area. • The current transport network does not adequately provide for strategic local and inter-urban trips. • Lack of Strategic Mobility Hubs outside city centres. • Lack of integration between modes, most notably between Rail and other modes where Rail stations aren't in central locations, e.g. In Elmbridge. • Expensive and unreliable services. 	<ul style="list-style-type: none"> • Delivering dedicated, segregated mobility corridors in the Major Economic Hubs identified above. • Connecting key destinations and services, building on LCWIPs between and within the Major Economic Hub pairs highlighted above. 	<ul style="list-style-type: none"> • Mode shift from car to active travel, with associated health benefits • Improvements in air quality, particularly in urban parts of the area • Improvements to the urban and rural public realm 	<ul style="list-style-type: none"> • Shifting travel from fossil fuel traction to non-carbon emitting traction / Encouraging active and sustainable transport modes. • Reduce serious (KSI) collisions. • Increasing access to employment opportunities and services. • Improving access for all members of society, especially individuals of reduced mobility. • Enabling deprived communities to attract investment and achieve more equitable socioeconomic outcomes. • Adopting the principles of biodiversity net gain / no-net loss. • Improving public and active mode transport to protected environments. • Minimise adverse impacts on human health and promote healthy living by shifting to lower polluting transport options and minimising the impacts of transport-related air and noise pollution on local communities. 	<ul style="list-style-type: none"> • Minimise disruption from climate change and move to net zero carbon. • Increase safety for all. • Enable the “levelling up” of socioeconomic outcomes. • Protect and enhance the natural and historic environment. • Improve health and well-being

Strategic Highway Package (4) – Theory of Change Framework

Table 2.7: Theory of Change Framework (Package 4)

Issues	Inputs	Outputs	Outcomes	Impacts
<p>Global Issues</p> <ul style="list-style-type: none"> • Pockets of high growth planned in the area with several new housing developments outside historical urban centres which need to be connected by the transport network. • Pockets of economic disparity in the area where transport can play a role in overcoming these issues.. <p>Highways</p> <ul style="list-style-type: none"> • There are several congestion, road safety, and air quality “hot spots” in the area, particularly in Town Centres and at major junctions. • The area’s major highways do not provide effective east west connectivity. • The area’s major highways run through and/or close to protected areas, undermining the quality of local environments. • Too many major highways pass through densely populated communities, causing noise, pollution, and severance issues. • The highway network plays a key role in connecting the Solent Ports with the rest of the country, the highway needs sufficient capacity and resilience to support freight operations. 	<p>Strategic Highways</p> <ul style="list-style-type: none"> ▪ A322/A329(M) smart corridor ▪ A339 safety enhancements ▪ A34 Online upgrades and improvements to junctions ▪ A3 Guildford ▪ A31 Farnham Corridor ▪ Woking A320 North Corridor ▪ M3 J6-8 Junction improvements and J9-14 Smart Motorway ▪ M4 Junction 10 Safety improvements ▪ Reading Third Thames Crossing 	<ul style="list-style-type: none"> ▪ More resilient and reliable highway network ▪ Safer highway network ▪ Reduced conflicts between strategic/longer-distance and local traffic ▪ Reduced impact of highways on built up areas such as Guildford ▪ Opportunity to expand active travel and mass transit in areas relieved by interventions, such as with the Reading Third Thames Crossing ▪ Improved access to high growth areas, such as to new housing and industrial developments North of Woking and on the outskirts Basingstoke 	<ul style="list-style-type: none"> • Boosting productivity through better skills matching, knowledge sharing and agglomeration. • Reducing costs for businesses. • Reduce serious (KSI) collisions. • Increasing access to employment opportunities and services. • Enabling deprived communities to attract investment and achieve more equitable socioeconomic outcomes. • Adopting the principles of biodiversity net gain / no-net loss. • Improving freight connectivity and resilience through sustainable modes, including electric rail freight. • Maintain and strengthen economic and social relationships with locations outside of the Transport for the South East area and improving access to international gateways. 	<ul style="list-style-type: none"> • Reduce poverty and boost prosperity for all residents. • Increase safety for all. • Enable the “levelling up” of socioeconomic outcomes. • Protect and enhance the natural and historic environment. • Support sustainable and efficient movement of goods through the region, to and from the wider UK. • Improve cross-boundary interactions



Part 3

Economic Dimension

Alignment with Department for Transport Business Case Guidance

The table below sets out the DfT's requirements for the Economic Dimension and the level of detail expected at Strategic Outline Case stage. The final column of the table shows where the Economic Dimension addresses each requirement.

TAG Issue	TAG Requirement	Progress at SOC	Reference
Longlist appraisal	Assess the longlist of options (outlined in the strategic dimension) to a shortlist of options and identify the preferred way forward.	Outline	Part 2e & OAR
Methodologies, assumptions and data	Set out the methodologies, assumptions and data that have been used to underpin any transport modelling and appraisal	Outline	Part 3a & Appraisal Specification Report (ASR) & OAR
Social cost-benefit analysis of shortlist	Present and explore the main economic costs and impacts associated with the intervention from a UK social welfare perspective	Outline	Part 3a (costs and benefits) & 3b (benefits only)
Distributional analysis	Provide distributional analysis to understand the impacts on different social groups	Outline	To be included at further business case stages for specific schemes. Outer Orbital Integrated Sustainability Appraisal (ISA) provides overview of some distributional impacts.
Place-based analysis	Conduct place-based analysis where the proposal has geographically focused objectives or where impacts of national-level interventions may differ spatially (where this is proportionate)	Outline	Part 2f, 3b, OAR, & ISA To be developed further in later business case stages for specific schemes
Wider analysis	Include any extra analysis which provides useful insight to inform the decision-making process: this could include analysis of the various options' performance against the SMART objectives at the shortlist stage. This analysis should be proportionate and consistent with the strategic dimension	Outline	Part 3b
Value for money	Inclusion of all monetised impacts, non-monetised impacts and sensitivities	Outline	Part 3e
Uncertainty analysis	Analyse to understand how changes in different factors affect the value for money of the investment: this should show how likely it is that these changes may happen.	Not Required	N/A
Appraisal summary table	Based on TAG guidance	Not Required	N/A
Longlist appraisal	Assess the longlist of options (outlined in the strategic dimension) to a shortlist of options and identify the preferred way forward.	Outline	Part 2e & OAR
Methodologies, assumptions and data	Set out the methodologies, assumptions and data that have been used to underpin any transport modelling and appraisal	Outline	Part 3a & Appraisal Specification Report (ASR) & OAR
Social cost-benefit analysis of shortlist	Present and explore the main economic impacts associated with the intervention from a UK social welfare perspective	Outline	Part 3b

Introduction

Overview of the Economic Case

The Economic Case presents the economic, environmental and social impacts of the SPOC Packages to inform consideration of value for money. The Economic Case considers the cumulative impacts for the SPOC as a whole, rather than at the individual Package of Interventions level and provides an overview of the most significant findings.

The Economic Case includes:

- an overview of the approach and the sources of inputs for the assessment;
- assessment findings for the cumulative economic, environmental and social impacts (in comparison to ‘Business as Usual’) for the summary of Packages of Interventions being considered in the SPOC;
- commentary on the key assessment findings; and
- identification of the areas of greatest uncertainty for the assessment findings.

Contents

Part 3a provides an overview of the Package development and assessment approach, which is described in full detail in the OAR.

This includes:

- the approach for the long-list assessment and an introduction to SEELUM, the land use model used for quantification of impacts;
- the assessment framework applied based on DfT guidance and the Appraisal Specification Report (ASR); and
- identification of the areas of greatest uncertainty for the assessment findings.

Part 3b provides the findings of the assessment of Economy impacts.

These address:

- the four sub-impacts for Economy impacts (for business users and transport providers, reliability impact on business users, regeneration impacts, and wider impacts) for the Packages of Interventions, with DfT’s Transport Appraisal Guidance (TAG);

- capital cost estimates for the Packages of Interventions (see Part 3a); and
- indirect tax revenues from the SPOC Packages are not assessed at this stage.

Part 3c provides the findings of the assessment of Environmental impacts.

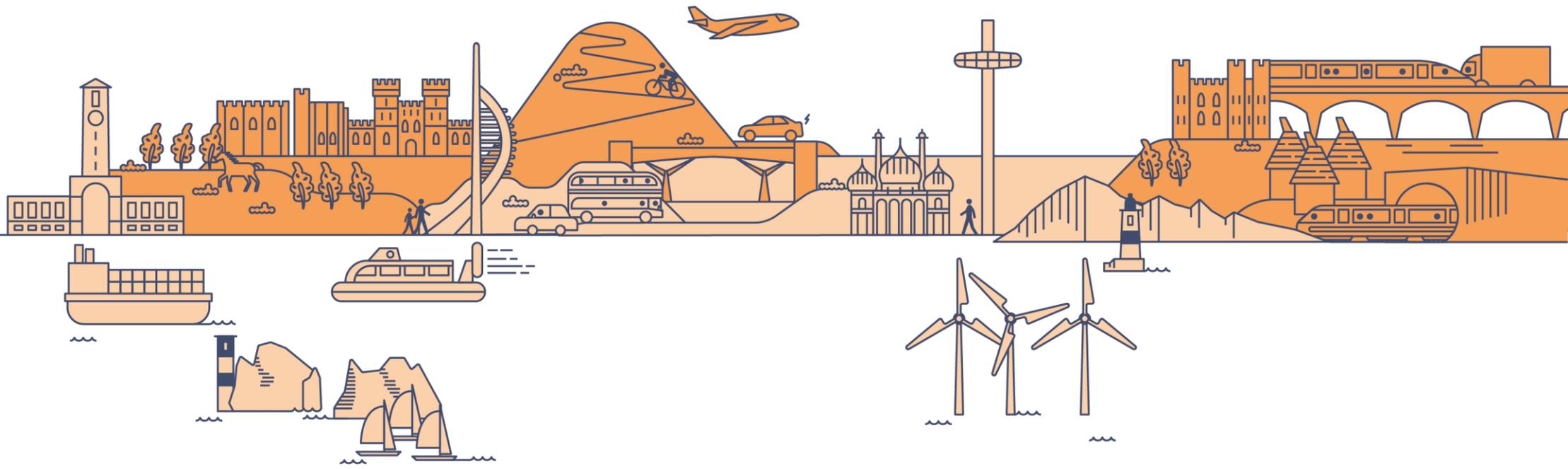
This addresses:

- the eight sub-impacts for Environmental impacts (sub-impacts noise, air quality, greenhouse gases, landscape, townscape, historic environment, biodiversity, and water environment) for the Packages of Interventions, in line with DfT’s TAG.

Part 3d provides the findings of the assessment of Social impacts.

This addresses

- the ten sub-impacts for Social impacts (sub-impacts for commuting and other users, reliability impact on commuting and other users, physical activity, journey quality, accidents, security, access to services, affordability, severance, and option and non-use values) for the Packages of Interventions, in line with DfT’s TAG.



Part 3a

Assessment Overview

Economic Assessment Overview

Assessment approach

Long list assessment

A Multi-Criteria Assessment Framework (MCAF) was developed to provide a qualitative assessment of the strategic fit, economic viability, and deliverability of the interventions included in the Long List. The goal was to use the MCAF to sift out interventions that do not perform and to organise and compare options to help develop coherent Packages of interventions.

Each intervention is scored for alignment to national, local and regional policy. Assessment scores for strategic, economic and delivery typology also inform the decision of whether to park or proceed with each intervention. A sustainability assessment of typologies in the Integrated Sustainability Appraisal (ISA) also informs the MCAF scoring of interventions.

A high-level summary of the results of the MCAF can be found in the OAR.

SEELUM testing

The South East Economy and Land Use Model (SEELUM) tests how investment in transport interventions coupled with changes to land use policy, affects transport outcomes and economic performance.

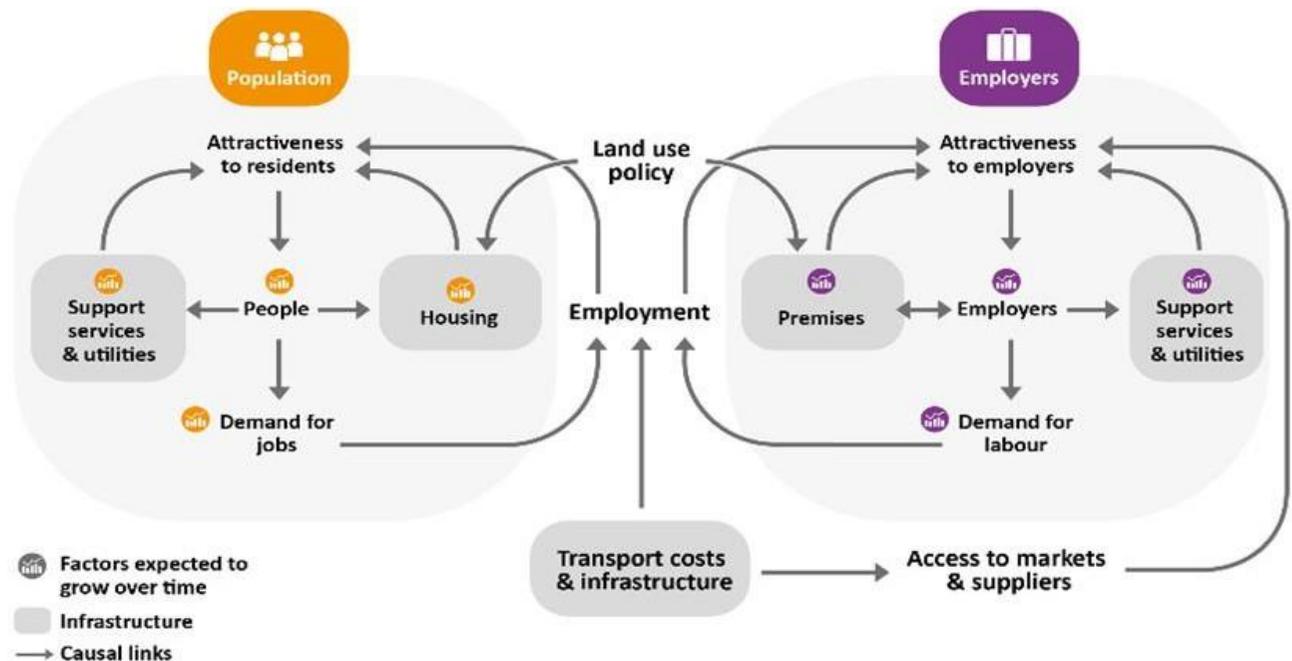
The model simulates how changes in transport connectivity and access affect how attractive zones are for employers and/or households to locate in. It simulates how land use evolves over time (see Figure 3.1).

It includes (relatively high-level) internal network models of highways and rail networks. These are used to model the impacts of congestion and crowding on journey times. SEELUM also models the carbon emissions of the highway and railway networks.

To test each Package adjustments are made to: Generalised Journey Times (GJTs) within and between each zone (by mode); and characteristics of links on the highway and railway network (notably capacity).

Each Package is modelled from a base year of 2018 for 32 years to 2050. Results are presented in the Options Assessment Reports (OARs) as a comparison to a Business as Usual (BaU) scenario, which is based on the Department for Transport's National Trip End Model (NTEM) that also projects employment and population growth to 2050.

