TRANSPORT FOR THE
South East

South East Radial Area Study

Evidence Base Report

Version 2.1

March 2021

Contents

TRANSPORT FOR THE
South East

Introduction

Background

The South East Radial Area is a diverse and dynamic part of South East England. Its transport network performs a key link between some of the UK's busiest international gateways and the rest of the country. It is home to some of the fastest growing communities in the UK, and some of its most historic towns. However, there is a risk that some are being left behind as the area's transport network comes under increasing strain, and housing remains unaffordable in places.

Introduction

At first glance, the South East Radial Area is an objectively prosperous area served by high quality transport networks – for example, the HS1 rail line runs through the area, as do the M2 and the M20. However, as this report will show, underneath these headlines are significant **issues** that this Area Study will need to consider. These include:

- **Low levels of economic and transport resilience** – the area is highly dependent on a relatively small number of industries, and is relatively dependent on two transport corridors;

- **Pressure points** – the housing market is unaffordable to many and risks undermining the area's economic potential, while there are also pressure points at key bottlenecks on the transport system; and

- **Spreading prosperity and connectivity** – communities that are "off the beaten track", particularly on the coast, risk being left behind by the area's success.

A route to post COVID-19 recovery

At the time of writing, the South East Radial Area, along with the rest of England, was emerging from the third of a series of "lockdowns" in response to the COVID-19 pandemic. This has had a dramatic impact on the region's development and will continue to have a marked impact upon the region over the coming years. The economic consequences will leave a significant legacy on the area.

Some already underlying trends (such as a shift to home working) appear to have accelerated markedly, while others (such an increased use of cars against a backdrop of levelling out car use in recent years) have seen notable reversals.

Whether these trends continue in the anticipated direction or revert to pre-pandemic norms as the impact of COVID-19 subsides, is challenging to predict.

There have been some "upsides" from the experience of 2020. For example. the region has attracted people to visit and take "staycations". The COVID-19 pandemic has therefore underlined the importance of the natural landscape and re-emphasises the importance of protecting and enhancing the natural and historic environment.

Looking ahead into 2021 – it is clear that the economic impacts of the pandemic will be significant, and dramatic. They may force policy makers to look again at commitments made prior to 2020 and reflect whether these are appropriate for a post COVID-19 economy.

However, major historical events such as the COVID-19 pandemic are, thankfully, rare, and when they occur, they can offer unprecedented **opportunities** for social transformation and progression. There is an opportunity to capitalize on these structural changes and guide the area to reach their decarbonisation and wider sustainability goals.

South East Radial Area Study Evidence Base

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Structure of this Report

This report provides a common understanding of the current and future context for Transport for the South East's (TfSE) South East Radial Area Study. As well as presenting the evidence base, this report summarises the key issues and opportunities in this area, describes a vision for the area, and sets objectives for the study. This study has four parts:

Part 1 summarises the current evidence base underpinning this area study.

It presents research and analysis sourced from policy documents, publicly available data and maps, scheme promoters, and insights from stakeholders. It is presented in six parts:

- **Part 1a** summarises the national, regional, and local policies relevant to this study (more detail is provided in the Appendix).

- **Part 1b** describes demographic and economic trends.

- **Part 1c** describes social trends, including deprivation, accidents, and air quality.

- **Part 1d** describes environmental characteristics, including protected areas, heritage, flood risk, and landscape.

- **Part 1e** describes the area's road, railway, and international gateway networks.

- **Part 1f** presents analysis of the accessibility and connectivity of the public transport networks serving the area.

- **Part 1g** summarises our analysis of Travel To Work patterns in the area.

Part 2 summarises evidence that shows how the future of the area may evolve.

It is presented in four parts:

- **Part 2a** summarises the demographic projections based on Local Plan development data provided by Local Planning Authorities.

- **Part 2b** describes the results of the South East Economic and Land Use Model (SEELUM) which estimates the impact of a "Preferred Scenario" of the future (developed by TfSE and its stakeholders in 2018/19) on socioeconomic and transport outcomes in the South East Radial area.

- **Part 2c** lists the key highways, railways, international gateway, and local transport schemes under development in the area. It does not comment on whether the balance of schemes by modes and geography is right – this will be considered later in the options phase of this project.

- **Part 2d** explores the impact of the COVID-19 pandemic on the South East's economy and transport demand.

Part 3 presents our analysis of the key issues affecting the South East Radial Area.

It is presented in two parts:

- **Part 3a** summarises some of the issues and opportunities we have identified that are relevant to the South East Radial Area.

- **Part 3b** presents the results of our SWOC (Strengths, Weaknesses, Opportunities and Challenges).

**Part 4 sets a vision and objectives for the South East Radial Area Study.**

It is presented in three (short) parts:

- **Part 4a** describes the Vision Statement for the South East Radial Area study.

- **Part 4b** lists the objectives of the South East Radial Area study.

- **Part 4c** summarises the next steps of the South East Radial Area study.

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Definition of the South East Radial Area

The South East Radial Area Study encompasses the strategic radial corridors between South London and the Kent and East Sussex coasts. The Local Transport Authorities in this area include East Sussex County Council, Kent County Council, and Medway Council. The Local Planning Authorities are Medway, all Districts and Boroughs in Kent, and Hastings and Rother in East Sussex.

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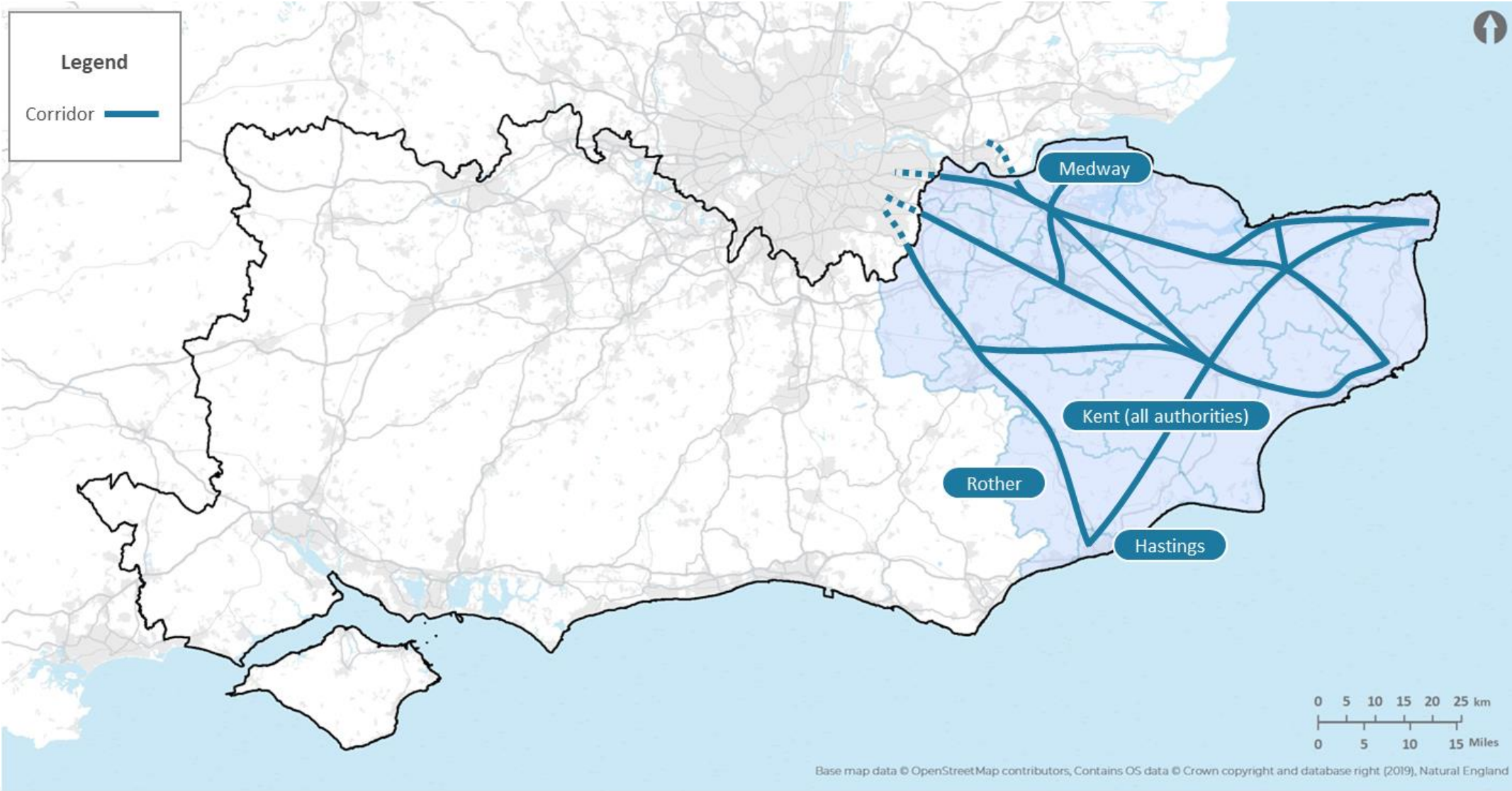
Major Economic Hubs and International Gateways

The South East Radial Area encompasses the strategic corridors between London, Hastings, and coastal Kent/Medway. The Major Economic Hubs include the largest settlements in this area, including the Medway Built Up Area (which is the third largest conurbation in the TfSE Area). The area includes some of the busiest international gateways in the UK – notably Dover and the Channel Tunnel.

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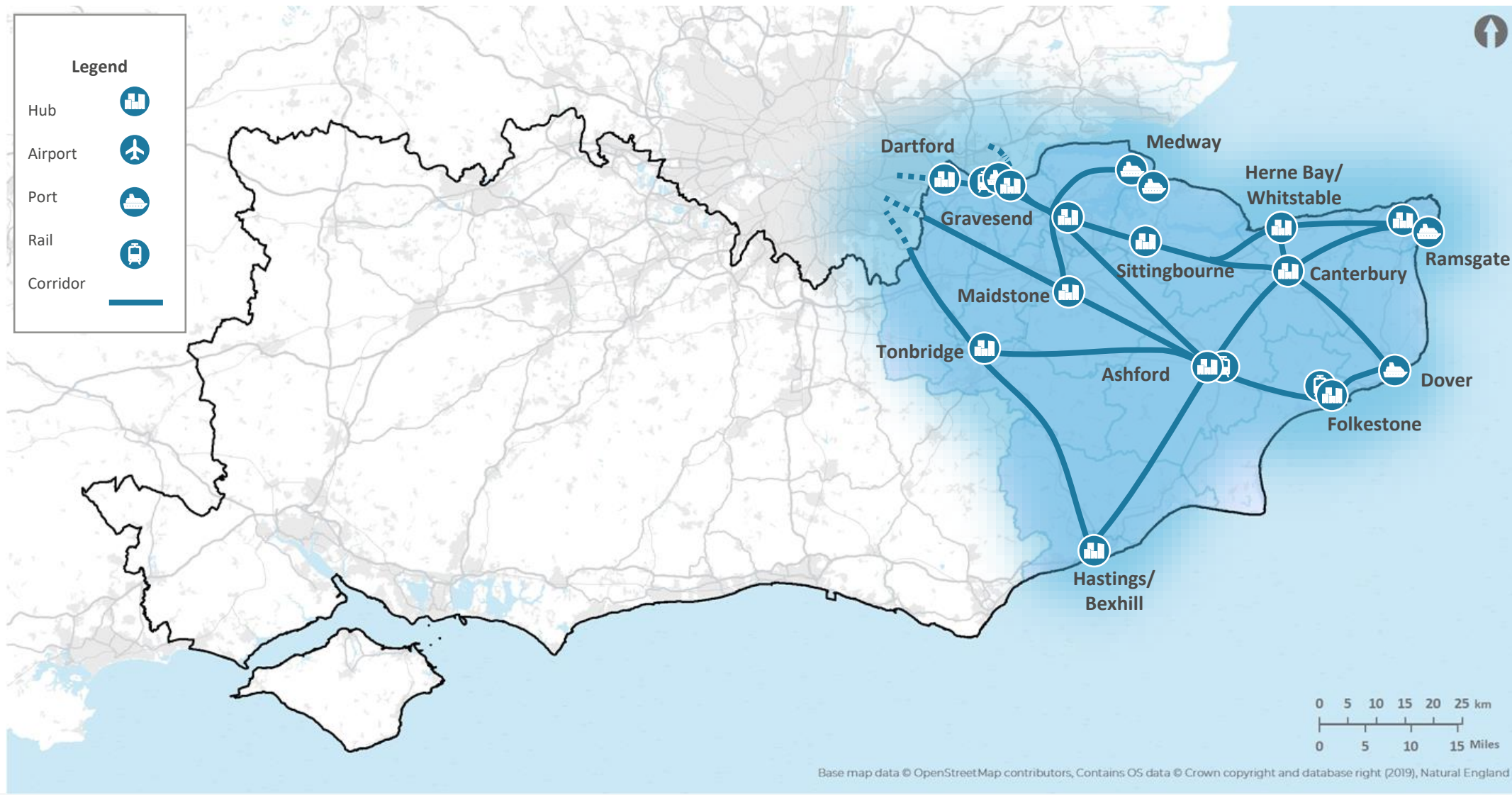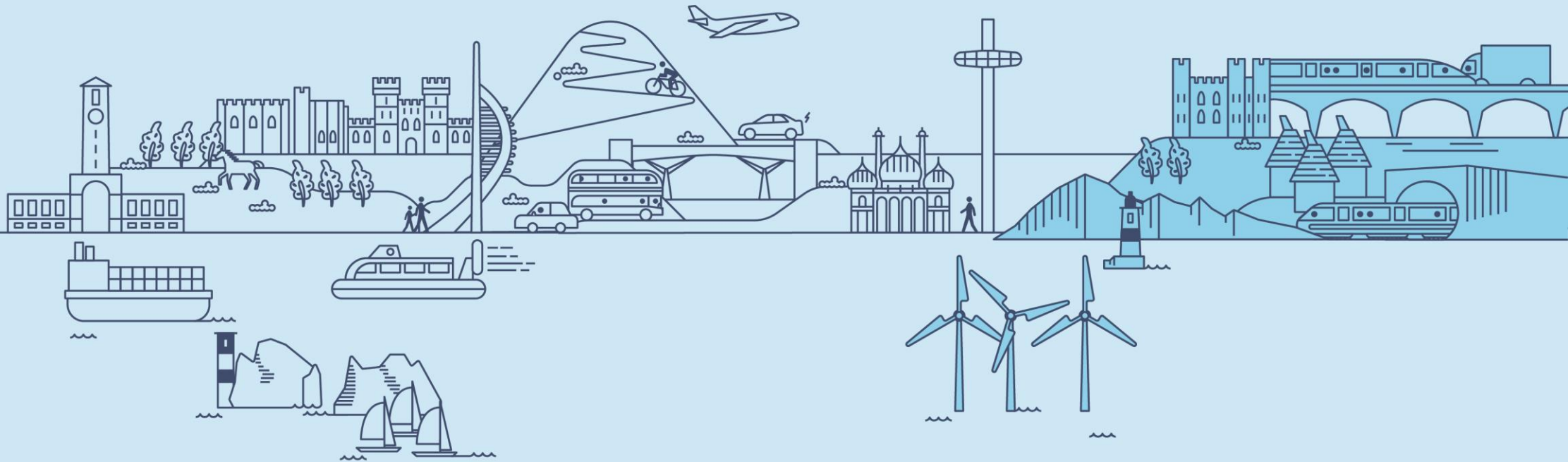
Part 1
Current Context

Part 1a
Policy Context

National and International Policy Context

National and international policies set a framework for the future of planning, climate change and digital technology. They aspire to deliver transport networks that work better for the people, the economy, and the environment. A complete list of the policies reviewed for this South East Radial Area study is provided in **Appendix A**. Key themes are discussed below:
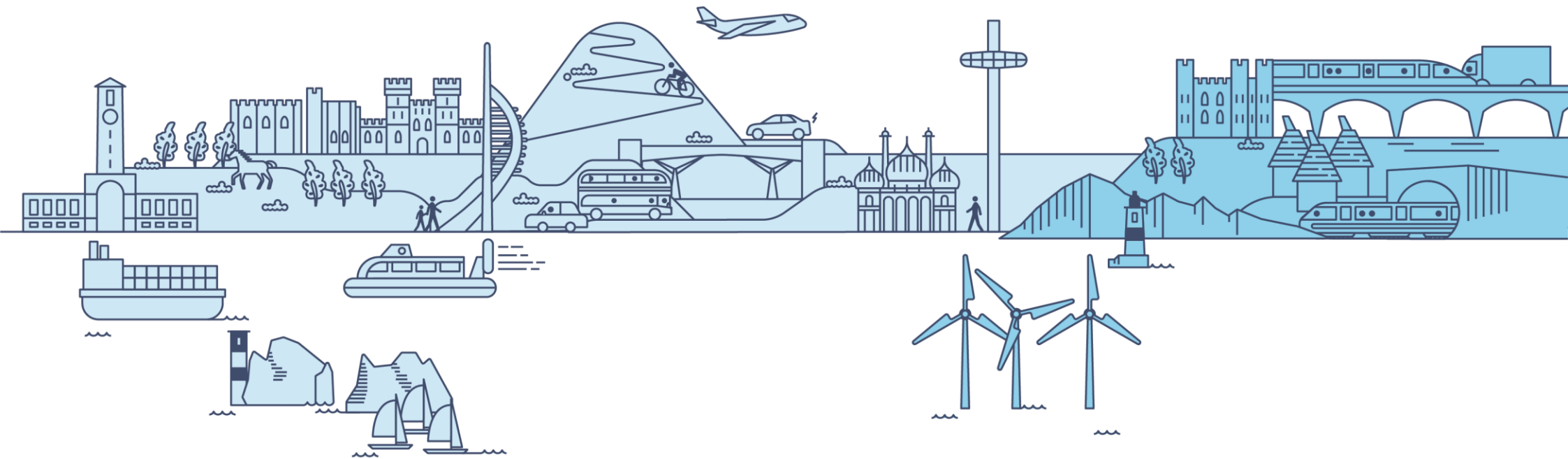
Climate Change/Decarbonisation Policies

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

Decarbonising Transport, Setting the Challenge (2020), sets out the broad framework within which this context sits, and will provide the foundation for future DfT policies in this area. It comes in the wake of several other critical national (e.g. the **Clean Growth Strategy**) and international (e.g. the **Paris Accords**) documents which are helping to set the overall direction for decarbonisation.

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

Planning Reform

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

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

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

Emerging Technology Policies

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

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

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

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

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Regional and Local Policy Context

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

Economic Strengths

The area's economic strengths are highlighted and analyses in several regional and local policy documents. These include TfSE's **Economic Connectivity Review,** which identified clusters of high growth industrial sectors in the area.

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

The region's proximity to London is also a key driver of economic growth. However, the area's reliance on London is seen as a risk, as identified by Network Rail in their published **London South East Market** study and the **Kent Rail Strategy.**

Many stakeholders in this area (including the South East LEP) wish to see the area develop as a more self-contained, higher-performing area that is less reliant on London for its economic development. This view came across strongly in several interviews that the project team arrange with key stakeholders in the South East Radial Area.

Planning for People and Places

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

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

Planning for vehicles acknowledges that some highway schemes may be needed to support immediate housing needs and congestion hotspots in the South East Radial Area.

However, the focus also needs to consider **planning for people** (as a means of considering all modes of transport, especially active travel and public transport) and **planning for places** (which required much better integrated spatial, transport, services, and other infrastructure planning at a regional and local level.
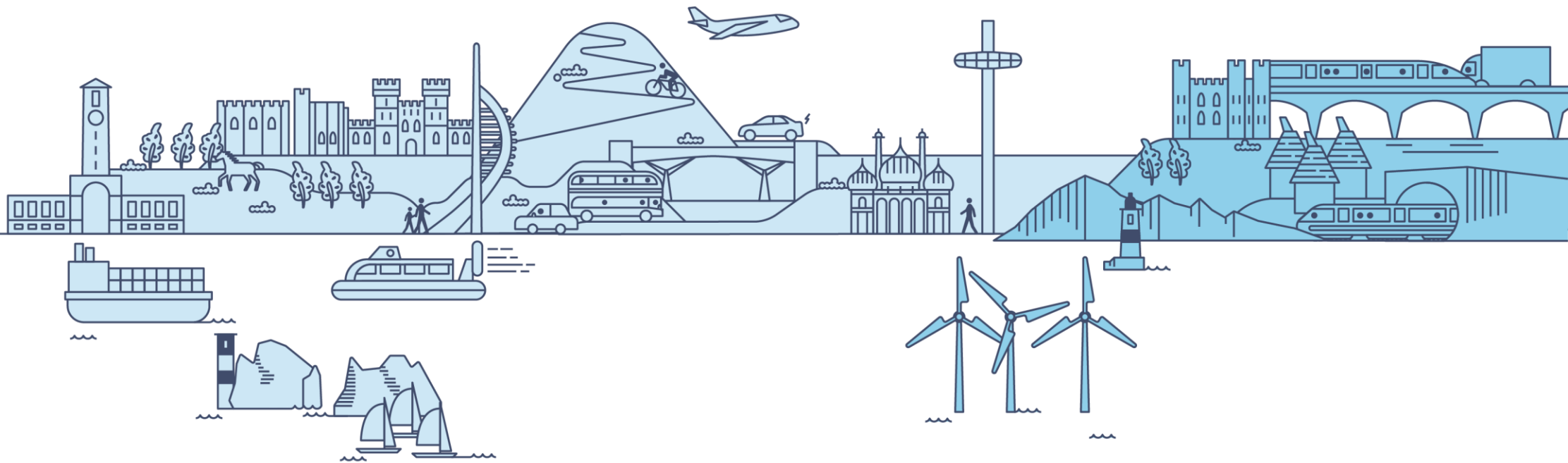
Local Response to COVID-19

The COVID-19 pandemic has caused a significant rise in uncertainty around local planning. Local budgets are coming under increased pressure, and behavioral changes mean that traditional planning approaches are poorly suited to the current context.

In several areas, Local Industrial Strategies have been delayed as a result of the pandemic, and increased levels of uncertainty. Several Local Enterprise Partnerships have released COVID-19 statements on their websites, and the South East LEP has released a formal **COVID-19 Statement** document. The government has outlined its steps for recovery in the Our Plan to Rebuild document released in Spring 2021, and additional funds have been released through the Levelling Up Fund and the Towns Fund.

Overall, however, it must be recognised that many local planning documents may need to be updated to reflect changes in the housing market and travel behaviours arising from the COVID-19 pandemic.

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Part 1b
Demographic and Economic Context

Population

**The population of the South East Radial Area was just over 2.0 million in 2019.**

Figure 1.1 indicates that the area experienced a population growth in line with other regions in the South East, experiencing an 8.3% growth in the past decade, compared to the regional average of 8.0%.

Figure 1.2 shows the population density in the South East Radial Areas. This shows that the largest population centres are located along the coastline, which include the Thames Estuary, Thanet, Folkestone and Hastings. The Maidstone, Medway and Sittingbourne triangle form another prominent population cluster in Kent.

The fastest growing areas along this corridor in the past decade include Dartford (18.2%), Maidstone (13.3%), Canterbury (13.0%), Swale (12.8%), and Ashford (12.4%). In contrast, the slowest growing areas include Hastings (3.8%) and Tunbridge Wells (5.3%).

Modelling undertaken by Steer suggests the population in the South East Radial Area will continue to increase to around 2.3 million residents by 2050 (see page 73). Planners will need to ensure appropriate housing and infrastructure is available to support growth, being mindful of potential changes in government forecasts.

Figure 1.1: Population growth over time in the South East

Legend:
- Outer Orbital
- Inner Orbital
- South West Radial
- South Central Radial
- South East Radial
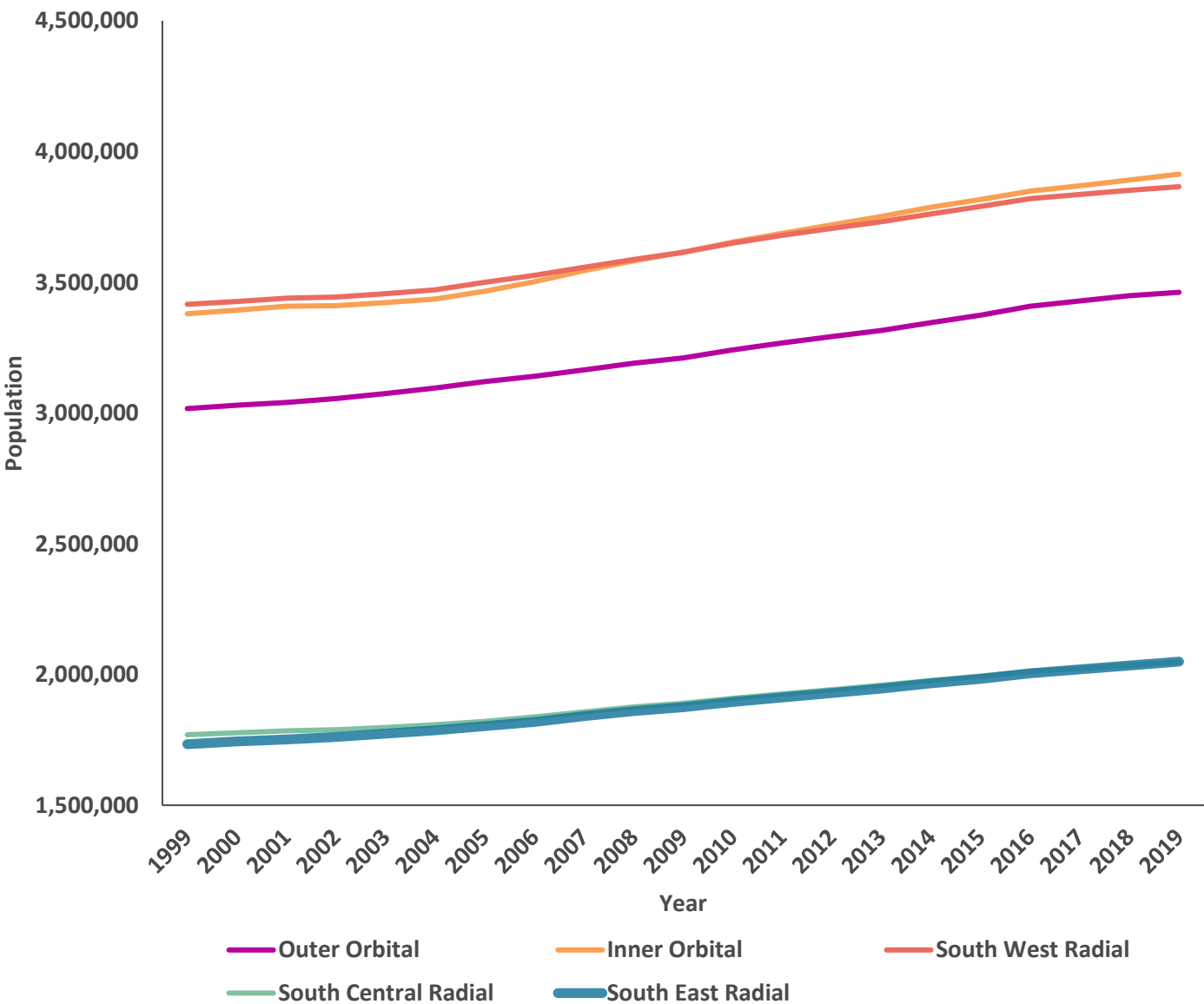
Source: NOMIS Official Labour Market Statistics, Population Estimates (2019)

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Figure 1.2: Population Density

Maidenhead
Slough/Windsor
Spelthorne
Reading
Bracknell/Wokingham
Elmbridge
Newbury/Thatcham
Ewell/Epsom
Woking
Blackwater Valley
Basingstoke
Guildford
Redhill/Reigate
Andover
Crawley/Gatwick
Winchester
Horsham
Haywards Heath/Burgess Hill
Southampton
Brighton and Hove
Portsmouth
Chichester
Worthing
Bognor Regis
Eastbourne
Newport

Gravesend
Dartford
Medway Towns
Herne Bay/Whitstable
Thanet
Sittingbourne
Canterbury
Maidstone
Ashford
Royal Tunbridge Wells/Tonbridge
Folkestone
Hastings/Bexhill

Population density (sq km)

TfSE area
South East

Less than 50	1,001 - 2,500
51 - 200	2,501 - 5,000
201 - 1,000	Greater than 5,000

0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS and ONS data © Crown copyright and database right (2021), Natural England

South East Radial Area Study Evidence Base

Employment

In 2019, 78% of the eligible workforce in the South East Radial Area was in employment. This is now in line with the South East (79%) and above the national average (76%).

Figure 1.3 shows employment trends for each of the five areas. In 2017, 758,319 jobs were available in the South East Radial Area, 23% of all jobs in the wider South East.

Historically, the employment rate in the South East Radial Area has been significantly lower than the rest of the South East. Despite this, the area has closed the gap in recent years and is now in line with other areas in the South East.

In 2019, 89% of the eligible workforce was employed in Dartford. In contrast, areas along the coast such as Thanet and Swale only have 74% of those eligible in employment.

Dartford has also experienced the largest increase in the number of persons employed in the past decade, with this rising by 32%, twice as high as the increase in overall population. Maidstone and Medway have also experienced a 23% increase in the number of persons employed. On the other hand, Hastings and Thanet have experienced less than a 5% increase in the number employed.

Modelling undertaken by Steer suggests the number of jobs in the South East Radial Area will grow to 864,000 by 2050 (see page 71).

Figure 1.3: Percentage of the eligible working population employed in the South East
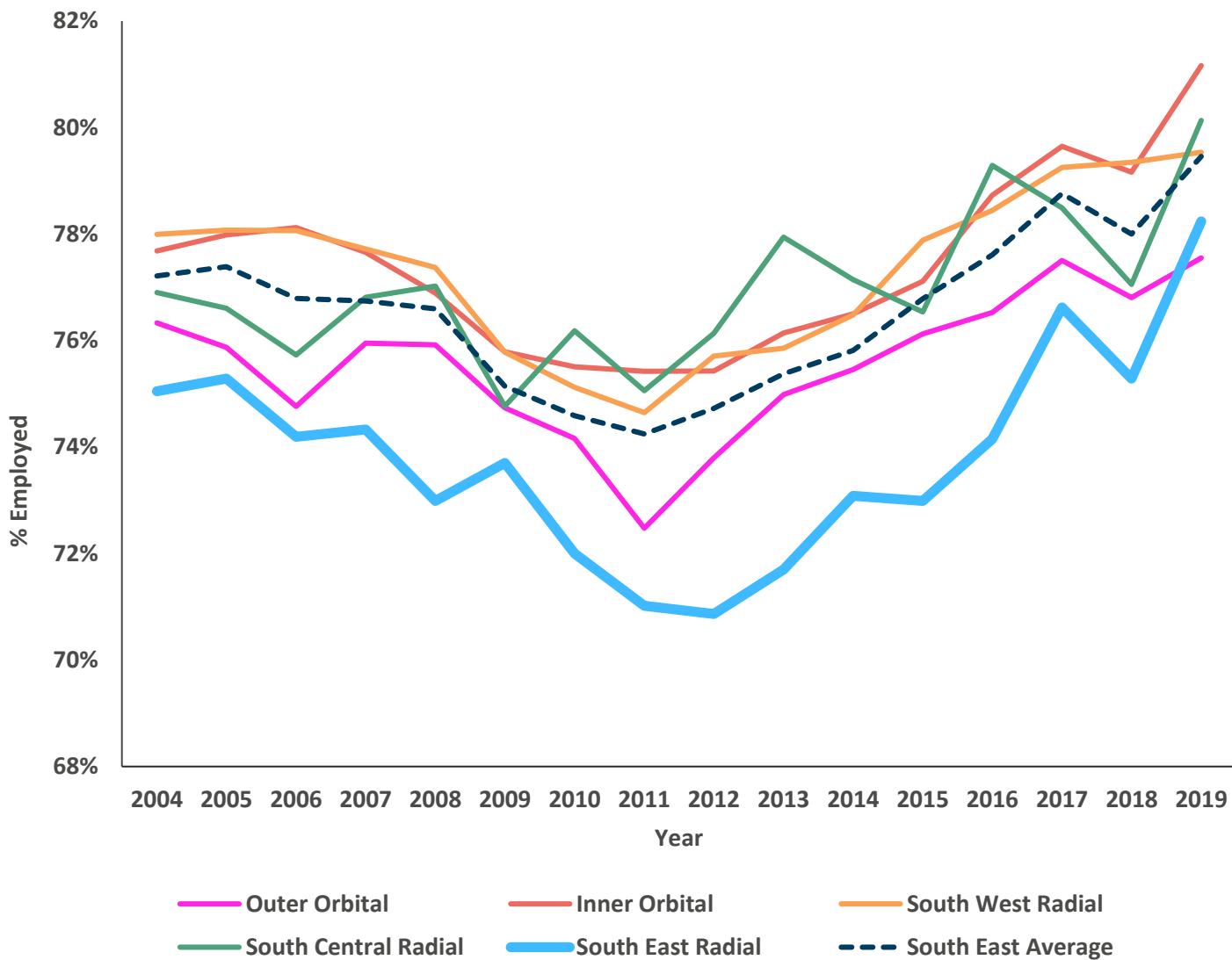
Source: NOMIS Official Labour Market Statistics, Employed Workforce (2019)

South East Radial Area Study Evidence Base

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Priority Industrial Sectors

In 2017, 8.8% of all jobs available in the South East Radial Area were priority industrial sector jobs.

This is in significantly lower than the wider South East area where 12% of jobs are priority sector jobs. In 2018, TfSE identified industrial sectors that were deemed to be high value, high growth industries. Employment by each key sector in the South East Radial Area is listed in **Table 1.1.**

The South East Radial Area is particularly strong in the following priority industrial sectors:

- **Transportation**, this is influenced by the importance of Dover which stimulates lots of transport activity.

- **Manufacturing**, the area houses a significant number of jobs in the manufacturing of computer, electronic and optical products. Additionally, there is notable presence of firms which specialize in manufacturing chemical products and pharmaceuticals.

- **Printing, media and publishing activities**, the area is home to a significant number of jobs involving printing and reproducing recorded media, which is supported with audio and video production and publishing activities. For example, there are a cluster of 700 jobs in the printing industry in Medway.

Table 1.1: Priority sector jobs in the South East Radial Area

Priority industrial sector	Number of jobs	% of South East*
Transportation	39,060	44%
Manufacturing	11,530	35%
Printing, media and publishing activities	7,195	60%
Telecommunications	4,080	25%

* Number of jobs in the South East Radial Area as a proportion of all jobs in the given priority industrial sector in the South East area. E.g. the South East Radial Area provides 51% of all transportation roles in the South East area. Source: BRES data (2018).

Transport sub-sector	Number of jobs	% of South East*
Land transport and transport via pipelines	15,650	63%
Water transport	1,105	27%
Air transport	105	1%
Postal and courier activities	7,125	92%
Warehousing/transportation support	15,075	36%

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Earnings

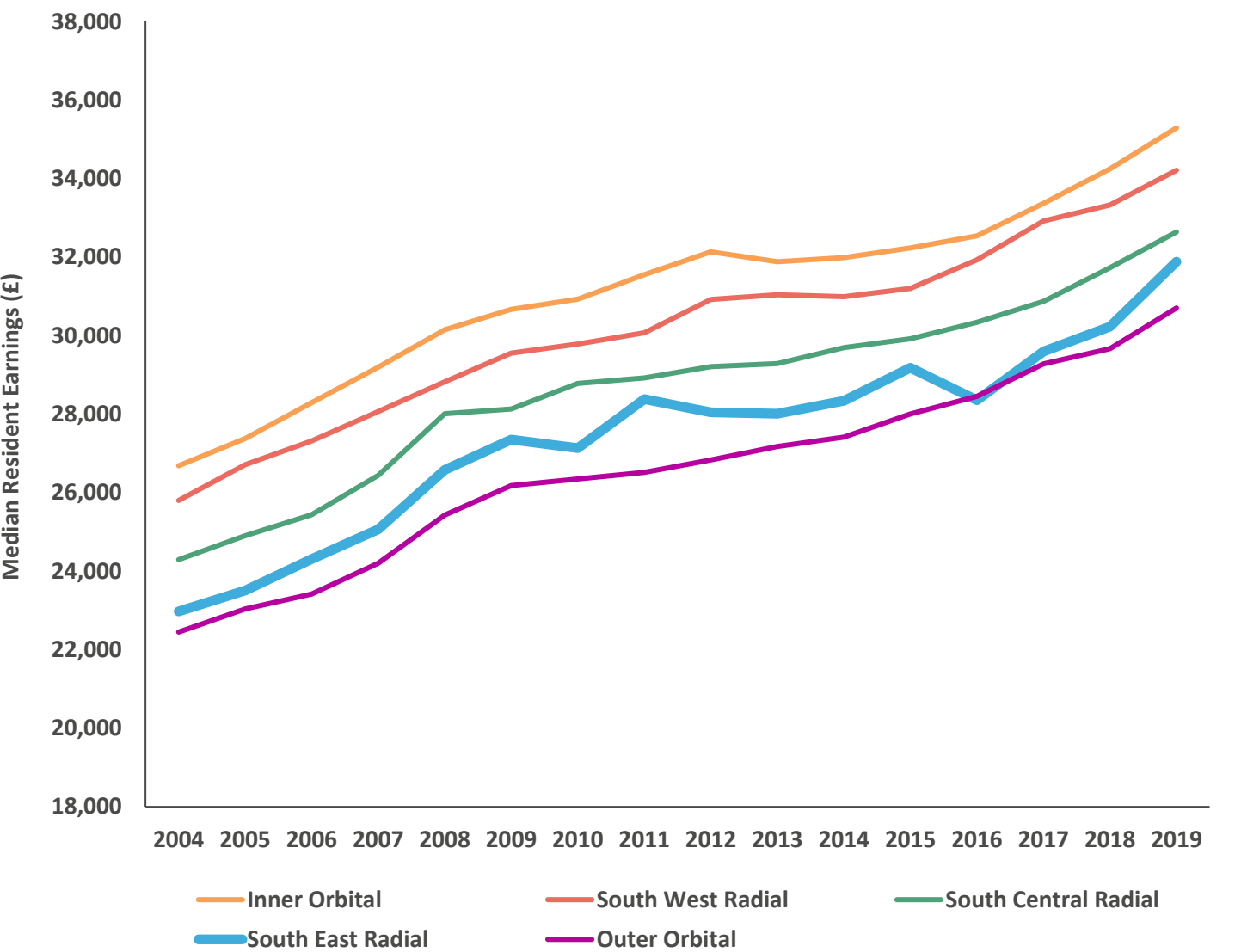**In 2019, the average resident in the South East Radial Area earned £31,879.**

This is lower than the South East average, where the typical resident earns £33,110, however is still above the UK average of £30,350.

Figure 1.4 shows the average earnings for residents from 2004 to 2019. Earnings growth in the South East Radial Area grew in line with the other areas in the South East Region. However, there are significant variations in earnings and earnings growth between the local authorities in the South East Radial Area.

The Sevenoaks, Tonbridge, Tunbridge Wells corridor is home to the highest earners in this area, with the average resident earning in excess of £36,000. In contrast, this area is also home to some of the lowest earners in the South East, with the average resident in Thanet earning under £26,000 and in Hastings earning under £25,000.

The highest growth in resident earnings in the past decade was in Canterbury, where the average resident experienced annual earnings of 29%. Residents of Ashford also experienced a high growth in earnings. In contrast, residents of Maidstone and Rother only experienced a 4% and 2% increase in nominal earnings respectively.

Figure 1.4: Average resident earnings over time in the South East Region

Source: NOMIS Official Labour Market Statistics, Resident Earnings (2019)

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Housing Affordability

In 2019, the average home in the South East Radial Area cost almost nine times the average income in this area.

Despite this, this area is still home to the most affordable housing of the five sub-regions in the South East, where housing is 8.9 times as high as the average income.

**Figure 1.5** shows the affordability ratio for each area in the South East from 2002 to 2019.

This ratio has been growing for all corridors in the past decade, indicating that housing is becoming more unaffordable. This increase is predominantly driven by the supply of housing not meeting demand. This has subsequently led to house prices increasing almost twice as fast when compared with resident earnings.

In 2019, the least affordable housing in relation to earnings is in Sevenoaks, Rother and Tunbridge Wells, with the ratio in excess of 10:1.

In contrast, the most affordable housing is in Medway, Dover and Swale, with a ratio of under 8:1. Despite this, house prices here have still significantly increased over the past two decades.
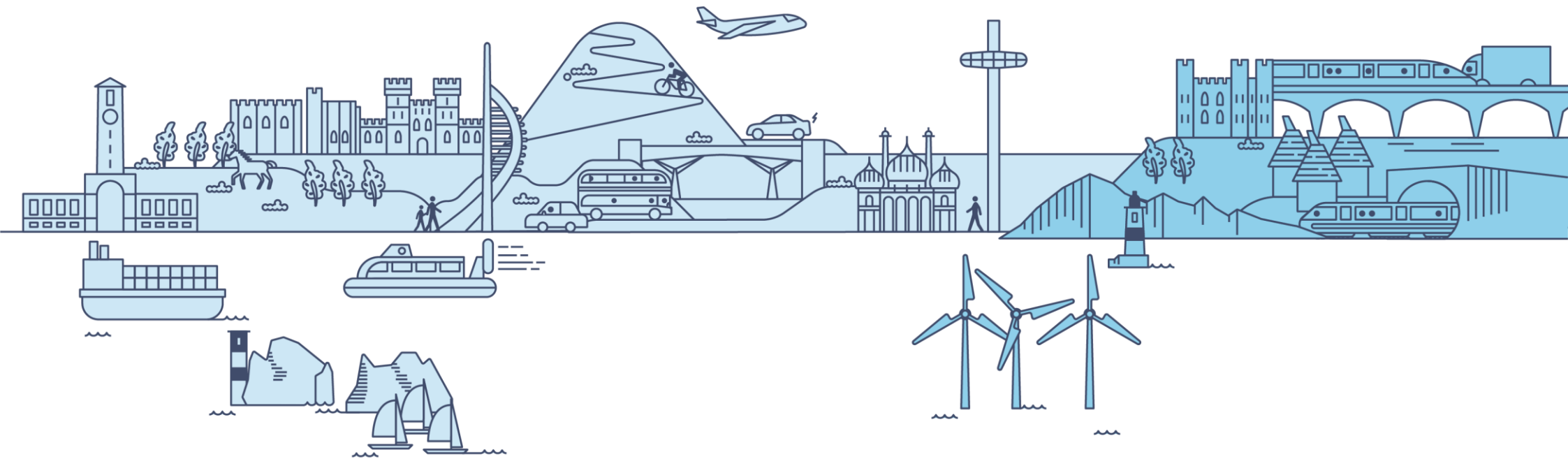
Overall, the South East Radial Area has the lowest affordability ratio – and is therefore the most affordable – of the study areas in the South East.

Figure 1.5: Housing Affordability ratio over time in the South East Region
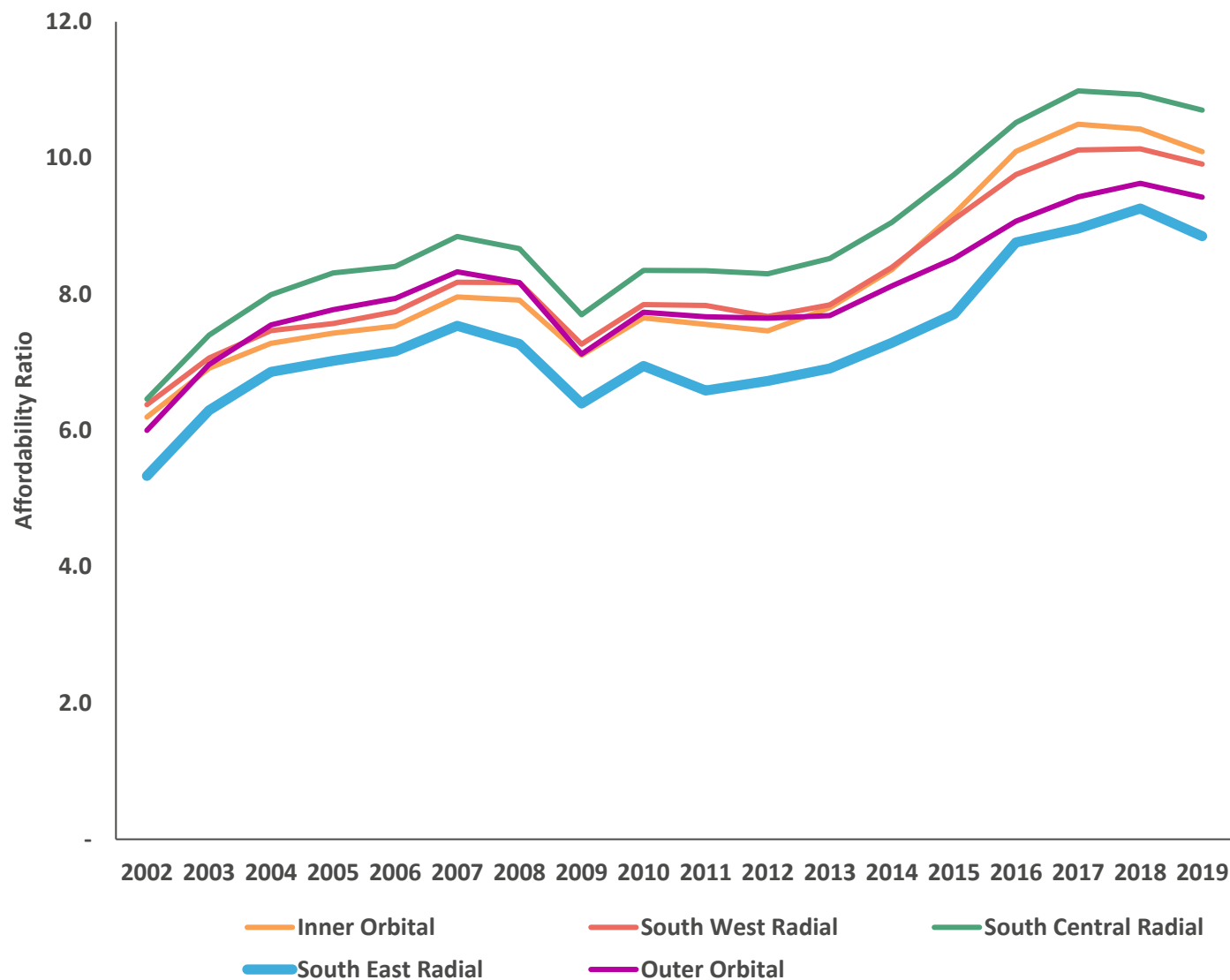
The affordability ratio is calculated using the median house price divided by the median resident earnings.

Source: ONS House Price Existing Dwellings to Residence Based Earnings Ratio (2019)

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Part 1c
Social Context

Social Context

Deprivation

While much of the South East Radial Area has generally low levels of deprivation, there are significant area of deprivation in coastal urban areas.

Figure 1.6 highlights the most deprived areas of the South East Radial Area. While deprivation is relatively low in this area. there are some highly concentrated areas of significant deprivation in urban areas on the South Coast (and some areas in Medway).

Thanet is a particular hotspot for deprivation in the South East Radial Area. 35% of LSOA's in Thanet are amongst the top 10% most deprived areas of the UK. This is in stark contrast to Sevenoaks, Tonbridge & Malling, and Tunbridge Wells, which have no LSOA's in the top 10% of most deprived areas.

Poor transport connectivity can be a factor which significantly limits an area's prosperity, acting as a barrier to employment opportunities and services. It is therefore important that these areas are prioritised for transport investment. However, it is acknowledged that transport investment, on its own, is rarely enough to address long standing socioeconomic problems. That the majority of these deprived 'pockets' are in urban areas likely means that connectivity is not a major issue.

Air Quality

There are some air quality challenges in the South East Radial Area, particularly in urban areas and along major transport corridors.

Figure 1.7 shows the location of Air Quality Management Areas (AQMAs) in the South East Radial Area.

There are multiple AQMAs in this area, particularly around the urban areas close to Greater London (notably Gravesend) and along the A2 corridor from Medway to Canterbury. This corridor is used by high volumes of freight traffic and international tourist traffic, as it is the main connection to the port of Dover and its connection to France via the Channel Tunnel.

High levels of motorised travel, particularly diesel engine vehicles, are one of the highest contributors to poor air quality, and many of the poorest air quality is found where large interurban corridors and strategic roads pass through urban areas, where particulate matters cannot readily dissipate.

That said, in general, the South East Radial Area has relatively good air quality. This is thanks to the large number of rural and/or designated protected areas that are present in this area.
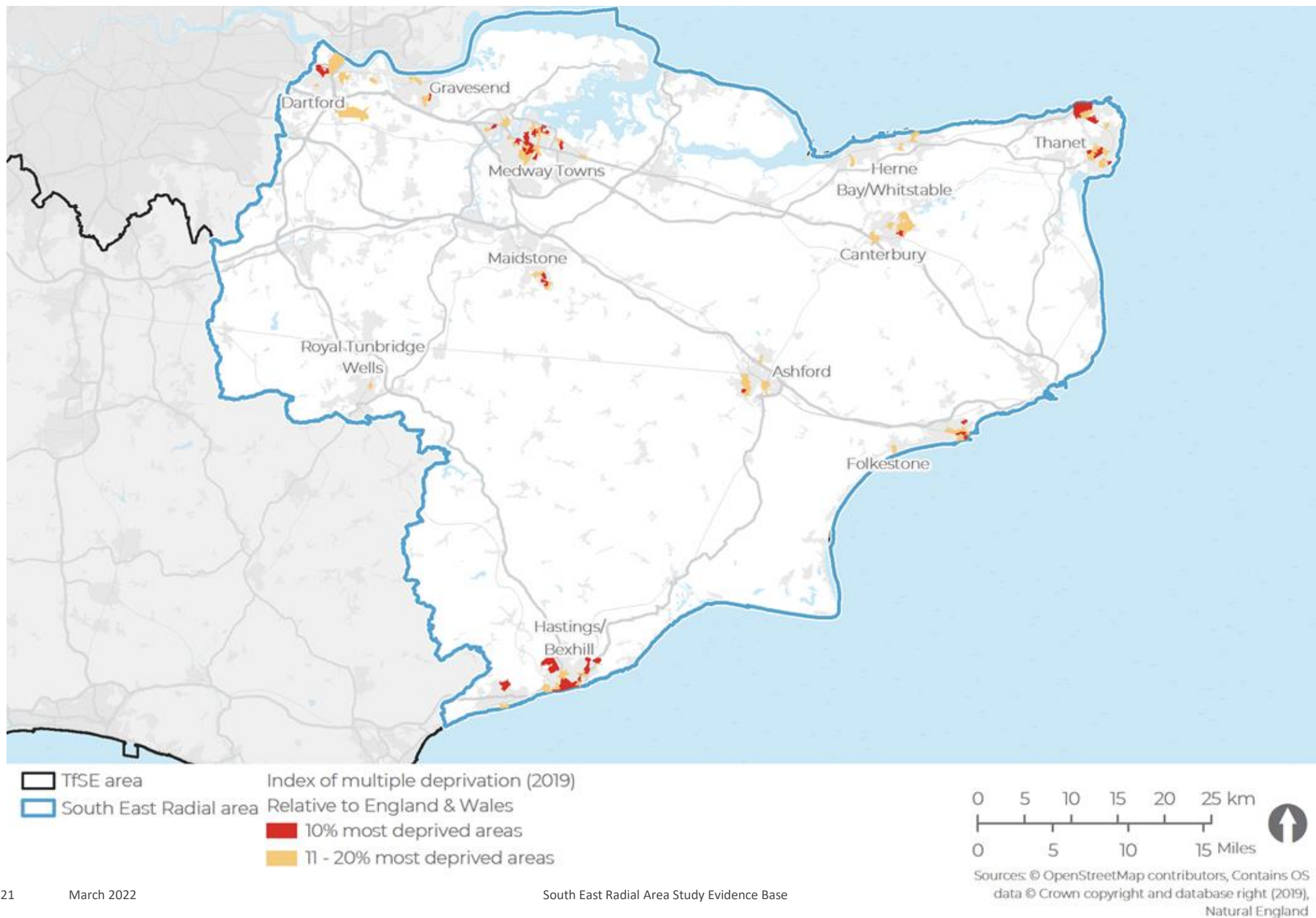
Safety

Highway collisions are a significant problem in some parts of the South East Radial Area, especially around the largest urban areas.

Figure 1.8 shows the location of collision clusters in the South East Radial Area**.** There are several hotspots which are distributed across the Radial Area, particularly in and around urban areas.
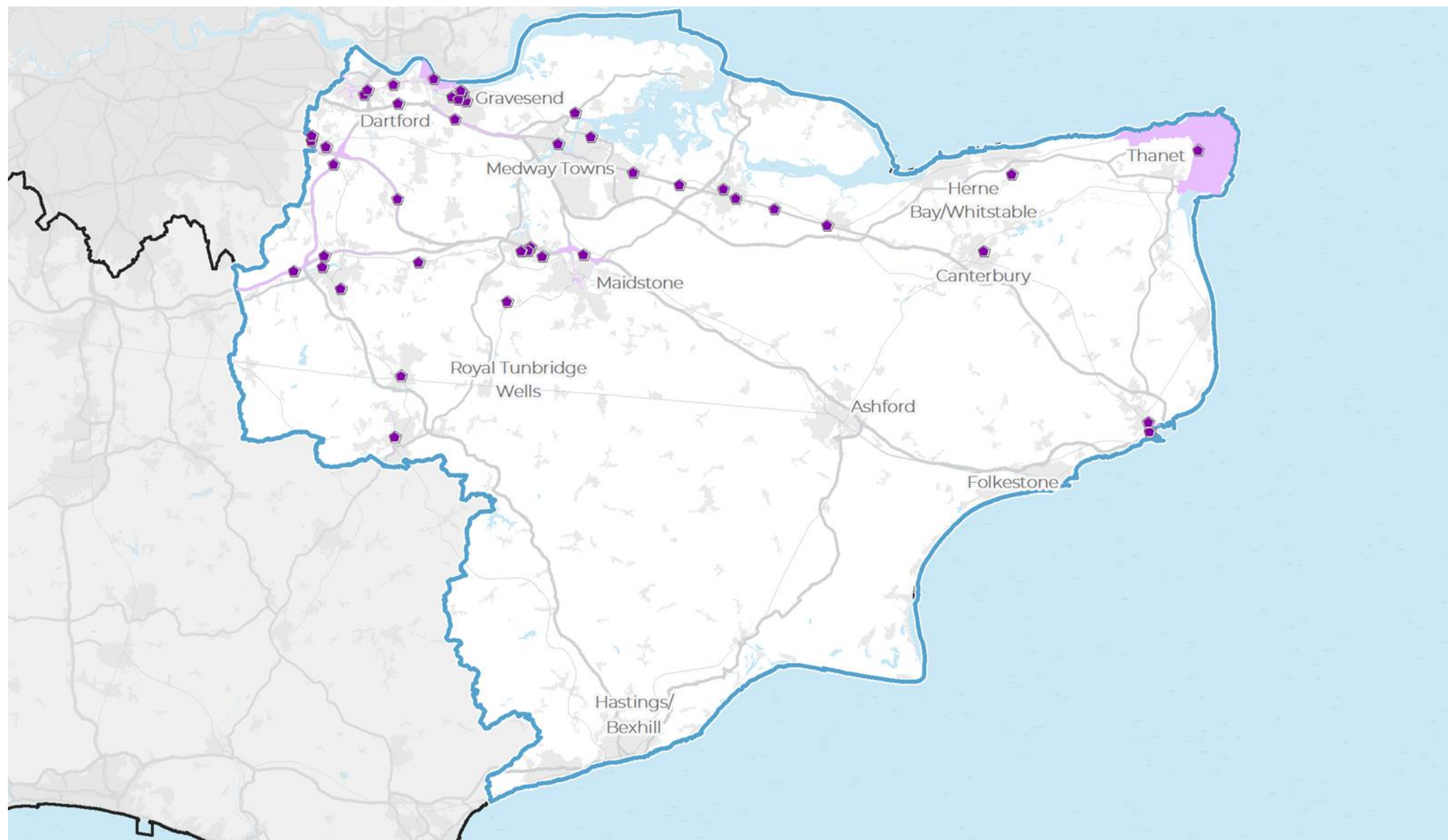
There are several accident clusters in Hastings/Bexhill and the Medway. There are also some clusters in town/city centres in Canterbury, Ashford, and Maidstone. There are also some clusters on major roads connecting the South East Radial Area to the South Central, such as by Royal Tunbridge Wells.

