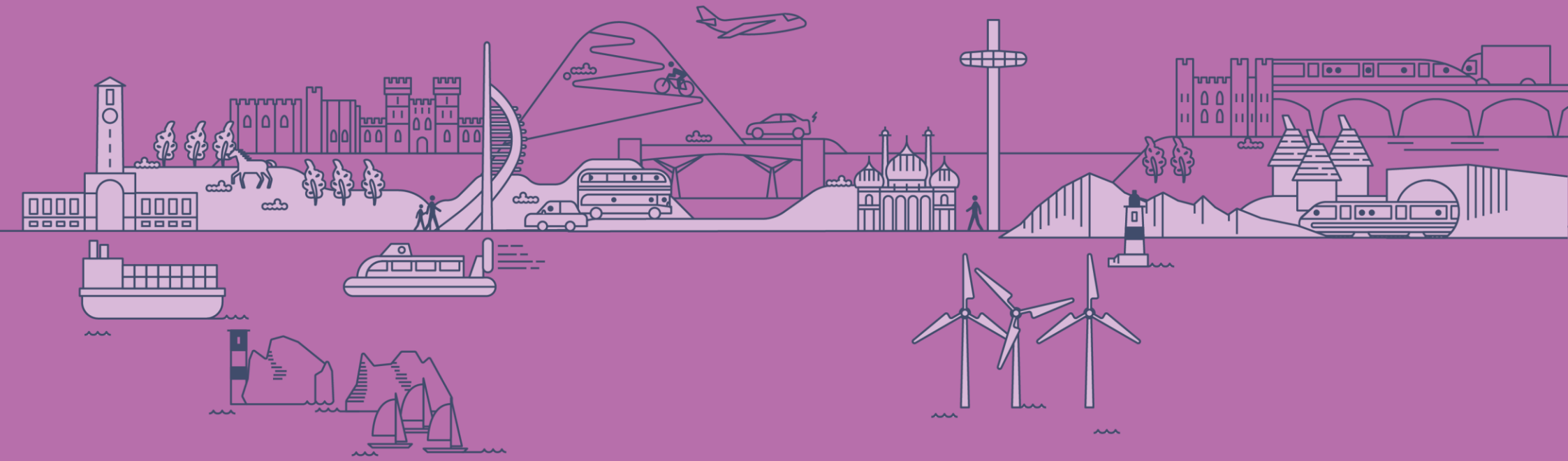
TRANSPORT FOR THE South East



Outer Orbital Area Study

Options Assessment Report

Version 3.0

March 2022

Contents

Part 1

Introduction

Context

Transport for the South East (TfSE), in their role as the Sub National Transport Body for South East England, are delivering a programme of five Area Studies that will prioritise interventions that help 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.

Geographical Scope

The Area 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 areas are defined as follows:

- **Outer Orbital Area Study** – encompassing the strategic corridors that follow the coastline from the New Forest, in Hampshire, towards East Kent.
- **Inner Orbital Area Study** – encompassing the strategic cross-regional routes around the southern outskirts of London.
- **South Central Radial Area Study** – 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 Radial Area Study** – encompassing the transport corridors connecting the Channel Tunnel and Port of Dover to London, as well as serving Kent, Medway, and East Sussex.
- **South West Radial Area Study** – encompassing the strategic highways between London and the South West, as well as parts of the Great Western Railway and South Western Mainline. It also includes the strategically important cross-Solent links with the Isle of Wight.

Technical Scope

Each of the Area Studies investigate the issues, challenges, and opportunities identified within TfSE's transport strategy in more detail. They also identify a shortlist of interventions to make life better for people, for businesses and, for the environment of the South East.

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.

Process

This report provides a summary of the work undertaken in the third of the five stages underpinning the Outer Orbital Area Study (Stage C). **Figure 1.1** below shows the stages and steps that are being delivered for the Outer Orbital Area Study.

The Outer Orbital Area Study comprised 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 Outer Orbital Area. This covered a wide range of economic, social and environmental issues and opportunities.

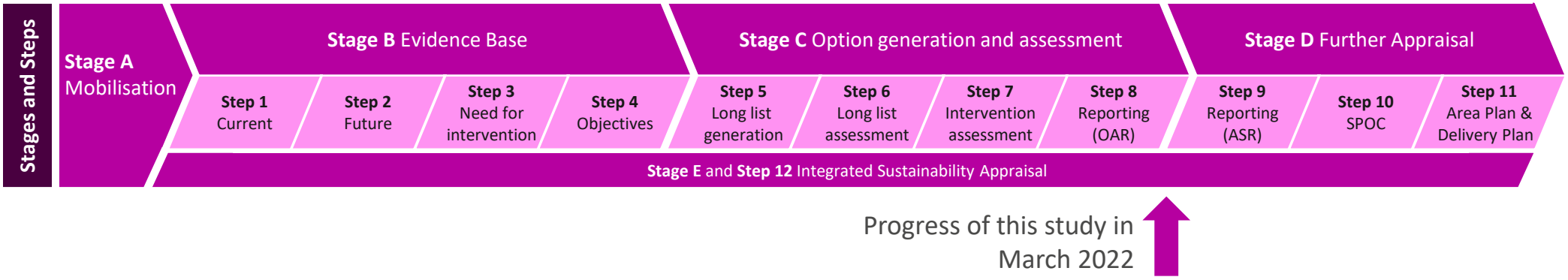
Stage B also identified corridor specific transport issues and defined the study's Vision, Objectives, and Problem Statements.

At the time of writing, the Study has just completed **Stage C (Options Generation and Assessment)**, and this is the focus of this report.

Stage C will be followed by **Stage D (Further Appraisal)**, in which area and delivery plans for the identified options will be developed.

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

Figure 1.1: Overview of the Outer Orbital Area Study process



Structure of this Report

Purpose

This report summarises the process the Project Team executed to:

- Develop a long list of interventions (and options within some interventions).
- Qualitatively assess each intervention against a set of strategic, economic, and delivery criteria.
- Use the qualitative assessment outlined above to develop coherent packages of interventions.
- Model these interventions using a land use transport model.
- Quantitively assess the impact of these packages on transport and socioeconomic and environmental outcomes for the Outer Orbital Area.
- Understand trade offs and, working with key stakeholders, refine, justify, and agree a short list of packages to be taken forward for further appraisal in the next stage of this study.

Structure and Contents

The rest of this report is set out as follows:

- **Part 2** describes the background to this report and how it was developed
- **Part 3** describes the key issues and opportunities the Outer Orbital Area Study seeks to address. These are articulated as a vision and set of objectives the study should seek to achieve, as well as a set of Problem Statements the study should address.
- **Part 4** describes how the Project Team worked with TfSE and their stakeholders to develop a long list of interventions (and options within some interventions). It then describes how these interventions and options were assessed. In summary, each intervention was examined through three assessments (based on the Department for Transport's 'EAST' framework). The first focussed on strategic and policy alignment, the second on economic impact, and the third on deliverability.
- **Part 5** presents the results of the qualitative assessment described in Part 4. It then shows how the Project Team grouped the best performing interventions into coherent Packages for modelling.
- **Part 6** describes how the Project Team used a land use and transport model to model the transport and socioeconomic impacts of the Packages described in Part 5. This Part presents the results of this modelling exercise, comments on key findings, and discusses some of the trade offs highlighted by the modelling results.
- **Part 7** summarises the final short list of Packages to be taken forward for further appraisal in Part D and describes the next steps for this study. This will include a more detailed examination of the costs and benefits that could be generated by each Package.

Part 2

Background

The Outer Orbital Area

The Outer Orbital Area encompasses the strategic corridors that run along the South Coast from the New Forest in the west to Thanet in the east. It includes some of the largest and most dynamic conurbations in the South East and boasts a varied landscape forming of and National Parks and Areas of Outstanding Natural Beauty.

Profile

The Outer Orbital Area is socially, economically, and environmentally diverse. It has some of the highest areas of deprivation in the country as well as areas of high economic productivity and prosperity. It is home to some of the country's most iconic natural and historic environments and some of the UK's most iconic cities.

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

There are significant opportunities for this area. Investment in transport can help support the government's levelling up agenda for deprived communities, and enhance air quality, safety, and improve wider health and wellbeing outcomes.

Transport Networks

The Outer Orbital area is served by a transport network that, at present, provides better quality infrastructure to and from London, and less developed infrastructure along the Coast.

Strategic highway connectivity along the South Coast is mixed. While there is good provision in the Solent area, there are significant gaps in West and East Sussex.

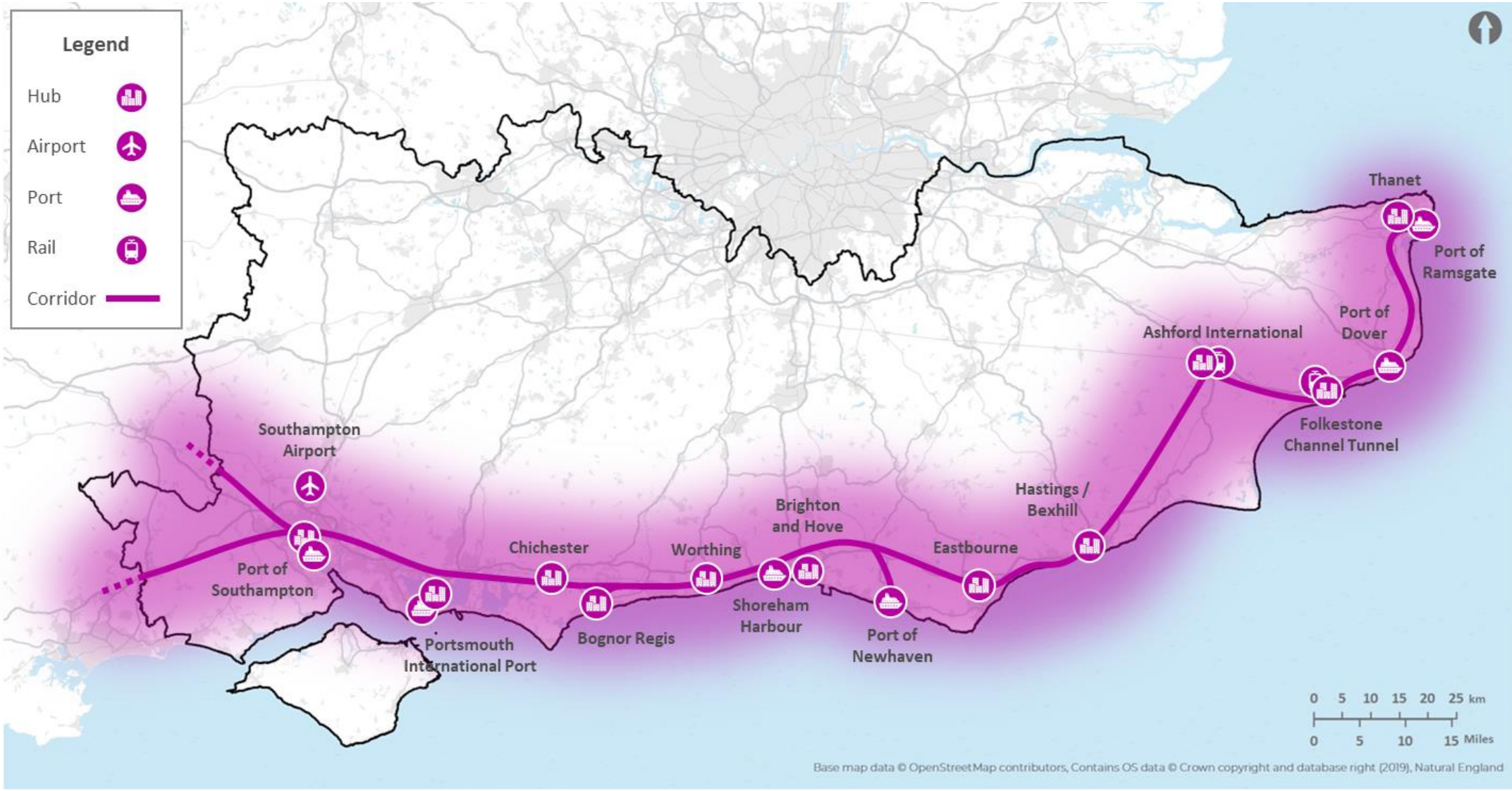
The Outer Orbital corridor has a relatively dense railway network. However, the level of service provided on east west routes is generally slower and less frequent than on radial routes.

The area has several important ports, including the Port of Southampton, Portsmouth International Port, Shoreham Port, Newhaven Port, the Channel Tunnel terminal at Folkestone, and the Port of Dover. It also is home to Southampton International Airport.

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 Outer Orbital Area's largest conurbations is generally poor.

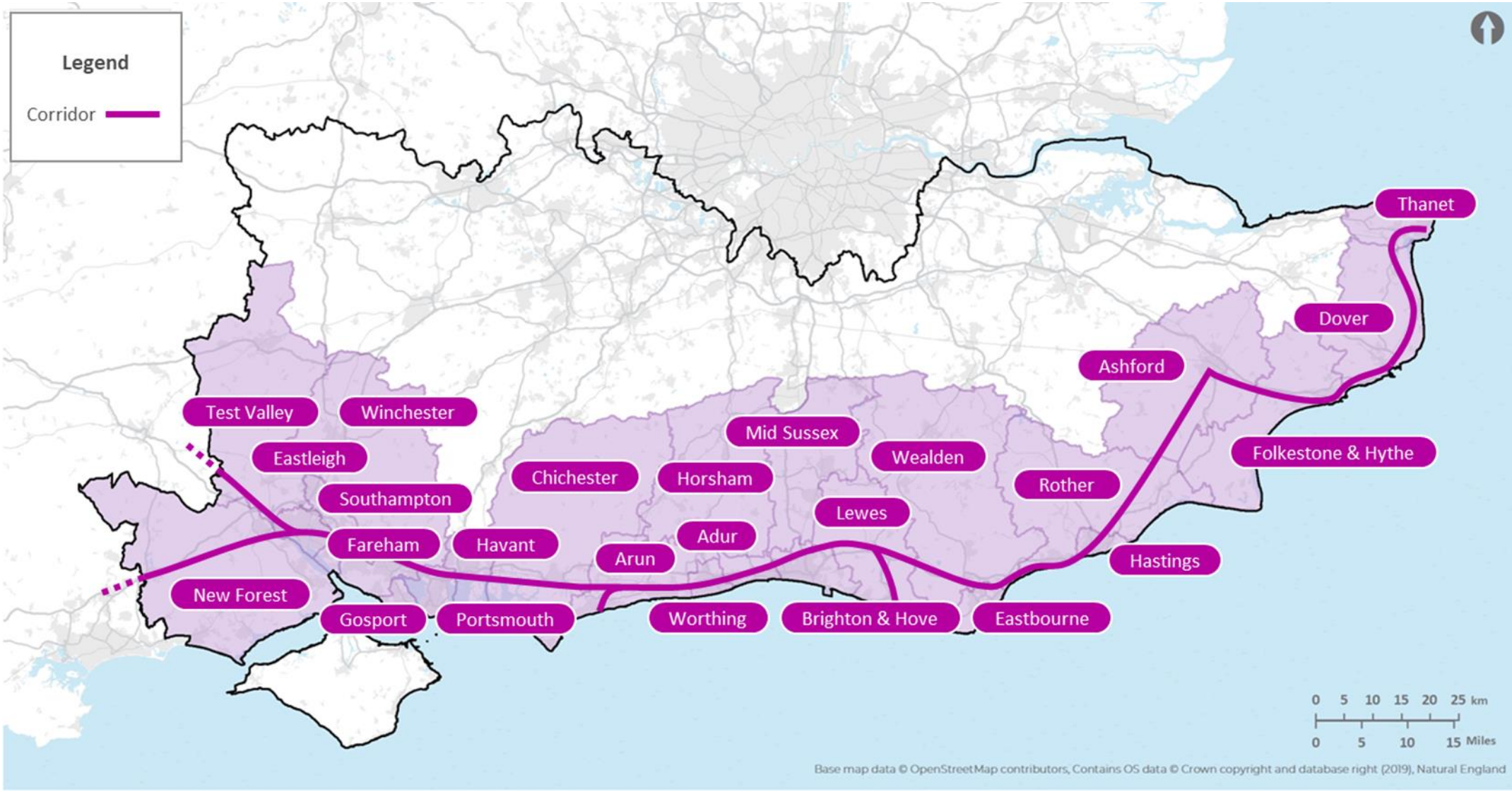
Outer Orbital Area Study Major Economic Hubs and International Gateways

The largest Major Economic Hub in the Outer Orbital area is the South Hampshire conurbation, which includes Southampton, Portsmouth and the surrounding areas. The other prominent Major Economic hub is Brighton and Hove, which, with Worthing, forms the second largest conurbation. Other key towns include Thanet, Folkestone, Ashford, Hastings/Bexhill, Eastbourne, Chichester and Bognor Regis.



Outer Orbital Area Study Corridors and Local Planning Authorities

The Outer Orbital Area encompasses the strategic corridors that run along the South Coast from the New Forest in the west to Thanet in the East. The Local Planning Authorities in this area are listed in the map below. The area is also served by four Local Enterprise Partnerships (running from west to east): Enterprise M3 LEP, Solent LEP, Coast to Capital LEP, and South East LEP.



Key Actors

Project Team

The Outer Orbital Area Study 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 Stage C was developed by Atkins and Steer. Atkins developed the Multi Criteria Assessment Framework (MCAF) that was used to qualitatively assess proposed interventions. Steer developed the transport and land use model that was used to quantitively assess the Packages.

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 the Outer Orbital Area to categorise key organisations and individuals according to their interest and influence.

This exercise enabled TfSE to define four distinct tiers of stakeholder:

- **Tier 1 Stakeholders** have a direct interest and involvement in leading and supporting investment in the Outer Orbital Area Study. 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.

Stakeholder Engagement

Tier 1 Stakeholders

Most Tier 1 Stakeholders were invited to join the Outer Orbital Area Study Working Group 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 the Outer Orbital Area Forum.

At the time of writing, this Forum had met twice and plans to meet one further time.

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, which is expected to focus on validating packages and delivery, will be held in Stage D of the project.

Other Stakeholders

Members of Parliament (MPs) have been further engaged through a bespoke process led by TfSE.

This process engaged MPs on a wider portfolio of topics, including the Area Studies. 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.

Tier 3 and Tier 4 stakeholders were not directly engaged in this part of the study.

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

Part 3

Vision, Objectives and Problem Statements

Background

Evidence Base

In the previous stage of this study (Stage B), the Project Team and Area Study Working Group developed a comprehensive Evidence Base for the Outer Orbital Area.

This included a presentation and analysis of the socioeconomic context of the Outer Orbital Area, its environment, and its transport networks.

It also explored projections for housing, population, and employment growth, and considered the implications for this growth on future demand for transport.

During this Stage, the Project Team worked closely with the Area Study Working Group and other stakeholders to understand the strengths, weaknesses, opportunities, and challenges facing the Outer Orbital Area.

The insights drawn from this exercise and the Evidence Base was used to create a shared **Vision and Objectives** for the Outer Orbital Area, which articulate the outcomes key stakeholders wish to see realised by 2050.

This exercise also helped the Project Team develop a set of **Problem Statements** for the Outer Orbital Area. These describe the challenges the area faces today that key stakeholders wish to see addressed.

The Vision and Objectives are important to this study as they formed the criteria against which all long listed interventions were qualitatively assessed in the Strategic Sift. Further detail about this process is provided in **Part 3** of this report.

The Problem Statements are also revisited in **Part 6**, where they are mapped to Packages to provide assurance they are being adequately addressed by this study.

The Vision and Objectives for the Outer Orbital Area Study are presented on **page 24 and 25**. This is followed by a summary of the Problem Statements on **page 27**.

A full list of the Problem Statements is provided in **Appendix A.**

Challenges and Opportunities

The following eight pages describe the key challenges and opportunities identified in the Evidence Base.

These include:

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

Challenges and Opportunities (1 of 8)

Socioeconomic Outcomes

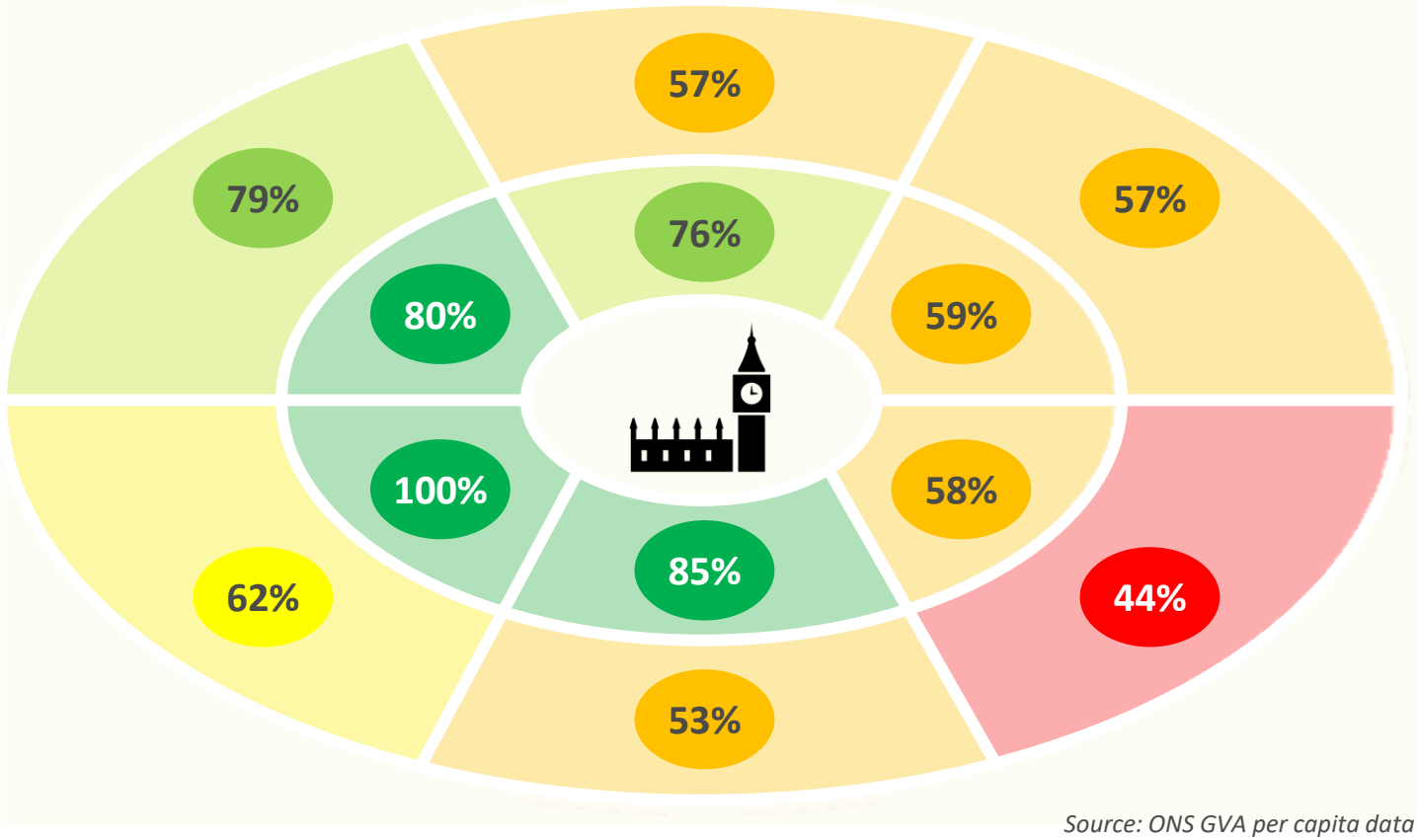
The Outer Orbital Area has poorer and less equal socioeconomic outcomes than any other part of South East England.

Figure 3.1 to the right shows the average GVA per capita observed for 12 zones around London. Six zones are in the TfSE area, and a further six (to the north of London) lie outside the TfSE area. These zones can be combined to create the areas included in the TFSE area study programme.

In general, most socioeconomic indicators appear to be stronger in the west and weaker in the east. While this trend is observed both north of and south of London, it seems to be particularly acute south of the river. In summary, coastal areas in the Outer Orbital area need to 'work harder' to compete with other areas.

There are many reasons why coastal areas are performing less well than others. While poor transport connectivity is not the only issue at play, it is almost certainly contributing to poor socioeconomic outcomes in places like Hastings and Thanet.

Figure 3.1: Average GVA per capita around the South East, where South West/Inner = 100



Source: ONS GVA per capita data
South West / Inner Orbital zone = 100%
Icon Credit: Pham Duy Phuong Hung

Tables listing the data underpinning this analysis is provided in the Evidence Base Report.

A key goal of this study to help lift the economic performance of coastal areas.

Current Challenges and Opportunities (2 of 8)

Mass Transit Opportunities

The Outer Orbital 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 Outer Orbital Area Study is home to the two largest conurbations in South East England. According to Office of National Statistics (ONS) analysis of built-up areas, the 2011 population of the **South Hampshire** built-up area was just under 856,000 (6th in England and Wales) and the population of the **Greater Brighton/Sussex Coast** built-up area[1] was over 474,000 (12th in England and Wales).

Our analysis of demographic data also shows that these two conurbations are relatively densely populated. The Sussex Coast Conurbation is the 2nd most densely populated built-up area among the 30 largest conurbations in England and Wales, and South Hampshire is the 6th densest conurbation.

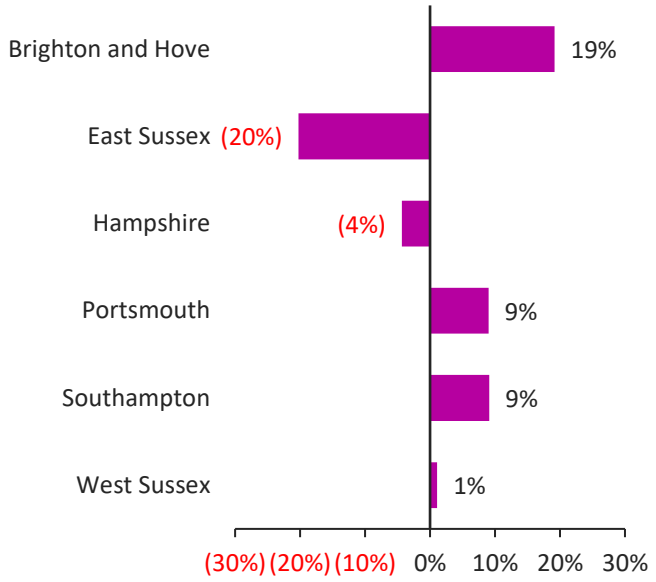
However, despite the size and density of the of these conurbations, public transport mode share is relatively low.

This is especially the case in South Hampshire (4.7% according to data published by Solent Transport[2]).

Bus use is higher in Brighton and Hove, Southampton and Portsmouth and has grown in recent years (see **Figure 3.2** to the right). This is impressive, as journeys are reportedly slow – many routes operate timetables at an average speed of 7mph. A reason for stronger bus patronage could be the high cost of parking in these city centres, which is especially the case for Brighton and Hove.

However, despite success in these three urban centres, bus patronage in neighbouring areas has declined[3].

Figure 3.2: Change in bus trips (2009-19)



1. *For the purposes of this study, we are using the term "Sussex Coast Conurbation" to refer to the Greater Brighton built-up area (as the term "Greater Brighton" has a different meaning in local government than the Built-Up Area defined by the ONS).*
2. *Source: https://documents.hants.gov.uk/transport-for-south-hampshire/TransportDeliveryPlan.pdf (Table 5)*
3. *The West Sussex data is boosted by the Crawley Fastway service, which has seen very strong growth in recent years (more than 100% over the period shown in Figure 2.1), but does not service the Outer Orbital Area.*

Current Challenges and Opportunities (3 of 8)

Mass Transit Opportunities (Cont.)

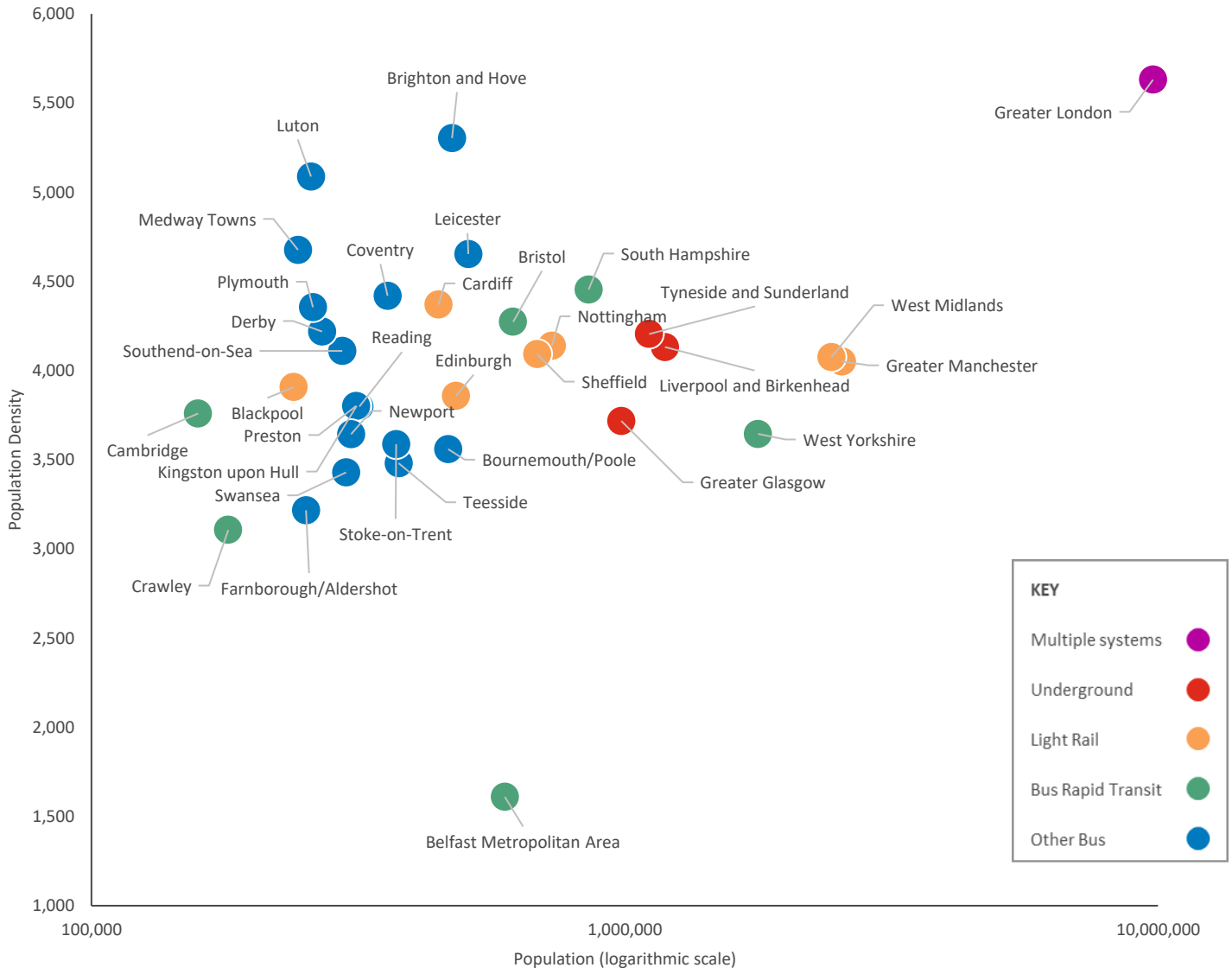
Figure 3.3 in presents the UK's largest built-up areas by population, density, and mass transit system provision.

This shows that the South Hampshire and Sussex Coast conurbations are relatively large and relatively densely populated areas – more so than many other conurbations that are served by underground systems, tramways, and high-quality rail services.

Many of the public transport systems shown in this chart – such as Nottingham Express Trams – generate an operational profit (Nottingham Trams Limited generated a 3% EBITDA in 2018/19[4]).

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

Figure 3.3: Mass transit options in major conurbations in the UK



4. *Source: https://find-and-update.company-information.service.gov.uk/company/07644670/filing-history*

Current Challenges and Opportunities (4 of 8)

Interurban Rail Services

The Outer Orbital Area's key interurban railway is slow and uncompetitive with car – especially compared to radial rail routes.

The two largest conurbations in the South East are joined together by the West Coastway Line. This railway runs from (just outside) Southampton Central to Brighton. Communities to the east of Brighton are served by the East Coastway line.

Figure 3.4 on the following page shows the average speeds of key sections of the East and West Coastway lines. This shows that orbital/east-west rail services deliver a significantly slower offer than most of the radial railways. As **Figure 3.5** highlights, journey times between Southampton Central and Portsmouth and Southsea are typically longer than 45 minutes, comparable to highway journey times via the M27 which is also typically congested in peak times. In contrast, rail journeys between Southampton and Bournemouth (which are further apart) are possible in 25 minutes, significantly quicker than what is possible by car.

Intraurban Rail Services

There is an opportunity to significantly improve journey times and frequencies within some of the largest urban areas in the Outer Orbital Area.