Figure 3.1: Schematic diagram of SEELUM's analytical framework



SEELUM Results

The table below presents the results of modelling the Placed Based Packages of Interventions for the Wessex Thames Area in SEELUM, and are in comparison to the "business as usual" forecasts. The Global Policy Package results are presented for the whole TfSE area in the Strategic Narrative.

Package	Pop.	New jobs	GVA (£m)	Total CO ₂	Car Trips (weekday return)	Rail Trips (weekday return)	Bus and Mass Transit (weekday return)	Total Trips (weekday return)	Capital Costs of Construction (£m)
Wessex Thames Rail	3,100	3,750	850	-5,000	-5,000	50,000	-	35,000	7,200
Wessex Thames Mass Transit	3,300	1,300	245	-55,000	-130,000	-5,000	225,000	10,000	1,000
Wessex Thames Active Travel	500	<50	35	-30,000	-120,000	-	-10,000	-	400
Wessex Thames Highways	200	450	90	25,000	5,000	-	-	5,000	1,800
Combined Multi-Modal Impacts	7,100	5,600	1,205	-60,000	-245,000	40,000	210,000	50,000	10,400

Abbreviations

- MT: Mass Transit
- AT: Active Travel (walking and cycling)

Reporting units

- GVA (Gross Value Added) is £millions GVA per annum in 2050 in 2020 prices
- Carbon emissions are CO₂ tonnes equivalent
- Changes in trips are weekday return trips
- Capital Costs are "Mid Cost" estimates in 2020 prices, up to and including construction

Notes

- **The Combined Impacts results reflect the impacts of all the packages together, and therefore yield different results to the sum of the individual packages. This reflects displacement effects. For example: an individual may switch from car to bus in response to a MT package, and from car to bike in response to an AT package, but cannot switch to both when both packages are run together.**
- The carbon emissions reflect the impact of population and economic growth, as well as changes in the mode and length of trips.
- The mode of the trip shown represents the largest segment of a journey. In reality, a trip by MT is likely to include an AT element (e.g. walking to and from a bus stop).

Economic Assessment Overview

Appraisal assumptions

The appraisal approach taken aligns with the DfT's TAG.

Where benefits are monetised, they are treated in a consistent basis assuming 2021 prices, a 3.5% discount rate to 2021, and market prices through applying a 19% adjustment factor.

All quantified metrics are reported for Year 4 after the introduction of the packages of interventions and 2050. The cumulative impact up to 2050 will also be presented.

Commentary on the key assessment findings and identification of the areas of greatest uncertainty for the assessment findings are also presented.

Economic impacts

The four economic sub-impacts are assessed in a combination of qualitative, quantitative and monetary outputs, as specified in Appraisal Specification Summary Table in the ASR.

In line with the DfT's TAG, the economic impacts assessment considered journey time savings and reliability impacts (on business users and transport providers), land use development impacts (regeneration) and workforce and GVA impacts (wider impacts).

Each assessment finding, for each individual Package of interventions, are reported within the OAR. Cumulative economic impacts for the Packages of interventions within this SPOC area are provided at Part 3b.

For regeneration and wider impacts sub-impacts, SEELUM outputs for the change in housing units, employment premises, workforce, and GVA changes.

Capital cost estimates for the Packages of Interventions are provided proportionate to the level of each scheme design.

Indirect tax revenues are not assessed.

Environmental impacts

The eight environmental sub-impacts are each assessed qualitatively in the sustainability assessment of typologies.

For greenhouse gas emissions, noise and air quality, SEELUM produces estimates of carbon dioxide emissions and vehicle-kilometre estimates used to provide quantitative and monetary outputs, as specified in the ASR Appraisal Specification Summary Table.

Each these assessment finding, for each individual Package of interventions, are reported within the ISA. These findings are combined to provide the cumulative environmental impacts at Part 3c.

Social impacts

Only five of the ten social sub-impacts are assessed at this stage, in a combination of qualitative, quantitative and monetary outputs, as specified in Appraisal Specification Summary Table in the ASR.

The economic impacts assessment considered journey time savings and reliability impacts (on commuting and other users), physical activity, accidents, and access to services. Each of these assessment findings, for each individual Package of interventions, are reported within the OAR.

These findings are combined to provide the cumulative social impacts for the overview of Packages of interventions within this SPOC area at Part 3d.

For physical activity, SEELUM estimates the change in active travel demand and a qualitative assessment is presented. SEELUM's estimate of the change in private vehicle-kilometres will be used to monetise accident savings based upon Marginal External Cost values consistent with DfT guidance.

Distributional Impacts will be assessed at subsequent stages of the business case process in line with the DfT's TAG.

Uncertainties

Overview of approach

The ISA assessment of shortlisted interventions has identified significant uncertainties throughout the analysis, each of which relate to the Wessex Thames Sustainability Framework Objectives. A typology assessment has been carried out to identify how each intervention scores against the 13 ISA objectives, results ranged from significant positive effects to uncertain or no effects.

Economy

- There are issues regarding the uncertainty around future demand for and supply of infrastructure, as well as the spatial and temporal distribution of movement.
- The economic contributions of Package 1a, specifically electrification interventions, have been identified as uncertain.
- Package 4a has identified uncertain effects on economy due to the lack of information on forecast changes and the economic impact of the proposed interventions.

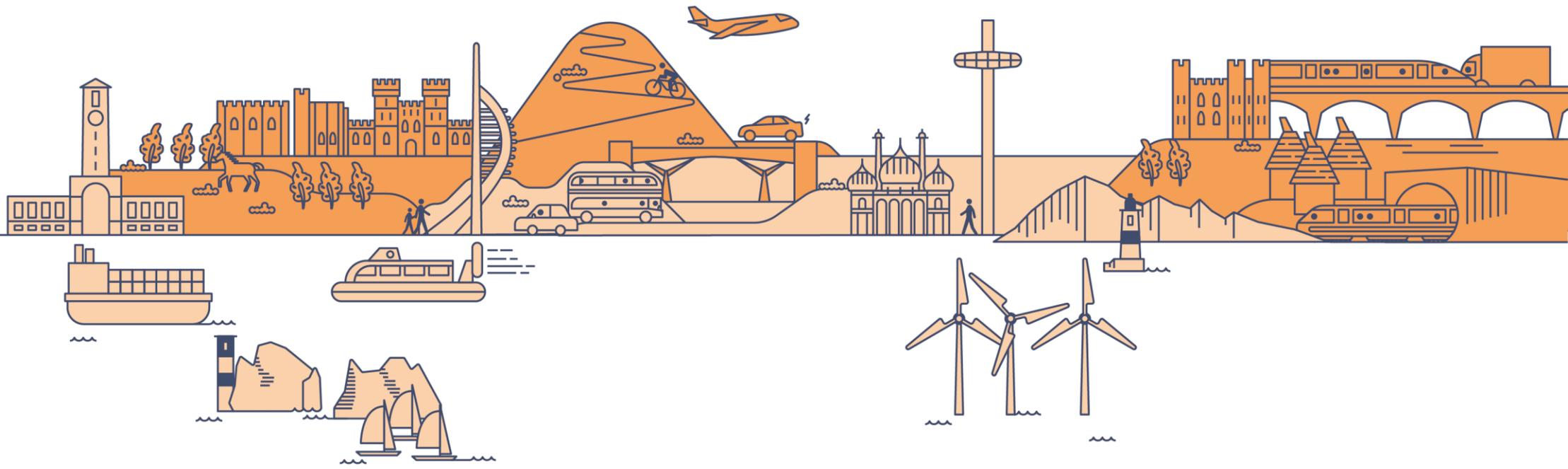
Environment

- The assessment of packages has identified a number of uncertain effects on noise and vibration. There are likely to be negative impacts on noise levels from large road and rail schemes. However, schemes that integrate active travel modes may have positive effects on noise levels.
- Uncertainty was generally recorded for soils and resources given that the majority of schemes are likely to result in the use of resources and production and disposal of waste in construction.
- Improvements to rail travel have an uncertain effect upon air quality – emissions will likely increase during construction, but the modal shift to public transport could contribute to improved air quality.
- There are uncertain effects on GHG emissions in Package 1a (Strategic Main Line Rail) as a result of construction emissions and a modal shift.

Social

- The Strategic Highways Package identified uncertain impacts on safety due to the increased risk associated with the use of smart motorways.

It is important to note that mitigation measures have been proposed with the aim of preventing, reducing or offsetting any significant adverse effect of implementing the proposed interventions. In doing so, monitoring will also manage the uncertainty of proposals and measure the performance of the Packages of Interventions against any environmental objectives.



Part 3b

Economic Impacts

Summary of Economic Benefits

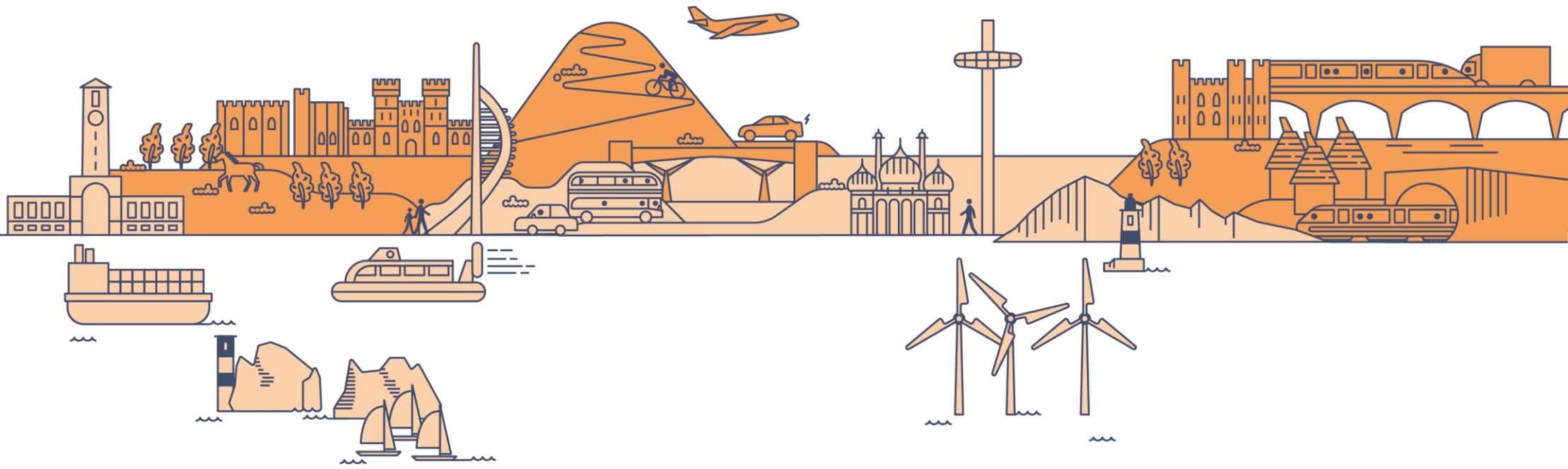
The Packages of Interventions considered in the SPOC have been assessed against the DfT's Transport Appraisal Guidance Economic sub-impacts. SEELUM modelling outputs provide quantified assessments for journey time impacts on Business Users & Transport Providers, Regeneration and Wider Impacts. A qualitative assessment of the reliability of business users has been determined using findings from the OAR.

Sub-impacts	Summary of Packages	Assessment Outputs
Business Users & Transport Providers	<ul style="list-style-type: none"> Evidence-based journey time savings across all interventions regarding rail upgrades. The new services will facilitate direct interchange for longer-distance journeys between Heathrow and the rest of England. Would support significant mode shift from car to bus, rail, and active travel modes. Highway network improvements will separate local and strategic traffic, leading to reduced congestion, improved connectivity and higher efficiency in the network. Wessex Thames Bus Based Mass Transit services deliver high-quality, faster, more frequent, and direct public transport routes. 	<ul style="list-style-type: none"> The proposed Western and Southern Links to Heathrow will reduce journey times by up to 70%. Package 1 (Heathrow Rail, Western Rail Arc, and Eastern Rail Arc) will generate over 28,000 rail trips per weekday by 2050. Faster, more frequent services connecting Major Economic Hubs within the area, and connecting the area to national centres and gateways, will support business users.
Reliability Impact on Business Users	<ul style="list-style-type: none"> The SPOC Packages present a largely positive impact on reliability as they would provide high-quality and resilient bus, rail, and highway networks. 	<ul style="list-style-type: none"> SEELUM estimates a net change of approximately 215,000 fewer daily return car trips by 2050. This (in combination with higher quality public transport and active travel infrastructure and services) would lead to significant increases in reliability for all journeys.
Regeneration	<ul style="list-style-type: none"> Enhancements and upgrades to public transport (e.g. journey time savings and increased capacity) will support growth in housing and employment. Highway network improvements will separate local and strategic traffic and create scope for reallocating road space to active travel and public transport. Improvements to the urban and rural public realm will lead to an improved quality of life and unlocked regeneration opportunities. 	<ul style="list-style-type: none"> 5,700 additional jobs will be filled and housing for an additional 7,100 people and by 2050 on account of the improvements to the transport network in the Wessex Thames area.

Summary of Economic Benefits

The Wessex Thames Area's Major Economic Hubs such as Reading and Guildford are large enough and dense enough to support world class mass transit systems. However, current provision is below the quality of offer provided to other large conurbations in Great Britain. The Packages of Interventions will help the Wessex Thames area support sustainable economic growth.

Sub-impacts	Summary of Packages	Assessment Outputs
Wider and Place Based Impacts	<ul style="list-style-type: none">• Interventions have generally resulted in positive effects on economic objectives as they will promote greater connectivity to services and employment opportunities.• A more accessible and reliable transport network will generate additional employment opportunities, particularly in larger urban areas such as Reading, Blackwater Valley, and the Medway Towns.• An accessible transport network will enable businesses to trade and compete more effectively in the global marketplace.• Greater connectivity and capacity across the Wessex Thames Area and the wider SE Region may also help to facilitate increased tourism opportunities, contributing further to the local and regional economy.	<ul style="list-style-type: none">• The Heathrow Rail Package, delivering significant improvements in journey times to Heathrow through new direct links, will generate the largest contribution to GVA growth at £300 million by 2050.• 5,700 additional jobs will be filled and housing for an additional 7,100 people and by 2050 on account of the improvements to the transport network in the Wessex Thames area.• There is a strong alignment of the location of interventions, typically bus and active mode based - and those areas with highest levels of deprivation such as parts of Slough, the Blackwater Valley, and west and south of Reading – those most in need of levelling-up.• Unquantified impacts include enhancing local accessibility to employment opportunities and key services, enhancements to public realm and pride in place (along with reduced crime and increased safety, well-being, and health) of left-behind communities.



Part 3c

Environmental Impacts

Summary of Environmental Benefits

The Packages of Interventions considered in the SPOC have been assessed against the DfT’s Transport Appraisal Guidance Environmental sub-impacts. An Integrated Sustainability Appraisal (ISA) has been undertaken for the SE WT area, which has informed the summary of environmental benefits. SEELUM modelling outputs provide quantified assessments for noise, air quality, and greenhouse gas emissions, and the remaining sub-impacts have been assessed qualitatively.