This relatively high concentration of collisions around urban areas is likely reflective of the fact that there are more junctions and intersections, and therefore more opportunities for collision around these urban areas. There are also high concentrations of traffic in these areas, which means that the probability of collisions is higher. Infrastructure interventions to improve road safety, appropriate speed limits, and lower car usage, is likely to improve the rates of accidents around these urban areas.

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Index of multiple deprivation (2019)
Relative to England & Wales

- TfSE area
- South East Radial area

10% most deprived areas
11 - 20% most deprived areas

0 5 10 15 20 25 km

0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2019),
Natural England

Figure 1.7: Air Quality Management Areas

Legend:
- TfSE area
- South East Radial area
- Air Quality Management Areas
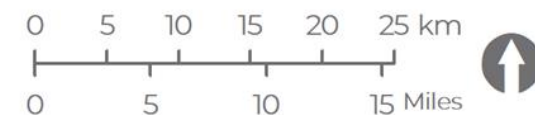
Map labels: Gravesend, Dartford, Medway Towns, Thanet, Herne Bay/Whitstable, Canterbury, Maidstone, Royal Tunbridge Wells, Ashford, Folkestone, Hastings/Bexhill

Scale: 0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

Figure 1.8: Collision hotspots

Gravesend
Dartford
Medway Towns
Herne Bay/Whitstable
Thanet
Canterbury
Maidstone
Royal Tunbridge Wells
Ashford
Folkestone
Hastings/Bexhill
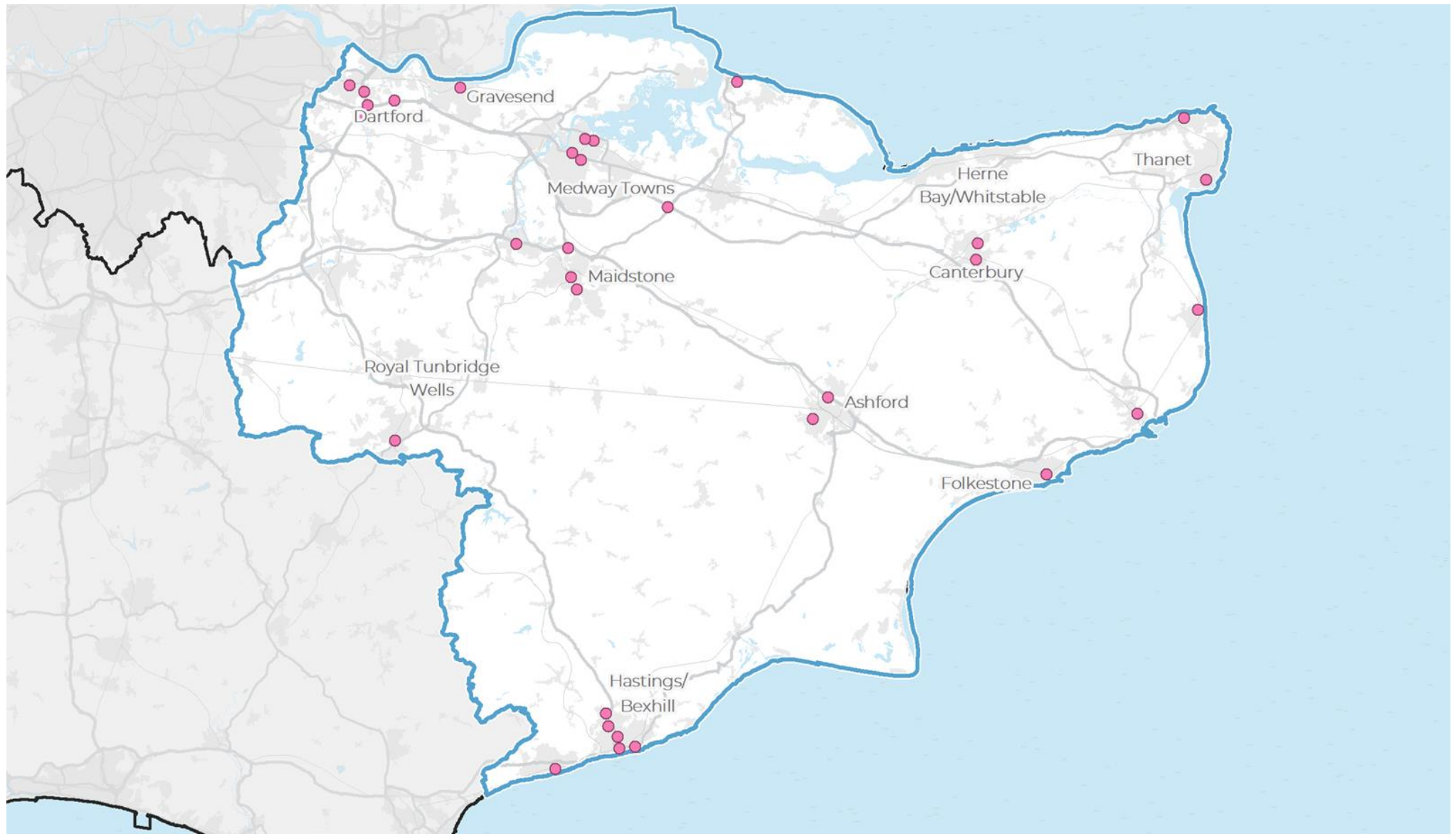
TfSE area
South East Radial area
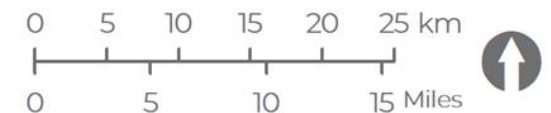Locations with more than 10 KSI collisions within a 500m radius (2016-19)

0   5   10   15   20   25 km
0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

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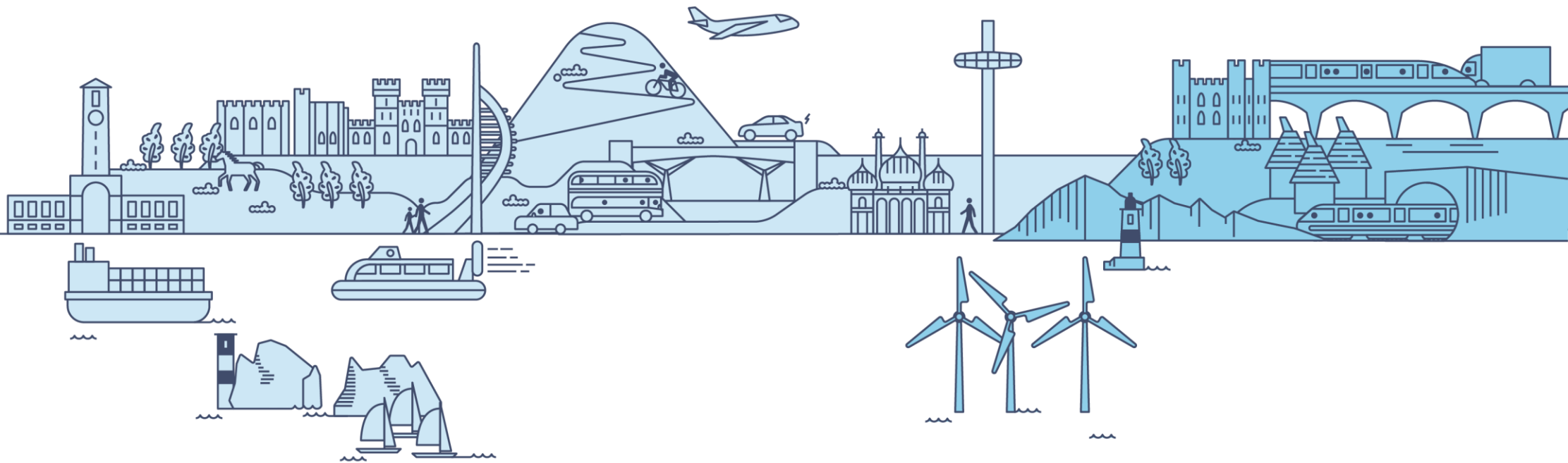
Part 1d
Environmental Context

Environmental Context

Protected Areas, Landscapes, Ecology

The South East Radial Area has a rich natural environment that is cherished by local residents and visitors.

Figure 1.9 shows Protected Areas and **Figure 1.10** shows Landscape Character Areas of the area. Key features of this area include:

- 3 Areas of Outstanding Natural Beauty;
- 5 Marine Conservation Areas;
- 5 Ramsar sites;
- 44 Special Protection Areas;
- 32 National Nature Reserves;
- 35 Special Areas of Conservation;
- 303 Sites of Special Scientific Interest; and,
- 7,570 Ancient woodland sites.

The South East (as a whole) has more than 60% of the nation's vegetated shingle resource; more than 15% of its coastal and floodplain grazing marsh; 16% of coastal lagoons; and over 10% of England's intertidal mudflats. It is also home to 40% of Europe's offshore chalk exposure, including well known landmarks at Beachy Head.

Heritage

The area has a very rich natural and historical heritage.

As **Figure 1.11** shows, the area has a rich cultural heritage. The area is home to:

- 1 registered battlefield: Battle of Hastings (1066);
- 1 Heritage Coast area (Dover/Folkestone Coastline);
- 71 registered parks and gardens;
- 35 special areas of conservation;
- 477 scheduled monuments; and,
- 20,701 listed buildings.

The area is also home to:

- Several historic towns and cities, including Royal Tonbridge Wells, Hastings, Whitstable, Tenterden, Broadstairs, and Rye;
- The East Kent Railway (Shepherdswell), and Kent and East Sussex Heritage Railway; and
- Cultural attractions such as the Broadstairs Dickens Festival, Dover Castle, and Canterbury Cathedral.

Providing access to and from these areas and events is fundamental for the region's development and wellbeing of citizens.

Flood Plains

**There are major flood risks on large sections of the corridor.**

As illustrated by **Figure 1.12**, in addition to the flood risks along the coast, the corridor is home to numerous rivers, contributing to several areas at high risk of flooding.

This is particularly true of Romney Marsh, the Isle of Sheppey, and the area around the river Stour.
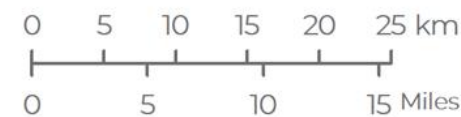
There is a consensus in the scientific community that incidents of extreme weather will only increase as the impact climate change starts to materialise globally, meaning that there is an increasing likelihood of severe flooding in the area.

TRANSPORT FOR THE **South East**

Figure 1.9: Protected Areas
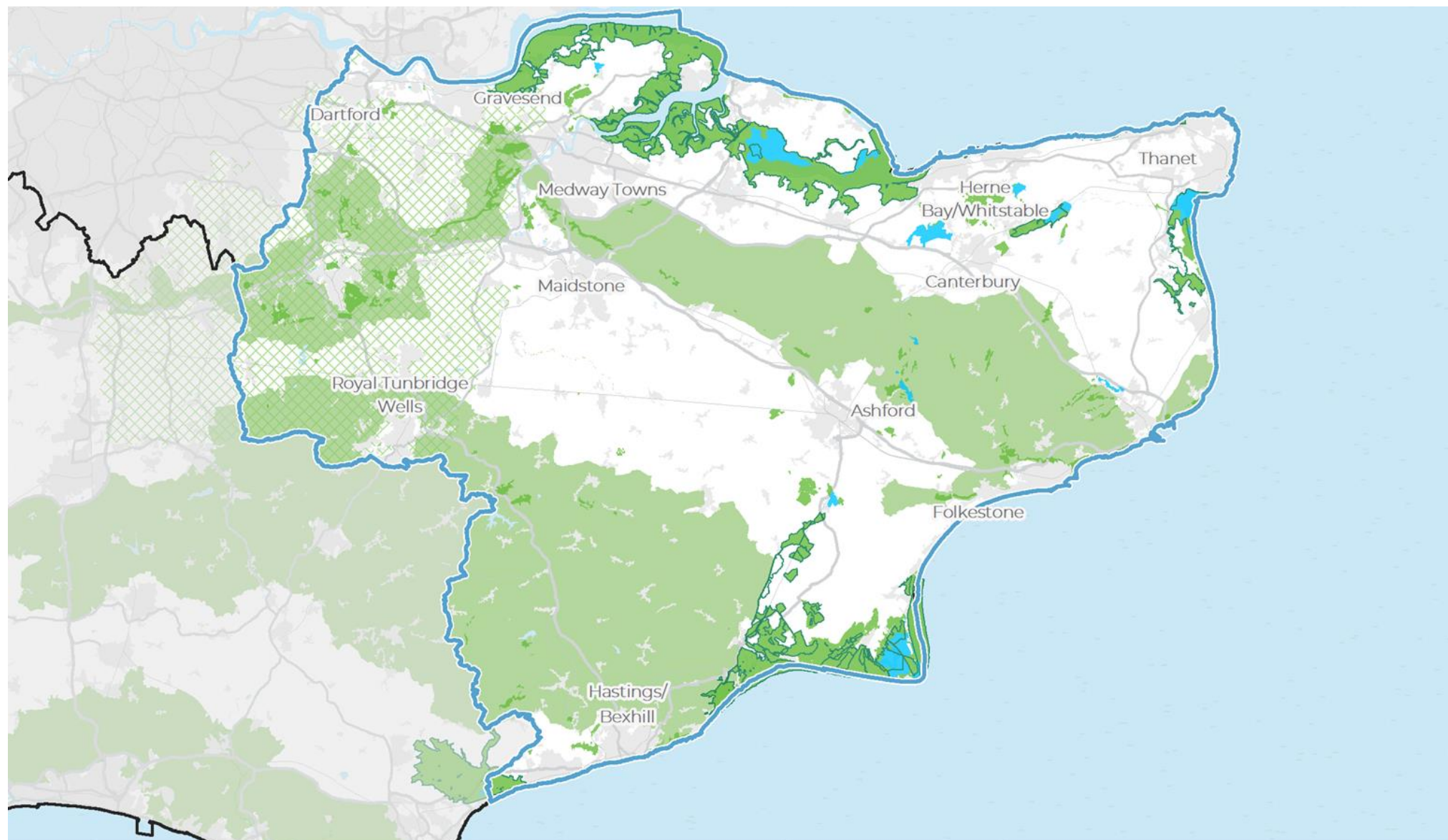
Legend:
- TfSE area
- South East Radial area
- RAMSAR
- National Nature Reserve
- SSSI
- Greenbelt
- National Parks / AONB

Map labels: Dartford, Gravesend, Medway Towns, Thanet, Herne Bay/Whitstable, Maidstone, Canterbury, Royal Tunbridge Wells, Ashford, Folkestone, Hastings/Bexhill

Scale: 0 5 10 15 20 25 km / 0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

Figure 1.10: Landscape Character Areas
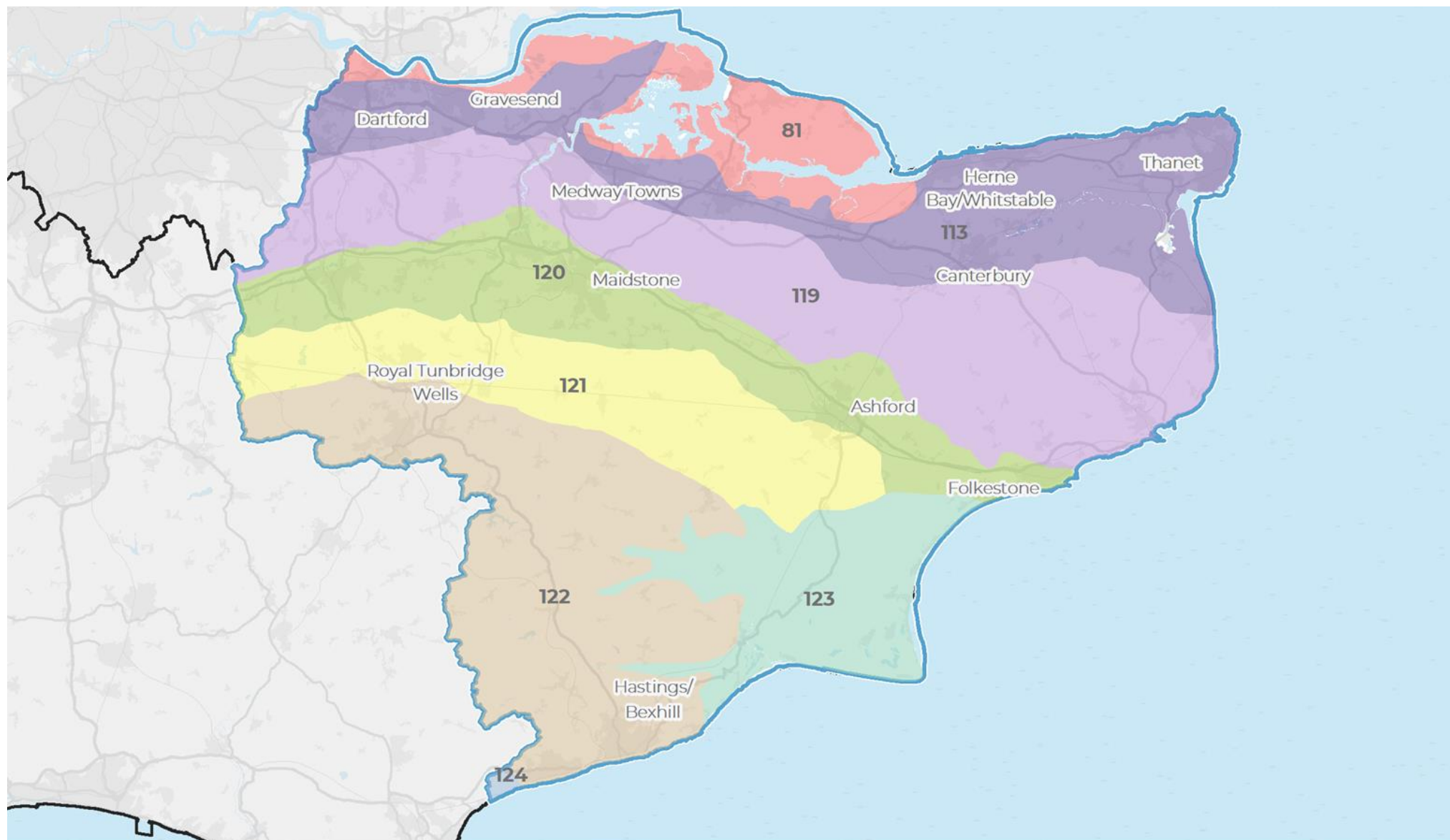
Legend:
- TfSE area
- South East Radial area
- National Character Area
- 81 Greater Thames Estuary
- 113 North Kent Plain
- 119 North Downs
- 120 Wealden Greensand
- 121 Low Weald
- 122 High Weald
- 123 Romney Marshes
- 124 Pevensey Levels

Map labels: Dartford, Gravesend, Medway Towns, Herne Bay/Whitstable, Thanet, Maidstone, Canterbury, Royal Tunbridge Wells, Ashford, Folkestone, Hastings/Bexhill
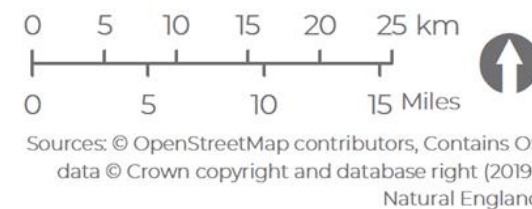
South East Radial Area Study Evidence Base

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TfSE area
South East Radial area
Grade 1 Listed Buildings
Ancient Scheduled Monument
Historic ParksGarden
World Heritage Site
National Parks / AONB

0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

Figure 1.12: Flood Risk Areas
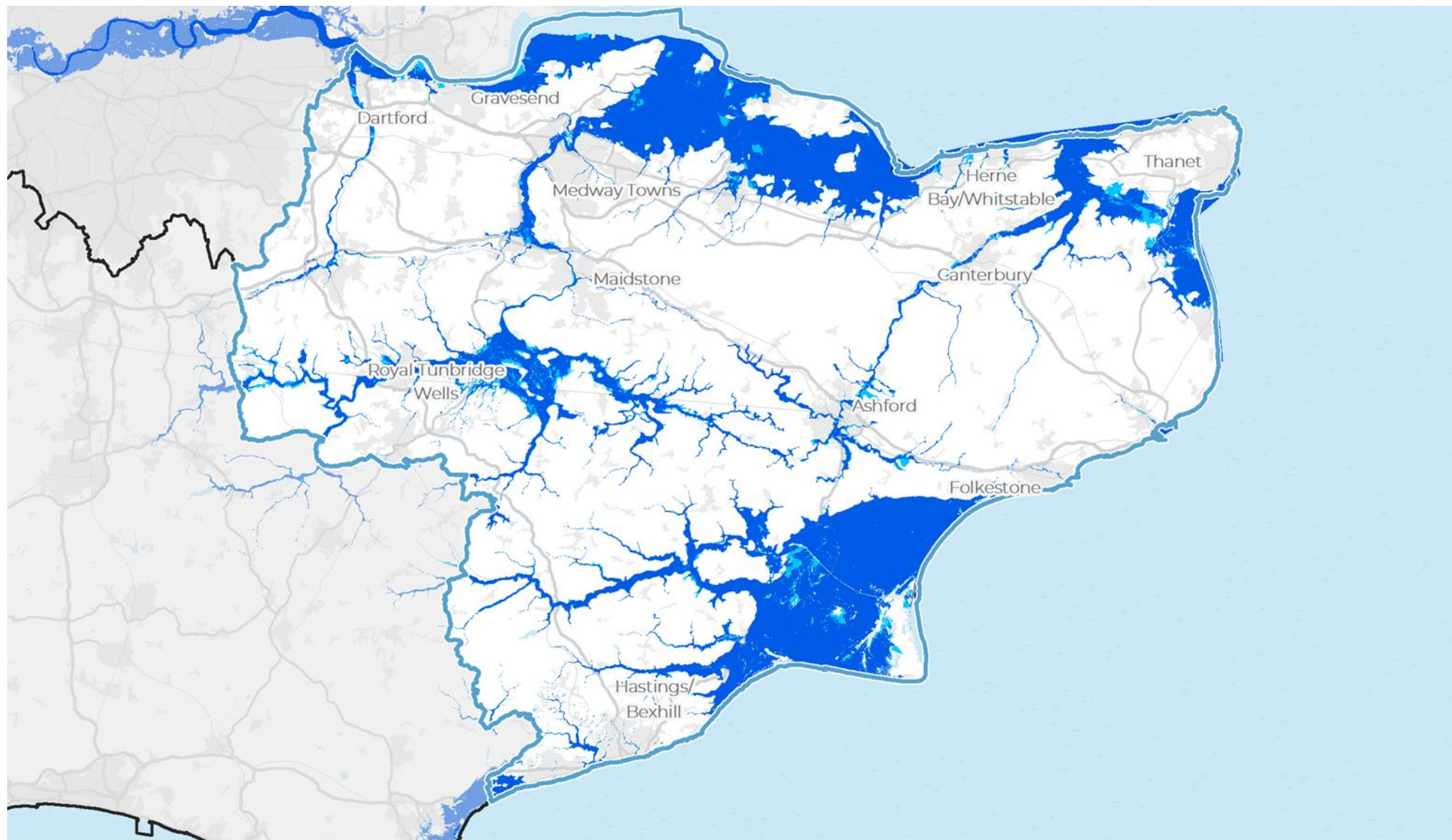
Legend:
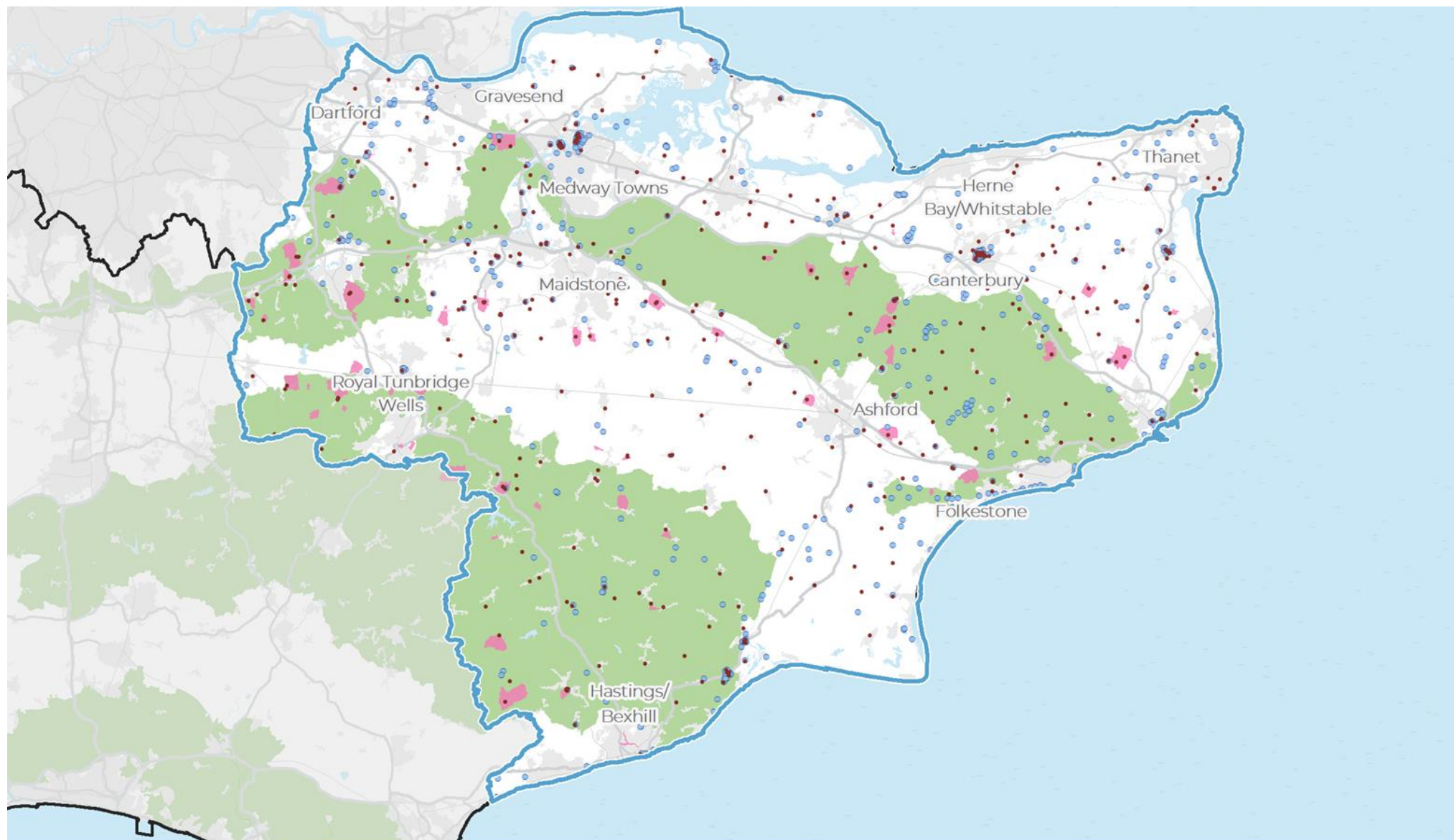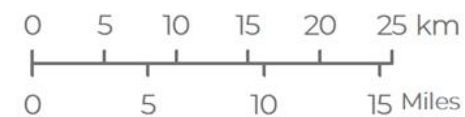- TfSE area
- South East Radial area
- Flood zone 3
- Flood zone 2

Zone 2 - 0.1 - 1% chance of flooding each year

Zone 3 - > 1% chance of flooding each year from rivers, or >0.5% chance of flooding each year from sea

Labelled locations: Dartford, Gravesend, Medway Towns, Herne Bay/Whitstable, Thanet, Maidstone, Canterbury, Royal Tunbridge Wells, Ashford, Folkestone, Hastings/Bexhill

Scale: 0 5 10 15 20 25 km / 0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

The Carbon Challenge

Current Carbon Emissions

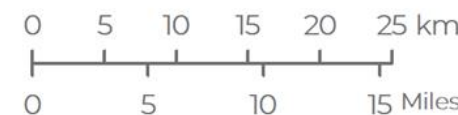**In 2018, the South East Radial Area's transport network emitted less carbon per capita than the South East overall.**

4,123kTCO$_2$ were emitted by transport in 2018 in the South East Radial Area, making up 44% of total carbon emissions. This is in line with other sub-regions in the South East. **Figure 1.13** provides a breakdown of transport carbon emissions per capita for each area of the South East.

48% of transport emissions are classed as minor road carbon emissions. This is higher than the South East average (58%), indicating lower coverage of major roads across the corridor, and different/lower levels of transport demand along these roads.

Current Carbon Trajectory

As Figure 1.14 shows, reaching a net zero carbon transport network by 2050 (yet alone 2030) will be very challenging.

Carbon emissions from transport in the South East are declining, but not at a rate fast enough to reach net zero by 2050 or 2030.

Economic growth and carbon emissions have become decoupled at both a national and regional scale (since 1990 the UK Economy has grown 72% while the country's carbon emissions have dropped by 42%) meaning that decarbonisation should be seen as an economic opportunity, rather than a burden.

At the time of writing in March 2021, 11 of the 15 local authorities (upper and lower tier) in the South East Radial Area have declared Climate Emergencies and set targets to reach net-zero carbon emissions by 2050 (in some cases, much earlier).

Figure 1.13: Transport Carbon Emissions South East Area

Transport Carbon Emissions per Capita (TCO2) excluding aviation and international shipping
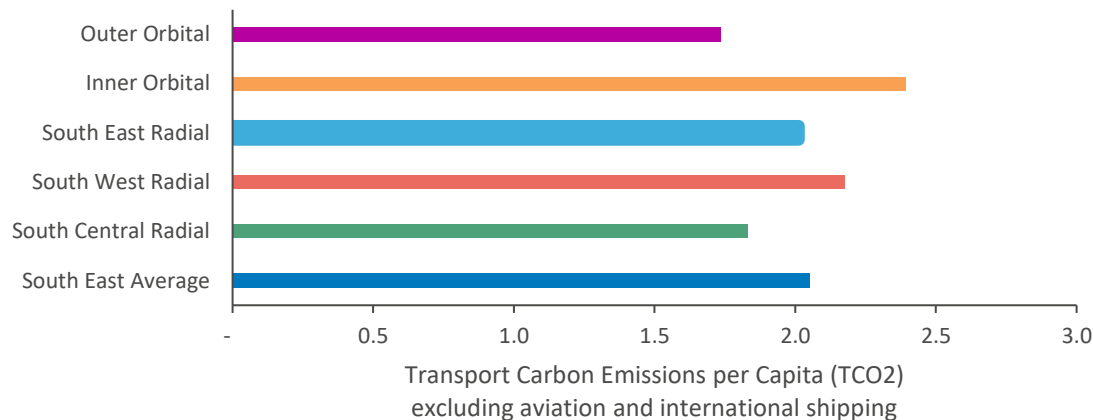
Source: BEIS (2018)

Figure 1.14: Carbon Emissions Trajectory for the South East Area

Source: BEIS/DEFRA (2019)

South East Radial Area Study Evidence Base

TRANSPORT FOR THE
South East
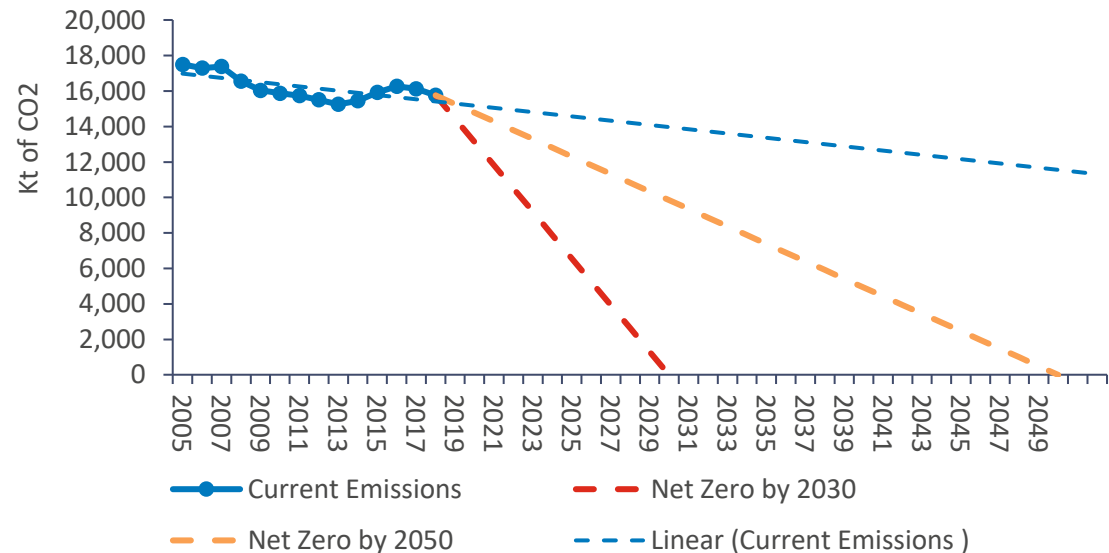
Part 1e
Transport Networks

Transport Networks

Highways

The South East Radial Area is heavily dependent on the M20/A20 corridor, and, to a lesser extent, the M2/A2 corridor.

Figure 1.15 shows the key highways in the South East Radial Area and highlights several congestion hotspots on the strategic and major road networks.

The M20/A20 is the primary artery along this corridor connecting London and the M25 with Maidstone, Ashford, and the ports of Folkestone and Dover. Another important radial corridor is the M2/A2, which connects London and the M25 with the Medway, Sittingbourne, Canterbury, and Dover.
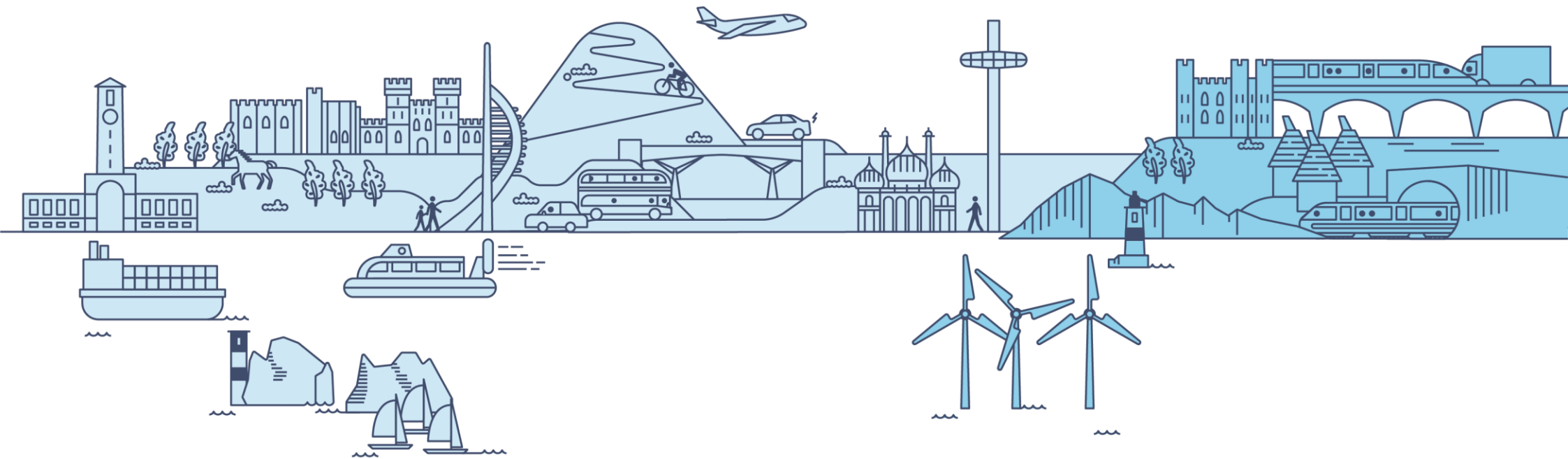
The M2/A2 performs a similar role to the M20/A20 in terms of connectivity to the ports of the South East coastline. Junctions with the A299 and A28 take traffic direct to Ramsgate and Margate, respectively. Congestion is significantly lower along the A299, which bypasses areas of severe congestion north of Canterbury on the A28.

The A21 and A26 connects Sevenoaks and Maidstone, respectively, to Tonbridge and on to Royal Tunbridge Wells. Whilst the A21 is well developed, the A26 is prone to congestion along its length.

Railways

The Southeastern Main Line, Chatham Main Line and High Speed 1 are the main regional rail corridors in the South East Radial Area.

The area is served by several railways. The key arteries include the South Eastern Main Line, which connects London to Dover Priory, via Sevenoaks and Ashford, and the Chatham Main Line, which runs from London to Dover Priory and Ramsgate. High Speed 1 – the Channel Tunnel Rail Link – is the UK's only purpose-built high-speed railway, which connects London with the Channel Tunnel via Ebbsfleet and Ashford International.

While most railways are electrified in the South East, the Marshlink line, which connects Ashford to Hastings, is currently limited to diesel operations. This is also the case for the freight line that serves the Hoo Peninsula.

Figure 1.16 presents the average speed of rail journeys along rail corridors in the South East Radial Area and highlights the disparity in speeds between High Speed 1 and other railways. **Figure 1.17** presents a map of the rail network and station usage in 2019/20.

Figure 1.18 gives a comparison of rail fares against journey time, highlighting the high cost per mile for passengers using HS1.

International Gateways

The South East Radial Area is home to the port of Dover, one of the world's busiest maritime passenger ports with 11.7 million passengers, and 2.6 million lorries passing through in 2017.

Figure 1.19a shows the international gateways in the area. Alongside the port of Dover, the Channel Tunnel connects high-speed passenger trains, a shuttle for road vehicles, and international freight trains between England and France. It has 2 single track tunnels, an average operating speed of 100 mph, and carried 21 million passengers and 23 million tonnes of freight in 2018. The Channel Tunnel is accessed by London via High Speed-1, and the port of Dover is accessible on both the Chatham Main Line and Southeastern Main Line.

Figure 1.19b shows the evolution of the number of passengers using Dover and the Channel Tunnel to access Europe.

The North Kent coast is also home to Medway freight port, which handled 13,141 tonnes of freight in 2019, and several smaller freight ports including Ramsgate, Whitstable, Sheerness, and London Thamesport.

Figure 1.19c shows the annual freight tonnage that passed through South East ports over time.

TRANSPORT FOR THE
South East

TfSE area
South East Radial area

Congestion
AM peak as % of night time speed

■ < 40%
■ 41% - 60%
■ 61% - 80%
■ 81% - 100%

0   5   10   15   20   25 km

0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2019),
Natural England

South East Radial Area Study Evidence Base
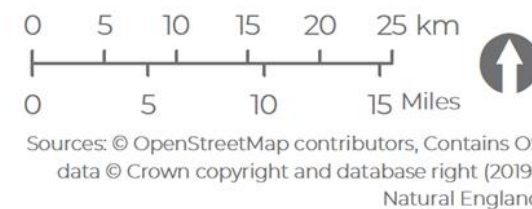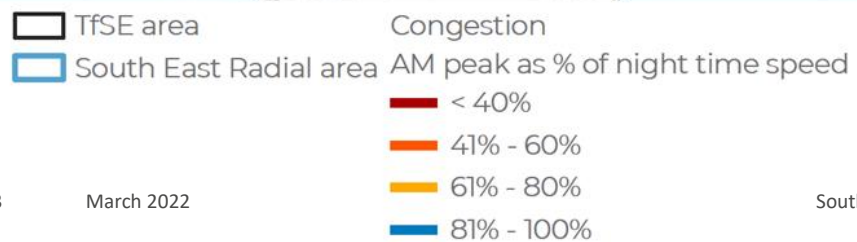
Figure 1.16: Average speed of rail journeys along rail corridors in the South East Radial Area

Legend:
- 60mph plus
- 50 to 59mph
- 40 to 49mph
- Under 40mph

TfSE area
South East Radial area

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2019),
Natural England
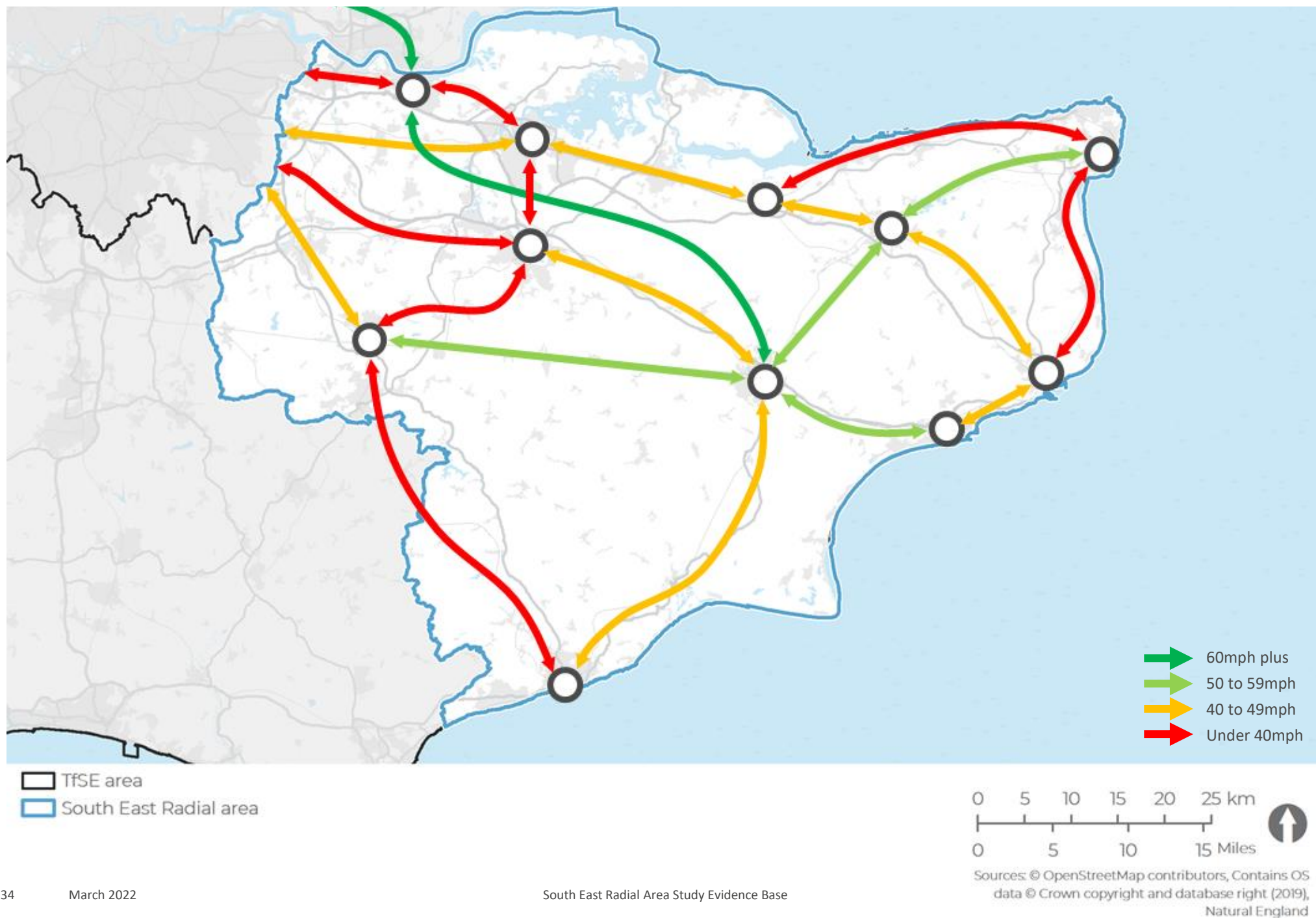
Figure 1.17: Railway Network and Station Entries and Exits

Gravesend
Dartford
Medway Towns
Maidstone
Royal Tunbridge Wells
Ashford
Herne Bay/Whitstable
Thanet
Canterbury
Folkestone
Hastings/Bexhill

TfSE area
South East Radial area

Station entries & exits (Total 2018/19)
•   < 250,000
•   250,001 - 500,000
•   500,001 - 750,000
●   750,001 - 1,000,000
●   1,000,001 - 2,500,000
●   2,500,001 - 5,000,000
●   > 5,000,000

0   5   10   15   20   25 km
0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

Figure 1.18: Rail Fare and Journey Time Comparison – Cost per Mile (KCC, 2015)

St Pancras International

Dartford
Gravesend
Ebbsfleet International
Medway Towns

Herne Bay/Whitstable
Thanet

London Gatwick
Maidstone
Canterbury

Royal Tunbridge Wells
Ashford International
Ashford
Channel Tunnel Terminal

Folkestone

Hastings/ Bexhill

Legend:

- TfSE area
- South East Radial area
- Eurotunnel station

Airports
- Hub
- Major
- Regional
- Local

Ports
- Major freight
- Major passenger
- Minor freight
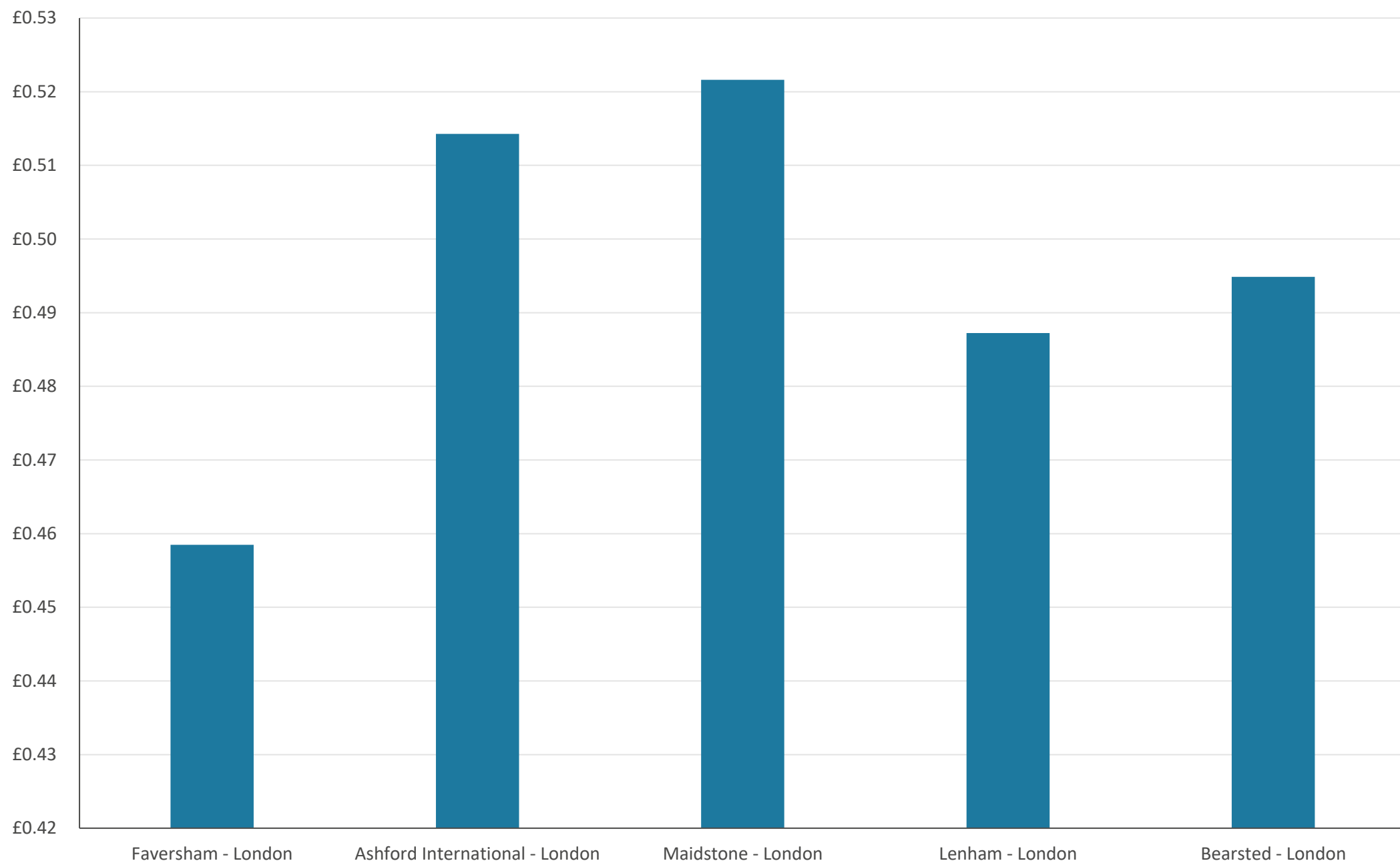- Minor passenger

0   5   10   15   20   25 km
0   5   10   15 Miles
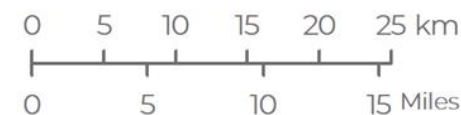
Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

Figure 1.19b: Annual passengers using ferry services from Dover and Channel Tunnel rail services (Eurotunnel and Eurostar)

Legend: Dover: (blue), Channel Tunnel (red)

Source DfT Maritime Statistics, SPAS0101 - All UK international short sea, long sea and cruise passenger movements, by port
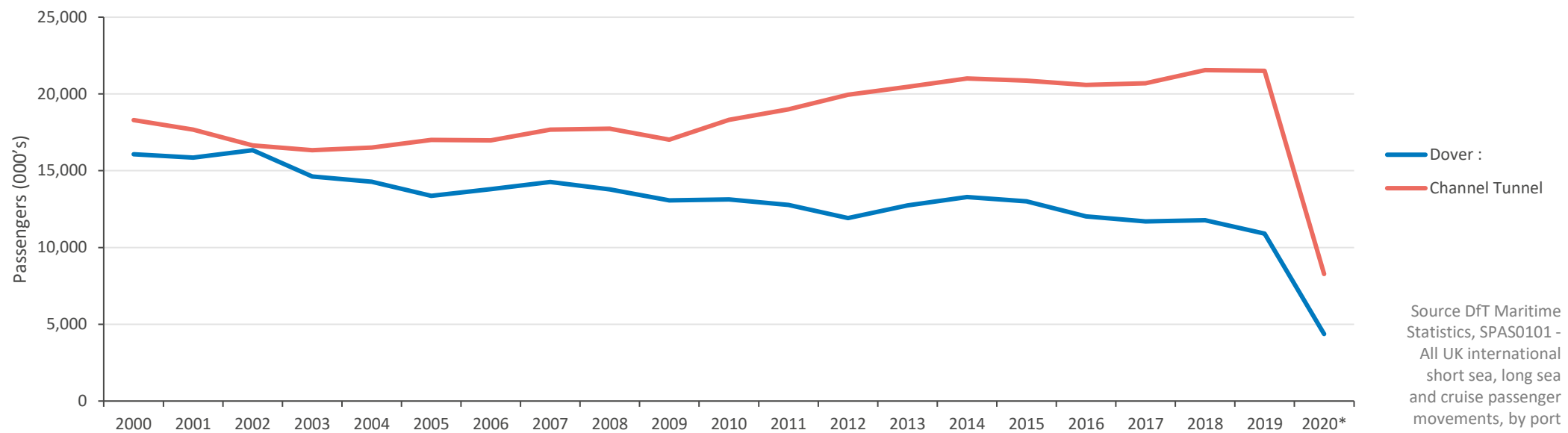
Figure 1.19c: Annual freight by tonnage passing through South East ports

Legend: Dover (blue), Medway (orange), Ramsgate (green)

Source DfT Maritime Statistics, PORT0101 - All UK major and minor port freight traffic, by port

South East Radial Area Study Evidence Base

Part 1f
Public Transport Access and Connectivity

Public Transport Access and Connectivity

Public Transport Access

As might be expected, urban areas generally enjoy better access to public transport services than rural areas – but there are some interesting exceptions.

Figure 1.20 shows the average minimum journey time to key services by public transport (plus walking). Key services are defined as providers of retail, education, and health services. Unsurprisingly, access to these services is much faster in urban areas compared to rural areas.

Figure 1.21 shows the difference in journey time between car and public transport access to the same services considered in Figure 1.19. Not only do people living in rural areas need to travel further for these services, the quality of public transport provision tends to be more limited.

Figure 1.22 shows trends in bus use in the South East Radial Area. This shows signs of decline across all three Local Transport Authorities. This may be related to the expansion of high speed and other rail infrastructure, encouraging the use of rail over bus for journeys of varying length. It may equally be related to a declining quality of bus infrastructure.

Catchment Analysis

To help better understand how Public Transport connectivity varies across the South East, we conducted analysis of Public Transport connectivity to key urban hubs.

Figures 1.23 and **1.24** show the areas of South East England that can be reached by public transport for the following large urban areas:

- Ashford (**Figure 1.23**);

- Hastings (**Figure 1.24**);

This analysis examines how easy/difficult it is to travel from a given point using public transport (and walking). Using isolines, it shows how far it is possible to travel by 0-30 minutes, 31-60 minutes, and 61-90 minutes.