There is an opportunity for improvements through improving the condition and capability of the infrastructure, with further opportunity from rationalizing the timetables and service pattern (which is tied to capacity and capability of the infrastructure).

Many of the Outer Orbital Area's urban rail stations are provided with rural levels of passenger rail service (one train per hour). Some of these stations serve sizeable populations. For example, Chandlers Ford (population 21,436) has just one service per hour. Similar frequencies are seen on the Netley Line and Botley Line – including areas that might see significant population growth in the medium term.

Interchange between rail and other modes is poor, with several railway stations not being served by local buses. There is an opportunity for integration between modes to support seamless end-to-end connectivity.

Ambition

The Area Study Working Group aspires to see an urban rail service comparable to suburban London (or parts of the West Midlands) delivered in South Hampshire.

They also wish to realise faster journeys between the largest towns and cities on the South Coast as a means of improving the efficiency and productivity of the economy on the South Coast (i.e., promoting agglomeration benefits).

While there are relatively few 'end to end' journeys on the East and West Coastway lines, many stakeholders believe there is a market for interurban journeys between the largest towns and cities on the South Coast.

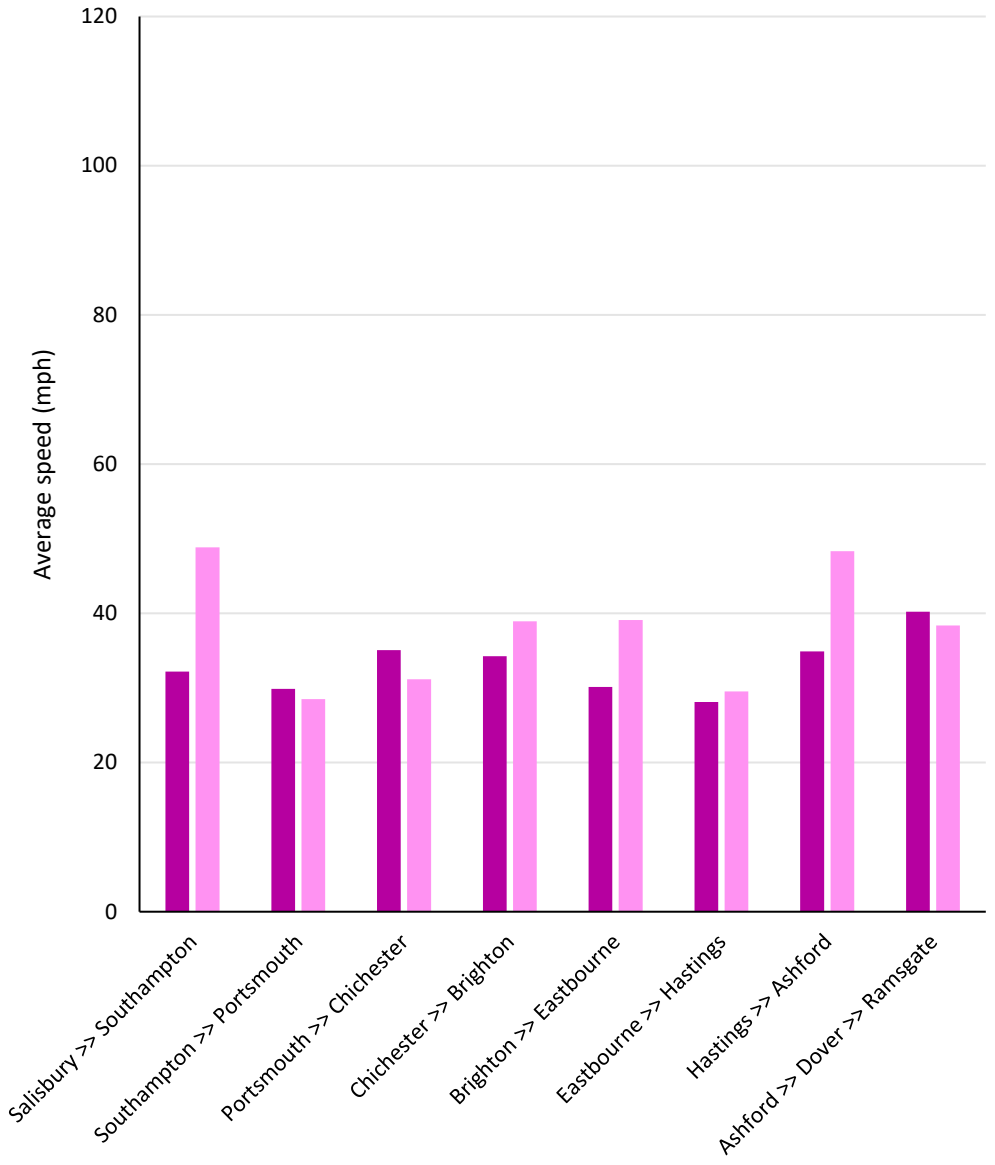
This will help the Outer Orbital Area reduce its reliance on London and on railways serving London to support sustainable economic growth.

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 two largest conurbations in the Outer Orbital area.

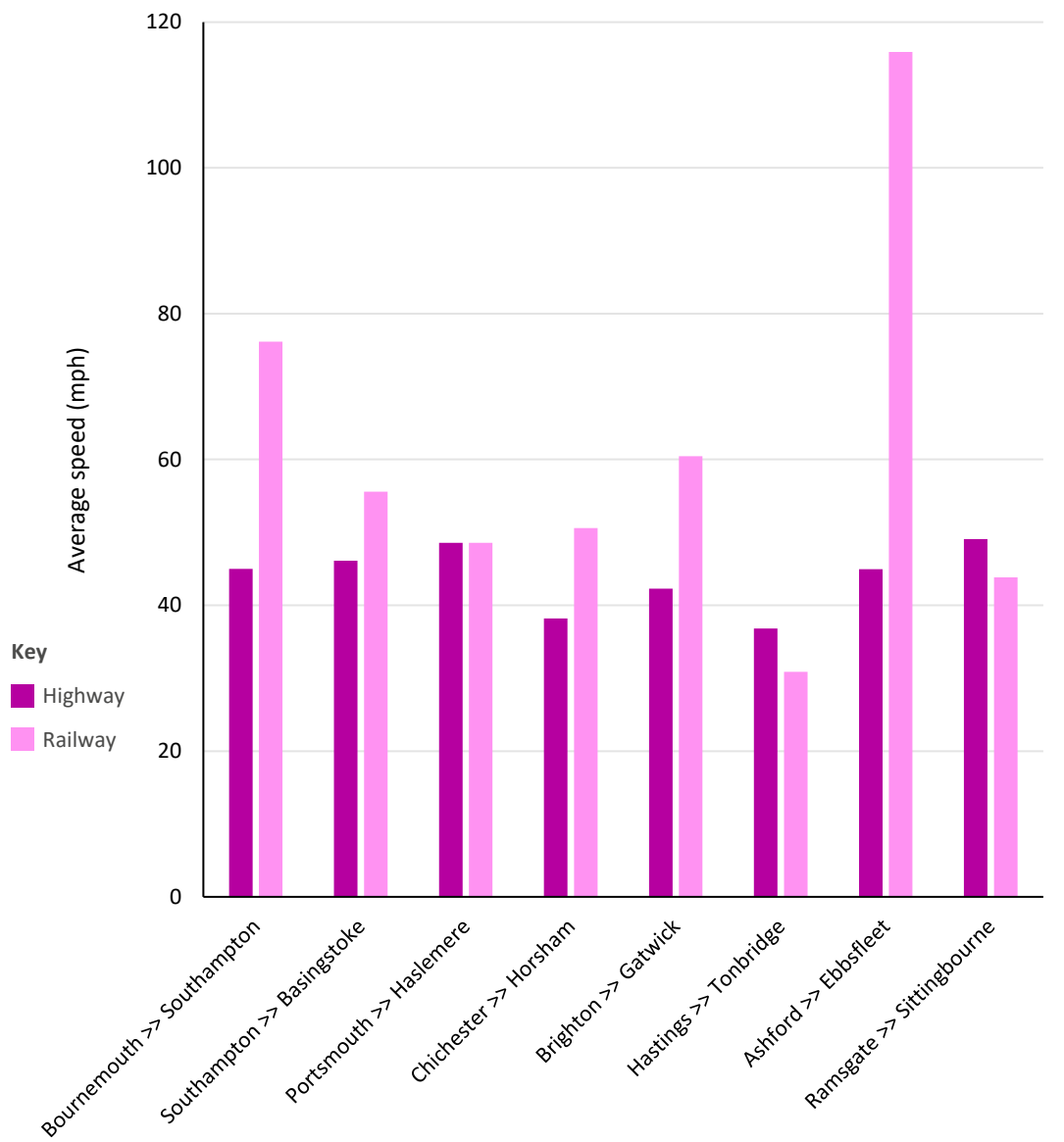
Figure 3.4: Railway connectivity in the Outer Orbital Area

Figure 3.5: Highway vs Railway Average journey speed comparison)

Orbital Journeys



Radial Journeys



Current Challenges and Opportunities (6 of 8)

Strategic Highways Challenges

The Outer Orbital Area's key strategic highway is not able to adequately perform its strategic role. The issues on this road are long-standing and well understood.

There are significant issues with the A27 Strategic Road that connects the South Hampshire and Sussex Coast conurbations. Fundamentally, the road is struggling to fulfil a strategic role while serving local traffic. There are also local issues on the M27 in the South Hampshire area. **Figure 3.6** on the following page highlights congestion hot spots on this road. **Figure 3.7** presents a breakdown of peak hour traffic flows at key locations on the M27 and A27 Strategic Road (this figure includes a graph showing the number of vehicles at each location).

TfSE's Transport Strategy for the South East sets a bold vision for a highly sustainable transport system. This strategy calls for a shift away from 'planning for vehicles' towards 'planning for people' and 'planning for places'. Any intervention on the Strategic Road Network needs to be considered with this principle in mind.

Gravity Model Evidence

To better understand the strategic challenges of the A27, the Project Team developed a high-level gravity model for Great Britain (GB).

This model was used to identify the largest theoretical latent demand between the 30 largest Built-Up Areas in England and Wales (plus Glasgow and Edinburgh – statistics for built-up areas in Scotland differ from England and Wales). The focus was on the relative 'attraction' of large population centres to each other, rather than on observed flows on highways and railways.

The Project Team then identified the routes on the Strategic Road Network that serve the largest theoretical flows and assessed the quality of the highway network that serves each flow. The focus here was on quality (i.e., standard of road defined by grade separation, speed, etc.) and not quantity (i.e., how many lanes are needed to accommodate a theoretical flow). The team also analysed rail journey times between these built-up areas to assess the quality of rail service provided between these areas.

The Gravity Model showed that the second most significant strategic gap in the GB highway network is between the South Hampshire and Sussex Coast Conurbation.

The Project Team found that most of the key flows between the largest population centres are well served by the motorway network. They also found flows to London were very well served by the rail network.

However, the team also identified several population centre pairs that, in theory at least, have a high latent demand, but are not served by high quality roads. These can be considered key gaps in the Strategic Road Network. The most significant of these is between Manchester and Sheffield, and the second is between the two largest conurbations in the South East.

Key stakeholders in this area wish to see long term multi-modal solutions that deliver a better strategic highway between the South Hampshire and Sussex Coast conurbations.

Figure 3.6 : Highway network and congestion

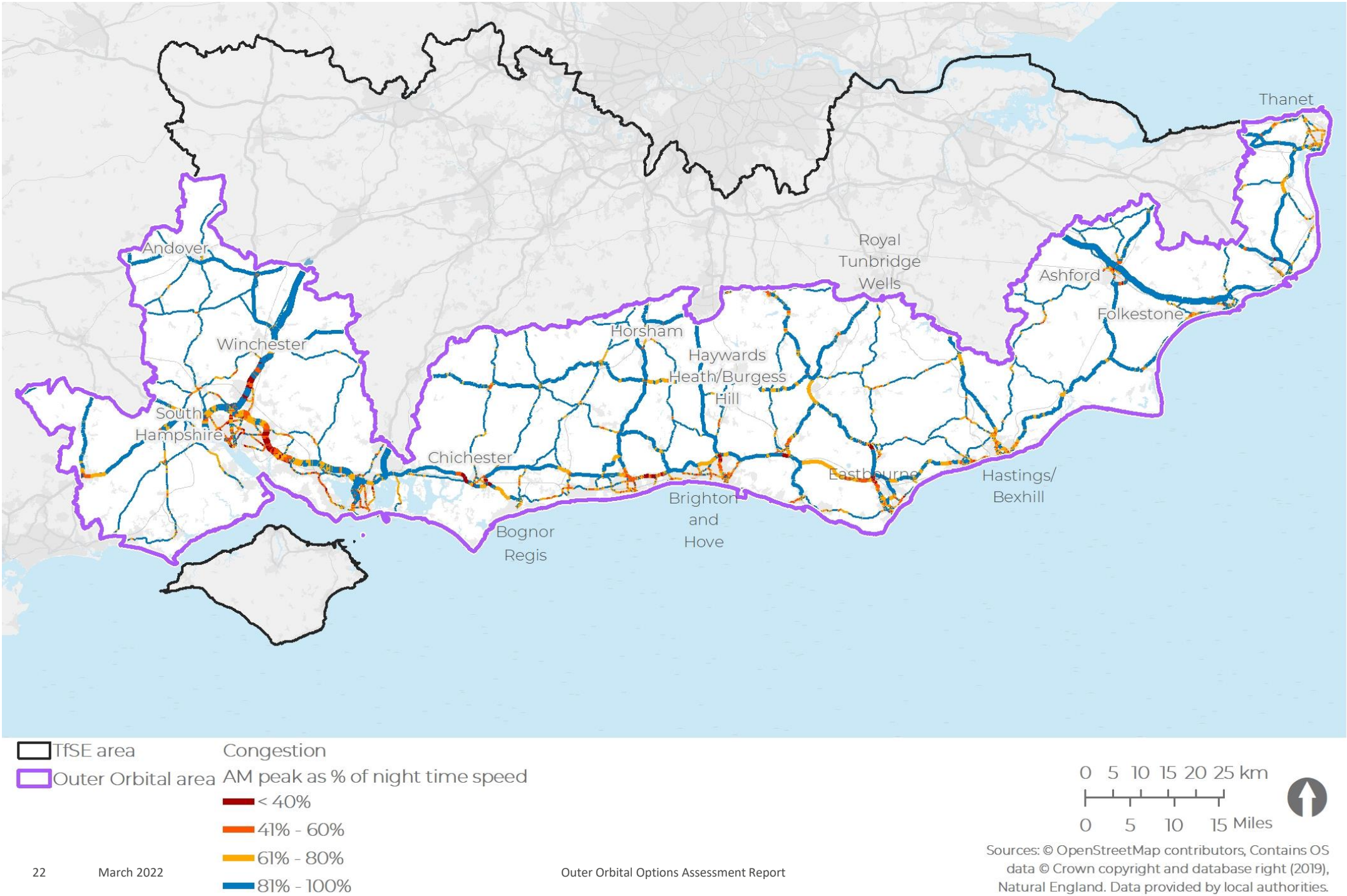


Figure 3.7 : Split of Local and Long Distance Traffic on the A27 Strategic Road

The graph above shows estimated traffic flows for the peak AM hour. The map shows the percentage split between local and longer distance traffic at these locations. These figures are all drawn from the South East Road Traffic model (SERTM). This data shows that the A27 at Arundel predominantly serves longer distance flows. At Chichester, Shoreham, and Glynde, the A27 serves local and longer distance travellers equally. At Worthing, local flows dominate.

Two insights can be drawn from this evidence:

- The A27 is struggling to perform a strategic role of connecting the two largest conurbations on the South Coast.
- At Worthing, it appears local demand is 'squeezing' capacity for longer distance trips (causing traffic to 'spill over' onto alterative routes such as the A280).

Future Challenges and Opportunities

Housing

The Outer Orbital Area is expecting significant growth in housing figures within the next local plan period (up to 2025).

Future housing growth is expected to be concentrated around South Hampshire, West Sussex Coastal area, Burgess Hill/Hassocks, Ashford, and Thanet. With much of this growth expected to occur outside of traditional urban centres, it will be critical that developments are supported with active travel and public transport connections. This will ensure that individuals can travel sustainably to their places of work and residence without relying on private transport.

Employment

Employment growth within the area is expected to be more concentrated within the city centres of the larger urban areas, focussing on South Hampshire, Brighton and Hove, Hastings, and Ashford Areas.

Many of the higher growth industrial sectors (e.g., financial sectors) are likely to be based within the city centres, as these industries favour urban environments.

Risk of Imbalance

There is a risk than an imbalance between housing and employment growth may generate unsustainable travel outcomes.

There is a risk that concentrating housing developments in more rural areas, while employment is based within the urban area, may generate more demand by private vehicle. While housing is imperative, and to ensure housing that is both affordable and accessible is built, given the physical and environmental constraints of the area, some areas will be better placed to absorb housing than others.

COVID-19

COVID-19 has significantly altered established working patterns – but the long-term impact is not yet clear.

The pandemic has highlighted the impact that new ways of working could have on travel demand. This may influence how established employment space is use, where people choose to live, and what this means for the development of transport services. Public transport will also need to adjust to lower revenues – at least in the short term.

Need for Intervention

If no plans are made to address the issues in the Outer Orbital Area, then many of the socioeconomic challenges will likely persist.

The current pipeline of highway and rail schemes being delivered through the Road Investment Scheme (RIS) and rail investment programmes should help address short-term capacity and connectivity charges.

However, in the longer term, the focus should shift away from adding highway capacity (‘planning for vehicles’) and instead focus on investing in public transport services (‘planning for people’) and promoting policies such as integrated land use and transport planning (‘planning for places’).

The Outer Orbital Area Study will need to provide a framework for managing the future challenges and leveraging the future opportunities summarised here. The following four pages present the Vision, Objectives, and Problem Statements for the Outer Orbital Area.

Vision

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

TfSE Vision Statement

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.

Outer Orbital Vision Statement

We will leverage technology, behavioural change policies, integrated planning policies, and interventions in the Outer Orbital area's transport, energy, and digital networks to deliver sustainable economic growth and improved socioeconomic outcomes for the area's residents, businesses, and visitors.

We will prioritise interventions in transport, digital, and energy networks that:

- decarbonise the transport system and support the principles of environmental net gain;
- deliver strategic and local access and connectivity to ensure the needs of the Outer Orbital area's residents, business, and visitors are met; and
- provide holistic solutions that support the development of sustainable communities, improve the health of residents, and enhance the successful qualities of the area.

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

We will ensure the Outer Orbital area is best placed to respond to the challenges of recovering from the COVID-19 pandemic, adapting to new trading arrangements with the European Union, and fighting the climate crisis.

Objectives (1 of 2)

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

Climate Change

The Outer Orbital area's transport systems will move to net zero carbon and minimise disruption from climate change by:

- Reducing the need to travel;
- Enabling and growing active travel;
- Shifting passenger and freight travel from fossil fuel traction to zero emission traction;
- Improving transport network energy efficiency; and
- Improving transport network resilience to climate events.

Safety

The Outer Orbital area's transport systems will be safe for all users and will give them confidence and security to walk on, or cycle on, or cross any of the area's highways. We will do this by:

- Providing a safe road network with high-quality, fully connected, segregated infrastructure (where appropriate) that helps people overcome their fears of walking and cycling; and
- Prioritising vulnerable users over less vulnerable users where there are conflicts.

Health and Wellbeing

The Outer Orbital area's transport systems will minimise adverse impacts on human health and promote healthy living by:

- Developing transport networks that minimise any adverse impacts of transport on human health – including noise and poor air quality;
- Reducing the impact of existing transport networks and traffic on noise, air quality, and human health; and
- Encouraging active leisure activities that promote healthy lifestyles.

Objectives (2 of 2)

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

Economy

The Outer Orbital area's transport systems will boost prosperity for all and reduce the disparity in socioeconomic outcomes. It will do so in a sustainable manner, and not at "any cost" to society and the environment. It will achieve this by:

- Boosting productivity through better skills matching, knowledge sharing and agglomeration;
- Improving transport network efficiency, reliability, and resilience;
- Ensuring digital and energy networks can meet future transport needs;
- Reducing costs for businesses; and
- Attracting investment in high growth, high value opportunities.

Society

The Outer Orbital area's transport systems will enable better and more equitable socioeconomic outcomes:

- Supporting better place-making and creating new sustainable communities;
- Enabling residents to easily access employment, affordable housing and services – particularly for those who do not have access to a car;
- Increasing the affordability of convenient, high quality, active travel and public transport options;
- Improving access for all members of society, especially individuals with additional needs; and
- Enabling deprived communities to attract investment and achieve more equitable socioeconomic outcomes.

Natural and Historic Environment

The Outer Orbital area's transport systems will protect and enhance the natural and historic environment by:

- Adopting the principles of environmental net gain;
- Avoiding interventions that significantly and permanently undermine protected environments, in particular landscape, historic and ecological designations;
- Reducing the impact of transport operations on ecosystem services; and
- Improving public and active transport access to natural, protected, and historic environments.

Problem Statements

Global Issues

1. Transport is not decarbonising fast enough.
2. Climate change threatens the resilience of transport networks.
3. Freight is heavily reliant on highways, especially for first-mile-last-mile deliveries.
4. Numerous parts of the Outer Orbital area have unacceptably poor socioeconomic outcomes.
5. There is a recognised need for housing and communities – but in the right places, supported by the right infrastructure, planned to deliver sustainable transport outcomes.
6. The mobility benefits of new technologies are not accessible to everybody.

Coastal Communities

7. Poor connectivity is holding coastal communities back
8. The geography of the South Coast and its transport networks forces people and goods moving east – west along the coast to travel long distances inland to complete their journeys.

Access and Affordability

9. Rural communities are being left behind in digital, active travel, and public transport connectivity.
10. Too many transport services and networks are inaccessible to all users.
11. For many people, public transport fares are too high and too complicated.

Active Travel

12. Cycling participation and provision is too low and there are strategic gaps in the parts of the area's cycle network.

Mass Transit

13. Current public transit systems to do not meet all the needs of the area's largest conurbations.
14. There are too few strategic mobility hubs, offering high quality integration and interchange between different transport services, outside town and city centres.
15. Public transport information and ticketing arrangements are not sufficiently coordinated nor adequately integrated, particularly across transport modes.

Highways

16. The area's major highways do not provide effective east – west connectivity.
17. The area's major highways run through and/or close to protected areas, undermining the quality of local environments.
18. Too many major highways pass through densely populated communities, causing noise, pollution, and severance issues.
19. Highway traffic accessing ports in the area is negatively impacting the environment in town and city centres.
20. There are too many level crossings on major highways along the South Coast.

Rail

21. East – west rail connectivity (journey times and frequency) is poor, especially compared to radial rail services.
22. Rail capacity is insufficient to accommodate the needs of long-distance passenger, local passenger, and rail freight customers in the area.
23. The Marshlink railway is inadequate to meet future aspirations for stakeholders in East Sussex and Kent.

A detailed description of each Problem Statement is provided in Appendix A

Part 4

Long List Generation and Assessment

Overview

Overview of Stage C

One of the key purposes of this report is to summarise the activities that were undertaken to deliver Stage C of the Outer Orbital Area Study.

Stage C comprised the following activities:

- Long List Generation
- Typology Assignment
- Long List Assessment
  - Strategic Assessment
  - Economic Assessment
  - Deliverability Assessment
- Package Development (**Part 5**)
- Package Modelling (**Part 6**)

In this Part of this report (**Part 4**) we describe how we approached and delivered the Long List Generation, Typology Assignment, and Long List Assessment activities listed above.

In **Part 5** we outline how the results of the Long List Assessment were used to develop Packages, and in **Part 6** we describe how these packages were modelled.

Early Assessment and Sifting Tool

Our approach to delivering this Stage of the Outer Orbital Area Study was developed in line with DfT's WebTAG guidance and Early Assessment and Sifting Tool (EAST).

WebTAG describe EAST as follows:

"EAST is designed to be consistent with Transport Business Case principles. It is a decision support tool that summarises and presents options in a clear and consistent format. It is used to assess and compare all types of transport options, packages, strategies and plans across all modes and geographies and is intended to provide decision makers with relevant, high-level information to help them form an early view of how options perform against key criteria relative to each other."

While this is by nature a high-level approach, the Project Team is confident it represents the right level of proportionality for the nature (and number) of interventions under consideration.

Multi Criteria Assessment Framework

A Multi-Criteria Assessment Framework (MCAF) spreadsheet was developed and used as an early assessment and sifting tool for this study.

The MCAF was based on the EAST and designed to help TfSE develop viable packages of interventions (groups of interventions based around a geographical area and/or transport mode), that could be tested through modelling for performance assessment.

The MCAF was used to sift out options that perform poorly, and to organise and compare options to help develop coherent Packages of interventions.

While only high-level information for each intervention is available at this early stage of option identification and assessment, the analysis formed a view on the performance of interventions based on best available data and evidence.

The MCAF tool developed for this study has also been fully quality assured and will be used to support the four other studies in the TfSE Area Studies Programme.

Long List Generation and Typology Categorisation

Long List Generation

An initial Long List of interventions and options was developed from a wide range of sources.

Suggested interventions were drawn from input from the Project Team, desk research, interviews with Tier 1 stakeholders, and a workshop with Tier 2 stakeholders.

Interventions were only excluded from the Long List if they:

- did not primarily address movements relevant to the Outer Orbital Area;
- were not considered to be at sufficient scale to have regional significance (e.g., a small-scale cycle intervention);
- were already under construction; and/or
- did not pass a basic 'common sense' feasibility test (i.e., if they were based on an unproven technology).

In total, 181 interventions and options were included in the Long List. These covered a wide range of topics including active travel, demand management infrastructure, highway improvements, rail interventions, port access infrastructure and policies.

Typology Assignment

Given the long list of interventions and the evidence available, interventions and options were grouped into typologies.

This approach was adopted to provide a more efficient and transparent scoring and review process. The typology categories – which were devised to differentiate the mode, type of intervention (e.g., new infrastructure vs policy vs operational initiative) and desired outcomes are as follows:

- Active Travel
- Demand Management (Roadspace reallocation, clean air zones, or other)
- Enhanced bus service operations
- Ferry operations
- Freight
- Airport
- Highway infrastructure
- Integrated Public Transport operations
- Level Crossings (safety and efficiency)
- New Bus Rapid Transit (BRT) infrastructure
- New Highway infrastructure
- New Light Rail Transit (LRT) infrastructure
- New Railway infrastructure
- Railway infrastructure (online)
- Railway operations
- Smart Motorways
- Strategic Mobility Hubs - infrastructure

Long List Assessment

With the long list complete, a qualitative assessment of the proposed interventions was undertaken.

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.

The MCAF included three discrete sifts:

- A **Strategic Assessment** that considered the alignment of each intervention with the Objectives of the study, as well as with wider public policy;
- An **Economic Assessment**, based on DfT's EAST framework; and
- A **Deliverability Assessment**, also based on DfT's EAST framework.

The following pages describe each assessment in more detail.

Strategic Assessment (1 of 3)

Strategic Assessment Typology Scores

The Strategic Case Assessment tests the extent to which each intervention fits with this study's Vision and Objectives.

Government business case guidance sets out the need for strategic cases to demonstrate how spending proposals fit in relation to national, regional and local policies, strategies and plans.

Each typology was assigned scores ranging from 1 to 5, where 1 represents a low fit with this study's Objectives, and 5 shows a high fit. **Table 4.1** shows the results of this scoring for each typology.

The score in the strategic assessment forms the base score for each typology. These are later adjusted to reflect the situational context of each intervention (see following page).

The scores reflect a relatively wide range. For example, Smart Motorways do not perform as well under the Climate criteria as railway operations but do perform better than new highways.

Table 4.1: Typology Strategic Assessment

Typology	Objectives					
	Climate	Safety	Health	Econ.	Soc.	Env.
Active Travel	4	4	4	3	3	3
Demand Management (Roadspace reallocation)	3	3	3	3	3	3
Demand Management (Other)	3	3	4	3	3	4
Demand Management (Clean Air Zone)	5	3	4	3	3	4
Enhanced bus services	3	3	3	3	3	3
Ferry operations	2	3	3	3	3	3
Freight	1	2	3	4	2	3
Airport	1	1	1	4	2	1
Highway infrastructure	1	2	1	2	2	1
Integrated Public Transport	3	2	3	3	4	4
Level Crossings	2	4	2	2	2	1
New BRT	3	3	2	3	3	2
New Highway	1	2	1	2	2	1
New LRT	3	3	2	3	3	2
New Railway	3	3	2	3	3	1
Railway infrastructure	3	3	2	3	3	2
Railway operations	3	3	2	3	3	3
Smart Motorways	2	2	2	3	2	1
Strategic Mobility Hubs	3	2	3	3	2	2

Strategic Assessment (2 of 3)

Strategic Assessment Adjustments

In addition to assigning a 'base score' based on typologies, further modifications to some interventions' scores were also made to reflect their characteristics and context.

While many interventions share similarities (and typologies), there are some important differences between them. For example, a new highway in or close to protected areas should receive a lower score for 'Environment' than a new highway in a brownfield site.

To reflect these differences, the Project Team modified some scores by applying adjustment factors. These are listed in **Table 4.2** to the right. The 'Adjustment factors' have been developed to enable the typology assessment process to differentiate interventions from each other taking into consideration their impact upon the immediate surrounding environment. The adjustment factors either 'add' or 'remove' a point from the base score. This enables for an accurate representation of the intervention on the surrounding area.

Table 4.2: Strategic Assessment Adjustment Factors

Adjustments applied if the intervention Delivers any of the impacts listed below	Objectives					
	Climate	Safety	Health	Econ.	Soc.	Env.
Permanently undermines protected areas						-1
Temporarily undermines protected area						-1
Enhances access to international gateways				+1		
Reduces access to international gateways				-1		
Enhances placemaking	+1	+1	+1			+1
Undermines placemaking				-1	-1	
Supports housing development				+1	+1	
Significantly enhances regional connectivity				+1	+1	
Reduces regional connectivity				-1	-1	
Delivers other climate change benefits	+1					

Worked Example

A 'generic' **Strategic Mobility Hub** intervention would initially be assigned the following:

Typology	Objectives					
	Climate	Safety	Health	Econ.	Soc.	Env.
Strategic Mobility Hubs (Typology Score)	3	2	3	3	2	2

However, if the Strategic Mobility Hub enhanced regional connectivity, its score would be:

Typology	Objectives					
	Climate	Safety	Health	Econ.	Soc.	Env.
Strategic Mobility Hubs (Adjusted Score)	3	2	3	4	3	2

Strategic Assessment (3 of 3)

Alignment with Public Policy

A key component of the Strategic Assessment is to understand the extent to which each proposed intervention aligns with existing public policy.

Each intervention was assessed by the Project Team and members of the Outer Orbital Working Group for the alignment with national, local, and TfSE policy objectives.

Scoring was based on a scale of 1 to 5, with 5 representing high policy alignment and 1 representing low policy alignment. Lowest scoring interventions were typically those that contradicted policy objectives.

Table 4.3. to the right shows an excerpt of the results for the Solent Core Rail Package.

National policy alignment scores reflect policies, strategies, and interventions promoted by national government, National Highways, and Network Rail. They also reflect alignment with National Policy Statements. Where MPs were known to hold strong views on an intervention, then this was also reflected in the score.

Local policy alignment scores reflect policies, strategies and interventions promoted by Local Transport Authorities, Local Planning Authorities, Local Enterprise Partnerships, national parks, and other protected landscapes. In some cases, there were differing views between these bodies. In these instances, we agreed an 'average' score to reflect these different perspectives. These scores were reviewed and agreed by these organisations (via the Working Group).

Regional policy alignment scoring was developed by TfSE Officials with support from the advisor team. They were informed by the vision, objectives, and priorities set out in the *"Transport Strategy for the South East"* document that was formally adopted by TfSE in autumn 2020.

In some cases there were significant differences between national, regional, and local policy alignment.

Table 4.3: Excerpt of Policy Alignment Scores

Intervention	Options	Policy Alignment		
		National	Local	Regional
Solent Rail Strategy (CMSP)	Core Option	4	5	5
West Coastway CMSP	Havant Section/Option	4	5	5
Southampton Central Station Improvements	Station refurbishment and improved interchange	4	5	3
	As above with additional platforms	4	5	4
Southampton Central Tunnel Solution	Southampton Central Crossing - Woolston Tram Train	4	1	4
	Southampton Central Crossing - Woolston Tunnel	4	4	5
	Southampton Central Crossing - St Deny's Tunnel	4	3	4
Southampton Airport Station Access	Eastleigh Chord	2	2	4
	Eastleigh Turnback	4	5	4

Economic Assessment (1 of 3)

Economic Assessment

The Economic Assessment aims to identify the nature and scale of the economic, environmental, and social impacts of each typology and intervention.

Typically, an EAST Economic Assessment uses a three-point Red-Amber-Green (RAG) score system. This approach was adopted in line with DfT's EAST guidance and reflects the high-level nature of scheme level evidence available at this stage of the study.