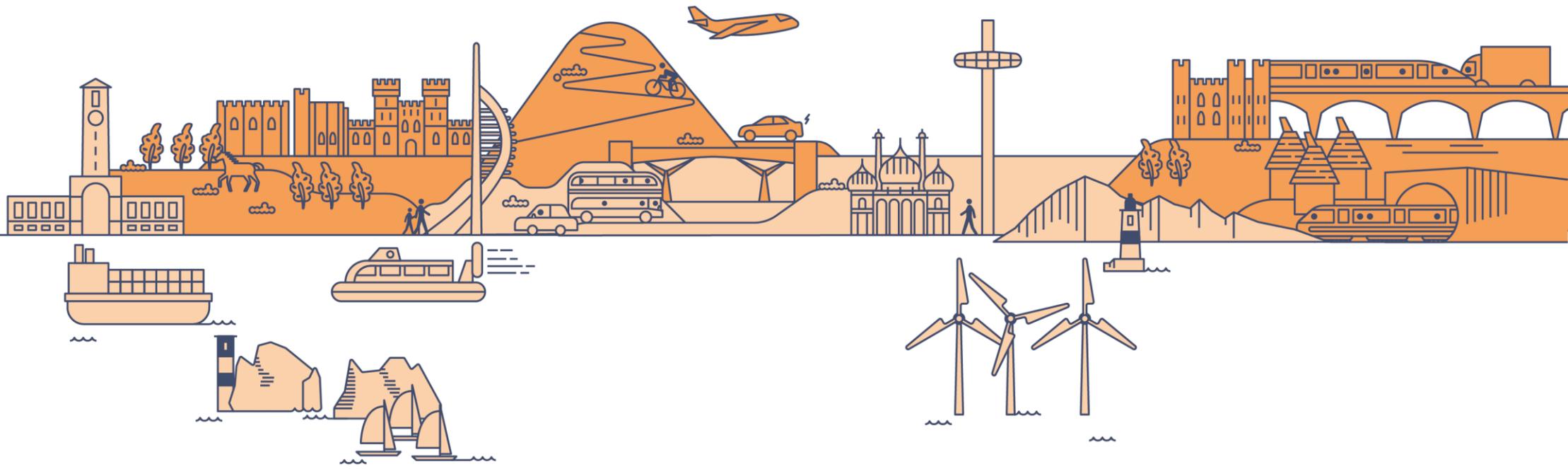
Sub-impacts	Summary of Packages	Assessment Outputs
<p>Noise</p>	<ul style="list-style-type: none"> The introduction of transport schemes such as the electrification of rail lines, BRT Level 1 and 2, active travel, sustainable power options for passenger, smart motorways and freight, support a modal shift from private car use and therefore contribute to the reduction of noise pollution. Improved Southern and Western Rail Links to Heathrow Airport has the potential to improve noise pollution in the area by reducing private vehicle usage to and from Heathrow Airport. However, the higher frequency of BRT services could worsen traffic noise prior to any modal shift. 	<ul style="list-style-type: none"> The Wessex Thames Active Travel Package could result in 121,000 fewer car trips per weekday, thus improving congestion and increasing connectivity across the WT conurbation.
<p>Air Quality</p>	<ul style="list-style-type: none"> The Packages combined identified both positive and negative regarding air quality. Options that support improvements to public transport, electrification of railway lines, resilience to freight, Rail/MRT/Active Travel integration, a reduction in private car usage and support AQMAs, will all contribute to improving air quality. Improvements to air quality will result in beneficial impacts on population within the area, particularly for those who are older, younger, or suffer with respiratory illnesses. Further, improved air quality will make walking or cycling more attractive for shorter journeys. However, interventions such as highways improvements (specifically, highways upgrades and rail upgrades such as the A34 resilience, A3 Guildford upgrades, and Basingstoke enhancement scheme) require additional construction works that will negatively contribute to air pollution in the area. 	<ul style="list-style-type: none"> A high-quality rail network that enhances connectivity between Basingstoke, Woking and Guilford will generate 47,500 more rail journeys per weekday. In turn, a significant reduction in carbon emissions will be achieved from 6,900 fewer car trips per weekday – improving air quality in the Wessex Thames area. Placemaking developments will lead to improvements in air quality in urban areas.

Summary of Environmental Benefits

Sub-impacts	Summary of Packages	Assessment Outputs
Greenhouse Gases	<ul style="list-style-type: none">• Almost all interventions will incur significant GHG emissions through the carbon associated with the construction, maintenance, and operation of the project. For instance, the construction of large-scale schemes such as the Western and Southern Rail Links to Heathrow and the A227 Road Upgrades would lead to significant embodied carbon emissions. Increased GHG emissions could lead to negative cumulative effects across the WT area.• However, improvements to public transport, electrification of rail lines, and a reduction in private car usage, will contribute to reduced GHG emissions.	<ul style="list-style-type: none">• Combined impacts of the place-based packages result in a reduction in CO₂e of 60,000 tonnes a year by 2050.• Combined Global Policy Interventions deliver significant reductions in carbon emissions.
Landscape	<ul style="list-style-type: none">• The interventions are constrained by protected areas such as the Surrey Hills, North Wessex Downs and other AONBs.• Large-scale road and rail schemes (such as, the Woking flyover, A34 Resilience and A3 Guilford upgrades) would result in negative effects due to alterations of landscape character. Further, these interventions would result in substantial loss of land and loss of visual amenity which could have particular negative effects on landscapes.• Disruption to the local tranquillity, contaminated soil, and significant land take all undermine the quality of local sensitive environments.	<ul style="list-style-type: none">• The proposed A3 Guilford Bypass option illustrates both direct and indirect impacts on landscapes. Given the scheme's location within greenbelt land and significant land take, there is likely to be a negative impact on the surrounding landscape.
Townscape	<ul style="list-style-type: none">• Interventions that reduce levels of congestion, noise levels, GHG emissions, and improve air quality (e.g. online enhancements along the M25 could reduce levels of stationary traffic and therefore improve local tranquillity) will have a positive impact on local townscape.• Railway and Highway developments, particularly the Southern and Western Heathrow Rail Links, will negatively effect elements of townscape character due to the associated impacts from additional street fixtures, lighting, furniture, signage, and maintenance equipment.	<ul style="list-style-type: none">• The active travel options presented throughout the SPOC Packages will result in 121,000 fewer daily car trips in 2050, therefore improving the area's townscape through a mode shift from car to active travel.

Summary of Environmental Benefits

Sub-impacts	Summary of Packages	Assessment Outputs
Heritage of Historic Resources	<ul style="list-style-type: none">• The Wessex Thames area is home to some of the country's most iconic archaeological landscapes and areas of high heritage value (such as Guilford). There are opportunities to protect and enhance historic environments through improved design and landscaping.• Improved access to towns and villages across the WT area would have beneficial effects on placemaking and the public realm.• However, several SPOC Packages are located within close proximity to cultural heritage sites. The construction of railway and highway developments is likely to disrupt historic landscapes, listed buildings, and conservation areas.	<ul style="list-style-type: none">• The Electrification of the North Downs Line is set to run directly adjacent to multiple listed building, particularly southeast of Guilford. Therefore, Extensive construction works along the alignment have the potential to adversely affect the setting of heritage assets and could result in pollution events to water bodies, soil, and agriculture assets.
Biodiversity	<ul style="list-style-type: none">• Improvements to public transport would minimise road traffic, limit the levels of transport noise, and improve air quality, which would have beneficial effects on protected areas across the WT area.• There are opportunities to achieve biodiversity net gain.• The development of rail and highway infrastructure within the WT area is likely to cause small scale loss of habitat and disruption to sensitive environments.	<ul style="list-style-type: none">• The A339 road upgrades (Reading to Basingstoke) would result in significant disturbance to biodiversity during the construction stages. Noise, vibration, dust, as well as loss of land would lead to damaged and segregated habitats.
Water Environment	<ul style="list-style-type: none">• New highway and rail interventions should seek to minimise flood risk, with consideration during the design phase to minimise additional flood risk to vulnerable areas of the WT area.	<ul style="list-style-type: none">• Large scale road schemes and large-scale rail schemes(Heathrow Rail Links and A227 Road Upgrades) have potential to increase surface water runoff and flood risk, particularly from physical alteration as a result of development. However, there is potential for highway enhancements to provide the opportunities to improve existing drainage network, reducing polluted run-off and potential for contamination.



Part 3d

Social Impacts

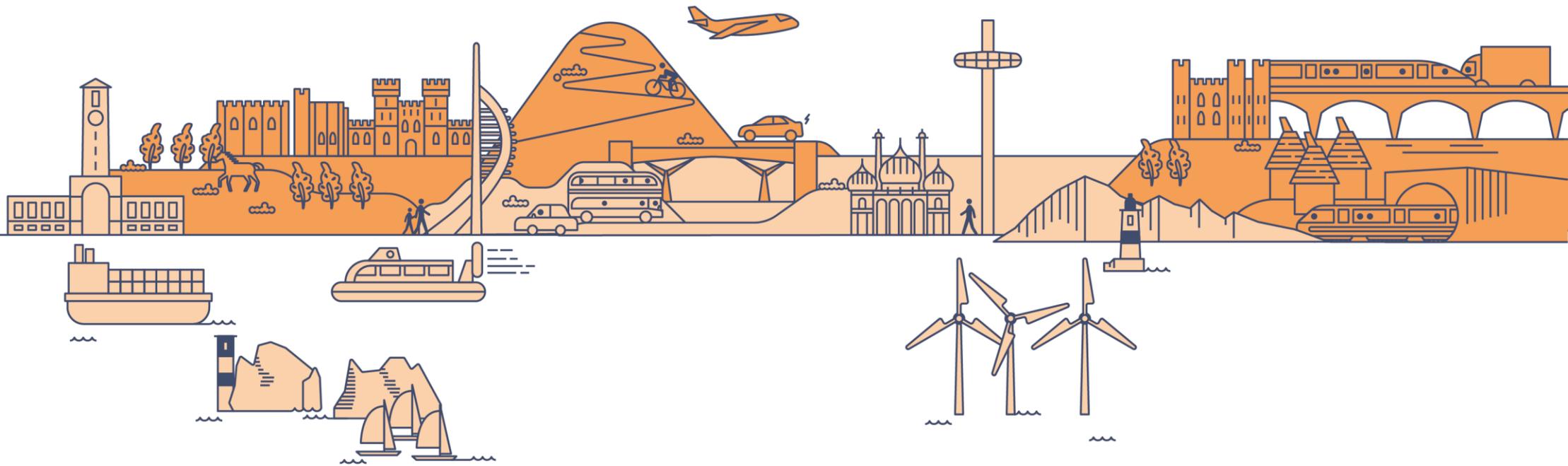
Summary of Social Benefits

The Packages of Interventions considered in the SPOC have been assessed against five of the DfT's Transport Appraisal Guidance Social and Distributional sub-impacts. The remainder of the sub-impacts, as well as a Distributional Impacts assessment, will be considered at further stages of the business case development, and are not considered to represent a material difference to the appraisal at this stage. SEELUM modelling outputs provide quantified assessments for accidents, physical activity, and journey time impact on Commuting and Other Users. A qualitative assessment of the reliability impact of commuting and other users and access to services has been determined using findings from the OAR.

Sub-impacts	Summary of Packages	Assessment Outputs
Commuting and Other Users	<ul style="list-style-type: none"> Wessex Thames Mass Transit interventions, Eastern Rail Arc service enhancements, and strategic highway developments will deliver more frequent services, reduced journey times, greater capacity, and improved connectivity and interchange across the transport network. As a result, the above factors make public transport a more attractive option which will encourage a significant mode shift. Highway network improvements will separate local and strategic traffic, leading to reduced congestion, improved connectivity and higher efficiency in the network. 	<ul style="list-style-type: none"> Across all SPOC Packages, it is estimated that there will be 240,000 more bus journeys by 2050. Therefore, commuting journeys could become more seamless as the interventions alleviate traffic congestion. Faster, more frequent services connecting Major Economic Hubs within the area will support commuters. Improvements in the speed, frequency and connectivity of mass transit services, and better interchange and service quality at Strategic Mobility Hubs, will support commuters.
Reliability Impact on Commuting and Other users	<ul style="list-style-type: none"> The interventions combined deliver a more resilient transport network through improved reliability and frequency of services. An accessible transport network will provide reliable access for residents to employment, education, healthcare and leisure. 	<ul style="list-style-type: none"> The combined SPOC packages could lead to a reduction of up to 215,000 weekday car journeys. This (in combination with higher quality public transport and active travel infrastructure and services) would lead to significant increases in reliability for all journeys.

Summary of Social Benefits

Sub-impacts	Summary of Packages	Assessment Outputs
Physical Activity	<ul style="list-style-type: none"> The Packages combined result in an increase in bus, rail, and active travel trips (265,000), each of which support a modal shift away from private car use. As a result, public transport encourages walking/cycling trips in the first and last mile of journeys, which could have beneficial effects on physical activity. With the exception of active travel interventions, highway developments will continue to encourage reliance on private car use. Having said this, both the Strategic Highways East and West improvements will unlock active travel and public transport benefits. 	<ul style="list-style-type: none"> Together, the SPOC Packages will result in an increase of 210,000 return bus journeys per day and 5,000 active travel trips per typical weekday by 2050. Significant mode shift from car to active travel will generate associated health benefits.
Accidents	<ul style="list-style-type: none"> The modal shift from car to public transport and active travel has the potential to reduce the risk of major road casualties. New road and highway developments are built to high standards of safety. The removal of Level Crossings in Package 1 (Railways) will improve safety for both road users and the rail network. 	<ul style="list-style-type: none"> 1,000,000 fewer vehicle kilometres a day as a result of all packages in 2050 compared to Business as Usual. Qualitative assessment as accidents / collisions resulting in KSIs reduced.
Access to Services	<ul style="list-style-type: none"> Improved access to services will connect individuals within the Wessex Thames area to a wider range of jobs, services and facilities. Improved connectivity to the public transport network will particularly benefit those without access to a private car. Highway network improvements will separate local and strategic traffic, leading to reduced congestion, improved connectivity and higher efficiency in the network. The M25, A229, A227, A228, and A249 will be impacted. However, the use of new roads will largely depend on access to private car, so is likely to benefit all sectors of society. 	<ul style="list-style-type: none"> The proposed Western and Southern Links to Heathrow will reduce journey times by up to 70%.



Part 3e

Conclusion and Value for Money Statement

Conclusion and Value for Money Statement

The SPOC Packages will deliver an efficient, multi-modal transport system that will transform travel within the SPOC area. The findings from the SPOC Packages support the delivery of the following strategic objectives.

Climate Change

- Most interventions are likely to result in an increase in GHG emissions through the carbon associated with the construction, maintenance and operation of interventions. However, the improvement of the rail and bus network could reduce GHG emissions over their operational lifecycles and encourage modal shift towards public transport.
- Mode shift from car to active travel modes will result in a significant contribution towards reducing carbon emissions and improving local air quality levels.
- Combined Global Policy Interventions deliver significant reductions in carbon emissions.

- The transport network will be more resilient to climate events such as flooding, high temperatures, droughts and storms.

Economy

- Upgrades to the public transport network within the Wessex Thames area will not only provide more reliable journey times and increased connectivity, but will unlock access to an enlarged labour market and increased agglomeration.
- Upgrades to the public transport network within the Wessex Thames area will not only provide more reliable journey times and increased connectivity, but will unlock access to an enlarged labour market and increased agglomeration.
- In turn, greater access and connectivity to the Wessex Thames area could facilitate tourism opportunities, contributing further to the local and regional economy.

The Natural and Historic Environment

- All packages will adopt the principles of environmental net gain through their design development.
- Considerate design is needed in the Packages of Interventions to avoid disturbance or damage to protected sites and sensitive environments.