In general, where this catchment covers a larger area, it is likely that this includes a wider range of opportunities and amenities.

The results of this analysis clearly show that that Public Transport provision is not equitable between urban areas across the South East.

Ashford has a good degree of connectivity in most directions, and the development of HS1 has significantly improved access to London by public transport. However, there are gaps in connectivity to the north and south of the city, across stretches of rural Kent.

Hastings – contrastingly – has a much more concentrated area of public transport connectivity. This is largely related to the geographical constraint of the coastline, as well as its relative distance from London in comparison to Ashford. It also suffers from a slow rail link with Tonbridge, travelling through a topographically challenging landscape.

Both areas exhibit challenges with connecting to rural hinterlands, to varying extents. The South East Radial Area Study will examine connectivity accessibility constraints between the urban and rural.

TRANSPORT FOR THE
South East

Figure 1.20: Public Transport Access
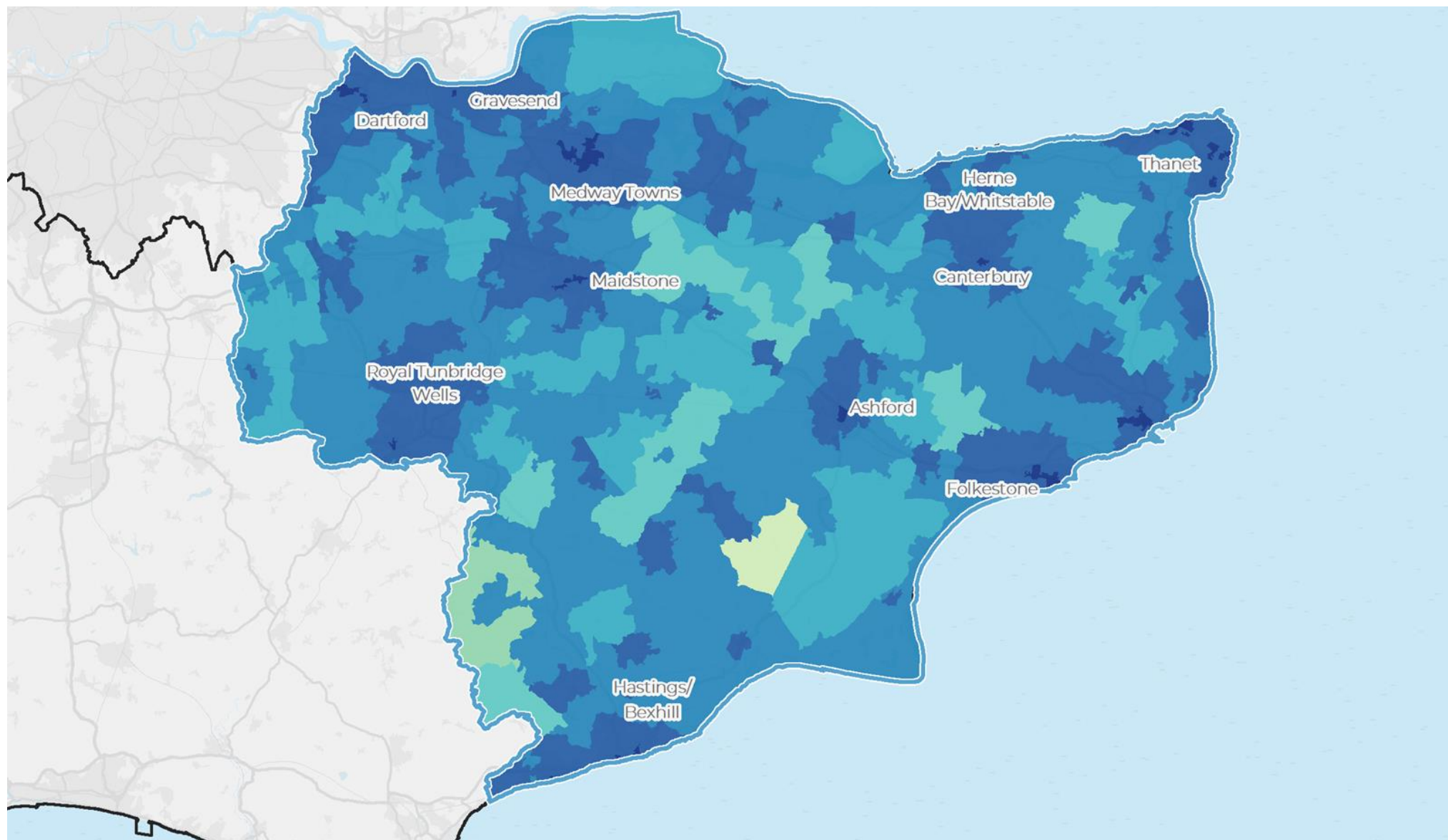
Legend:
- TfSE area
- South East Radial area
- Average minimum journey time to key services By public transport plus walking (mins)
  - 6 - 10
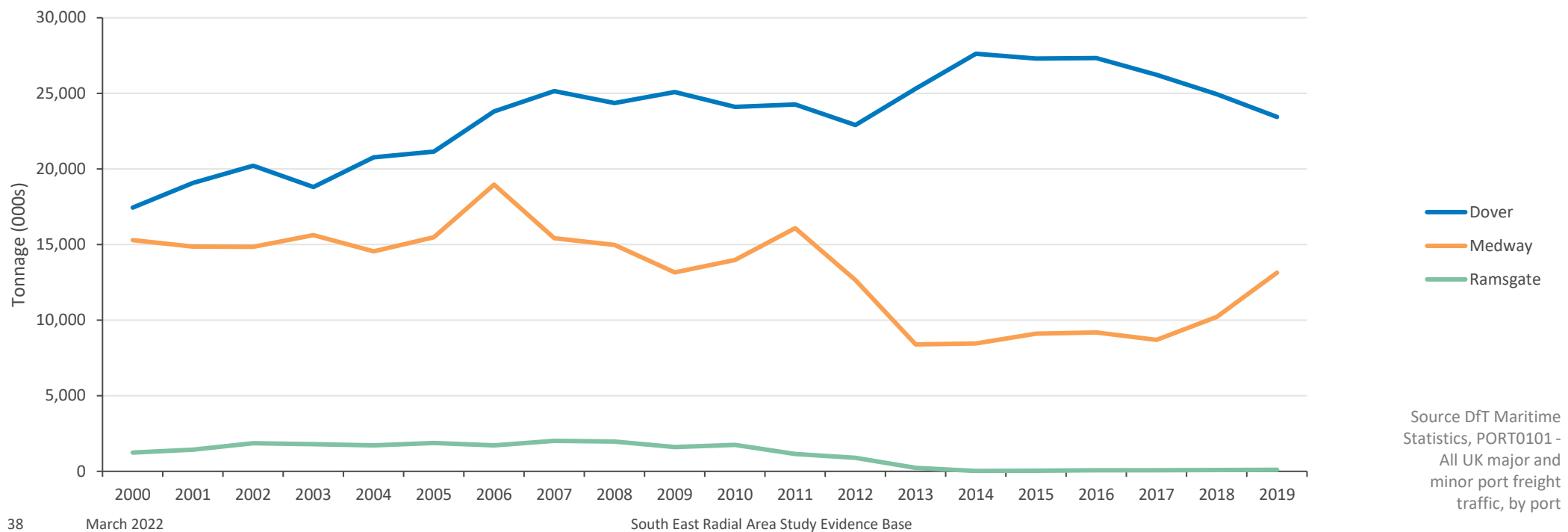 - 11 - 20
  - 21 - 30
  - 31 - 40
  - 41 - 50
  - 51 - 60
  - 61 - 70
  - 71 - 80

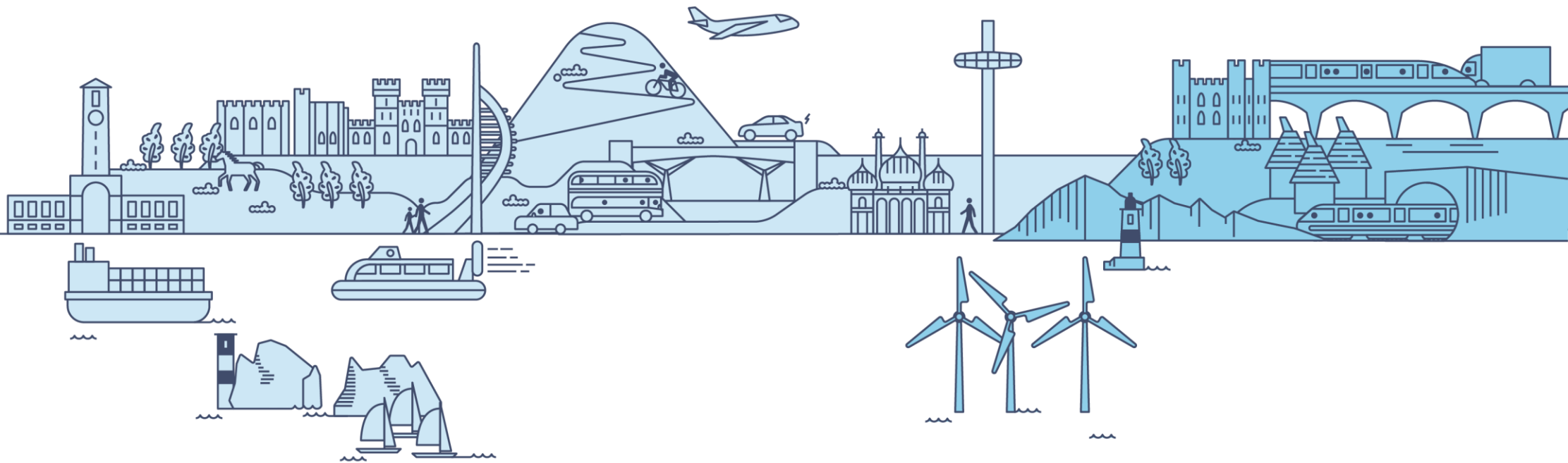Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

Figure 1.21: Comparison of Car and Public Transport options

Legend:

- TfSE area
- South East Radial area

Average minimum journey time to key services
Difference between driving and public transport

- Driving 0 - 10 mins slower
- Driving 0 - 5 mins faster
- Driving 6 - 10 mins faster
- Driving 11 - 20 mins faster
- Driving 21 - 30 mins faster
- Driving 31 - 40 mins faster
- Driving 41 - 50 mins faster
- Driving 51 - 65 mins faster
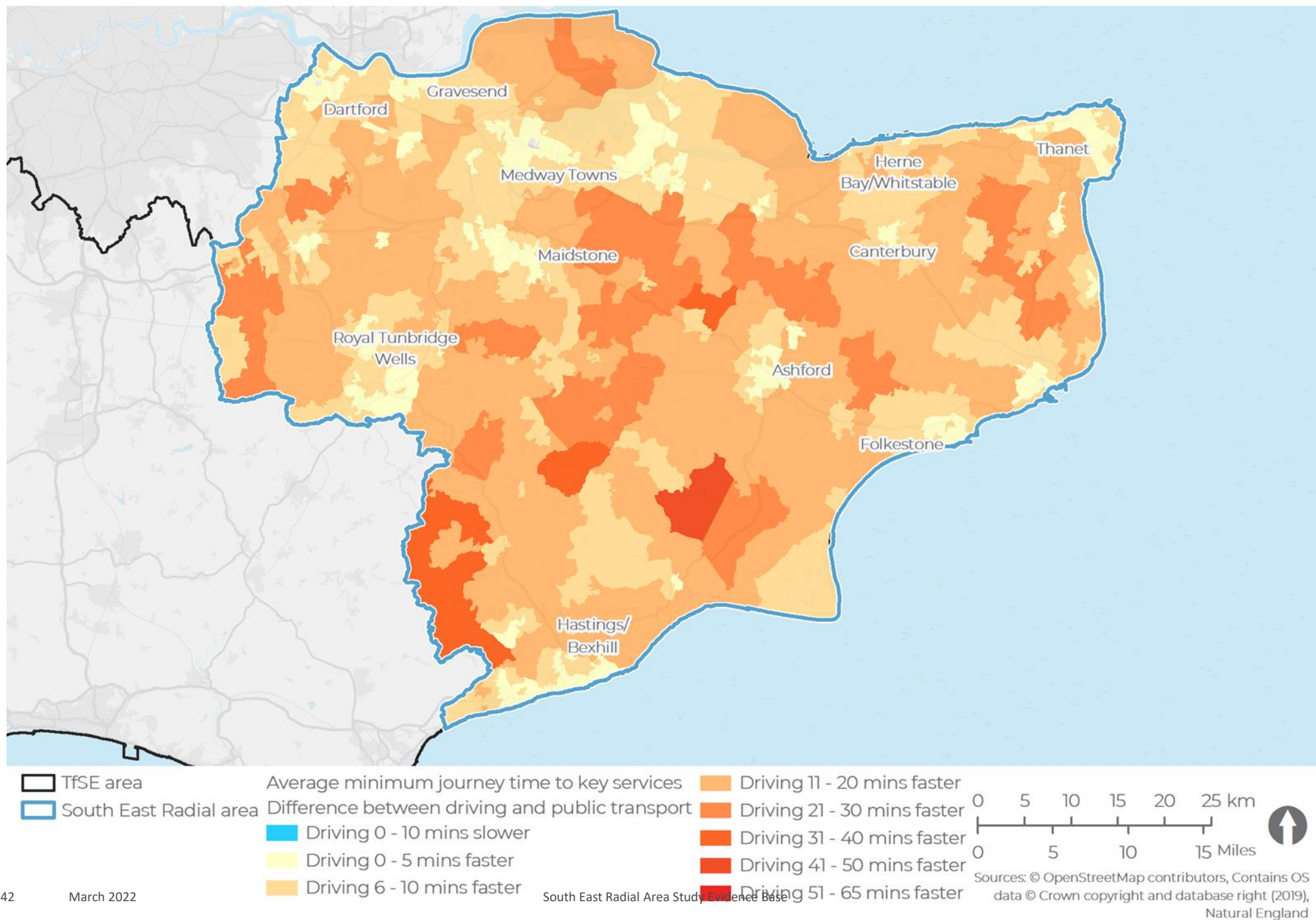
Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

Figure 1.22: Annual Bus Passengers for Local Transport Authorities in the South East Radial Area
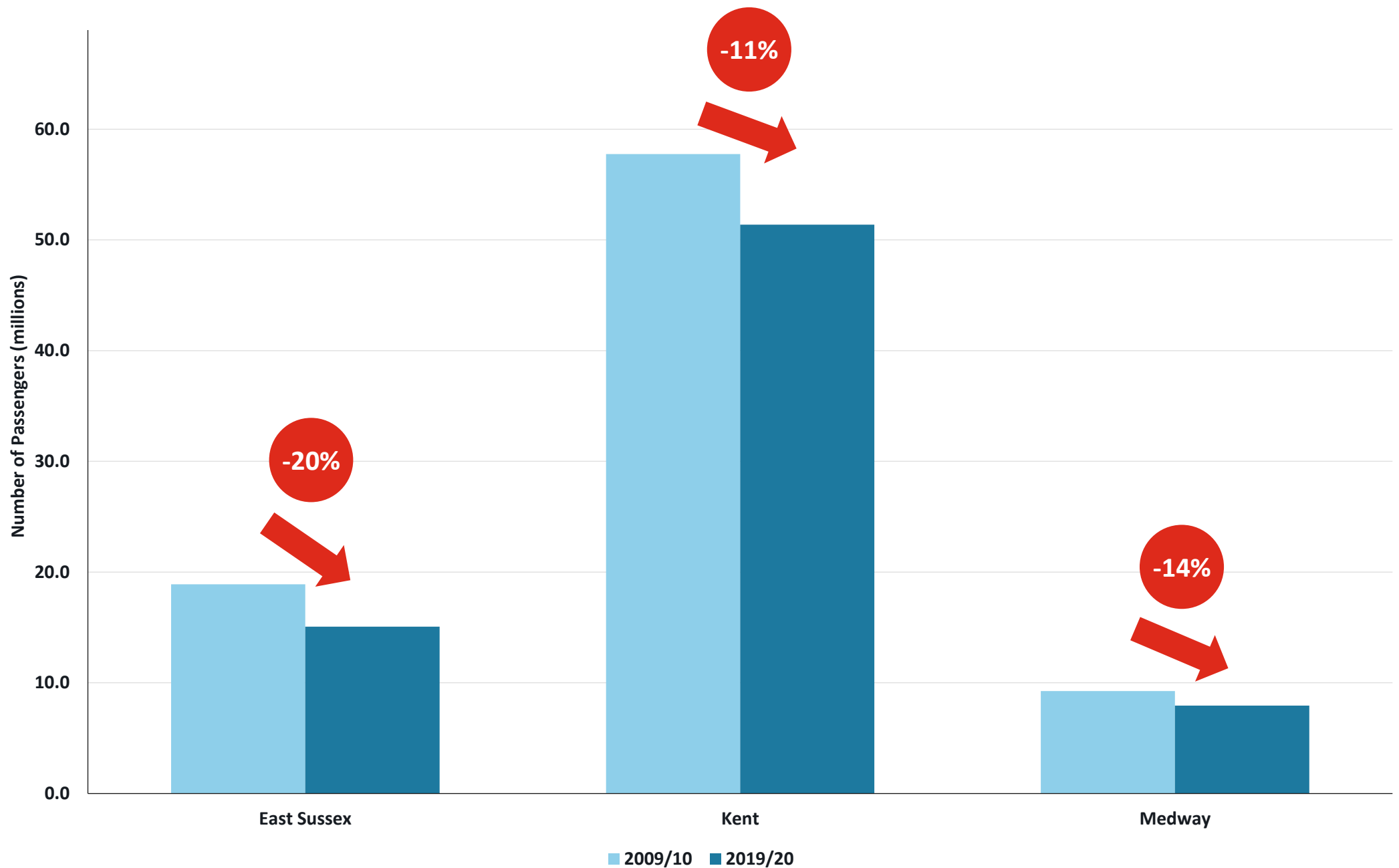
Legend

- - - Study Area

to Ashford

- 0 - 30 mins
- 31 - 60 mins
- 61 - 90 mins

Legend

- - - Study Area

to Hastings
- 0 - 30 mins
- 31 - 60 mins
- 61 - 90 mins

Base map data © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England, DCLG
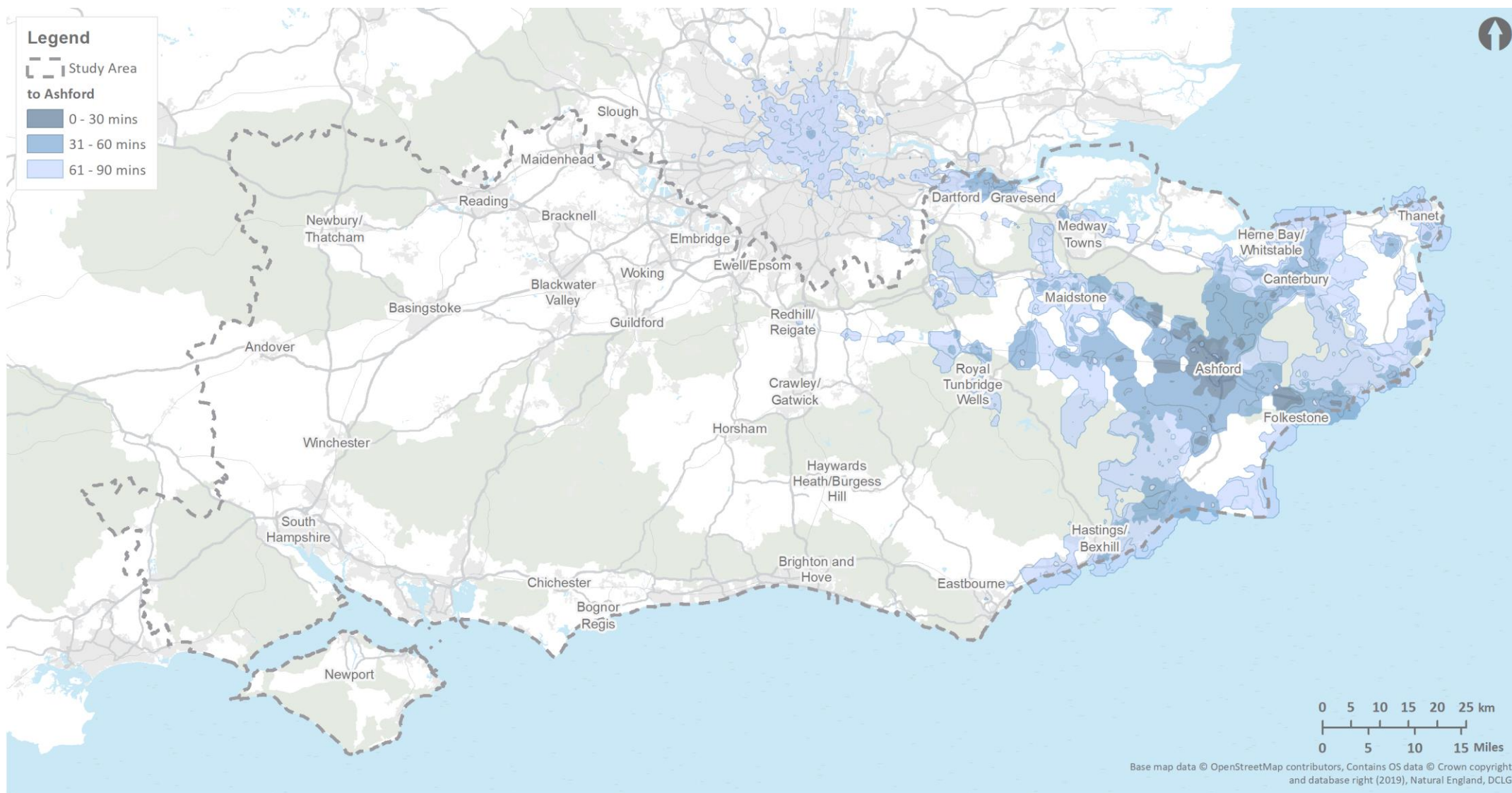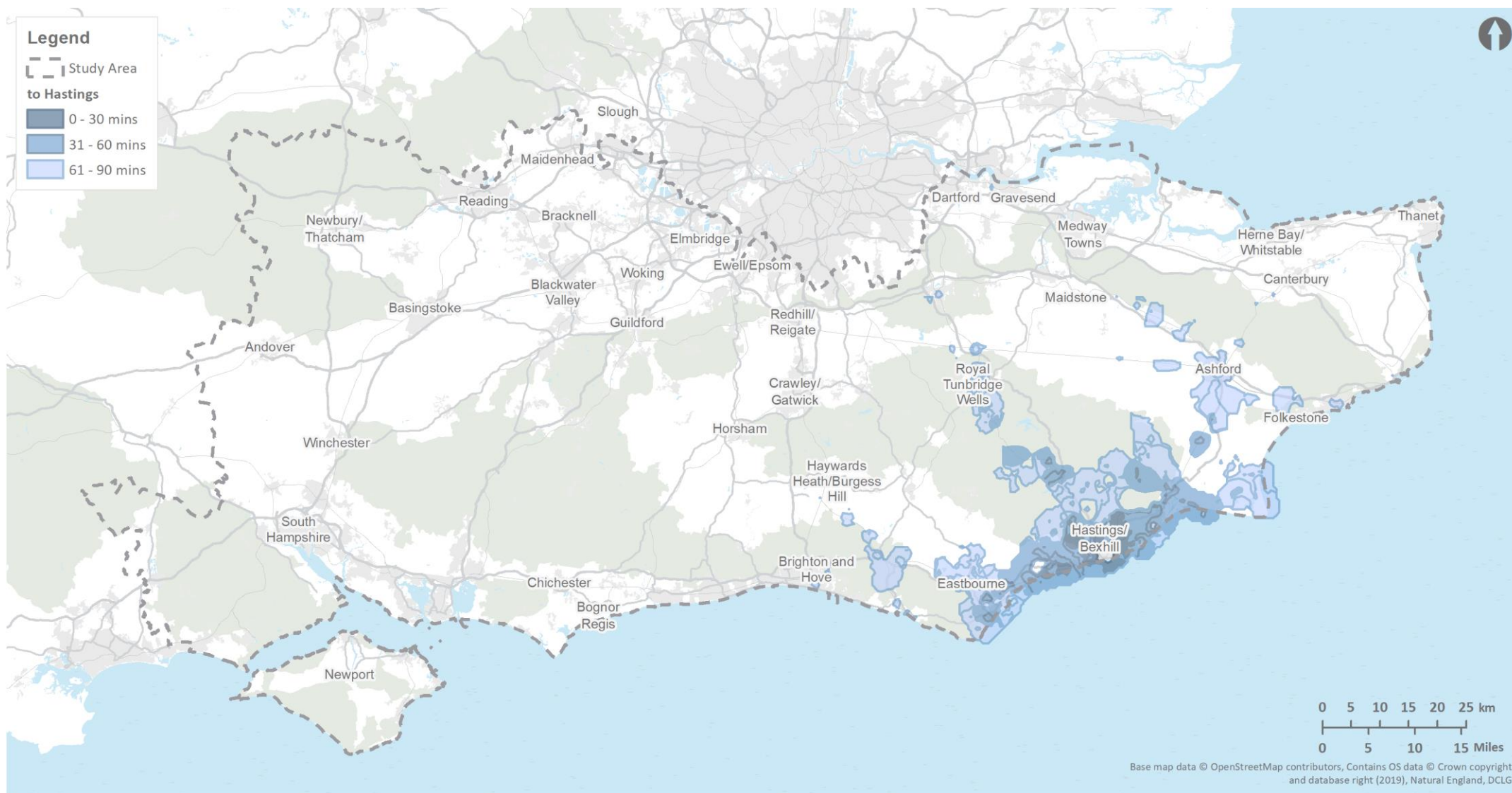
Part 1g
Travel To Work Analysis

Travel To Work Analysis

Travel To Work Flows

Major Travel To Work flows across the South East Radial Area, are particularly pronounced in the Inner Orbital area, and an east-west orientation.

Figures 1.25 – 1.28 show the largest Travel To Work Flows (sources from the 2011 Census) between the Major Economic Hubs in the South East. These include:

- Between Major Economic Hubs excluding South Hampshire and London (**Figure 1.25**);
- Between Major Economic Hubs and Greater London (**Figures 1.26** and **1.27**);

While these flows focus on trips to and/from work, they illustrate some of the pressures on transport networks during peak hours.

The figures above highlight significant reliance of Travel To Work flows on the M2/A2 and Chatham Main Line corridors. Another significant flow is Herne Bay/ Whitstable <> Canterbury.

Public Transport Provision

Public transport provision for the largest Travel To Work flows in the South East Radial Area is variable.

Figure 1.28 presents the largest Travel To Work Flows presented in Figures 1.24 – 1.29. The colours of the arrows represent Steer's assessment of the quality of public transport options serving each flow. This was determined by comparing journey times for car to public transport options. Flows with competitive public transport journey times are shown as having a "good" assessment, and those with much longer public transport journey times are shown as "poor".

A "poor" assessment does not necessarily mean the level of service provided by public transport is poor in terms of frequency and/or the quality of the ride. Instead, it reflects the difference in journey times between car and public transport. As things currently stand, current public transport services between Maidstone and Medway – which include relatively fast, high frequency bus services – are Statistics significantly slower than car journeys, while public transport is more "competitive" for journeys into Central London.

Travel To Work Catchments

Travel To Work Catchment areas tend to reflect the geography and quality of the transport networks that serve them.

Figures 1.29 – 1.39 show the catchment areas for the South East Radial Areas Major Economic Hubs. This shows output areas with ten or more journeys to/from the hubs on a typical working day. These include:

- Ashford (**Figure 1.29**);
- Canterbury(**Figure 1.30**);
- Dartford (**Figure 1.31**);
- Folkestone (**Figure 1.32**);
- Gravesend (**Figure 1.33**);
- Hastings/ Bexhill (**Figure 1.34**);
- Herne Bay/ Whitstable(**Figure 1.35**);
- Maidstone (**Figure 1.36**);
- Medway(**Figure 1.37**);
- Sittingbourne (**Figure 1.38**); and
- Thanet (**Fig.1.39**).

There is a marked difference in catchment shapes and sizes amongst coastal towns and cities, compared to those that are inland (and closer to London).

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

Figure 1.25: South East largest Travel To Work flows (Census, 2011) – excluding South Hampshire and flows to/from London
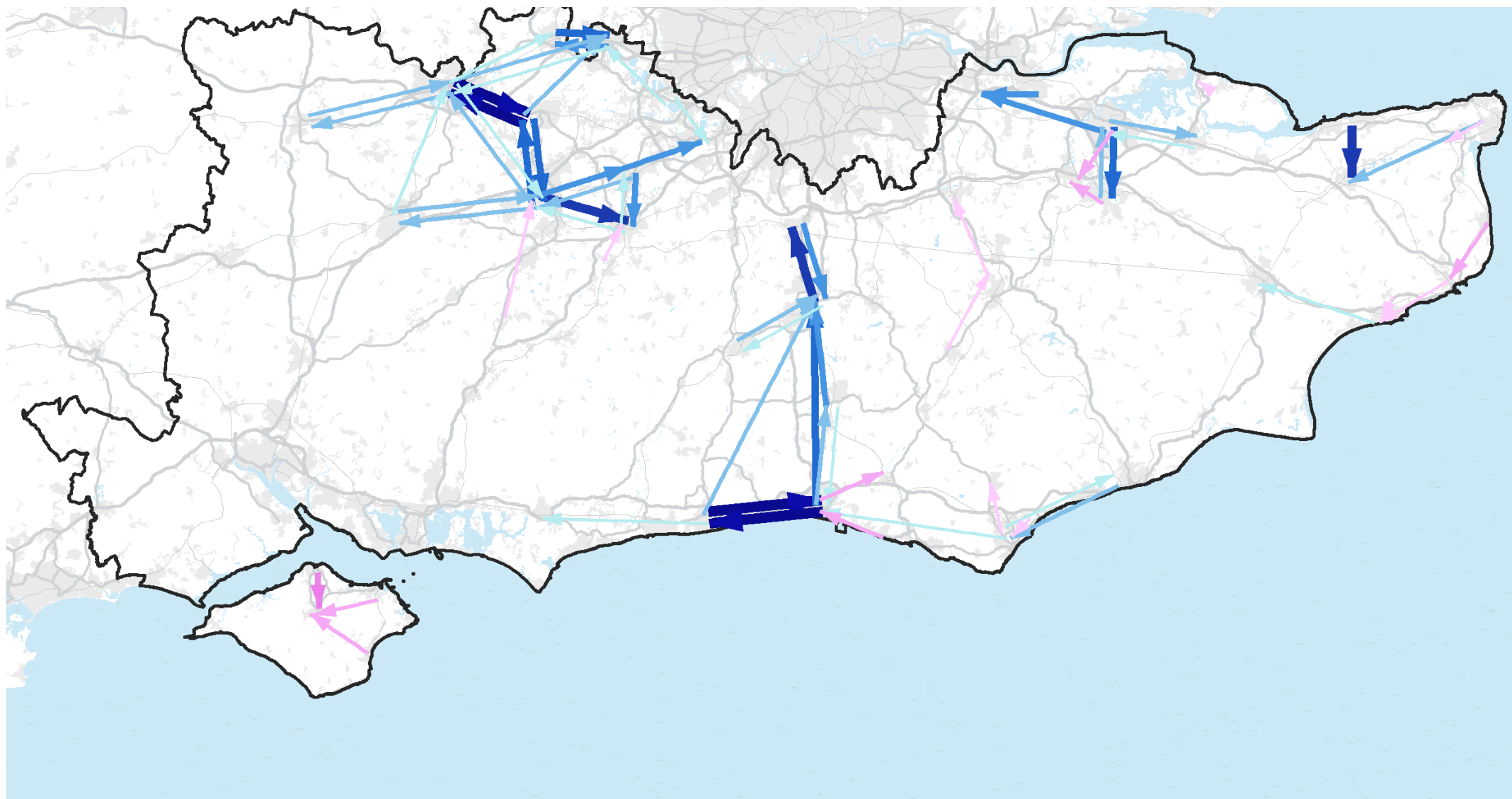
TfSE area

Flows of greater than 1,500 journeys between Major Economic Hubs and other built up areas

- 1,500 - 2,000
- 2,001 - 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- 5,001 - 6,000
- Greater than 6,000

Flows of greater than 1,500 journeys between Major Economic Hubs

- 1,500 - 2,000
- 2,001 - 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- 5,001 - 6,000
- Greater than 6,000

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

TfSE area   Flows of greater than 1,500 between Major Economic Hubs and London

→ 1,500 - 2,000   → 4,001 - 5,000
→ 2,001 - 3,000   → 5,001 - 6,000
→ 3,001 - 4,000   → Greater than 6,000

0 5 10 15 20 25 km
0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2019),
Natural England

Legend:

TfSE area

Flows of greater than 1,500 between London and Major Economic Hubs

- 1,500 - 2,000
- 2,001 - 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- 5,001 - 6,000
- 6,001 - 7,000

0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2019),
Natural England

TfSE area

Weighted assessment
- Good
- Good/Moderate
- Moderate
- Moderate/Poor
- Poor

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

TfSE area

Ashford - Inbound

Ashford - Outbound

0 5 10 15 20 25 km

0 5 10 15 Miles

Figure 1.30: Canterbury Travel to Work catchment area (Census, 2011)

TfSE area
Canterbury - Inbound
Canterbury - Outbound

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base
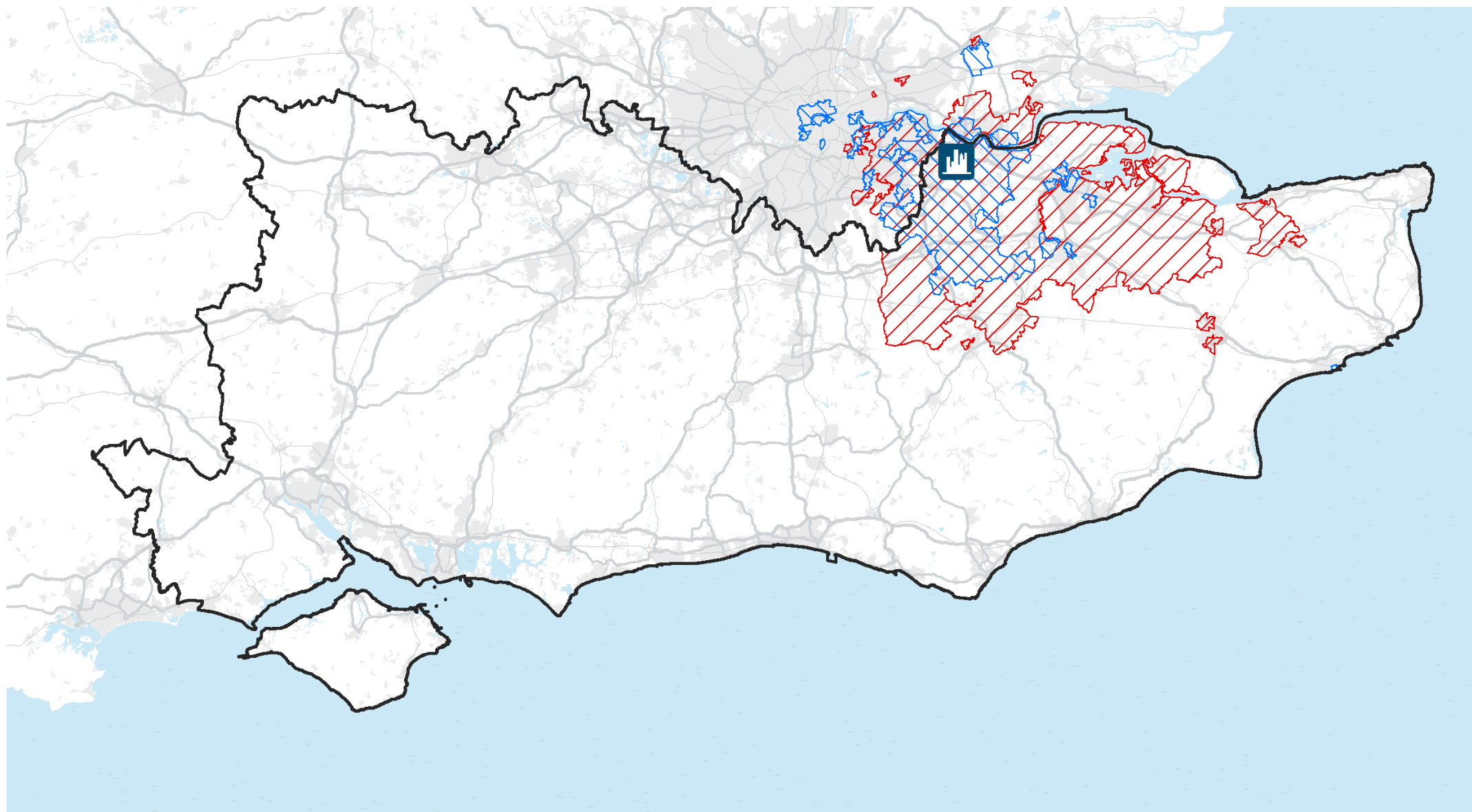
TfSE area

Dartford - Inbound

Dartford - Outbound

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England
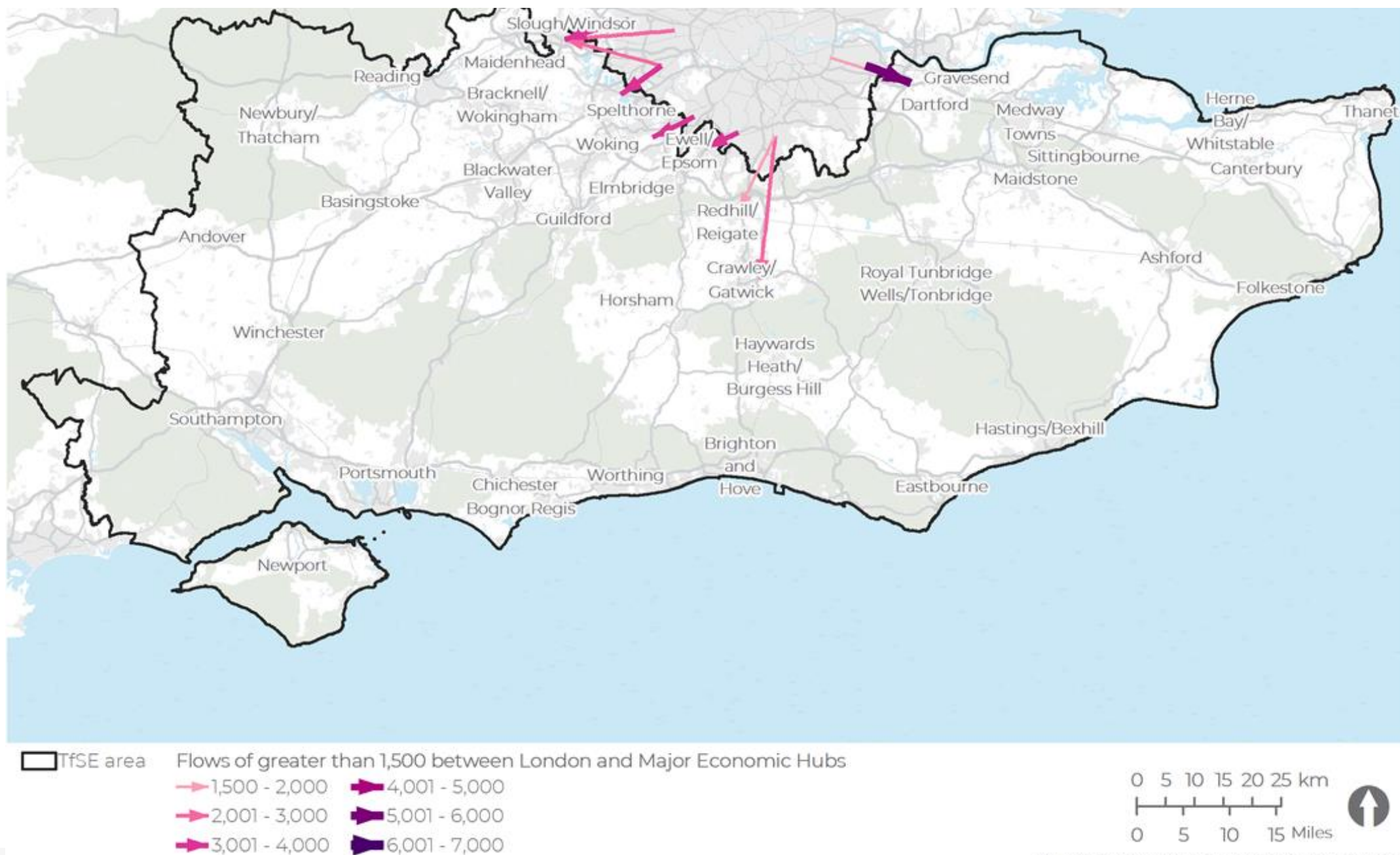
Figure 1.32: Folkestone Travel to Work catchment area (Census, 2011)

TfSE area

Folkestone - Inbound

Folkestone - Outbound

0 5 10 15 20 25 km

0 5 10 15 Miles

South East Radial Area Study Evidence Base

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2019),
Natural England

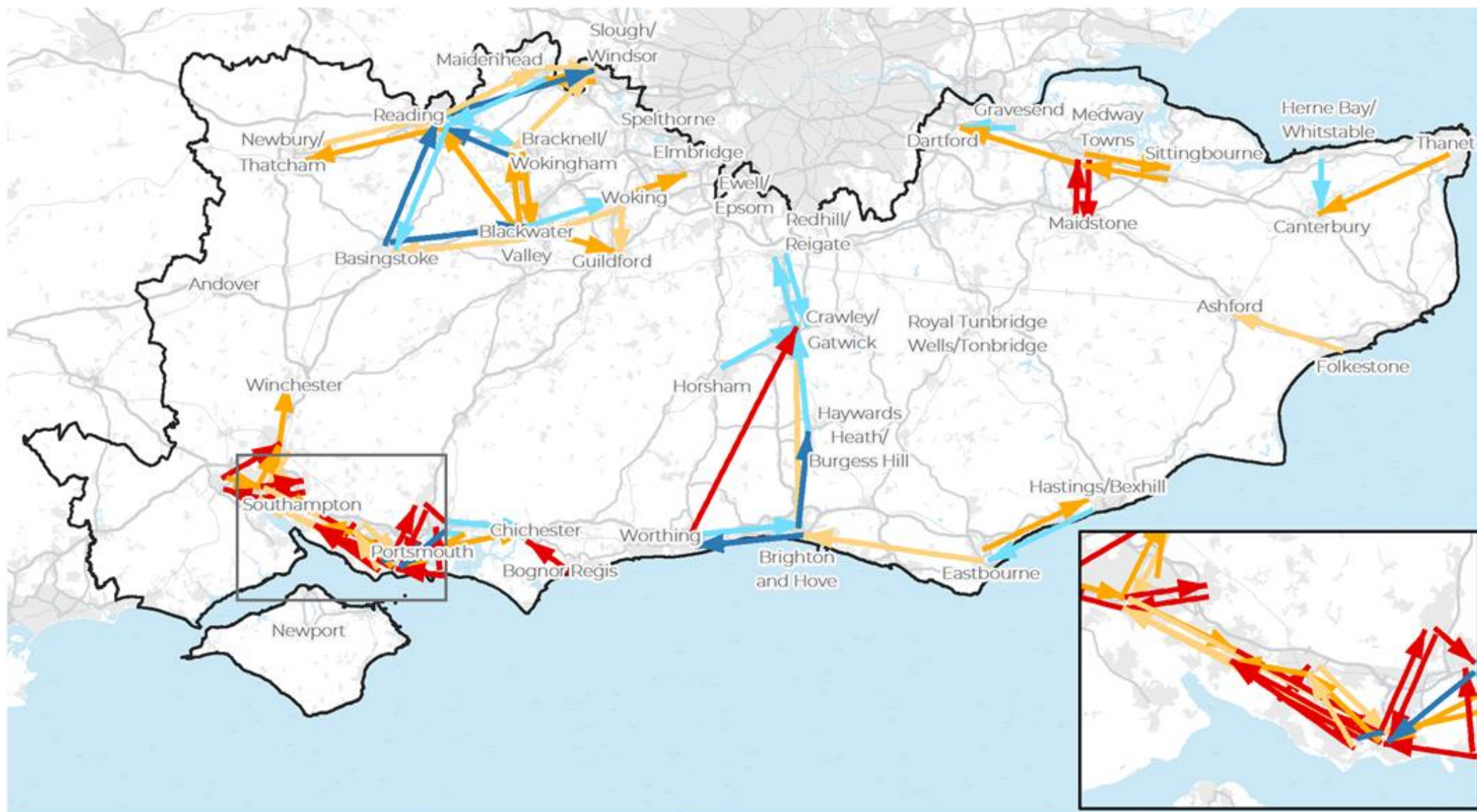**Figure 1.33:** Gravesend Travel to Work catchment area (Census, 2011)

TfSE area
Gravesend - Inbound
Gravesend - Outbound

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base
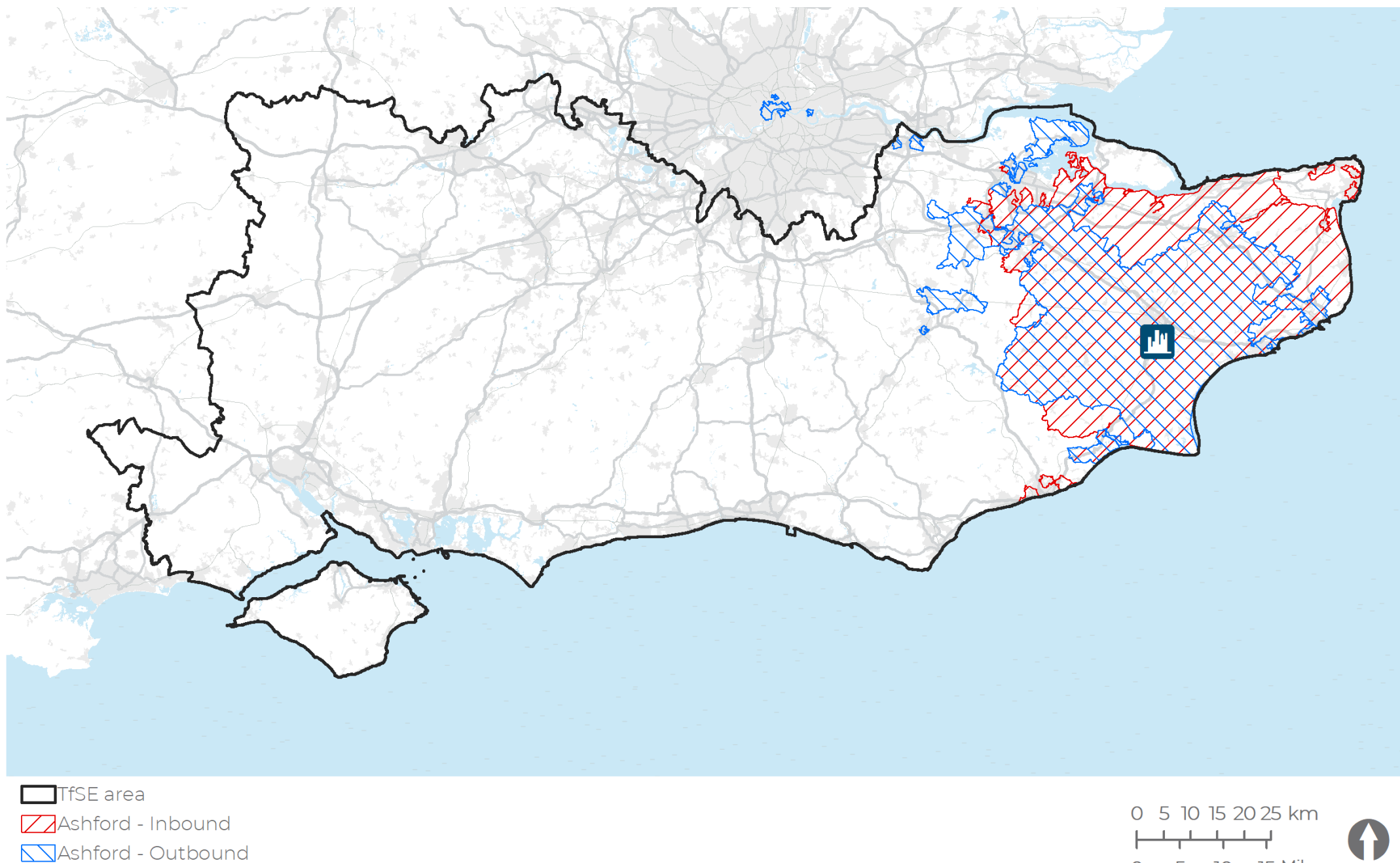
Figure 1.34: Hastings Bexhill Travel to Work catchment area (Census, 2011)

TfSE area

Hastings/Bexhill - Inbound

Hastings/Bexhill - Outbound
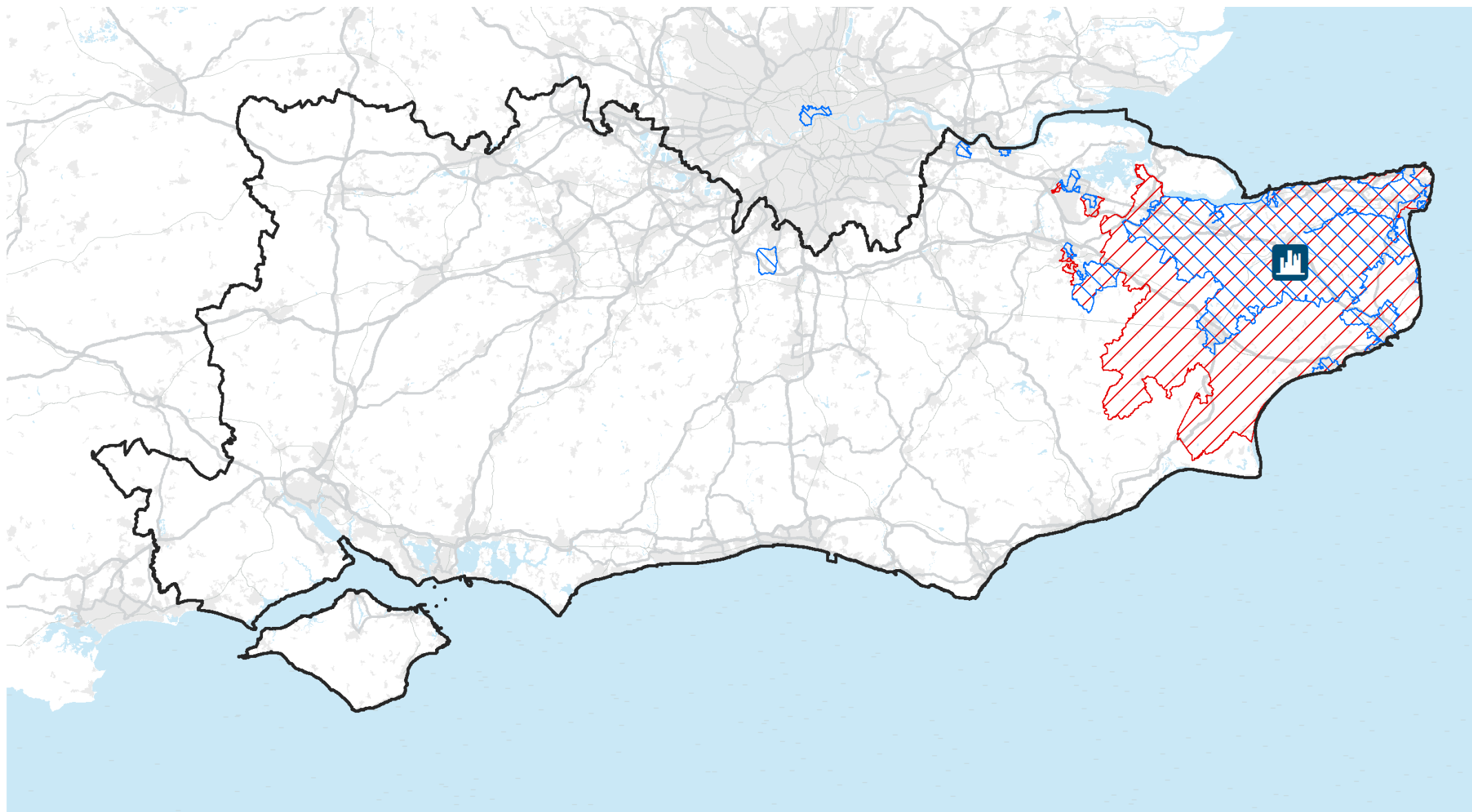
0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