To align the EAST scoring system with the scale adopted for the Strategic Assessment, the RAG scores are recorded as follows:

- **Red**: poor alignment = 1
- **Amber**: moderate alignment = 3
- **Green**: good alignment = 5

The RAG scores provide a clear visual guide to the potential impact of typologies and interventions as can be seen in the tables in the following pages.

Economic Assessment Typology Scores

As with the Strategic Assessment process, the Economic Assessment involved assigning scores to criteria based on the typology of each intervention.

These criteria are as follows:

- **Economic Growth** – including connectivity, reliability, resilience of the network, facilitates the delivery of housing and provides good value for money in terms of social aspects.
- **Carbon** – including number of carbon units lost, efficiency (fuel consumption reduction), and impact upon embedded carbon;
- **Local Environment** – including impacts upon Air Quality, Noise, Natural Environment and Streetscape
- **Wellbeing and Social Impacts** – including impacts upon severance, physical activity, injuries, access, security and affordability.

Table 4.4. (overleaf) summarises the results of this assessment.

Economic Assessment (2 of 3)

Table 4.4: Typology Economic Assessment

Typology	Economic Growth					Carbon			Local Environment				Wellbeing and Social Impacts					
	Connectivity	Reliability	Resilience	Housing	Value for Money	Activity	Efficiency	Embedded Carbon	Air quality	Noise	Natural env.	Street scape	Severance	Physical activity	Injuries	Access	SDIs	Security
Active Travel	5	5	5	3	3	5	5	5	5	5	5	5	5	5	3	5	5	3
Demand Management (Roadspace)	5	5	3	5	5	3	3	3	3	3	3	3	5	3	3	5	5	3
Demand Management (Other)	1	3	1	1	3	5	3	5	3	3	5	5	3	5	5	3	3	5
Demand Management (Clean Air Zone)	1	3	3	1	3	5	5	5	5	3	5	5	5	5	5	5	5	5
Enhanced bus services	5	5	3	3	5	3	3	3	3	3	3	3	5	5	3	5	5	3
Ferry operations	3	1	3	3	3	1	1	3	3	3	3	3	5	3	3	5	3	3
Freight	5	3	3	3	3	3	3	1	3	3	3	3	3	1	5	3	3	3
Airport	5	5	5	1	3	1	1	1	1	1	3	3	3	3	3	3	3	3
Highway infrastructure	5	5	5	5	5	1	1	1	1	1	1	3	3	3	3	3	3	3
Integrated Public Transport	5	3	5	3	5	5	5	5	5	3	5	5	5	5	3	5	5	5
Level Crossings	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3
New BRT	5	3	3	3	3	5	5	3	3	3	5	5	5	5	3	5	3	5
New Highway	5	5	5	5	5	1	3	1	3	3	3	3	3	3	3	5	5	3
New LRT	5	5	5	5	3	5	3	1	5	3	5	5	5	3	3	5	5	5
New Railway	5	5	5	5	5	5	3	1	5	3	3	3	5	5	3	5	5	5
Railway infrastructure	5	3	5	5	5	3	3	1	5	3	3	3	5	5	3	5	5	5
Railway operations	5	3	5	5	5	5	5	3	5	3	5	5	5	5	3	5	5	5
Smart Motorways	5	3	3	3	3	3	3	3	3	3	3	3	5	1	3	5	3	3
Strategic Mobility Hubs	5	5	5	5	5	3	3	3	5	5	5	5	5	5	5	5	5	5

Economic Assessment (3 of 3)

Economic Assessment Adjustments

As with the Strategic Assessment, some 'base scores' for some interventions were adjusted to reflect their context.

The same adjustment factors were used as within the strategic sift. However, in order to receive an adjustment, a more significant step-change was required in some places.

For example: to receive an adjustment for 'enhancing access to an international gateway' the intervention needs to deliver 'step-change' in the quality of access provided. On the other hand, a new highway link that cuts through a national park would permanently undermine a protected area and receive a negative adjustment factor.

A summary of the adjustment factors applied in the Economic Assessment is provided in **Table 4.5** below. As the 'base scores' jump from 1 to 3 to 5, the adjustments applied also increase and/or decrease by the same magnitude. This is why the adjustments presented below are either +2 or -2.

Figure 4.5: Economic Assessment Adjustment Factors

Typology	Economic Growth					Carbon			Local Environment				Health and Wellbeing					
	Connectivity	Reliability	Resilience	Housing	Value for Money	Activity	Efficiency	Embedded Carbon	Air quality	Noise	Natural env.	Street scape	Severance	Physical activity	Injuries	Access	SDIs	Security
Permanently undermines protected areas											-2							
Temporarily undermines protected area																		
Enhances access to international gateways	+2																	
Reduces access to international gateways	-2																	
Enhances placemaking						+2					+2			+2	+2		+2	+2
Undermines placemaking	-2												-2			-2		
Supports housing development				+2				-2								+2		
Significantly enhances regional connectivity	+2												+2			+2		
Reduces regional connectivity	-2												-2			-2		
Delivers other climate change benefits						+2			+2									

Deliverability Assessment (1 of 3)

Deliverability Typology Scores

The Deliverability Assessment aims to identify the key attributes that affects the likelihood of an intervention being developed, funded, and delivered.

The criteria used for this assessment is also based on DfT's EAST framework.

Evidence to inform this assessment was drawn from a variety of sources, including existing comparable schemes, national/ regional/local scheme information, Subject Matter Expert opinion, and publicly available information.

Most of the interventions and options included in the long list were at an early stage of development and therefore lacked detailed evidence such as cost estimates. To manage this evidence gap, the Project Team undertook a benchmarking exercise a compared proposed interventions to recently delivered 'similar' schemes. This exercise drew on the expertise of Project Team's Subject Matter Experts.

The Deliverability Assessment scores assigned to the typologies is provided in **Table 4.6** to the right.

Figure 4.6: Typology Deliverability Assessment

Typology	Objectives						
	Capital Cost	Value for Money	Affordability	Timescale	Technical Risk	Acceptability	Evidence Base
Active Travel	5	5	4	5	4	5	4
Demand Management (Roadspace reallocation)	4	3	4	3	4	2	4
Demand Management (Other)	4	4	4	5	4	3	4
Demand Management (Clean Air Zone)	4	5	4	3	3	2	4
Enhanced bus services	4	3	4	3	4	4	4
Ferry operations	4	3	3	5	4	3	3
Freight	2	4	2	3	2	4	3
Airport	3	3	2	3	2	3	3
Highway infrastructure	3	3	4	5	4	3	3
Integrated Public Transport	5	4	4	3	4	4	3
Level Crossings	3	2	2	3	3	4	3
New BRT	2	3	4	3	3	4	3
New Highway	2	3	3	3	3	3	3
New LRT	2	2	3	2	2	3	3
New Railway	2	2	3	2	2	4	2
Railway infrastructure	2	2	3	3	2	4	3
Railway operations	3	4	4	4	4	5	3
Smart Motorways	3	4	4	5	3	4	3
Strategic Mobility Hubs	2	4	4	3	4	4	3

Deliverability Assessment (2 of 3)

Approach to Deliverability Assessment

The scoring system required a different approach for each criteria, as the range of criteria is relatively diverse.

Capital Costs

Capital costs were based on infrastructure bands as follows:

- £0 – 20m = 5;
- £20m – £50m = 4;
- £50m - £250m = 3;
- £250m - £1bn = 2;
- > £1bn = 1.

Value for Money

Value for Money assessments were broadly based on the scale of funding each intervention is expected to need. For example, 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 project to delivery partners to provide funding, and whether there is a need for additional funds from non-government sources.

Timescales

Timescale bands covered 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.

As such, these operate on a three-point score system of

- Long term = 1;
- Medium term = 3; and
- Short term = 5.

Technical Complexity

Technical complexity was based on benchmarking against comparable schemes. 'Riskier' projects were assigned lower scores than less risky projects.

Acceptability

For the base typology scores, 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.

Deliverability Assessment (3 of 3)

Deliverability Adjustments

A different set of criteria were also used to adjust Deliverability Typology Assessments base scores.

Adjustment factors for the deliverability case have been centered around 'high' versus 'low' assessment. They focussed on whether the typology would initially have a higher or lower adjustment (i.e., capital cost, affordability, timescale) than the base-score assigned. For example, a rail tunnel option would cost higher than a standard rail option.

A summary of the deliverability assessment adjustments is provided in **Table 4.7**.

Adjustments to the Acceptability criteria input score are closely linked with the policy alignment scoring derived in the Strategic Assessment. The base score for this criteria is aligned within how well it performs in policy alignment. It is then adjusted for whether it performs positively or negatively against support from stakeholders, the public and/or politicians.

Table 4.7: Deliverability Assessment Adjustments

Typology	Objectives						
	Capital Cost	Value for Money	Affordability	Timescale	Technical Risk	Acceptability	Evidence Base
Capital cost: High Cost	-1						
Capital cost: Low Cost	+1						
Expected Value for Money: High Value for Money		+1					
Expected Value for Money: Low Value for Money		-1					
Affordability: High affordability			+1				
Affordability: Low affordability			-1				
Timescale: Short Timescale				+1			
Timescale: Long Timescale				-1			
Technical complexity/Risk: High Complexity/Risk					-1		
Technical complexity/Risk: Low Complexity/Risk					+1		
Acceptability: High Acceptability						+1	
Acceptability: Low Acceptability						-1	
Evidence: Good Evidence							+1
Evidence: Low Evidence							-1

Assurance and Moderation

Technical Assurance

The results of each Assessment were reviewed by Technical Experts, TfSE, and key stakeholders at multiple points.

A Technical review of the assessment process was undertaken by the Project Team at several stages of the assessment. This ensured that the assessors were both adhering to the principles outlined within EAST and the Transport Appraisal Process. After assessment has been completed for each sift (strategic, economic, deliverability) the MCAF spreadsheet was audited and reviewed to ensure it was computing and recording results accurately.

The technical review also became an opportunity to discuss any issues in process or decision making and to justify and explain outcomes for interventions where there may have been debate. This information is entered into the MCAF comments log.

Following on from the internal technical assessment, the MCAF was then sent for review and moderation with stakeholders and TfSE.

Stakeholder Moderation

All Assessment Results were reviewed by TfSE and shared with Outer Orbital Area Study Working Group.

The Working Group did not propose any major changes to typologies or adjustments. Some members identified local issues that enabled the advisor team to 'boost' certain interventions. For example: it emerged that some highway interventions also included active travel elements and/or supported local housing developments, which enabled these interventions to be awarded higher scores for some criteria.

The Working Group proposed some changes to the Strategic Assessment scores – particularly with respect to policy alignment. This is to be expected, as the draft scores were based on published documents, whereas Working Group Members were able to provide insight on emerging policy.

A high-level summary of the results of the MCAF Economic and Delivery Assessments were also presented to the Outer Orbital Area Study Working Group. No significant changes were proposed at this stage.

Park or Proceed Decision

Once the full outputs from the MCAF had been calculated, a final 'park' or 'proceed' manual assessment was undertaken.

In general, interventions were parked if they receive score of 2/5 or less for:

- **Policy Alignment** (any score);
- **Strategic Sift** (average score); and
- **Economic Sift** (average score).

Interventions with a **Delivery Sift** average score of 2/5 were also ruled out.

For interventions that had multiple options, where one option clearly outperformed the others, the best scoring intervention was set as 'proceed' and all others as 'park'.

Interventions that had multiple options with similar (high) scores were marked as 'proceed (consider all/remaining options)'.

At this stage, some interventions were transferred to other Area Studies or determined to be Global Policy interventions – interventions that will be assessed across the whole South East area.

Part 5

Package Development

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 Outer Orbital 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 Outer Orbital area with the results of the Multi Criteria Assessment Framework.

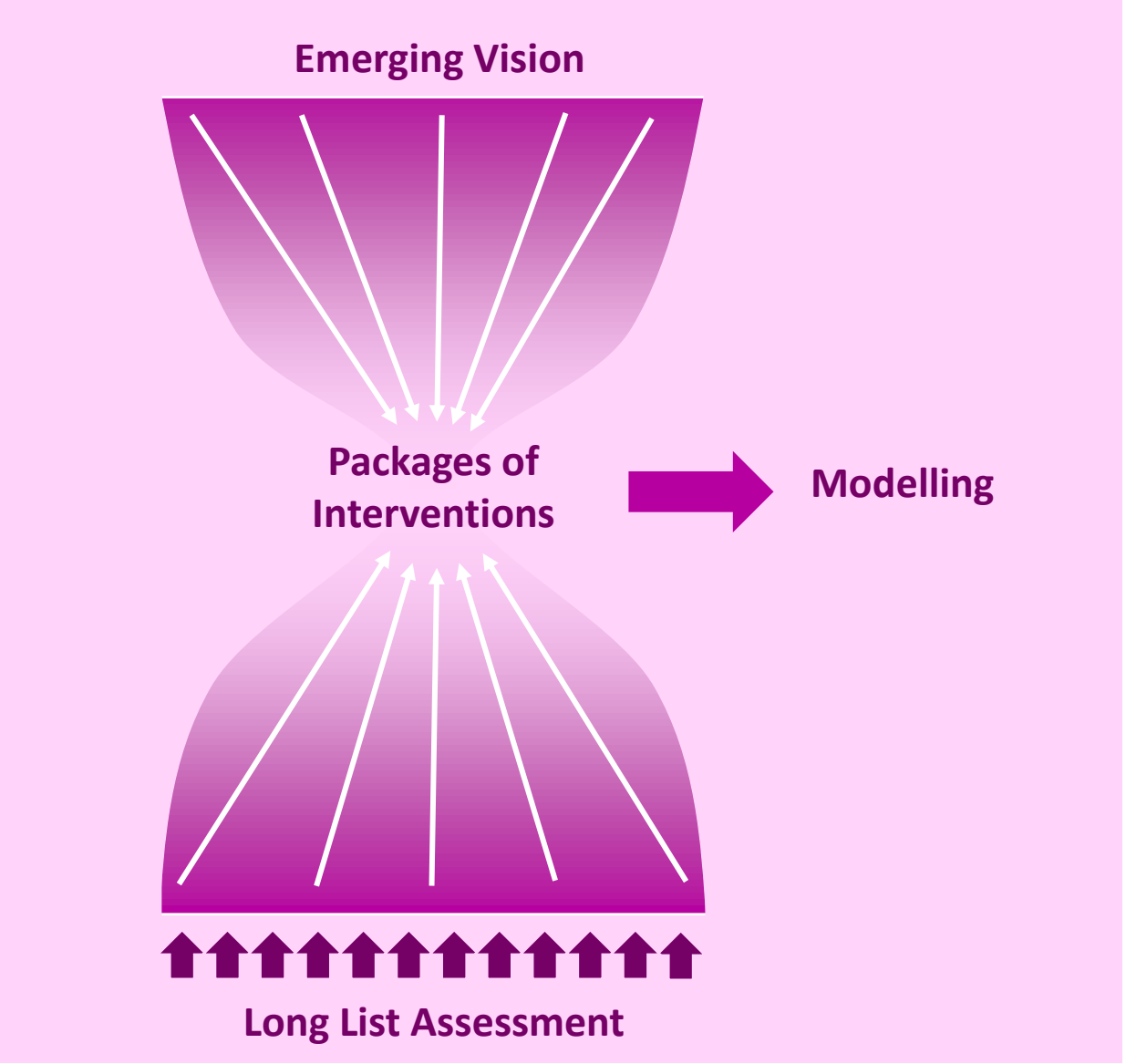
In essence, this reflects both a 'top down' i.e., vision led approach and a 'bottom up' i.e., individual intervention assessment approach.

A diagram in **Figure 5.1** to the right illustrates the essence of this combined approach.

In this Part (**Part 5**), we present both the Vision and Long List Assessment results.

In the following Part (**Part 6**), we present the results of the modelling of the Packages in our land use and transport model.

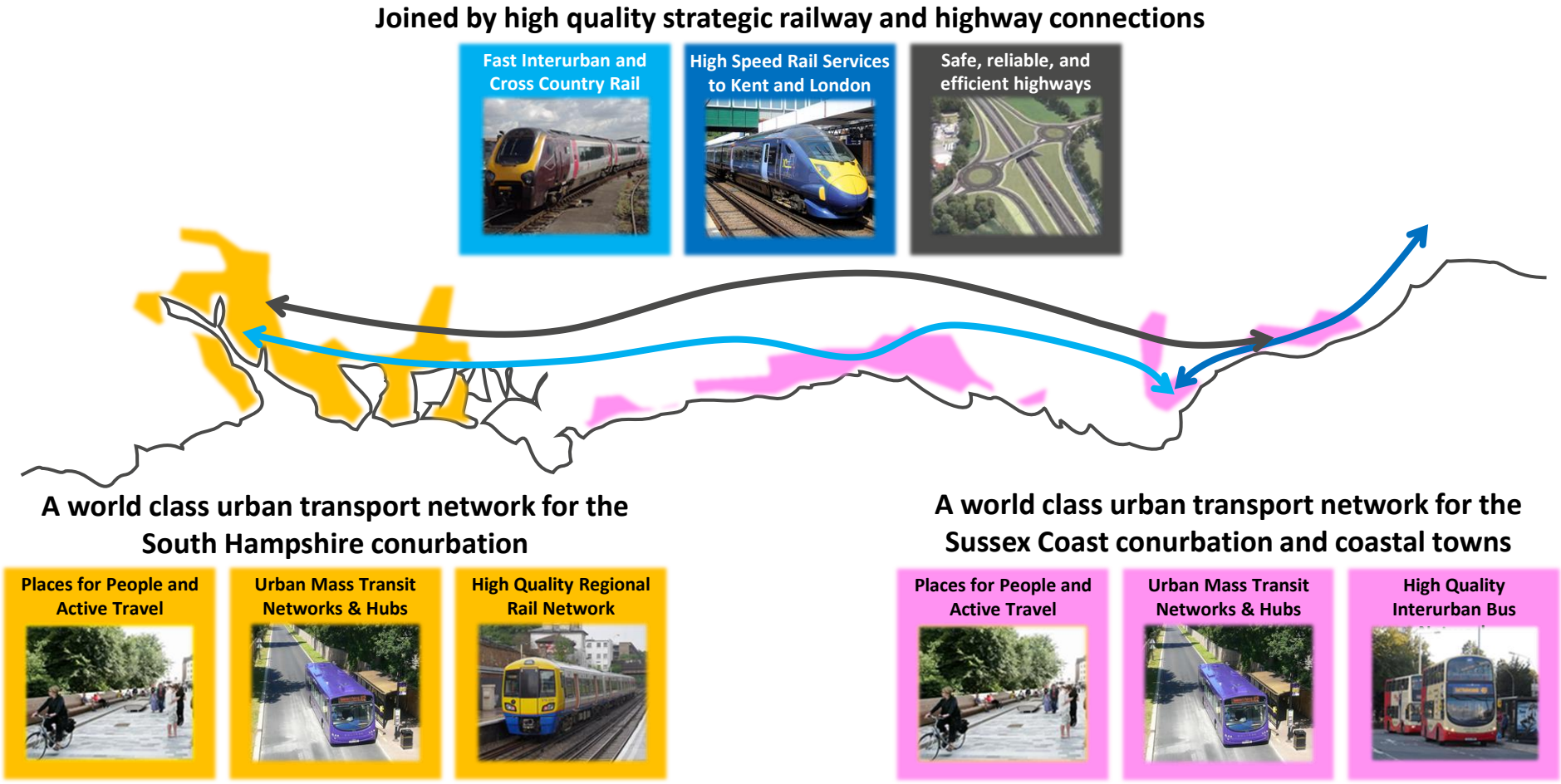
Figure 5.1: Approach to Package development



Vision for the Outer Orbital Area Study

By the year 2050 the two conurbations of the Outer Orbital area – South Hampshire and Sussex Coast – 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 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.

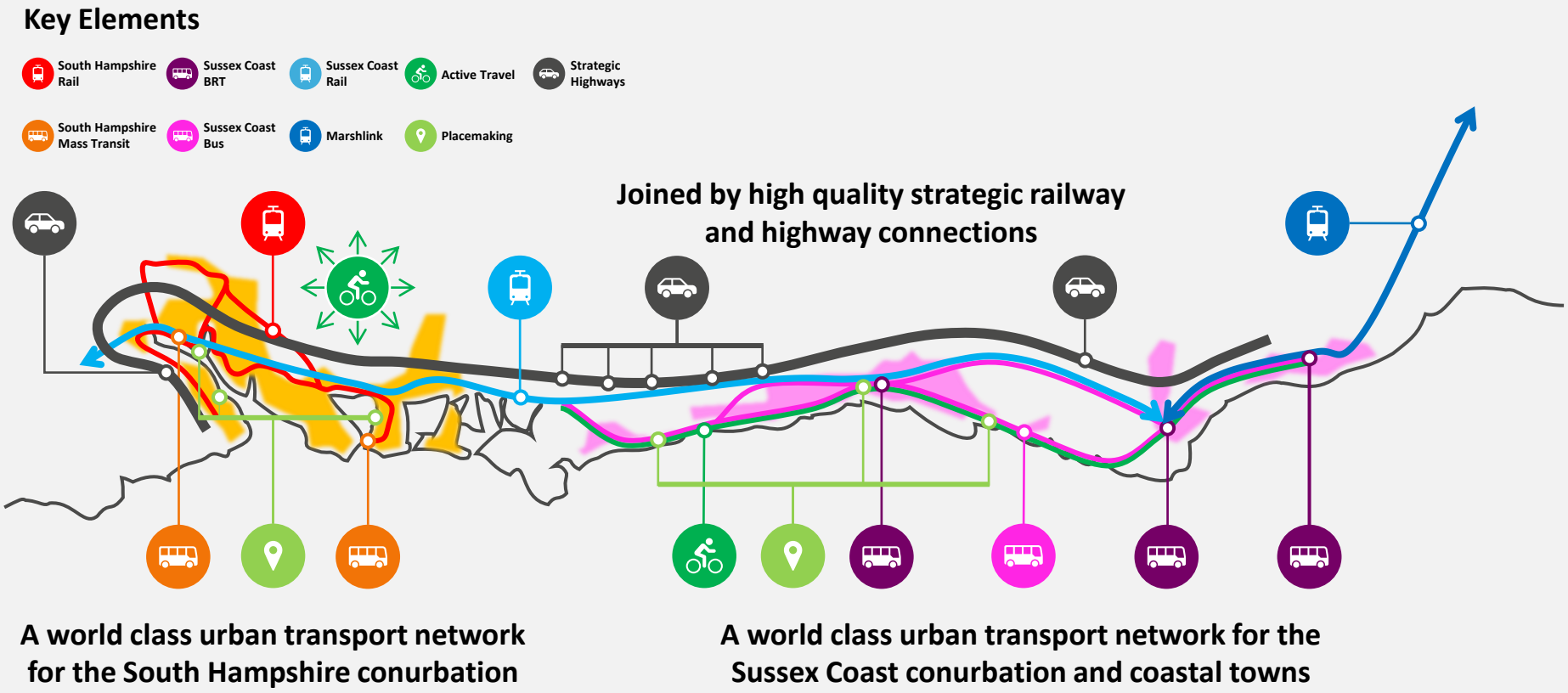
Figure 5.2: Vision for the Outer Orbital Area's transport system



Key Elements in the Vision

To deliver the vision outlined in the previous page, the Outer Orbital area will need to deliver improvements and changes to infrastructure, services, and policies across all transport modes. This will include delivering packages of rail, mass transit, active travel, and highways enhancements. The elements to be included in these packages is shown in **Figure 5.3** below.

Figure 5.3: Key elements supporting the Outer Orbital Area Study vision



Tables 5.1 – 5.9 in the following pages describe the composition of the Packages that have been developed to deliver the vision for the Outer Orbital area. They present the results of the MCAF assessment and list the interventions recommended for further appraisal.

Packages and Options Assessment Results (1 of 9)

South Hampshire Core Rail Package

Network Rail, Solent Transport, and the Local Transport Authorities in South Hampshire have developed a comprehensive package of interventions that will deliver improvements to urban and interurban rail journeys.

These form part of the Solent Continuous Modular Strategic Plan (CMSP), which includes interventions such as increasing capacity on the Botley line to twin tracks, adding platform capacity at Portsmouth Harbour, signalling improvements on the Netley Line, and timetable changes to maximise capacity at Southampton Central. A key enabler to the Solent CMSP is the provision of sidings at Totton and a solution to a level crossing constraint in this area.

Additionally, there is an aspiration to reintroduce passenger rail services to the Fawley Branch Line and serve a large planned development in this area. While alternative uses for this railway have been explored, there appears to be consensus that this corridor should develop as (an ideally electrified) heavy rail service. Ferries could also complement this service.

Table 5.1: South Hampshire Rail Interventions and Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
Solent CMSP	Core Options	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	Proceed
West Coastway CMSP	Improvements in Havant area	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	Proceed
Southampton Central Station	Refurbishment/improved interchange	✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed (consider all options)
	As above, and additional platforms	✓✓✓	✓✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
Totton sidings and level crossing	New bridge on Junction Road	✓	✓✓	✓	✓✓	✓✓✓	✓	Park
	Remove crossing, no access	✓✓	✓✓	✓✓	✓	✓✓	✓✓	
	Remove crossing, access via Redbridge Causeway	✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed (consider remaining options)
	Relocate station to west	✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
Fawley / Waterside Redevelopment Rail Corridor Access	Heavy Rail	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed (consider remaining options)
	Heavy Rail and Electrification	✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	
	Light Rail Transit	✓✓✓	✓	✓	✓✓	✓✓✓	✓	Park
	Tram Train	✓✓✓	✓✓	✓	✓✓✓	✓✓✓	✓	
	Busway (replaces railway)	✓✓✓	×	×	✓✓	✓✓✓	✓	
Fawley / Waterside Ferries	Scheduled ferry service/extension of existing Hyde Ferry service	✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	✓✓	Proceed (consider all options)
	Demand responsive water taxis	✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓	✓✓	

Key to ticks

✓✓✓✓	Very high alignment (Scores above 4.4)
✓✓✓	High alignment (Scores between 3.5 – 4.4)
✓✓	Medium alignment (Scores between 2.5 – 3.4)
✓	Low alignment (Scores between 1.5 – 2.4)
×	Very low alignment (Scores less than 1.5)

Package 1a: South Hampshire Rail (Core)

- Solent CMSP, delivering 2-3tph on urban routes: Botley Line double tracking; Netley Line resignaling; Platforms at Fareham and Portsmouth Harbour; Totten sidings/level crossing; and Eastleigh platform/approach
- Southampton Central refurbishment
- Fawley / Waterside access (electrified)

Packages and Options Assessment Results (2 of 9)

South Hants Enhanced Rail Package

The Outer Orbital Area Study has a horizon as far as 2050 and an ambition to deliver transformational change in sustainable travel options in South Hampshire.

Solent Transport and Local Transport Authorities have previously stated an ambition to deliver a level of service on urban metro routes comparable to suburban London – i.e., 4 trains per hour.

There are also aspirations to grow freight and provide better connectivity between South Hampshire, the West of England, the Midlands, and beyond. This requires more capacity than the current network can provide. The key bottleneck preventing this from being realised is the tunnels between Southampton Central and St Denys.

We have therefore worked with the Area Study Working Group to outline a longer-term package of interventions that unlock significant capacity and, potentially, shorter journey times between Southampton and Portsmouth City Centres. This could include potential new underground link between Southampton Central and the Netley Line.

Table 5.2: Fawley and Waterside Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
Southampton Core Solution	Woolston Tram Train	✓✓✓	✓	✓✓✓	✓✓✓	✓✓✓	✓	Park
	Woolston Tunnel	✓✓✓	✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓	Proceed (consider all options)
	St Deny's Tunnel	✓✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓	
Southampton Airport Access	Eastleigh Chord	✓	✓	✓✓✓	✓✓	✓✓✓	✓✓	Park
	Eastleigh Turnback	✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
Southampton Cruise Terminal Access	Heavy Rail	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓	Proceed (consider all options)
	Light Rail	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓	
	Tram Train	✓	✓✓	✓✓	✓✓✓	✓✓✓	✓	
Portsmouth Stations	New station(s)	✓✓	✓	✓✓	✓	✓✓✓	✓✓	Park
Fareham - Cosham capacity		✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	Proceed
West of England services (Portsmouth/Southampton – Exeter)		✓✓✓	✓✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	Proceed
Solent Level Crossings		✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓	Proceed

Key to ticks

✓✓✓✓	Very high alignment (Scores above 4.4)
✓✓✓	High alignment (Scores between 3.5 – 4.4)
✓✓	Medium alignment (Scores between 2.5 – 3.4)
✓	Low alignment (Scores between 1.5 – 2.4)
×	Very low alignment (Scores less than 1.5)

Package 1b: South Hants Rail (Enhanced)

- Southampton Core Solution
- Capacity for 4tph in urban areas
- Capacity for freight
- Fareham – Cosham capacity
- Faster longer distance journeys (Southampton – Portsmouth – West of England)
- Additional level crossing interventions

Packages and Options Assessment Results (3 of 9)

South Hampshire Mass Transit

TfSE and the Area Study Working Group believe the South Hampshire conurbation is large enough and dense enough to support world class mass transit systems.

Portsmouth City Council are developing and delivering a comprehensive high quality Bus Rapid Transit that will serve the Portsmouth City Region. Correspondingly, Southampton City Council are developing similarly ambitious plans for Mass Transit.

Both mass transit systems will be supported by a high-quality urban rail service (Package 1), and, where interchange opportunities are available, strategic mobility hubs. These hubs should provide interchange across a range of modes including active travel and new mobility choices. This package includes interventions to improve access for to parts of the wider Hampshire area, including islands and peninsulas.

Package 2: South Hants Mass Transit

- Southampton Mass Rapid Transit
- South East Hampshire Rapid Transit
- Strategic Mobility Hubs
- Enhanced island/peninsula access

Table 5.3: South Hampshire Mass Transit Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
Southampton Mass Transit System		✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	Proceed
South East Hampshire Rapid Transit		✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	Proceed
M271 Junction 1 Strategic Mobility Hub	Park and Ride	✓✓✓	✓✓	✓✓	✓✓	✓✓✓✓	✓✓	Proceed (consider all options)
	Rail interchange (Nursling station)	✓✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓	
M27 Junction 5 Strategic Mobility Hub	Park and Ride	✓✓✓	✓✓	✓✓	✓✓	✓✓✓✓	✓✓	Proceed (consider all options)
	Rail interchange	✓✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	
M27 Junction 7/8 Strategic Mobility Hub	Park and Ride	✓✓✓	✓✓	✓✓	✓✓	✓✓✓✓	✓✓	Proceed (consider all options)
	Rail interchange	✓✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	
M27 Junction 9 Strategic Mobility Hub	Park and Ride	✓✓✓	✓✓	✓✓	✓✓	✓✓✓✓	✓✓	Proceed (consider all options)
	Rail interchange	✓✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	
M3 Junction 13 Strategic Mobility Hub	Park and Ride	✓✓✓	✓✓	×	✓✓	✓✓✓✓	✓✓	Park
	Rail interchange	✓✓✓✓	✓✓✓	×	✓✓	✓✓✓✓	✓✓	
M275 Junction 1 Strategic Mobility Hub	Enhanced Park and Ride	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	Proceed (consider all options)
	As above plus bridge to Horsea	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	
A27 Emsworth Strategic Mobility Hub	Park and Ride	✓✓✓	✓✓	×	✓✓	✓✓✓✓	✓✓	Park
	Rail interchange	✓✓✓✓	✓✓✓	×	✓✓	✓✓✓✓	✓✓	
Southampton/ Portsmouth Passenger Ferry	Direct	✓✓	✓	✓	✓✓	✓✓	✓✓	Park
	Additional calls at Lee-on-Solent	✓✓	×	✓	✓✓	✓✓	✓✓	
Clarence Pier Bus-Hovercraft Interchange		✓✓	✓✓✓✓	✓✓	✓✓	✓✓✓✓	✓✓	Proceed
Hayling Island Ferry	Route closer to Portsmouth Centre	✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed
Havant/Hayling Island	Improved public transport access	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
Gosport/Portsmouth	Pedestrian tunnel	✓	✓	✓	✓✓	✓✓✓	✓	Park

Packages and Options Assessment Results (4 of 9)

South Hampshire Placemaking

All three Local Transport Authorities in South Hampshire have ambitious plans to improve cycling and walking in their areas. This ambition is supported by this study.

Several highway interventions – such as the Southampton West Quay scheme – unlock opportunities for pedestrians and cyclists by freeing up more public space in town and city centres.

South Hampshire Highways

In general, highways interventions that support access to international gateways, housing/regeneration/growth areas, and placemaking (e.g. unlocking public spaces) are supported by this study.

Furthermore, interventions that support the vision set out on **page 43** for a high-quality highway between the areas' two largest conurbations – a highway that de-conflicts local and longer-distance traffic and improves safety and air quality.

Interventions at M27 junctions will either be considered in the South West Radial area study or combined with Strategic Mobility Hub interventions.