Freight

- The SPOC Packages deliver faster, more frequent interurban and intraurban rail services between and within the largest conurbations in the Wessex Thames Area.
- A high-quality rail network unlocks rail freight paths and will connect the Port of Southampton to the rest of the country.

Society

- The SPOC Packages have the potential to support better placemaking. This will be achieved by reducing the number of cars on the road, improving levels of congestion, and reducing noise and air pollution levels.
- All Packages will connect communities to a wider range of jobs, services and facilities both within and outside of the study area. This will particularly benefit those without access to a private car.

Conclusion and Value for Money Statement

Health and Wellbeing

- Improvements to rail and bus travel will support a shift from private car use to public transport, which will encourage active travel as users are likely to choose walking or cycling for the first and last mile of their journeys.
- Reductions in car journeys and a shift to lower polluting transport options will lead to improved air quality in the Wessex Thames area.
- Several Packages include plans to unlock active travel opportunities, which will bring about significant positive effects on both physical and mental health.

Value for Money Statement

- The value for money for the packages will consider the strategic fit and the quantified economic appraisal results. The quantified economic results are likely to vary widely between different types of schemes, but as a whole the SPOC is anticipated to represent value for money and to support the region in delivering across a number of policy ambitions.
- In addition to the monetised benefits captured above, the SPOC Packages are anticipated to result in a range of social benefits. The interventions will provide sustainable public transport alternatives, in turn reducing congestion and traffic delays which will improve the quality of life for residents within the Solent and Sussex Coast Area and achieve transport equality.

- There are likely to be several net environmental disbenefits as a result of the scheme. Noise, GHG emissions and air quality are likely to worsen during the construction stages of large-scale road and rail projects. However, it is important to consider the long term gains in generating a significant shift from private car use to public transport which supports environmental objectives.



Part 4

Financial Dimension

Introduction

Overview of the Financial Dimension

The Financial Dimension considers the affordability of the Packages for the Wessex Thames Study area.

The Financial Dimension includes:

- Capital funding requirements;
- Operational and maintenance funding requirements; and
- Affordability considerations.

Contents

Part 4a sets out the indicative funding requirement for the SPOC Packages.

It presents:

- An overview of the cost estimation approach and key assumptions;
- The capital cost estimate for all of the Packages of Interventions; and
- Maintenance and renewal estimates

Part 4b outlines affordability considerations.

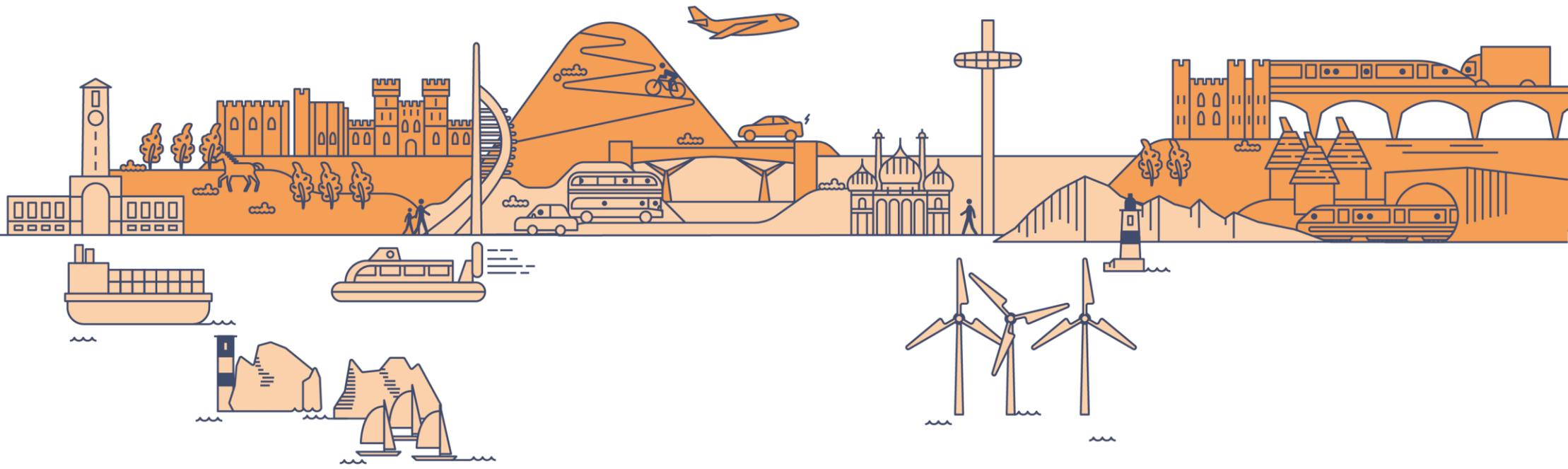
It sets out:

- Considerations for funding the capital cost requirement; and
- Potential sources for the funding and financing of the SPOC Packages.

Alignment with Department for Transport Business Case Guidance

The table below sets out DfT's requirements for the Financial Dimension and the level of detail expected at Strategic Outline Case stage. The final column of the table shows where the Financial Dimension addresses each requirement.

TAG Issue	TAG Requirement	Progress at SOC	Reference
Introduction to affordability	Outline the approach taken to assess affordability	Outline	Part 4b
Budgets and funding cover	Provide analysis of the budget and funding cover for the proposal: set out, if relevant, details of other funding sources	Outline	Part 4b
Costs	Provide details of the expected whole life costs, when they'll occur, breakdown and profile of costs by those parties on whom they fall, and any risk allowance required.	Outline	Part 4a & 4b
Accounting implications	Describe the expected impact on the organisation's balance sheet	Not Required	N/A



Part 4a

Funding Requirement

Capital Costs

Overview of approach

The capital cost estimates have been prepared to a level of detail commensurate with the maturity of the design of the interventions.

Items and quantities have been priced using either published costs or built up based upon industry standard rates.

Where intervention estimates have been built up, percentage allowances have been added for design fees, STATS and land costs.

To reflect the maturity of the design a risk allowance has been applied.

All estimates have a base year of 2020.

The maintenance and renewal estimates are based on an allowance of the capital cost estimate.

The capital costs for the various interventions are based on current published OAR, SOC, OBC and FBC estimates where these exist and have been located.

Those interventions that have no published cost information available have had their construction costs built up based on type of intervention (rail, MRT, highways, active travel and placemaking), high level scope (route lengths, number of stations, allowances for structures, major junction improvements etc), location (urban or rural), nature (standard or high spec/'statement' intervention, all new or upgrading of existing).

The resulting items and quantities have been priced using historic project data and industry standard published data, with cognisance made of the location and nature of the intervention. Allowances have been made for main contractor's preliminaries and overhead and profit on the same basis.

Percentage allowances to cover for professional/Client fees, STATS and land costs have been applied to the construction costs at levels based on amounts allowed for generally in business cases and from experience in working on rail and highway schemes with Network Rail and National Highways.

Risk

To reflect the lack of maturity of the design on which these 'bottom up' estimates are based, risk allowances have been applied at levels commensurate with SOC estimates, informed by TAG as follows detailed in the table below.

Mode	Allowance	Rationale
Rail and Mass Rapid Transit	56%	Latest TAG (as of May 2021) SOC level OB for rail – Considered to be similar for MRT
Highway and Active Travel	46%	Latest TAG (as of May 2021) SOC level OB for roads
>£250m and complex schemes	200%	Supplementary Green Book Guidance on OB - upper value for development

Price Ranges

Estimates have been presented as low, medium and high range of costs to reflect a level of uncertainty in cost estimating accuracy due to the lack of maturity of the design of the majority of the schemes but are typically +/- 10% in relation to the medium cost.

Capital Costs

The Table below presents the Capital Cost Estimates for the Wessex Thames Packages.

Package Description	Low Cost (£m, 2020 prices)	Mid Cost (£m, 2020 prices)	High Cost (£m, 2020 prices)
Wessex Thames Rail	6,400	7,200	7,600
Wessex Thames Mass Transit and Active Travel	1,300	1,400	1,500
Wessex Thames Highways	1,400	1,800	2,900
Total Wessex Thames	9,100	10,400	12,000

Maintenance and Renewals

Maintenance and Renewals

Having reviewed historical data of similar types of schemes, maintenance and renewals average circa:

- 2.56% of capital costs for rail, over a 30-year period.

This is made up of a typical rate of:

- 0.08% per year for maintenance
- + 0.1% in year 20 for renewal
- + 0.16% in year 30 for a further renewal

7.5% of capital costs for MRT, active travel and highways, over a 30-year period.

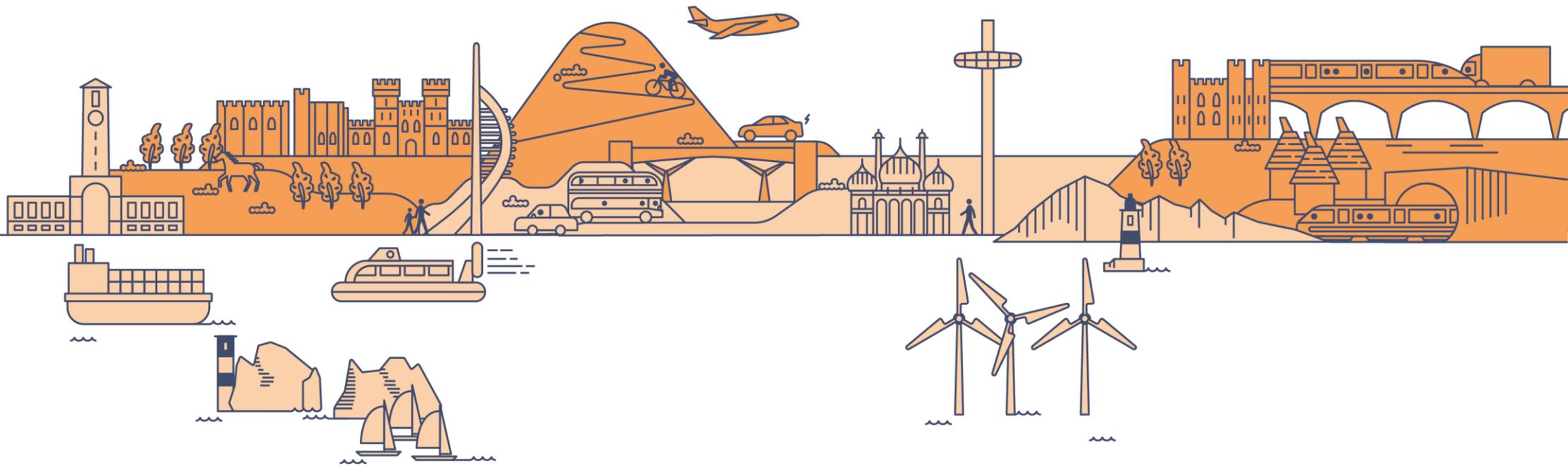
This is made up of a typical rate of:

- 0.1% per year for maintenance
- + 1.5% in year 20 for renewal
- + 3% in year 30 for a further renewal

The table shows a flat rate of 2.56% and 7.5% respectively applied against the 2020 base price of each package of interventions.

Annual maintenance and renewal cost estimates for the Wessex Thames Packages are presented in the table to the right.

Package Description	Mid Cost (£m, 2020 prices)
Wessex Thames Rail	185
Wessex Thames Mass Transit and Active Travel	110
Wessex Thames Highways	135
Total Wessex Thames	430



Part 4b

Affordability

Funding Sources

Funding Sources

There are a number of funding sources to potentially support infrastructure investment in the South East.

These funding sources, identified below, vary in the likely amount of funding they will generate and the challenges associated with their implementation. Additionally, new funding sources may emerge in response to environmental, economic and social changes over the life of TfSE's Transport Strategy.

Potential funding sources include:

- Central Government funding, e.g. Housing Infrastructure Fund, Transforming Cities Fund
- Rail Enhancement/Renewals funding, e.g. Rail Network Enhancements Pipeline
- National Roads Fund, e.g. Roads Investment Strategy, Major Road Network
- Third party contribution, e.g. from major private sector investors, land/asset owners, and developers
- Local rates/levies, e.g. Work Place Parking Levy, Business Rate Supplement

Affordability

To afford the identified cost of the proposed packages a range of funding and financing sources will be required.

A large proportion of this funding should be secured from local sources, with the funding strategy seeking to capture part of the value from the investment that accrues to a range of local beneficiaries.

The development of the funding strategy will therefore consider ways of capturing the uplift in benefits enabled by the interventions as this will reduce reliance on the public purse. Capturing these benefits to generate funding for transport infrastructure can be achieved by developing an appropriate funding package.

Currently, TfSE do not have the powers to raise funding. Dependent on the level of devolution granted by central government, TfSE could gain these powers, as well as utilising the powers available to local councils and authorities that are partners to TfSE.

Given the scale of investment proposed and the range of transport infrastructure interventions, a portfolio of funding sources will be required reflecting the nature of beneficiaries and the criteria for the funds.

An additional potential funding source will be farebox revenue from the surplus from public transport services, once operating costs are met.

TfSE would not collect these additional funds themselves so they would be required to work with local transport providers to understand if this is a viable funding mechanism for transport infrastructure improvements.

Developing the Indicative Spend Profile

An estimated total implementation time was calculated using sub-categories of intervention displayed on the table overleaf.

Current Stage

Stages of scheme development for each intervention type are identified below and used in the table overleaf. The project stages used were:

- Pre-SOBC (Preparation for the Strategic Outline Business Case)
- SOBC (Strategic Outline Business Case)
- OBC (Outline Business Case)
- FBC (Full Business Case)
- Pre-DCO (Development Consent Order) / PI (Public Inquiry)
- DCO (Development Consent Order) / PI (Public Inquiry)
- Delivery (or construction / implementation)

Where information on the project stage was missing or clearly in a very early concept stage, the intervention was assumed to be at the Pre-SOBC stage.

For smaller or simpler interventions, not all stages may be required.

Implementation Time

The total implementation time assumptions for each of these range from 0-2 years for an active travel service improvement to 15-20 years for a new offline rail infrastructure scheme (see table overleaf).

If there was published information for a particular intervention on the construction start year, end year and/or construction duration then this was applied instead of the assumed construction time.

Phasing

A high level forecast was also calculated, categorising the schemes into:

- Short-term
- Medium-term
- Long-term

Short-term schemes were judged to have a construction start date in 2030 or before. Medium-term schemes were judged to have a construction start date between 2031 and 2040. Long-term schemes were judged to have a construction start date 2041 onwards.

For the spend profile, an even distribution of was assumed between the construction start year and construction end year for each intervention. The total for all the interventions in that year provides the total construction spend estimated for each particular year.

As only a small proportion of total capital spend takes place prior to construction, all capital spend were assumed to be incurred during construction.