TfSE area

Herne Bay/Whitstable - Inbound

Herne Bay/Whitstable - Outbound

0 5 10 15 20 25 km

0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS
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Natural England
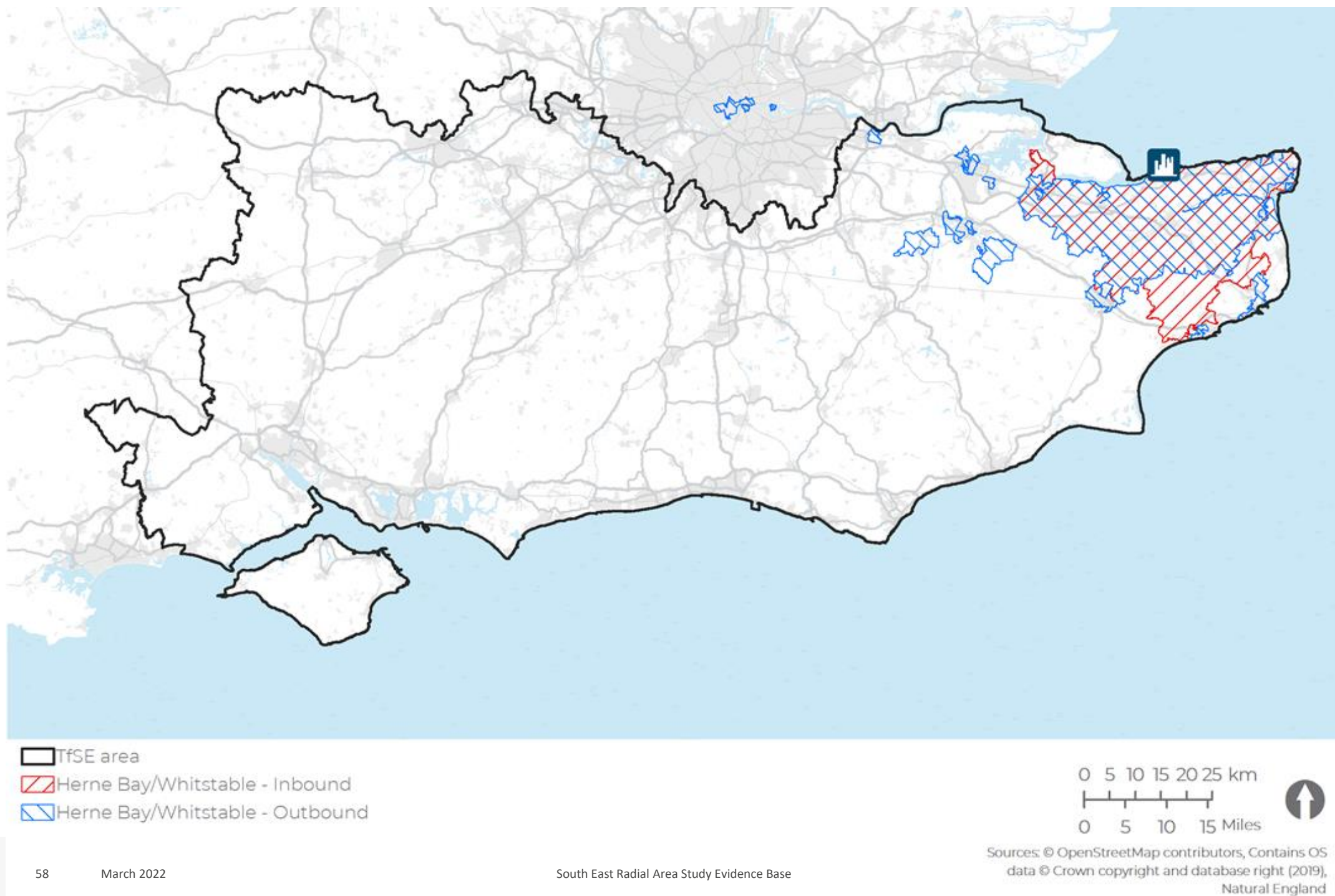
Figure 1.36: Maidstone Travel to Work catchment area (Census, 2011)
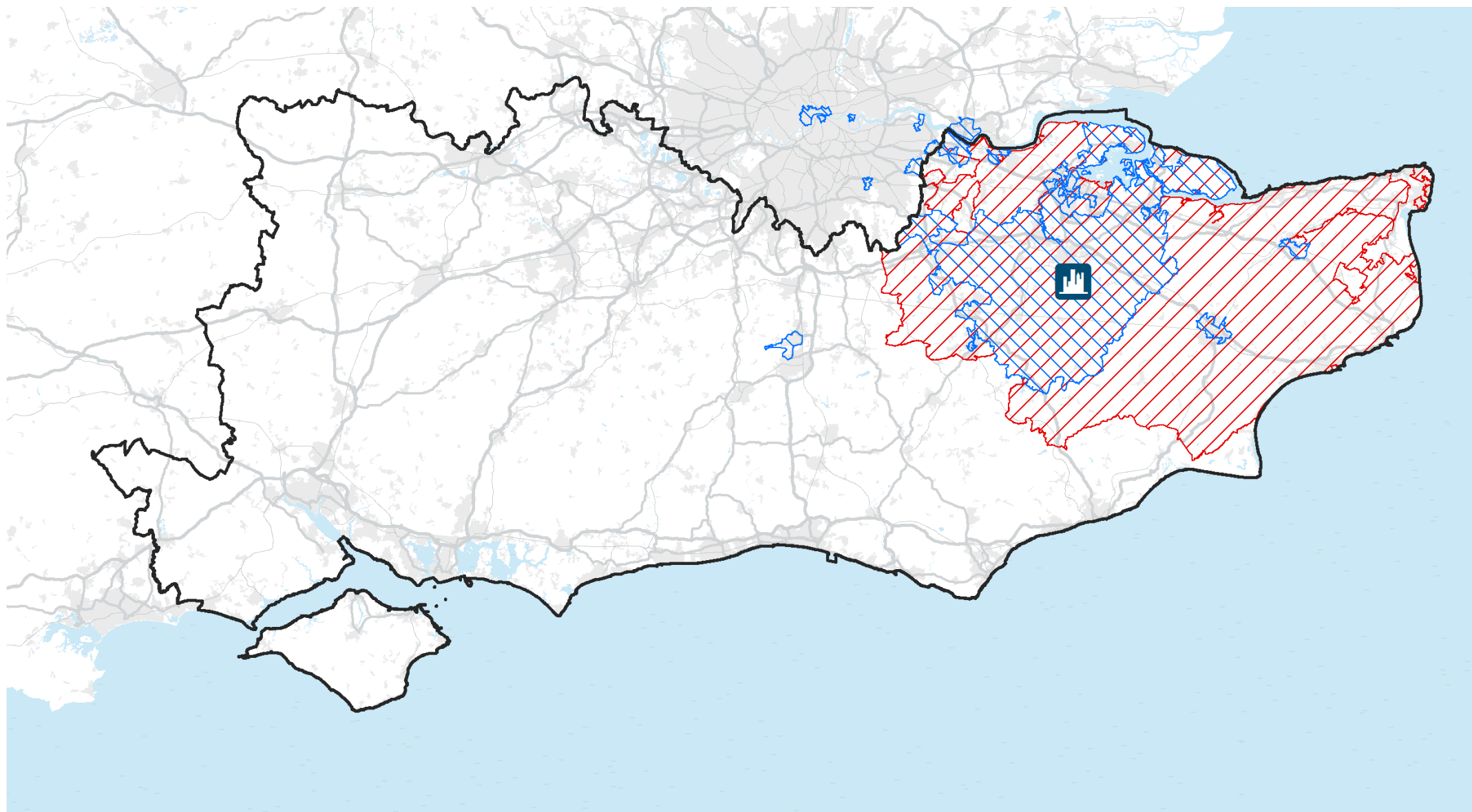
TfSE area
Maidstone - Outbound
Maidstone - Inbound

0 5 10 15 20 25 km

0 5 10 15 Miles

South East Radial Area Study Evidence Base

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Figure 1.37: Medway Travel to Work catchment area (Census, 2011)

TfSE area

Medway Towns - Outbound

Medway Towns - Inbound

0 5 10 15 20 25 km

0 5 10 15 Miles

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Natural England

South East Radial Area Study Evidence Base

Figure 1.38: Sittingbourne Travel to Work catchment area (Census, 2011)

TfSE area

Sittingbourne - Outbound

Sittingbourne - Inbound

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

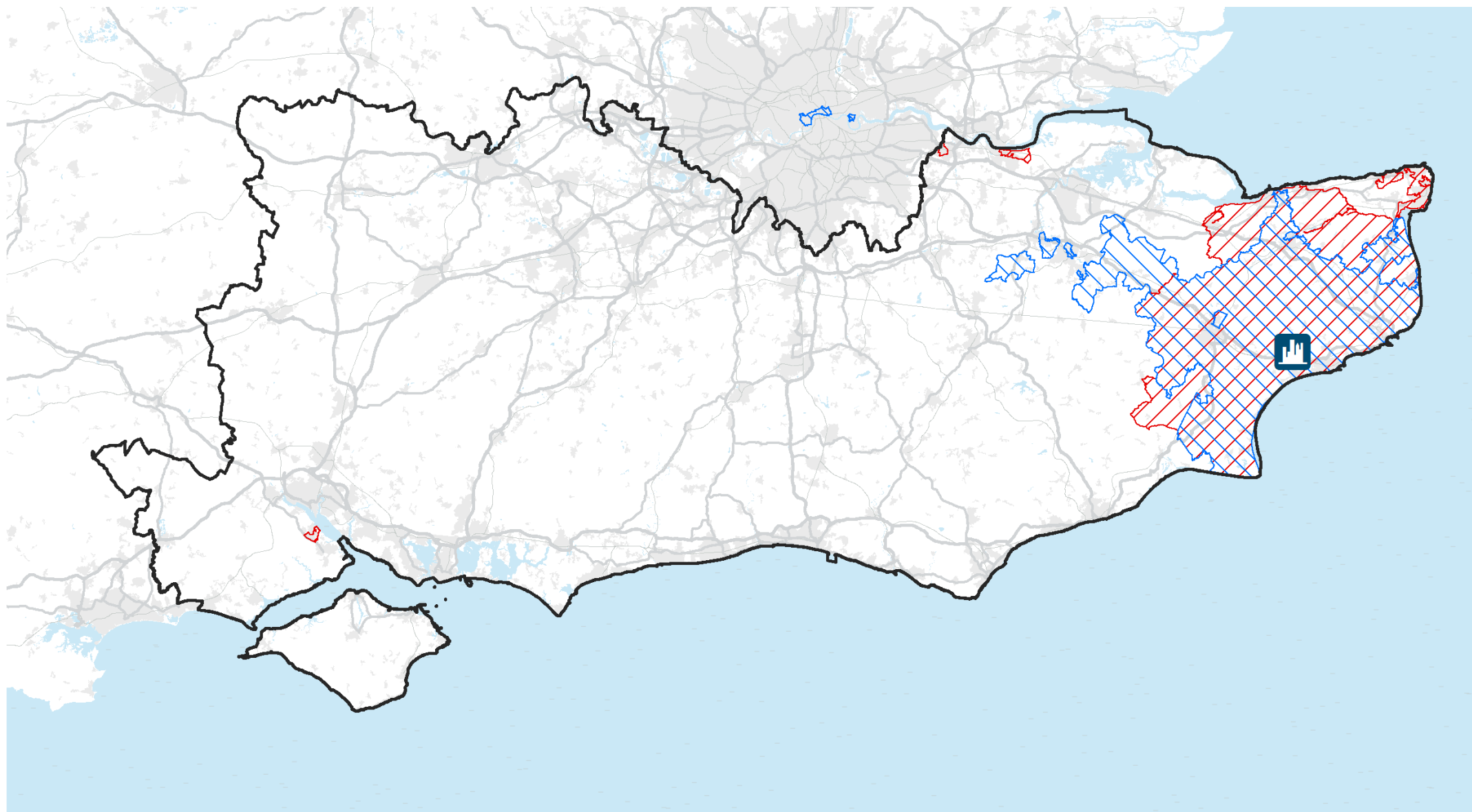**Figure 1.39:** Thanet Travel to Work catchment area (Census, 2011)

TfSE area

Thanet - Inbound

Thanet - Outbound

0 5 10 15 20 25 km

0 5 10 15 Miles

South East Radial Area Study Evidence Base
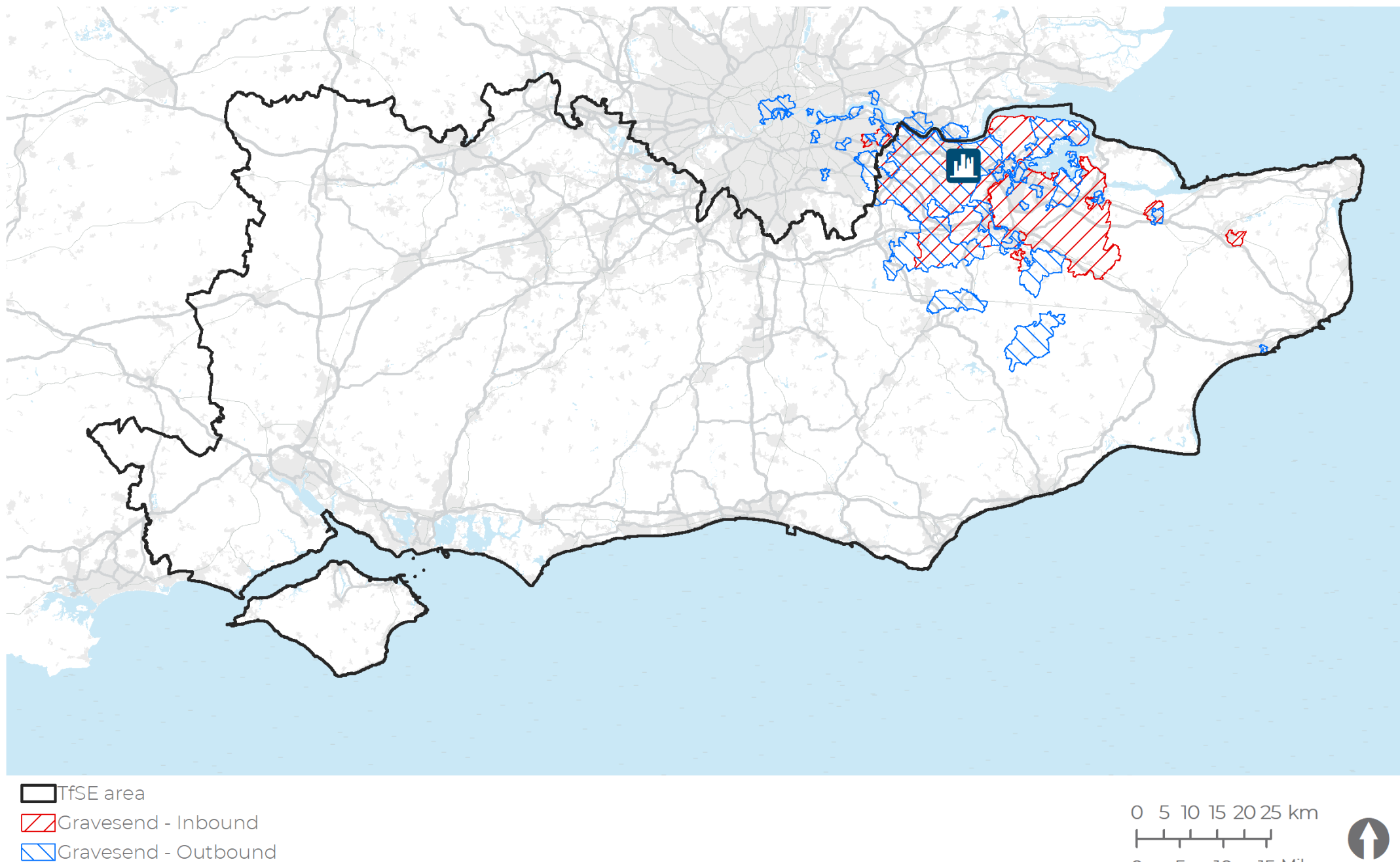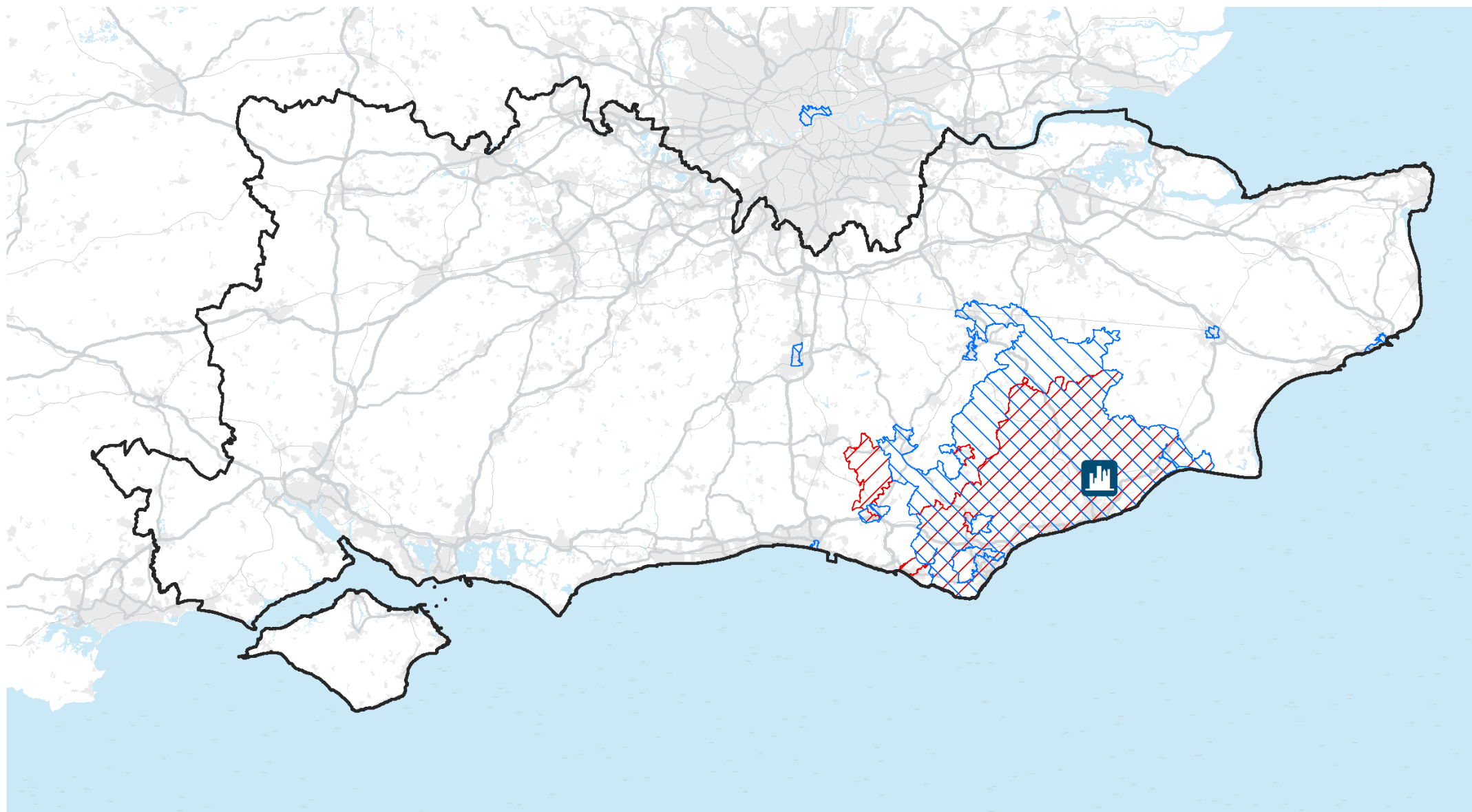
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Part 2
Future Context

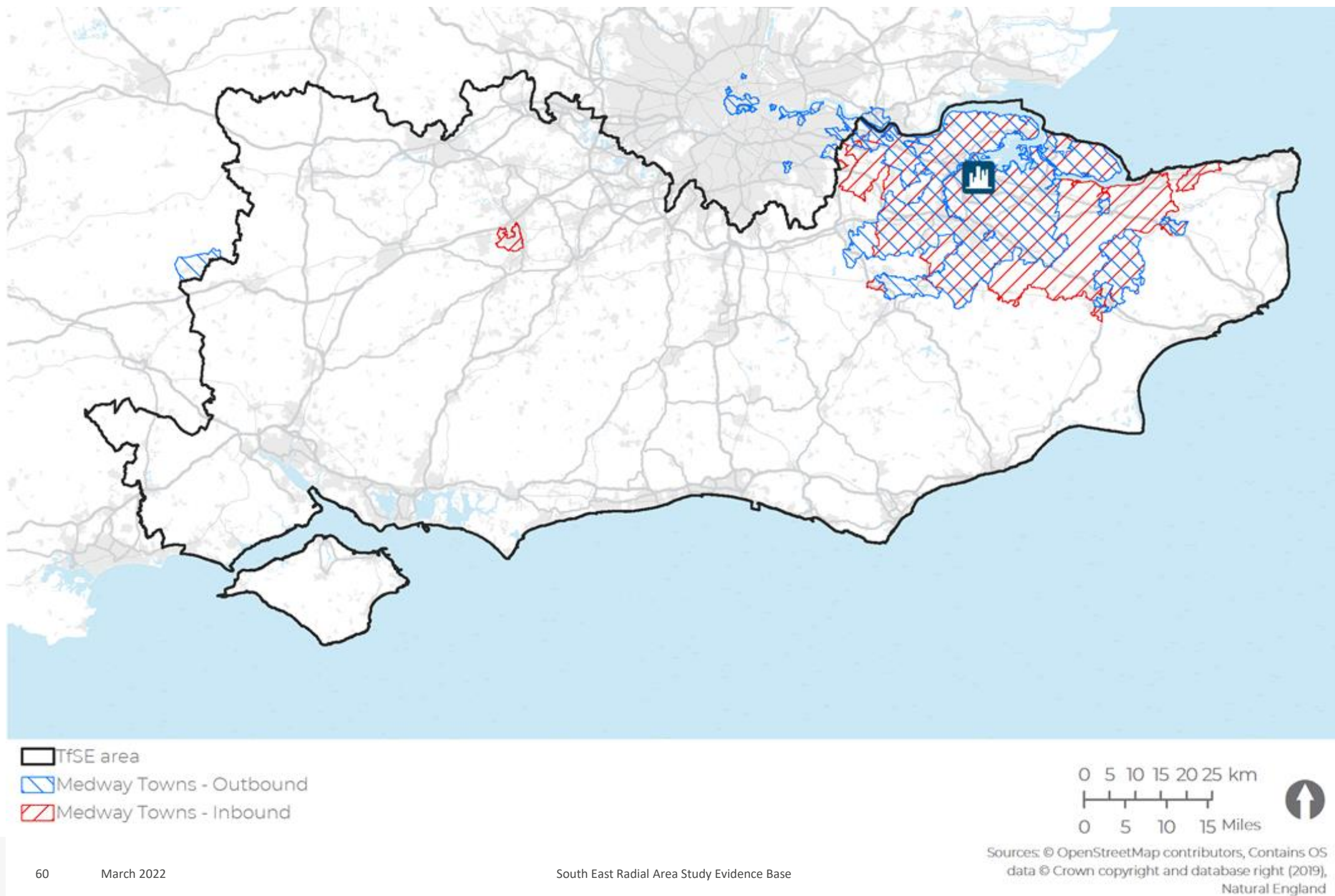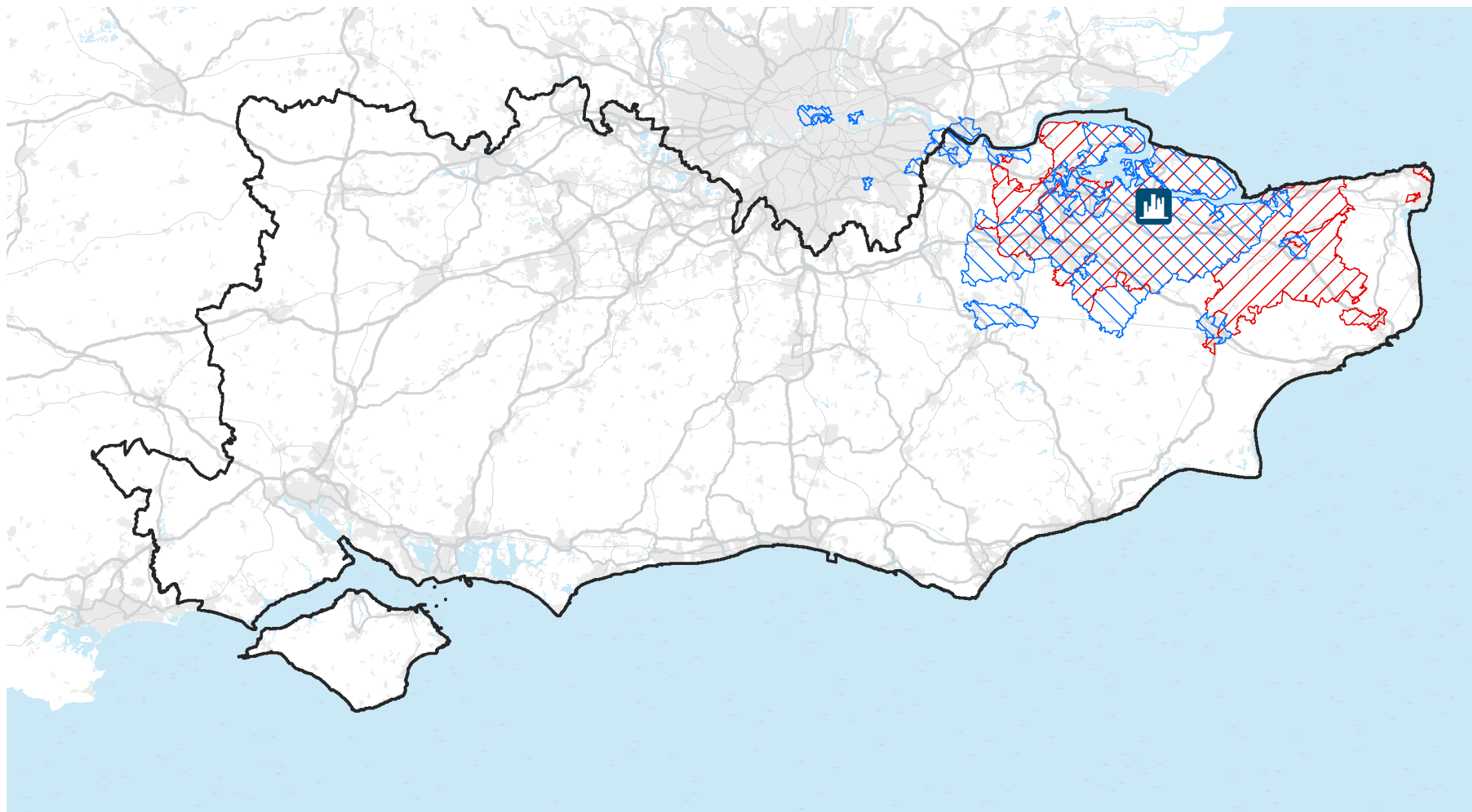# Part 2a
Demographic projections

Demographic Projections

Housing

The South East Radial Area is expected to accommodate significant housing growth in the next local plan period (up to 2025).

Figures 2.1 and **2.2** show the location of the largest housing growth sites in the South East Radial Area. This is based on Local Plan estimates in 2019, which in many instances is dependent on transport and other infrastructure being delivered. The map shows that future housing growth is expected to be concentrated around:

- Along the South bank of the Thames estuary around Dartford and Gravesend
- Central Kent, particularly around Maidstone; Medway and Ashford; and
- On the North Kent coastline, particularly concentrated around Thanet.

ONS future population projections somewhat align with projected housing growth. Areas of high population growth between now and 2040 include Dartford (22%), Ashford (16%), Dover (16%), Maidstone (15%) and Swale (15%).

Much of this growth will occur in peri-urban settings, so it will be critical that developments are supported with active travel and public transport connections.

Employment

Employment growth is expected to be more concentrated in a few areas, particularly in Maidstone and Medway, and some parts of Ashford.

Figure 2.3 shows the location of the largest employment growth sites in the South East Radial Area. The highest employment growth is expected to be clustered to the north of Maidstone, and there is another cluster to the north-west of Medway. Other areas of high job growth include the Royal Tunbridge Wells area, as well as between Gravesend and Dartford.

Less employment growth is expected along the south coast, although some is expected in the northern suburbs of Hastings/Bexhill.

Most employment growth along the North Kent coast corridor looks set to take place on the urban periphery (such as in Canterbury and Thanet). This is partly driven by the availability of land in these places, as well as the nature of specialist industries (e.g. logistics and tourism).

It will be important to provide good public and active transport connections from these peripheral locations to urban centres and transport hubs. This will ensure these cities enjoy economic prosperity and an increased quality of life for all residents.

Risk of imbalance?

There is a risk that in some parts of the South East Radial Area an imbalance in housing and employment growth may cause unsustainable outcomes.

Figure 2.2 and 2.3 show that housing development and future employment opportunities are not necessarily geographically overlapping. There is a risk that this imbalance may generate more travel demand, particularly by car, as many of these new development sites are not served by the existing public transport network.

It is generally recognised that there is need for more housing in the South East Radial Area and that, given the environmental and physical constraints of the corridor, some areas will be better placed to absorb housing than others. To promote more sustainable outcomes, it is recommended that:

- Development is located near to urban centres and transport hubs;
- New development includes mixed use areas to provide local shops and services and is developed to a suitable density/volume; &
- Developments are served by sustainable transport options (from the outset).

TRANSPORT FOR THE
South East

Figure 2.1: Planned Homes for the South East Radial Area (Districts and Boroughs)

Legend:

TfSE area
South East
Adopted Housing Target - Total Over Plan Period

No data
Less than 5,000
5,001 - 10,000
10,001 - 15,000
15,001 - 20,000
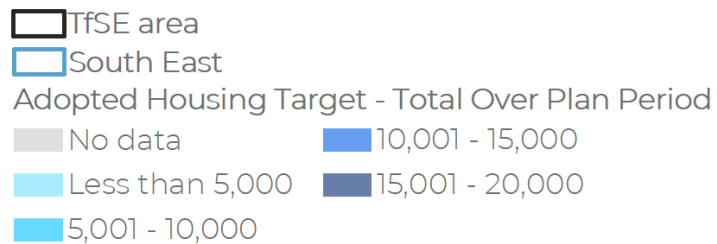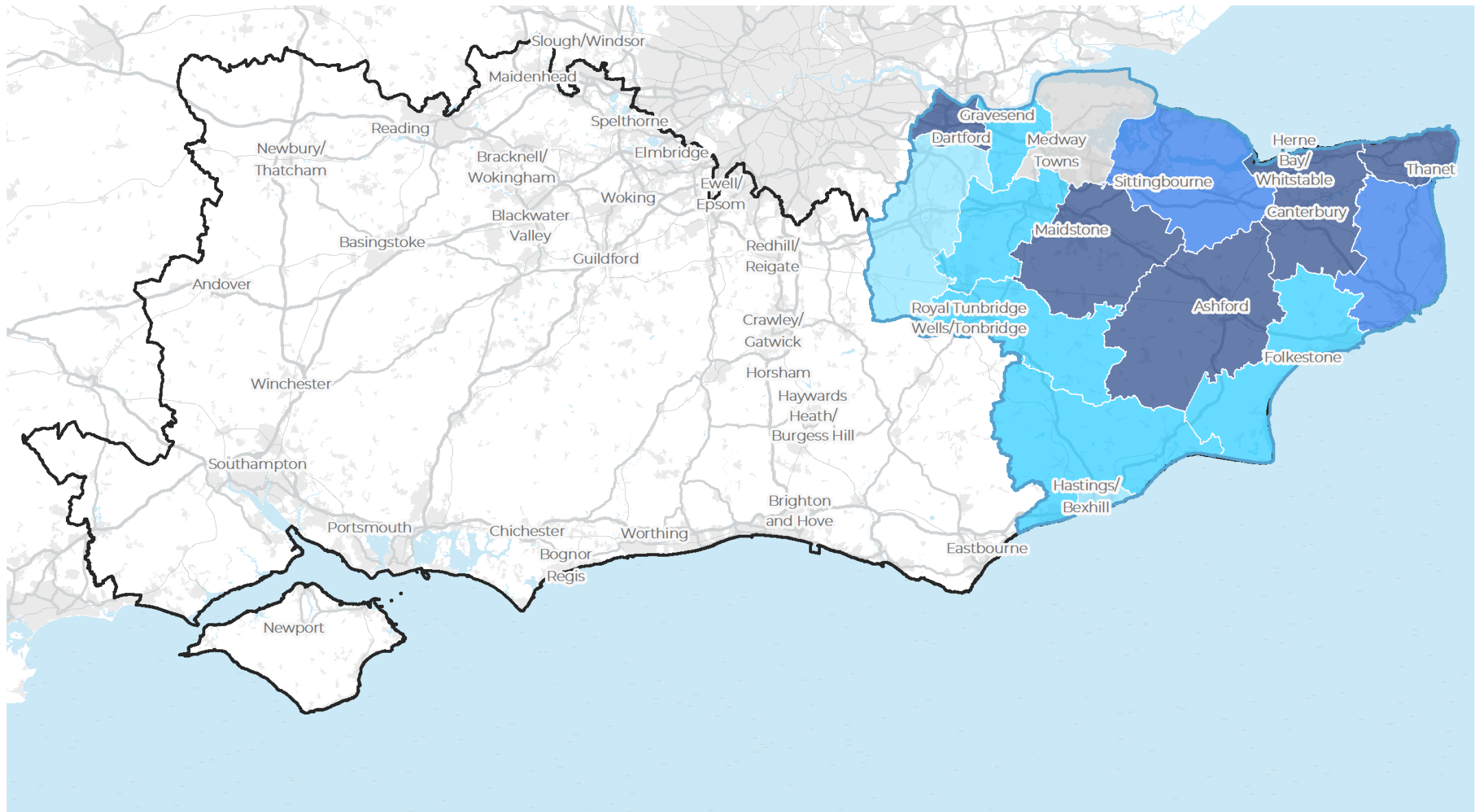
This data is sourced from MHCLG's local plans prototype tool : https://local-plans-prototype.herokuapp.com/. Local plan housing requirement data reflects MHCLG understanding of adopted plans as at end January 2021. The data is experimental, updated monthly, and subject to limited validation. It therefore shouldn't be relied upon as a reliable 'real-time' representation of local plan progress or content.

South East Radial Area Study Evidence Base
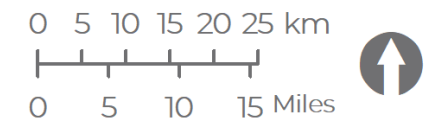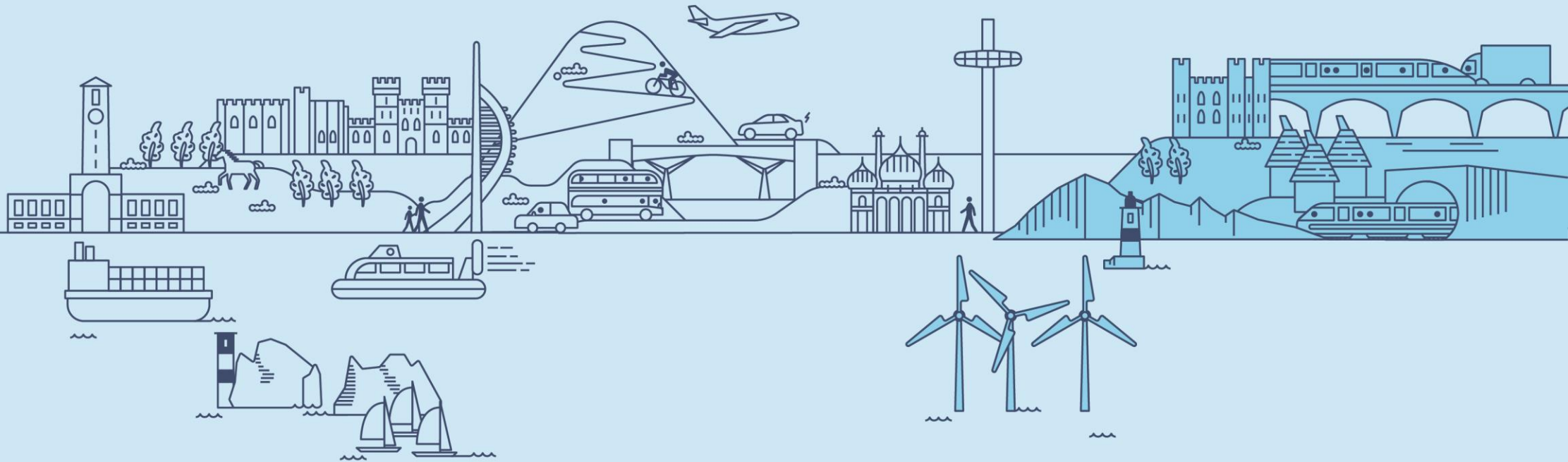
Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2021), Natural England

Figure 2.2: Planned Homes for the South East Radial Area (Detailed)

Legend:
- TfSE area
- South East Radial area

Number of new homes
- <100
- 100 - 250
- 250 - 500
- 500 - 1,000
- 1,000 - 2,500
- >2,500

Map labels: Dartford, Gravesend, Medway Towns, Maidstone, Royal Tunbridge Wells, Herne Bay/Whitstable, Canterbury, Thanet, Ashford, Folkestone, Hastings/Bexhill

Scale:
0 5 10 15 20 25 km
0 5 10 15 Miles

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South East Radial Area Study Evidence Base

Figure 2.3: New Jobs in the South East Radial Area

Legend:

- TfSE area
- South East Radial area

Number of new jobs
- < 25
- 26 - 50
- 51 - 100
- 101 - 250
- 251 - 500
- > 500

Map labels: Dartford, Gravesend, Medway Towns, Maidstone, Royal Tunbridge Wells, Hastings/Bexhill, Ashford, Folkestone, Canterbury, Herne Bay/Whitstable, Thanet

Scale: 0 5 10 15 20 25 km / 0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial Area Study Evidence Base

Part 2b
Scenario Forecasts

Scenario Forecasts

TfSE Transport Strategy

To support the development of a Transport Strategy for the South East, in 2018/19 TfSE developed future scenarios for the area.

The scenarios were designed to help TfSE understand how different routes for the development of the South East's economy and population might impact transport outcomes from 2020 to 2050. They were developed by combining "axes of uncertainty", which describe the plausible outcomes of uncertain trends. These trends included the rate of adoption of emerging technology, changes in attitudes towards the environment, and the development of target industrial sectors in the economy. Each scenario was modelled using a land use and transport model called the South East Economy and Land Use Model (SEELUM).

The outcomes of modelling each scenario were compared to a Central Case ("Business As Usual"), which was developed by modelling the impacts of the Department for Transport's National Trip End Model on the South East's economy and transport networks. Further adjustments have been made to reflect the impact of COVID-19 on the South East. The modelling results were used to develop a **Preferred Scenario** for the future of the South East: "A Sustainable Route to Growth".

Socioeconomic Outcomes

The Preferred Scenario delivers more sustainable travel outcomes than the Business As Usual (BAU) scenario.

TFSE's Preferred Scenario envisages a focus on improved integrated transport and land use planning to promote more sustainable travel outcomes (e.g. fewer trips overall, and fewer trips by car). **Figure 2.4** shows projections for transport and socioeconomic indicators for a BAU scenario (modelled on current trends). **Figure 2.5** compares the modelled outcomes for the Preferred Scenario compared to the BAU scenario. These results show that the Preferred Scenario deliver:

- Higher population, employment, and GVA in the South East Radial Area;

- More trips overall, but fewer trips by highways;

- An increase in the number of trips between those living in London visiting the South East Radial Area, primarily using public transport, which provides an opportunity for take advantage of counter-flow capacity on radial rail lines to balance commuter traffic from the area towards London;

- Significantly more trips by rail and bus overall; and

- Marginally more trips by active modes.

Transport Demand

The Preferred Scenario anticipates a fall in highway demand compared to the BAU scenario, which predicts growth instead.

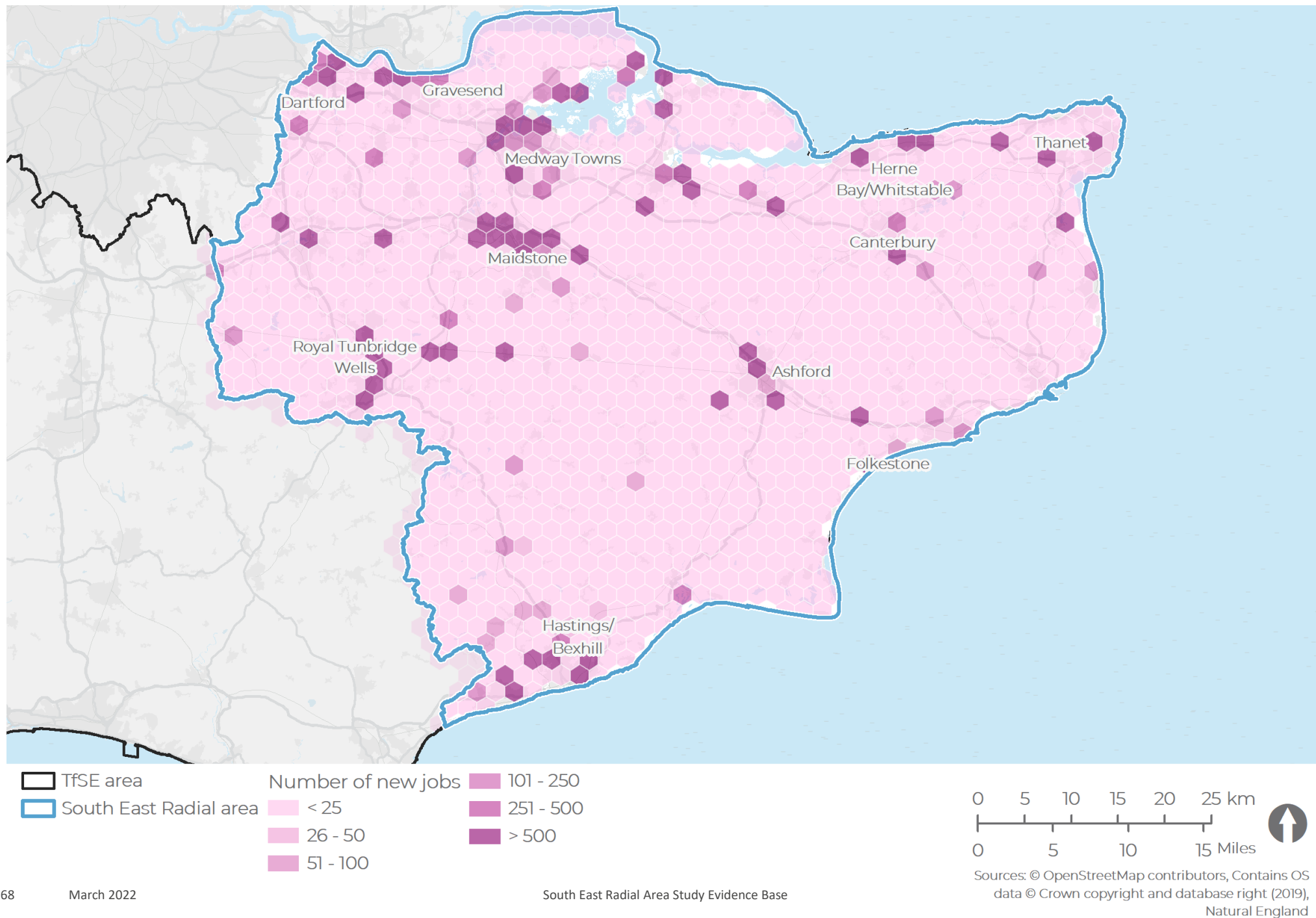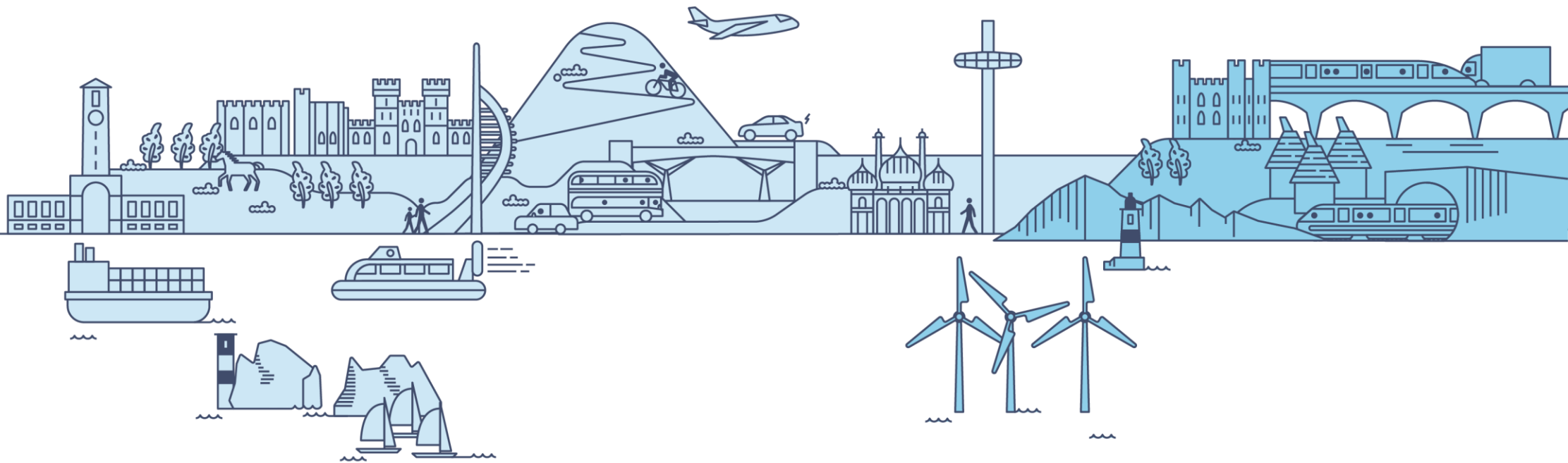In contrast, this scenario calls for a major change in public transport provision, including for the railway network. It also includes the widespread adoption of demand management policies, including road user charging.

Figure 2.6 shows the expected impact of the Preferred Scenario on highway demand. It generally points to less demand than the Business As Usual scenario, which suggests only targeted highways improvements will be required where there are particular local issues and/or growth hotspots, such as between London, Dartford and Medway, and between Maidstone and Tonbridge.

Figure 2.7 shows the expected impact of significant increase in rail demand on the rail network. It suggests that additional capacity will be required on all corridors, except for between London to Maidstone East.

The model does not provide map outputs for bus or local transit, but the overall increase in forecast demand for bus suggests there will be a need for local interventions to support this growth, which could include mass transit systems such as Bus Rapid Transit.

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

Figure 2.4: Business As Usual Growth Projections
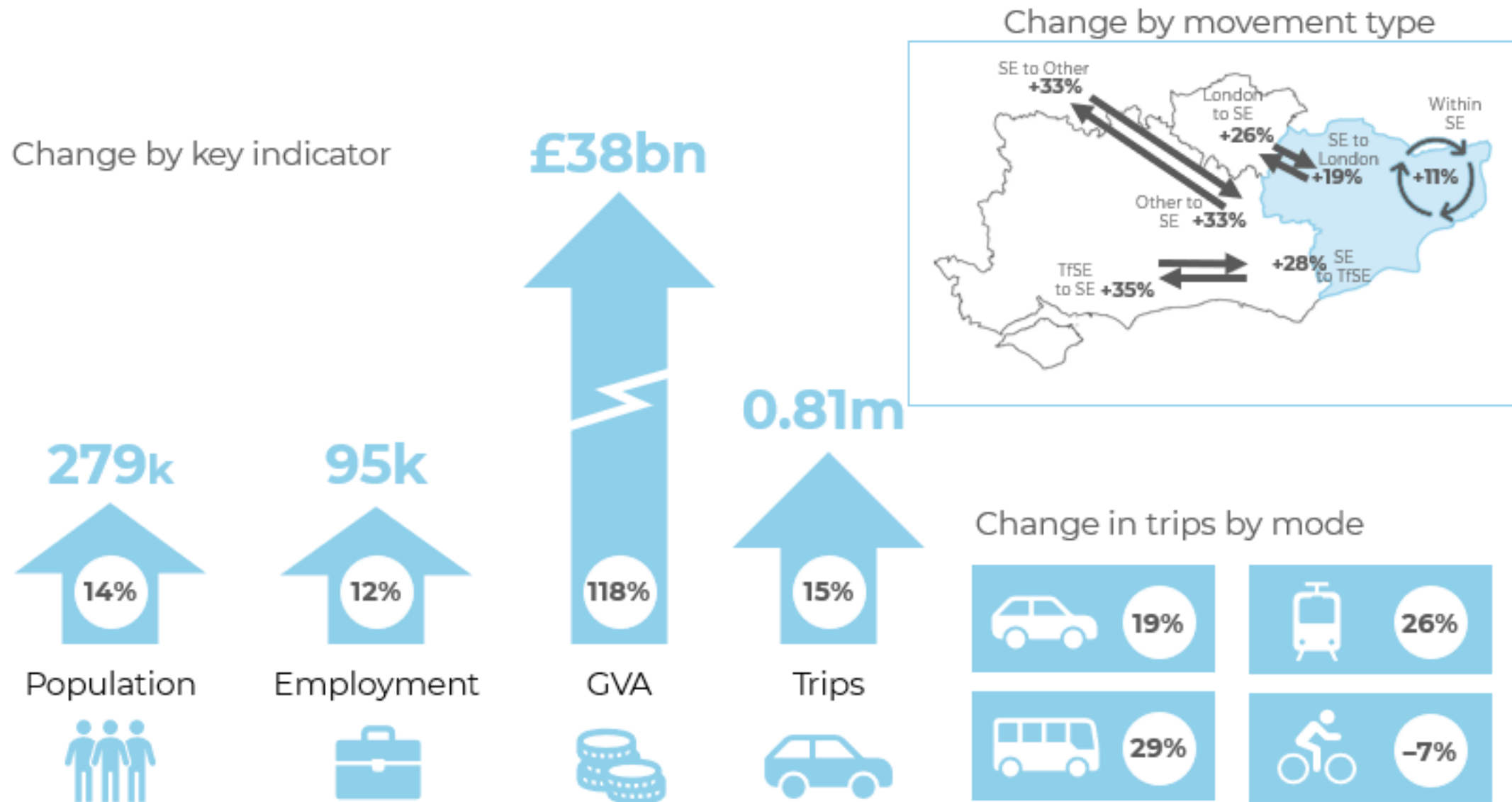
Change by key indicator

279k — Population — 14%

95k — Employment — 12%

£38bn — GVA — 118%

0.81m — Trips — 15%

Change by movement type

SE to Other +33%

London to SE +26%

SE to London +19%

Within SE +11%

Other to SE +33%

TfSE to SE +35%

SE to TfSE +28%

Change in trips by mode

Car — 19%

Tram/Rail — 26%

Bus — 29%

Cycle — −7%

Change compared to **Business as Usual (2050)**

+72k
3%

+113k
13%

+£10bn
14%

+284k
5%

Population
2.3m

Employment
864k

GVA
£71bn

Trips
6.2m

BAU 2050

Change by movement type

SE to Other
-19%

London to SE
+32%

Within SE
+6%

Se to London
+3%

-9%
Other to SE

TfSE to SE
1%

+2%
SE to TfSE

Change in trips by mode

-10%

103%

126%

5%
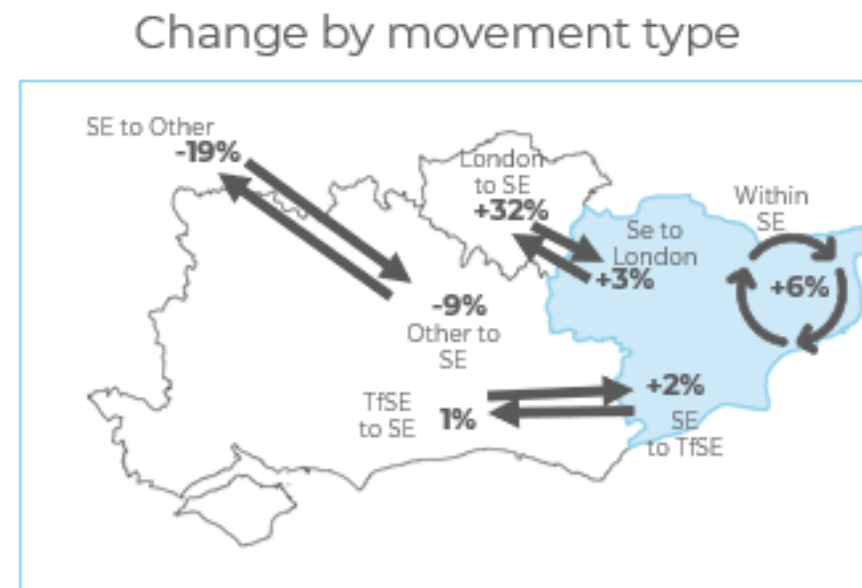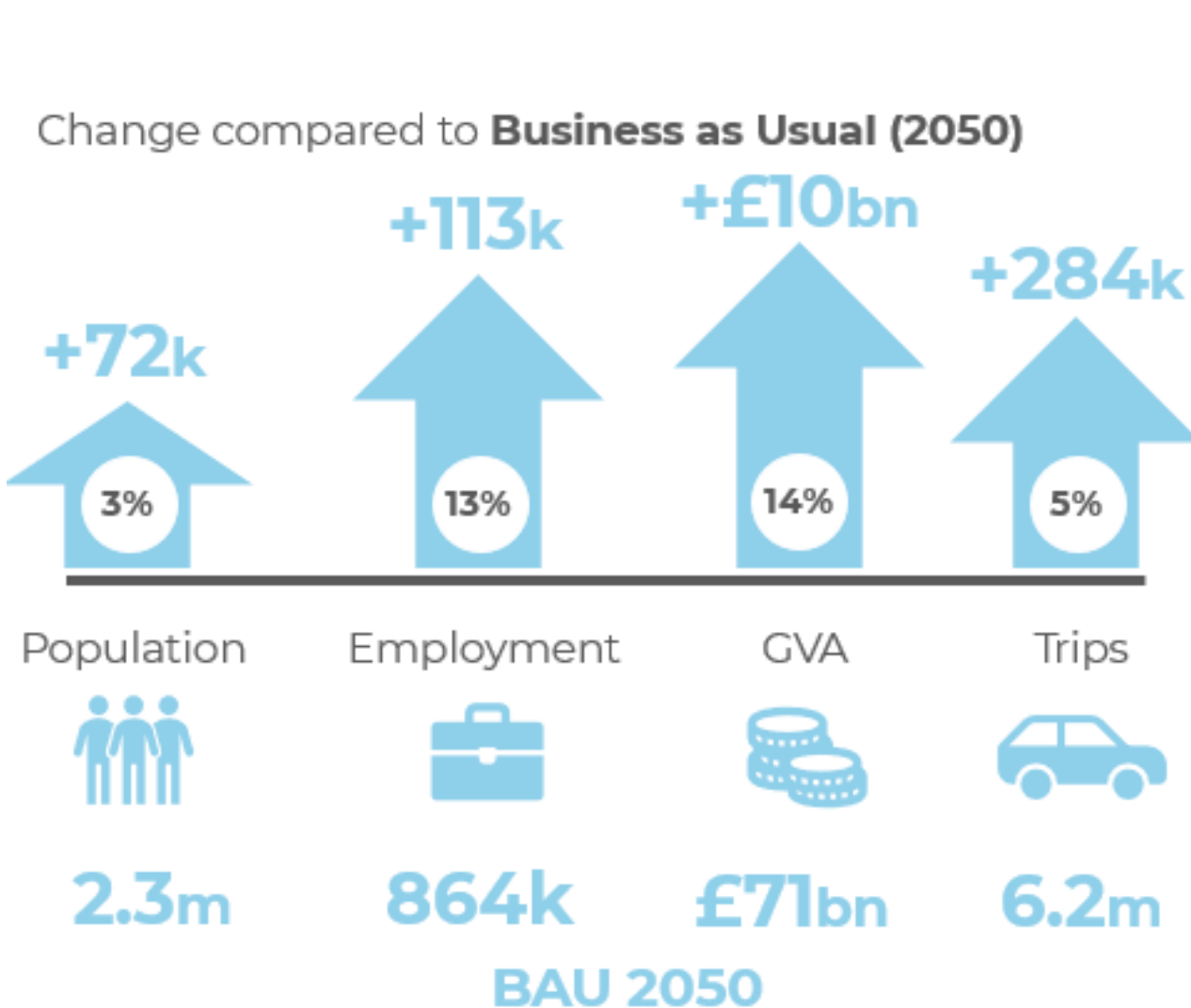
Figure 2.6: Volume over capacity forecasts for highways under the Preferred Scenario, "A Sustainable Route to Growth" in 2050

Legend

South East Area

TFSE Area

Volume over Capacity

Less than 25%

25% - 50%

50% - 75%

75% - 100%

Greater than 100%

Dartford Gravesend

Herne Bay / Whitstable

Thanet

Medway Towns

Canterbury

Maidstone

Redhill / Reigate

Royal Tunbridge Wells

Ashford

Crawley

Folkestone

Horsham

Haywards Heath / Burgess Hill

Hastings

Brighton and Hove

Eastbourne

0   5   10   15   20

Kilometres

TfSE Area Study SEELUM Outputs
South East - Road
Volume over Capacity (using 2050
Sustainable Route to Growth AADT)

steer

Created by:	Last Updated:	Scale:
TG	14/10/2020	475,000

Layer Credits: Contains OS data © Crown Copyright and database right 2020

\\sdgworld.net\Data\London\Projects\234\3\37\06\GIS\MAPPING\ARCGIS\Map_Documents\VoC\03_Road_2050_SRtG.mxd

Figure 2.7: Volume over capacity forecasts for railways under the Preferred Scenario, "A Sustainable Route to Growth" in 2050

Legend

- – – Railway Lines
- ● Link Junctions
- South East Area
- TFSE Area

Volume over Capacity

- Less than 50%
- 50% - 75%
- 75% - 100%
- 100% - 125%
- 125% - 150%
- Greater than 150%

TfSE Area Study SEELUM Outputs
South East - Rail
Volume over Capacity (using 2050
Sustainable Route to Growth AADT)

Created by:	Last Updated:	Scale:
TG	14/10/2020	475,000

steer

Layer Credits: Contains OS data © Crown Copyright and database right 2020

\\sdgworld.net\Data\London\Projects\234\3\37\06\GIS\MAPPING\ARCGIS\Map_Documents\VoC\06_Rail_2050_SRtG.mxd

Map labels: Dartford, Chatham, Ramsgate, Maidstone East, Sevenoaks, Tonbridge, Ashford International, Gatwick Airport, Three Bridges, Haywards Heath, Hastings, Lewes, Brighton

Scale: 0 5 10 15 20 Kilometres

Part 2c
Interventions

Highway Interventions

Local Transport Authorities and Highways England are developing interventions to improve radial connectivity along the South East Strategic Road Network. Many of the interventions are along the M20/A20 and M2/A2 corridors and look to facilitate strategic freight connectivity between the Channel ports and the rest of Great Britain.