Table 5.4: South Hants Highways/Placemaking/Active Travel Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
South Hampshire Active Travel	LCWIPs & active travel interventions	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	Proceed
M27 Junctions	Southampton Access (RIS3 pipeline)	✓✓✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓	Proceed
	Junction 8 online enhancements	✓✓✓✓	✓✓✓	✓✓	✓	✓✓	✓✓	Park
	Junction 10 online enhancements	✓✓✓✓	✓✓✓	✓	✓	✓✓	✓✓	Park
	Junction 11 online enhancements	✓✓	✓✓✓	✓	✓	✓✓	✓✓	Park
M27/M271/M275 Smart Motorway(s)	M27 Junctions 1-4 and 11-12, M271, and M275	✓✓	✓✓✓✓	✓✓	✓✓	✓✓	✓✓✓	Proceed
M27/M271/M275 Road User Charging	Candidate for pilot scheme	×	✓✓	×	✓✓✓	✓✓✓	✓✓✓	Consider as Global Policy options
M27/M271/M275 Digital Interventions	E.g. EV Charging Lanes, Freight Platooning, HOV, Bus Lanes	✓✓	✓✓	✓✓✓✓	✓✓	✓✓	✓✓✓	
Northam Rail Bridge Replacement and Enhancement		✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
Chickenhall Lane Link Road		✓✓	✓✓	✓✓	✓	✓✓✓	✓✓	Park
Brownhill Way		✓✓✓	✓✓✓✓	✓	✓	✓✓	✓✓	Park
M275 Junction 1, Horsea Bridge and Tipner		✓✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed
Southampton West Quay Road Realignment		✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
Portsmouth City Centre Road		✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
A326 Capacity Enhancement		✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed

Package 3: South Hampshire Placemaking

- LCWIPs and other active travel interventions
- Northam Rail Bridge
- Southampton West Quay Road Realignment
- Portsmouth City Centre Road

Package 7: Strategic Highways

- M27 Southampton Access
- M27 Smart Motorways
- A326 Capacity Enhancement
- Horsea Bridge and Tipner

Packages and Options Assessment Results (5 of 9)

Sussex Coast Rail

Network Rail has worked with Local Transport Authorities to develop a package of improvements for the West Coastway and East Coastway lines.

The West Coastway CMSP delivers faster journeys and more capacity between Brighton and Hove and Southampton. However, there is not enough capacity to accommodate all stakeholder aspirations on this corridor. This study supports those interventions that best support interurban and long-distance journeys.

Several interventions have been ruled out at this stage on feasibility grounds, including:

- Four tracking – this would adversely impact communities close to this line.
- Toddington Station – land for this intervention has been developed.
- Willingdon Chord – there appears to be no demand for this link.
- Dover – Ramsgate railway – this is not a priority for Kent County Council.

Several other interventions have been referred to the South Central (SC) Radial and South East (SE) Radial Area studies.

Table 5.5: Sussex Coast Rail Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
West Coastway Railway CMSP	Capacity enhancements, focus on metro	✓✓✓✓	✓✓✓	✓	✓✓	✓✓✓	✓✓	Park
	As above, focus on long distance	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	Proceed
	As above, focus on London	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed
	4-tracking, enabling all routes/journeys	✓✓✓	✓✓	✓	✓✓	✓✓✓	✓	Park
Level Crossings	East Guldeford, West Worthing, Hampden Pk	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed
New station at Toddington		×	×	×	✓✓	✓✓✓	✓	Park
Willingdon Chord		✓✓	✓✓	✓	✓✓	✓✓✓	✓✓	Park
Arundel Chord	Refer to South Central Radial Area Study	✓✓	✓	✓✓	✓✓	✓✓✓	✓✓	SC Study
Marshlink (Ashford/ Eastbourne High Speed)	Higher frequency services Hastings <> Ashford	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed
	Direct HS1 Services Eastbourne <> St Pancras	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	
	More HS1 Services Ashford <> Dover	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	SE Study
	More HS1 Services Ashford <> Canterbury	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Marshlink Line	A259 level crossing removals / reroute A259	✓✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed
A2/A20 Dover Town Centre placemaking enhancements		✓✓✓	✓✓✓✓	✓✓✓	✓	✓✓✓	✓✓✓	SE Study
A256 Dover/ Manston	Online dual carriageway	✓✓	✓✓	×	✓	✓✓	✓✓	Park
	Grade separation	✓✓	✓✓	×	✓	✓✓	✓✓	Park
Dover/ Ramsgate	Signalling and line-speed improvements	✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓✓	✓✓	SE Study

Package 4: Sussex Coast Rail

- West Coastway CMSP – focus on London and longer-distance east/west journeys
- Marshlink Line improvements (and High-Speed services to Eastbourne)
- Level Crossing schemes at East Guldeford (*which could be achieved through rerouting of the A259*, West Worthing and Hampden Park.

Packages and Options Assessment Results (6 of 9)

Sussex Coast Mass Transit

As set out on page 17, we believe there is a strong case for a high-quality mass transit system on the Sussex Coast.

Brighton and Hove City Council has plans for a high-quality public transport system along the Brighton Seafront. Details are to be finalised, but the typology of the city lends itself strongly to Bus Rapid Transit.

The Area Study Working Group has considered whether this system could also serve East and West Sussex. At this stage, extending to East Sussex appears to be more technically feasible than West Sussex. Additionally, East Sussex is developing proposals for improved public transport services in Eastbourne and Hastings.

All these systems could be supported by general improvements to non-BRT buses and Strategic Mobility Hubs, notably at Falmer and Polegate (options for other hubs are harder but should be explored).

Package 5: Sussex Coast Mass Transit

- Brighton and Hove Mass Transit
- Eastbourne/Hastings Mass Transit
- Strategic Mobility Hubs

Table 5.6: Sussex Coast Mass Transit Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
Sussex Coast Mass Transit	Brighton & Hove Bus Rapid Transit (BRT)	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	Proceed (consider remaining options)
	Brighton & Hove and West Sussex BRT	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	
	Brighton & Hove and East Sussex BRT	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	
	Brighton & Hove, W. Sussex, E. Sussex BRT	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	
	Brighton & Hove Light Rail Transit (LRT)	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	
	Brighton & Hove and West Sussex LRT	✓✓✓✓	✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓	
	Brighton & Hove and East Sussex LRT	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	
	Brighton & Hove, W. Sussex, East Sussex LRT	✓✓✓✓	✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	
	Brighton & Hove, W. / E. Sussex Tram Train	✓	✓	✓	✓✓✓	✓✓✓	✓	Park
West Strategic Mobility Hub	Shoreham Park and Ride	✓✓✓	✓✓	✓✓	✓✓	✓✓✓✓	✓✓	Proceed (consider remaining options)
	Old Shoreham Park and Ride	✓✓✓	✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓	
	Hangleton Park and Ride	✓✓✓	✓✓	✓	✓	✓✓✓✓	✓✓	
North Strategic Mobility Hub	Devil's Dyke Park and Ride	✓✓✓	✓✓	✓	✓	✓✓✓✓	✓✓	SC Study
	Patcham Park and Ride	✓✓✓	✓✓	✓	✓	✓✓✓✓	✓✓	
East Strategic Mobility Hub	Falmer Park and Ride	✓✓✓	✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	Proceed (consider all options)
	Flamer Park and Ride / Park and Rail	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓✓	✓✓✓	
Eastbourne	Bus Rapid Transit	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	Proceed
Eastbourne Strategic Mobility Hub	Polegate Park and Ride/Park and Rail	✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓✓✓	✓✓✓	Proceed (consider all options)
	Hampden Park Level Crossing	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓	✓✓	
	Stone Cross/Hampden Park and rail station	✓✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓	
Hastings/ Bexhill Mass Transit	BRT	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	Proceed (consider all options)
	LRT	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓	

Packages and Options Assessment Results (7 of 9)

Sussex Coast Placemaking

All three Local Transport Authorities on the Sussex Coast have ambitious plans to improve cycling and walking in their areas. This is fully supported by this study.

Several smaller scale highways interventions are also proposed to support housing growth along the Sussex Coast. Most of these interventions include public transport and active travel elements.

Package 6: Sussex Coast Placemaking

- Brighton & Hove Clean Air Zone
- LCWIPs and other active travel
- A259 Chichester to Bognor Regis
- A259 Bognor Regis to Littlehampton
- A29 Realignment
- A259 Seafront Highway Structures Renewal Programme
- A259 South Coast Road Corridor

Table 5.7 includes some Strategic Highways interventions, which are summarised in the following page.

Package 6 includes a Clean Air Zone for Brighton and Hove, which is presented in Table 5.9.

Table 5.7: Sussex Coast Active Travel and Strategic Highways Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
Sussex Coast Active Travel	LCWIPs	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	Proceed
	NCN2 Improvements	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓	
A259 Chichester to Bognor Regis Enhancement	Online dual carriageway and cycleway	✓✓✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed (consider all options)
	Additional bus lanes and cycleway	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	
A259 Bognor Regis to Littlehampton Enhancement		✓✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed
A29 Realignment		✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed
A259 Brighton & Hove seafront highway structures renewal		✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
A259 South Coast Road Corridor (Brighton – Eastbourne)		✓✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed
Chichester – Shoreham	Downgrade and de-trunk road	✓	✓	✗	✓✓✓	✓✓✓	✓✓	Park
Chichester (RIS3 pipeline)	Online junction upgrades	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	Park Proceed (consider all options)
	Online grade separation	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	
	Offline northern single carriageway	✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
	Offline northern dual carriageway	✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
Tangmere and Boxgrove	Grade separation	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed (consider all options)
	Removal of junction/right hand turns	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓✓	
Fontwell	Grade separation	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed (consider all options)
	At grade improvements	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓✓	
Arundel (RIS2)	Preferred Route	✓✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed
	Additional access for Ford	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
Worthing (RIS2)	Online improvements	✓✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓	Proceed

Packages and Options Assessment Results (8 of 9)

Strategic Highways

This study supports interventions that help deliver vision set out on page 43 for a high-quality highway between the areas' two largest conurbations.

Any highway intervention on this corridor should be designed to de-conflict local and longer-distance traffic, safety and air quality. They should support public transport improvements. Options that minimise severance and their overall impact on the natural and historic environment, score better than those that do not. A summary of the interventions supported is provided in the box below.

Package 7: Sussex Strategic Highways

- A27 Chichester (RIS3 pipeline)
- A27 Tangmere and Boxgrove
- A27 Fontwell
- A27 Arundel (RIS2)
- A27 Worthing and Lancing (RIS2)
- A27 Long Term Worthing Solution
- A27 Lancing
- A27 Brighton Junctions
- A27 Lewes - Polegate (RIS3 pipeline)
- A27 Bus Laybys (Brighton – Lewes)

Table 5.8: Sussex Coast Strategic and Local Highways Options Assessment Results

Intervention	Option	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
		National	Local	Regional	Strategic	Economic	Delivery	
Worthing (long term)	Dualling online	✓✓	✓✓✓	×	✓	✓✓	✓✓	Park
	Improvements to A280 route	✓	✓✓	×	✓✓	✓✓✓	✓✓	
	Offline northern single carriageway	×	×	×	✓✓	✓✓✓	✓✓	
	Offline northern dual carriageway	×	×	×	✓✓	✓✓✓	✓✓	
	Single carriageway short tunnel	✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓	Proceed (consider remaining options)
	Dual carriageway short tunnel	✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓	
	Single carriageway long tunnel	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
	Dual carriageway long tunnel	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
Lancing	Junction improvements at grade	✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓✓✓	Proceed (consider all options)
	Grade separation	✓✓	✓✓✓	✓✓	✓✓	✓✓✓	✓✓	
Patcham Junction	A23/A27 interchange improvements	✓✓	✓✓✓	✓✓	×	✓✓	✓✓	SC Study
Other Brighton & Hove Bypass junctions	Online improvements	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓✓	Proceed
Lewes Ashcombe roundabout	Ashcombe online improvements	✓✓	✓✓✓	×	✓	✓✓	✓✓	Park
	Ashcombe grade separation	✓✓	✓✓✓	×	✓	✓✓	✓✓	
Lewes Southerham roundabout	Southerham online improvements	✓✓	✓✓✓	×	✓	✓✓	✓✓	Park
	Southerham grade separation	✓✓	✓✓✓	×	✓	✓✓	✓✓	
Lewes (Southerham) – Polegate (RIS3 pipeline)	Offline northern single carriageway	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	Proceed (consider all options)
	Offline northern dual carriageway	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
	As above with Cophall flyover	✓✓✓	✓✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	
Falmer – Polegate	Bus laybys and priority lanes	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	Proceed

Packages and Options Assessment Results (9 of 9)

Global Policy Interventions

The Area Study programme will include a Global Policy Package that will be applied across all packages and areas.

These policies are being developed in parallel to this study. They will be separately assessed and modelled and, at a later stage of the study, combined with the area packages modelled for this study.

Table 5.9: Global Policy Options Assessment Results

Intervention	Policy Alignment Scores			Average Assessment Scores			Park or Proceed?
	National	Local	Regional	Strategic	Economic	Delivery	
Southampton Workplace Parking Levy	✓✓✓	✗	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	Park
Southampton Clean Air Zone	✓✓✓	✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Portsmouth Workplace Parking Levy	✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Portsmouth Clean Air Zone	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	Delivered
Solent Passenger Transport Executive	✓✓✓✓	✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	Consider as Global Policy options
Solent Zonal Integrated Fares	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Solent Integrated/Contactless Ticketing	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Solent Integrated Passenger Service/Information	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Solent Hydrogen Hub	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓	
Solent Freight Consolidation Centre(s)	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓	
Brighton and Hove Workplace Parking Levy	✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Brighton and Hove Clean Air Zone	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Newhaven Clean Air Zone	✓✓✓	✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Eastbourne Clean Air Zone	✓✓✓	✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Hastings Clean Air Zone	✓✓✓	✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Hastings Workplace Parking Levy	✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	
Sussex Coast Integrated Transport Authority	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Sussex Coast Zonal Integrated Fares	✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Sussex Coast Integrated/Contactless Ticketing	✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Sussex Coast Integrated Passenger Service/Information	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓✓	
Sussex hydrogen hubs	✓✓✓	✓✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓	
Sussex freight consolidation centre(s)	✓✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓	✓✓	

Part 6

Package Modelling

Introduction to SEELUM (1 of 3)

Introducing SEELUM

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

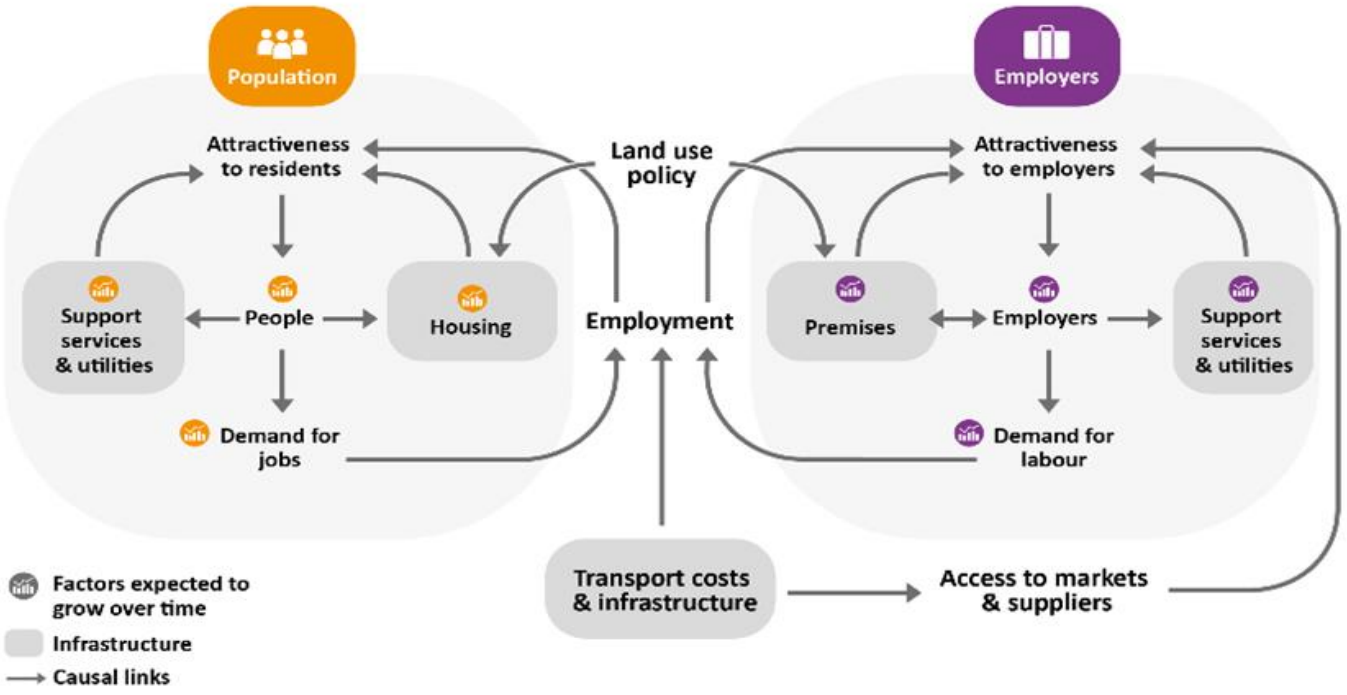
This model, known as the South East Economy and Land Use Model (SEELUM), is a transport and land use model that simulates the interaction of transport, people, employers and land-use over periods of time.

A high-level view of SEELUM is provided in **Figure 6.1** to the right.

Due to the geographical scope and inter-modal nature of the Area Studies, the Project Team has agreed that SEELUM should be used to model the impacts of the Packages developed for this study on transport and socioeconomic outcomes over a 30-year period.

A map showing the zones included in the SEELUM model is provided in Figure 6.2 overleaf.

Figure 6.1: SEELUM

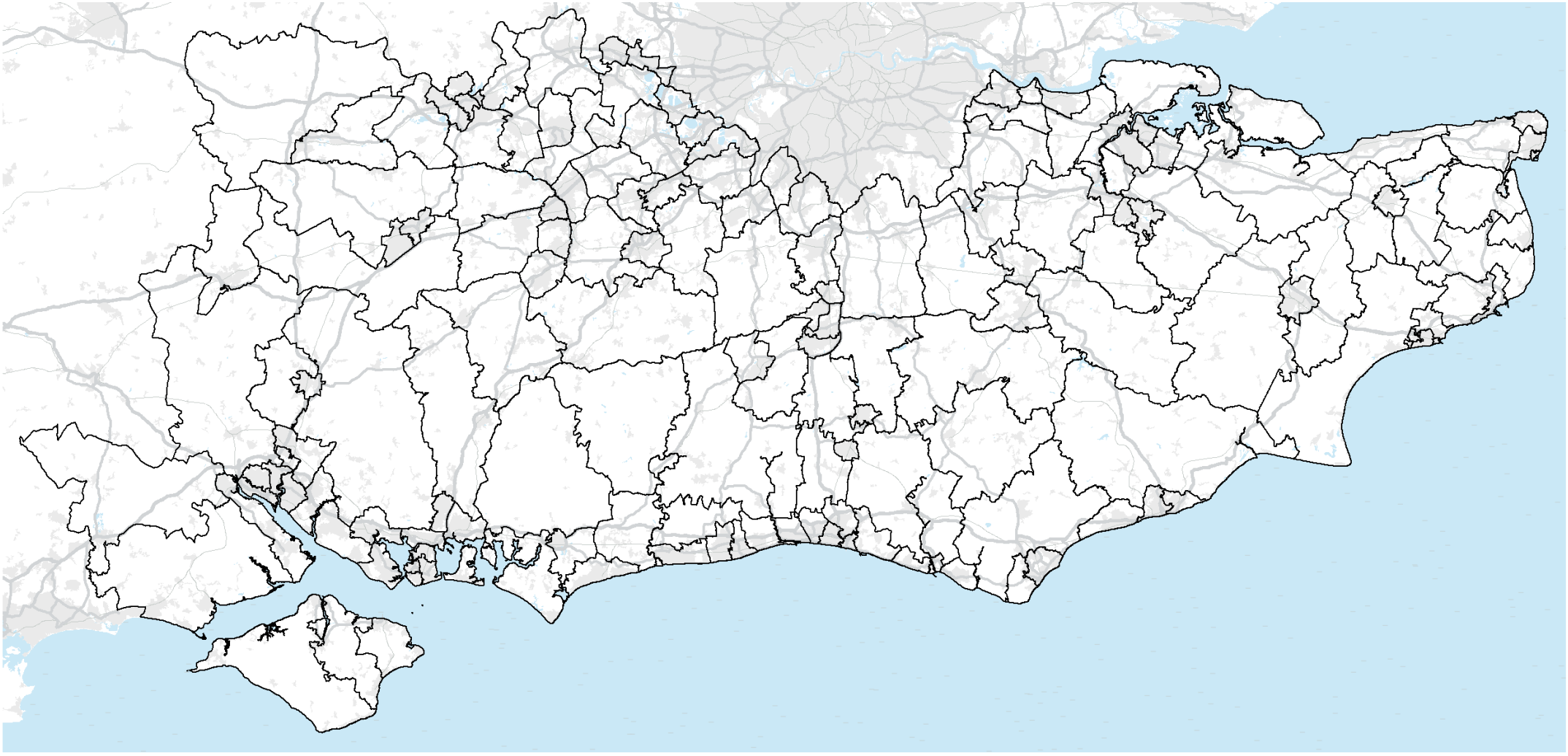


SEELUM produces detailed reports on:

- changes in land-use in each zone (i.e., housing units and employment premises);
- changes in households, population and the workforce in each zone;
- changes in employment (jobs filled) in each zone and the unemployment rates;
- changes on CO_2 emissions from transport activity;
- travel patterns, volumes and mode shares; and
- time savings benefits for appraisal and impacts on productivity and agglomeration.

Introduction to SEELUM (2 of 3)

Figure 6.2: SEELUM Zones



Introduction to SEELUM (3 of 3)

SEELUM's Capabilities and Functions

SEELUM tests how investment in transport, coupled with changes to land-use policy, affects transport outcomes and the economic performance of the South East.

It does this by simulating how changes in patterns of connectivity and access affect how attractive different locations are for employers and/or households to locate in, how they respond to these changes, and what transport patterns arise from these changes. For example, if travel costs rise in a particular area (say, due to highway congestion), depending on the other options available, people may change their mode of travel, change where they live, or change where they work. In the extreme, if there are no other viable options to access work, people can become unemployed. Similarly, businesses can relocate to an area if transport costs reduce, increasing their accessibility to the workforce.

SEELUM simulates how land use evolves over time. It considers how developers provide new housing, the inward and outward migration of households, and the start-up and closure of businesses.

SEELUM 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. These connect places together and influence their relative advantages as places to live or work.

SEELUM also models the carbon emissions of the highway and railway networks. This is based on the Defra's Emissions Factors Toolkit (provided by DfT). Highway emissions are calculated as a function of the vehicle kilometres (km) and an emissions rate per km based on road type. Average emission rates, differing by road type (rural, urban and motorway) are calculated using vehicle emissions rates and fleet mix assumptions derived from the Emissions Factor Toolkit. These assumptions are applied to vehicle kilometres travelled per road type, as calculated by the model to forecast highway emissions. Railway emissions are calculated by a function of kilometres travelled, vehicles in service, the consumption rate per vehicle km, and the greenhouse gas emissions per unit of fuel used.

Modelling Packages in SEELUM

To model each Package in SEELUM, adjustments were 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).

For example, to model an improvement in bus frequencies between Chichester and Bognor Regis, GJTs were reduced for bus between each town's respective SEELUM zone. To model an improvement to the Chichester Bypass, the capacity of the highway link in SEELUM that models this part of the highway network was increased.

The Packages were modelled in SEELUM from a base year of 2018 and run for 32 years to 2050. The results are presented as a comparison to a Business as Usual Scenario (BaU), which is based on the Department for Transport's National Trip End Model (NTEM) that also projects employment and population growth to 2050.

The following pages describe the results of this modelling exercise.

Approach to Modelling Packages in SEELUM (1 of 4)

1a: Solent Rail (Core)

This Package is based on the Solent CMSP programme, which has been developed by Network Rail with support from Solent Transport. It aims to deliver a significant improvement in service frequencies within and between and within the Southampton and Portsmouth urban areas. It also supports growth at Fawley/Waterside.

1b: Solent Rail (Enhanced)

This Package builds on Package 1a by further enhancing rail capacity and connectivity across the Solent area, potentially delivering up to 4 trains and hour on urban services and 30 minute express services between Southampton and Portsmouth City Centres.

This Package relies on solution to the bottleneck created by the tunnels to the east of Southampton Central. Options that have been considered include creating a direct underground link between Southampton Central and the Netley Line near Woolston. This could include a new station in the City Centre and may require more capacity between Fareham/Havant.

Table 6.1: SEELUM Modelling Adjustments (Package 1)

	Interventions	Impact and Benefits	Modelling Adjustments

Package 1a	**Solent Continuous Modular Strategic Plan (CMSP)**	The Solent CMSP aims to increase the frequency of local/stopping services from 1 train per hour (tph) to 2tph (perhaps 3tp in some situations). It would also increase the frequency of fast/semi-fast services between Southampton and Portsmouth. This would have the effect of reducing average waiting times from 30 mins (1tph) to 15 mins (2tph).	This intervention has been modelled by:
			• **Reducing rail Generalised Journey Times (GJTs) by 15 minutes** between and within all zones in the South Hampshire conurbation to reflect an increase in frequencies from 1tph to 2tph.
			• Increasing **capacity by 50%** on rail links between:
			  • Southampton – Havant
			  • Havant – Cosham/Portsmouth

Package 1a	**Fawley/Waterside access and Totton Level Crossing/ Sidings**	These interventions unlock the possibility of enhanced rail services in the part of the New Forest District within the South Hampshire conurbation.	This intervention has been modelled by: • **Reducing rail GJTs by 15 minutes** within the New Forest District zone that includes the Fawley/Waterside development, and between this zone and other South Hampshire zones.

Package 1b	**Southampton Central Tunnels Solution**
	Additional capacity between Fareham and Cosham
	Improvements at level crossings to enable the above
		For the purposes of modelling these interventions, we have assumed the solution to the bottleneck at the Southampton Central Tunnels would be a new two-tracked tunnel between Southampton and the Woolston area with a station in Southampton City Centre*.
		This would enable:
		• an increase in the frequency of local services from 1tph to 4tph;
		• an increase in the frequency of fast/semi-fast services between Southampton and Portsmouth;
		• a reduction in journey times Southampton Central and Woolston by 7½ minutes; and
		• a reduction in Southampton City Centre to other destination times by ~10 minutes.
			All the adjustments included in Package 1a are included in Package 1b. Additional changes include:
			• **Reducing rail GJTs by a further 7½ minutes** between and within all zones in the South Hampshire conurbation to reflect a service frequency of 4tph.
			• **Reducing GJTs by 17½ minutes** between Southampton City Centre and Barnham, Brighton and Hove, Chichester, Crawley/Gatwick, Cosham, Fareham, Havant, Horsham, Portsmouth, & Worthing.
			• **Reducing GJTs by 7½ minutes** between the West of England/South West England and Barnham, Brighton, and Hove, Chichester, Cosham, Fareham, Havant, Portsmouth, and Worthing.
			• Increasing **capacity by a further 50%** between:
			  • Southampton – Havant
			  • Havant – Cosham/Portsmouth
			• Increasing **capacity by further 50%** between:
			  • Southampton – Winchester

** There are alternative options for the Southampton Central Tunnels bottleneck and these would need to be considered in more detail if this intervention is taken forward.*

Approach to Modelling Packages in SEELUM (2 of 4)

2: Solent Mass Transit

This Package is based on two major mass transit interventions that would aim to serve the whole of the South Hampshire built-up area. It assumes that the full ambitions of Portsmouth City Council's Bus Rapid Transit system are realised. It also assumes a Mass Rapid Transit system (which could be a Bus Rapid Transit, Light Rail Transit, or mix of the two) would be delivered for Southampton.

3: Solent Active Travel

This Package assumes there would be a general uplift in the quality of walking and cycling infrastructure across the South Hampshire conurbation, supported by a widely accessible cycle hire service. It includes some local highways schemes that also deliver Active Travel benefits.

Table 6.2: SEELUM Modelling Adjustments (Packages 2 and 3)

	Interventions	Impact and Benefits	Modelling Adjustments
Package 2	**Southampton Mass Transit System** **South East Hampshire Rapid Transit**	Increases the speed and frequency of bus services between and within all zones in the South Hampshire conurbation. This reflects: • frequency enhancements, especially in rural areas; • reliability improvements, especially in urban areas; and • quality improvements, across the whole South East.	These interventions have been modelled by: • **Reducing bus Generalised Journey Times (GJTs) by 20%** between and within all zones in the South Hampshire conurbation.
Package 2	**Portsmouth/ Havant/Hayling Island Ferry/ Access** **Fawley/ Waterside Ferry (Hythe Ferry)**	These interventions provide a more direct public transport route (and faster journey times) between these locations. In SEELUM, ferries are modelled as buses, and so adjustments were made to bus journey times to reflect these improvements.	These interventions have been modelled by: • **Reducing bus GJTs by 30%** between Southampton and Fawley/Waterside and between Portsmouth/Havant and Hayling Island.
Package 2	**Strategic Mobility Hubs**	The approach here is to slightly reduce interchange penalties for public transport modes serving zones surrounding Southampton (Portsmouth already has one of these hubs).	This intervention has been modelled by: • **Reducing bus GJTs by 5 minutes** between Eastleigh/ Fareham/Test Valley (areas on the edge of Southampton) and all other zones South Hampshire.
Package 3	**Cycle hire schemes**	Bike Sharing interventions reduce generalised journey times of public transport – one study suggests savings of 10% per trip are achievable. It has been assumed bike sharing schemes will be available in all built-up areas.	These interventions have been modelled by: • **Reducing active travel GJTs by 10%** between and within zones served by bike share schemes.
Package 3	**Cycling infrastructure and Placemaking**	A study on the effect of London's Cycle Superhighways found that journey times by bike were reduced by 11%. It has been assumed that every zone in South Hampshire will benefit similar infrastructure.	These interventions have been modelled by: • **Reducing active travel GJTs by 10%** between and within zones served by improved cycling infrastructure.

Approach to Modelling Packages in SEELUM (3 of 4)

4: Sussex Coast Rail

This Package would improve the long-distance rail offer between Southampton and Brighton. It would include journey time improvements that would be unlocked by increasing maximum speeds from 60mph to 90mph as well as frequency improvements delivered through an additional train per hour.

5: Sussex Coast Mass Transit

This Package envisages a Bus Rapid Transit system would be delivered in Brighton and Hove and that wider improvements would be made to conventional bus services. There would also be similar bus related interventions in Eastbourne and Hastings.

6: Sussex Coast Placemaking

This Package assumes there would be a general uplift in the quality of walking and cycling infrastructure across the Sussex Coast conurbation, supported by a widely accessible cycle hire service.

This Package also models a Clean Air Zone zone in Brighton and Hove City Centre.

Table 6.3: SEELUM Modelling Adjustments (Packages 5 and 6)

	Interventions	Impact and Benefits	Modelling Adjustments
Package 5	**Brighton and Hove Mass Transit**	This would improve an already high performing, relatively high frequency bus network across the whole city. Average bus speeds in Brighton and Hove are reportedly 7-8mph. A Bus Rapid Transit (BR) system would be expected to increase this to around 15mph. Journeys from neighbouring SEELUM zones would also benefit from reductions in GJTs as it is assumed these services would be permitted to use the BRT infrastructure.	These interventions have been modelled by: • **Reducing bus Generalised Journey Times (GJTs) by 20%** between and within all zones in the South Hampshire Conurbation. • **Reducing bus GJTs by 20%** between SEELUM Zones in Brighton and Hove and neighbouring areas.
	Eastbourne and Hastings Mass Transit	A BRT in these towns would represent a much more significant improvement in bus services compared to Brighton and Hove. GJT reductions are therefore higher for these interventions. However, a highway intervention is likely to be needed to enable Eastbourne to reach its full potential. These benefits are captured in Package 7.	These interventions have been modelled by: • **Reducing bus Generalised Journey Times (GJTs) by 20%** between SEELUM Zones in Eastbourne, Bexhill and Hastings. • **Reducing bus GJTs by 20%** between SEELUM Zones in Eastbourne, Bexhill, Hastings, and neighbouring areas.
	Other Sussex Bus Improvements	There would be a modest improvement in bus frequencies across the rest of the Sussex built-up area. It is also assumed other interventions would support faster journeys in this area. The Highways Package includes additional benefits for buses in Worthing, Bognor Regis, and Chichester.	These interventions have been modelled by: • **Reducing bus Generalised Journey Times (GJTs) by 20%** between and within all zones in the South Hampshire Conurbation.
Package 6	**Sussex Coast Active Travel**	The same assumptions for Package 3a are applied to the Sussex Coast conurbation to model improvements in access to cycle hire schemes and cycling infrastructure.	These interventions have been modelled by: • **Reducing active travel GJTs by 20%** between and within zones served by cycle hire schemes and improved cycling infrastructure.
	Brighton and Hove City Centre Clean Air Zone	The Brighton and Hove Clean Air Zone charge is modelled as a £2.50 charge, which is translated as a GJT increase of 25 minutes. Modelling reflects this charge is paid once per day, with 20% of motorists are affected.	These interventions have been modelled by: • **Increasing car GJTs by 1¼ minutes** (12½ minutes divided by half to reflect a return trip, multiplied by 20% to reflect the % of motorists affected)**.**

Approach to Modelling Packages in SEELUM (4 of 4)

7: Highways

This Package aims to deliver a high-quality strategic highway between Chichester and Eastbourne. It would also unlock some active travel and public transport benefits (e.g., through deconflicting traffic at Chichester and through diverting traffic around Worthing), which are also explicitly captured in our approach to modelling this Package.