Developing the Indicative Spend Profile

Indicative timescales for different intervention categories										
Category	Sub-Category	Time	Max Years	Pre-SOBC	SOBC	OBC	FBC	Pre-DCO/PI*	DCO/PI*	Delivery
Rail	Rail - New Offline Rail Infrastructure	15-20 years	20	20	15	12	10	8	6	5
Rail	Rail - New Online Rail Infrastructure	5-10 years	10	10	7	6	5	4	3	2
Rail	Rail - Service Improvement	0-7 years	7	7	5	4	3	N/A	N/A	1
Rail	Rail - Reinstating Line	10-15 years	15	15	12	10	8	7	5	4
Rail	Rail - Level Crossing Removal	5-7 years	7	7	6	5	4	3	2	1
Mass Rapid Transit	MRT - New BRT/MRT	5-10 years	10	10	7	6	5	4	3	2
Mass Rapid Transit	MRT - New Ferry/Waterway	5-8 years	8	8	6	5	4	N/A	N/A	2
Mass Rapid Transit	MRT - Service Improvement	0-5 years	5	5	4	3	2	N/A	N/A	1
Mass Rapid Transit	MRT - New Strategic Mobility Hub	3-5 years	5	5	4	3	2	2	1	1
Mass Rapid Transit	MRT - Infrastructure Improvement	3-5 years	10	10	8	7	6	N/A	N/A	1
Active Travel	Active Travel - New Cycleway/Footways	2-5 years	5	5	4	3	2	N/A	N/A	1
Active Travel	Active Travel - Improved Cycleways/Footways	1-3 years	4	4	3	2	1	N/A	N/A	1
Active Travel	Active Travel - Service Improvement	0-2 years	4	4	3	2	1	N/A	N/A	1
Active Travel	Active Travel - Mobility Hubs	2-3 years	3	3	3	3	2	2	1	1
Active Travel	Active Travel - Online Road Improvements	2-3 years	3	3	3	3	2	N/A	N/A	1
Active Travel	Active Travel - Offline Road Improvements	3-5 years	5	5	4	3	3	2	1	1
Highways	Highways - Junction Improvement	3-5 years	5	5	4	3	3	2	1	1
Highways	Highways - Widening	3-5 years	5	5	4	3	3	2	1	1
Highways	Highways - New Online Infrastructure Improvement	3-5 years	5	5	4	3	3	2	1	1
Highways	Highways - Bridge/Tunnel	15-20 years	20	20	15	12	10	8	6	5
Highways	Highways - Bypass/Relief road	10-15 years	15	15	12	10	8	7	5	4
Highways	Highways - Lorry Park	5-7 years	7	7	6	5	4	3	2	1
Highways	Highways - Service Improvement	2-5 years	4	4	3	2	1	N/A	N/A	1

* If required.

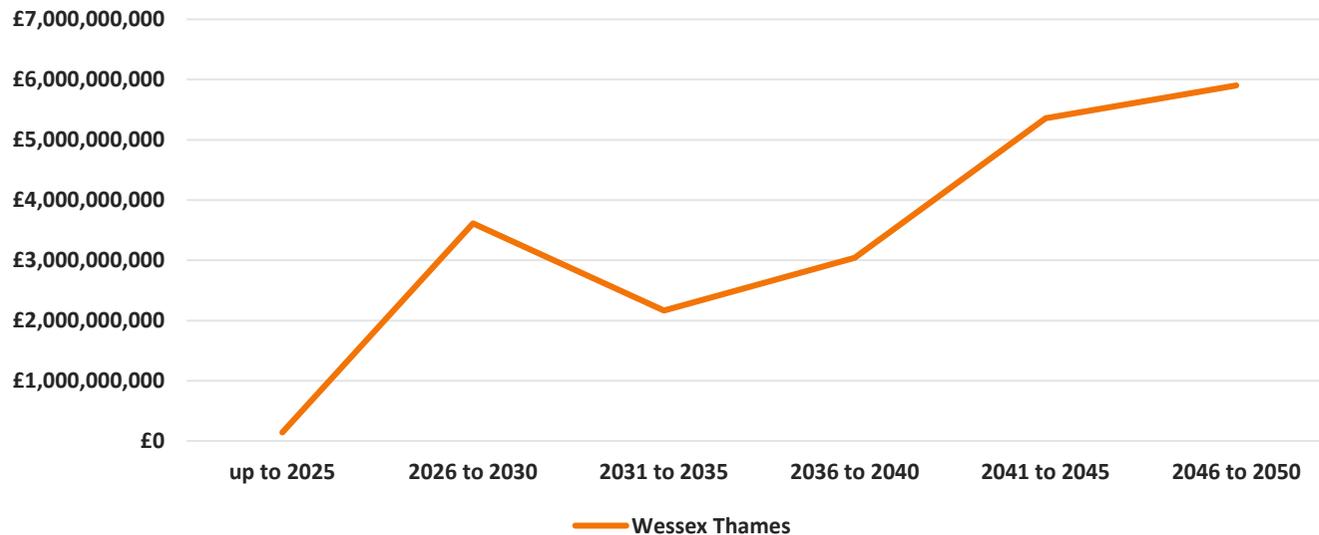
Indicative Spend Profile

Spend by potential scheme promoter

Potential Funder	Mid Cost (£m), 2020 prices
Network Rail	7,200
National Highways	1,600
Local Transport Authority	1,600
Total	10,400

Spend profile (in outturn prices)

Delivery Window	To 2025 (£m)	2026-2030 (£m)	2031-2035 (£m)	2036-2040 (£m)	2041-2045 (£m)	2046-2050 (£m)
Capital Cost	150	3,600	1,200	3,000	5,400	5,900



Funding and Financing

Financing upfront costs

To bridge the mismatch in timing between the costs of implementing the interventions and the realisation of the resulting funding streams, financing for the packages will be required.

As with the funding sources described above, there are a number of potential financing opportunities, each with different criteria and challenges to TfSE. These include:

- Public Work Loans Board, the largest lender to local authorities
- UK Infrastructure Bank, recently established by government to increase infrastructure investment
- Commercial Lending, an option if more attractive options such as PWLB or UKIB are unavailable

Funding and Financing Strategy

A robust funding and financing strategy is required to ensure the affordability of the packages set out in this SPOC.

At this stage it is anticipated that the strategy will be framed by the following principles:

- Drawing on local funding sources for a significant proportion of funding required to deliver the transport infrastructure proposals
- Funding sources to cover operating, maintenance and ideally renewal costs
- TfSE working with local authorities to ring-fence revenue for transport infrastructure investment
- Attracting new investment (with associated taxes) to the region through enhanced connectivity brought by the new infrastructure

Further detail on the funding and financing strategy will be set out in the Strategic Investment Plan, which will document the anticipated investment profile over the life of the Transport Strategy and the associated funding and financing mechanisms required to deliver them.

The Strategic Investment Plan will further explore the requirement for government funding, which will partially be used for the development of schemes.



Part 5

Commercial Dimension

Version 1.0
February 2022

Introduction

Overview

The Commercial Dimension addresses the commercial viability of delivering the Packages of Interventions.

The Commercial Dimension outlines the viable procurement options to engage the appropriate service providers in the delivery of the Package of Interventions. The level of detail reflects the early stage of programme development and the level of detail available for the schemes identified in the Packages of Interventions.

It therefore demonstrates the various procurement options available without determining the preferred procurement route, and in doing so identifies the potential roles for TfSE and its partners in the delivery of the Transport Strategy.

The Commercial Case for the Packages of Interventions will be developed in further detail as part of the Strategic Investment Plan and within the individual Packages of Interventions specific OBC stage.

Contents

Part 5a Viability

This identifies the elements needed to structure a procurement strategy, such as:

- understanding of the services;
- output specification;
- market assessment;
- deliverability assessment, and
- Risk assessment and management.

Part 5b Procurement

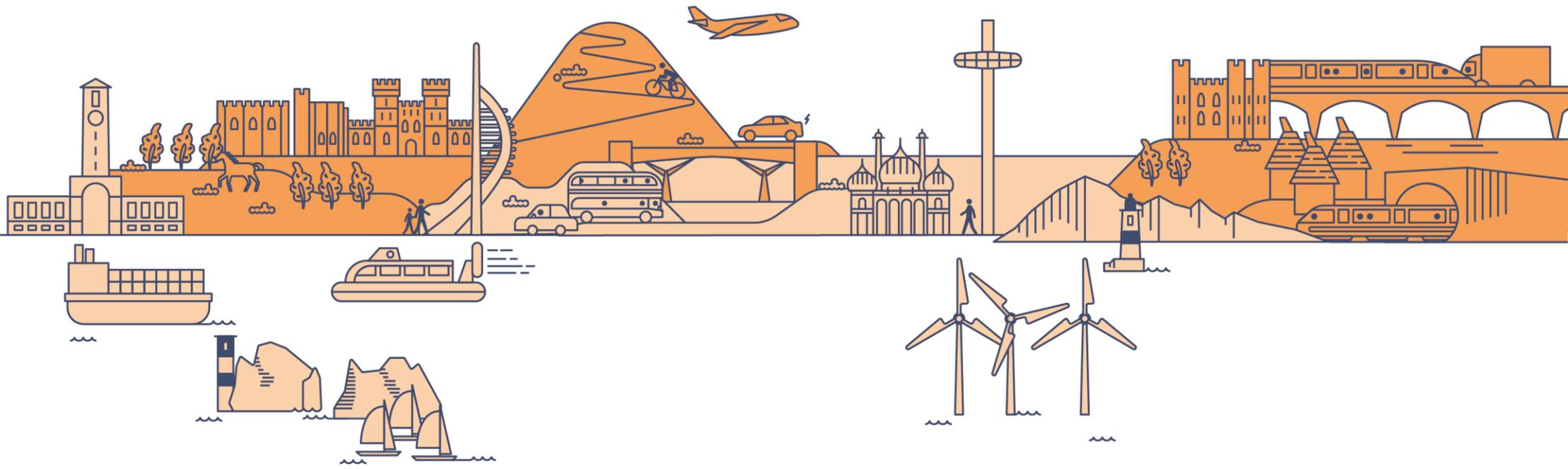
Outlines the available routes in terms of:

- procurement models;
- delivery models; and
- contract strategies.

Alignment with Department for Transport Business Case Guidance

The table below sets out DfT's requirements for the Commercial Case and the level of detail expected at Strategic Outline Case stage. The final column of the table shows where the Commercial Dimension addresses each requirement.

TAG Issue	TAG Requirement	Progress at SOC	Reference
Commercial approach	Outline the approach taken to assess commercial viability	Complete	Part 5a
Output-based specification	Summarise the requirement in terms of outcomes and outputs, supplemented by full specification as an annex	Outline	Part 5a
Procurement strategy	Detail the procurement and purchasing options including how they will secure the economic, social, and environmental factors outlined in the economic dimension	Outline	Part 5b
Human resource issues	Describe any personnel, people management and trade union implications, where applicable, including TUPE regulations	Partial	Part 5b
Sourcing Options	Explain the options for sources of the provision of services to meet the business need: this may include partnerships, frameworks and/or existing supplier arrangements, with the rationale for selecting preferred sourcing option.	Outline	Part 5b
Payment mechanisms	Set out the proposed payment mechanisms that will be negotiated with the providers	Not Required	N/A
Pricing framework and charging mechanisms	Include incentives, deductions and performance targets	Not Required	N/A
Risk allocation and transfer	Present an assessment of how the types of risk might be apportioned or shared, with risks allocated to the party best placed to manage them subject to achieving value for money	Not Required	N/A
Contract length	Set out scenarios and rationale for contract length, including proposed key contractual clauses	Not Required	N/A
Contract management	Provide a high-level view of implementation timescales: detail additional support for in-service management during rollout and closure and set out arrangements for managing the contract through project or service delivery	Not Required	N/A



Part 5a

Viability Considerations

Viability Considerations

Understanding the Services

At this stage TfSE will act as the leading promoter of the Packages of Interventions. It has been established that this includes a variety of projects, stakeholders and potential service providers.

Confirmation of the scope and key service requirements of each Package of Interventions will be the first step towards the understanding of its viability.

TfSE in discussion with relevant partners identified hereafter should seek to confirm in principle:

- ‘Core’ services to be procured to justify the investment and achievement of benefits as set out in the Strategic Dimension;
- ‘Desirable’ additional services which can be still justified on a VfM basis; and
- ‘Optional’ services that are beneficial, possible and affordable.

Table 5.1 presents our assumptions for the proposed key delivery partners for each Package of Interventions included in this SPOC. It is likely to be a combination in many instance, either for a single intervention or different interventions within a package.

Table 5.1: Packages of Interventions

Package of Intervention	Proposed Delivery Partners
Wessex Thames Rail	DfT – Network Rail – Local Authorities – Operators – Private Sector
Wessex Thames Mass Transit	DfT – Local Authorities – Network Rail – National Highways – Operators – Private Sector
Wessex Thames Active Travel	DfT – Local Authorities – Sustrans – National Highways – Private Sector
Wessex Thames Highways	DfT – National Highways – Local Authorities – Private Sector
Global Policy Package	DfT – National Highways – Network Rail – Other Government Departments and their agencies – Operators – Local Authorities – Operators – Private Sector

For many interventions, it is likely TfSE will be a key delivery partner, and for some interventions, it may be beneficial for TfSE to be a (co-)scheme promoter.

In many instance, DfT are likely to be a key delivery partner through funding or interventions requiring ministerial approval.

Viability Considerations

Output Specification

To ensure the ‘right thing, is being bought in the right way’ a clear output specification will be required for each Intervention.

Reflecting the level of definition for many of the Interventions under consideration in this SPOC, the Deliverability Assessment undertaken for the Options Assessment Report (OAR) considered a range of criteria at a high level for each typology. (These are set out under MCAF below.)

Central to ensuring a robust procurement strategy will be determining a detailed output specification for each intervention and reconfirming their deliverability and areas of risks.

Market Assessment

The range of intervention typologies represented in the SPOC Packages are generally reasonably technically mature proposals and therefore there is confidence that the supplier market has the capability and capacity to deliver them.

As illustrated in the MCAF analysis of deliverability for the OAR, each of the typologies was assessed not to present a significant technical risk and an established supplier market is known to exist (e.g. for highway and rail enhancements, mass rapid transit, mobility hubs).

Additionally, the Packages of Interventions identified in this SPOC provide a divisible programme of schemes. This provides flexibility in the scale and timing of delivery of the interventions, aiding the development of a pipeline and hence ensuring supplier capacity.

Sponsorship/ Procurement Options

The range of typologies and divisible nature of the Packages of Interventions identified in this SPOC provides an opportunity to select the best sponsorship and delivery model for each Intervention or Package of Interventions.

Given this flexibility, there are a range of routes to market. It is anticipated that a number of separate scheme promoters and delivery contracts will be required.

Further, given the anticipated timescales for delivering the full set of Packages, it is likely that the procurement options available to the scheme promoters, particularly in terms of specific contracts, will change during the lifecycle of the project. Therefore, the commercial and procurement strategy will evolve as the programme develops.

Potential sponsors will include, among others:

- TfSE
- Local Transport Authorities
- National Highways
- Network Rail
- DfT

Viability Considerations

The Multi Criteria Assessment Framework applied at the OAR stage included a high-level assessment of the deliverability of each intervention. Each intervention was scored on a scale of 1 to 5 against the following criteria:

- **Capital costs:** Interventions were assigned a score based on their anticipated cost range. Interventions expected to incur high capital costs were assigned a score of 1, while those with lower costs were assigned a score of 5.
- **Value for Money:** Value for Money assessments were broadly based on the scale of funding each intervention is expected to need. For example, larger Nationally Significant Infrastructure Projects were generally assigned lower scores than interventions requiring less public funding.
- **Affordability:** Affordability was assessed against the likelihood that funding can be provided. It considered the attractiveness of the project to delivery partners to provide funding, and whether there is a need for additional funds from non-government sources. Interventions with high levels of affordability were allocated a score of 5, and those deemed least affordable were allocated a score of 1.
- **Timescales:** Interventions were assigned timescale bands, which encompassed short term (considered those that would be delivered within five years), medium term (delivered within five to fifteen years), and long-term (greater than fifteen years beyond the Local Plan end date) in line with Local Plan needs.
- **Technical Complexity:** Technical complexity was based on benchmarking against comparable schemes. 'Riskier' projects were assigned lower scores than less risky projects.
- **Acceptability:** At this stage of the assessment, it was assumed that those interventions with smaller budgets are more likely to be developed, funded, and supported by both the general public and politicians than those of a much greater scale of impact.
- **Evidence Base:** Finally, the Project Team reviewed the evidence base informing the development of each proposed Intervention. Those interventions that can cite projects that have been successfully delivered in the UK were awarded higher scores than those supported by 'thinner' evidence bases.