Table 2.1 summarises the key highways schemes that are currently in development in the South East Radial Area. These are at varying stages of development.

The most prominent corridors in the area are the M20/A20 and M2/A2, which connect the M25 to the South Kent coast, most notably Dover. Works to implement a smart motorway on the M20 between Junctions 3 and 5 completed in March 2020, at a total cost of £92m. This is a very important international freight corridor for Great Britain, and also saw the delivery of a moveable barrier as part of Operation Brock in December 2020 (at a cost of £55m). As of April 2021, however, this barrier has been removed.

Going forward, highway interventions are targeted at improving key junctions to facilitate freight movements. The largest scheme in development is Lower Thames Crossing, a new crossing to the East of Dartford which will relive the existing crossing and improve journey times between Kent and the rest of Great Britain. Supporting schemes include improvements to Bluebell Hill which aims to improve connectivity between the M20, M2 and the new Lower Thames Crossing.

Additionally, there are several schemes under development that are, part, designed to enable housing growth. This includes plans to improve Stockbury Roundabout (M2 Junction 5) and to improve access to the A249 to support housing developments in Swale.

Table 2.1: Proposed Highway Interventions in the South East Radial Area

M20/A20 road corridor schemes
M20 new Junction 10a and link road to A2070
M20 Junction 8 to 9 moveable barrier
M20 Junctions 3 to 5: Smart Motorway
M20 Replacement of East Street Footbridge
A20 London Road Junction Improvements
Coldharbour Roundabout

M2/A2 road corridor schemes
Lower Thames Crossing
A2 Bean and Ebbsfleet junction improvements
M2 Junction 5 improvements
A2/A282/M25 Highway Improvement Scheme
A2 Brenley corner upgrades

Other road corridor schemes
Additional River Thames Crossings in Inner London at Belvedere/Rainham/Gallions Reach
A229 Bluebell Hill
A28 Chart Road Improvements
A21 Safety Package

TRANSPORT FOR THE **South East**

Railway Interventions

Several stakeholders in the South East Radial Area wish to see enhancements to strategic railway connectivity between the Area's Major Economic Hubs, as well as continue to provide resilience on trunk routes supporting travel to/from London.

Table 2.2 summarises the key railway schemes that are currently under development in the South East Radial Area. This includes schemes currently being delivered by Network Rail and future ideas proposed by local stakeholders to improve rail connectivity along the corridor. It also includes some schemes in London that will benefit the South East Area.

HS1 will continue to stimulate economic activity across the corridor, supporting new developments near Ebbsfleet such as the London Resort. Local authorities have strong ambitions on increasing the number of domestic services utilising the infrastructure, providing fast, frequent and affordable services to the capital. Feasibility studies investigating the opportunity of high-speed services to Hastings are underway, which could go a long way to reducing the economic disparity that currently exists when comparing Hastings to other centres along the South Coast which have stronger transport links with London.

Transport for London hold the key for realizing many of the improvements listed on the primary radial corridors into London. London stakeholders are actively seeking solutions which both aim to increase the service proposition for suburban commuters, but also aim to unlock capacity on existing railway lines for longer-distance services.

In addition to this, several stakeholders across the area are promoting schemes (some of which are supported by Network Rail) that aim to serve large new developments. Indeed, Medway Council has recently secured upfront government funding to support the introduction of a new passenger rail service on the Isle of Grain to support large scale housing and employment development.

Table 2.2: Proposed Railway Interventions in the South East Radial Area

Proposed railway infrastructure schemes
HS1 services to Hastings
Overground Extension Barking to Barking Riverside
Overground Extension Barking Riverside to Abbey Wood / Woolwich
Crossrail (Elizabeth Line) extension to Dartford
Bakerloo Line Extension Elephant & Castle to Lewisham
Bakerloo Line Extension Lewisham to Beckenham / Hayes
Grain Branch Package, including new station at Hoo St Werburgh
Crossrail 1 Extension Abbey Wood to Slade Green
Crossrail 1 Extension Slade Green to Gravesend
DLR Extension Beckton to Thamesmead
DLR Extension Thamesmead to Belvedere
Ebbsfleet Southern Rail Link
Canterbury Chord - new rail connection between the Canterbury East and Canterbury West
Proposed enabling railway schemes
Thanet Parkway Railway Station
Thameslink services to Maidstone East via London Bridge
Network Rail Lewisham station enhancements:
Network Rail London Metro area platform lengthening package:
Network Rail platform extension to provide 12-car capability at Maidstone West station

TRANSPORT FOR THE **South East**

International Gateway, Freight and Local Transport Interventions

The South East Radial Area is home to HS1, the only true high-speed railway line in Great Britain, connecting London, the South East Radial Area and Europe. Additionally, the area is home to the Ports of Dover and Medway, which both have ambitious plans to expand operations and attract more freight from overseas.

Table 2.3 summarises the key international gateway, freight and local transport interventions under development in the South East Radial Area.

Local stakeholders continue to aspire for more Eurostar services to call at Ebbsfleet and Ashford international, providing attractive railway links to the continent.

One of the largest opportunities in this corridor is to grow the Ports of Dover and Medway, , which will be covered in more detail in the TfSE Freight strategy. It is vitally important to connect these ports via rail, and provide onward connectivity to ensure rail freight can be transported across the South East Radial corridors, through onto London and beyond. Equally, with the Port of Dover specialising in Roll-on Roll-off freight, it is still important to invest in highway connectivity, ensuring strategic freight traffic can pass through existing bottlenecks along the strategic highway network.

There are plans to make cycling more attractive as a mode of transport and for leisure both within urban centres and between nearby centres.

Supporting these are a host of sustainable transport packages which further look to create extensive, useful walking and new mobility infrastructure which serve the requirements of the residents of areas. These schemes have access to funds such as the Transforming Cities Fund (TCF) which should facilitate the development of these sustainable schemes.

Table 2.3: Proposed International Gateway, Freight and Local Interventions in the South East Radial Area

International Gateway schemes
Port of Dover expansion
Port of Sheerness expansion
Additional Eurostar services calling at Ebbsfleet and Ashford
Freight schemes
Freight gauge clearance programme to enable container freight trains to run to/from London and the Channel Tunnel
New rail Freight link to Sheerness Docks
Freight interventions to improve capacity and ease of freight into South London
Angerstein Wharf - new rail freight chord between Angerstein Wharf and North Kent lines
Cycling schemes
Regional cycle networks (e.g. County wide cycle routes)
Local cycle networks (e.g. interventions within and between Major Economic Hubs)
Local sustainable schemes
Mass Transit/Public Transport interventions in Major Economic Hubs
Introducing local sustainable transport packages in other urban centres
Rural connectivity initiatives

TRANSPORT FOR THE
**South East**
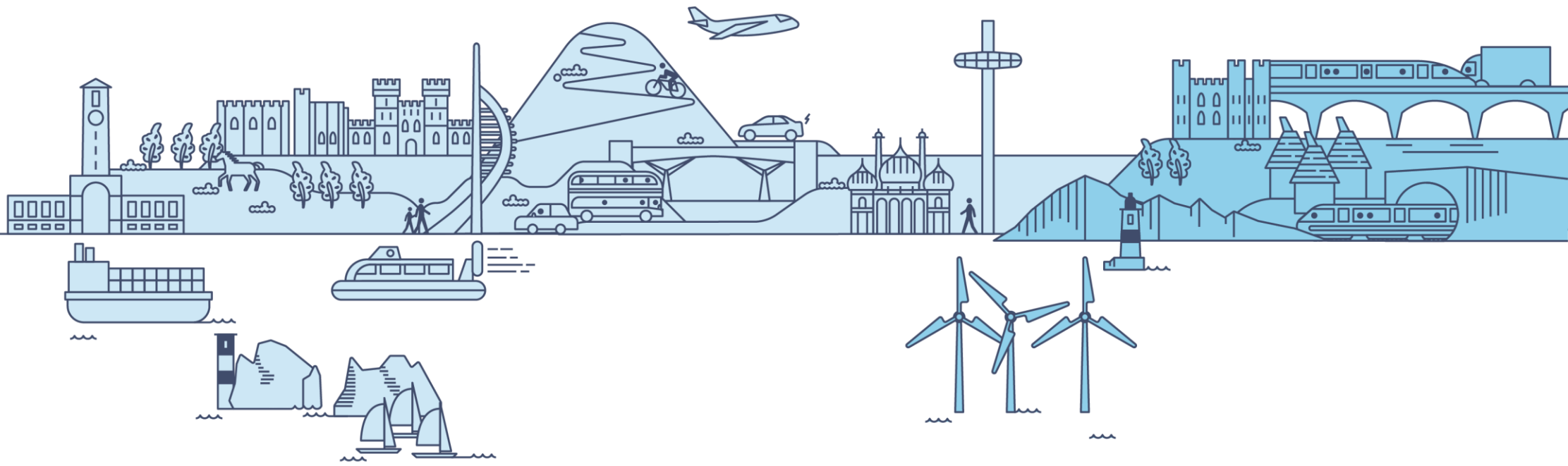
Part 2d
COVID-19

COVID-19

The South East Radial Area has been severely impacted by the COVID-19 pandemic – both in terms of the health of its people, and the economy.

At the time of writing, the South East had experienced three periods of "lockdown". Each lockdown has had a significant impact on the economy and transport network. Although national rollout of a vaccine means that a "return to normal" is now on the horizon, there remains significant uncertainty about how the transport network is going to develop post COVID-19.

Impact on transport networks and demand

As **Figure 2.8** shows, travel behavior has differed markedly compared to the 2019 average. In general, the first lockdown generated an initial increase in the use of active modes in urban areas, which has since declined as the winter has advanced. Motoring rebounded quickly after the initial lockdown and is now at pre-pandemic levels. Public transport has been severely impacted across all areas, and revenues have been significantly impacted by this trend. International travel has also remained suppressed, in part due to the double impact of the pandemic and BREXIT. However, it is too early to predict how this will vary over the longer term.

Figure 2.8: Indexed transport demand by mode (national)
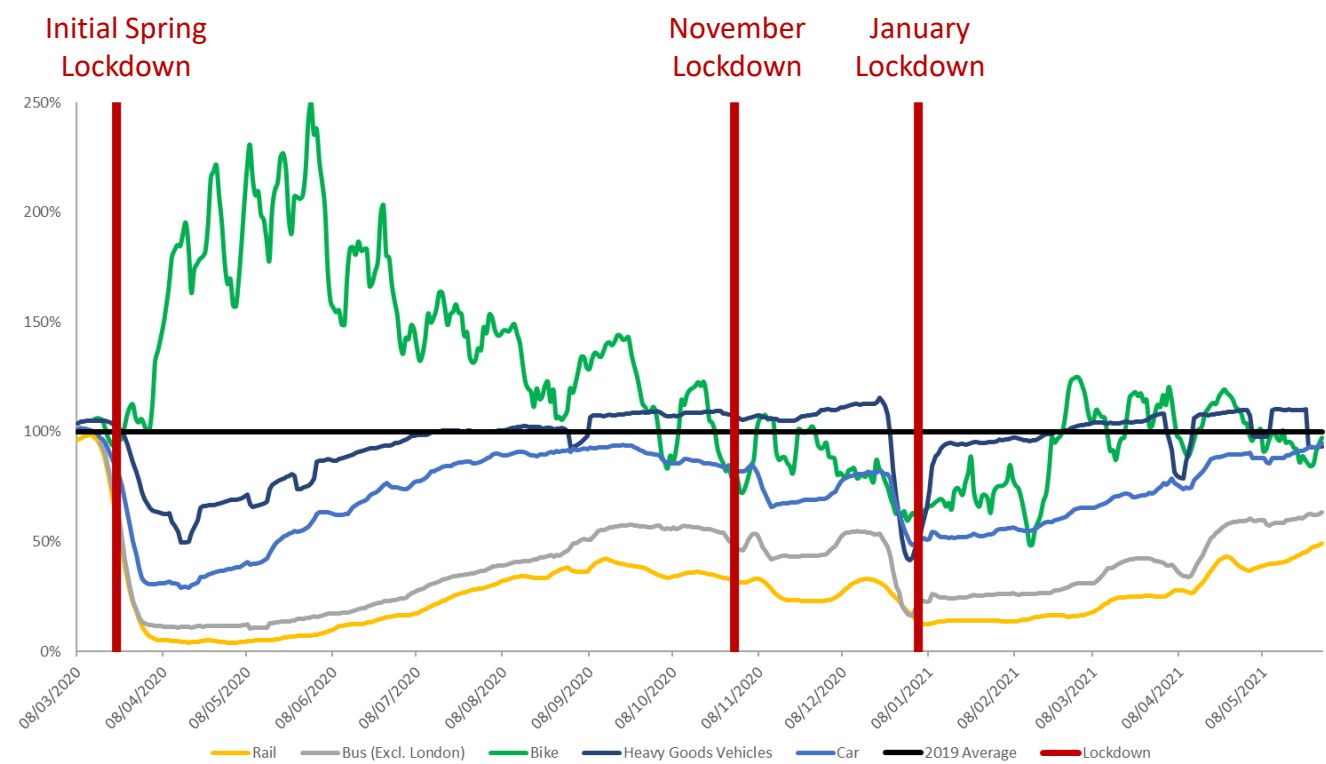
Impact on the economy and employment

There has also been a significant impact on the economy and employment. In March 2020, the Treasury introduced a furlough scheme to cover a portion of the cost of employees who were unable to work during the spring lockdown. The proportion of furloughed workers therefore presents a useful measure for COVID-19's economic impacts.

Figure 2.9 shows the proportion of furloughed workers in the South East Radial Area. Furlough rates were particularly high in the area surrounding Hastings/Bexhill. The post-pandemic economic impacts remain to be seen.

Figure 2.10 shows the proportion of workers working from home over the past year across the South East. This was particularly high in Dartford and Gravesend, but low in Thanet.

TRANSPORT FOR THE **South East**

Figure 2.9: Portion of the workforce participating in the COVID-19 furlough scheme
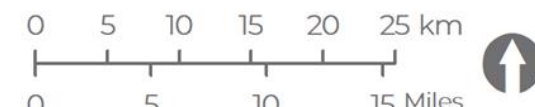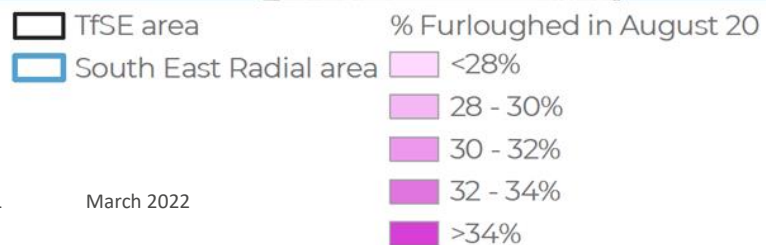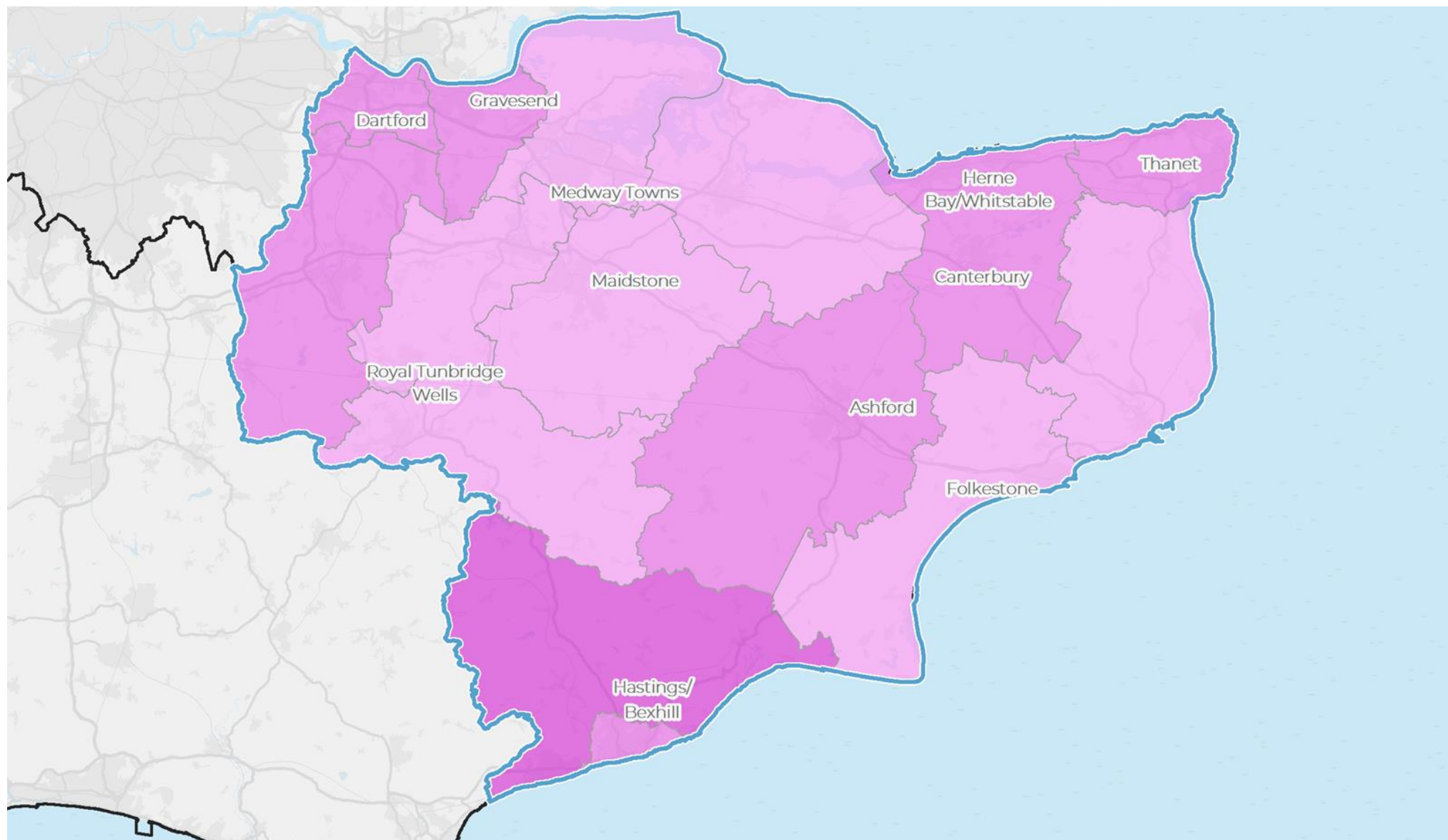
Dartford
Gravesend
Medway Towns
Thanet
Herne Bay/Whitstable
Maidstone
Canterbury
Royal Tunbridge Wells
Ashford
Folkestone
Hastings/Bexhill

TfSE area
South East Radial area

% Furloughed in August 20
<28%
28 - 30%
30 - 32%
32 - 34%
>34%

0   5   10   15   20   25 km
0   5   10   15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

Figure 2.10: Portion of the workforce working from home during Covid-19

TfSE area

Proportion of workers who never work from home

- Less than 50%
- Greater than 80%
- 50.01% - 60%
- 60.01% - 70%
- 70.01% - 80%

South East Radial Area Study Evidence Base

0 5 10 15 20 25 km

0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS
data © Crown copyright and database right (2021),
Natural England
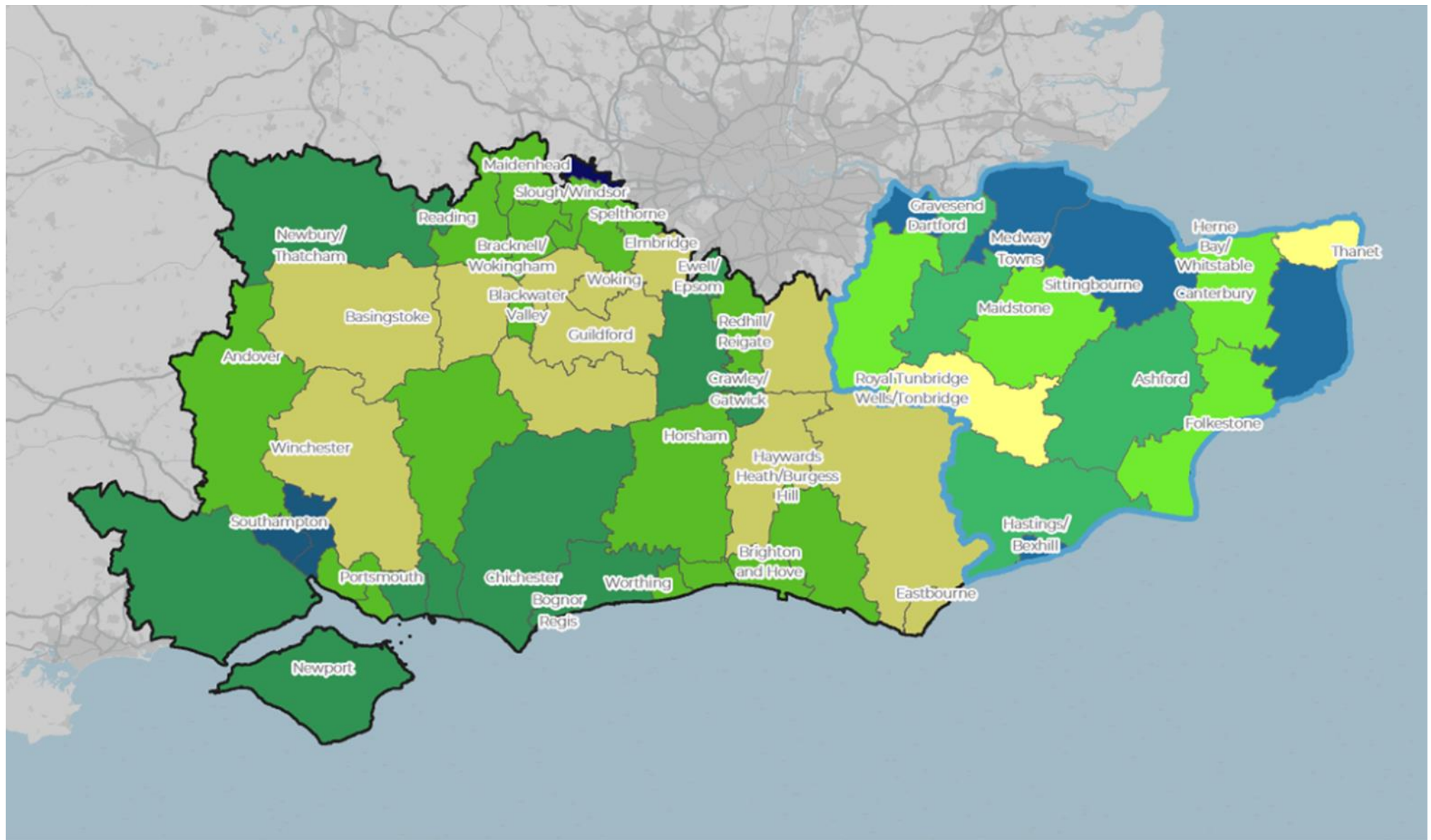
Part 2e
PESTLE Analysis

PESTLE Analysis - Introduction

What is PESTLE analysis?

PESTLE considers the key exogenous drivers that might impact the South East Radial Area.

The framework considers:

P Political

E Economic

S Sociological

T Technological

L Legal

E Environmental

This framework is designed to capture the key external factors which may impact upon any organisation or area. This can help the organisation to spot future risks and opportunities which may impinge/influence its future strategy. This type of analysis is particularly useful in this area because of the array of factors which feed into its future development – there is no single overriding factor which will define its future development.

A summary of the key issues we have identified through this analysis is presented in **Figure 2.11** to the right and explored in more detail in the following two pages.

Figure 2.11: Summary of PESTLE Analysis

Political

- Increasing interests and concerns about Climate Change and the environment
- The "Levelling Up" agenda and devolution
- COVID-19 and "Building Back Better"

Economic

- COVID-19 and associated economic impact
- New UK/EU trading arrangements
- Reducing reliance on London as an economic centre

Social

- Inequality
- Ageing population
- Changes in working patterns

Technological

- New mobility
- Broadband and mobile telephone connectivity
- Technological developments in established transport networks

Legal

- UK Exit from the European Union
- Planning framework reforms
- Local government reform
- Legal action against transport projects (e.g. airports, highway schemes)

Environmental

- Climate Change resilience, mitigation, and adaptation
- National Parks
- Changing attitudes and behaviors to sustainability

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

Political

- **Environmental awareness –** There is increasing awareness in the political mainstream that environmental destruction fundamentally threatens the stability of our societies. All three Local Transport Authorities in the area have declared Climate Emergencies. This shift in policy/political direction will likely change the nature of the conversations being conducted about future scheme development in the South East Radial Area.

- **"Build Back Better" –** Following calls for a "Green New Deal", the current government is promising to "Build Back Better" following the COVID-19 pandemic. This may help the South East Radial Area alleviate significant constraints, in terms of housing provision and transportation links.

- **"Levelling up" –** The government has expressed a need to 'level up' the economy, helping to reduce inequality. Greater devolution of power to local government and the rise of LEPs may also improve decision making at a regional level, and increase the effectiveness of many schemes.

Economic

- **COVID-19 recession –** The UK economy is currently rebounding from a significant (albeit short) recession driven by the COVID-19 pandemic. The pandemic has caused unprecedented structural changes to, and imposed severe limits upon, economic activity. This will have a major impact on the economic development of the South East Radial Area, and the South East more widely. In times of austerity, central government may be forced to reduce grants to Local Authorities. Local Authority funding may be affected by declines in local income streams (e.g. business rates).

- **Reducing reliance on London as an economic centre** – The government have outlined an ambition to "level up" the economy through investing more in the regions. The South East Radial Area could benefit from this investment. Couple this with COVID-19 and a shift in attitudes to working in large centres, there may be more scope for developing local economies which will benefit small and medium sized enterprises. There is opportunity for new industries in the region, which will drive jobs and earning potential.

Social

- **Inequality –** There are areas of high levels of deprivation in South East Radial Area, notably in Medway and in urban areas on the South East Kent coastline, such as Thanet and Hastings. Many people also find it challenging to afford a place to live as housing is relatively expensive in this area, though is cheaper than other areas of the South East.

- **Ageing population –** Some areas of the South East Radial Area have a very concentrated elderly population, such as Thanet and Dover. This has the potential to place a brake on regional growth, whilst also adding significant expense to the region's healthcare bill.

- **Changes in working patterns –** In response to the COVID-19 pandemic, significant volumes of people are working totally/more extensively from home. This has encouraged individuals who might otherwise have lived and worked full-time in London to spend more time in the South East. Some stakeholders believe this trend will continue and this could lead to more people living further away from London and commuting less frequently than before.
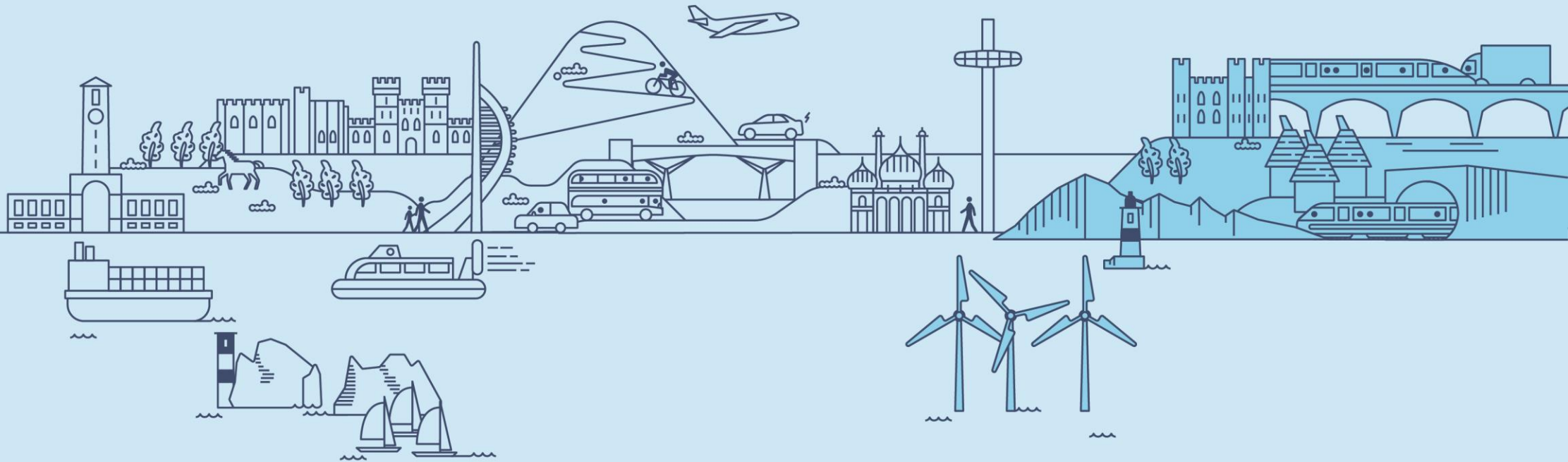
PESTLE Analysis (2 of 2)

Technological

- **New Mobility –** This encompasses new, emerging technologies (e.g. electric vehicles, scooters, and bikes) as well as new business modes, often based on sharing rather than owning assets. Advances in technology must be allied with encouragement by local political actors to ensure the uptake of these technologies is straightforward and widespread.

- **Broadband and mobile telephone connectivity –** Social changes, such as increased home working, and the greater reliance on an internet connection to share data about what is happening around the transport network (e.g. congestion) mean that connectivity to the internet is becoming increasingly important for economic prosperity and development.

- **Technological developments in established transport networks –** This includes Smart Motorways (such as sections of the M20) and technology to allow for dynamic and automated signalling which can increase capacity by enabling trains to run closer together at higher speeds.

Legal

- **UK exit from the European Union ("Brexit")** – Significant changes in the legal frameworks which govern trade flows between the UK and EU were introduced in March 2021. This will likely have a major impact upon the flows of people and goods that move through the international gateways located in the South East Radial Area, potentially leading to delays and congestion.

- **Planning Framework Reforms –** The current approach toward planning and developing schemes can make it challenging to achieve alignment between spatial and transport planning (and interventions).

- **Local Government Reform** – There is a general trend in UK local government towards Unitary Authorities and Combined Authorities. Unitary Authorities, which combine the powers and roles of counties and districts into a single authority, exist in several parts of the South East, including Medway. In other parts of England, Unitary Authorities are being established to replace two tier counties. Some areas are going further by combining transport functions through Combined Authorities.

Environmental

- **Climate Change –** The South East Radial Area will be impacted by the climate crisis. This is already one of the warmest areas in the country and several areas identified as being at the highest risk of flooding. It is also forecast to have one of the fastest rising temperatures of all UK regions. Many activists are increasingly using the UK's Climate Change Act (2019) to challenge infrastructure planning decisions.

- **National Parks** – The South East Radial Area is home to several internationally recognised protected area, including the Kent Downs and High Weald Areas of Natural Beauty. These are one of the region's core strengths. However, they also constrain opportunities for development.

- **Changing attitudes and behaviors to sustainability** – People are becoming more aware of the wider climate issues. Environmental groups are becoming more vocal in the region, showing strong opposition to infrastructure schemes which may harm the natural environment or increase carbon emissions. This may encourage more people to switch from less to more sustainable transport modes.

TRANSPORT FOR THE
South East

Part 3
Need for Intervention

Part 3a
SWOC Analysis

SWOC Analysis

Introduction

SWOC is a framework that considers:

S Strengths

W Weaknesses

O Opportunities

C Challenges

It is used to help understand and synthesise an organisation or area's current resilience, and future potential.

We have analysed the evidence presented in earlier parts of this document and worked with stakeholders – including members of this area study's Working Group and the study's wider stakeholder forum – to understand the key strengths, weaknesses, opportunities and challenges in the South East Radial Area.

These are summarised to the right and on the following page.

Figure 3.1 on Page 91 provides a summary of the key strengths, weaknesses, opportunities, and threats that were identified by stakeholders at a workshop held in June 2021.

Strengths

- **Growing economy –** with the prospect of future development around the London Resort near Ebbsfleet.

- **Natural and historic environment –** the corridor has a high density of protected landscapes/coastlines, and numerous historic landmarks, towns, and cities.

- **Agricultural** – being known as the Garden of England, Kent has a high portion of high-quality farming land.

- **Overall diversity in places and economy –** the proximity of vibrant cities, diverse landscapes, and economic opportunities provides a high level of opportunities and quality of life for residents.

- **Iconic cities –** such as Canterbury, which serve as key recreational and employment hubs.

- **International connections –** home to the Anger stein Channel Tunnel Rail Link and Port of Dover and Medway, key gateways for both international passengers and freight.

- **Leading universities –** such as the University of Kent.

- **Affordability** – provides relatively affordable housing, considering its proximity to London.

Weaknesses

- **Poorer connectivity off the primary radial corridors –** this makes journey times by public transport uncompetitive compared to private car journeys.

- **Poor rural connectivity –** rural areas are understandably less well served than denser, more highly populated urban areas, which means access to residents (and visitors) in rural areas is poor.

- **Complex governance landscape –** with multiple levels of regional, local, and national government, decision-making and attaining funding for schemes can be slow and complex.

- **Productivity gaps and pockets of deprivation –** while transport is not the only driver of this outcome, poor connectivity may be contributing to poor socioeconomic outcomes, particularly in coastal communities.

- **Resilience –** low numbers of alternative routes, particularly between London and Dover, mean that congestion on the M20/M2 can quickly lead to major issues across the region.

TRANSPORT FOR THE **South East**

SWOC Analysis

Opportunities

- **Domestic tourism** – the region has some of the most easily accessible coastline in the country, with large nearby population centres. Recent interest in domestic tourism could reinvigorate in-decline coastal communities.

- **Support for decarbonisation** – the area includes several local authorities that strongly support the decarbonisation agenda. There is an opportunity for stakeholders to promote sustainable transport interventions and use the area's resources to generate sustainable energy (such as offshore wind).

- **Housing and employment growth** – investment will enable more of the South East's residents to access affordable housing and local employment, such as in Hastings and Ashford.

- **Regional "levelling up" agenda** – the government's recently announced "levelling up" fund has identified several areas in the South East Radial Area as priorities for investment.

Challenges

- **Climate change (sea level rise, coastal erosion, extreme storms, droughts)** – the area's coastline is susceptible to flooding if sea levels rise. Several transport corridors are vulnerable to disruption (e.g. landslips) caused by extreme weather.

- **Decarbonisation challenge** – parts of the area's transport network and economy (e.g. aviation) will find it difficult to completely decarbonise in the medium to long term.

- **Population growth** – significant investment is needed to ensure adequate housing, infrastructure, and services are needed to support a growing population.

- **COVID-19 and economic fallout** – the South East Radial Area, which was already behind in some economic indicators prior to the pandemic, is very exposed to the economic consequences of COVID-19.

- **Transport accessibility, equity and social inclusion** – particularly in rural areas, coastal communities, and other areas with high indicators of deprivation.

- **Building consensus among stakeholders** – this has proved challenging in recent years.

Conclusions

The South East Radial Area has a strong economic foundation and is well placed to prosper, despite the challenges posed by COVID-19 and the UK's changing relationship with the European Union.

There is *some* evidence that the COVID-19 pandemic has caused many businesses and employees to re-evaluate their working practices. While there will continue to be a need for workplaces and work-related travel, there may be an opportunity to use the lessons from COVID-19 (and the technology that supports remote working practices) to work further away from major cities like London. This may markedly change transportation and development patterns across the region in the coming years.

The impacts are unclear: Perhaps businesses inside the M25 may see benefits in relocating to coastal towns and cities? Perhaps the increase in interest in domestic tourism will remain and more people will be interested in short breaks in the South East? Either way, there are opportunities, and the transport system should be prepared for them.

TRANSPORT FOR THE **South East**

Figure 3.1: South East Radial Area SWOC (Stakeholder Views)

A summary of the key global strengths, weakness, opportunities and challenges for the South East Radial Area highlighted by stakeholders in a workshops held in June 2021 is provided below.

Strengths

- Well connected with coastal, countryside, heritage assets = good quality of life
- Highway connectivity between M25 and ports is generally good.
- Rail connections – High Speed 1 and other "classic" lines provide generally good connectivity on radial corridors.
- Universities and other education clusters.
- Key gateway to Europe and rest of UK for both trade and tourism.
- Strong and fast growing Major Economic Hubs, notably Ashford, Dartford/Ebbsfleet/Gravesend, and Medway.
- Large population who are open to sustainable transport – however there are some practical barriers in making this accessible to all.

Opportunities

- Continue positioning the area as the gateway to Europe and the UK.
- Employment/population growth opportunities across the whole area.
- Opportunity to use the Marshlink to deliver better rail connectivity.
- The London Resort presents significant economic and tourism opportunities.
- Continued development of Medway as a conurbation could provide better justification for higher quality mass transit systems.
- There will likely be a need to strengthen flood defenses (and other climate change adaption), which may present wider opportunities to improve infrastructure and grow the economy.
- Several towns are well placed to benefit from increased demand for domestic tourism – investment could accelerate this process.

Weaknesses

- London dominates – unlike other areas, that are influenced by South Hampshire/Sussex Conurbation/Thames Valley, Kent/East Sussex do not have a large major economic hub to look to.
- Weak industry. Whilst Ashford has a minor logistics hub, it isn't comparable to that seen in Surrey and the Thames Valley.
- The area's economic productivity is poor compared to other SE areas.
- Notable deprivation pockets in Medway, Hastings and coastal Kent. Some communities are very isolated (e.g. Sheppey, Thanet).
- Record of relatively low investment in transport in some places and for some modes (e.g. rural buses, coastal communities).
- Poor connectivity in places (e.g. North West Kent, East Sussex Coast).
- Poor integration in many places.
- Public transport fares are too high for many people.

Challenges

- UK exit from the EU is particularly significant for the South East Radial Area because of Dover
- Competition from the growing London Gateway ports
- COVID recovery of Public Transport – Eurostar particularly badly affected
- Folkestone Warren and north Kent coast are particularly vulnerable to climate change due to underlying geology
- London terminal capacity constraints
- Poor socioeconomic outcomes exacerbated by COVID-19
- Future energy needs (electricity, hydrogen, etc.)
- Housing targets are getting harder to hit
- Rising micro-freight/last mile freight demand
- Demographic challenges in places (e.g. ageing population)

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

Part 3b
Issues and Opportunities

The London Resort

The London Resort is a major commercial development, proposed at a brownfield site close to the town of Swanscombe, on the southern bank of the Thames Estuary.

Thanks to its proximity to Ebbsfleet International rail station, the resort will be just 17 minutes from Central London by train and will be accessible from mainland Europe.

The development will include 3,500 hotel rooms, which will be close (and easily accessed from) ferry terminals on either side of the River Thames.

It is anticipated by the lead architects that the resort will generate £50bn gross economic activity in the 25-year period following its planned opening in 2024.

This development represents a significant employment opportunity for the whole South East Radial area, particularly nearby fast growing communities in Dartford, Gravesham and Medway.

While the development enjoys support from many key stakeholders in the area, it faces challenges from groups concerned about the development's potential impact on the natural environment.

**Figure 3.1:** An artist's impression of the London Resort

Source:

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Brexit

As the major international gateway for freight traffic to/from Europe, the strategic road and rail network in the South East Radial Area will be greatly impacted by the new UK/EU trade agreement.

It is too early to objectively assess the full impact of the new EU-UK Trade and Co-operation Agreement. The latest trade data (**Figure 3.2**) shows significant changes, but some of this may also be due to the COVID-19 pandemic. As seen in Figure 3.2, trade between September 2019 and September 2020 is down 12% and 16% for EU goods imports and exports, and down 4% and 21% for the equivalent non-EU trade flows. The figure also shows a significant dip from April 2020 compared to the relative stability of 2019, with gradual recovery towards the end of 2020.

The Kent Access Permit scheme was put in place to reduce congestion at the port of Dover after the Brexit Transition Period ended on 1st January 2021. As of late April 2021, HGVs are no longer required to obtain a Kent Access Permit.

Figure 3.2: EU and non-EU imports and exports, 2019-21

Legend: EU goods imports · Non-EU goods imports · EU goods exports · Non-EU goods exports
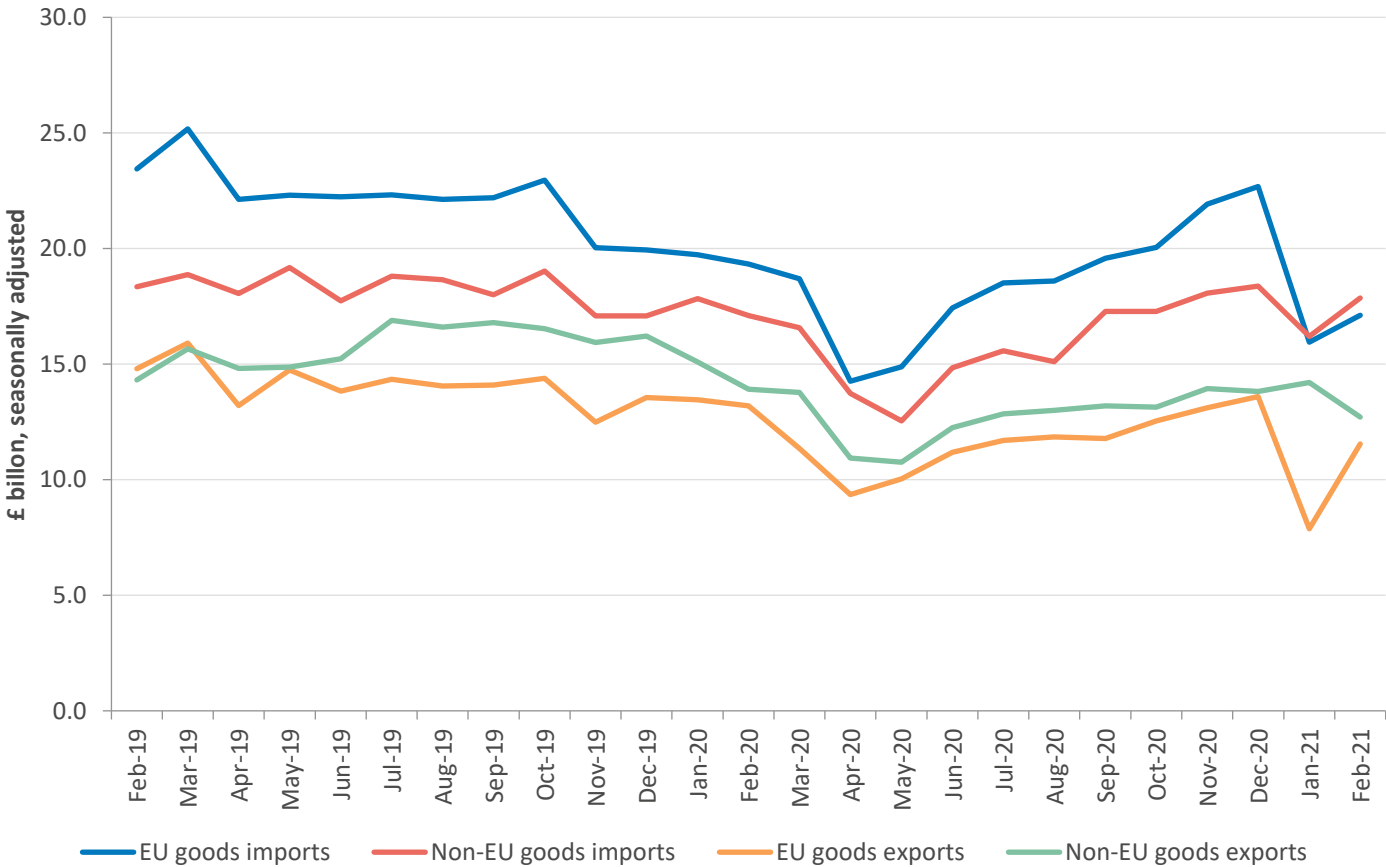
While it is hard to say with certainty what might happen with EU-UK trade in the future, we can confidently say that the transport network serving the Channel Ports were already under pressure prior to January 2021 and needed regular interventions to manage disruption from non-Brexit related events.

With high levels of future housing growth forecast for the area, the added pressure of Brexit makes it all the more critical that more capacity, and better resilience, are planned for this part of the transportation network.

South East Radial Area Study Evidence Base

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Thames Gateway

The South East Radial Area includes the part of the Thames Gateway and has been identified as an ideal location for high growth, investment, and regeneration.

The Kent Thames Gateway Partnership – which includes authorities representing the areas shown in **Figure 3.3** – has identified several locations in North Kent that can accommodate high growth in employment and housing. This investment will need to be supported by sustainable, multi-modal transport infrastructure.

The Thames Gateway programme has helped to deliver significant investment in infrastructure in the wider Thames Gateway area to date. Looking further ahead, the Kent Thames Gateway Partnership is supportive of extending Crossrail to North Kent and delivering the Lower Thames Crossing.

Figure 3.3: Thames Gateway growth opportunities
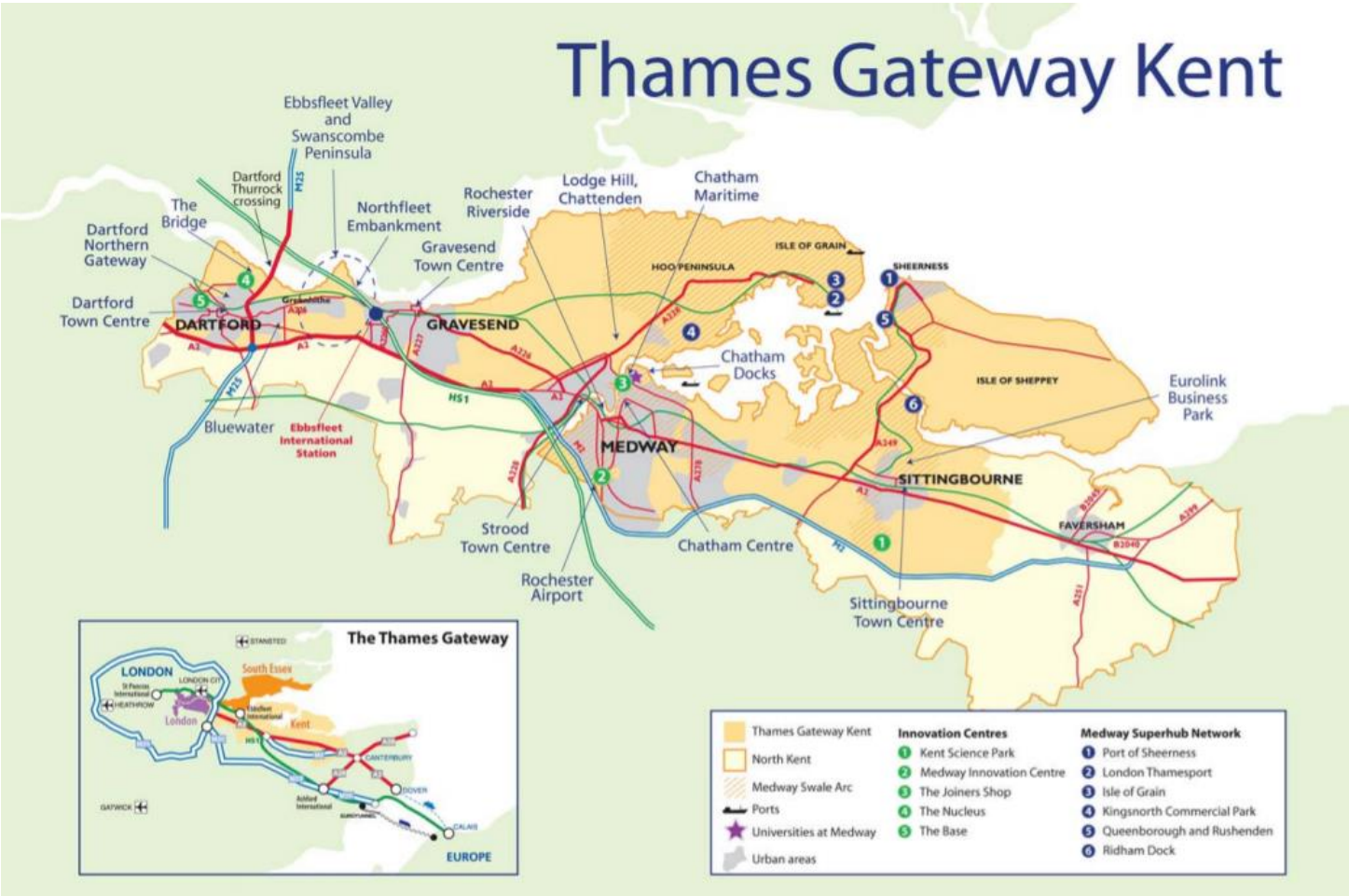
Source: Thames Gateway Kent Partnership
http://www.tgkp.org/content/documents/TGKP%20Growth%20Plan%20May%202014%20Final.pdf

TRANSPORT FOR THE **South East**

Tournism

Kent (and Medway) used to be the most popular tourism destinations in the South East – but these areas have seen a gradual decline.

Survey data from Visit Britain (see **Figure 3.4**) suggests that Kent (which, for the purposes of this survey, also includes Medway) has experienced a decline of around 28% in domestic tourism trips over the last decade. East Sussex, on the other hand, has seen a modest growth in trips over the same period (5%).

The South East Radial Area boasts many tourism attractions including the Downs and Weald AONB, several historic cities, some of the UK's largest retail destinations, and multiple other visitor attractions (e.g. Port Lympne, Diggerland, Turner Contemporary, 1066 Battle of Hastings site, etc.).

The COVID-19 pandemic has generated a boom in domestic tourism – could Kent, Medway and East Sussex benefit from this opportunity and grow a more sustainable tourism offer for domestic and international visitors?