The preferred vision for the Outer Orbital Area is one that is served by a high-quality interurban road and rail network. This is represented **Package 7**, which includes all the interventions included in **Table 5.4**. It should be noted that some smaller scale interventions could not be modelled due to their scale but are also included in this package.

Other highways packages have been considered for this strategy, and these are described in more detail in **page 68**.

Table 6.4: SEELUM Modelling Adjustments (Package 7)

	Interventions	Impact and Benefits	Modelling Adjustments
Package 7	**A27 Chichester (RIS3 pipeline)** **A27 Tangmere** **A27 Fontwell**	This would upgrade the current road from a UAP2 Dual 2 (6.75m) highway to a UAP1 Dual 2 (7.30m) highway, representing a 22% increase in capacity. This would apply to 25% of the relevant SEELUM highway link, yielding an overall increase of 6%. This intervention would also unlock improvements in bus and active travel journeys that are currently held up by congestion on the Chichester bypass.	These interventions have been modelled by: • **Increasing highway link capacity by 6%** between Havant and Fontwell. • **Reducing bus GJTs by 10%** between Chichester and Bognor Regis. • **Reducing bus and active travel GJTs by 10%** between and within Chichester and Arundel.
	A27 Arundel (RIS2)	This would upgrade the current road from a UAP1 Single (9.00m) highway to a UAP1 Dual 2 (7.30m) highway, representing a 94% increase in capacity. This would apply to 50% of the relevant SEELUM highway link, yielding an overall increase of 47%. This intervention would also unlock improvements in bus and active travel journeys that are currently held up by congestions in this area.	This intervention has been modelled by: • **Increasing highway link capacity by 47%** between Fontwell and Clapham. • **Reducing bus and active travel GJTs by 10%** between Arundel and Littlehampton.
	A27 Worthing and Lancing RIS2 **A27 longer term Worthing solution**	This would upgrade the current road from a UAP4 Single (9.00m) highway to a UAP1 Single (10.00m) highway, representing a 52% increase in capacity. This would apply to 33% of the relevant SEELUM highway link, yielding an overall increase of 17%. This intervention would also unlock improvements in bus and active travel journeys that are currently held up by congestion in Worthing.	These interventions have been modelled by: • **Increasing highway link capacity by 17%** between Clapham and Shoreham. • **Reducing bus and active travel GJTs by 10%** within and around the Worthing area.
	A27 Lewes – Polegate (RIS3 Pipeline)	This would upgrade the current road from a UAP1 Single (9.00m) highway to a UAP1 Single 2 (10.00m) highway, representing a 30% increase in capacity. This would apply to 80% of the relevant SEELUM highway link, yielding an overall increase of 24%. It will also support the development of a Strategic Mobility (bus and rail) hub to the West of Polegate/Eastbourne.	This intervention has been modelled by: • **Increasing highway link capacity by 24%** between Lewes and Polegate. • **Reducing bus, rail and active travel GJTs by 10%** on selected routes in Eastbourne.
	Other highways interventions	The remaining highways interventions affect links that are not included in SEELUM and/or are much smaller in scale. These are therefore not explicitly modelled in this model.	

Modelling Results Overview (1 of 2)

A summary of the transport and socioeconomic outcomes generated by SEELUM for each of the Packages (and a combined Package) is provided in **Table 6.5**. below. A more detailed commentary on these results is provided in following pages.

Table 6.5: Modelling Results

Indicator	South Hampshire				Sussex Coast			Highways	Combined
	1a Rail (Core)	1b Rail (Enhanced)	2 Mass Transit	3 Placemaking	4 Rail	5 Mass Transit	6 Placemaking	7 Strategic Roads	All All Packages
Transport Outcomes									
Δ Car Trips	(4,788)	(4,521)	(68,995)	(37,589)	(1,510)	(32,892)	(21,340)	2,974	(161,859)
Δ Rail Trips	16,995	16,790	2,064	(169)	6,173	5,682	(221)	122	43,480
Δ Bus Trips	(1,515)	(1,262)	111,031	(5,580)	(647)	56,944	(3,637)	2,612	155,565
Δ Active Trips	(3,825)	(3,296)	(39,097)	43,648	(1,441)	(26,401)	25,328	(2,915)	(9,188)
Δ Total Trips	6,867	7,711	5,003	311	2,574	3,333	129	2,792	22,338
Socioeconomic Outcomes									
Δ Population	1,029	1,127	1,323	134	699	830	0	266	5,295
Δ Employment	1,542	2,001	993	30	332	561	9	722	6,681
Δ GVA (£m)	231	247	133	8	65	97	4	135	883
Δ Carbon (Initial)	(2)	(6)	(49)	(20)	1	(17)	(14)	53	(57)
Δ Carbon (2050)	4	6	(36)	(11)	5	(10)	(4)	54	4

Trips are presented as trips per typical weekday
Carbon is presented as thousand metric tonnes of carbon dioxide equivalents (KMTCD)

These outputs show results from running interventions from 2018 to 2050. In the Strategic Programme Outline Case we will show results for these packages modelled to timelines tied to their delivery.

Modelling Results Overview (2 of 2)

Package 1 (South Hampshire Rail)

The Solent Rail packages would boost the number of rail trips in the Outer Orbital area by 12% (together) and deliver a significant uplift in GVA (£478m).

This provides good evidence to pursue both – including the second package, which has more significant, longer-term interventions.

There is a modest reduction in carbon emissions – this is because these interventions generate economic growth, which generates carbon offsetting some gains through mode shift.

Packages 2 and 5 (Mass Transit)

Mass Transit performs well in the South Hampshire and Sussex Coast conurbations.

Altogether, these interventions would boost mass transit patronage by 25% and remove over 100,000 daily car trips from the area's roads. In the absence of any intervention in active travel, they would, however, abstract some demand from active travel modes. This is because the modelling shows improving bus services would encourage some cyclists/pedestrians to switch to bus.

Packages 3 and 6 (Placemaking)

The Active Travel Packages – which include some local highways "placemaking" interventions – boost active travel but do not reduce carbon emissions significantly,

This is because most of the trips shifting away from car to active travel modes are short, which means any savings in carbon reductions would be relatively small.

The Brighton and Hove Clean Air Zone intervention included in Package 6 generates a modal shift from car to other modes, notably active travel.

That said, the Clean Air Zone intervention generates a lower GVA in our model run. This is because the model is assuming the cost of travelling to, from, and within Brighton and Hove will increase (slightly) for some motorists.

It should be emphasised that many of the benefits of this intervention (e.g., air quality and road safety) are not monetised in the GVA estimate. This interventions are therefore likely to remain integral to the delivery of the Outer Orbital Area study.

Package 4 (Sussex Coast Rail)

The Sussex Coast Rail Package delivers modest growth in rail use, a reduction in car trips, and a boost to GVA.

The scale of interventions in this Package are not at quite the same level as Package 1, and the corridor serves a lower population density than the mass transit interventions included in other Packages. However, this Package does support many of the objectives of the Outer Orbital Area Study.

Package 7 (Strategic Highways)

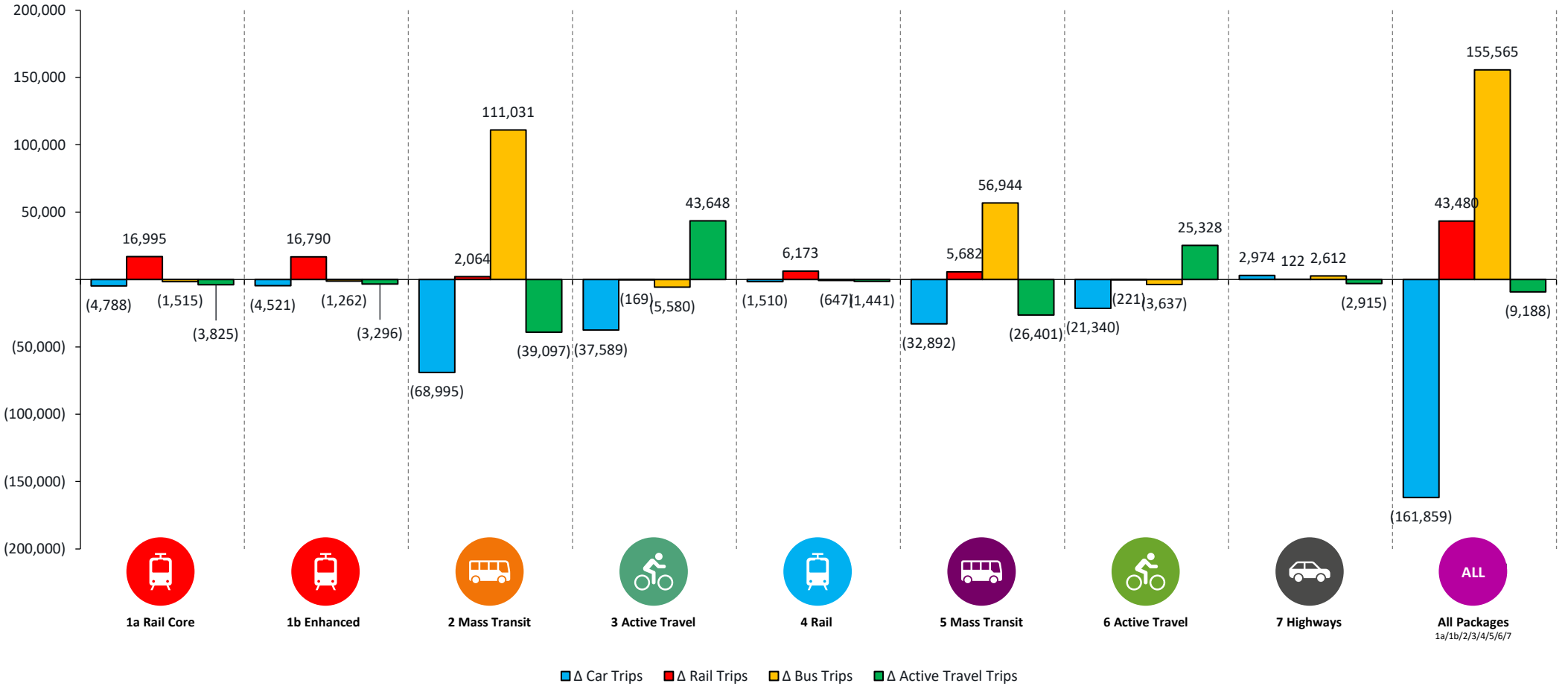
Highway interventions present a direct trade off between economic growth (driven by improved connectivity and resilience) and carbon emissions.

The Package that will likely be taken forward by TfSE will seek to strike a balance between these criteria. TfSE is also developing interventions to help accelerate the decarbonisation of road vehicles and mitigate the adverse impacts of this Package. Further discussion about the different scenarios modelled for this study is presented in **page 70**.

Modelling Results Details (1 of 4)

Figure 6.3 below presents the change in weekday trips that arise at the end of the modelling period (2050) for each of the Packages and modes in the scope of this study. As expected, rail, bus, and active travel interventions all generate higher demand for their respective modes. Mass transit, active travel, and Clean Air Zone are effective in reducing car trips.

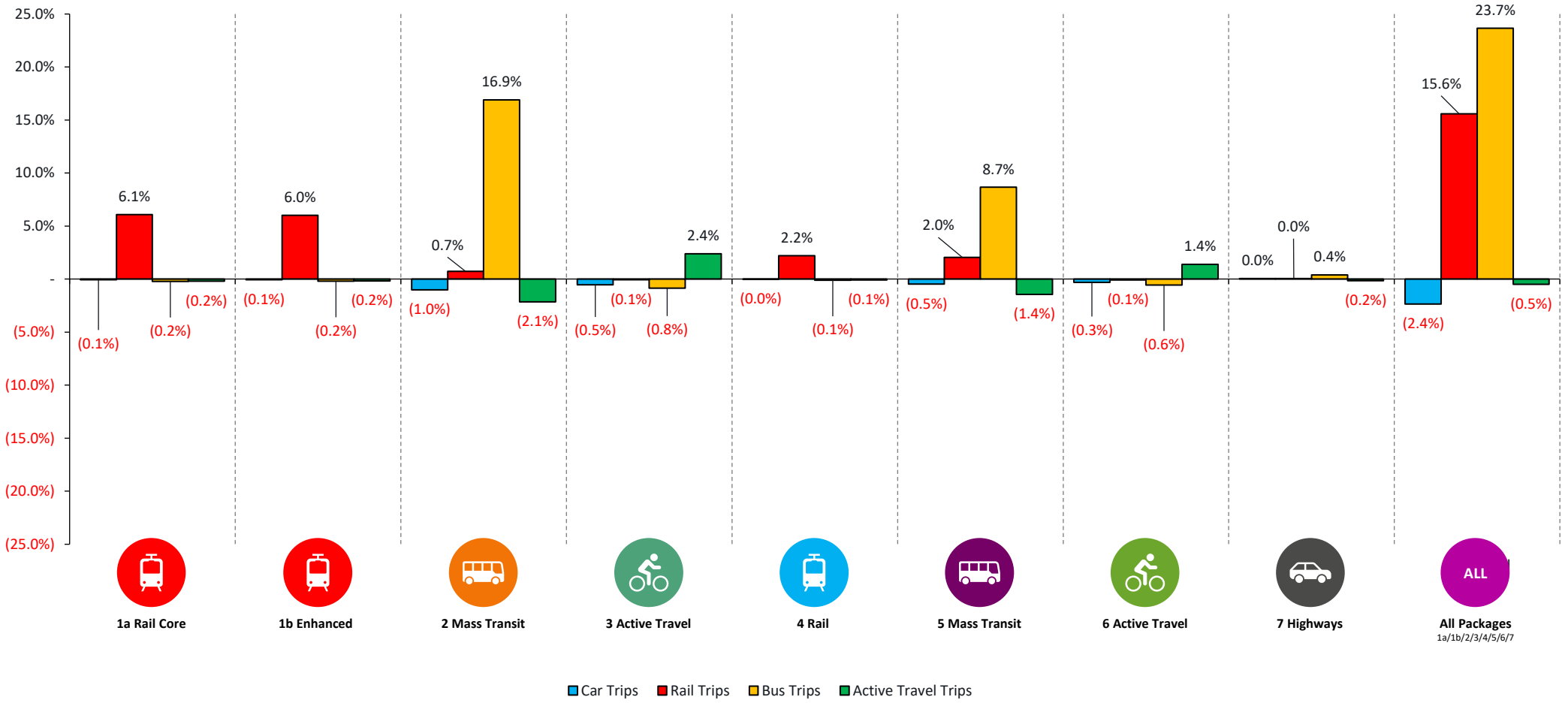
Figure 6.3: Change in weekday trips



Modelling Results Details (2 of 4)

Figure 6.4. presents the same results as Figure 6.3 as a percentage of Business as Usual weekday trips. This highlights the relatively size of growth in rail and bus/mass transit trips that might be achieved if the Packages supporting these modes are delivered. It also highlights that the Strategic Highways Packages appear to have a negligible impact on car trips.

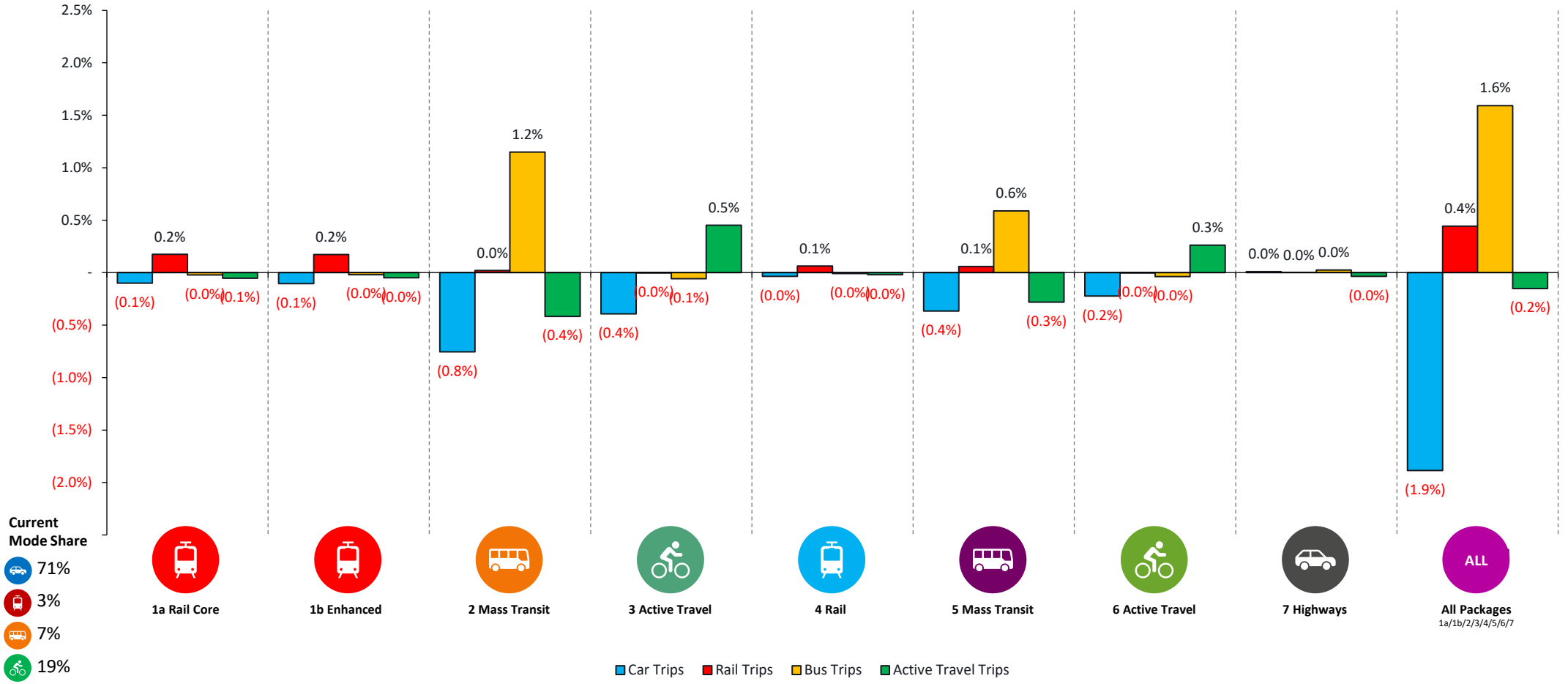
Figure 6.4: Change in weekday trips (%)



Modelling Results Details (3 of 4)

Figure 6.5 presents the travel outcomes from the modelling as a mode share. The Business as Usual mode share is shown in the bottom left. Together, the Packages generate significant mode shift to mass transit, moderate mode shift to rail, very little (net) change to active travel, and a reduction in car's mode share.

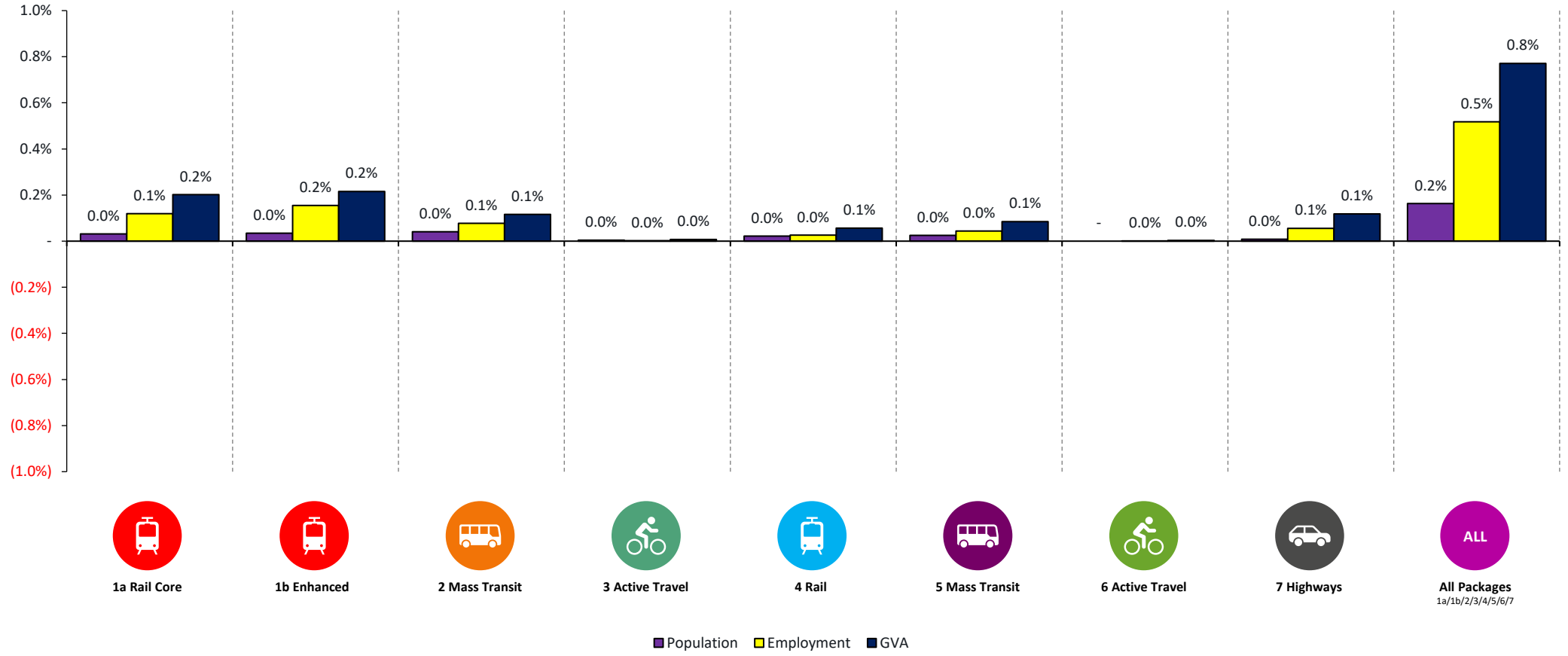
Figure 6.5: Change in mode share (%)



Modelling Results Details (4 of 4)

Figure 6.6 summarises the key socioeconomic outcomes produced by the model runs (by the year 2050). Together, the Packages deliver significant boosts to GVA, and a modest increase in population and employment.

Figure 6.6: Socioeconomic Outcomes



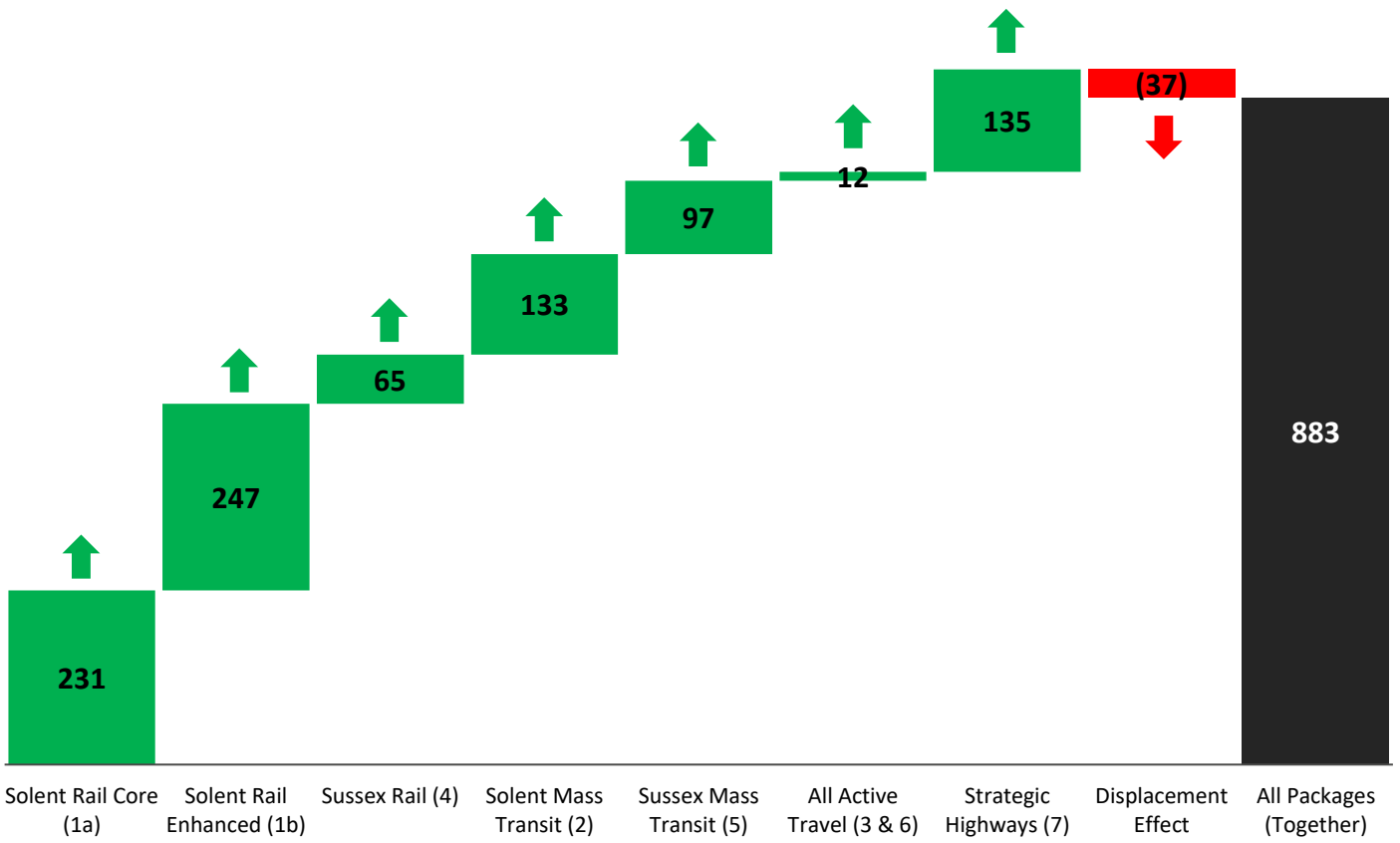
Trade Offs (1 of 2)

Gross Value Added (GVA)

Most Packages generate a boost to population, employment, and (as shown in Figure 6.7 to the right), GVA. Together, they deliver higher GVA growth than a Business as Usual scenario.

The largest contributors to GVA growth are the Strategic Highways and Solent Rail Packages. This evidence provides confidence that some of the more ambitious (and costlier) elements of the Solent Rail Packages have the potential to generate significant wider economic benefits. This should help strengthen the case if/when they are considered through the Business Case framework.

Figure 6.7: Change in GVA arising from Packages (£m per annum by 2050)



The 'Displacement Effect' represents the difference between the sum of the packages and the outputs realised when all packages are run together. In essence, this quantifies the element that is 'more than the sum of the parts'.

Trade Offs (2 of 2)

Carbon Emissions

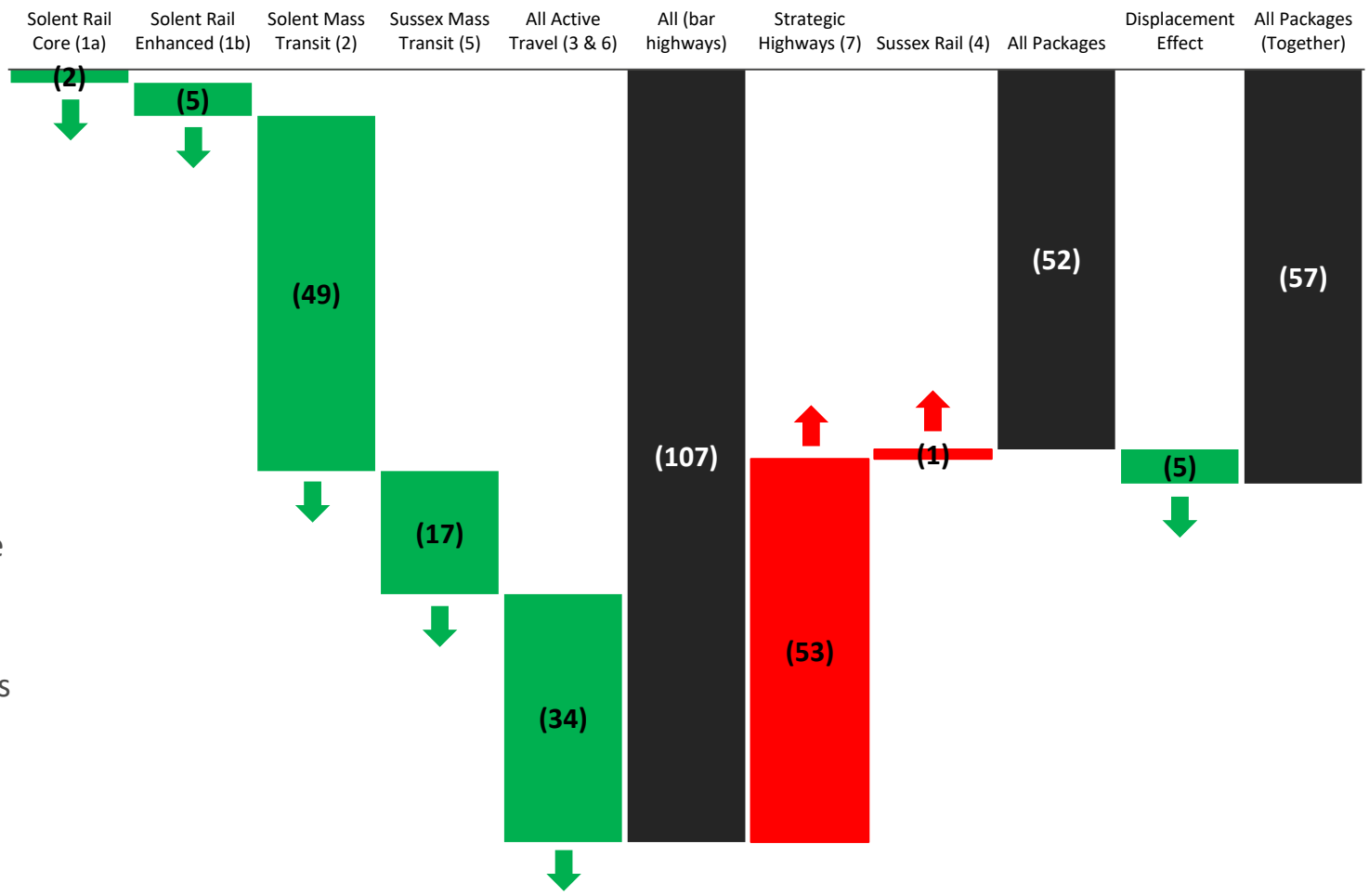
Most Packages contribute to the Outer Orbital Area Study's goal of reducing carbon emissions. However, the Strategic Highways Package reduces some of the gains made through other interventions.

Figure 6.8 provides a breakdown of the contribution of the Packages towards decarbonisation. The greatest impact arises from the mass transit and active travel interventions.

Rail interventions have a more muted impact – partly because they induce some longer distance demand, and partly because they generate greater economic activity, which in turn, can generate more carbon.

It is important to note that the model results shown in Figure 6.9 do not reflect global policy interventions that will also be included in TfSE's Strategic Investment Plan. These will be presented in due course. They are likely to include significant efforts to decarbonise highways (faster) and use pricing signals to encourage even greater mode shift towards lower carbon modes. They should help significantly mitigate the impact of the Strategic Highways package.

Figure 6.8: Change in carbon emissions arising from Packages (2020 results, KMTDC)



Carbon is presented as thousand metric tonnes of carbon dioxide equivalents (KMTCD)

The 'Displacement Effect' represents the difference between the sum of the packages and the outputs realised when all packages are run together. In essence, this quantifies the element that is 'more than the sum of the parts'.

Modelling different approaches to Strategic Highways

We have modelled eight scenarios that reflect different approaches to the development of the A27 and A259.

One of the modelled scenarios assumed the A27 would be upgraded to a motorway standard, entirely grade separate expressway between Eastbourne and Havant.