Only the interventions which were assessed as being deliverable, namely were scored more highly, were progressed to the packaging of interventions stage and considered in this SPOC.

Viability Considerations

Risk Assessment

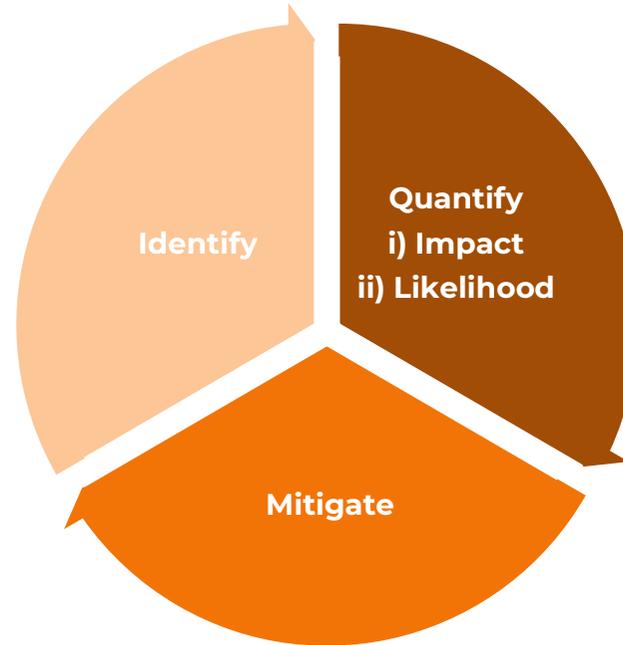
For each Package risks should be identified, quantified and mitigated in line with the methodical approach outlined within HM Treasury's Green Book.

The scheme risks can largely be grouped into the following categories:

- Risks to the project programme
- Political risks
- Risks to scheme cost
- Risks to scheme funding
- Risks to operations
- Design and information risks
- Health and safety risks
- Reputational risks

Risk should be quantified by assessing the likelihood (or probability) of them occurring, denoted as 'P', and the severity of impact on the project, denoted as 'I'. Using a 5-point scale from 1 (low) to 5 (high) the significance of these factors can be scored. These scores are multiplied by each other ($P \times I$) to determine the total risk score, which ranges from 0-25.

Figure 5.1: Approach to Risk Assessment



An illustration of an approach to risk assessment is shown in **Figure 5.1**.

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

One of the following four strategies can be adopted for each risk when developing a suitable response plan:

- **Accept or tolerate** consequences in the event that the risk occurs, where 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 – preventative, corrective, directive and detective controls
- **Transferring the risk:** risks transferred to a third party e.g. insurer or contractor
- **Terminating** the activity that gives rise to the risk

Following the implementation of these strategies, if a risk can be treated and its effects mitigated, the risks should be 're-scored', and this new score included in the risk register.

Management of Risks

Governing Principle

The governing principle, as described by HM Treasury, is that specific risks should be allocated to the party best able to manage it, subject to the risk premium.

This is intended to share risk between the promoter, stakeholders and potential service providers. As the development of the Packages of Interventions progresses and the commercial strategy to support their delivery is developed, the following principles should be taken into account:

- The public sector should consider transferring risk to the private sector when the service provider is better able to influence the outcome than the procuring authority.
- The degree to which risks may be transferred depends on the specific proposal under consideration.
- The private sector should be encouraged to take the risks it can manage more effectively than the public sector; particularly where it has clear ownership, responsibility and control.
- The successful negotiation of risk transfer requires a clear understanding by the procuring authority of the risks presented by a proposal; the broad impact that these risks may have on the service provider's incentives and financing costs (cost drivers); and the degree to which risk transfer offers Value for Money.

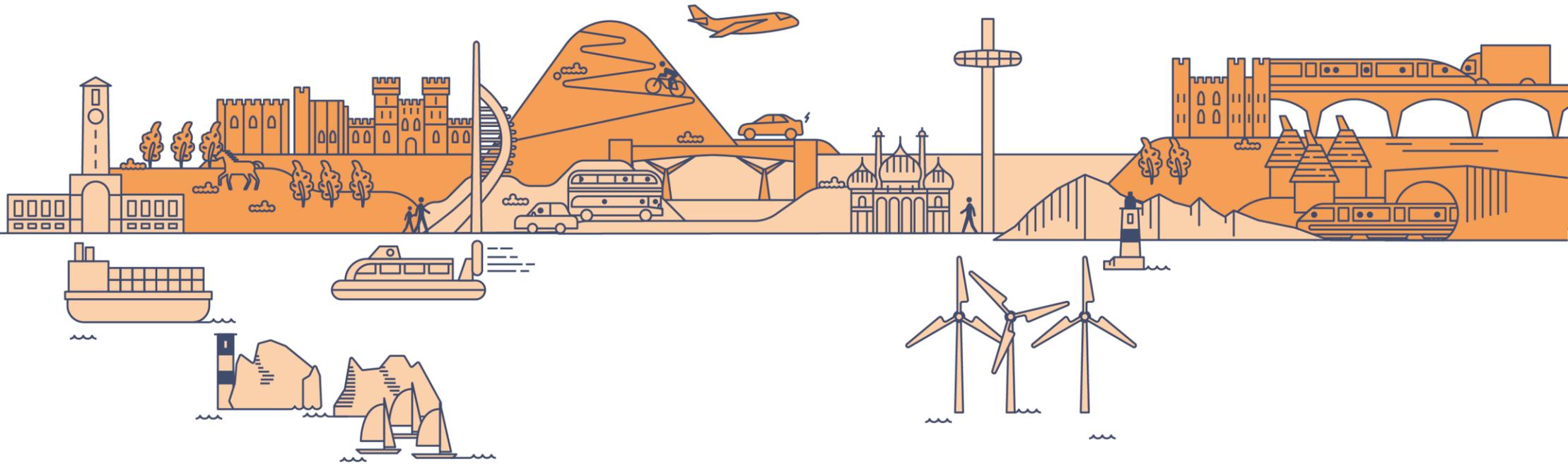
Consideration of Risks

TfSE should seek to apportion or share the different types of risks between parties, with risks allocated to the party best placed to manage them subject to achieving value for money.

The delivery of the Packages should be set in a way that:

- allocates risk appropriately across contracts;
- incentivises the intended outcomes in terms of performance, efficiency and innovation;
- facilitates the delivery of the project to time and budget; and
- secures the targeted economic, social and environmental benefits of the project as discussed with stakeholders and agreed with decision makers.

A Draft Risk Register for this SPOC is presented in the Management Case.



Part 5b

Procurement Options

Procurement Options

Sourcing Options

In place of the Official Journal of the European Union's Tenders Electronic Daily (OJEU/TED), the Find a Tender Service (FTS) is the new UK e-notification service where notices for new procurements are required to be published.

All public-sector tenders valued above £4,551,413 (for infrastructure projects) must be advertised. Furthermore, Public Contract Regulations PCR 2021 indicate that:

- Minimum thresholds for sub-central governments is £25,000
- Public supply and services contract and their design context threshold is £213,477

There are several procurement procedures available to schemes to which the FTS/OJEU values apply. These each have particular benefits and use cases, as follows.

Open Procedure

This procedure allows an unlimited number of interested parties to tender against defined parameters. There are no restrictions (e.g. pre-qualification) on the parties who are permitted to tender, meaning that some parties may not be suitable to carry out the work. This procedure is straightforward and transparent but can attract a large number of potential bidders (which will require a greater degree of assessment and resource requirements).

This route is not usually recommended for construction projects due to the high number of tenders that could be expected and the particular skills and experience that may be required of potential bidders.

Restricted Procedure

This is a two-stage procedure. The first stage allows the contracting authority to set the minimum criteria relating to technical, economic and financial capabilities that the potential bidders must satisfy. Following evaluation of the responses to the first stage a minimum of five bidders (unless fewer qualify) are invited to tender in the second stage. This process is typically used to appoint consultants or contractors on traditionally procured projects.

Accelerated Restricted Procedure

As for the Restricted Procedure, but used where, for reasons of urgency, the contracting authority must procure the contract in a reduced time frame. Any contracting authority wishing to use this procedure must be able to demonstrate the reasons of urgency.

Procurement Options

Competitive Dialogue Procedure

This procedure is appropriate for complex contracts where contracting authorities:

- Are not objectively able to define the technical means capable of satisfying their needs or objectives, and / or
- Are not objectively able to specify the legal and/or financial make-up of a project.

This is a multi-stage procedure. The first stage is a pre-qualification to select the potential bidders to participate in the dialogue. In the second stage, the contracting authority enters into a dialogue with the potential bidders to identify and define the means best suited to satisfying their needs. Any aspect of the contract may be discussed, including technical requirements for the works to be delivered and the commercial / contractual arrangements to be used. The dialogue may be conducted in successive phases with the remaining bidders being invited to tender..

By the end of the dialogue phase the contracting authority's requirements will have been determined such that the scheme can be tendered. In the final stage, the remaining bidders from the dialogue phase are invited to tender for the scheme.

Competitive Procedure with Negotiation

Within this procedure, bidders initially submit tenders based on the information issued by the contracting authority. The contracting authority is then able to review the tenders it has received and negotiate with the bidders, following which the tenders will be resubmitted. This procedure may therefore be useful where the requirements are well developed initially, and full tender documents can be produced but it is felt that there may be advantage in retaining the ability to hold negotiations if there are certain aspects which bidders raise.

Preferred Procurement Procedure

Considering the size, complexity and value of the Packages and Interventions within the SPOC, it is likely that a combination of the above procurement procedures will be used to procure the necessary services to support the delivery of TfSE's Transport Strategy.

As the SPOC interventions will be delivered using a programme approach, the opportunity to deliver individual interventions or packages of work within the programme will dictate the procurement and sourcing options for individual packages of work.

Procurement Options

Programme Prioritisation

The need to prioritise the Packages of Interventions could present itself. For this purpose a framework for programme prioritisation could be based on:

- Benefit impact – greatest Net Zero impact;
- Deliverability – ease of delivery based on sponsor availability;
- Profitability – potential of revenue generation;
- By nature of Intervention - geography, value, ongoing liability;
- Link to wider benefits and other Packages of Interventions.

Further consideration of the programming of the interventions will be addressed in the Strategic Investment Plan.

Challenges/Blockers

The risks identified during the viability review should be taken forward through procurement. Risk should be captured in contracts and passed on where possible. Additional risks related to the chosen procurement method should also be considered.

Additional Resourcing

TfSE will provide resource where appropriate. This could involve:

- business case and scheme development, including use of analytical framework;
- scheme prioritisation, (securing) funding, and advocacy;
- procurement and sourcing supply chains for development / planning and construction / operations; and
- staff resource and resource funding to support the above as well as build capacity and capability within scheme promoters' own organisations.

In addition, Transport for the South East has recently been awarded funding by the Department for Transport to support Local Transport Authorities in the delivery of their Local Transport Plans. The support will help LTAs to enhance their capability in key areas, such as the development of business cases, scenario planning and undertaking carbon impact assessments. The initial stage of the work will involve identifying the capability gaps, with the latter stages providing support to address these areas.

This work will form the initial stages of the development of our Centre of Excellence proposal and will help to determine how TfSE supports the proposals identified by local transport authorities over the rest of the financial year.



Part 6

Management Dimension

Management Case

Overview

The Management Dimension sets out the proposed approach for managing the delivery of the SPOC Packages.

The Management Dimension identifies the need for robust arrangements to be in place for:

- Delivery
- Monitoring and evaluation of the scheme (including feedback into the organisation's strategic planning cycle)

For each Package of Interventions, there will need to be a **Management Plan** to ensure that each intervention is being managed in accordance with best practice, government guidance, subjected to independent assurance and that the necessary arrangements are in place for:

- Change and contract management
- Risk management
- Benefits realisation
- Lessons management
- Data information security
- Project closure

Contents

Part 6a Governance Arrangements

This identifies the considerations for establishing:

- Programme management
- Governance structure
- Communications plan

Part 6b Delivery Plan

Outlines the areas to address to ensure the successful delivery of the SPOC Packages, including:

- Project plan
- Benefits realisation plan

Part 6c Delivery Risks

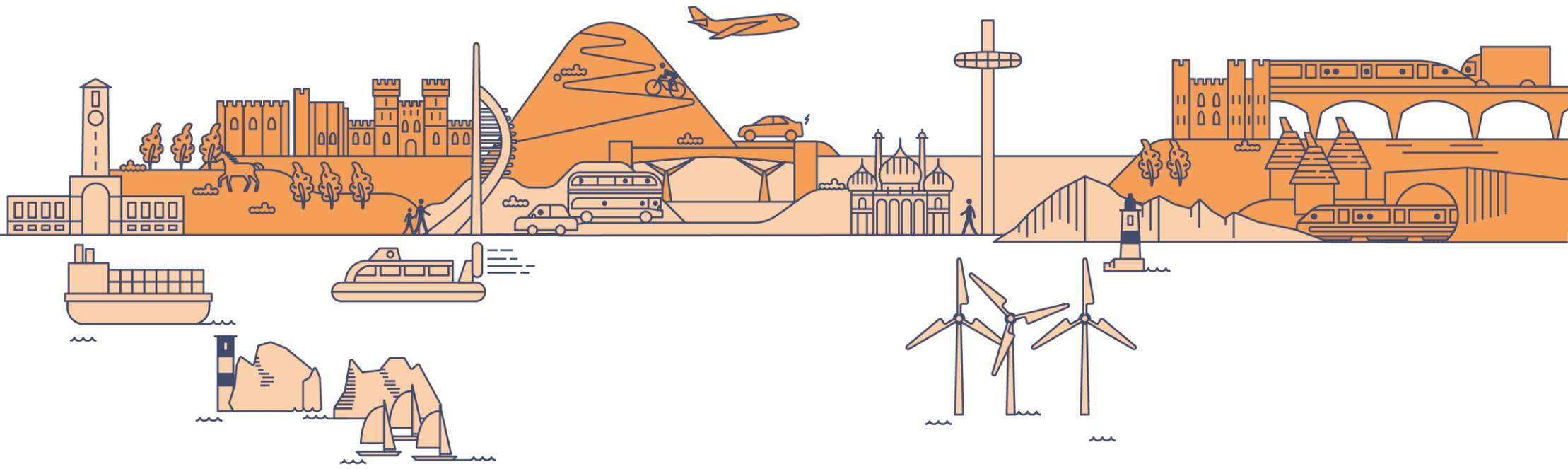
Addressing management of delivery risks in terms of planning, strategies and mitigation.

Alignment with Department for Transport Business Case Guidance

The table below sets out the DfT's requirements for the Management Dimension and the level of detail expected at Strategic Outline Case stage. The final column shows where the Management Dimension addresses each requirement.