Figure 3.4: Total domestic tourism trips by ceremonial county

Source: Visit Britain <u>https://www.visitbritain.org/destination-specific-research</u>

South East Radial Area Study Evidence Base

TRANSPORT FOR THE
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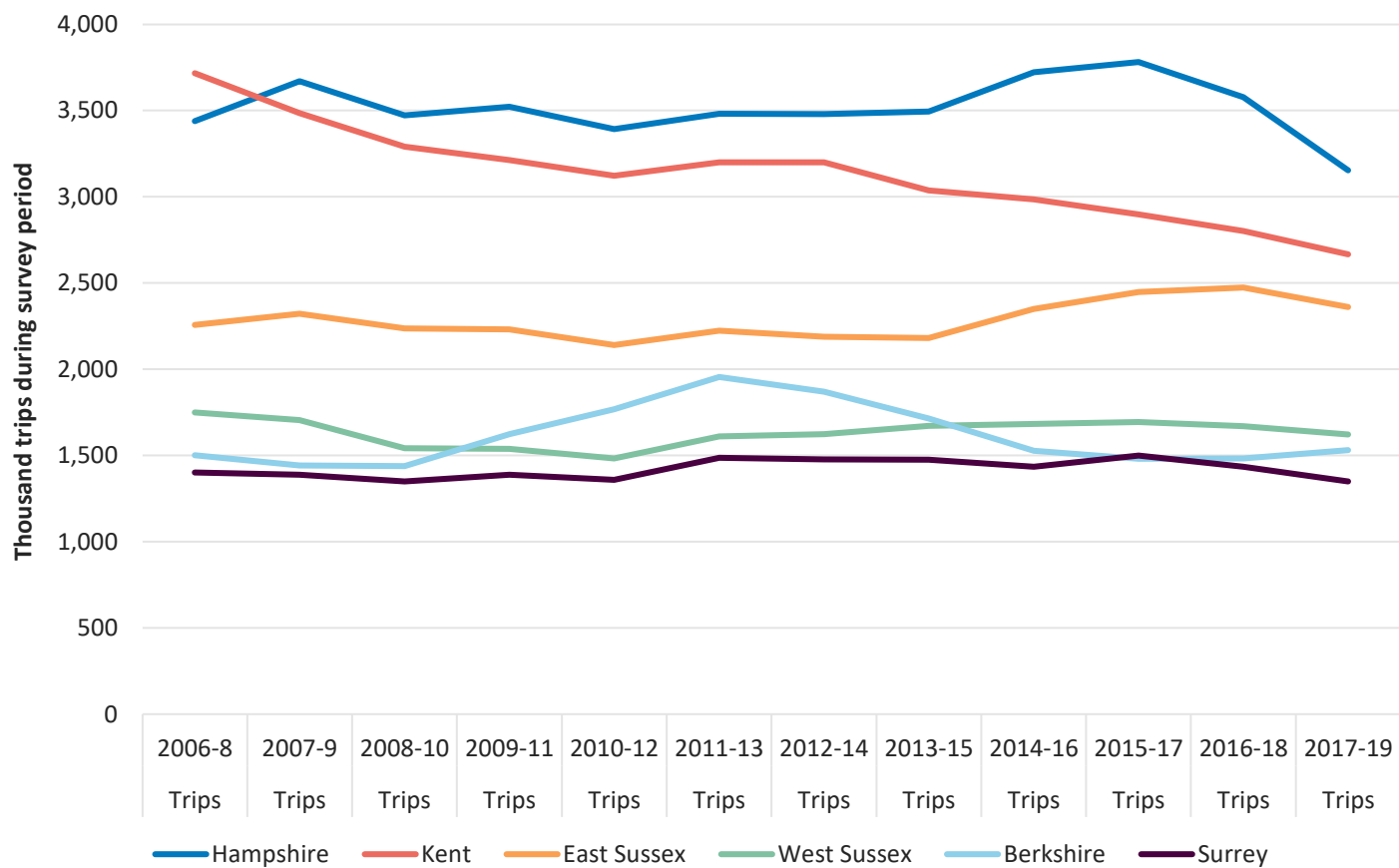
Public Transport and Active Travel Opportunities and Challenges

In support of the development of TfSE's Transport Strategy, Steer undertook an analysis of the characteristics of South East's Major Economic Hubs. This analysis identified opportunities to promote more active travel and public transport mode share at all the South East's Major Economic Hubs. A summary of this analysis is presented in **Table 3.1.**

Table 3.1: Active Travel and Public Transport opportunities at the South East Radial Area's Major Economic Hubs

Major Economic Hub	High self-containment (50%+)	High % of journeys under 2km (20%+)	High % of journeys 2 - 5km (20%+)	High % of journeys 5 – 10km (20%+)	Low active mode share (below 20%)	Low public transport mode share (below 15%)
Implication	Opportunity to increase sustainable transport mode share	Opportunity to increase active travel mode share	Opportunity to increase cycling mode share	Opportunity to increase public transport mode share	Opportunity to increase active travel mode share	Opportunity to increase public transport mode share
Ashford	✓	✓	✓		✓	✓
Bexhill/Hastings	✓	✓	✓		✓	✓
Canterbury		✓		✓		✓
Dartford				✓	✓*	
Folkestone	✓	✓	✓			✓
Gravesend		✓	✓		✓	
Herne Bay/ Whitstable	✓	✓		✓	✓	✓
Maidstone		✓	✓		✓	✓
Medway	✓	✓	✓	✓	✓	✓
Royal Tunbridge Wells/Tonbridge		✓				
Sittingbourne		✓			✓	
Thanet	✓	✓	✓		✓	✓

TRANSPORT FOR THE **South East**

Major Economic Hub Development Opportunities and Challenges

Steer also analysed the opportunities and challenges presented by planned developments at each of the South East Radial Area's Major Economic Hubs. A summary of analysis is presented in **Table 3.2** below and in detail in **Appendix C**.

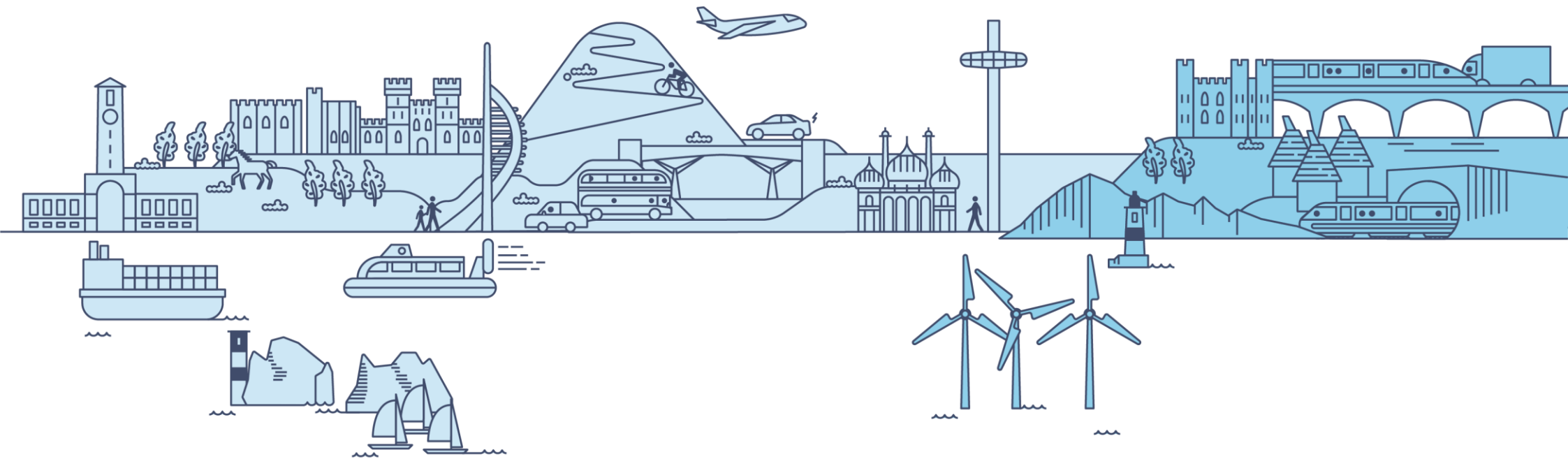| Table 3.2: Development opportunities and challenges at the South East Radial Area's Major Economic Hubs	
Hub	**Development Opportunities and Challenges**
Ashford	• Potential for residential growth in the north of the city, in proximity to where most employment growth is occurring. This area is well served by existing strategic road links (M20). • However, most housing development is currently in the southern peripheries, which is poorly served by public transport. The A2070 may also see increased congestion due to increased load in the morning rush hour peak. • Opportunity to align housing development with future major employment sites to expand the potential for active transport.
Bexhill/Hastings	• While some development in Hastings will be located near the railway station, most will occur on the perimeter, quite far from the town centre. In Bexhill, development is also quite far from the town centre. This does not bode well for public and active transport. There is also a risk that future development will place additional pressure on the (already constrained) Major Road Network in this area.
Canterbury	• Current and proposed development will add significant pressure to the already congested A2 and A28 to the SW and NE of the city. These sites are also at a considerable distance from existing public transport infrastructure However, developers have proposed improvements to the local public transport network – focusing on bus corridors. There is an opportunity for active travel to be prioritized here, too.
Dartford	• Most housing development is at the centre of the urban area, close to Dartford station and therefore with good public transport connectivity. This is significant as the development may add strain to the M25, near the Dartford Crossing.
Folkestone	• Large spread of housing development at the harbour, to the west of the centre, and near Westenhange (suburbs). These developments are likely to put strain on the M20. • As this Major Economic Hub is expected to become more dispersed, commuting by public and active transport will become more challenging. Two major developments are over 3km from Folkestone Central station.
Gravesend	• Most housing development planned within walking/cycling distance of public transport sites, town centre, and major employment sites. However, there is a risk this development will place additional pressure on the Strategic Road Network (e.g. A2277 and A2), which already sees high levels of congestion.
Herne Bay/ Whitstable	• Future development are small and will be situated close to Herne Bay, so well served by public transport and with minimal strain to the Strategic Road Network. This also means development is a reasonable walking/ cycling distance to the town centre and public transport network.
Maidstone	• Housing development is planned to the north and south east, which aligns moderately well with employment development in the north and west. Active transport is therefore fair. • Development around this Major Economic Hub may add strain to the A229 and M20, with the former being particularly congested already.

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Major Economic Hub Development Opportunities and Challenges

Steer also analysed the opportunities and challenges presented by planned developments at each of the South East Radial Area's Major Economic Hubs. A summary of analysis is presented in **Table 3.2** below and in detail in **Appendix C**.

Hub	Development Opportunities and Challenges
Table 3.2: Development opportunities and challenges at the South East Radial Area's Major Economic Hubs	
Medway	• Medway Council is preparing a new Local Plan. Previous consultation drafts have indicated that most new housing development should be in areas relatively well-served by public transport, while other areas have been the focus of upfront government infrastructure funding.
Royal Tunbridge Wells/Tonbridge	• Most future development will happen in locations which are relatively easily accessible by active transportation modes., and near to public transport hubs. Development is also unlikely to have a large impact on Strategic or Major Road Networks.
Sittingbourne	• Most future Development will happen in locations which are relatively easily accessible by active transportation modes. • In general, public transport mode share is moderate/high on most of the key journey to work flows centered on this Major Economic Hub, and it is expected that this will continue into the future.
Thanet	• A significant amount of development will occur in locations that are an unreasonable walking/cycling distance from the town centre, and away from public transport hubs. Furthermore, the locations of housing and employment growth may increase traffic volume on the A28 or A299.

South East Radial Area Study Evidence Base

TRANSPORT FOR THE
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Part 3c
Problem Statements

Problem Statements

Global Issues

1. Transport is not de-carbonising fast enough

2. Climate change threatens the resilience of the transport network

3. Freight is heavily reliant on the highway network, especially for first-mile-last-mile deliveries

4. There is a recognised need for housing and communities – but it needs to be sustainable

5. The mobility benefits of new technologies are not accessible to everybody

Economy and Society

6. The area is "cut off" from the rest of the UK by London and the River Thames.

7. The economic influence of London dominates the area

8. Industry is relatively weak and economic productivity is below average

9. Poor connectivity is holding back coastal and island communities

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

International Gateways and Highways

11. Dover is highly constrained by its small footprint and access

12. The Channel Ports (Dover/Folkestone) are too reliant on one highway corridor

13. Too many disruptive events at ports result in widespread disruption on the highway network

Placemaking

14. There are significant highway congestion, safety, and air quality issues in multiple places

Railways

15. Too many rail services are too slow

16. There are significant resilience challenges on parts of the rail network

17. There are capability and capacity challenges on parts of the rail network

Public Transport

18. The quality of mass transit services is variable and bus patronage is relatively low.

19. Public transport integration is weak – both physically and in terms of the 'customer journey'

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

21. Too many public transport services and networks are not accessible to all users

Active Travel

22. Cycle participation is relatively low, particularly in North Kent

23. Cycling infrastructure is variable and generally poorer than other parts of the South East

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While many stakeholders in the South East Radial Area recognise the need to decarbonise, 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.

All three Local Transport Authorities in the South East Radial Area have declared Climate Emergencies and committed to 'net-zero' carbon emissions by 2050.

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, while almost entirely electrified, includes one section of diesel operations between Ashford and Hastings, which contributes to this problem.

Carbon Emissions Trajectory for the South East Area
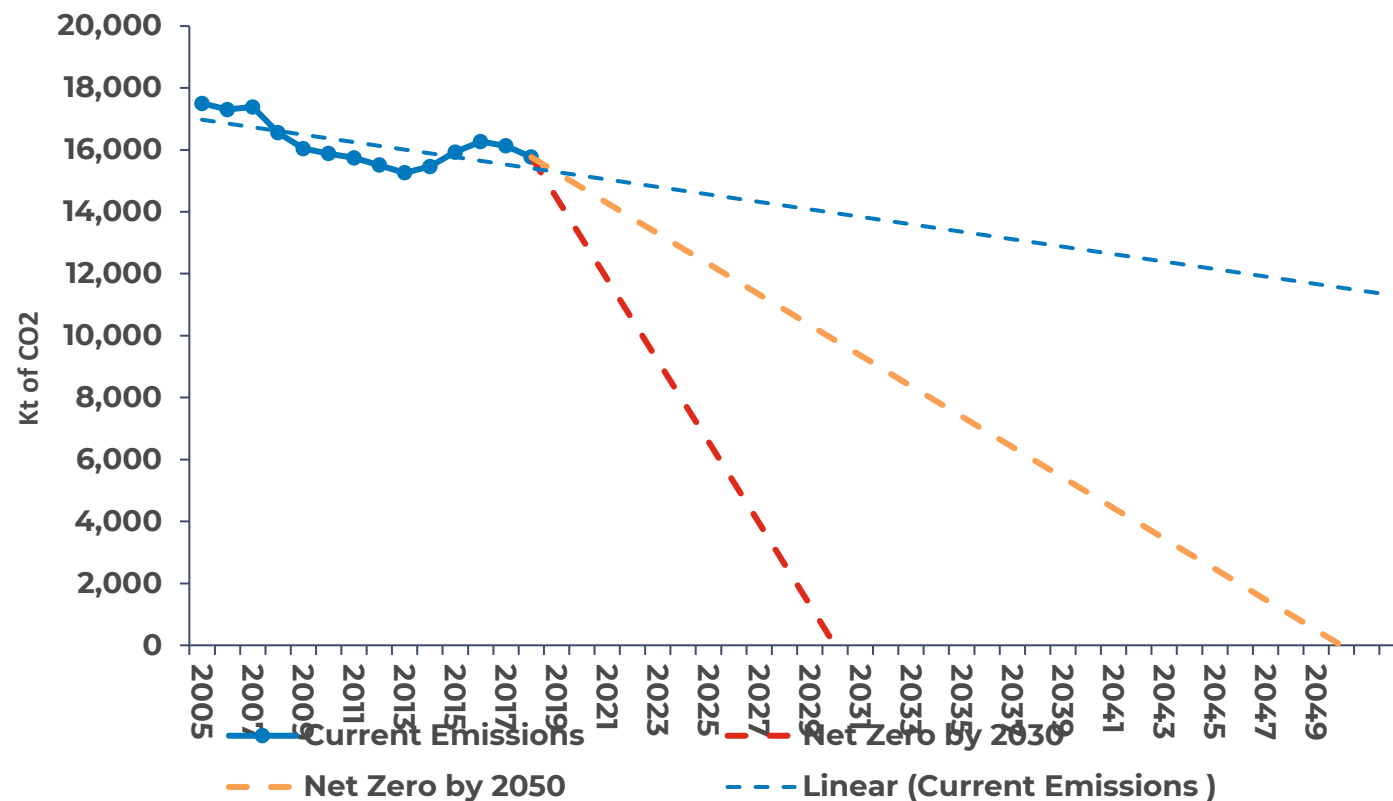
Source: Steer analysis of BEIS data

"We recognise the UK environment and climate emergency and will continue to commit resources and align its policies to address this. Through the framework of the Energy and Low Emissions Strategy, we will facilitate the setting and agreement of a target of net zero emissions by 2050 for Kent and Medway …We will reduce greenhouse gas emissions from our own estate and activities to net zero by 2030. We are also committed to reducing greenhouse gas emissions from the whole county to net zero by 2050." (KCC, 2019).

The transport networks serving the South East Radial Area are vulnerable to the effects of climate change and in many areas are showing signs of poor resilience.

The area's transport networks cut across several areas that are already vulnerable to flooding and temperature extremes. Until recently, Faversham held the record as having recorded the highest temperature in the UK – a heat that can cause disruption to railways and highways.

The railway network is relatively old and features numerous tunnels and cuttings. Some sections, such as Folkestone Warren (see right), are particularly vulnerable to storms and long periods of wet weather.

Climate change is likely to increase the frequency and strength of weather events (and extreme heat in summer). There is also a risk of sea level rise in the longer term, threatening low lying infrastructure and communities.

The outcome of this problem is increased operations, maintenance and renewal costs, which will be borne by transport users and wider society.

Flood Risk in the South East Radial Area
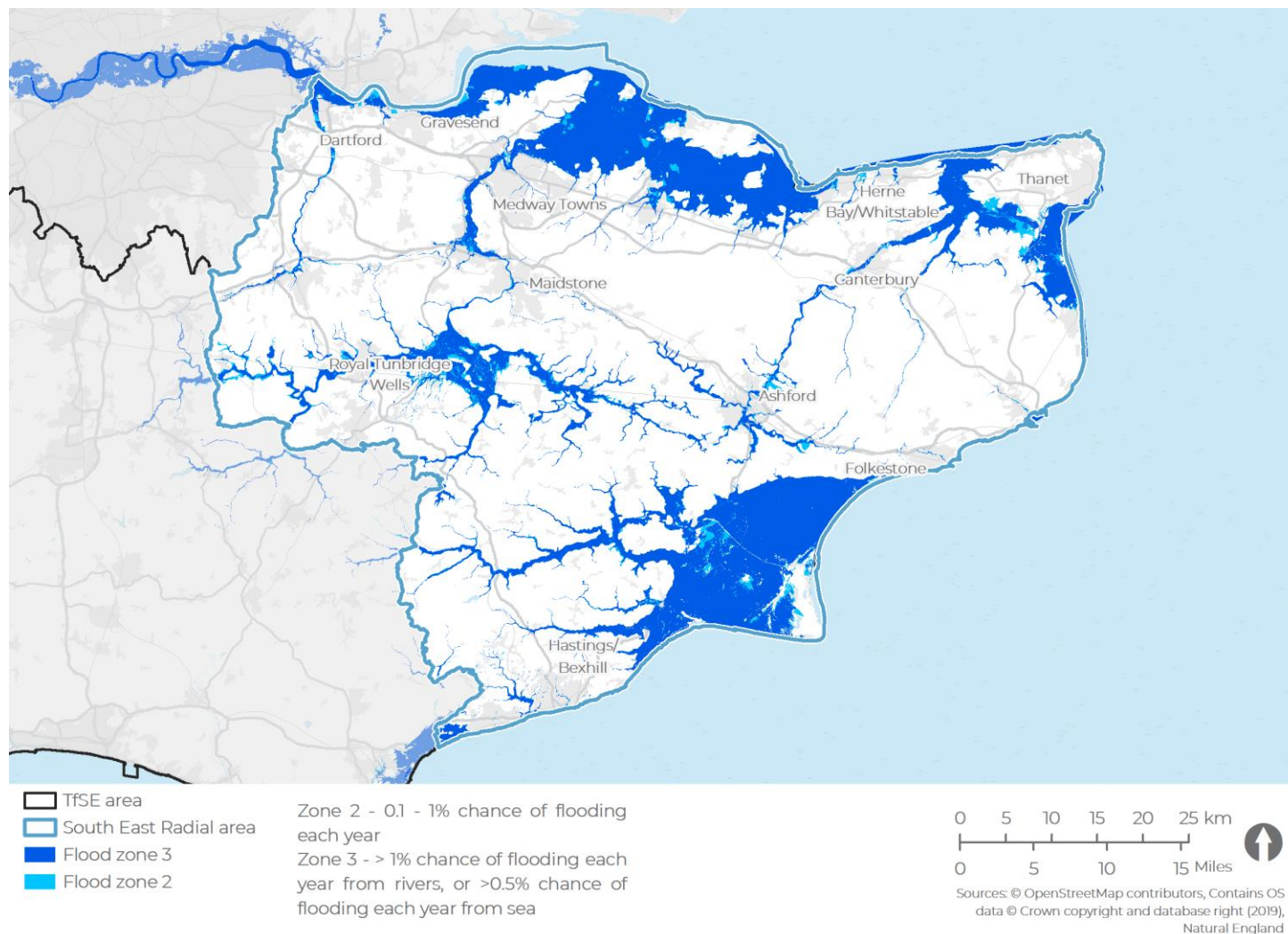
Legend:
- TfSE area
- South East Radial area
- Flood zone 3
- Flood zone 2

Zone 2 - 0.1 - 1% chance of flooding each year
Zone 3 - > 1% chance of flooding each year from rivers, or >0.5% chance of flooding each year from sea

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

South East Radial area Study Evidence Base

TRANSPORT FOR THE **South East**

Freight is very reliant on highways.

Rail freight mode share is low nationally (around 5%, based on tonnage) and, according the ORR, data, has declined in terms of freight train movements on the national network. There is, however, some promising signs of recovery as rail freight grew in 2020. 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 paths. Inland waterways could also play a role.

It should be possible to achieve higher mode shares. 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 and strategic rail freight interchanges, 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).

First-mile-last-mile-deliveries, which include (fast growing) home deliveries, are almost entirely reliant on highways.

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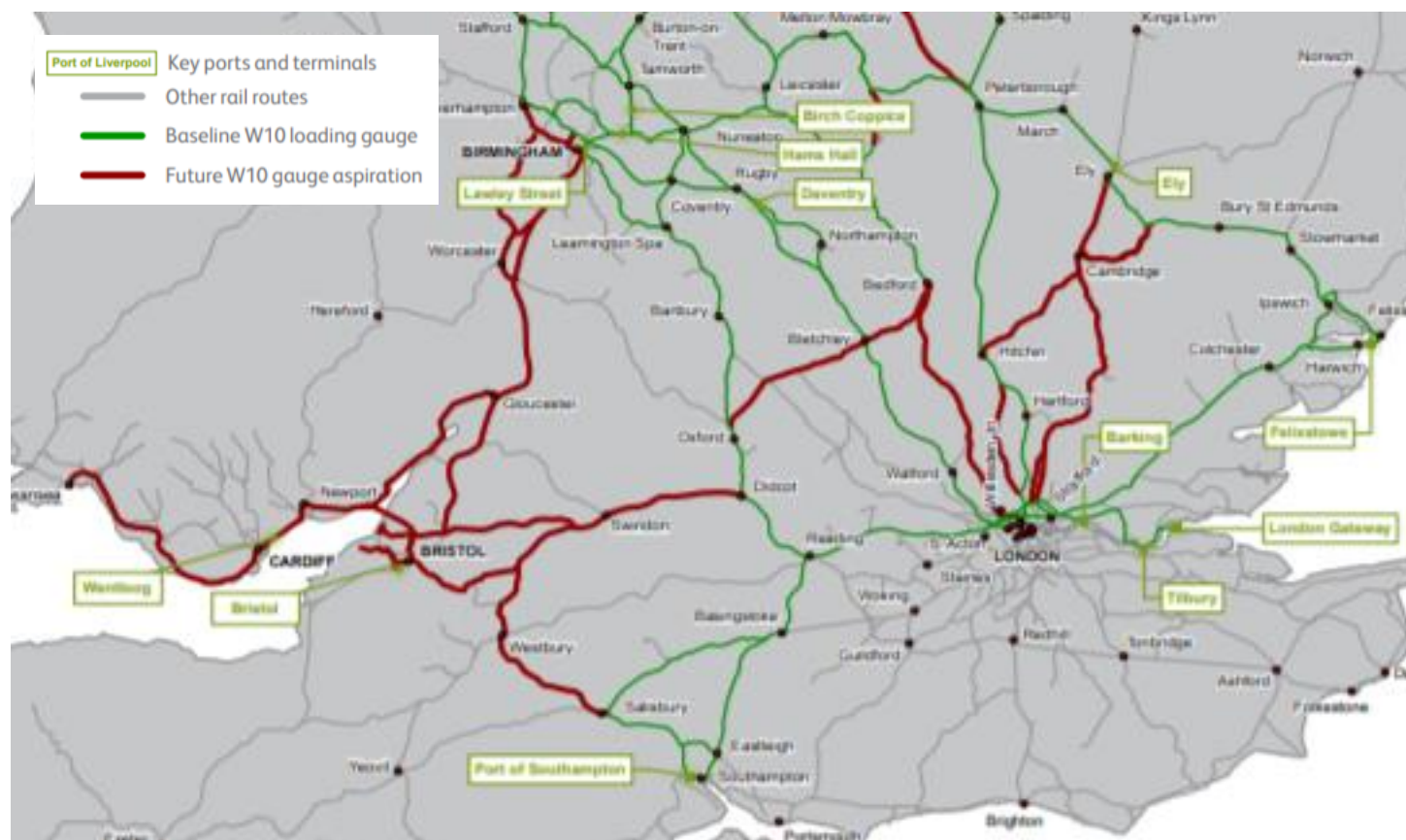
Map source: Network Rail, freight Network Study, https://www.networkrail.co.uk/wp-content/uploads/2017/04/Freight-Network-Study-April-2017.pdf
Freight statistics source: https://dataportal.orr.gov.uk/media/1738/freight-rail-usage-performance-2019-20-q4.pdf

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South East

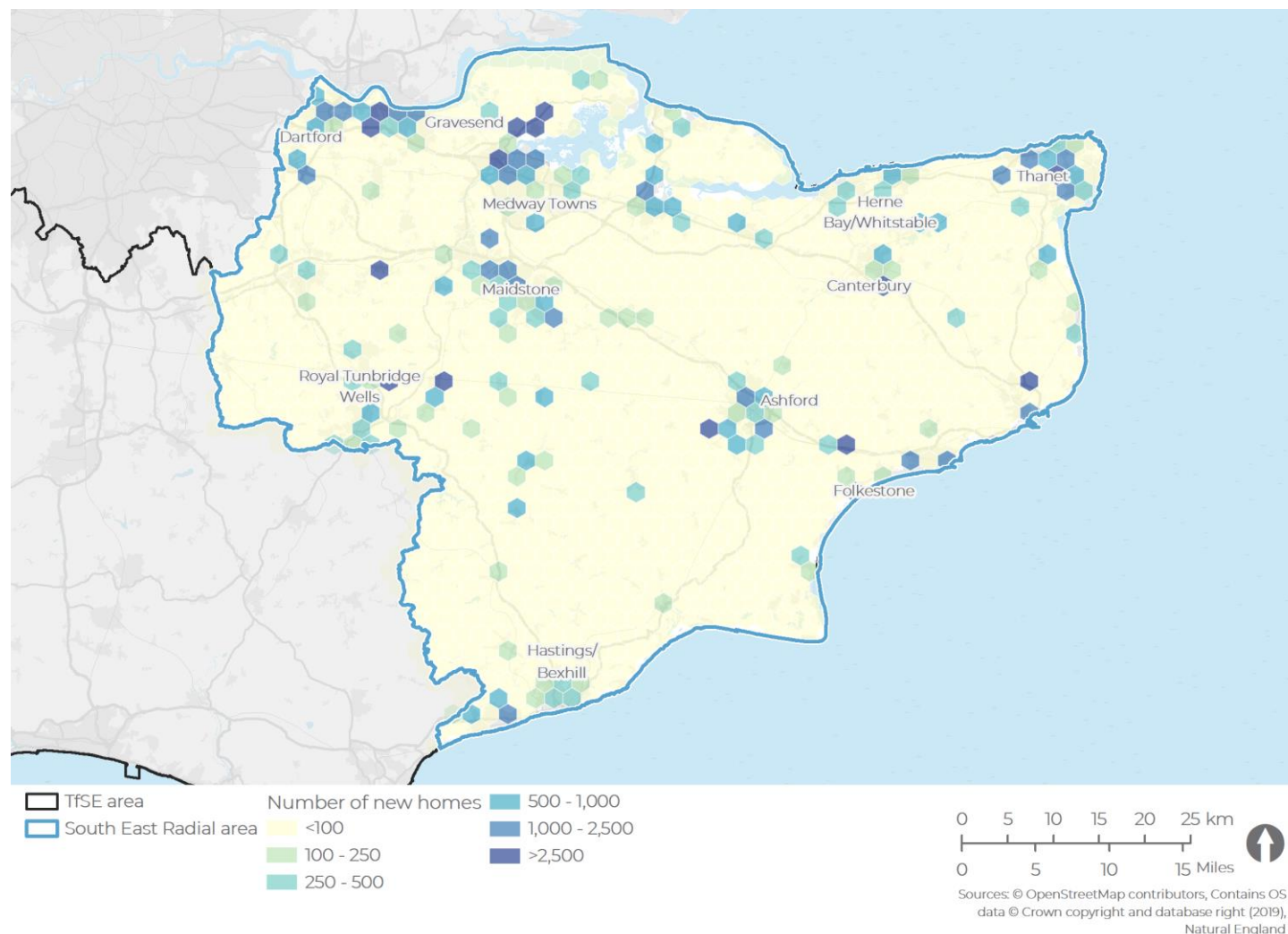**There is a recognised need for housing in the South East Radial Area – but in the right places, supported by the right infrastructure, and planned to deliver sustainable travel outcomes.**

The fragmented nature of the planning system and lack of effective strategic planning makes it difficult to integrate spatial, transport, and economic planning. The area is also heavily constrained by the landscape and layout of urban areas. To accommodate over 185,000 new homes by 2050 (see **Figure 2.2**), there will be a need for additional housing and employment. 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, and transport hubs. There is also a risk of imbalance in employment and housing growth (see **Figure 2.3** in Part 2).

Local Plan projections for housing and employment growth

Legend:
- TfSE area
- South East Radial area

Number of new homes:
- <100
- 100 - 250
- 250 - 500
- 500 - 1,000
- 1,000 - 2,500
- >2,500

0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England
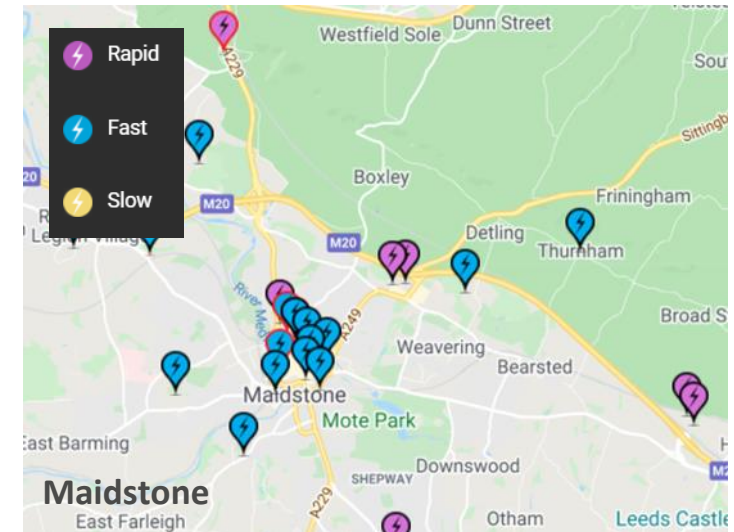
There are significant gaps in infrastructure to support future technologies – notably electric vehicle charging infrastructure.

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, to a lesser extent, Maidstone 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 City Centre, it appears that more deprived areas (such as Bexhill) are less well served than more prosperous suburban areas, such as Canterbury. This problem underlines the risk of technology contributing to – rather than helping address – rural and socioeconomic inequality in the South East Radial area.

There are other barriers to electric vehicle uptake – notably the price of Electric Vehicles and range anxiety associated with their performance – that will need to be addressed if we want the road fleet to fully decarbonise by 2050.

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

Brighton and Hove (Comparator)

Maidstone

Deal (Kent)

Bexhill (East Sussex)

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

South East Radial area Study Evidence Base

TRANSPORT FOR THE **South East**
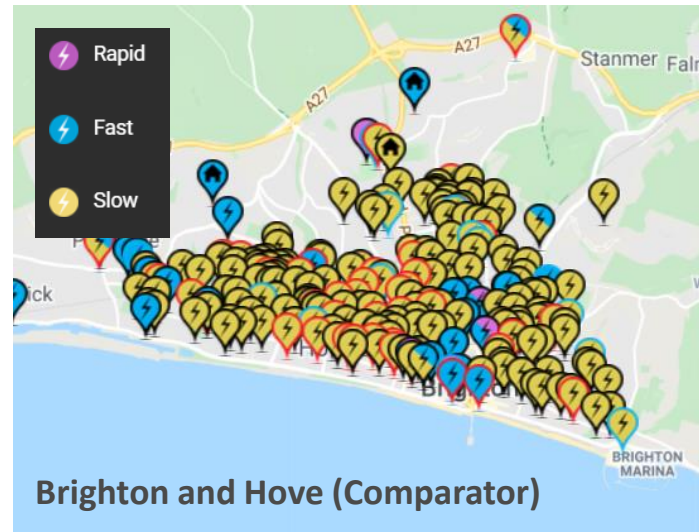
Google Earth view of the South East Radial Area from above

The ceremonial country of Kent borders the Thames Estuary and the North Sea to the north, and the Straits of Dover and the English Channel to the south. Lille is closer to Maidstone than Leicester. Most of the UK can only be accessed by crossing the River Thames at Dartford, driving through Greater London, or via the M25 through Surrey. Rother and Hastings are similarly remote and have limited transport connectivity thanks, in part, to the Weald. This means the South East Radial Area shares many characteristics of peninsulas such as the South West Peninsula, which suffer similar challenges with connectivity and (especially in Cornwall's case) productivity.

TRANSPORT FOR THE
South East

While the whole TfSE area has strong economic ties to London, the economic influence of the Capital is particularly strong in this area.

London's pre-pandemic population was 3 – 4 times larger than the population of the South East Radial Area. However, it's economy is estimated to be 8 times larger than Kent, Medway and East Sussex.

London's overwhelming economic influence is compounded by:

• the South East Radial Area's relative isolation compared to other parts of the South East (Problem Statement 8);

• the absence of a large cities such as Southampton or Brighton;

• the absence of a large employment cluster, such as Gatwick Airport; and

• the development of the transport system, which offers high quality access to London.

Having access to an international city represents a significant strength for the South East. However, many stakeholders would like to see less reliance on the Capital to promote a more resilient economy.

Workday and resident population (HoC, 2011)

Where do people work?
Parliamentary constituencies in England and Wales scaled by the size of the workplace population, 2011

Boundaries are distorted accroding to size of workplace population.
Constituencies are coloured according to % difference in workday and resident population.

% difference between workday and resident population
Adults aged 16-74

-69% to -40%	(313)
-40% to -15%	(218)
-15% to 0%	(23)
0 to 15%	(8)
15% to 50%	(4)
50% to 880%	(7)
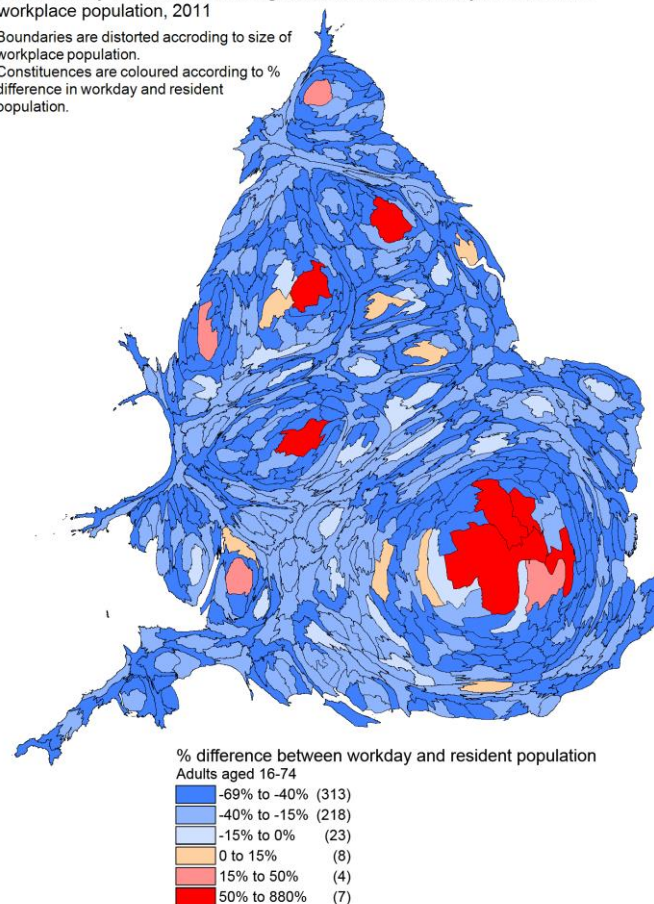
© Crown copyright. All rights reserved. House of Commons Library (OS) 100040654 and (OSNI) 2085 (2014)

Gross Value Added (£m, ONS, 2019)

Medway £6 · East Sussex £10 · Kent £39 · London £468

Sources: https://commonslibrary.parliament.uk/who-works-in-your-constituency-a-new-interactive-tool-for-exploring-workplace-populations/ and https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/revisionstrianglesregionalgrossvalueaddedbalancedincurrentbasicprices

TRANSPORT FOR THE **South East**
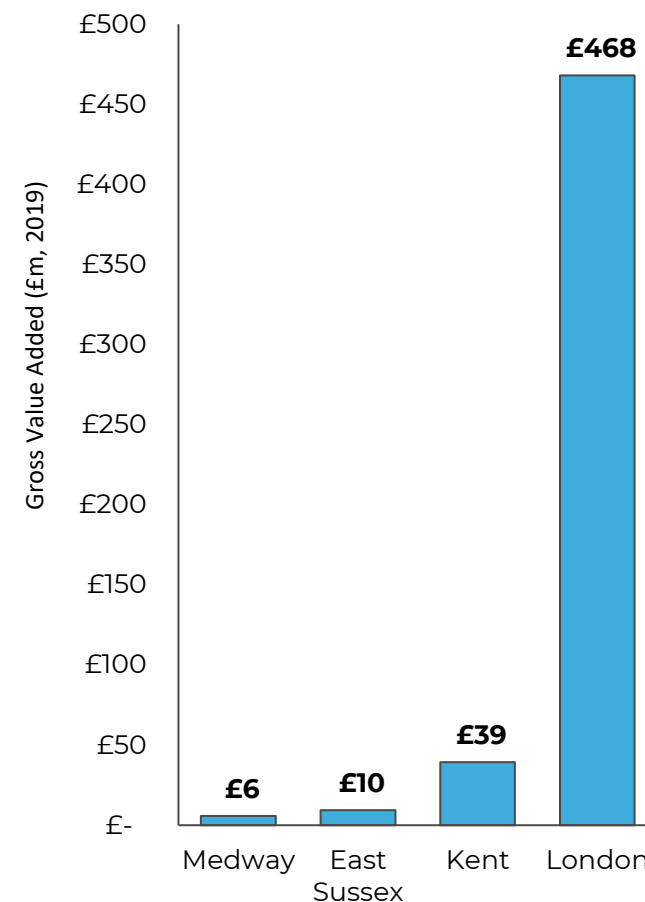
The South East Radial Area has weak socioeconomic outcomes compared to other parts of South East England.

Socioeconomic indicators such as GVA per capita (see right), education, deprivation, and unemployment are relatively low in this area. Districts/boroughs furthest east and further away from London generally have weaker socioeconomic outcomes than those located further west and closer to the Capital. There are pockets of high deprivation closer to London (e.g. North East Kent) and vice versa (e.g. Wye), but the broad trend is clear.

TfSE's Economic Connectivity Review identified several clusters of high-value/high-growth industrial sectors in the South East, which offer a route to greater prosperity. However, very few of these clusters were identified in the South East Radial Area.

The reasons behind the area's current performance are complex and transport is just one of many factors. That said, many stakeholders believe improving transport connectivity is needed to enable many of the most deprived areas to develop.

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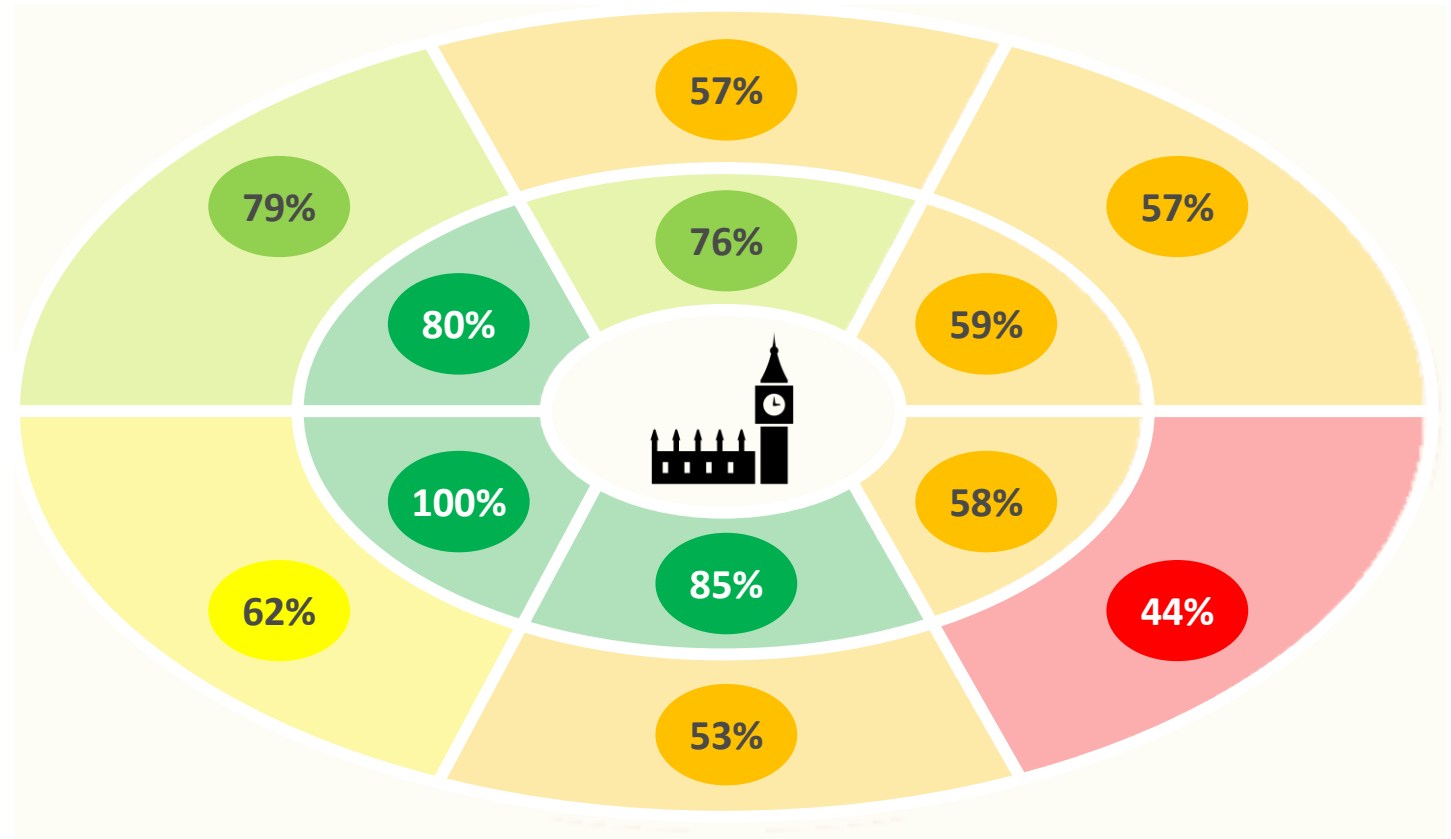
Source: Steer, ONS GVA per capita data
South West / Inner Orbital zone = 100%
Icon Credit: Pham Duy Phuong Hung

Poor connectivity is holding back coastal and island communities

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

For example, Ashford enjoys very high levels of public and highway connectivity compared to nearby Hastings and Thanet. Communities living on peninsulas (e.g. Hoo) and Islands (e.g. Sheppey, Thanet) also face similar connectivity challenges.

The link between socioeconomic outcomes and transport investment is complex. However, many stakeholders have told us they believe poor connectivity means places like North East Kent and Hastings/Bexhill need to "work harder" to secure the investment in opportunities that these places deserve.

Public transport catchment areas for Ashford and Hastings

Index of Multiple Deprivation Overall rank in England (2019):
- 10% most deprived
- 10 – 20%
- 20 – 30%

Journey time by public transport to Central London
- 0 – 30 mins
- 20 – 60 mins
- 60 – 90 mins

Source: MHCLG

Base map data © OpenStreetMap contributors. Contains OS data © Crown copyright and database right (2019). Cartography by Steer 2019.

TRANSPORT FOR THE **South East**
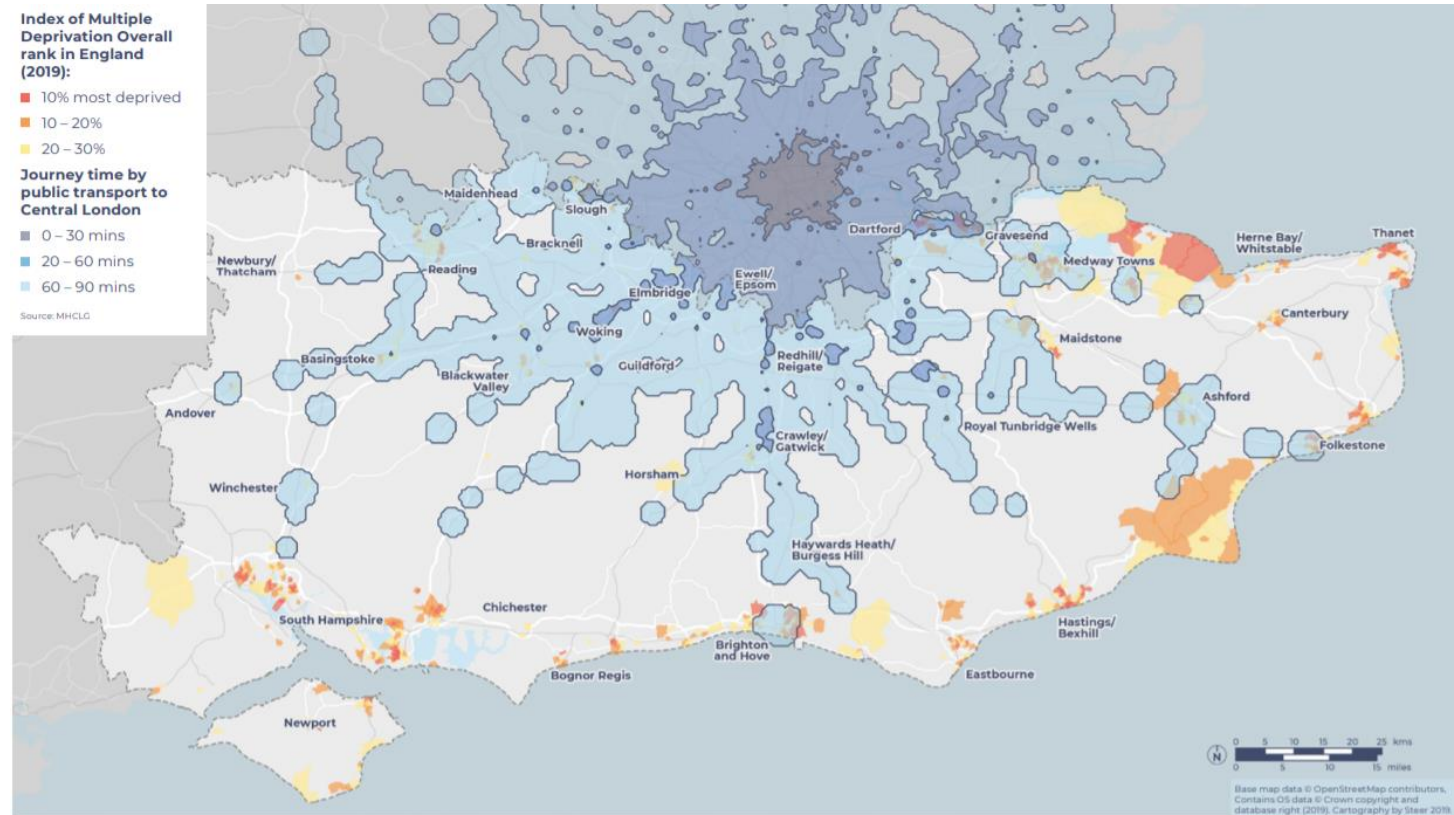
Rural communities in the South East Radial Area have significantly poorer access to public transport, Mobility as a Service providers, and high-speed broadband compared to urban areas.

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 South East Radial Area.

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

Public Transport connectivity

TfSE area
South East Radial area

Average minimum journey time to key services
By public transport plus walking (mins)

6 - 10
11 - 20
21 - 30
31 - 40
41 - 50
51 - 60
61 - 70
71 - 80

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England
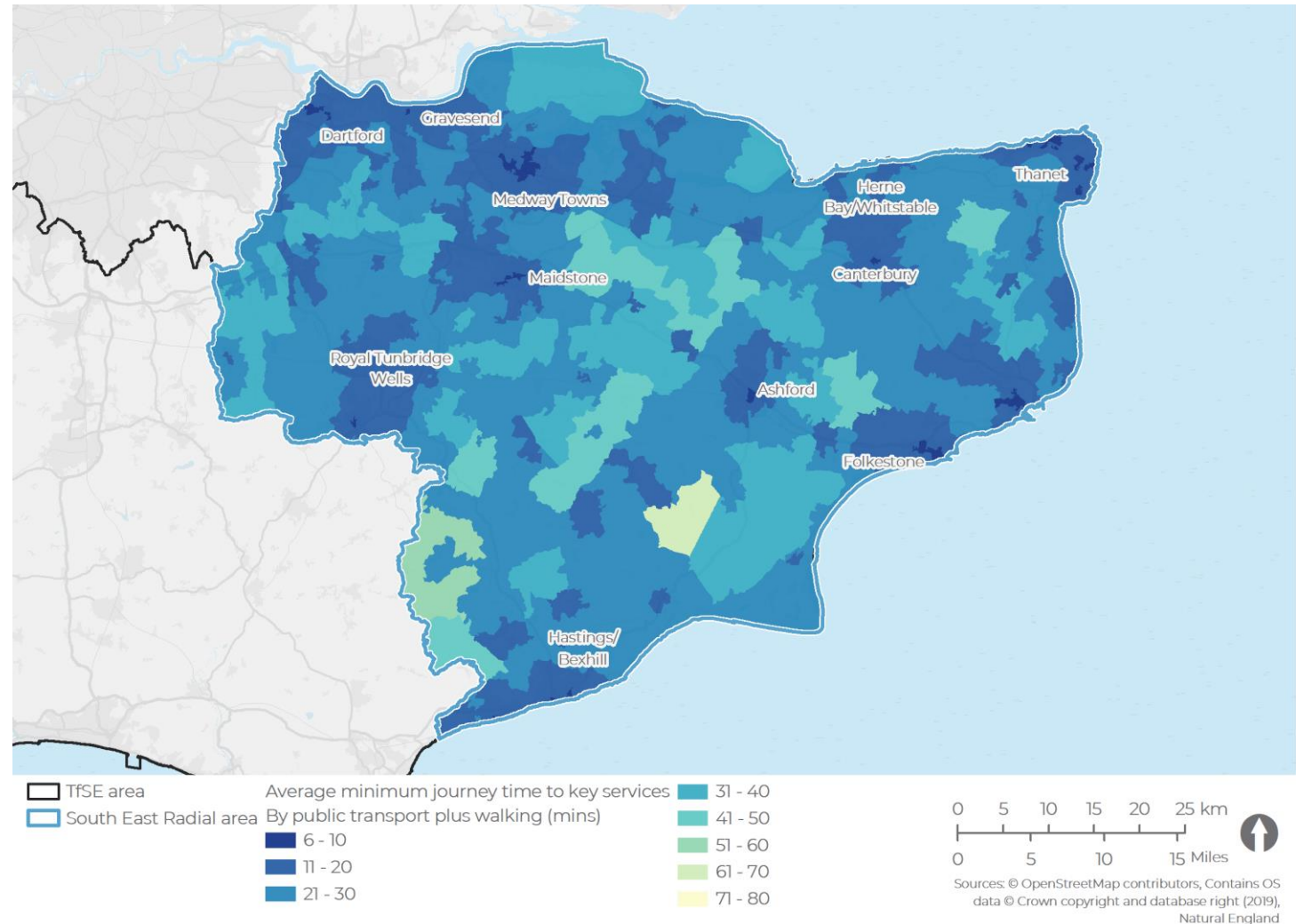
Dover is highly constrained by its small footprint and access

The Port of Dover is (or, at least pre-COVID-19, was) the busiest Roll-On Roll-Off port in the world and the busiest passenger port in Europe. However, it is constrained by its relatively small footprint.

The figure to the right illustrates the constraints in available land for Dover to 1) provide adequate highway and railway access/interchange and 2) expand port operations. The Port of Calais, on the other hand, benefits from more space that can be used for transport access and expansion. For example, highway access to the Port of Calais is provided by a grade separated, motorway standard expressway that entirely avoids the town.

Clearly, the geographic context of Dover is very different to Calais. However, it must be acknowledged that Dover faces constraints that present challenges for the future of the South East's transport network and economy.

Footprint of Ports of Dover and Calais (same scale)

Dover

Current port footprint

Western Docks expansion

1km

Calais

Expansion

Current port footprint

1km

Image sources: https://www.openstreetmap.com , TfSE (Dover), https://www.portboulognecalais.fr/en/who-we-are

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

12 The Channel Ports (Dover/Folkestone) are too reliant on one highway corridor
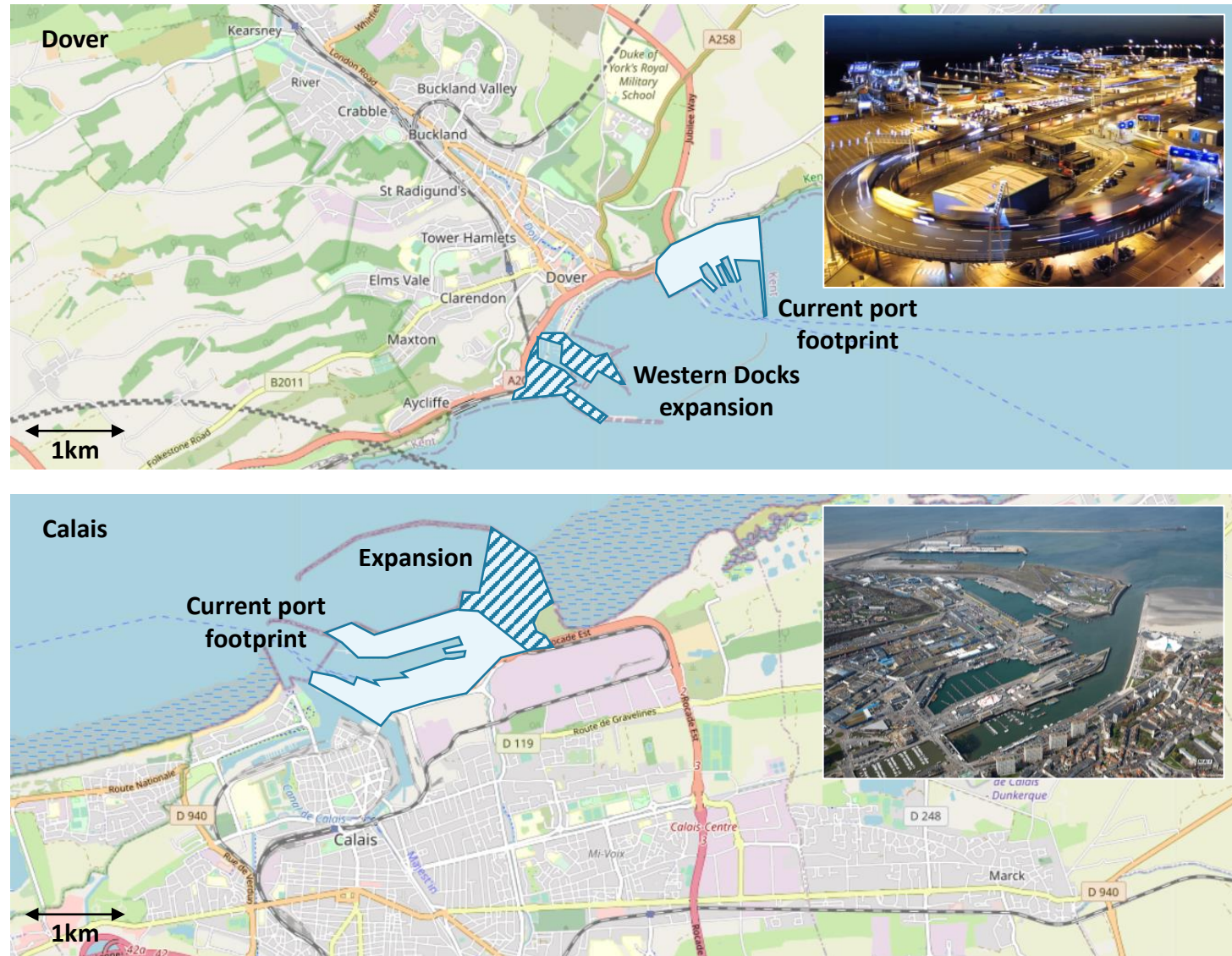
At present, there is only one motorway for the full route between Dover, Folkestone and the M25.