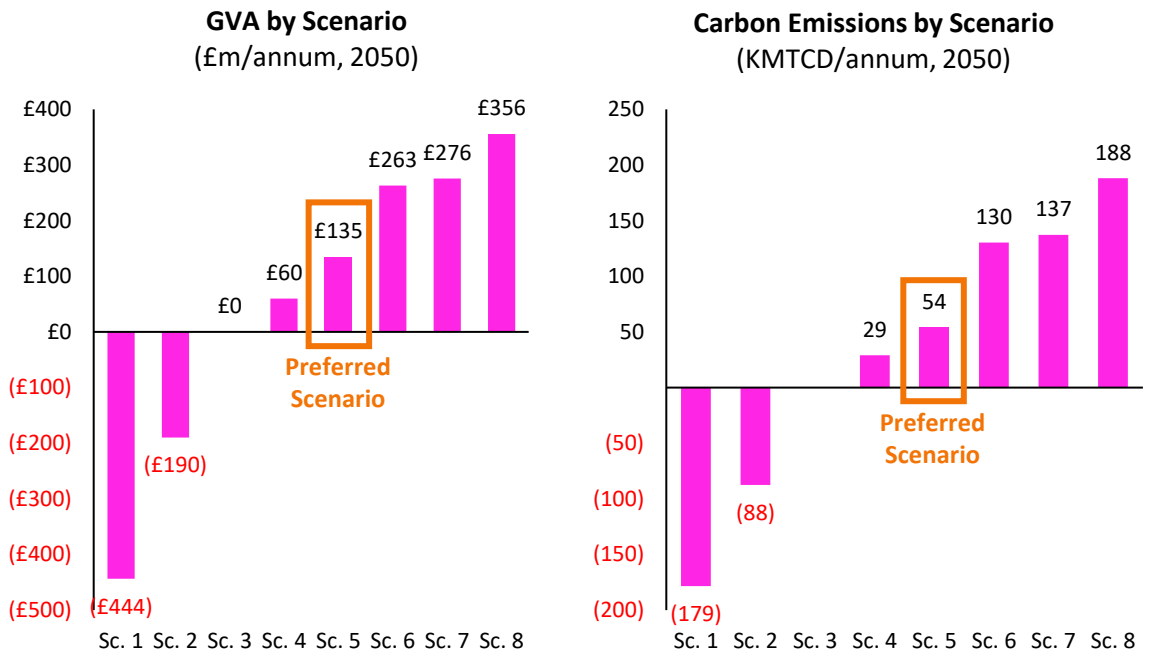
Other scenarios envisaged scaled back versions of a fully grade separated expressway. For example, there may be areas where flat junctions and/or single carriageway running are 'good enough' to deliver the desired level of connectivity.

We also considered scenarios that downgraded and de-trunked the A27 between Chichester and Shoreham. This included reducing highway capacity to deter traffic from using this corridor. While these scenarios delivered carbon reductions, they did so at the expense of GVA (and employment), and they delivered outcomes that ran against the Objectives and Problem Statements set out in this study.

Figure 6.9 presents the spectrum of results generated by modelling these scenarios in SEELUM. It shows forecast carbon emission and GVA outcomes in the year 2050 – the final year of the model run.

The preferred option we have selected for Package 7 is Scenario 5 (Sc. 5). This assumes modest improvements to the Strategic Road Network that focus on segregating strategic and regional traffic rather than materially lifting capacity along the whole corridor.

Figure 6.9: Range of Highways Scenario Modelling Results



Package 7 in this study delivers a strong increase in GVA for a modest increase in carbon – it also delivers the highest GVA growth per unit of carbon. The carbon generated by Package 7 is more than offset by the other interventions supported by this study.

TfSE and the Outer Orbital Area Study Working Group have not endorsed the most interventionalist package we have modelled for the A27. However, they have endorsed a Package of interventions that meet the study's Objectives – including those that deliver improvements to safety, air quality, access, and regeneration – and address the study's Problem Statements – including those relating to poor east-west connectivity.

Package Alignment to Problem Statements and Objectives

Alignment with Problem Statements

In Part 2 (Page 27) and Appendix A we list 23 Problem Statements that the Outer Orbital Area Study aims to address.

Table 6.10 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 6.10 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 6.10 (overleaf) shows that most Problem Statements are fully addressed by the Packages presented in this report.

That said, five Problem Statements are 'mostly' addressed and one Problem Statement is only 'partially' addressed.

The Problem Statements that are not (yet) fully addressed relate to:

- climate resilience;
- new mobility technologies;
- rural connectivity;
- Affordability;
- integration and information; and
- reducing environmental impact.

The Area Study programme will include a global policy package of interventions that will be applied across all packages and areas.

These policies will be designed to directly address the gaps highlighted in Table 6.9.

Alignment with Objectives

We have also assessed the extent to which the packages presented in this report deliver this study's Objectives.

Table 6.9 below presents the total number of interventions that are supported by this study and that have a 'high' (5/5) or 'very high' (4/5) alignment with the Outer Orbital Area Study objectives.

Table 6.9: Interventions and objectives

Objective	Interventions
Economy	78
Society	58
Environment	13
Climate Change	27
Safety	35
Health & Wellbeing	15

Based on this analysis, we are confident that the packages developed for this study and presented in this report can help TfSE and its member authorities achieve the Vision and Objectives described in this study.

Table 6.10: Problem Statement Mapping to Packages

Problem Statement	1a South Hampshire Rail (Core)	1b South Hampshire Rail (Enhanced)	2 South Hampshire Mass Transit	3a South Hampshire Active Travel	3b Portsmouth Clean Air Zone	4 Sussex Coast Rail	5 Sussex Coast Mass Transit	6a Sussex Coast Active Travel	6b Brighton & Hove Clean Air Zone	7 Strategic Highways	All Packages
Decarbonisation	✓	✓	✓✓✓	✓✓	✓✓	✓	✓✓✓	✓✓✓	✓✓		✓✓✓
Climate resilience	✓	✓✓	✓	✓	✓	✓✓	✓	✓	✓	✓✓	✓✓
Freight reliance on highways	✓✓	✓✓✓		✓	✓✓✓	✓✓			✓		✓✓✓
Socioeconomic outcomes	✓✓	✓✓✓	✓✓			✓	✓✓	✓✓		✓✓✓	✓✓✓
Housing (need plan planning)	✓✓	✓✓✓	✓✓			✓	✓✓	✓✓		✓✓✓	✓✓✓
New mobility technologies	✓	✓	✓	✓✓		✓	✓	✓	✓✓		✓✓
Coastal connectivity	✓✓	✓✓	✓✓✓	✓✓		✓	✓✓✓	✓✓✓	✓✓	✓✓	✓✓✓
Island and peninsulas	✓✓	✓✓✓	✓✓	✓		✓✓	✓✓	✓✓	✓	✓✓	✓✓✓
Rural connectivity	✓	✓	✓✓			✓	✓✓	✓✓		✓	✓✓
Accessibility	✓✓	✓✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	✓	✓✓✓
Affordability	✓	✓	✓	✓✓		✓	✓	✓	✓✓		✓✓
Cycle participation	✓	✓	✓	✓✓✓	✓✓✓	✓	✓	✓	✓✓✓	✓	✓✓✓
Mass Transit	✓✓✓	✓✓✓	✓✓✓	✓	✓✓	✓✓✓	✓✓✓	✓✓✓	✓	✓	✓✓✓
Strategic Mobility Hubs	✓✓	✓✓	✓✓✓	✓	✓✓	✓✓	✓✓✓	✓✓✓	✓	✓✓	✓✓✓
Integration and information	✓	✓	✓			✓	✓	✓			✓
East west highway connectivity	✓	✓	✓			✓	✓	✓		✓✓✓	✓✓✓
Environmental impact	✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Social impact	✓	✓	✓✓	✓✓✓	✓✓✓	✓	✓✓	✓✓	✓✓✓	✓✓	✓✓✓
Port access	✓✓	✓✓✓	✓			✓	✓✓	✓✓		✓✓✓	✓✓✓
Level crossings	✓✓✓	✓✓✓				✓✓✓				✓✓✓	✓✓✓
East west connectivity	✓✓	✓✓✓	✓			✓✓✓	✓	✓			✓✓✓
Capacity	✓✓	✓✓✓	✓			✓✓✓	✓	✓			✓✓✓
Marshlink						✓✓✓	✓	✓		✓	✓✓✓

Part 7

Next Steps

Recommendations

In conclusion, this report recommends that the following seven Packages of Interventions for the Outer Orbital Area Study are taken forward into the next stage of development (Stage D – see Page 76 for more details).

Package 1: South Hampshire Rail

Core Package (medium term)

- Solent CMSP, delivering 2-3tph on urban routes: Botley Line double tracking; Netley Line resignaling; Platforms at Fareham and Portsmouth Harbour; Totten sidings/level crossing; and Eastleigh platform/approach.
- Southampton Central refurbishment
- Fawley / Waterside access (electrified)

Enhanced Package (longer term)

- Southampton Core Solution
- Capacity for 4tph in urban areas
- Capacity for freight
- Fareham – Cosham capacity
- Faster longer distance journeys (Southampton – Portsmouth and South Hampshire – West of England)
- Additional level crossing interventions

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

Package 2: South Hampshire Mass Transit

- Southampton Mass Rapid Transit
- South East Hampshire Rapid Transit
- Strategic Mobility Hubs
- Enhanced island/peninsula access

Package 3: South Hampshire Placemaking

- LCWIPs and other active travel
- Northam Rail Bridge
- Southampton West Quay Road
- Portsmouth City Centre Road

Package 4: Sussex Coast Rail

- West Coastway CMSP: focus on London and longer-distance east/west flows
- Marshlink Line improvements (and High-Speed services to Eastbourne)
- Level Crossings (East Guldeford/A259, West Worthing, Hampden Park)

Package 5: Sussex Coast Mass Transit

- Brighton and Hove Mass Transit
- Eastbourne/Hastings Mass Transit
- Strategic Mobility Hubs

Package 6: Sussex Coast Placemaking

- LCWIPs and other active travel
- A259 Chichester to Bognor Regis
- A259 Bognor Regis to Littlehampton
- A29 Realignment
- A259 Seafront Highway Structures Renewal Programme
- A259 South Coast Road Corridor

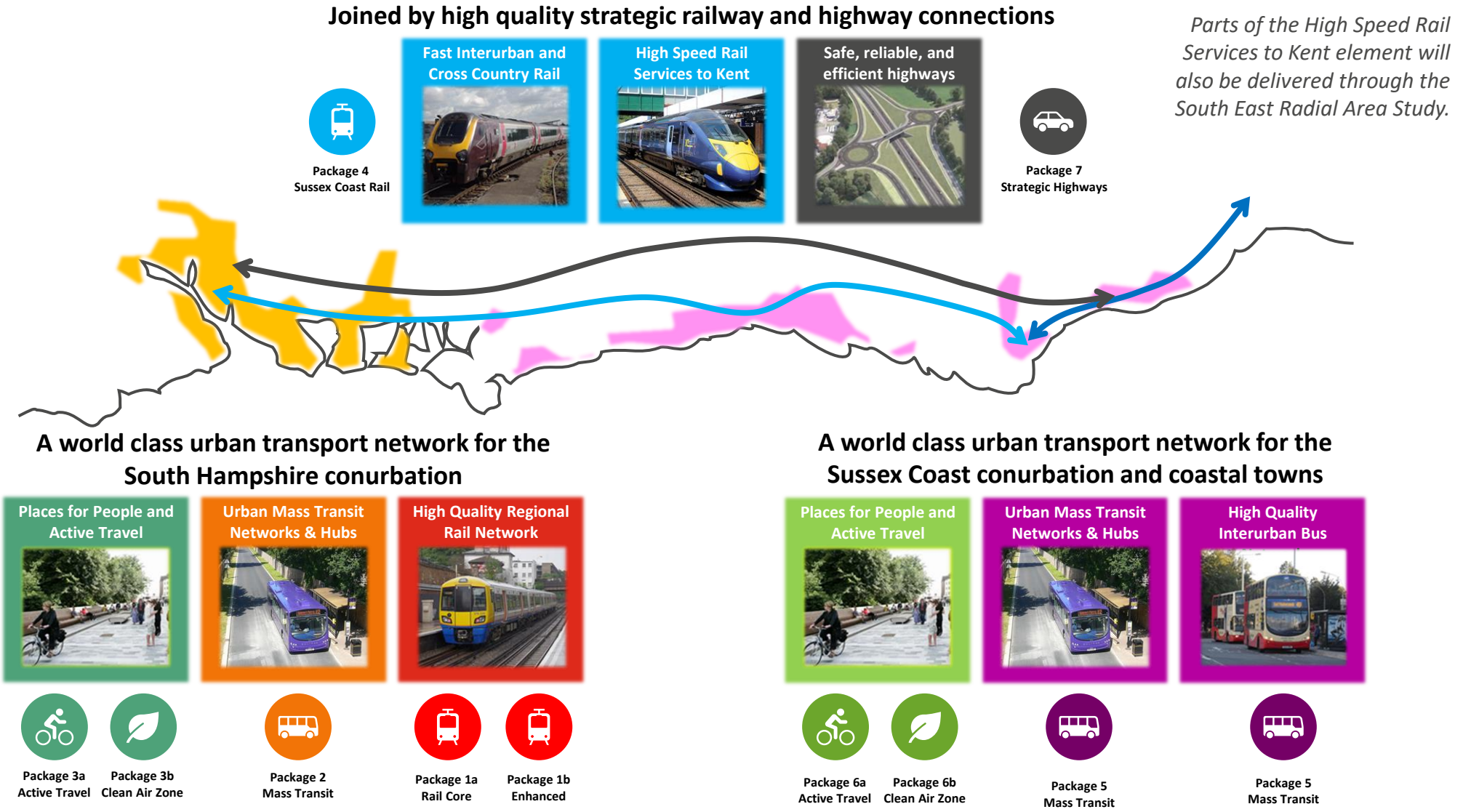
Package 7: Strategic Highways

- M27 Southampton Access
- M27 Smart Motorways
- A326 Capacity Enhancement
- Horsea Bridge and Tipner
- A27 Chichester (RIS3 pipeline)
- A27 Tangmere and Boxgrove
- A27 Fontwell
- A27 Arundel (RIS2)
- A27 Worthing (RIS2)
- A27 Long Term Worthing Solution
- A27 Lancing
- A27 Brighton Junctions
- A27 Lewes - Polegate (RIS3 pipeline)
- A27 Bus Laybys (Brighton – Lewes)

Delivering our Vision for the Outer Orbital Area

Figure 7.1 below summarises how each Package contributes to delivering our vision for the Outer Orbital Area.

Figure 7.1: Vision for the Outer Orbital Area's transport system



Next Steps

This report has summarised the work undertaken in the third of the five stages underpinning the Outer Orbital area study.

Figure 7.2 shows the stages and steps that are being delivered for this study. This report concludes **Stage C,** which focused on options generation and assessment.

The next stage for this study is **Stage D**. The purpose of this this stage will be to make the case (to government and others) for investment in the South East's transport networks. This Stage will fully mobilise in March 2022.

To ensure that each area study meets the vision, goals and priorities of the Draft Transport Strategy, an Integrated Sustainability Appraisal (ISA) will be developed for each of the five Area Studies – shown below as **Stage E** – which will also report by April 2022.

Figure 7.2: Overview of the Outer Orbital area study stages and steps

Appendix A

Problem Statements

Problem Statements

Global Issues

1. Transport is not decarbonising fast enough.
2. Climate change threatens the resilience of transport networks.
3. Freight is heavily reliant on highways, especially for first-mile-last-mile deliveries.
4. Numerous parts of the Outer Orbital area have unacceptably poor socioeconomic outcomes.
5. There is a recognised need for housing and communities – but in the right places, supported by the right infrastructure, planned to deliver sustainable transport outcomes.
6. The mobility benefits of new technologies are not accessible to everybody.

Coastal Communities

7. Poor connectivity is holding coastal communities back
8. The geography of the South Coast and its transport networks forces people and goods moving east – west along the coast to travel long distances inland to complete their journeys.

Access and Affordability

9. Rural communities are being left behind in digital, active travel, and public transport connectivity.
10. Too many transport services and networks are inaccessible to all users.
11. For many people, public transport fares are too high and too complicated.

Active Travel

12. Cycling participation and provision is too low and there are strategic gaps in the parts of the area's cycle network.

Mass Transit

13. Current public transit systems to do not meet all the needs of the area's largest conurbations.
14. There are too few strategic mobility hubs, offering high quality integration and interchange between different transport services, outside town and city centres.
15. Public transport information and ticketing arrangements are not sufficiently coordinated nor adequately integrated, particularly across transport modes.

Highways

16. The area's major highways do not provide effective east – west connectivity.
17. The area's major highways run through and/or close to protected areas, undermining the quality of local environments.
18. Too many major highways pass through densely populated communities, causing noise, pollution, and severance issues.
19. Highway traffic accessing ports in the area is negatively impacting the environment in town and city centres.
20. There are too many level crossings on major highways along the South Coast.

Rail

21. East – west rail connectivity (journey times and frequency) is poor, especially compared to radial rail services.
22. Rail capacity is insufficient to accommodate the needs of long-distance passenger, local passenger, and rail freight customers in the area.
23. The Marshlink railway is inadequate to meet future aspirations for stakeholders in East Sussex and Kent.

1 Transport is not de-carbonising fast enough

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

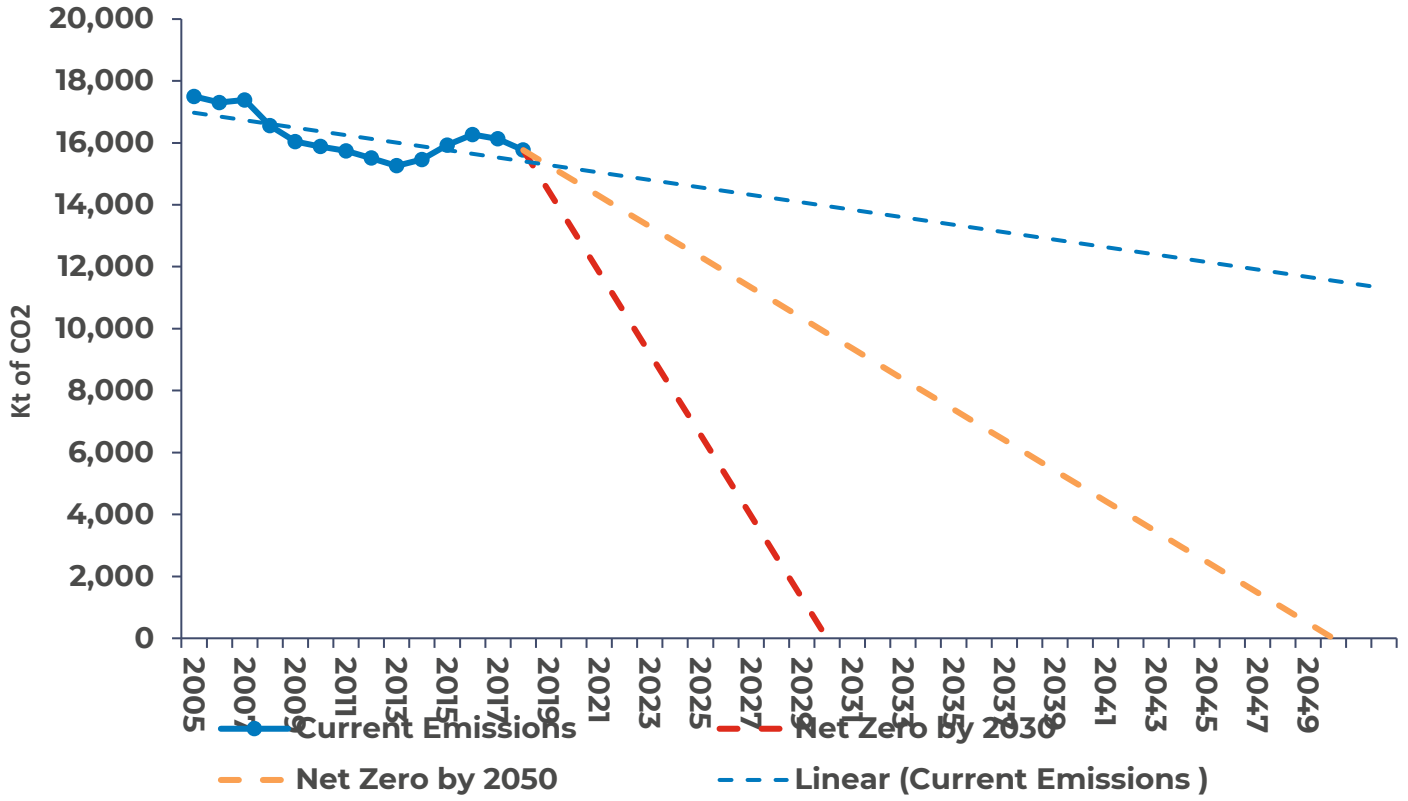
The trajectory shown in the figure to the right indicates, the South East will not reach a position of net-zero carbon emissions by transport by 2050 – which is now a legal requirement supported by domestic legislation and international agreements (e.g. Paris).

Several Local Transport Authorities in the South East have committed to more aggressive decarbonisation targets (e.g. reaching net-zero by 2030).

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

The South East's rail network, on the other hand, is almost entirely electrified and is therefore well placed to help the South East achieve these ambitious targets.

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 Outer Orbital area are vulnerable to the effects of climate change and in many areas are showing signs of poor resilience.

The South East's transport network cuts across several areas that are already vulnerable to flooding and temperature extremes. Some of these "funnel" significant flows over bridges and cuttings that do not have adequate diversionary routes (and creating better routes would be costly). For example, the A259 runs close to the coast in many places, and some sections of the A27 run through several flood plains. The South East's railway network is relatively old and features numerous tunnels and cuttings. Some sections, such as Folkestone Warren (see right), are particularly vulnerable to the elements. Climate change is likely to increase the frequency and strength of weather events (and extreme heat in summer). The outcome of this problem is increased operations, maintenance and renewal costs, which will be borne by transport users and wider society.

Folkestone Warren

Source: Network Rail, https://www.networkrail.co.uk/stories/the-great-fall-historic-landslip-images-resurface/

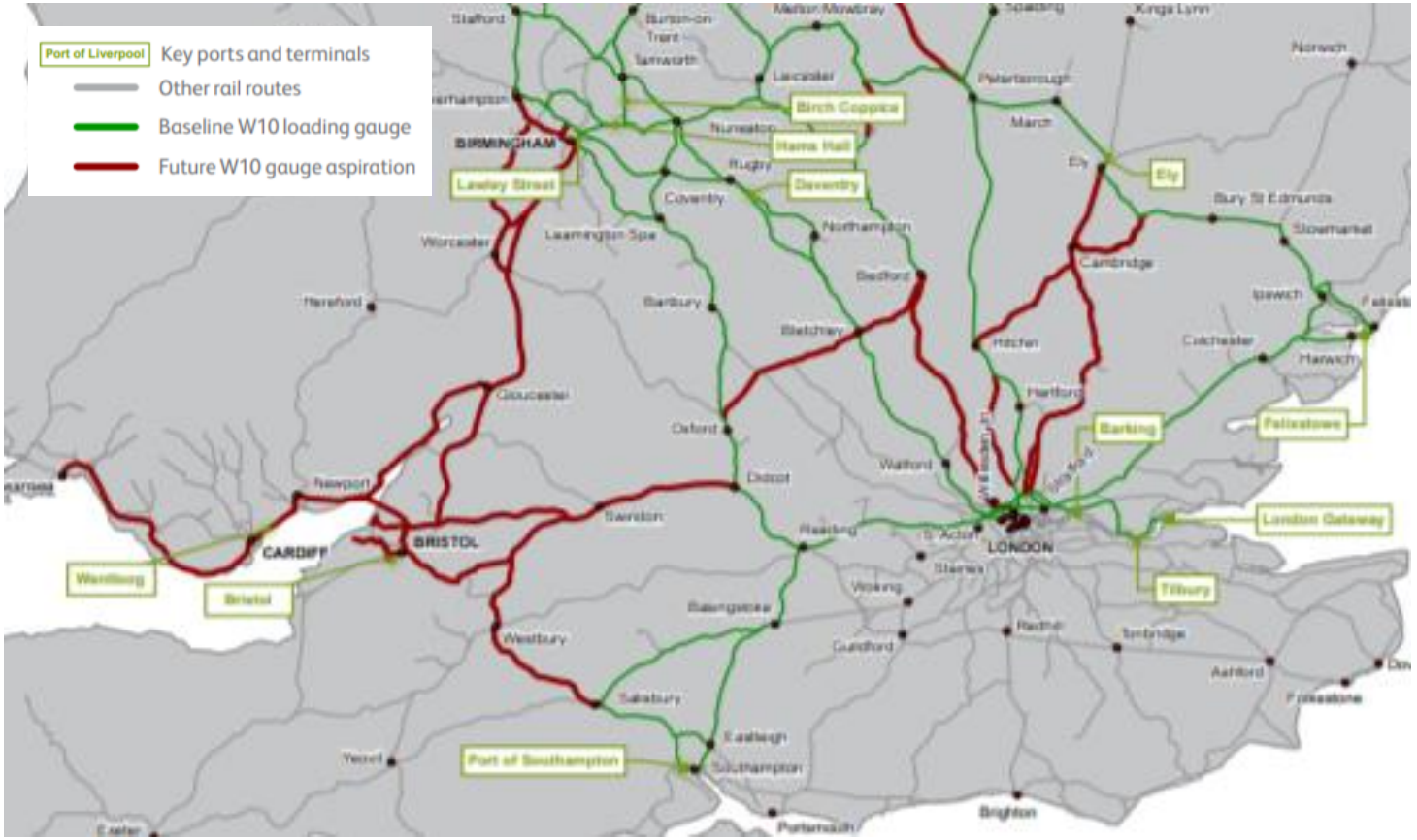
3 Freight is highly reliant on highways, especially for first-mile-last-mile deliveries

Freight is very reliant on highways and rail freight is losing ground.

Rail freight mode share is low nationally (around 5%, based on tonnage) and appears to be in decline. According to the ORR, in the last 16 years the number of freight train movements on the national network has fallen by 50%. An electric rail freight sector should be well placed to provide a low carbon alternative – although it is recognised freight is in competition with passenger rail for timetable paths.

It should be possible to achieve higher mode shares. For example, rail mode share on freight passing through Southampton is reportedly 40%. However, there are significant barriers to rail freight in the South East, particularly for routes to/from the Channel Ports. These barriers include a lack of freight terminals, poor access across London, high access charges on High Speed 1 and the Channel Tunnel. Inadequate gauge clearance also affects rail routes serving Dover (see right). Network Rail aspires to create a route between the Channel Ports and the Midlands to address this constraint.

Rail network gauges (2017)



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

4 Numerous parts of the Outer Orbital area have unacceptably poor socioeconomic outcomes

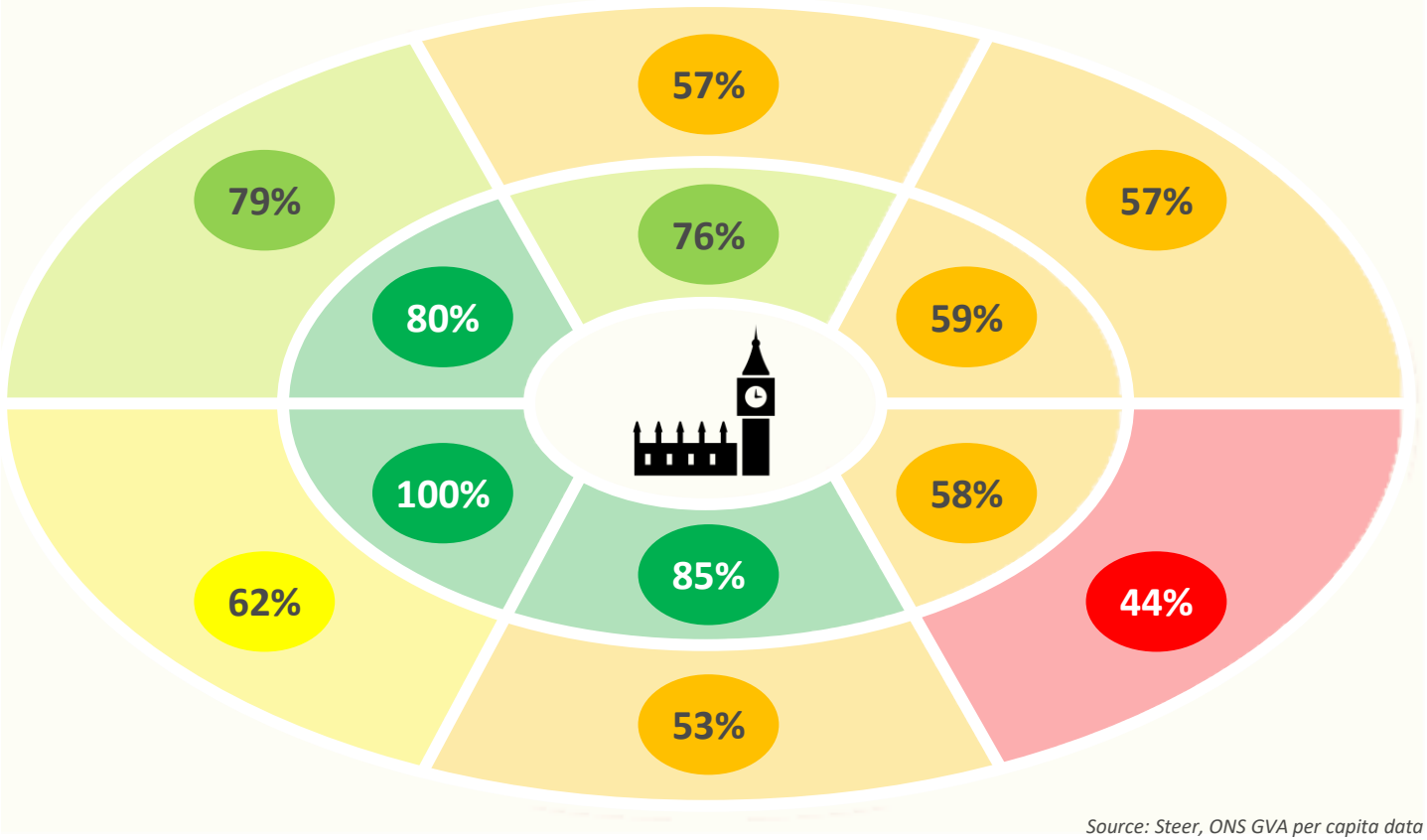
Analysis of key socioeconomic data shows the further one moves east and away from London, the poorer the outcomes (see right).

The Outer Orbital area has experienced a decline in traditional industries and, more recently (along with the rest of the UK), has been severely impacted by the 2020 COVID-19 pandemic. The UK's exit from EU in 2021 will pose further challenges.

While there may be some "upsides" that emerge from the 2020 pandemic (e.g. growth in cycling, homework, and "15 minute neighbourhoods"), it may take many years for the economy to recover from the extraordinary events of 2020. The public transport system, which has seen very significant reductions in patronage and revenue, will need government support to survive in a post COVID-19 world.

If the government's vision for "levelling up" the economy is to be realised, it will be increasingly important to continue to make a strong case for investment in the most deprived areas of the Outer Orbital area (and the rest of the South East).

Average GVA per capita around the South East, where South West/Inner = 100



Source: Steer, ONS GVA per capita data
South West / Inner Orbital zone = 100%
Icon Credit: Pham Duy Phuong Hung

5 There is a significant need for more housing – but it needs to be sustainable

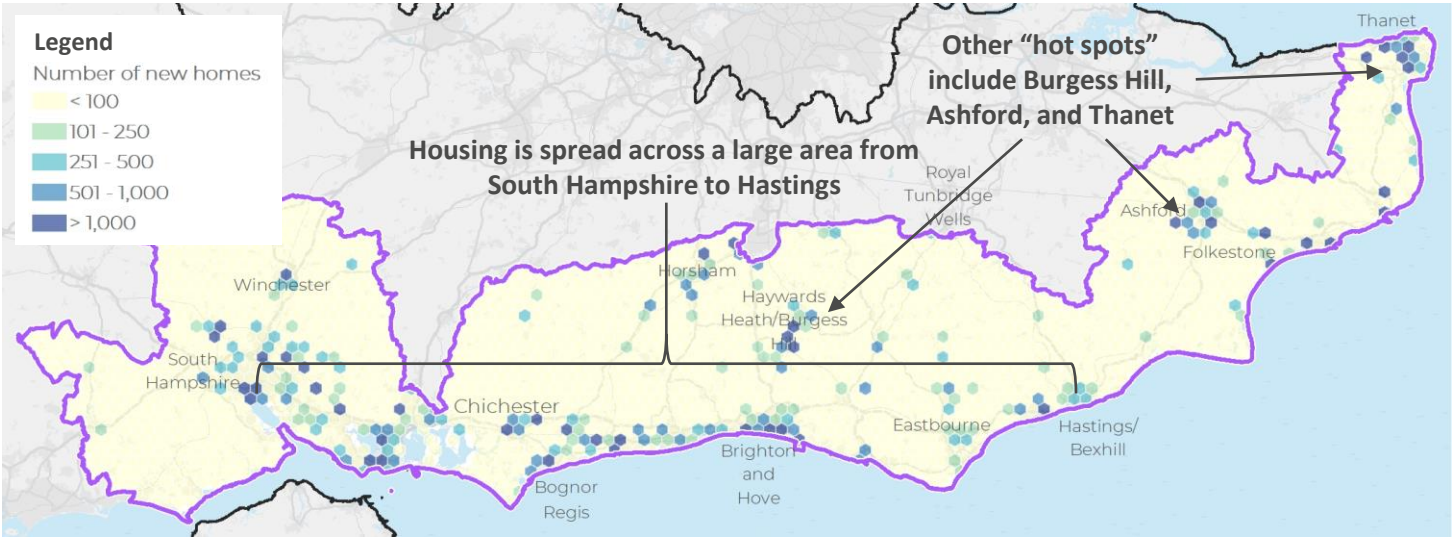
There is a recognised need for housing and communities – but in the right places, supported by the right infrastructure, planned to deliver sustainable transport outcomes.