TAG Issue	TAG Requirement	Progress at SOC*	Reference
Introduction and objectives	Outline the approach taken to assess if the investment is deliverable	Complete	Part 6a
Evidence of similar projects	Provide evidence of similar projects that have been successful to support the recommended project approach.	Complete	To be included at further business case stages
Governance, organisational structure and roles	Describe key roles, accountability's, roles and responsibilities and how they are resourced	Complete	Part 6a
Assurance	Assurance strategy and plan with key assurance and approval milestones	Complete	To be included at further business case stages
Programme or project reporting	Describe the reporting arrangements including delegated authorities, exception reporting, tolerances and change control	Outline	Part 6b
Programme or project scope, dependencies and constraints	Set out deliverables and decisions that are provided/ received from other projects and any constraints	Outline	To be included at further business case stages
Project implementation	Summarise the key-work packages, product and work break down structures for executing work	Outline	Part 6b
Programme or project plan	Outline a plan with key milestones, progress and include a critical path	Outline	Part 6b
Stakeholder engagement and communications	Set out the communications strategy and plans that accounts for all stakeholders, aligning with those outlines in the strategic dimension	Outline	Part 6a
Risk and issues management	Provide arrangements for risk management and issues that are likely to affect delivery and implementation	Outline	Part 6c
Lessons management	Produce a strategy and plan for learning from other proposals, learning throughout the proposal and sharing lessons with other teams.	Outline	To be included at further business case stages
Benefits management	Produce a longlist of prioritised benefits and a Benefits Logic Map to show how benefits contribute to strategic objectives.	Outline	Part 3e
Data Information Security	Explicitly address the protection of critical systems, digital assets and commercially sensitive data	Outline	To be included at further business case stages
Benefits management and evaluation	Set out the approach to managing the realisation and a credible plan for the evaluation of benefits including a set of Benefit Profiles	Outline	Part 6b
Project Closure	Summarise arrangements for project closure and how data will be captured for future benchmarking	Outline	To be included at further business case stages

***Note:** Given the early stage of the work not all SOC requirements have been completed at this stage.



Part 6a

Governance Arrangements

Programme Management and Governance

Managing, Successful Programmes

The Cabinet Office's recommended methodology for the delivery of programmes is **Managing Successful Programmes (MSP)**.

MSP represents proven good practice for successfully delivering transformational change and is drawn from the experiences of both public and private sectors. TfSE's approach will align with this.

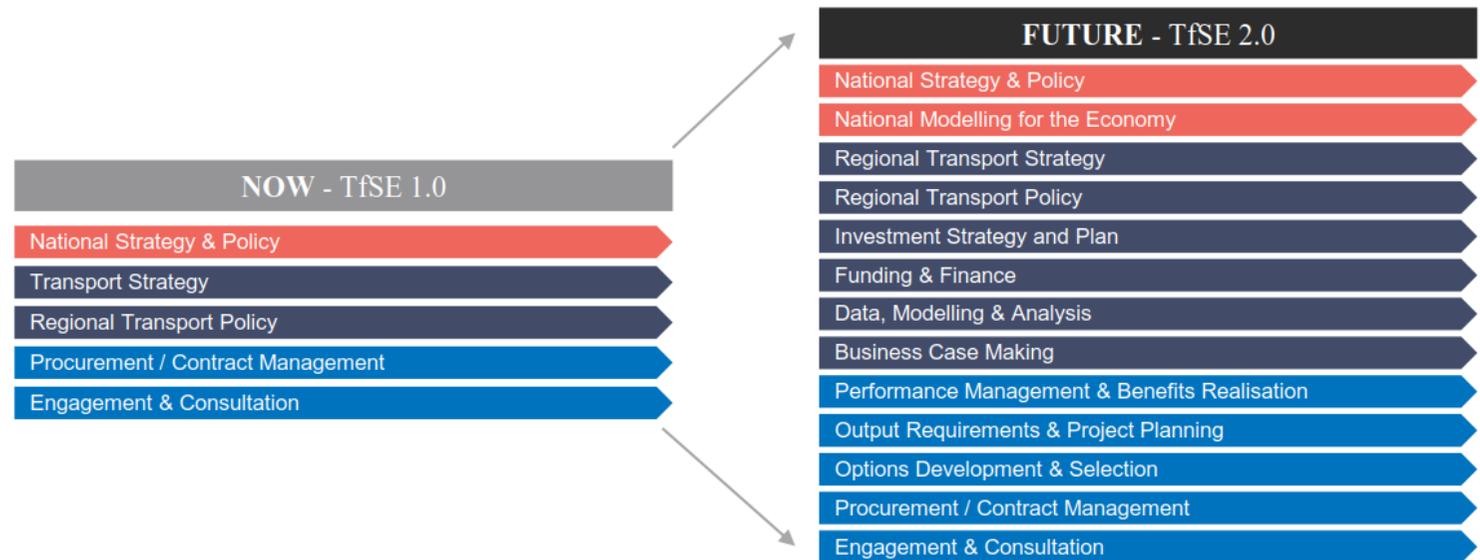
TfSE Future Capability Requirements

To deliver the Transport Strategy and successfully manage the SPOC Programme it is recognised that TfSE will need to grow and develop new capabilities to undertake a greater range of activities, including the governance of major programmes.

This is captured in the Future Organisation Report (Arup) and an example structure for TfSE is shown in **Figure 6.1**.

An organisational set up such as TfSE 2.0 would enable TfSE to lead and work more directly on the Package of Interventions Delivery Plans, monitor benefit realisation plans and take Senior Responsible Officer roles where suitable.

Figure 6.1: TfSE Project Governance (Source: Future Organisation Report, 2021)



The successful delivery of the programmes and projects will build upon the experience of the delivery partners.

Programme Management and Governance (2 of 2)

Governance Structure

Project specific governance will need to be defined for each project. The overall structure should include a **Senior Responsible Owner (SRO)**, a **Project Board**, and **key stakeholder group**. An example structure is shown in **Figure 6.2**.

- The SRO will be the Sponsor of the Project and, as such, will be responsible for the project outcomes and delivery.
- The SRO can be a member of the project delivery partner organisation (e.g., Network Rail, National Highways, Local Transport Authorities).
- The board should include members of TfSE and key delivery partners directly involved in the project delivery.
- The project board should meet regularly to review project progress and make decisions. The board will review the business case at appropriate project plan milestones.
- The stakeholder group will include organisations indirectly linked to the delivery of the project but interested in the project outcomes.

Figure 6.2: Project Governance Template



Strategy, Framework and Plans

For each Package of Interventions the **Management Plan** will include:

- Estimated timing of the delivery of each intervention in the Package;
- Identified 'owners' and/or 'sponsors' for each intervention;
- Estimated costs for each intervention;
- Governance frameworks (or options thereof) to support the delivery of the Packages; and
- Key Delivery Risks.

Stakeholder Engagement

Stakeholders

The Area Study Programme has been supported by extensive stakeholder engagement activity.

As set out in the Introduction to this SPOC, at the outset of this study, TfSE and the Technical Advisor team undertook a stakeholder mapping exercise for the Wessex Thames Area to categorise key organisations and individuals according to their interest and influence.

This exercise enabled TfSE to define four distinct tiers of stakeholder. For each of these tiers, a tailored engagement approach has been followed.

TfSE has refreshed the Stakeholder Mapping exercise undertaken at the beginning of the Area Study Programme to update their approach for the Strategic Investment Plan development and forthcoming consultation.

Stakeholder and Communication Plan

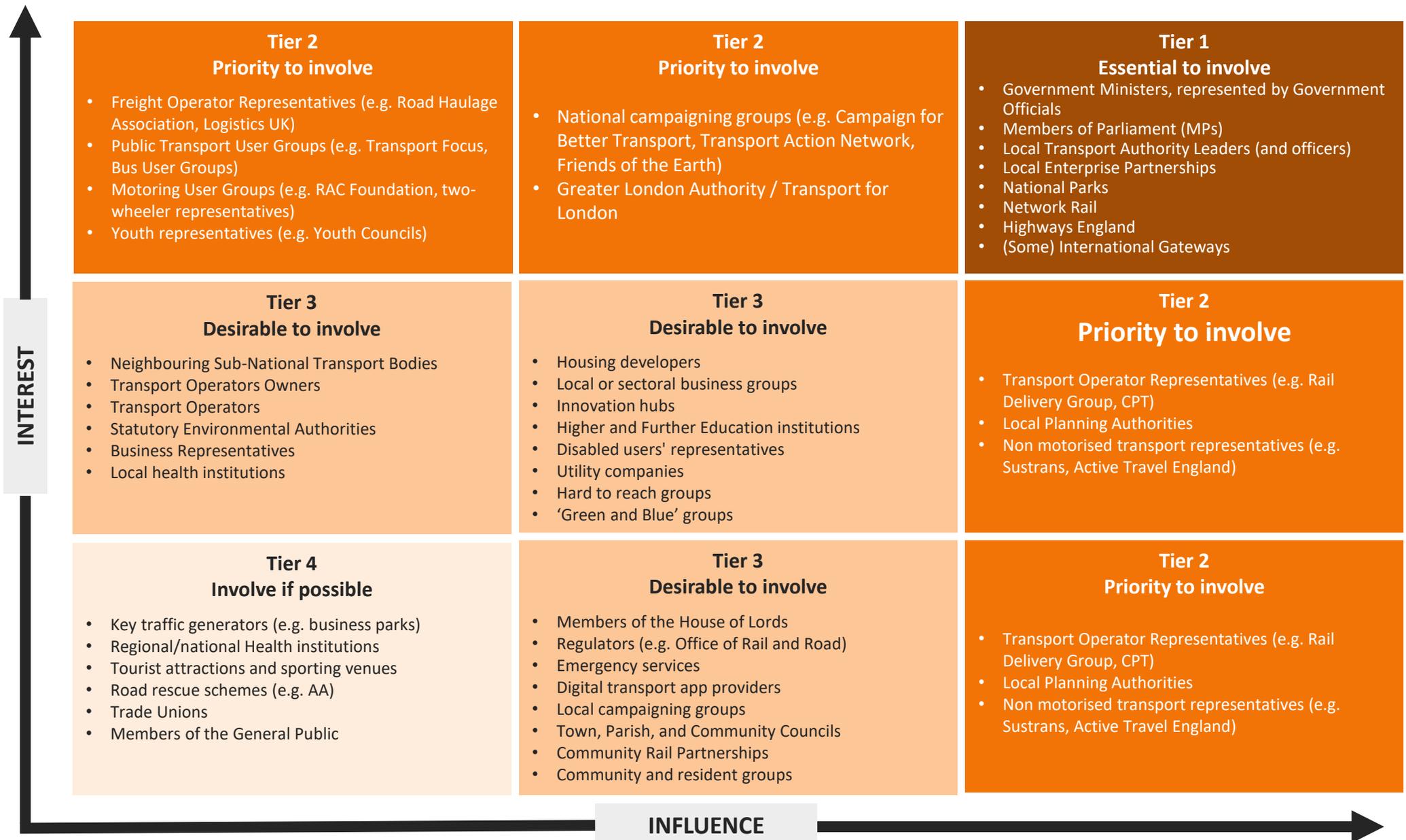
Building on the stakeholder engagement to date, it is proposed that a Stakeholder and Communications Plan be developed to support the delivery of the Strategic Investment Plan.

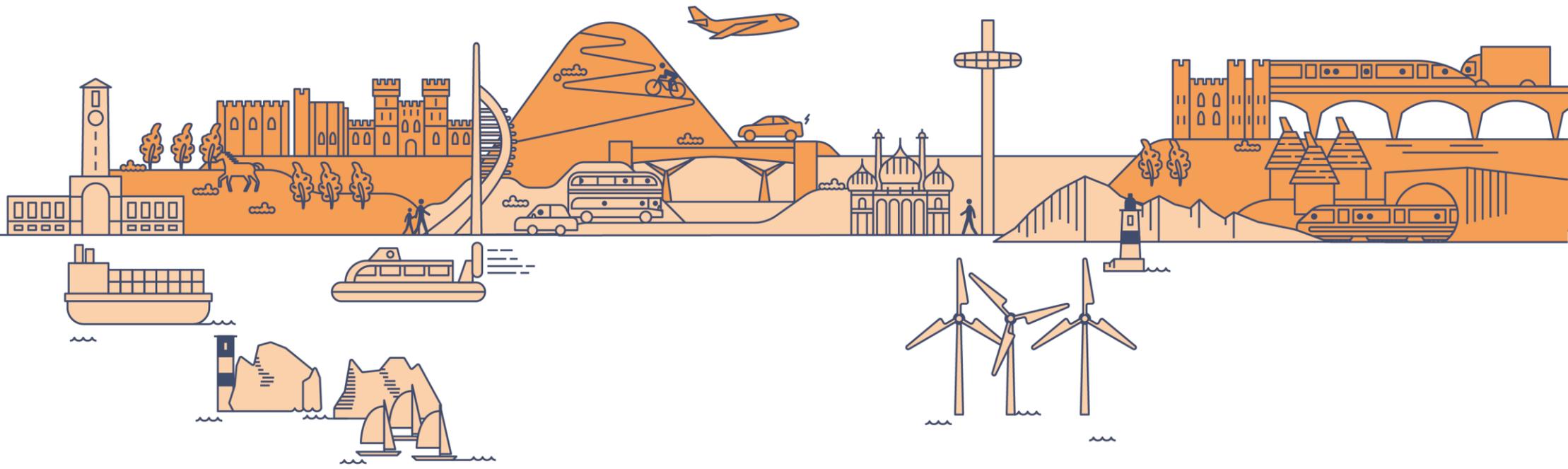
Given the wide range of stakeholders across the region, their differing views and specific local contexts, this Stakeholder and Communications Plan will reconfirm the stakeholders and their tiers, set out how and when and by whom they will be engaged, and the input sought from them and its purpose in the overall project programme. This is summarised in **Figure 6.3** overleaf.

The profile of stakeholders who will need to be engaged in future stages may be different to those involved at earlier stages. For example, there will likely need to be more engagement with potential funders and delivery partners (developers, constructors, operators, etc) to ensure the development of the Packages of Interventions are informed by the best available advice.

Stakeholder Mapping

Figure 6.3: Stakeholder Tiers





Part 6b

Delivery Plan

Delivery Plan

Project Management

PRINCE – PRojects IN Controlled Environment (PRINCE2) represents proven good practice in project management and is drawn from the experiences of both public and private sectors over many years.

PRINCE2 is the Cabinet Office's recommended methodology for the delivery of projects and will be appropriate for the programme and project framework for the further development of the SPOC Packages and their successful delivery and realisation of forecast benefits.

In developing the Package Delivery Plans, consideration will be given to:

- project structure
- reporting arrangements
- governance arrangements
- key roles and responsibilities
- appointed personnel and any vacancies

A Senior Responsible Owner will be identified in the Delivery Plan.

Senior Responsible Owner

The SRO is accountable for the programme (at the SPOC level and Package level as appropriate), and for ensuring that it meets its objectives and delivers the expected benefits.

The individual who fulfils this role should be able to lead and champion the programme and must be empowered to direct the programme and take decisions; for example, whether to delay or stop any part of the programme. The SRO must have sufficient seniority and authority to provide leadership to the programme and take on accountability for delivery.

The day-to-day leadership may be undertaken by a Programme Director, but this is not an alternative to the SRO role.

The Package programme business case will identify an SRO as suitable based on the project type and availability. It is anticipated that SRO could be sourced from:

- Network Rail for rail related projects and possibly DfT and TfSE;
- National Highways and possibly DfT for Strategic Road Network related projects; and
- Local Authorities or TfSE for local highway, placemaking or policy related projects.