Kent is the gateway to the British Isles for many international travellers and freight transporters. The two busiest international gateways – the Port of Dover and Folkestone-Cheriton Channel Tunnel Terminal – are linked to the rest of the GB motorway network by the M20 and A20.

An alternative route is available via the M2 and A2 corridor, which runs through North Kent. However, this corridor features several sections that fall below the standard offered by the M20, including:

- single carriageway sections between Dover and Canterbury;

- constraints at junctions such as Brenley Corner and Blue Bell Hill; and

- the Dartford Crossing

Kent and Highways England wish to see a bifurcation strategy implemented that would deliver two high quality corridors to the Channel Ports. This would significantly strengthen resilience and connectivity.
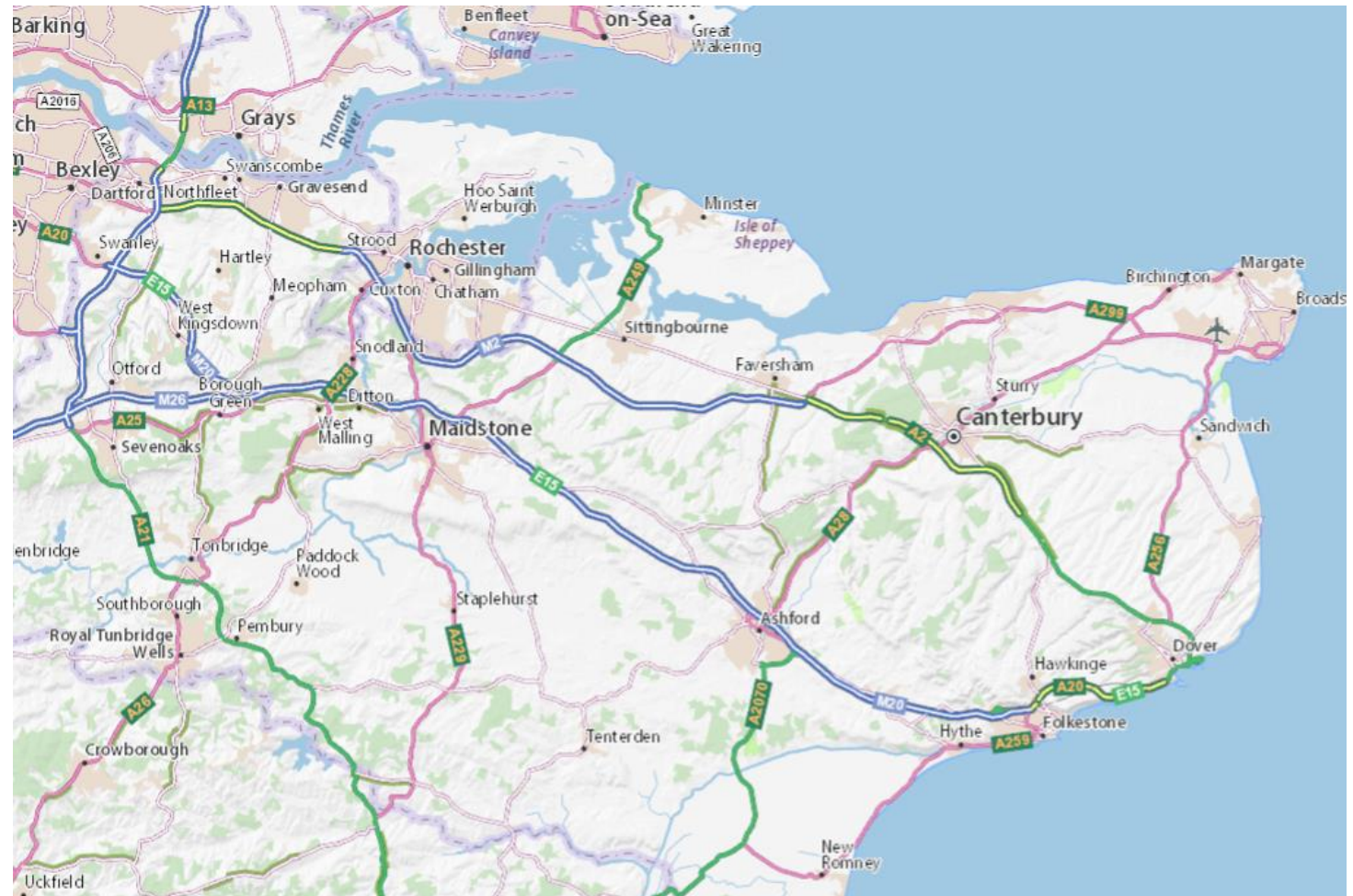
Key highways in Kent and East Sussex

Image source: https://www.viamichelin.co.uk/

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

Disruption at the Channel Ports is regularly in the news and its impact often 'spill overs' across Kent.

The causes of this disruption are diverse – weather, industrial action, operator performance issues – and could increase as the UK-EU trading relationship changes.

Government and resilience partners have developed two broad responses to disruption at the Channel ports:

- **Operation Stack**, where the M20 is closed to normal traffic (between different sections depending on the severity of disruption) and the motorway is used to park HGVs; and

- **Operation Brock**, which instigates a contraflow system on the westbound carriageway of the M20 (see right) and sets aside the eastbound carriageway for HGV parking.

Operational Brock can take several days to implement, whereas Stack is can be rolled out in a matter of hours.

Many stakeholders view current resilience arrangements as unsustainable and wish to see a better solution delivered in Kent.

Operation Brock on the M20

Image source: PA via Kent Live *https://www.kentlive.news/news/kent-news/what-operation-brock-7-questions-3473722*

South East Radial Area Study Evidence Base

TRANSPORT FOR THE
South East

These hotpots can significantly blight an area's economy, environment, and quality of life for residents, businesses, and visitors.
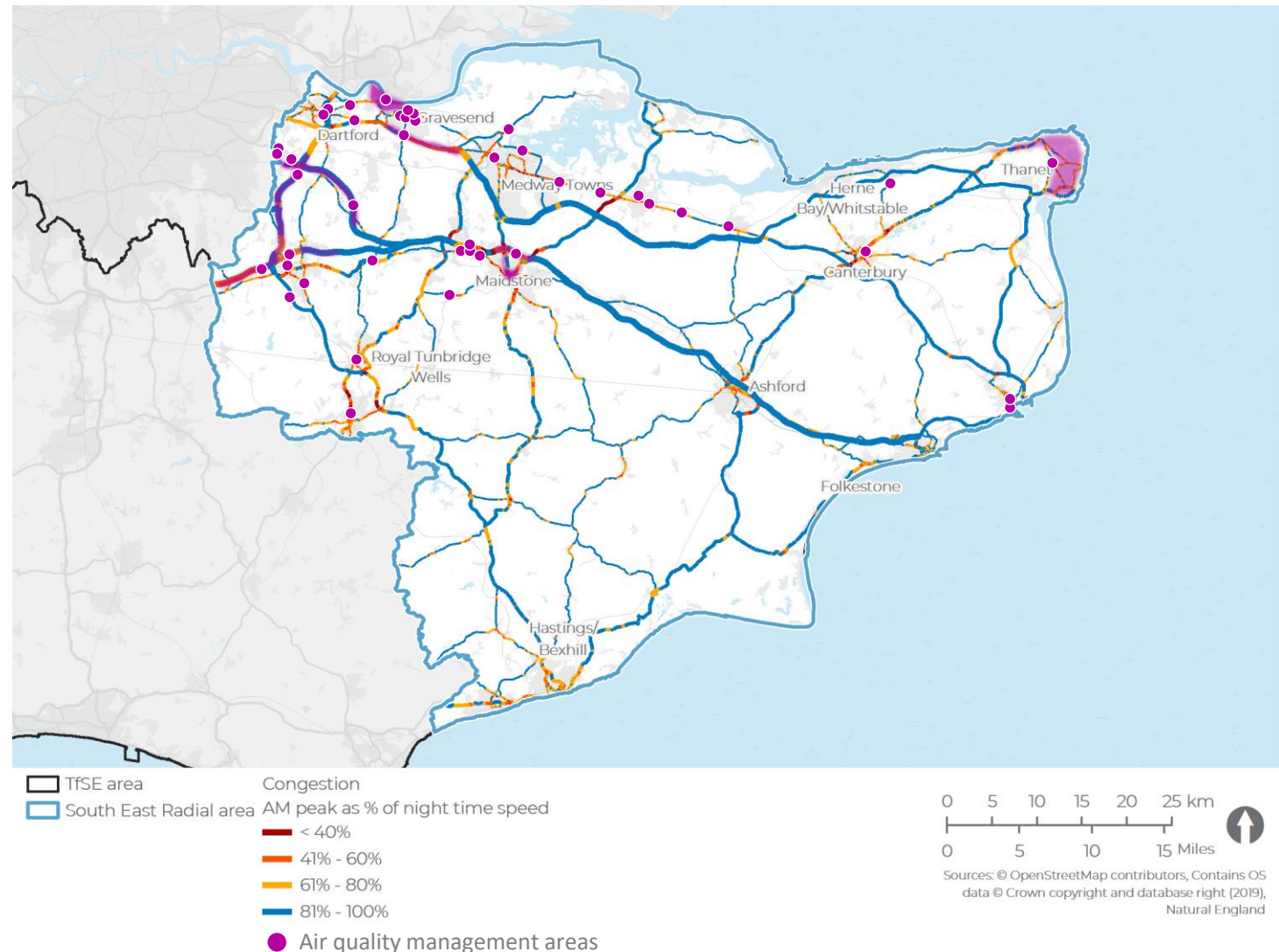
The figure to the right, which is based on **Figure 1.15** in Part 1, shows congestion and air quality hotspots on the highway network in the South East Radial Area. It should be noted this data reflects pre-COVID-19 data and may not be representative of future travel patterns.

Congestion, road safety, and air quality hot spots tend to arise at the same location. This is often where highway infrastructure is unable to accommodate all the traffic demand placed upon it.

In the South East Radial Area, this is observed at major junctions, town and city centres, and on some sections of the Strategic and Major Road networks.

Congestion undermines the efficiency of the transport network and the economy, while poor safety and air quality harms human heath. These hotspots are often hostile environments for vulnerable road users and can act to deter people from choosing to walk or cycle in these areas.

Congestion and Air Quality 'Hot Spots' in the South East Radial Area

TfSE area
South East Radial area

Congestion
AM peak as % of night time speed
■ < 40%
■ 41% - 60%
■ 61% - 80%
■ 81% - 100%
● Air quality management areas

0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

TRANSPORT FOR THE **South East**

Rail services serving communities in North East Kent and the East Sussex Coast are objectively slower than services in other parts of the area.
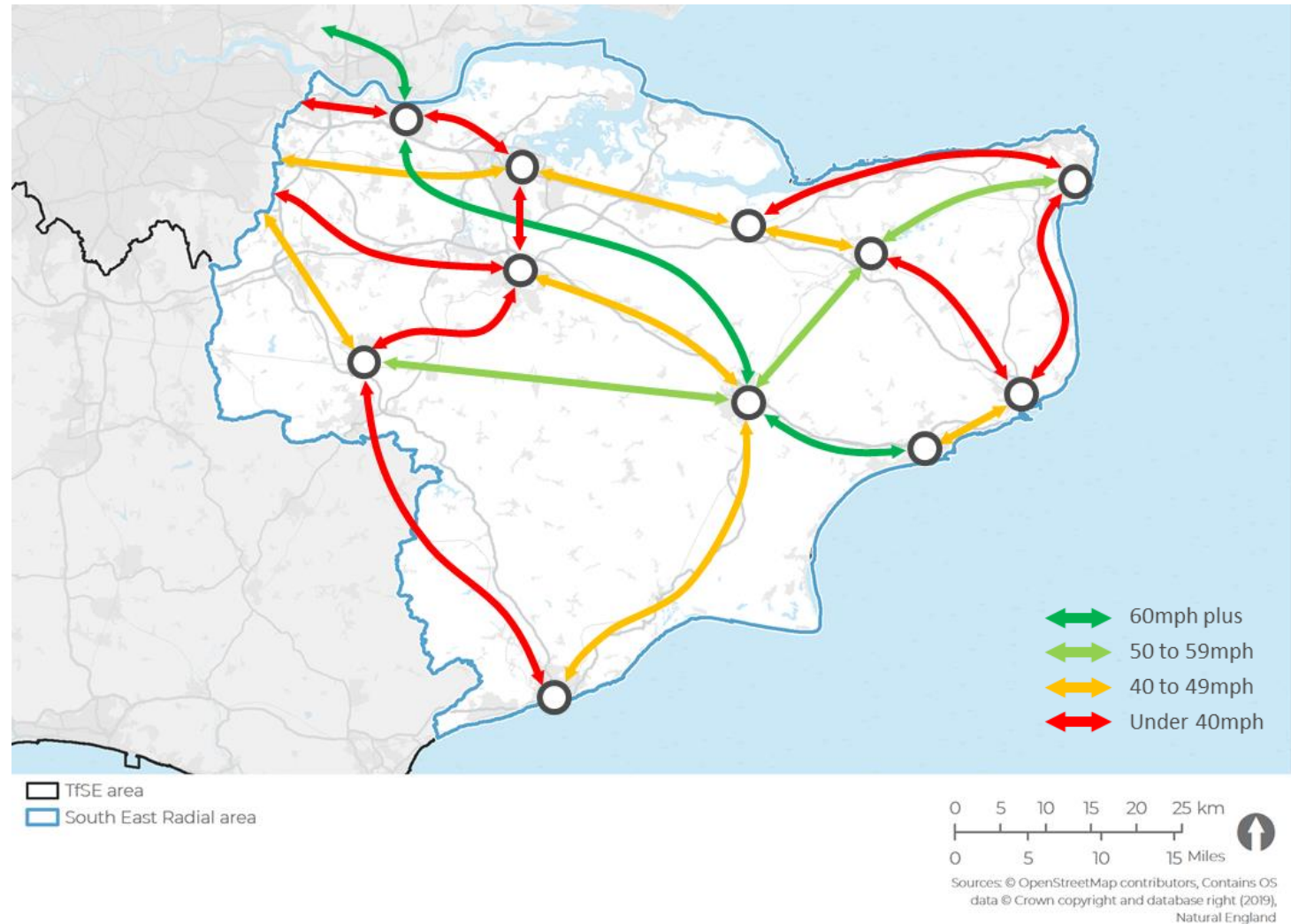
The differences in connectivity provided is especially stark when compared to the excellent connectivity provided by the High Speed 1 (HS1) railway.

The slower speeds off HS1 Line (shown in the figure to the right) reflect the alignment of the track, signalling arrangements, and the passenger rail service calling pattern.

The difference in rail connectivity means places like Thanet and Hastings/Bexhill need to 'work harder' to attract investment compared to better connected Major Economic Hubs such as Ashford.

This may explain why these areas generally have weaker socioeconomic outcomes (such as higher levels of deprivation) than places closer to London.

Average rail speeds on selected sections of the area's railway network

60mph plus
50 to 59mph
40 to 49mph
Under 40mph

TfSE area
South East Radial area

0 5 10 15 20 25 km
0 5 10 15 Miles

Sources: © OpenStreetMap contributors, Contains OS data © Crown copyright and database right (2019), Natural England

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TRANSPORT FOR THE **South East**

There are significant resilience challenges on parts of the rail network.

It is getting harder to maintain an old railway that is embedded in a coastal and chalky landscape, especially as the climate changes.

Some of the oldest railways in the world are located in the South East Radial Area. Many were built at a time when trains operated at lower speeds and therefore follow alignments that do not work well for modern needs. They were also among the first to be electrified (to third rail).

Much of the railway is built in chalk and clay cuttings/tunnels, which bring their own challenges (notably in poor weather).

All the above presents resilience challenges for the railway. There are regular issues with embankment and cutting subsidence in the Weald and along the Kent coast. Some railways run through areas prone to coastal and inland flooding. The third rail limits the railway's resilience to ice and snow.

Network Rail are expecting to need to invest millions in the railway just to 'stand still'. There is also a risk that some links – such as at Folkestone Warren – could become unviable if sea levels rise.

Folkestone Warren

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

TRANSPORT FOR THE **South East**

While the South East Radial Area's railway benefits from multiple routes to London, there are some bottlenecks holding back growth.
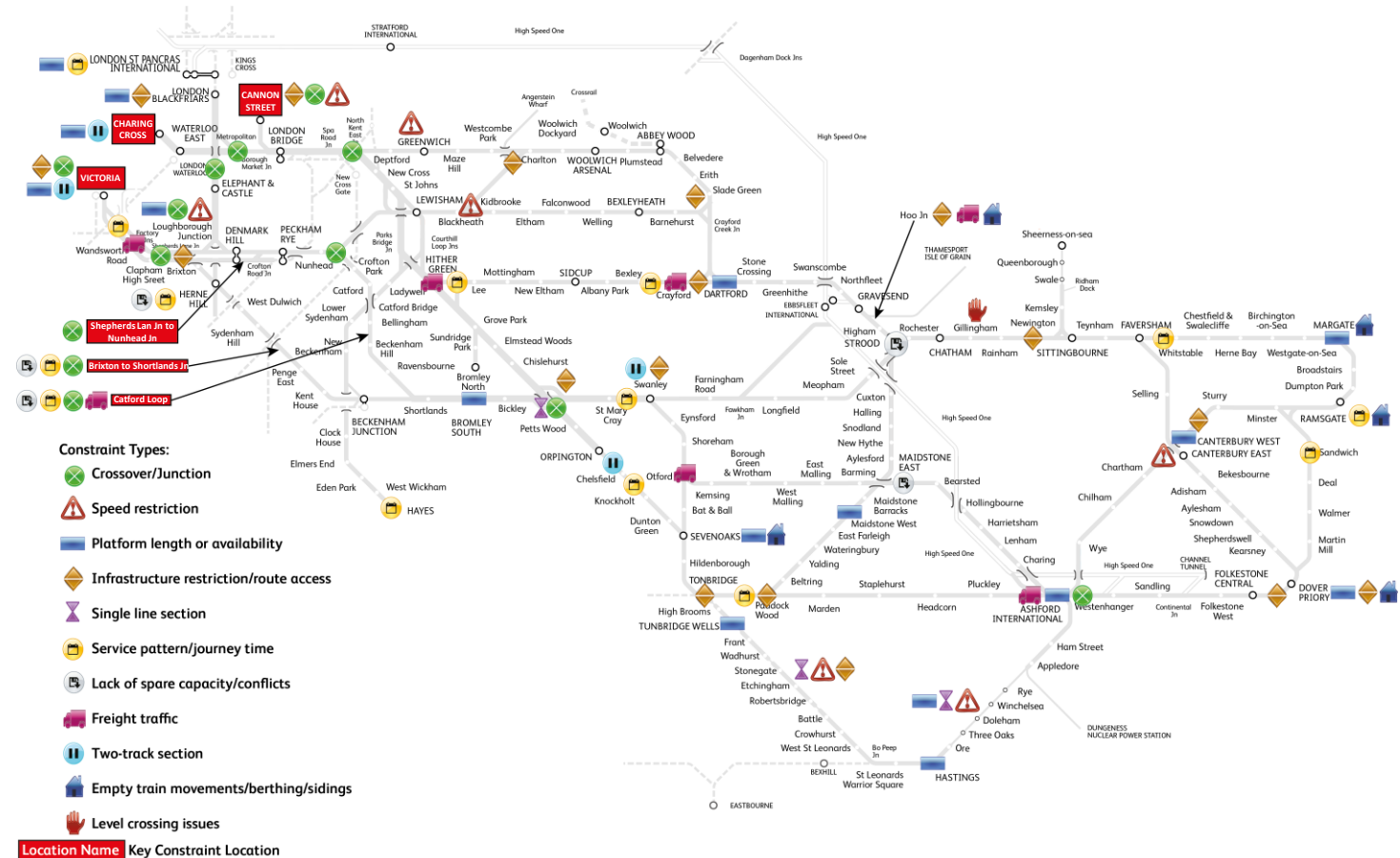
Thanks to the way the railway developed (under the direction of two companies for many years), there are multiple routes to London. High Speed 1, which fully opened in 2007, provides an additional route to London and beyond.

That said, there are some bottlenecks that undermine operational performance and make it difficult to address (pre-COVID-19) crowding challenges. These include:

- most (if not all) London Terminals;
- several approaches to London; Terminals (e.g. twin track section from Bromley South to Brixton);
- two track sections between Orpington and Tonbridge;
- Rochester Bridge Junction;
- flat junctions around Lewisham; and
- Dartford station and junctions.

Further detail about these constraints is provided in the diagram to the right.

Capability and capacity constraints on Network Rail's South East Route

Constraint Types:
- Crossover/Junction
- Speed restriction
- Platform length or availability
- Infrastructure restriction/route access
- Single line section
- Service pattern/journey time
- Lack of spare capacity/conflicts
- Freight traffic
- Two-track section
- Empty train movements/berthing/sidings
- Level crossing issues
- Location Name Key Constraint Location
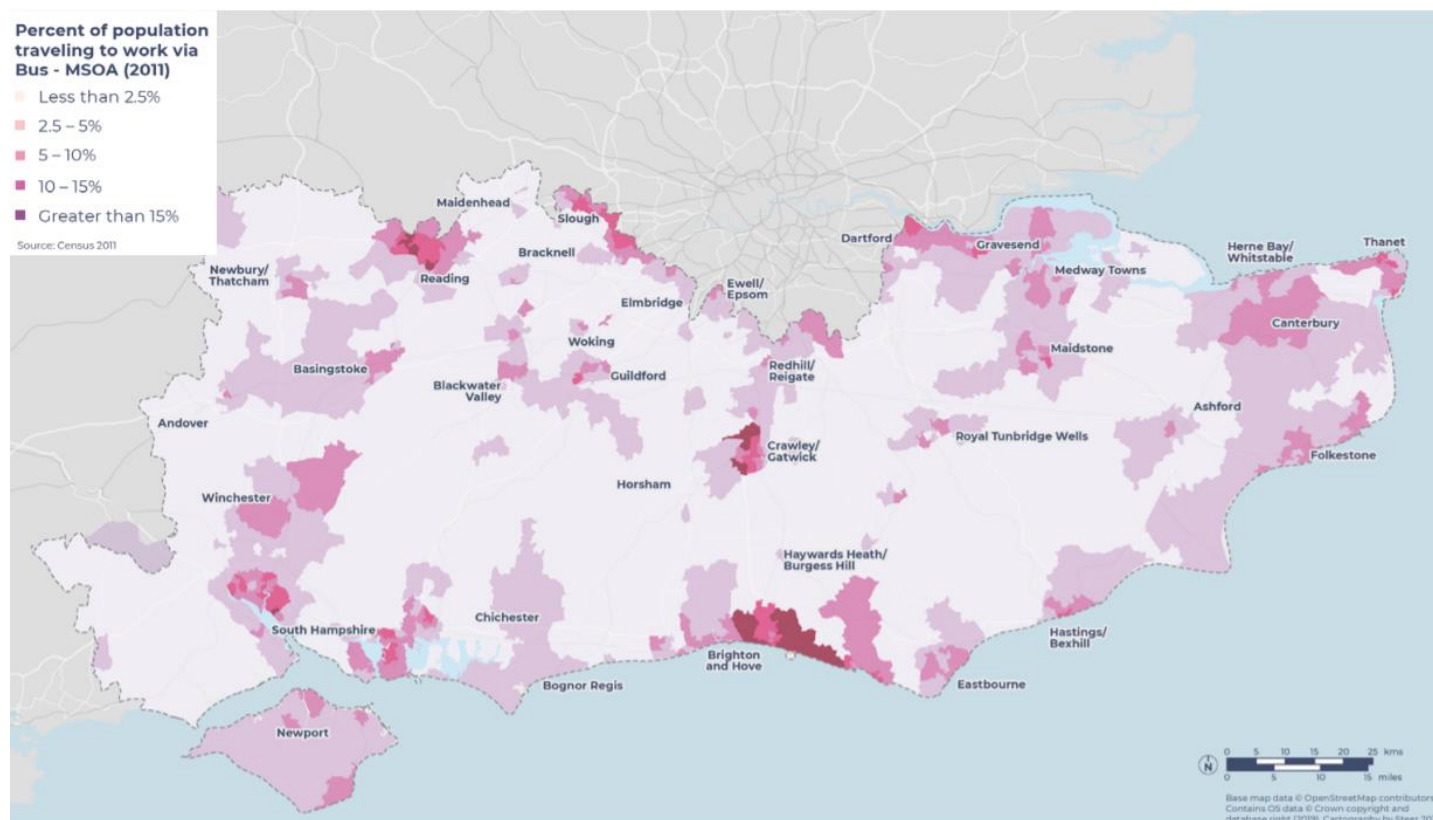
Source: Network Rail

Bus patronage is low and in many areas is declining.

The figure to the right shows the percentage of the population travelling to work by bus at the time of the 2011 census. **Figure 1.22** (see Part 1) shows recent trends in bus patronage. In East Sussex, Kent, and Surrey, bus use declined by more than 10% over the period 2009/10 – 2019/20. In contrast, bus use in Brighton and Hove has increased by 19% over the same period.

This evidence points to a bus industry that – outside Brighton and Hove – serves few Travel To Work journeys and is in decline. Bus patronage is particularly low in rural areas as well as in fast growing Major Economic Hubs such as Ashford.

The recent successful performance of the bus networks serving, Crawley, Reading, and Brighton and Hove bus networks show the opportunity for bus in the South East Radial Area.

Bus share of Travel To Work flows

Percent of population traveling to work via Bus - MSOA (2011)
- Less than 2.5%
- 2.5 – 5%
- 5 – 10%
- 10 – 15%
- Greater than 15%

Source: Census 2011

TRANSPORT FOR THE **South East**

Public transport interchanges, information, and ticketing 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 Travelcard area, there are few examples of:

- integrated journey planning tools;
- integrated, multi-modal fares (noting some areas have access to PlusBus);
- zonal fares systems; and/or
- Integrated, multi-modal payment systems.

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

Additionally, there are several examples of poor physical integration in transport hubs, such as in Maidstone, Strood, and (right) Canterbury.

Location and approximate distances between Canterbury's three city centre transport hubs
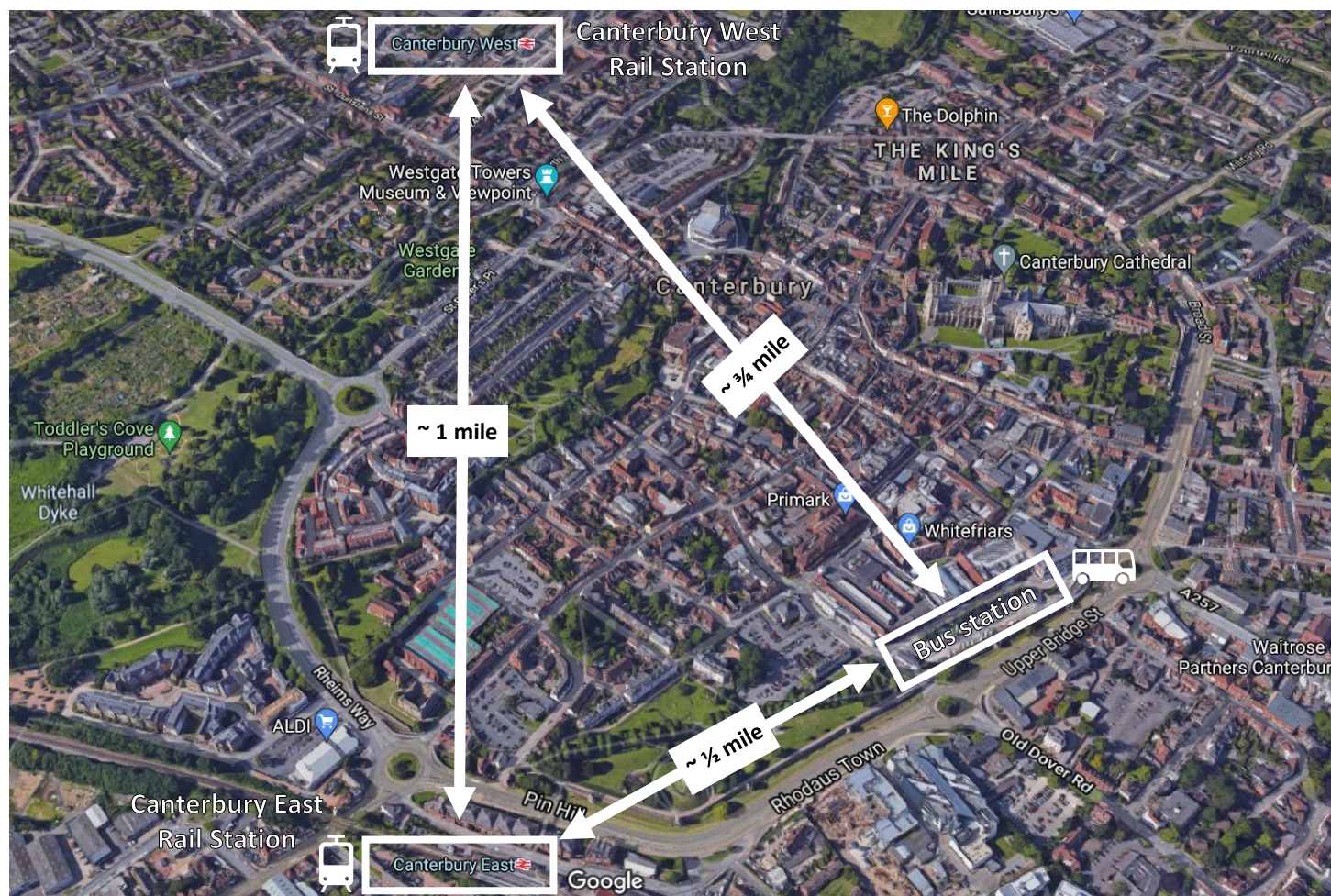
Stakeholders have cited the price of rail tickets and the complexity of ticketing as a disincentive to travelling by public transport.

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 and for those having to travel via London (even if their journey is not to/from London).

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 Ashford 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 examples of low fares available during off peak periods, particularly on longer distance journeys (which do not make up a significant portion of journeys in the South East).

Real terms increase in costs of public transport and motoring

Retail Prices Index (RPI): Bus and coach fares, rail fares and motoring expenditure, 1987–2019[25]

Source: DfT, "Bus Back Better" (2021)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/969205/DfT-Bus-Back-Better-national-bus-strategy-for-England.pdf

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 (with low floors/ramp features) and rail rolling stock;

- Improving accessibility of bus stops;

- 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 for their mobility); and

- making public spaces (e.g. town centres) more accessible.

Accessibility at train stations (% stations offering fully accessible provision at January 2019)

	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

Source: House of Commons Library (2019) https://commonslibrary.parliament.uk/how-accessible-are-britains-railway-stations/

Cycle participation – defined in this case as the percentage of residents who cycle at least once a week – is lower in the South East Radial Area than other areas of the South East.

The figure to the right, which was published in TfSE's Transport Strategy for the South East in 2021, shows low (and variable) levels of cycling participation across the South East. Cycling participation is especially low in Medway, Dartford, and several districts in the Weald area. The TfSE strategy also presents data showing that fewer than 1 in 5 residents cycle once or more a week. Travel To Work data also shows cycling has a low mode share, particularly outside Brighton and Hove.

Every Local Transport Authority on this corridor wants to see a step change in cycling participation in their areas.

Furthermore, improving 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.

Cycle participation and national/international cycle routes in the South East

South East Radial Area Study Evidence Base

TRANSPORT FOR THE **South East**

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

TfSE analysis has shown a lower proportion of residents in the South East live close to the National Cycle Network than residents in neighbouring regions. This is a metric that many stakeholders wish to see improve.
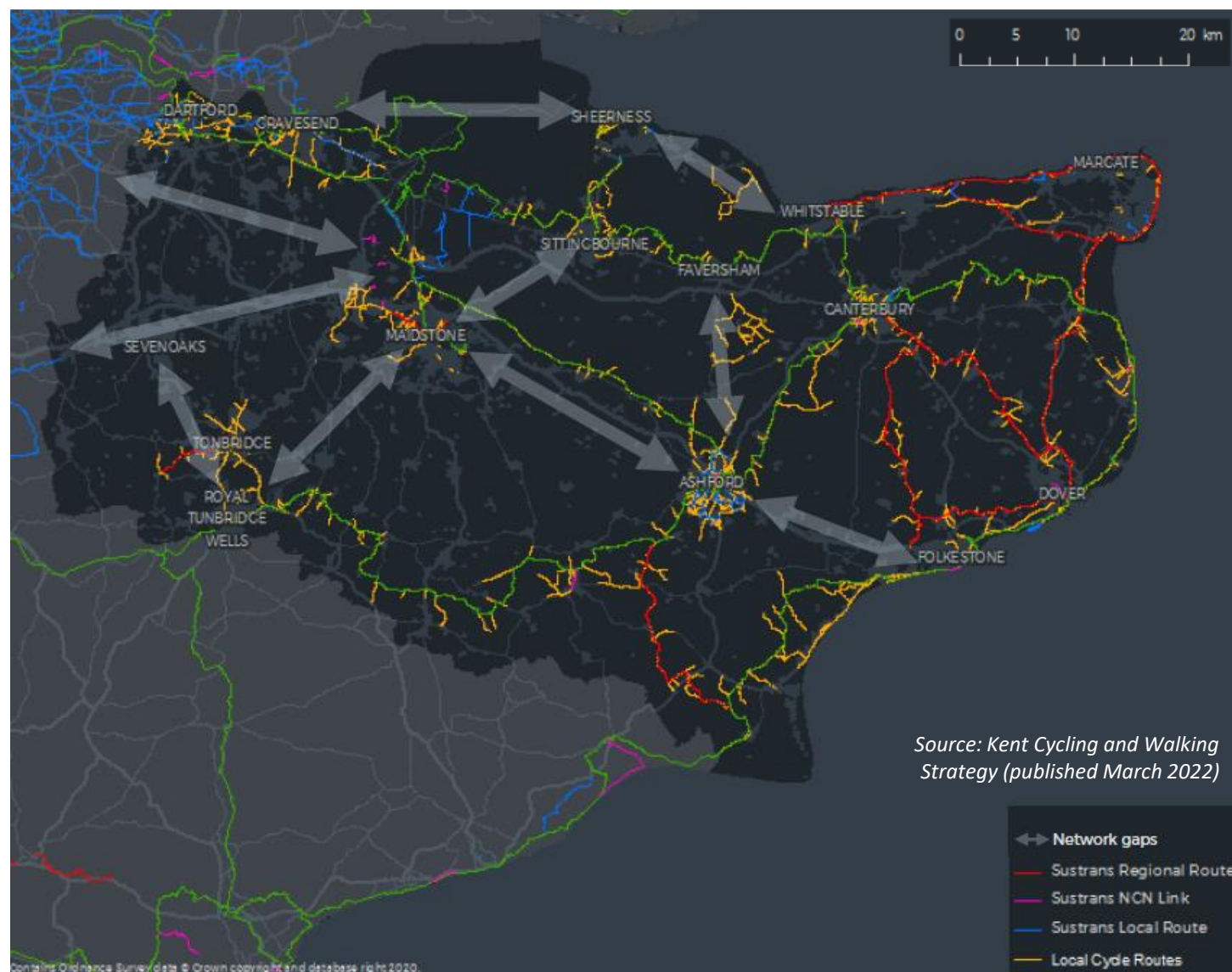
The South East Radial Area is a popular area for leisure cycling – particularly in and around the North Downs.

Urban cycle routes are particularly variable and often do not connect the right places together. For example, the cycleways in Medway avoid Gillingham and Rainham town centres.
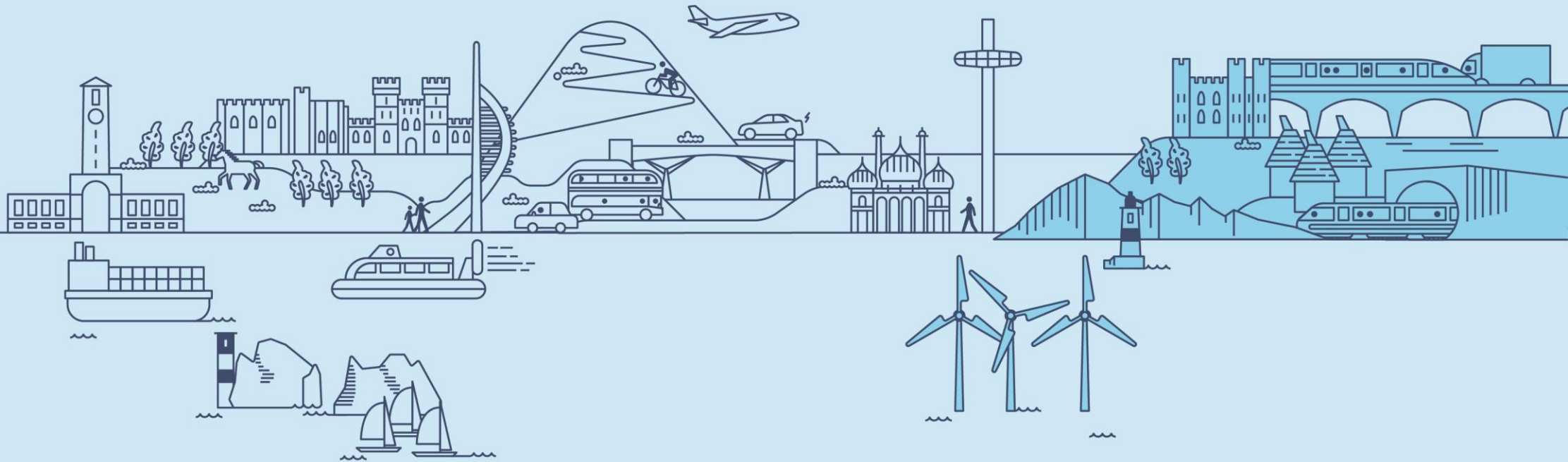
There are notable gaps in longer distance cycle routes, as identified in Kent's (recently published) cycling strategy.

There are similar gaps in the East Sussex cycling network (e.g. Royal Tunbridge Wells to Hastings).
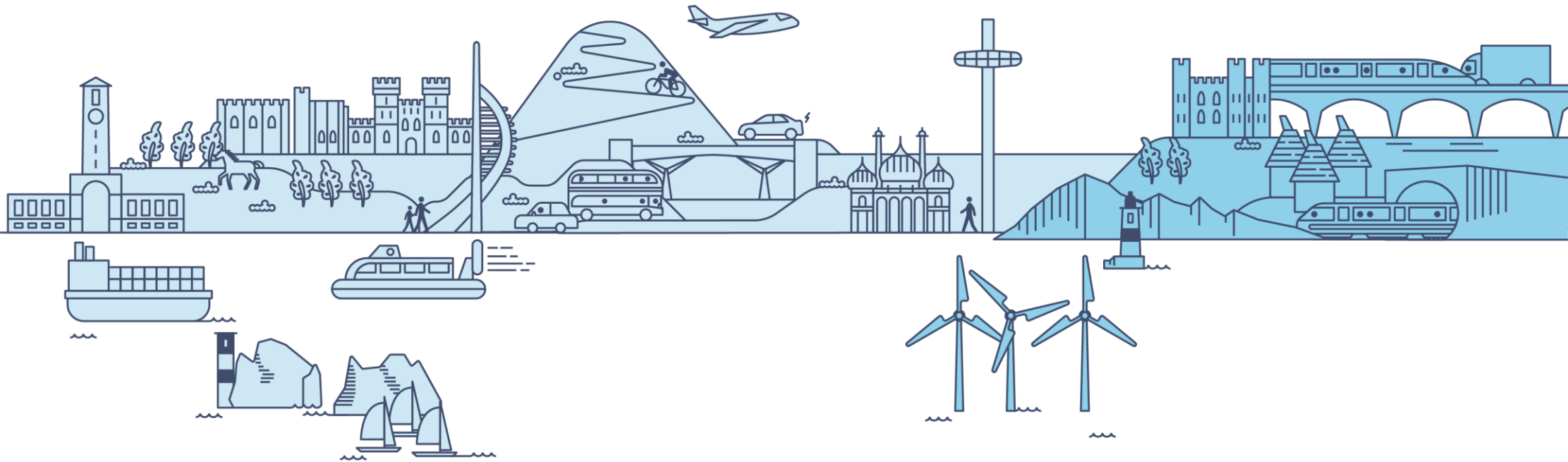
South East Area Cycle Network (and strategic gaps)

Source: Kent Cycling and Walking Strategy (published March 2022)

Network gaps
Sustrans Regional Route
Sustrans NCN Link
Sustrans Local Route
Local Cycle Routes

TRANSPORT FOR THE
South East

Part 4

Vision and Objectives

Part 4a
Vision

Vision

TfSE's Transport Strategy for the South East sets out an ambitious vision for a sustainable, high performing, net-zero carbon transport system. We have applied this vision to the South East Radial Area to develop a vision statement for this area.

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.

South East Vision Statement

The South East Radial Area will develop a sustainable, prosperous, balanced economy to provide opportunities for its residents, businesses, and visitors to thrive.

The area's economy will be more resilient to the economic shocks and will leverage the innovation and talents of the South East Radial Area's people to develop successful businesses.

The South East Radial Area's role as the gateway to Europe will continue to evolve and prosper as the EU and UK adapt to a new trade relationship.

The transport networks supporting the South East Radial Area will be reliable, resilient, well connected, and accessible. They will be aggressively de-carbonised to deliver a net-zero carbon economy by 2050. They will significantly reduce the impact of delays to channel crossing movements on the local economy, communities, and environment.

The communities of the South East Radial Area will be planned provide affordable housing for all and will be designed to promote sustainable travel outcomes.

South East Radial Area Study Evidence Base

TRANSPORT FOR THE
South East
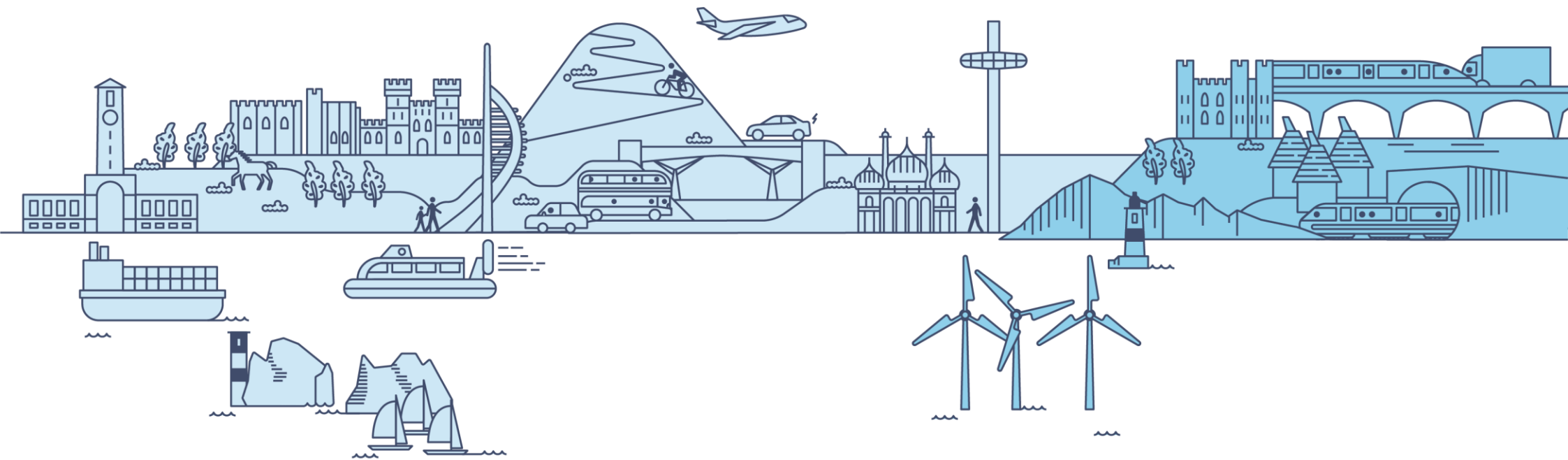
Part 4b
Objectives

Objectives (1 of 2)

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

Economy

The South East Radial 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 (and wider socioeconomic) needs;

- Reducing costs for businesses; and

- Attracting investment in high growth, high value opportunities.

Society

The South East Radial Area's transport systems will enable better and more equitable socioeconomic outcomes by:

- 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 and availability of convenient, high quality, active travel and public transport options;

- Ensuring that transport interventions are suitable for all users including the elderly and individuals of reduced mobility and other additional needs;

- Mitigating adverse impacts of transport on human health and welfare; and

- Enabling deprived communities to attract investment and achieve more equitable socioeconomic outcomes.

Natural and Historic Environment

The South East Radial 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, biodiversity, historic and ecological designations;

- Reducing the impact of transport operations on ecosystem services; and

- Improving and managing public and active transport access to natural, protected, and historic environments.

South East Radial Area Study Evidence Base

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Objectives (2 of 2)

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

Climate Change

The South East Radial 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 to non carbon emission energy;

- Improving transport network energy efficiency; and

- Improving transport network resilience to climate events such as flooding, high temperatures, drought and storm events.
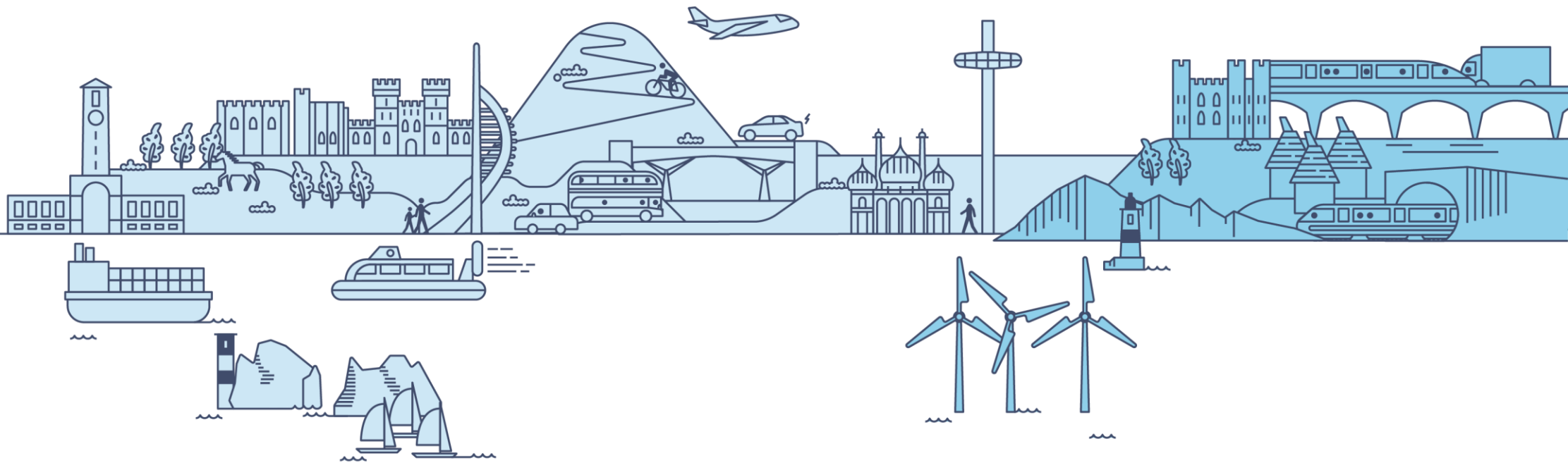
Regeneration

The South East Radial Area's transport networks will promote the economic regeneration of the area, particularly in the more deprived parts of the area, by:

- Supporting sustainable economic development by providing multi-modal transport access to employment, services, and housing developments;

- Increasing access to employment, education, and training opportunities to a wider segment of the area's population;

- Addressing market failures where current transport and/or access arrangements are holding back regeneration opportunities; and

- Supporting growth in domestic tourism by providing sustainable access to the area's natural, historic, cultural, sporting, leisure, and recreational attractions.

International Gateways

The South East Radial Area's transport networks will continue to serve as the gateway to Europe for the wider UK in a "post Brexit" economy by:

- Strengthening the resilience of transport corridors serving the busiest international gateways in the area;

- Responding to new developments in the trading relationship between the UK and the European Union;

- Improving access to international gateways through sustainable modes, including electric rail freight; and

- Improving access between the area's international gateways and the rest of the UK.

South East Radial Area Study Evidence Base

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Part 4c
Next Steps

Next Steps

This report provides a summary of the work undertaken in the second of the five stages underpinning the South East Radial Area Study.

Figure 4.1 shows the stages and steps that are being delivered for this study.

This report concludes **Stage B,** which provides a common understanding of the current and future context, demonstrates a need for intervention in the area, and defines objectives for the South East Radial Area Study.
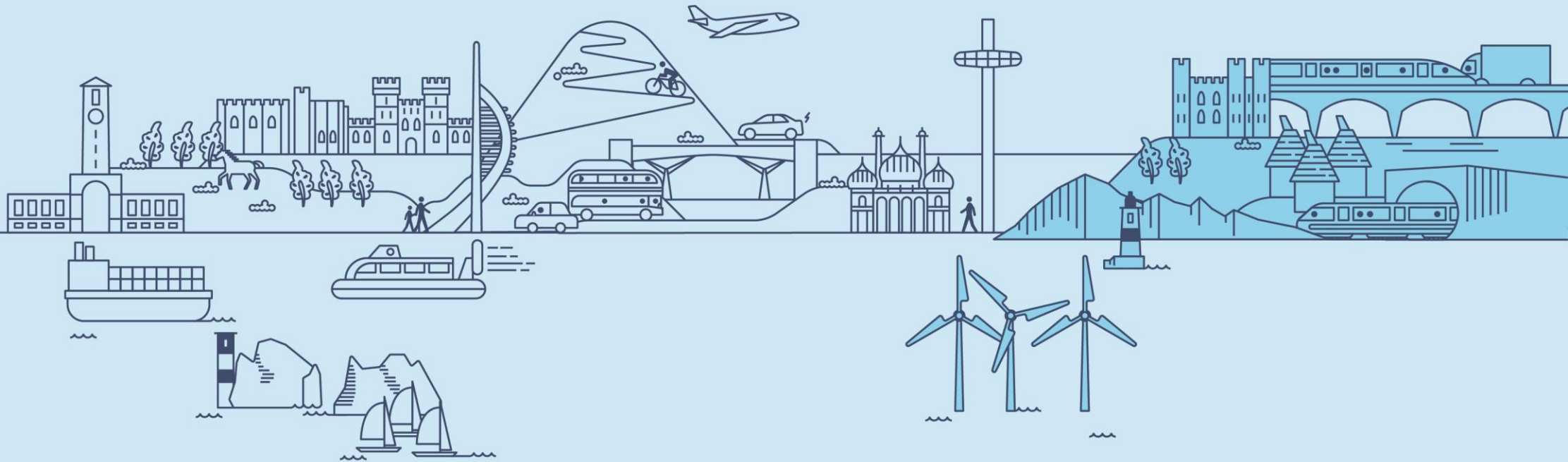
The next stage for this study is **Stage C**. The purpose of this stage is to generate a long list of options in response to the SWOCs and need for intervention identified in Stage A, describe them in a consistent way, and assess them informed by the evidence base, against the criteria included in the Multi Criteria Assessment Framework (MCAF) tool that was developed for the Transport Strategy. This stage is expected to mobilise in March 2022 and report in October/November 2021.

The purpose of **Stage D** will be is to produce outputs to make the case (to government and others) for investment in the South East's transport networks. This will mobilise in the winter of 2021.