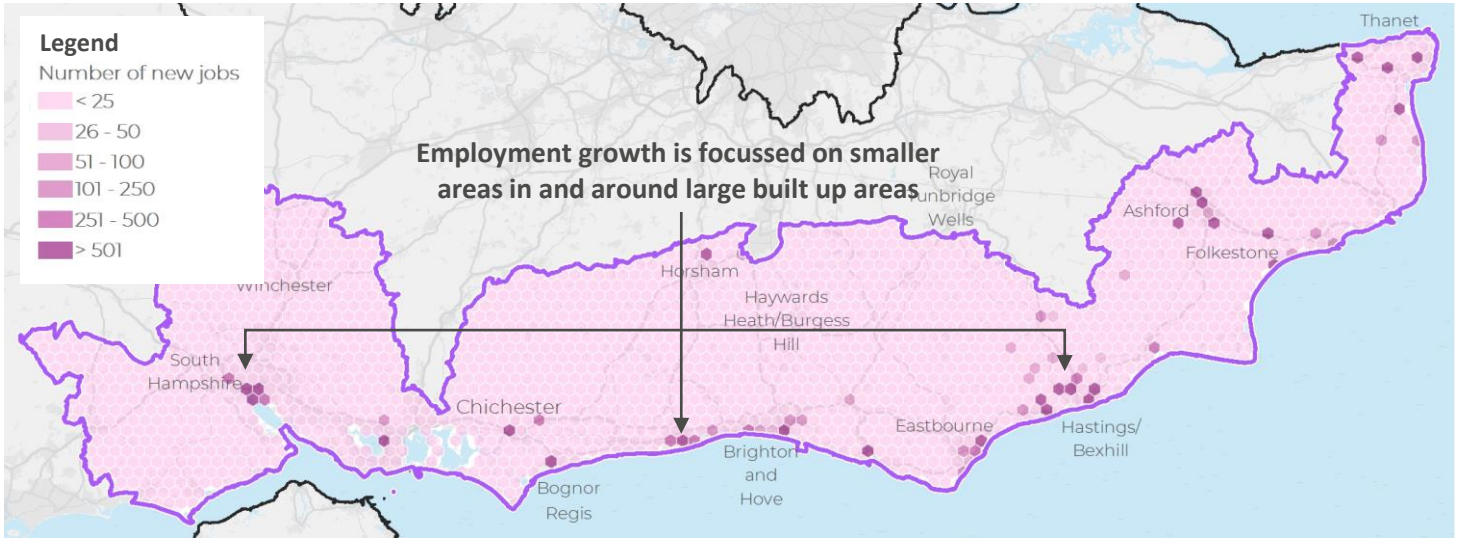
The fragmented nature of the planning system makes it difficult to integrate spatial, transport, and economic planning. The area is also heavily constrained by the landscape and layout of urban areas.

To accommodate a possible 400,000 new residents there may be a need for additional housing and employment – and this is planned (see right). Recent discussions with government suggest this figure may grow, albeit with more of a focus on delivery in urban areas.

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.

Local Plan projections for housing and employment growth





Source: Steer analysis of Local Plan data (provided by Local Planning Authorities)

6 The mobility benefits of new technologies are not accessible to everybody

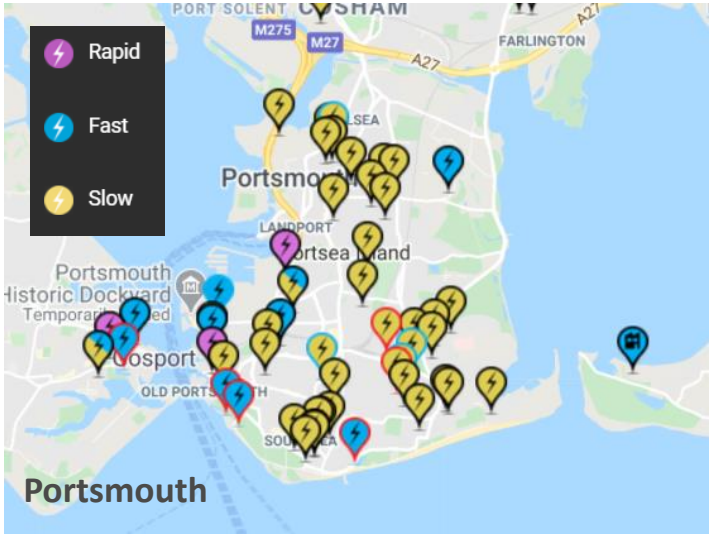
There are significant gaps in infrastructure to support future technologies – notably electric vehicle charging infrastructure.

Evidence from Zap Map (see right) shows there is a significantly higher provision of electric vehicle charging point in urban areas such as Brighton and Hove and Portsmouth than there are in less densely populated (but still semi-urban) areas such as Deal and Bexhill. While it is acknowledged this reflects higher levels of on street parking in areas like Brighton and Hove City Centre, it appears that more deprived areas (such as Bexhill) are less well served than more prosperous suburban areas, such as Ashford, Horsham, and Burgess Hill.

This trend underlines the risk of technology contributing to – rather than helping address – rural and socioeconomic inequality in the Outer Orbital area.

Zap Map locations of Electric Vehicle chargers (all at the same scale)

Brighton and Hove



Portsmouth

Deal (Kent)

Bexhill (East Sussex)

Source: Zap Map https://www.zap-map.com/live/

7 Poor connectivity is holding coastal communities back

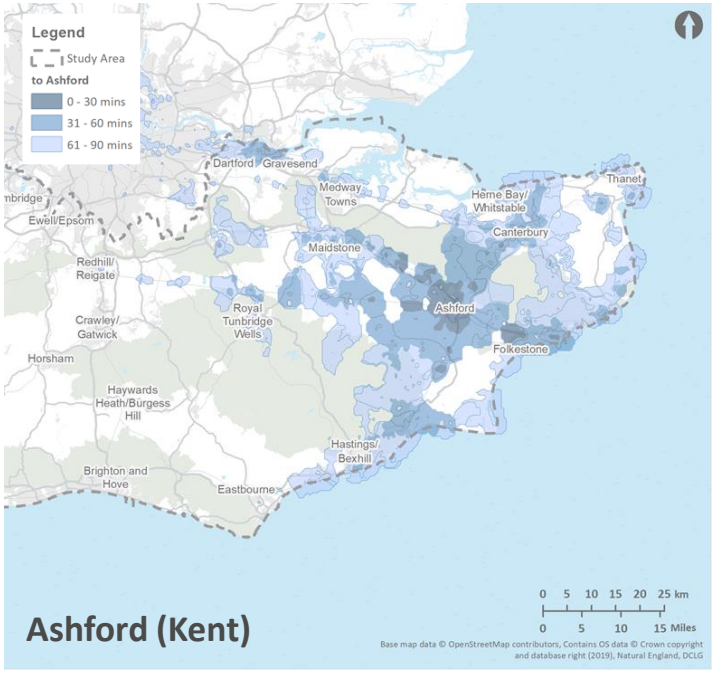
Some of the most deprived communities on the South Coast are less well connected than nearby, more prosperous neighbours.

For example, Ashford enjoys high levels of public and highway connectivity compared to nearby Hastings and Thanet (see right). Portsmouth is less well connected to London and other parts of the UK than nearby Southampton. Communities living on peninsulas (e.g. Hayling Island) and Islands (e.g. Portsmouth) also face similar connectivity challenges.

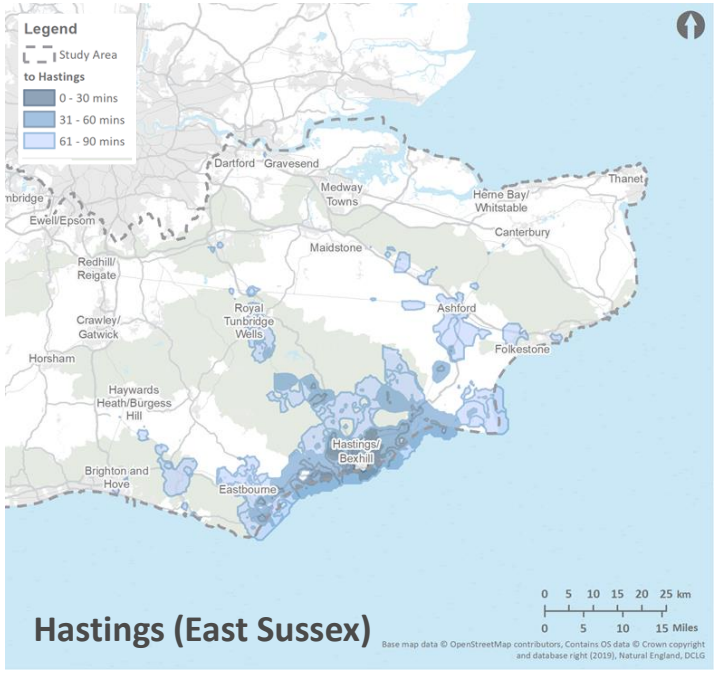
Furthermore, recent and planned investment on corridors tend to be more focussed on radial corridors (serving London and the Channel Ports), which exacerbates the connectivity gap between Ashford and Hastings.

The link between socioeconomic outcomes and transport investment is complex. However, it is widely believed that poor connectivity means places like Portsmouth and Hastings have to "work harder" to secure the investment in opportunities that these places deserve.

Public transport catchment areas for Ashford and Hastings (end to end journeys)



Ashford (Kent)



Hastings (East Sussex)

Source: Steer analysis

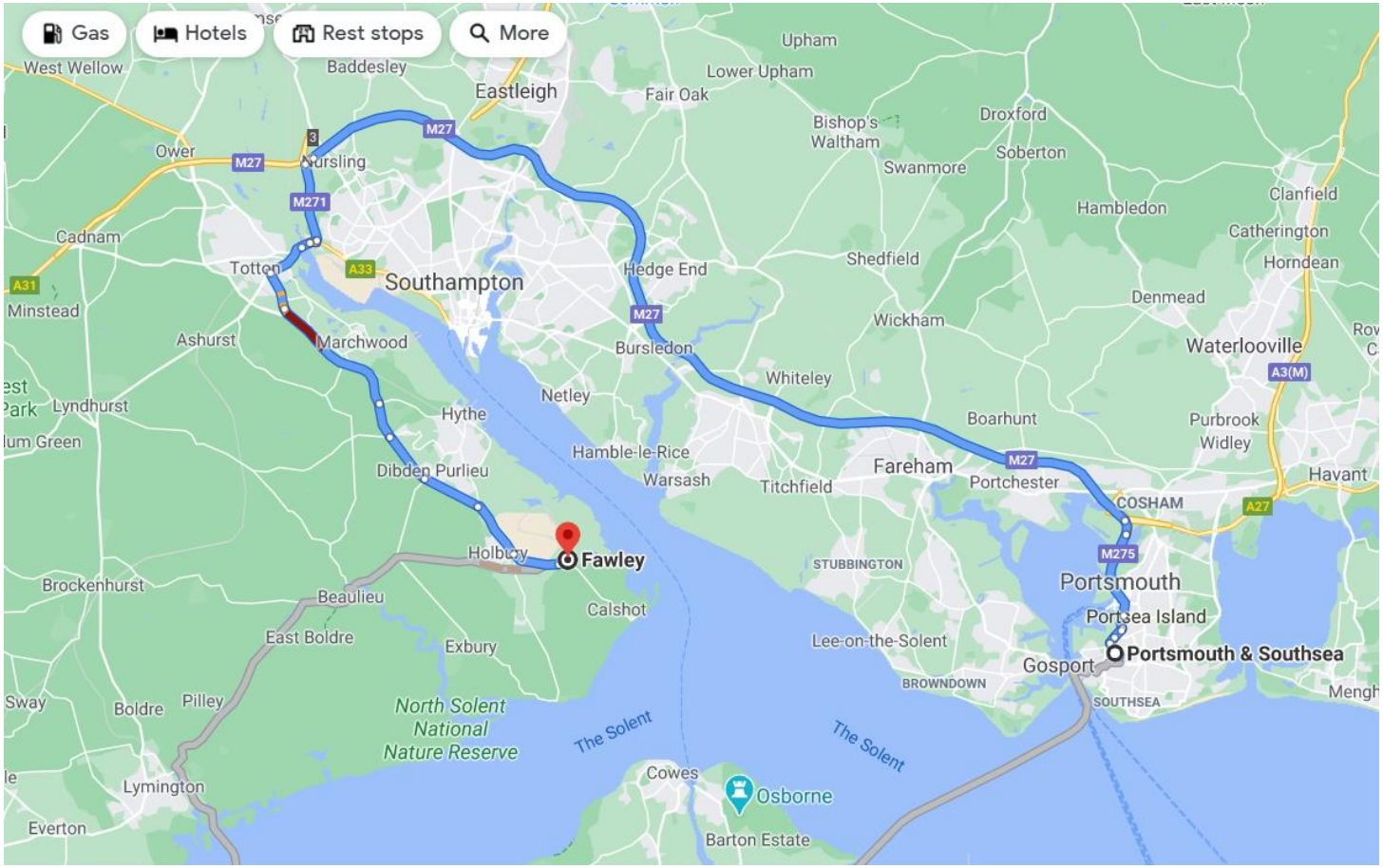
8 Travellers moving along the coast often need to travel inland to complete their journeys

The geography of the South Coast and its transport networks forces people and goods moving east – west along the coast to travel long distances inland to complete their journeys. Journeys therefore take much longer to complete.

Several Major Economic Hubs in the Outer Orbital Area are situated on islands (e.g. Portsmouth) and/or river estuaries (e.g. Southampton). Many east – west journeys within and between these hubs require travellers to move inland (e.g. along the A326), across the Strategic Road Network (e.g. M27), and back out towards the coast (e.g. M275 in Portsmouth). For the example illustrated to the right, a journey between two points that are 12 miles apart "as the crow flies" requires a 37 mile / 1 hour round trip.

Similar issues exist in Sussex, although this is more driven by the geography of the highway and railway networks. For example, a journey from Bognor Regis to Littlehampton by rail requires travelling up one branch line, along the West Coastway, and then down another branch line.

Example of long journeys shaped by the geography of the South Coast



Source: Google Maps

9 Rural communities are being left behind in digital, active, and public transport connectivity

Rural communities in the Outer Orbital area have significantly poorer access to public transport, Mobility as a Service providers, and high-speed broadband compared to urban areas.

This means it will be harder for rural communities to:

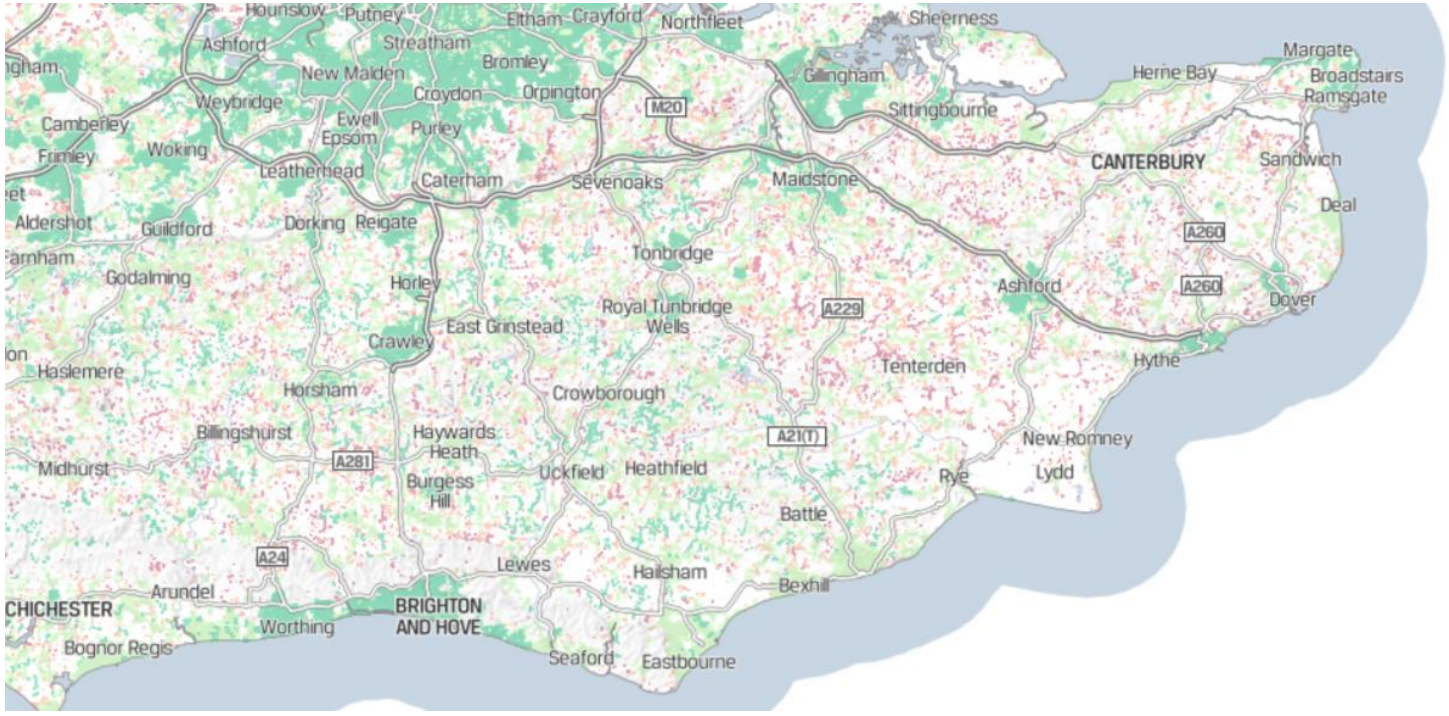
- Work remotely;
- Access future mobility technologies;
- Access emerging Mobility as a Service services;
- Access public transport networks; and
- Attract businesses that rely on technology and/or public transport.

This promotes a high reliance on private motoring in rural communities.

While many rural areas are prosperous, there are pockets of high levels of deprivation in rural parts of the Outer Orbital area.

There is also a risk that inequality in access to broadband will result in wider inequality in socioeconomic outcomes.

Broadband connectivity



Source: OfCom Broadband Coverage Map https://checker.ofcom.org.uk/broadband-coverage

10 Too many transport services and networks are inaccessible to all users

While there has been good progress in improving accessibility in recent years, significant issues remain.

Accessibility – in the broadest terms – is a key barrier to many users. The Williams Rail Review identified this is a key challenge for the rail industry.

The DfT's "Access for all" programme has unlocked some investment in some rail stations. However, as the table to the right shows, there is a need for more progress.

Other examples where improvements should be considered include:

- Improving the accessibility of bus fleets and rail rolling stock;
- Making it easier to plan, buy, and use public transport services;
- Improving access to public transport for passengers with hearing, vision, and/or cognitive needs;
- Improving walking and cycling facilities (many people with additional needs rely on cycles as their primary form of mobility); and
- Making public spaces (e.g. town centres) more accessible.

Disability provision at train stations (% stations offering provision at January 201)

	Accessible ticket machines	Accessible ticket office	Train ramp access	National Key toilets	Step free access	Mobility set down
Great Britain	**53%**	**21%**	**73%**	**18%**	**61%**	**28%**
East of England	80%	17%	73%	**33%**	72%	23%
East Midlands	39%	17%	41%	20%	77%	16%
London	87%	**33%**	60%	24%	**44%**	24%
North East	24%	13%	98%	13%	**84%**	47%
North West	**16%**	18%	96%	8%	63%	17%
South East	**89%**	24%	79%	32%	56%	46%
South West	51%	15%	74%	22%	57%	**60%**
West Midlands	37%	16%	82%	25%	67%	33%
Yorkshire and the Humber	24%	**8%**	**99%**	8%	67%	34%
Scotland	40%	27%	**35%**	**4%**	51%	**10%**
Wales	37%	18%	94%	10%	79%	17%
Key	**Lowest proportion of stations**			**Highest proportion of stations**		

Data from National Rail Enquiries, Knowledgebase XML API, accessed 24 January 2019

11 For many people, public transport fares are too high and too complicated

Many stakeholders in the South East have cited the price of rail tickets and the complexity of ticketing as a disincentive to travelling by rail.

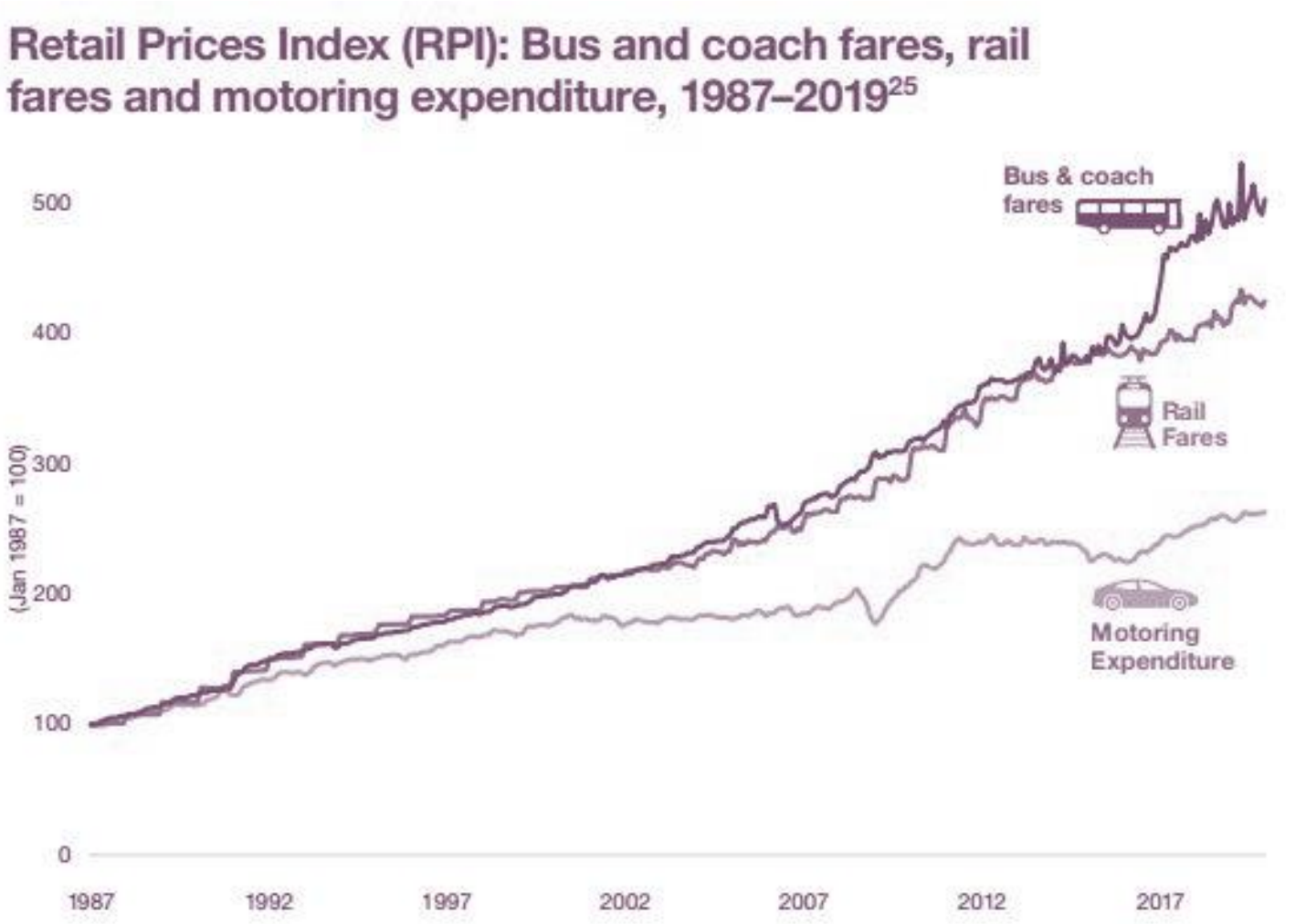
The perception that rail fares are high means it is harder to persuade people to change from the car to rail. This is particularly the case for families.

While Season Tickets offer better value for money (if they are used in full), headline figures of £6k+ annual season tickets is off-putting to many and may disincentivise people from moving to the South East.

The complexity of the tickets offered also puts people off using the railway. As an example: a myriad of different fares are offered between Gatwick and London. The Williams Rail Review has identified the complexity of fares as an issue.

It is acknowledged that this is a complex topic and there are excellent examples of low fares available during off peak periods, particularly on longer distance journeys. However, the long distance rail market is relatively small in the South East, so these opportunities are less available.

Real terms increase in costs of public transport and motoring



Source: Vouchercloud, https://www.vouchercloud.com/resources/train-prices-across-europe

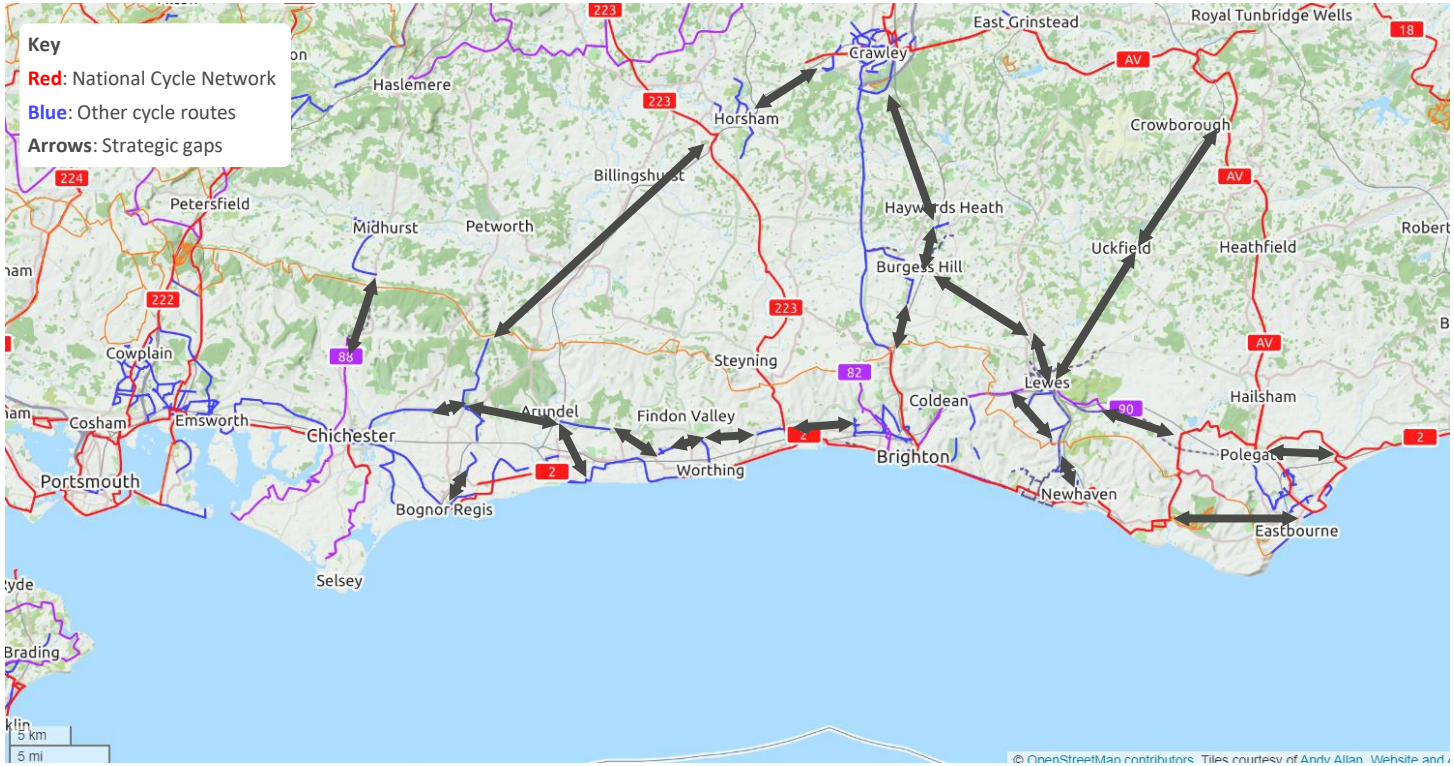
12 Cycling participation and infrastructure provision is too low, and there are gaps

The existing cycle network is not at a consistent standard does not support wider cycling participation, and there are strategic gaps in the parts of the area's cycle network.

Sustrans were recently forced to downgrade sections of the National Cycle Network (NCN) in this area due to the deteriorating safety risk on cycling corridors in these areas.

TfSE analysis has shown a lower proportion of residents in the South East live close to the NCN than residents in neighbouring regions. The TfSE strategy also presents data showing that fewer than 1 in 5 residents cycle once or more a week. Every Local Transport Authority 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 infrastructure could be holding the region back from the opportunities these technologies offer.

The National Cycle Network between Chichester and Bexhill



Source: Sustans, "Paths for Everyone", https://www.sustrans.org.uk/about-us/paths-for-everyone/

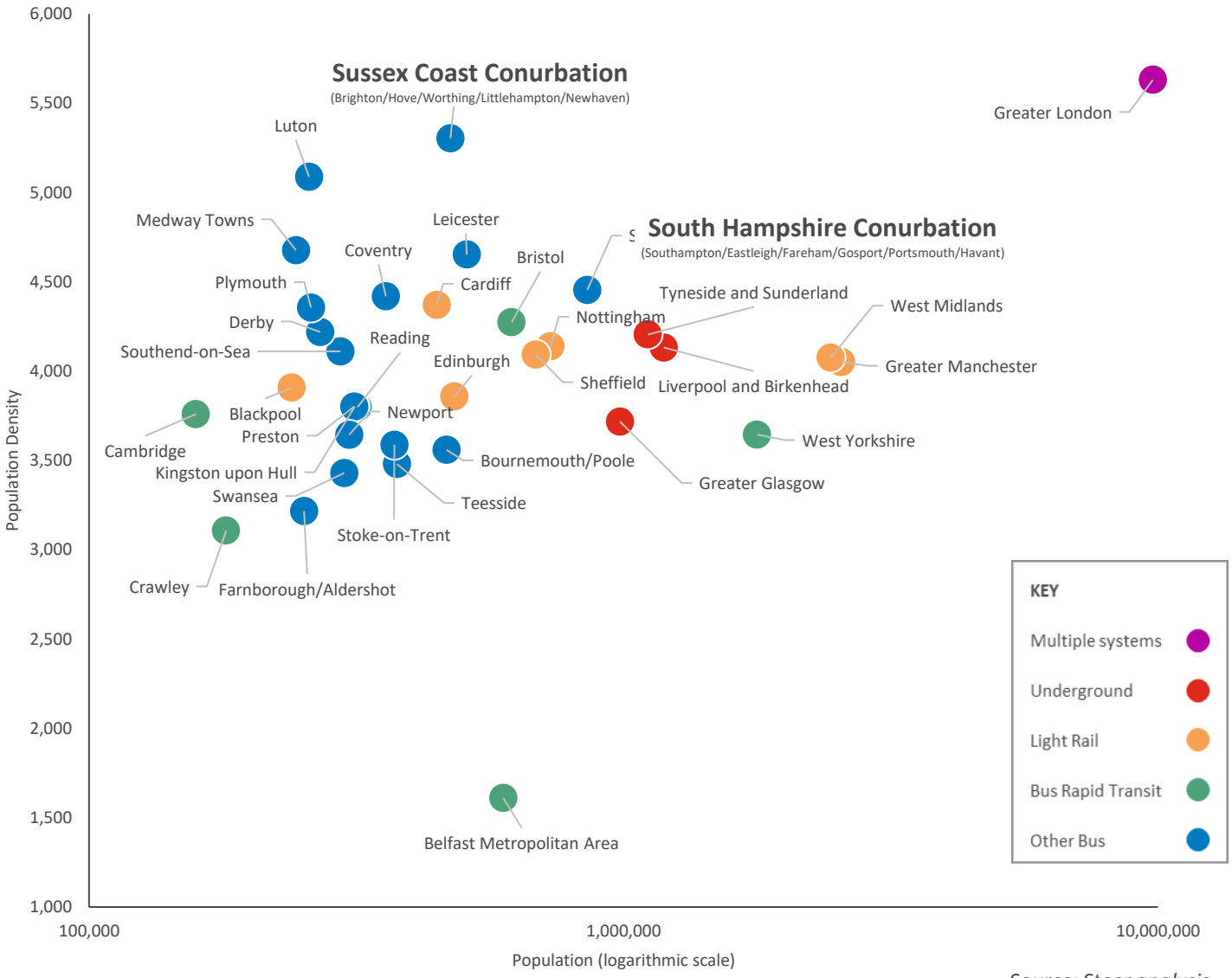
Map: https://www.openstreetmap.org

13 Public transit systems to do not meet all the needs of the area's largest conurbations

The South Hampshire and the "Sussex Coast" conurbations Areas do not have highly developed mass transit systems.