Programme Plan

The Programme Plan is used to control and track the progress and delivery of the programme and resulting outcomes.

It supports the Delivery Plan and describes how, when and by whom a specific project, milestone or set of targets will be achieved. It is the detailed analysis of how identified programme targets, milestones, deliverables and products will be delivered to timescales, costs and quality.

The current assumptions for the indicative durations for the different types of interventions comprising the different Packages are presented overleaf in the tables over. Planning timescales needs to reflect the scale and complexity of the scheme and its current stage (e.g. pre-SOBC, SOBC, OBC etc) and what powers and consents are required along with major considerations such as securing funding and land assemblage.

For each Package a Programme/Project Plan will be developed indicating milestones and critical paths.

Delivery Plan – Assumption Summary (Rail and Mass Rapid Transit)

Category	Sub-Category	Timeframe	Implementation
Rail	New Offline Rail Infrastructure	15-20 years	5 years
Rail	New Online Rail Infrastructure	5-10 years	2 years
Rail	Service Improvement	2-7 years	1 years
Rail	Reinstating Line	10-15 years	4 years
Rail	Level Crossing Removal	5-7 years	1 years

Category	Sub-Category	Timeframe	Implementation
MRT	New BRT/MRT	5-10 years	3 years
MRT	New Ferry/Waterway	5-8 years	2 years
MRT	Service Improvement	2-5 years	1 year
MRT	New Strategic Mobility Hub	3-5 years	2 years
MRT	Infrastructure Improvement	3-5 years	1 year

Delivery Plan – Assumption Summary (Active Travel and Highways)

Category	Sub-Category	Timeframe	Implementation
Active Travel	New Cycleway/Footways	2-5 years	1 year
Active Travel	Improved Cycleways/Footways	1-3 years	1 year
Active Travel	Service Improvement	0-2 years	1 year
Active Travel	Mobility Hubs	2-3 years	1 year
Active Travel	Online Road Improvements	2-3 years	1 year
Active Travel	Offline Road improvements	3-5 years	1 year
Active Travel	New Cycleway/Footways	3-5 years	1 year

Category	Sub-Category	Timeframe	Implementation
Highways	Junction Improvement	3-5 years	1 year
Highways	Widening	3-5 years	1 year
Highways	New Online Infrastructure Improvement	3-5 years	1 year
Highways	Bridge/Tunnel	15-20 years	5 years
Highways	Bypass/Relief Road	10-15 years	4 years
Highways	Lorry Park	5-7 years	2 years
Highways	Service Improvement (e.g. CAZ)	3-5 years	1 year

Benefits Realisation Plan

Benefits Management

A benefit is defined as *“the measurable improvement resulting from an outcome perceived as an advantage by one or more stakeholders, which contributes towards one or more organisational objectives”*.

In the 30-year Transport Strategy TfSE outlines its goals, priorities and principles to achieve a sustainable transport strategy which has the potential to deliver £450 billion GVA backing high growth sectors and create 475,000 jobs.

To support the realisation of this benefits management should be undertaken throughout the project lifecycle and into operations/business-as-usual, not just during investment decision-making. The identification of benefits should happen before a project is even initiated, informed by a defined problem, strategy or policy.

At a strategic level TfSE has undertaken this benefit identification within the Transport Strategy. These benefits are then developed throughout the project lifecycle, and then typically measured during project delivery and after the project has closed.

Best Practice

For benefits management to be successful the SROs should consider applying the following principles throughout the lifecycle:

- Benefits management should be integrated into other project management activities and should be a regular, continuous activity.
- Project benefits should be identified, quantified and managed in line with the programme to ensure consistency between projects.
- Benefits management should be evidence-based and driven by data.
- As far as practicable, benefits should be specific enough and isolated enough so that their realisation can be directly attributed to the project/programme.

Outputs, Outcomes, and Impacts

The TfSE Transport Strategy KPIs should form the basis from which the Package business case should develop the initial desired outputs, outcomes and impacts for the Packages of Interventions programme.

These desired outputs, outcomes and impacts are the actual benefits that are expected to be derived from the programme:

- **Desired outputs** – tangible effects that are funded and result from the programme.
- **Desired outcomes** – what happens as a result of the outputs.
- **Desired impacts** – the final impacts brought about by the scheme in the short, medium and long term as a result of the outputs and outcomes.

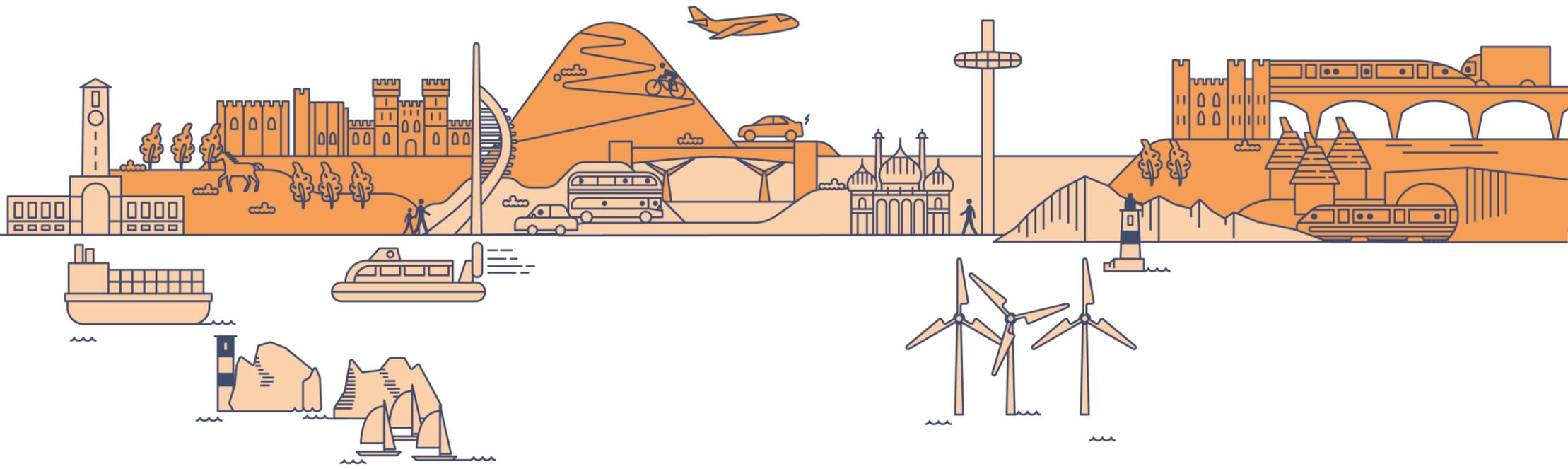
The TfSE Transport Strategy KPIs, as set in ‘A bold vision for a brighter future’ monitoring section are set out below. These describe the desired outputs, outcomes and impacts in the Economic, Social and Environmental dimensions.

Benefits Realisation Plan – Priorities and Indicators

	Strategic Priorities	Indicators
 <p>Economic</p>	Better connectivity between our major economic hubs, international gateways (ports, airports and rail terminals) and their markets.	<p>The delivery of improved road and railway links on corridors in need of investment.</p> <p>Improved public transport access to Heathrow and Gatwick Airports.</p> <p>Improved long-distance rail services (measured by journey time and service frequency).</p>
	More reliable journeys for people and goods travelling between the South East's major economic hubs and to and from international gateways.	<p>Improved Journey Time Reliability on the Strategic Road Network, Major Road Network, and local roads (where data is available).</p> <p>Improved operating performance on the railway network, measured by Public Performance Measure (PPM) and other available passenger and freight performance measures, where available (e.g. right time delivery).</p>
	A transport network that is more resilient to incidents, extreme weather and the impacts of a changing climate.	<p>Reduced delays on the highways network due to poor weather.</p> <p>Reduced number of days of severe disruption on the railway network due to poor weather.</p> <p>Metrics relating to reduced delay on road network suffering from Road Traffic Collisions.</p>
	A more integrated approach to land use and transport planning that helps our partners across the South East meet future housing, employment and regeneration needs sustainably.	<p>The percentage of allocated sites in Local Plans that are developed in line with Local Plans.</p>
	A 'smart' transport network that uses digital technology to manage transport demand, encourage shared transport and make more efficient use of our roads and railways.	<p>Increase in the number of bus services offering 'Smart Ticketing' payment systems.</p> <p>Number of passengers using 'Smart Ticketing'.</p> <p>Number of passengers using shared transport.</p>
 <p>Social</p>	A network that promotes active travel and active lifestyles to improve our health and wellbeing.	<p>Increase in the length of the National Cycle Network in the South East.</p> <p>Increase in the length of segregated cycleways in the South East.</p> <p>Increase mode share of trips undertaken by foot and cycle.</p> <p>Number of bikeshare schemes in operation in the area.</p> <p>Mode share of walking and cycling.</p>

Benefits Realisation Plan – Priorities and Indicators

	Strategic Priorities	Indicators
 Social	Improved air quality supported by initiatives to reduce congestion and encourage further shifts to public transport.	Reduction in NOx, SOx and particulate pollution levels in urban areas.
	An affordable, accessible transport network for all that promotes social inclusion and reduces barriers to employment, learning, social, leisure, physical and cultural activity.	A reduction in the indicators driving the Indices of Multiple Deprivation in the South East, particularly in the most deprived areas in the South East area.
	A seamless, integrated transport network with passengers at its heart, making it simpler and easier to plan and pay for journeys and to interchange between different forms of transport	Increase in the number of cross-modal interchanges and/or ticketing options in the South East.
	A safely planned, delivered and operated transport network with no fatalities or serious injuries among transport users, workforce or the wider public.	Reduction in the number of people Killed and Seriously Injured by road and rail transport.
 Environmental	A reduction in carbon emissions to net zero by 2050 to minimise the contribution of transport and travel to climate change.	Reduction in carbon emissions by transport.
	A reduction in the need to travel, particularly by private car, to reduce the impact of transport on people and the environment.	<p>A net reduction in the number of trip kilometres undertaken per person each weekday.</p> <p>A reduction in the mode share of the private car (measured by passenger kilometres).</p>
	A transport network that protects and enhances our natural, built and historic environments.	<p>No transport schemes or interventions result in net degradation in the natural capital of the South East, instead aiming for environmental net gain for priority ecosystem services (such as natural flood risk management).</p> <p>No transport schemes or interventions result in a net loss of biodiversity, but seek to achieve a minimum of 10% net gain in biodiversity managed for 30 years, in line with the requirements of the Environment Bill.</p>
	Use of the principle of 'biodiversity net gain' (i.e. development that leaves biodiversity in a better state than before) in all transport initiatives	<p>Use of the principle of 'biodiversity net gain' in all transport initiatives.</p> <p>No transport schemes or interventions result in a net loss of biodiversity, but seek to achieve a minimum of 10% net gain in biodiversity managed for 30 years, in line with the requirements of the Environment Bill.</p>
	Minimisation of transport's consumption of resources and energy.	Reduction in non-renewable energy consumed by transport.



Part 6c

Delivery Risks

Delivery Risks

Planning Risk Management

Risk management is a structured approach to identifying, assessing and controlling risks that emerge during the course of the policy, programme or project lifecycle.

Its purpose is to support better decision making through understanding the risks inherent in a proposal and their likely impact.

Effective risk management supports the achievement of wider aims, such as:

- effective change management;
- the efficient use of resources;
- better programme and project management;
- minimising waste and fraud; and
- innovation.

Risk Management Strategy

Strategies for the proactive and effective management of risk involve:

- identifying possible risk in advance and putting mechanisms in place to minimise the likelihood of them materialising with adverse effects;
- having processes in place to monitor risks, and access to reliable, up-to-date information about risks;
- the right balance of control to mitigate against the adverse consequences of the risks if they should materialise; and
- decision making processes supported by a framework for risk analysis and evaluation.

Risk management strategies for individual policies, programmes and projects should be adopted in a way that is appropriate to their scale.

Risk Mitigation and Management

Recognised methods for the mitigation of risk throughout the lifespan of the policy, programme or project include:

- early consultation;
- avoidance of irreversible decisions;
- pilot studies;
- flexible design;
- precautionary action;
- procurement and contractual mitigation;
- manage reliance on technology; and
- alternative options.

Programme risk registers should be developed for each Package of Interventions to include the risks to the project delivery and consideration of the above-mentioned mitigation methods.

A draft programme risk register has been developed and is presented below.

Draft Risk Register (1 of 3)

Risk	Impact	Likelihood	Mitigation	Owner	P	I	Risk
Project Programme External Dependencies	Project realisation and benefit realisations are delayed because of external Package of Interventions dependencies (e.g. DfT funding programmes)	Likely	Identify external dependencies and seek alternatives. Where alternatives are not possible identify critical path on Package programme and liaise with external stakeholders as soon as practical	TfSE	3	5	15
Project Cost	Value for Money and Benefit Realisation can be affected (negatively) by raising cost (or positively by decreasing cost)	Very Likely	Consideration of risk and optimism bias In the cost plan should be accounted for, e.g. in relation to optimism and effects of the wider UK economy on project capital cost (labour, material...)	TfSE	5	3	15
Funding	Scheme realisation might be impacted by change in funding availability	Likely	Alternative funding plans should be explored to mitigate the risk of funding un-availability including capturing point of no-return on Package	TfSE	3	5	15

Draft Risk Register (2 of 3)

Risk	Impact	Likelihood	Mitigation	Owner	P	I	Risk
Project Programme Inter - Dependencies	Benefit realisation and programme delays due to dependencies between Packages of Interventions	Likely	Identify dependencies between packages either due to practical programme rationale (e.g. deliver station and cycle interchange prior to opening MRT) or benefit realisation (e.g. passengers unable to reach MRT station due to missing first/last mile links)	TfSE	3	4	12
Political Risk	Policy is driven by political agenda and changes in political leadership might impact the realisation of project and benefits	Likely	Keep all political stakeholders apprised of programme benefits and progress	TfSE	4	3	12
Design, Information & Engagement	High level nature of specification of package interventions inherently carries risks associated with implications of ultimate design, which will be confirmed at a later stage and stakeholder opposition	Very Likely	Set up and keep updated a package specific risk register as soon as practical and communicate benefits clearly	TfSE	4	3	12

Draft Risk Register (3 of 3)

Risk	Impact	Likelihood	Mitigation	Owner	P	I	Risk
Operational	Package of Interventions need to be defined in more detail to confirm operating company's interest in participating in their delivery	Likely	Define the scope of the intervention in further detail and consult operating companies on viability and interest	TfSE	3	3	9
Reputational Risk	Risk related to misperceptions over timescales, nature of interventions and their impacts	Likely	An information management plan should be drafted including the level of information access and protection of sensitive information, with clear definition of roles and responsibilities for disseminating information	TfSE	3	3	9
Health and Safety	Risk of project delays and costs resulting from exposure to future waves of COVID-19 and health and safety of staff working on Package development	Likely	Each organisation involved should keep a risk register and sign up to TfSE risk management processes. Each organisation should follow UK government advice on COVID-19 related practices in relation to the work environment	TfSE and other parties involved	3	2	6

**For further information
please contact**



Sarah Valentine
TfSE Client Project Manager
Sarah.Valentine@eastsussex.gov.uk

Steven Bishop
Technical Advisor Programme Director
Steven.Bishop@steergroup.com

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