Given the relative size and density of the Outer Orbital area's largest conurbations, it is striking that neither South Hampshire nor the Brighton/Hove/Worthing/Littlehampton/Newhaven ("Sussex Coast") built up areas have mass transit systems such as Light Rapid Transit, Bus Rapid Transit, or underground systems. Instead, these conurbations rely on conventional buses, which deliver slower journeys than alternative systems, and suburban rail services, which are relatively infrequent, are not available to all, and do not adequately serve commercial centres. This means residents in these conurbations do not benefit from the accessibility, connectivity, and quality of mobility that is available in other cities. Despite growing bus patronage, some residents and businesses choose to use private vehicles for certain journeys, or walk or cycle, which undermines the competitiveness of the area's largest cities and the quality of life of its residents.

Mass transit systems in major conurbations in the UK



Source: Steer analysis

14 There are too few strategic mobility hubs outside town and city centres

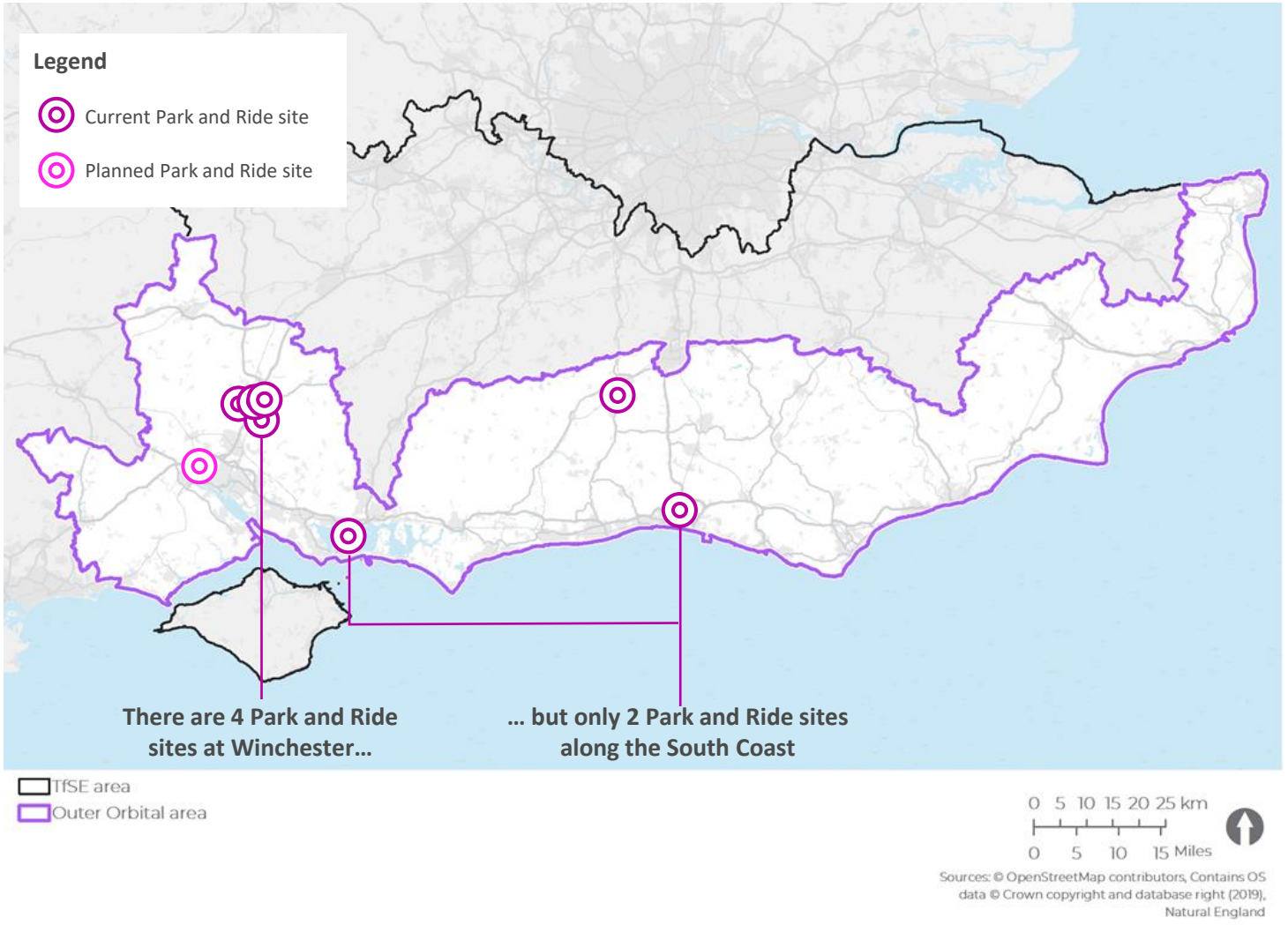
Strategic Mobility Hubs are transport hubs that enable interchange between modes. Ideally, they should offer easy access to strategic highways, railways, and local public transport services.

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 and service hubs.

There are currently only two Park and Ride facilities serving the towns, cities, and conurbations on the South Coast (a further one is planned). The facility at Brighton is also relatively small, with fewer than 200 spaces. This means motorists are inclined to travel into the centre of urban areas to park their vehicles. This generates noise, congestion, and poor air quality, which undermines the quality of the urban environment.

Furthermore, integration between public transport modes is poor. Several railway stations are unserved by local bus routes. There is an opportunity for coherent planning of local bus timetables.

Park and Ride Sites in the Outer Orbital Area



Ideally, visitors and commuters would be able to complete their whole journeys by public transport and/or active travel. But this is impractical for many, particular for those who live in rural and suburban areas.

15 Public transport information and ticketing are not sufficiently coordinated nor integrated

Public transport information and ticketing arrangements are not sufficiently coordinated nor adequately integrated, particularly across transport modes

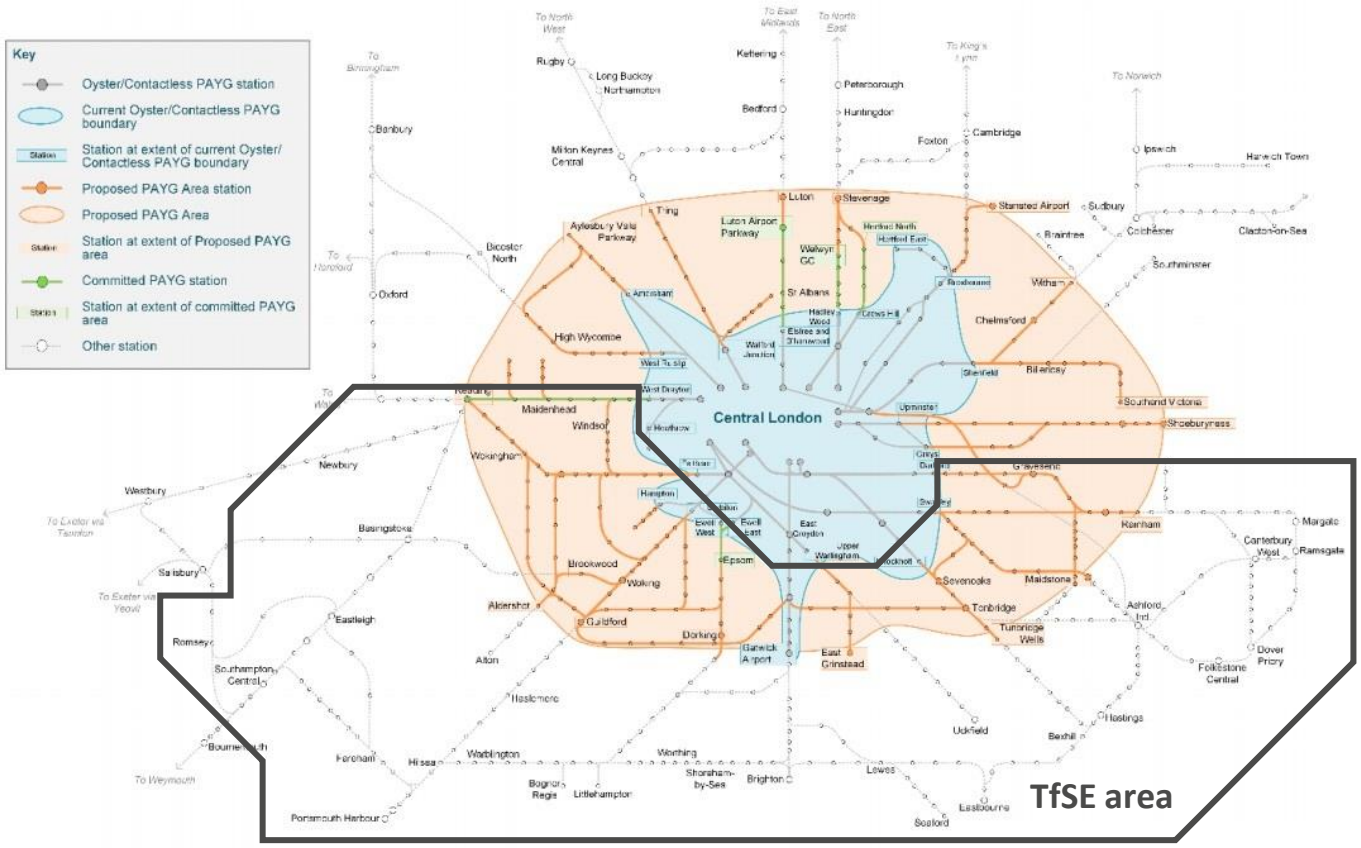
Parts of the South East are included in the London Travelcard area and are included in Transport for London's contactless travel arrangements. However, outside the London area, there are few examples of:

- Integrated journey planning tools;
- Integrated, multi-modal fares (noting some areas have access to PlusBus);
- Zonal fares systems (e.g. centered on Solent and/or the Sussex Coast conurbations); and
- Integrated, multi-modal payment systems.

All the above makes it harder to plan, pay for, and complete multi-modal journeys in the South East.

None of the conurbations in the South East are currently served by dedicated multimodal planning apps – although this is a fast-developing area of interest and third parties may provide a solution soon.

Extent of London Pay-As-You-Go payment systems in South East England



Source: Department for Transport "Pay-as-you-go on rail" consultation (2019), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/776998/payg-rail-consultation-doc.pdf

16 The area's major highways do not provide effective east – west connectivity

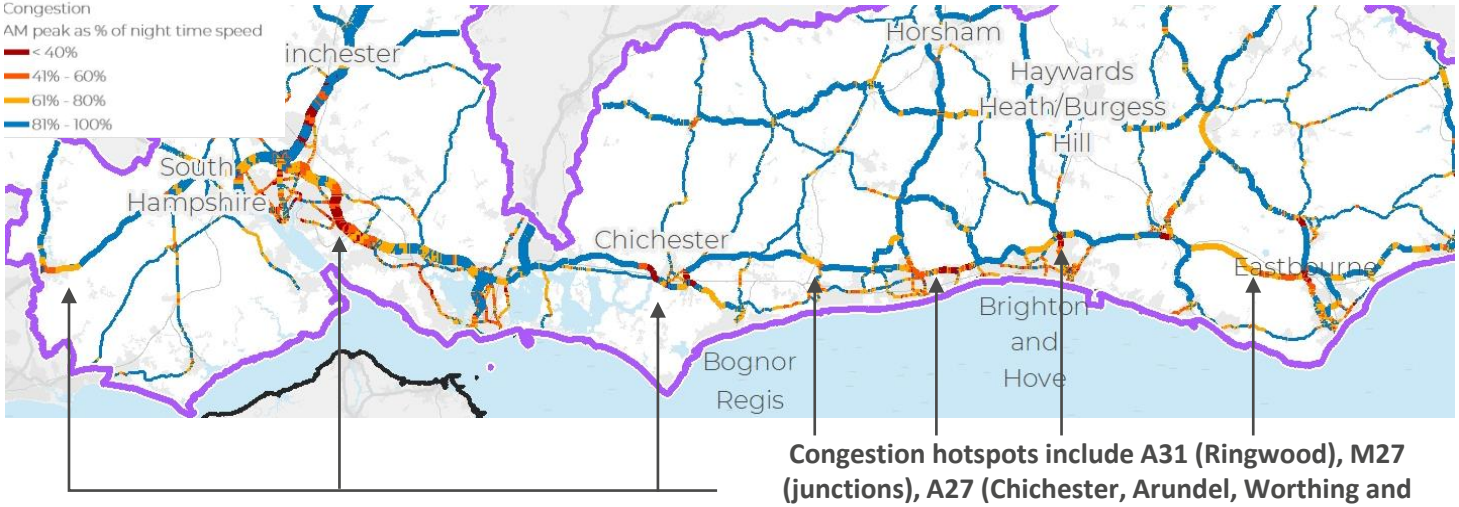
Many stakeholders would like to see the South Hampshire and Sussex Coast conurbations connected by a high-quality strategic highway.

However, the current condition and discontinuous nature of the road means it falls far short of the standard needed to fulfil this role, notably between Chichester and Shoreham and between Lewes and Polegate.

There are many issues with congestion, poor air quality, noise, poor safety, and poor local access/severance along this corridor. These issues undermine the competitiveness of bus and coach and can delay important freight movements. With significant housing planned along this corridor, the issues currently observed on this corridor are expected to worsen.

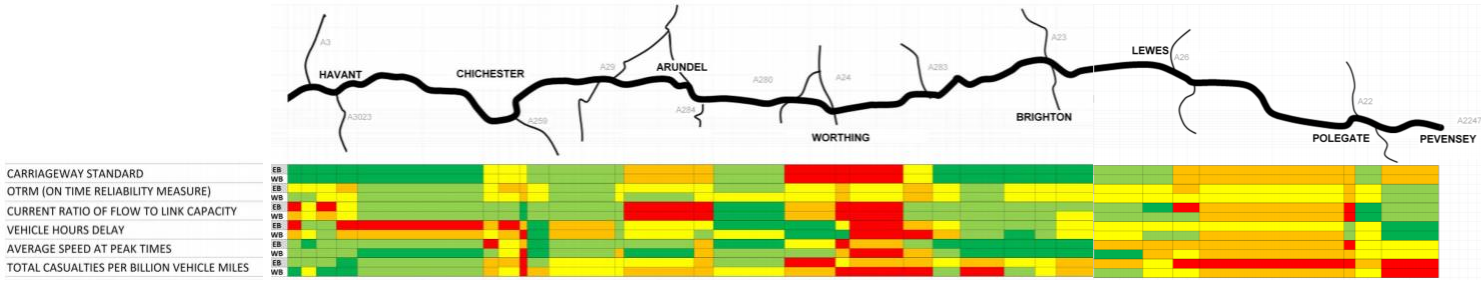
The issues described above affect multiple highways. While the A27 (illustrated to the right) us regularly highlighted as a strategic issues, there are also localised issues at junctions on the M27 as well as on feeder roles to the Strategic Road Network and at multiple locations on the Major Road Network (notably the A259).

Congestion hotspots



Congestion hotspots include A31 (Ringwood), M27 (junctions), A27 (Chichester, Arundel, Worthing and Lancing), Brighton and Hove (junctions) and East of Lewes

Connectivity gaps (highway quality between Chichester and Brighton and Hove)



Source: DfT A27 Feasibility Study
https://www.gov.uk/government/publications/a27-corridor-feasibility-study-technical-reports

17 Several major highways run through and/or close to protected areas

Several major highways encroach on nationally significant protected landscapes at several locations on the corridor, undermining the quality of these environments.

In Hampshire, several major highways including the A31 and A326 pass through the New Forest National Park, causing significant severance issues.

In West Sussex, the A27 runs close to (and in some areas, through) the South Downs National Park, the Chichester Harbour AONB, a UNESCO Biosphere in Brighton and Hove. The highway undermines the quality of these environments through generating noise, air pollution, landscape scarring, and severance. Furthermore, the poor reliability of the highway often causes traffic to "overflow" onto local routes that run deeper into protected areas and local communities.

In East Sussex, the A27 carries heavy traffic through areas popular with cyclists and walkers, creating safety and severance issues. It is an unhappy compromise for all concerned.

The A27 south west of Arundel

Image source: BBC https://www.bbc.com/news/uk-england-sussex-54550678

18 Too many major highways pass through densely populated communities

Many of the Outer Orbital Area's major highways pass through or close built-up areas.

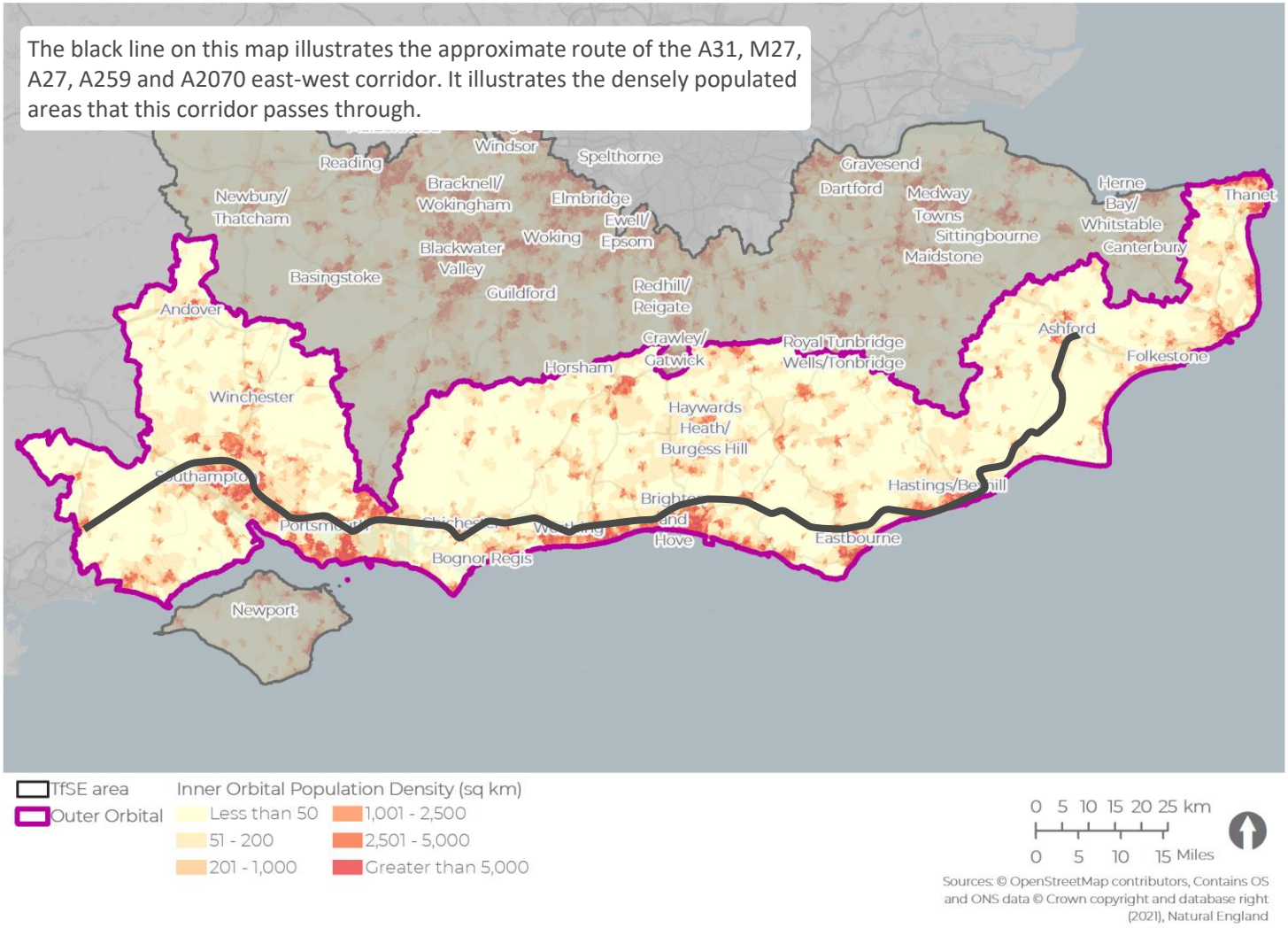
In Hampshire, the M27 cuts through several communities in the Solent area, notably at Hedge End/Whitely/Cosham.

In West Sussex, the A27 runs close to Chichester City Centre and passes through Worthing and Lancing. Many local journeys rely on this highway for local connectivity, which causes conflicts in traffic along the route and, consequently, undermines the attractiveness and viability of public transport and active travel on these corridors (around half of journeys on the A27 at Chichester and Worthing start or finish in their respective local districts).

In East Sussex, the A27 passes through several villages and causes significant severance, noise, and air quality issues for local residents and visitors to the South Downs National Park.

The A259 passes through much of the Brighton and Hove conurbation as well as Bexhill and Hastings.

Population density and the South Coast highway corridor



19 Highway traffic accessing ports is undermining the environment in town and city centres

The Outer Orbital area is home to some of the busiest ports in the UK. Many of them have developed in densely populated built up areas.

Most ports are connected by Strategic Road Network highways that carry heavy freight traffic through urban areas. This causes local issues with air quality, noise, and severance.

This issue can be observed at:

- The **Port of Dover**, which is served by the A20, which passes through the Town Centre;
- The **Port of Newhaven**, which is accessed through a gyratory that passes through Newhaven Town;
- The **Portsmouth International Port**, which while served by the M275, faces some issues where this corridor at major junctions and Port entrances;
- The **Port of Shoreham**, which is not directly served by the Strategic Road network; and
- The **Port of Southampton**, which is planning to expand to Fawley.

The A20 at Dover

Image source: Gareth Fuller/PA, https://www.chesterstandard.co.uk/news/national-news/18617496.giant-post-brexit-lorry-park-bad-news-uk-business-labour-says/

20 There are too many level crossings on major highways along the South Coast corridor

There are multiple issues with level crossings on strategic highways along the South Coast.

The A259 between Hastings and Ashford (East Sussex/Kent) is particularly hazardous in places, as shown in the image to the right. There are several steep inclines, tight bends, and level crossings on this highway between Hastings and Ashford. These present significant safety risks for all users on this highway.

There are also issues with level crossings on the local roads that feed into the A27, A29 and A259 corridor in Brighton and Hove, West Sussex, and Hampshire.

National Highways and Network Rail are considering options to realign the highway to avoid level crossings. These improvements could be delivered alongside improvements to the A259 railway.

Star Level Crossing (A259/Marshlink Railway)

Image source: UK Level Crossing Crossings channel, YouTube https://www.youtube.com/watch?v=aN2C6dPtDEo

21 East – west rail connectivity (journey times/frequency) is poor compared to radial services

East-West and cross-country railway connectivity is poor.

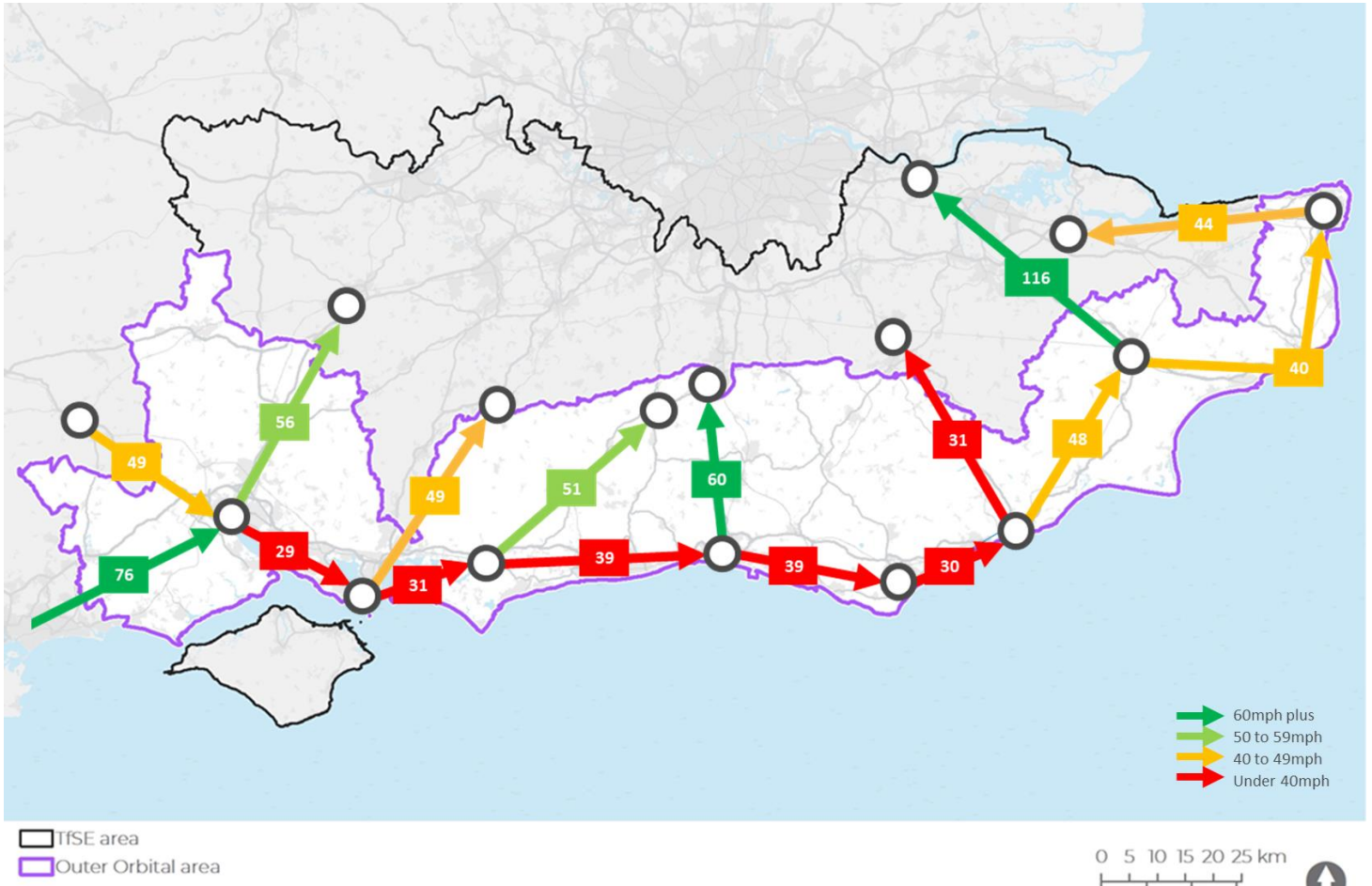
Railway journeys on radial routes from South Coast stations to London and beyond are 50% faster than journeys along the coast. Service frequencies are also lower and/or irregular.

In particular, the West Coastway Line struggles to perform its role as a short distance urban metro service between Littlehampton and Brighton and as a major cross-regional corridor between Southampton and Brighton.

Similarly, journey times by rail between Portsmouth and Southampton are very poor (42 minutes compared to 25 minutes between Southampton and Bournemouth). This undermines the competitiveness of rail in the area.

Furthermore, there is relatively poor integration between South Coast rail services and local bus services. This is particularly evident in fares, retail, and ticketing (integrated tickets and zonal fares are only available for London services).

Average speed for selected journeys on the South Coast rail network



Source: Steer analysis

22 Rail capacity is insufficient to accommodate the needs of all users

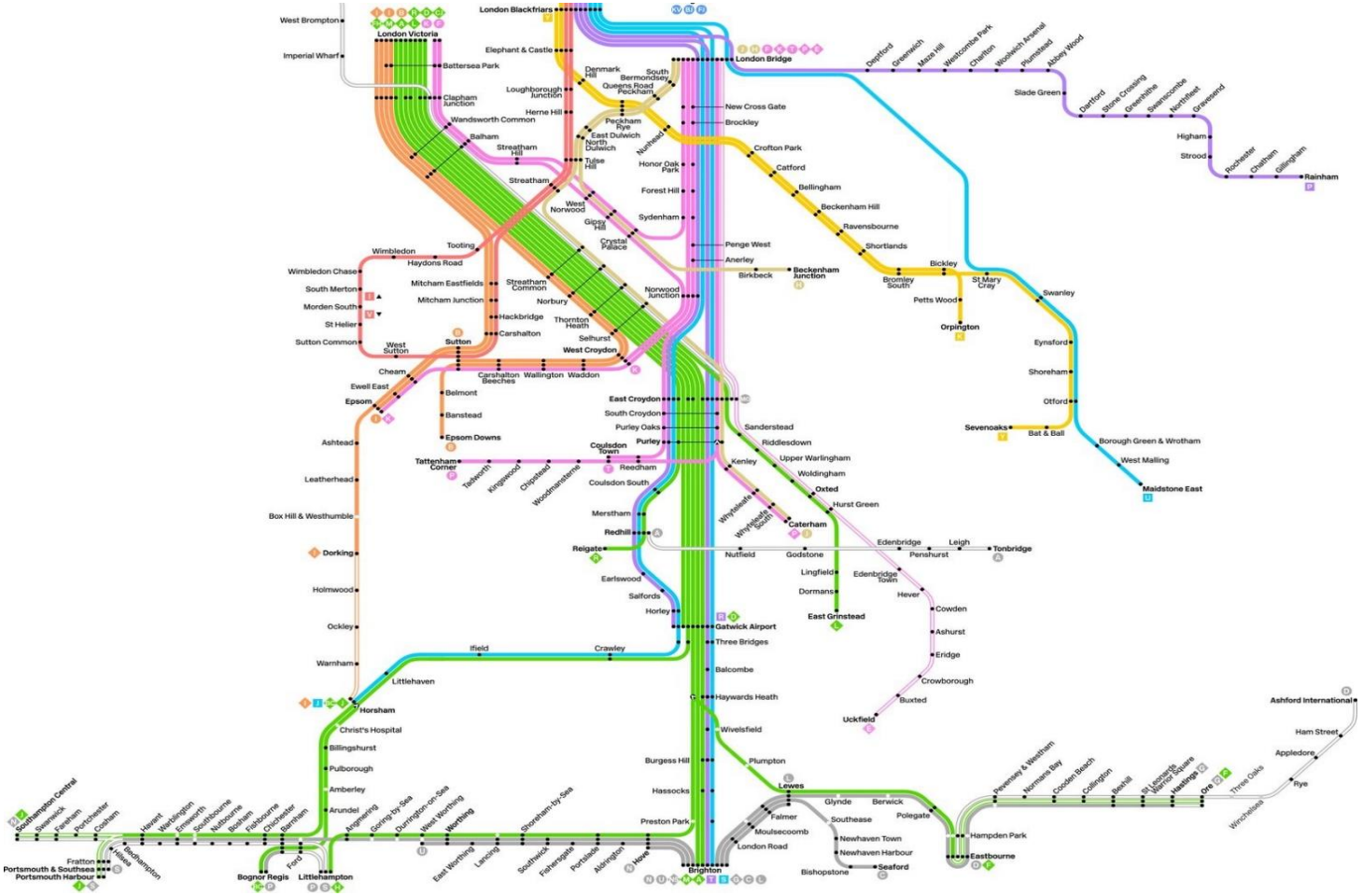
Rail capacity is insufficient to accommodate the needs of long-distance passenger, local passenger, and freight customers in the area.

The railway timetable is designed around constraints on radial corridors to ensure that services operating from locations such as Littlehampton and Brighton through central London (and beyond) are timed to accommodate capacity bottlenecks closer to London. The rest of the timetable has to "fit around" whatever is left over from this capacity allocation process. The figure to the right illustrates the challenges planners face in balancing radial and orbital journeys on the Brighton Main Line.

In recent years, several "paths" (e.g. "slots") that used to support cross country services (e.g. Portsmouth/Brighton – Reading/Midlands/North) have been reassigned to radial services.

This means communities that rely on orbital rail services are less well served than communities served by radial routes. It also undermines the competitiveness of rail on these corridors, which encourages longer distance travellers to drive instead.

Thameslink, Southern and Great Northern franchise services



Source: Project Mapping http://www.projectmapping.co.uk/Reviews/Resources/TSGN%20Travelling%20Wolf.jpg

23 The Marshlink railway is inadequate to meet stakeholder's future aspirations

The Marshlink railway is slow, unelectrified, and has low capacity (due to sections of single-track rail).

Operating services on this "island" of diesel operation is expensive and inefficient.

The railway offers poor east-west connectivity for the communities it serves. It also contributes to the relative "isolation" of Bexhill and Hastings. Stakeholders believe this connectivity gap makes it harder to attract investment to these towns.

There are aspirations to use this railway to run high speed services from London St Pancras to Hastings, Bexhill, and Eastbourne via Hastings. This would help develop Ashford as an international transport hub (and strengthen the case for the long-term sustainability of international rail services at this station). However, the quality (and traction) of this railway presents a significant barrier to this project.

The Marshlink Line

Image source: Brian Green, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=13054175

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