Finally, 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 spring 2022.
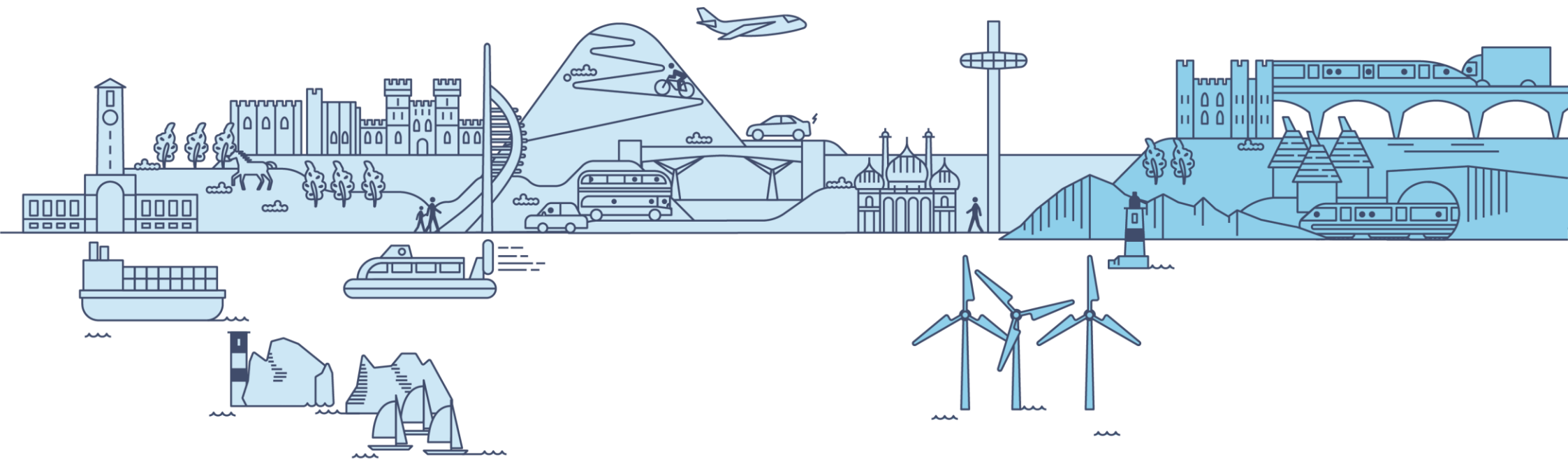
Figure 4.1: Overview of the South East Radial Area Study stages and steps

Progress of this study in March 2022

South East Radial Area Study Evidence Base

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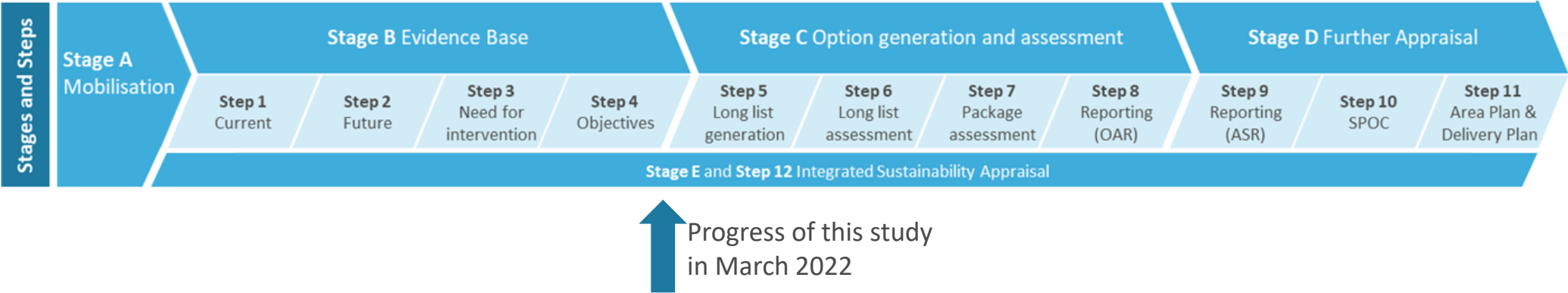
Part 5
Appendices

Appendix A
Policy Review

Policy Context Tables

This section summarises the policy documents that have been reviewed for this study, and are presented as follows:

1. National Transport Policy
2. National Non-Transport Policy
3. Sub-National Transport Policy
   i. Local Transport Plans
   ii. Other Transport Policy
4. Sub-National Non-Transport Policy
   i. Coast2Capital LEP Policy
   ii. Other Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Bus Back Better – National Bus Strategy for England (2021)	The strategy sets out the vision outlining how to deliver better bus services for passengers across England, through ambitious and far-reaching reform of how services are planned and delivered. The strategy aims to revolutionise the customer experience, promoting a simplified ticketing system, integration with other modes and supporting the goal for an inclusive transport system that attracts older and disabled people to use buses. The strategy sets out a roadmap to improve services for passengers and communities, urban and rural, and be fully informed by local needs, by increasing the role of Local Transport Authorities in designing and operating local bus services. Aligned with other national decarbonisation policy, the strategy also sets out an ambitious road map to a zero-emission bus fleet.
National Infrastructure Commission – Natural Capital and Environmental Net Gain (2021)	This document outlines the two-way relationship between infrastructure and natural capital. It highlights how infrastructure can have both a positive and negative impact on natural capital assets such as fresh water and clean air as well as how changes in the environment can increase of costs of infrastructure (such as flooding). Infrastructure developers should consider the impact of infrastructure development on natural capital assets and take the opportunities to contribute to the environment and biodiversity as part of development. Infrastructure projects should target environmental net gain, ensuring that infrastructure developers leave the environment in measurably better state than they found it.
Decarbonising Transport, Setting the Challenge (2020) Department for Transport	Provides an overview of transport modes and their current contributions to carbon emissions. It then summarises the current policies which are in place to help them decarbonise, and provides forward projections of how effective these policies will be for bringing the transport network to net zero. The plan also considers the importance of incorporating 'place-based' solutions, providing geographically specific answers to the challenge. Ultimately, the policy comes up with six strategic priorities which reflect 'the core areas we believe plans are needed for delivery of the TDP [Transport Decarbonisation Plan]', which are: • Accelerating modal shift to public and active transport – making public transport and active travel the first choice for daily activities, reducing car use, and exploring how to make use of how to use vehicles differently. • Decarbonisation of road vehicles – requiring major changes to the vehicles we drive and the way we use our roads, driven by investing in innovative technology solutions and developing sustainable supply chains. • Decarbonising how we get our goods – transforming 'last' mile deliveries, ensuring an integrated, clean and sustainable delivery system, making use of digitally-enabled solutions, data-sharing and collaborative platforms. • Place-based solutions for emissions reduction – understanding where, how and why emissions occur in specific locations, will enable development of a tailored response, addressing how management at a local level can best address emissions at a local level. • UK as a hub for green transport technology and innovation – utilising the UK's world-leading scientists, business leaders and innovators, positioning the UK as an internationally recognised leader in environmentally sustainable technologies.

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Policy Context Tables - National Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Traction Decarbonisation Network Strategy (2020)	TDNS has been established to recommend which of three traction technologies (battery, electric and hydrogen) would need to be deployed where and when on the GB rail network in order to remove diesel trains and support the end of CO_2 emissions from rail. Network Rail have calculated a need to provide: - 11,700 STKs of electrification - Battery operation over 400 STKs of infrastructure. - Hydrogen operation over 900 STKs of infrastructure. - 2,300 STKs where there is no clear technical choice.
Gear Change: A Bold Vision for Walking and Cycling (2020) Department for Transport	This policy document sets out how the government plans to make a step change in walking and cycling over the coming years. It comes as an update to the 2017 Cycling and Walking Investment Strategy and was released after the onset of the COVID19 pandemic, looking to capitalise on the dramatic changes to travel behaviours it has caused. The strategy provides several key reasons for making this change, ranging from improvements to public health, to addressing inequalities, to tackling congestion, to improving air quality, to slowing climate change, and boosting the economy.
Draft Road Investment Strategy 2 (2018) Department for Transport	The Draft Road Investment Strategy 2 (RIS2), published by the Department for Transport in October 2018, sets out the Government's strategic vision for the Strategic Road Network (SRN) – the UK's motorways and principal A-roads – covering the years 2020 to 2025. RIS2 emphasises the need to ensure the SRN is safe, serviceable, and free-flowing. It also highlights the need for the SRN to be 'smart' and build on new technologies, increase the level of accessibility and integration with the wider transport network (including the newly identified Major Road Network), and demonstrate how the SRN supports economic development and how investment can improve the environment.
Inclusive Transport Strategy (2018) Department for Transport	Government wants people with disabilities to have the same access to transport as all other users by 2030. The document outlines a wide ranging series of interventions which it will employ to achieve this aim, from raising awareness to providing better physical infrastructure. It also describes how the government will hold itself accountable for the delivery of this strategy, including processes for monitoring and evaluation specifying key output indicators.
Clean Growth Strategy (2017) UK Department for Business Energy and Industrial Strategy	Outlines the government's method for ensuring that the UK continues to grow economically, whilst reducing its emissions. The strategy sets out how £2.5bn of funding will be invested by the government to support low carbon innovation from 2015 to 2021. The strategy notes that changes to the transport network will be fundamental for reducing emissions and describes in depth how it expects to encourage a shift to low carbon transport.
The Clean Growth Strategy (2017)	This Strategy sets out a comprehensive set of policies and proposals that aim to accelerate the pace of "clean growth", i.e. deliver increased economic growth and decreased emissions. Key Policies and Proposals in the Strategy: • Develop world leading Green Finance capabilities; • Develop a package of measures to support businesses to improve their energy productivity, by at least 20 per cent by 2030; • Improving the energy efficiency of our homes; • Rolling out low carbon heating; • Accelerating the shift to low carbon transport; • Delivering clean, smart, flexible power emissions; and • Enhancing the benefits and value of our natural resources

TRANSPORT FOR THE South East

Policy Context Tables - National Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Transport Investment Strategy (2017) Department for Transport	The Transport Investment Strategy, published in July 2017 by the Department for Transport, describes the UK government's priorities for investment in transport. These are: • To create a more reliable, less congested, and better-connected transport network that works for the users who rely on it. The TIS notes UK transport systems are ageing and are facing increasing demands. In many places, the current transport network does not provide the right levels of connectivity for people and business. • To build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities. The TIS notes the UK's national productivity is lower than other G7 countries (e.g. 36% behind Germany), and describes transport as one way of boosting productivity. It is also acknowledged that prosperity hasn't been shared evenly between different places, leaving some communities feeling left behind. • To enhance the UK's global competitiveness by making Britain a more attractive place to trade and invest. Britain is globally renowned as a leader in Research and Innovation, and Scientific fields. Foreign investment in these areas is significant and relies upon good national and international transport links. Retaining the UK's pre-eminence in these areas will require continued investment in the transport network, enhancing "city clusters" and "international connectivity". The TIS therefore views transport as a means of attracting job-creating investment, leveraging the UK's industrial strengths and enabling it to trade with partners with as few frictions as possible. • To support the creation of new housing. The TIS acknowledges parts of the UK face a significant challenge to provide the houses that people need in the places they wish to live. Furthermore, the Government's Housing White Paper recognises that investing in transport infrastructure is one of the best ways of unlocking development in places that are currently poorly served by our transport system.
Road to Growth (2017) Highways England	The Road to Growth sets out Highways England's strategic economic growth plan. It sets out how the economic impact of the Strategic Route Network can be optimised. The paper focusses on the SRN, specifically economic roles which it can play in supporting the economy which are: • Supporting business productivity and competitiveness, and enabling the performance of SRN-reliant sectors • Providing efficient routes to global markets through international gateways • Stimulating and supporting the sustainable development of homes and employment spaces
Highways England Route Strategies	"The Government's priorities for investment in the SRN in South East England is described in Highways England's Route Strategies. In total, Highways England has published 18 Route Strategies covering the whole SRN in England, seven of which are relevant for the South East. These are •South Coast Central (A23 and A27); and •London Orbital and M23 to Gatwick Each strategy provides a description of the key centres of population and industry, international gateways served by the route, the type of road, and its current performance and constraints. Each strategy outlines options for maintaining, operating and/or enhancing roads. Where appropriate, this could include influencing driver behaviour or considering other modes of travel. "
"Department for Transport, National Policy Statement for National Networks (2014)"	Paragraph 4.38 of the NN NPS states that "New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the provision of green infrastructure." The NN NPS also requires carbon impacts to be considered as part of the appraisal of scheme options, and an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive. It goes on to state that "it is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets."

South East Radial Area Study Evidence Base

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Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
National Planning Policy Framework (2019)	**Biodiversity** Paragraphs 170 and 174 to 177 of the NPPF require development to protect and safeguard biodiversity, and advise that development should aim to conserve, restore and enhance biodiversity adequately through mitigation or, as a last resort, using compensation. Recognise the wider benefits of ecosystem services; minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures. Paragraph 170 of the NPPF requires that planning decisions should be taken to enhance the natural environment by recognising the wider benefits from natural capital and ecosystem services. Further, Paragraph 171 requires plans to take a strategic approach to maintaining and enhancing green infrastructure networks and improving natural capital at a catchment or landscape scale. " **Landscape & Historic Environment** Paragraph 170 of the NPPF requires developments to protect and enhance valued landscapes and recognise the intrinsic character and beauty of the countryside. Paragraph 172 of the NPPF states that great weight should be given to conserving and enhancing landscape and scenic beauty in National parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection. The scale and extent of development within these designated areas should be limited, planning permission for major developments should be refused other than in exceptional circumstances where it can be demonstrated that the development is in the public interest. **Water Environment** "…appropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere". "… if there is no reasonably available site in Flood Zones 1 or 2, then national networks infrastructure projects can be located in Flood Zone 3, subject to the Exception Test. Both elements of the test will have to be passed for development to be consented…" "Any project that is classified as 'essential infrastructure' and proposed to be located in Flood Zone 3a or 3b should be designed and constructed to remain operational and safe for users in times of flood; and any project in Zone 3b should result in no net loss of floodplain storage and not impede water flows". "… impacts on the water environment should be given more weight where a project would have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive". **Air Quality and Climate Change** Paragraph 150 of the NPPF states that "New development should be planned for in ways that: • a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and • b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards." **Noise** Paragraph 180 state planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life."

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Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
25 Year Environment Plan (2018)	**Biodiversity** The 25 Year Environment Plan outlines the Government's ambition to leave our environment in a better state than we found it and the steps proposed to take to achieve that ambition. The Plan includes ten key targets of which two focus on biodiversity. Thriving plants and wildlife: • Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term; • Creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits; • Taking action to recover threatened, iconic or economically important species of animals, plants and fungi and where possible to prevent human-induced extinction or loss of known threatened species in England and the Overseas Territories; • Increasing woodland in England in line with our aspiration of 12% cover by 2060: this would involve planting 180,000 hectares by end of 2042. Enhancing biosecurity: • Managing and reducing the impact of existing plant and animal diseases; lowering the risk of new ones and tackling invasive non-native species; • Reaching the detailed goals to be set out in the Tree Health Resilience Plan of 2018; • Ensuring strong biosecurity protection at our borders, drawing on the opportunities leaving the EU provides; and • Working with industry to reduce the impact of endemic disease. **Landscape** Goal 6: Enhancing beauty, heritage and engagement with the natural environment, is to "safeguard and enhance the beauty of our natural scenery and improving its environmental value while being sensitive to considerations of its heritage." **Climate** Goal 7 of the 25 Year Environment Plan, 'Mitigating and adapting to climate change', is to "take all possible action to mitigate climate change, while adapting to reduce its impact" by "continuing to cut greenhouse gas emissions including from land use, land use change…" and "making sure that all policies, programmes and investment decisions consider the possible extent of climate change this century". With regards to the transport sector, the 25 Year Environment Plan identifies four 'early' priorities through the 'Future of Mobility Grand Challenge'. These include encouraging new modes of transport; addressing the challenges of moving from hydrocarbon to zero emission vehicles; and Preparing for a future of new mobility services, increased autonomy, journey-sharing and a blurring of the distinctions between private and public transport. **Water Environment** Goal 2 - Clean and plentiful water: "Improve at least three quarters of our waters to be close to their natural state as soon as is practicable by: […] Reaching or exceeding objectives for rivers, lakes, coastal and ground waters that are specially protected, whether for biodiversity or drinking water". .

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Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
National Networks National Policy Statement (NN NPS) (2014)	**Noise** Paragraph 5.193 states that developments must be undertaken in accordance with statutory requirements for noise. Due regard must have been given to the relevant sections of the Noise Policy Statement for England, National Planning Policy Framework and the Government's associated planning guidance on noise. Paragraph 5.192 states that the Secretary of State should not grant development consent unless satisfied that the proposals will meet, the following aims, within the context of Government policy on sustainable development: • Avoid significant adverse impacts on health and quality of life from noise as a result of the new development; • Mitigate and minimise other adverse impacts on health and quality of life from noise from the new development; and • Contribute to improvements to health and quality of life through the effective management and control of noise, where possible. **Air Quality** Paragraph 4.38 of the NN NPS states that "New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the provision of green infrastructure." The NN NPS also requires carbon impacts to be considered as part of the appraisal of scheme options, and an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive. It goes on to state that "it is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets." **Soils, waste and materials** "Evidence of appropriate mitigation measures (incorporating engineering plans on configuration and layout, and use of materials) in both design and construction should be presented". **Landscape and Historic Environment** Paragraph 5.149 states that when judging the impact of a project on landscape, the decision is dependent on the nature of the existing landscape likely to be affected and the nature of the effect likely to occur. The project should aim to avoid or minimise harm to the landscape, providing reasonable mitigation where possible and appropriate. **Water** "… if there is no reasonably available site in Flood Zones 1 or 2, then national networks infrastructure projects can be located in Flood Zone 3, subject to the Exception Test. Both elements of the test will have to be passed for development to be consented…" "Any project that is classified as 'essential infrastructure' and proposed to be located in Flood Zone 3a or 3b should be designed and constructed to remain operational and safe for users in times of flood; and any project in Zone 3b should result in no net loss of floodplain storage and not impede water flows". "… impacts on the water environment should be given more weight where a project would have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive". **Biodiversity and Geodiversity** NN NPS states that development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation to counteract impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought. Paragraphs 3.2 to 3.5 of the NN NPS state that not only should national road and rail networks be designed to minimise social and environmental impacts, but that they should also seek to improve quality of life. In part this may be achieved by "reconnecting habitats and ecosystems […] improving water quality and reducing flood risk, […] and addressing areas of poor air quality." Paragraph 5.162 recognises the potential for developments to provide positive environmental and economic benefits through the provision of green infrastructure. Paragraph 5.175 of the NN NPS highlights that green infrastructure identified in development plans should be protected and, where possible, enhanced.

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Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
The Environment Bill (2020)	The Environment Bill 2020 sets out how the Government plan to protect and improve the natural environment in the UK and is a key vehicle in the delivery of the 25 Year Environment Plan. It sets a new and ambitious domestic framework for environmental governance on a number of measures including the clean air strategy; biodiversity net gain; trees; conservation covenants; extended producer responsibility for packaging; recycling; a deposit return scheme for drinks containers and water.
The State of Natural Capital, Natural Capital Committee (2020)	In the report, the Natural Capital Committee sets out: • Despite some improvements, only limited progress has been made towards the 25 Year Environment Plan's goals. • Its advice to Government that biodiversity net gain should be expanded to environmental net gain. • Its advice that an England wide baseline of natural capital assets should be established to measure progress towards environmental goals. Natural capital should be seen as infrastructure in its own right, in recognition of its contribution to economic wellbeing.
Planning for the Future (White Paper) August 2020	As part of the government's drive to reform national planning regulations, they have recently released a white paper for consultation. It focusses on digitalisation (moving to a 'data-driven' form of planning) removing 'red tape' around planning policies, and improving the sustainability of housing stock. Key pillars include: • 'First, we will streamline the planning process with more democracy taking place more effectively at the plan-making stage, and will replace the entire corpus of plan-making law in England • Second, we will take a radical, digital-first approach to modernise the planning process. This means moving from a process based on documents to a process driven by data. • Third, to bring a new focus on design and sustainability. • Fourth, we will improve infrastructure delivery in all parts of the country and ensure developers play their part, through reform of developer contributions. • Fifth, to ensure more land is available for the homes and development people and communities need, and to support renewal of our town and city centres.'
Clean Air Strategy (2019)	Addresses action to reduce emissions from transport "as a significant source of emissions of air pollution", in-particular oxides of nitrogen (NOx) – which is responsible for high levels of NO2 in ambient air, especially in urban areas - and particulate (PM10 and PM2.5) emissions.
Government Clean Air Strategy (2019) Department for Environment and Rural Affairs	Explains how the government will tackle all sources of air pollution. It sets out potential future legislation around transport, and broad measures to help drive a switch to zero-emissions transport modes.
Our Waste, Our Resources: A Strategy for England (2018)	This Strategy is the first significant government statement in this area since the 2011 Waste Review and the subsequent Waste Prevention Programme 2013 for England. It builds on this earlier work but also sets out fresh approaches to long-standing issues like waste crime, and to challenging problems such as packaging waste and plastic pollution. The strategy is framed by natural capital thinking and guided by two overarching objectives: 1. To maximise the value of resource use; and 2. To minimise waste and its impact on the environment. The Strategy has five key principles: 1. To provide the incentives, through regulatory or economic instruments if necessary and appropriate, and ensure the infrastructure, information and skills are in place, for people to do the right thing; 2. To prevent waste from occurring in the first place, and manage it better when it does; 3. To ensure that those who place on the market products which become waste to take greater responsibility for the costs of disposal – the 'polluter pays' principle; 4. To lead by example, both domestically and internationally; and 5. To not allow our ambition to be undermined by criminality.

TRANSPORT FOR THE South East

Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Industrial Strategy White Paper (2017) Department for Business Energy and Industrial Strategy	The Industrial Strategy White Paper, published by the UK government in November 2017, sets out the government's over-arching industrial policy. This White Paper describes how the government will work to boost the productivity of the UK by helping "businesses create better, higher-paying jobs in every part of the United Kingdom with investment in the skills, industries and infrastructure of the future". The White Paper describes five "foundations of productivity": • ideas; • people; • infrastructure; • business environment; and • places.
Air Quality Plan (2017) Department for Environment and Rural Affairs	Describes how the government plans to improve air quality by ending the sale of new, conventional petrol and diesel cars and vans by 2040. This policy has had a significant impact on the automotive industry and has already resulted in significant changes in consumer behaviour.
Housing White Paper (2017) (Fixing our broken housing market) Ministry for Communities Housing and Local Government	Sets out how the government intends to boost housing supply and create a more efficient housing market. The government wishes to ensure the housing market delivers outcomes that are more closely matched to the needs and aspirations of all households, and support wider economic prosperity. This policy is particularly pertinent to the South East as the region is characterised by relatively low levels of housing affordability.
The Paris Agreement (2015)	Aims to limit the global warming change to well below 2°C above pre-industrial levels. However, countries aim to limit the increase to 1.5°C to reduce the impacts of global warming. The EU has committed to a binding target of a reduction of at least 40% in greenhouse gas emissions by 2030 compared to 1990.
Transforming our World: the 2030 Agenda for Sustainable Development (2015)	Sets a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. It sets 17 Sustainable Development Goals (SDGs) and 169 targets. Applicable goals include: • Goal 6 - Ensure availability and sustainable management of water and sanitation for all • Goal 7 - Ensure access to affordable, reliable, sustainable and modern energy for all • Goal 9 - Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation • Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable • Goal 12 - Ensure sustainable consumption and production patterns • Goal 13 - Take urgent action to combat climate change and its impacts • Goal 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development • Goal 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Strategic Economic Plans (SEPs) (2014)	Outline each LEP's vision and strategic priorities for their region up to 2020/21. The first round of SEPs were published by each LEP in 2014. These are currently being updated to reflect the emerging Industrial Strategy (described under "National Policy Context"). The next round of SEPs will outline a vision to 2030. The regions which currently have SEPs in the South East are: Coast to Capital, Enterprise M3, Solent, South East and Thames Valley Berkshire. The SEPs also outline the industrial and sectoral priorities for their region, which are based on each region's perceived economic strengths and stated growth ambitions. Please note that not all of the SEPs cover all of the areas highlighted to the right - they are selected based on what is representative of the 'general' SEPs in the South East.

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Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
A 2030 Framework for Climate and Energy Policies Green Paper (2013)	The framework sets three key targets for the year 2030: • At least 40% cuts in greenhouse gas emissions (from 1990 levels); • At least 27% share for renewable energy; and • At least 27% improvement in energy efficiency.
EU Adaptation Strategy (2013)	• Promoting action by member states and supporting adaptation in cities; • Promoting adaptation in vulnerable sectors and ensuring Europe's infrastructure is more resilient; and • Better informed decision making by addressing gaps in knowledge about adaptation.
Green Infrastructure: An integrated approach to landscape use. Landscape Institute Position Statement (2013)	The Landscape Institute's most recent position statement, 'Green Infrastructure LI Position Statement 2013' sets out why GI is crucial to our sustainable future. The publication showcases a range of successful GI projects and shows how collaboration is key to delivering multifunctional landscapes. It also illustrates why landscape professionals should take the lead on the integration of GI.
EU Biodiversity Strategy to 2020 – towards implementation (2011)	Aimed at halting the loss of biodiversity and ecosystem services in the EU by 2020, the strategy provides a framework for action over the next decade and covers the following key areas: • Conserving and restoring nature; • Maintaining and enhancing ecosystems and their services; • Ensuring the sustainability of agriculture, forestry and fisheries; • Combating invasive alien species; and • Addressing the global biodiversity crisis.
Noise Policy Statement for England (2010)	The long-term vision for the Noise Policy Statement for England is to "promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."
Accessible Natural Green Space Standards in Towns and Cities: A review and Toolkit for their Implementation (2003) and Nature Nearby: Accessible Green Space Guidance (2010)	English Nature (now Natural England) recommends that provision should be made of at least 2ha of accessible natural greenspace per 1000 population according to a system of tiers into which sites of different sizes fit: • no person should live more than 300m from their nearest area of natural greenspace; • there should be at least one accessible 20ha site within 2km from home; • there should be one accessible 100ha site within 5km; and • there should be one accessible 500ha site within 10km.
Ambient Air Quality Directive (2008)	The Ambient Air Quality Directive provides the current framework for the control of ambient concentrations of air pollution in the EU. The control of emissions from mobile sources, improving fuel quality and promoting and integrating environmental protection requirements into the transport and energy sector are part of these aims.
The Climate Change Act, 2008	• Improve carbon management and help the transition towards a low carbon economy in the UK. • Demonstrate strong UK leadership internationally, showing the commitment to taking shared responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009. • Greenhouse gas emission reductions through action in the UK and abroad of at least 80% by 2050, and reductions in CO_2 emissions of at least 26% by 2020, against a 1990 baseline. However, more ambitious targets are being set under the Paris Agreement.

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Policy Context Tables - National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Directive 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste	Waste management in the EU should be improved and transformed into sustainable material management, with a view to protecting, preserving and improving the quality of the environment, protecting human health, ensuring prudent, efficient and rational utilisation of natural resources, promoting the principles of the circular economy, enhancing the use of renewable energy, increasing energy efficiency, reducing the dependence of the Union on imported resources, providing new economic opportunities and contributing to long-term competitiveness.
Future Water The Government's water strategy for England (2008)	The vision for water policy and management is one where, by 2030 at the latest, England has: • improved the quality of our water environment and the ecology which it supports, and continued to provide high levels of drinking water quality from our taps; • sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water; • ensured a sustainable use of water resources, and implemented fair, affordable and cost reflective water charges; • cut greenhouse gas emissions; and • embedded continuous adaptation to climate change and other pressures across the water industry and water users.
Directive 2000/60/EC of the European Parliament - "The Water Framework Directive" (2000)	The main aims of the Water Framework Directive (WFD) are to: • prevent deterioration and enhance status of aquatic ecosystems, including groundwater • promote sustainable water use • reduce pollution • contribute to the mitigation of floods and droughts The WFD requires the creation of River Basin Management Plans (RBMPs).
Conservation of Natural Habitats and Wild Fauna & Flora (the 'Habitats Directive') (1992)	The identification of a European network of Sites of Community Importance (SCIs) to be designated as Special Areas of Conservation (SACs). A SEA would need to report on any potential effects on SACs and all development plans should aim to avoid adverse effects on them.
Planning (Listed buildings and Conservation Areas) Act 1990	This is an Act relating to special controls in respect of buildings and areas of special architectural or historic interest.
Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)	The convention has three main aims which are stated in Article 1: • to conserve wild flora and fauna and their natural habitats; • to promote cooperation between states; and • to give particular attention to endangered and vulnerable species including endangered and vulnerable migratory species.
1979 Ancient Monuments and Archaeological Areas Act	Where Ancient Monuments occur on agricultural land the following Act influences the extent of public control to ensure the protection of scheduled ancient monuments.

South East Radial Area Study Evidence Base

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Policy Context Tables – Sub-National Transport Policy – Local Transport Plans

Plan or Policy	Relevant Aims/Objectives/Key Messages
Kent LTP (2016)	• Economic growth and minimised congestion by delivering resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population. • Affordable and accessible door-to-door journeys by promoting affordable, accessible and connected transport to enable access for all to jobs, education, health and other services. • Provide safer travel by providing a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks. • Enhanced environment by delivering schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment. • Provide better health and wellbeing by providing and promoting active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality. • Enabling growth in the Thames Estuary • New Lower Thames Crossing • Bifurcation of port traffic • A solution to Operation Stack • Provision for overnight lorry parking • Ashford International Station signalling (Ashford Spurs) • Development of Thanet Parkway Railway Station
Medway LTP (2015)	• More efficient management of the highway network and car parks, combined with improvements that focus on minimizing congestion and air quality hotspots, to improve the reliability and environmental impact of the transport network. • Working in local and sub-regional partnerships to deliver step change improvements to encourage an uplift of public transport patronage. Focusing on delivering better service quality, punctuality and information. • Development of Fastrack style bus links, expansion of park and ride services and improvements to stations. • Medway Tunnel highway maintenance. This is a vital highway asset that supports regeneration proposals in the region. • Encouraging active travel, targeting the student population and their access to the learning quarter. • Expanding the cycle network, and improving accessibility to the bus network for those with mobility issues. • Delivering the Green Grid and Coastal Access projects The following schemes were successful in being allocated funding from the LEP bid for the governments Local Growth Fund: • Chatham Town Centre and Public Realm Package (£4m LGF) • A289 Four Elms Roundabout to Medway Tunnel Journey Time and Network Improvements (£11.1m LGF) • Medway City Estate Connectivity Improvement Measures (£2.0m LGF) • Strood Town Centre Journey Time and Accessibility Enhancements(£9.0m LGF) (provisional allocation) • Medway Cycling Action Plan (£2.5m LGF)
East Sussex LTP (2011)	• Reduce congestion by improving the efficiency of the transport network and encouraging greater use of sustainable modes of transport. • Improve road safety for vulnerable road users – pedestrians, cyclists, motorcyclists and horse riders. • Reduce the number of people killed and seriously injured in road crashes. • Reduce greenhouse gas emissions, local air pollution and noise from transport. • Increase the resilience of transport infrastructure and services to the effects of climate change. • Improve personal health and well-being by encouraging and enabling increased physical activity through active travel. • Improving shortcomings in the rail infrastructure which affects both east/west movements along the coastal corridor, connections to Brighton, Ashford and Gatwick Airport, and between Hastings and London. • Improving bus services in rural areas. • Gap and Lewes town centre around Fisher Street.

Policy Context Tables – Sub-National Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
SELEP COVID19 Economic Statement (2020) South East Local Enterprise Partnership	SELEP's LIS is currently on hold while the economic challenges from COVID19 are being assessed. In the interim, a COVID19 economic statement has been released, which explains SELEP's response to the crisis and the economic support it is providing. It notes that they are providing more than £90m of investment to accelerate the recovery effort, focussing on delivering key infrastructure which will provide jobs now, and long-term positive economic benefits in the future. It also notes a number of areas where SELEP will focus its attention in the coming months in order to aid the recovery, including: • Supporting businesses to adapt, recover and grow. • Re-skilling the workforce, supporting people back into the labour market • Driving forward innovation, research and development to help stimulate the economy and increase productivity • Promoting and enabling clean recovery in the future planning of our towns and communities • Addressing gaps in digital connectivity • Accelerating planned growth through investment in £85m Getting Building Funds • Tackling the implications of BREXIT • Continuing a strong dialogue with government as a LEP
Logistics and Gateway Review (2019) Transport for the South East	The aim of this study was to provide a consistent view of current and future patterns of freight activity and key cross-cutting issues relating to freight logistics and gateways across the TfSE area. Recommends developing a comprehensive freight strategy, which sets out the interventions and management actions required across the TfSE area, as well as the cost of undertaking these. Second, thought should be provided about how the promotion of best practice can be undertaken. Third, the strategy must incorporate local freight planning, including consolidation centres, land use, and retiming.
Future Mobility Review (2018) WSP on behalf of Transport for the South East	This paper examined how future mobilities have the potential to change the transportation and provide opportunities in the South East area. The study provides a number of key recommendations for TfSE, which include; • Energy – develop a sufficient and reliable supply of energy across all sectors • Communications – provide consistently fast and reliable digital coverage in all communities/corridors • Spatial Planning – integrate spatial planning, economic development, and transport policy. Plan new developments that prioritise major trip generators in the most accessible locations. • Health – improve health and social care outcomes through comprehensive and consistent access to services. • Education – consider the implications of future mobility trends upon the skills and education sector, in particular those associated with automotive, AI and robotics. • Environment – reduce emissions related to poor air quality, and wider environmental impacts from transport.
TfSE Economic Connectivity Review (2018) Transport for the South East	Highlights the unique position of the South East as a powerful driver of the UK economy and as the nation's major international gateway for people and business. It provides the evidence that underlines the South East's competitiveness in the maritime, defence, advanced engineering, biosciences, and connected digital sectors. These strengths are all supported by digital enabling technologies and other high growth sector specialisms in finance, professional services, transport and logistics. The study estimates the South East's high-growth priority sectors and their economic assets could deliver as much as £500 billion per year to the UK economy by 2050. However, it concludes that the region needs a period of sustained investment in infrastructure if it is to maintain its competitiveness in the face of intensifying global competition. and realise its full economic potential.

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Policy Context Tables – Sub-National Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Network Rail Local Studies	Local Studies, which bring together the suggested outputs for all the market sectors of a part of the network. These studies evaluate the trade-offs between the suggested outputs for the different sectors, form a view of the likely long-term allocation of different sectors, and use these findings to inform decisions on the appropriate capability of the network. In total, there are five Local Studies in the South East: • London and South East • South East (Sussex) • South East (Kent) • Wessex • Western
Kent Rail Strategy (2021)	The principal purpose of this new Kent Rail Strategy 2021 is to influence the train service and rolling-stock fleet specifications which will inform the next South Eastern agreement, whether that is a concession, contract or other arrangement, for the operation of Kent's rail passenger network for at least the next decade. ii The Kent Rail Strategy is aligned with national and local transport policies which recognise rail as a key element of Kent County Council's (KCC) transport priorities for the next decade, as well as the need to achieve deliverable modal shift of passengers and freight from road to rail, supporting the climate change agenda by reducing carbon emissions and thus contributing to a healthier environment.
Emergency Active Travel Fund (2021) Kent County Council	This fund is designed to help local authorities restart local transport as part of the Government's Covid-19 recovery roadmap. Kent have ambitious visions to make the county the best in active travel in England. They want to achieve a safe, comfortable, attractive, and direct walking and cycling network. They plan to: • Prioritize appropriate and timely route maintenance, to ensure they are used and enjoyed across their lifespan. • Work to improve the condition of Kent's existing longer-distance cycle routes. This is so they are more suitable to a range of abilities under all weather conditions. They will focus on improvements to the Ashford to Maidstone route in the first instance. • Improve north-south cycling routes across the county. They will specifically aim to complete links between Ashford and Faversham, and develop a route between Tonbridge, Sevenoaks and Maidstone. • Develop and improve the network of shorter distance walking and cycling routes. • Develop and improve the cycle network along main roads in Ashford, Faversham, Tonbridge, Sevenoaks and Maidstone, and adopt a low traffic neighbourhood approach where appropriate, to develop walking and cycling routes along streets with reduced traffic, reduced pedestrian/cyclist/vehicle conflicts, and reduced rat running. • Improve connectivity of existing routes active travel routes, and ensure connectivity between these and those that are newly developed. Pursue e-bikes as an additional offer for cycling They outline key challenges facing Kent's active travel network: • The county has a very large population, which is expected to increase and age over the next two decades. • Kent has a congested existing transport network (highways) with a high proportion of HGVs. • The existing active travel network is fragmented and poor quality • There were low levels of active travel uptake prior to the Covid-19 lockdown. They also outline some contemporary opportunities: • Covid-19 and the national lockdown saw unprecedented increases in walking and cycling. There are significant opportunities to develop active travel in Kent to embrace this increase and catalyse for uptake of active travel for journeys into the future. • Driving uptake of active travel will (a) align with the national focus on active travel, (b) support all members of Kent's community, and (c) support health and environmental objectives.

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Policy Context Tables – Sub-National Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
London Mayors Transport Strategy (2018)	There are several aspects of the London Mayoral transport strategy which link to the South East. Notes that it is important, if London is to be a car-free city, that the wider economic region remains economically successful. It notes that "Economic growth and the provision of new housing in London and the Wider South East – the economic powerhouse of the country – depend on improvements to the connectivity and capacity of the strategic transport network. Improvements to the rail network are particularly important, as they support more active, efficient and sustainable travel." It also notes the particular importance of orbital networks to reduce pressure on London's congested system.
London South East Market Study (2013) Network Rail	This study quantifies the importance of rail travel in South East England (nearly half of all trips to Central London are by rail) and forecasts that demand for off-peak travel and commuting into regional centres is expected to grow. The strategic goals identified for this market are: • to enable economic growth; • to reduce carbon emissions and the transport sectors' impact on the environment; • to improve the quality of life for communities and individuals; and • to improve affordability. Long term conditional outputs developed from the study include accommodating peak demand on short distance services and improving services between regional centres.
Freight Market Study (2017) Network Rail	The study brings together the strategic freight recommendations from individual routes and also provides an outline of the wider non-route specific priorities for rail freight capacity and capability. The study notes that there has been a recent growth in rail freight, a geographical shift in freight flows towards busier rail corridors, and a growth in passenger numbers. All of these trends are placing additional capacity constraints on the freight sector. This market study identifies future requirements on individual corridors and highlights capacity gaps. It also considers the need for increased capability (e.g. speed improvements and train length).
Kent Local Transport Plan 4: Delivering Growth without Gridlock 2016–2031	Ambition: To deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported. Desired outcomes: - Economic growth and minimised congestion - Affordable and accessible door-to-door journeys - Safer travel - Enhanced environment - Better health and wellbeing

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Plan or Policy	Relevant Aims/Objectives/Key Messages
Coast2Capital Build Back Stronger, Smarter and Greener (2020)	Coast to Capital regional economic output is estimated to have declined by up to 22% in the same year. The Coronavirus (COVID-19) Economic Impact Assessment examines in detail how the pandemic will bring major shocks to many parts of our region, particularly those towns with economies that are closely linked to Gatwick airport. Build Back Stronger, Smarter and Greener sets out a compelling case for a series of place based, transformational infrastructure projects for the area that will speed recovery and accelerate growth. They will address long term productivity challenges in our economy as well as the significant short-term impacts of the Coronavirus pandemic, identified in the Coronavirus (COVID-19) Economic Impact Assessment. The goals of the strategy are: • To build back stronger, Coast to Capital will support Crawley with a plan to grow and evolve the UK's most COVID-19 impacted town into a more economically diverse and dynamic place. • To build back smarter, we will build upon the knowledge and innovation community which already exists in Brighton. • To build back greener, we will draw on the talented workforce and local business specialisms, to lead a green recovery across the whole region. Headline transformational projects to facilitate recovery and future productivity include: • Innovation Centre – to foster a new innovation ecosystem in Crawley which will connect international advanced engineering companies with local supply chains and skills. • Quantum equity investment fund – to support commercialisation of ideas from the Quantum Technology Lab at University of Sussex. • Natural Capital Investment Company – to create an investment vehicle to develop a long-term pipeline of biodiversity increase and carbon offsetting investment opportunities. • Digital infrastructure delivery – to improve digital infrastructure across our area and align skills provision with industry specialism to create new jobs. • Croydon Area Upgrade Scheme – to address the bottleneck on the Brighton Main Line at Croydon, increasing rail capacity across our region.
Energy South 2 East, Local Energy Strategy (2019)	This local energy strategy has been developed to enable the Coast to Capital, Enterprise M3 and South East Local Enterprise Partnerships (LEPs) of England to achieve clean growth from now until 2050 in energy across the power, heat and transport sectors. The strategy has five priority themes: • Low Carbon heating - district heat networks, off-gas grid homes, hydrogen injection into the natural gas grid, new-build homes on hydrogen grid • Energy Saving and efficiency - off gas grid homes, energy efficiency in homes, SME support programme • Reducing carbon in a global economy – international aspects of transportation – shipping and aviation – are vital to the UKs economy; the UK must become a centre of expertise to drive low carbon transport, boosting the UK economy and helping to lead the change internationally. • Renewable generation - offshore wind, solar and microgrid on landfill sites, biomass fuel supply chain, solar energy for network rail, car park solar potential, biofuel evolution • Smart energy system - housing and community microgrids, EV charging and hydrogen fuelling infrastructure, setup of ESCO/MUSCO infrastructure, support developments in CO_2 capture • Transport Revolution - port modernisation, EV charging, CNG fleet fuelling

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Policy Context Tables – Sub-National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Future water resource requirements for South East England (2020)	The plan will take a long-term view, looking ahead to 2100 and consider the water needed in homes and at work, and that required by industry, agriculture, electricity generation and the water needs of the environment. The plan will seek to: • Ensure there is enough water to serve the growing population and support growth in the economy • Address the impacts of climate change on water availability • Improve the environment by leaving more water in the region's rivers, streams and underground sources • Increase the region's resilience to drought and other events.
Kent Downs Area of Outstanding Natural Beauty Draft Management Plan 2020 2025	This document aims to set a vision for how the Kent Downs AONB should be managed between 2020 and 2030. It provides a thorough summary of the features of the area, highlighting why they are of importance. Overall, the Kent AONB aims to develop a landscape in which: 1. In line with the findings of the Government's Landscape Review the partnership leading the conservation and enhancement of the landscapes of the Kent Downs is effective and influential, properly resourced, suitably representative and has powers which are fit for purpose. 2. The vision, aims and principles of the AONB Management Plan are supported, promoted and delivered through strong advocacy, diverse, collaborative partnerships, individual actions, strategy, policy, programmes and management decisions. 3. The AONB partnership provides leadership and direction for the future conservation and enhancement of the AONB within the context of the Kent Downs AONB Management Plan. The document also sets out a range of aims for each of the 'landscape types' which the document describes.

South East Radial Area Study Evidence Base

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Policy Context Tables – Sub-National Non-Transport Policy

| Plan or Policy	Relevant Aims/Objectives/Key Messages
The High Weald AONB, Management Plan (2019 - 2024)	Key objectives of the plan include: • To restore the natural function of rivers, water courses and water bodies. • To protect and enhance soils, sandstone outcrops, and other important landform and geological features. • To help secure climatic conditions and rates of change which support continued conservation and enhancement of the High Weald's valued landscape and habitats. • To reconnect settlements, residents and their supporting economic activity with the surrounding countryside. • To enhance the architectural quality of the High Weald and ensure development reflects the character of the High Weald in its scale, layout and design. • To enhance the ecological function of routeways. • To enhance the ecological quality and functioning of woodland at a landscape scale. • To secure agriculturally productive use for the fields of the High Weald, especially for local markets, as part of sustainable land management. • To enhance the ecological function of field and heath as part of the complex mosaic of High Weald habitats. • To improve amenities, infrastructure (including the provision of appropriate affordable housing), and skills development for rural communities and related sectors that contribute positively to conserving and enhancing natural beauty
MMO, South Inshore and South Offshore Marine Plan (2018)	The south inshore marine plan area stretches from Folkestone in Kent to the river Dart in Devon, whilst the offshore marine plan area includes the area from 12nm to the maritime borders with France and the Channel Islands, totalling approximately 10,000sq km. The south marine plan areas are home to a number of ports including Southampton and Portsmouth, contain one of the busiest shipping channels in the world, support significant fishing and aquaculture activity and have a strong association with the defence of Britain. The main vision of the plan is "By 2038, the south marine plan areas' iconic and unique qualities, characteristics and culture will be conserved, promoted and where needed enhanced, through good management of its marine space. The natural beauty of the coastline and busy coastal and offshore waters are qualities that make the south marine plan areas distinctive. By 2038, the south marine plan areas will have maintained this distinctive natural beauty and diversity while sustainable economic growth, protection of the natural and historic environment, as well as the well-being of those who live, work and visit the South Coast, will have been enhanced through balanced and sustainable use of its resources".
Kent Local Flood Risk Management Strategy 2017 - 2023	The aims of the local strategy are: • To support and improve the safety and wellbeing of Kent's residents and the economy of Kent through appropriate flood risk management; • To ensure that we all work together effectively to understand and deliver appropriate flood risk management in Kent • To contribute to sustainable development, regeneration and land management in Kent through the promotion of sustainable flood risk management practices that utilise natural processes where appropriate.

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Policy Context Tables – Sub-National Non-Transport Policy

Plan or Policy	Relevant Aims/Objectives/Key Messages
Blue Green Infrastructure through Social Innovation (BEGIN) 2016 -2020	BEGIN (Blue Green Infrastructure through Social Innovation) is a 4 year project funded through the European Regional Development Fund (ERDF) by the Interreg Europe programme. BEGIN proposes an approach to climate resilience for cities that mimics nature's potential to deal with flooding. Blue and Green Infrastructure (BGI) supports existing grey infrastructure to cope with extreme weather events and improves urban liveability. The aims and objects of the BEGIN project are to: • Demonstrate improved climate change adaptation through Blue Green Infrastructure (BGI) in urban areas • Capture and sustain BGI's multiple benefits by using social innovation • Implement viable BGI solutions in pilot projects • Incorporate BGI solutions into schemes to deliver drainage management and other multiple benefits. • Establish the value of ecosystem services using innovative economic valuation tools.
East Sussex Local Flood Risk Management Strategy 2016 – 2026	The principal elements of the Strategy include; • the implementation of a proportionate approach to managing risk; • managing flood risk as part of the planning process; • ensuring that landowners and property owners are aware of their responsibilities; • the communication of flood risk information to those who need it; • improving the evidence base; • partnership working to deliver solutions to flooding problems; and, • identifying opportunities to bid for external funding to assist in delivering solutions
Kent Biodiversity 2020 and beyond – a Strategy for the Natural Environment (2015-2025)	The vision for biodiversity in Kent and Medway is: *"By 2050 our land and seas will be rich in wildlife, our biodiversity will be conserved, restored, managed sustainably and be more resilient and able to adapt to change and will be enjoyed and valued by all, underpinning our long-term economic, social and personal wellbeing"* Key aims of the strategy include: • Restoring at least 15% of degraded ecosystems as a contribution to climate change mitigation and adaptation. • More, bigger and less fragmented areas for wildlife, with no net loss of priority habitat and an increase in the overall extent of priority habitats of 10,260 ha. • By the end of 2016 in excess of 25% of waters around Kent and Medway will be contained in a well-managed Marine Protected Area network that helps deliver ecological coherence by conserving representative marine habitats that are nationally and internationally important. This target should not include the area already covered by the Outer Thames SPA. • Better wildlife habitats in the county, with 70% of Local Wildlife Sites in favourable condition and at least 90% of Local Wildlife Sites in favourable or recovering condition, at least 50% of SSSIs in favourable condition, while maintaining at least 95% in favourable or recovering condition. • By 2020, landscape scale initiatives that address the conservation of key species, through effective, integrated and joined up approaches including through management of our existing systems of protected areas and the establishment of nature improvement areas, in place on 17% of land and water.

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Policy Context Tables – Sub-National Non-Transport Policy

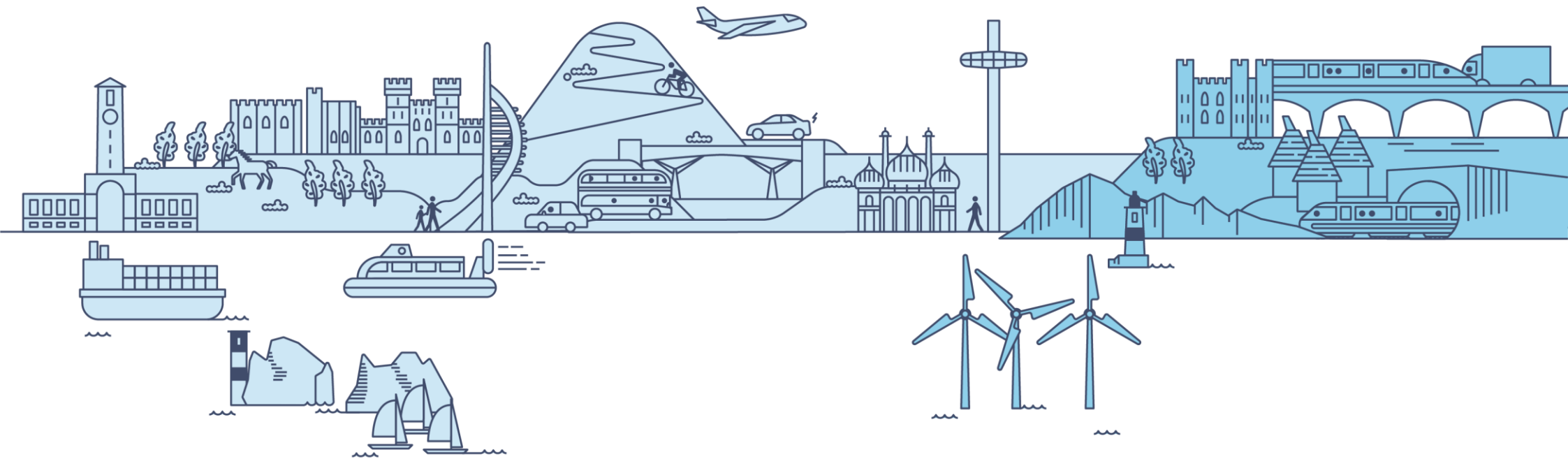| Plan or Policy	Relevant Aims/Objectives/Key Messages
Kent Minerals and Waste Local Plan (2013 -2030)	Throughout the plan period 2013-2030, minerals and waste development will: 1. Make a positive and sustainable contribution to the Kent area and assist with progression towards a low carbon economy. 2. Support the needs arising from growth within Kent. 3. Deliver cost effective and sustainable solutions to Kent's minerals and waste needs through collaborative working with communities, landowners, the minerals and waste industries, the environmental and voluntary sector and local planning authorities. 4. Embrace the naturally and historically rich and sensitive environment of the plan area, and ensure that it is conserved and enhanced for future generations to enjoy. 5. Seek to deliver a sustainable, steady and adequate supply of land-won minerals including aggregates, silica sand, crushed rock, brickearth, chalk and clay, building stone and minerals for cement manufacture. 6. Facilitate the processing and use of secondary and recycled aggregates and become less reliant on land-won construction aggregates. 7. Safeguard economic mineral resources for future generations and all existing, planned and potential mineral transportation and processing infrastructure (including wharves and rail depots and production facilities). 8. Restore minerals sites to a high standard that will deliver sustainable benefits to Kent communities. 9. Move waste up the Waste Hierarchy, reducing the amount of non-hazardous waste sent to landfill. 10. Encourage waste to be used to produce renewable energy incorporating both heat and power if it cannot be re-used or recycled. 11. Ensure waste is managed close to its source of production. 12. Make provision for a variety of waste management facilities to ensure that Kent remains at the forefront of waste management with solutions for all major waste streams, while retaining flexibility to adapt to changes in technology. 13. Ensure sufficient capacity exists to meet the future needs for waste management. 14. Restore waste management sites to a high standard that will deliver sustainable benefits to Kent communities.

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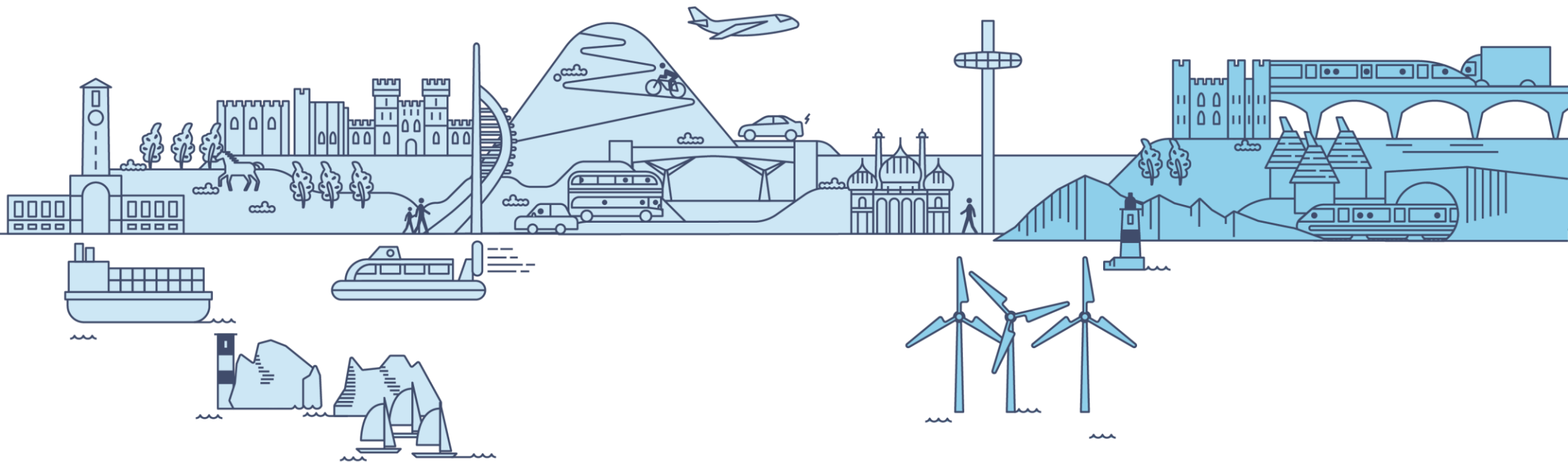
Appendix B
Socioeconomic Indicators

Area	GVA (2018, £m)	GVA (2008, £m)	GVA Growth (%)	GVA per capita (£)	Jobs Available	Eligible workforce (16-64)	Jobs minus workers	Jobs / Workforce (%)	Priority Sectors Jobs	Priority Sectors Jobs (%)	Priority Sector Quotient	Population (2019)	Population (2009)	Population Growth
Outer Orbital	81,031	62,686	29%	23,405	1,373,870	2,088,000	(714,130)	66%	160,965	11.7%	0.41	3,462,171	3,210,710	7.8%
South West (Outer Orbital)	42,060	32,359	30%	25,907	694,725	986,000	(291,275)	70%	102,545	14.8%	0.51	1,623,484	1,521,374	6.7%
South Central (Outer Orbital)	31,437	24,359	29%	22,281	546,285	846,600	(300,315)	65%	50,985	9.3%	0.32	1,410,944	1,298,734	8.6%
South East (Outer Orbital)	15,734	12,699	24%	18,355	293,780	504,200	(210,420)	58%	23,795	8.1%	0.28	857,216	789,620	8.6%
Inner Orbital	140,517	107,337	31%	35,906	1,846,655	2,400,100	(553,445)	77%	227,435	12.3%	0.43	3,913,426	3,614,802	8.3%
South West (Inner Orbital)	94,225	70,973	33%	42,018	1,134,900	1,383,100	(248,200)	82%	141,950	12.5%	0.43	2,242,472	2,092,937	7.1%
South Central (Inner Orbital)	22,773	19,300	18%	35,813	317,550	380,600	(63,050)	83%	48,135	15.2%	0.53	635,882	591,488	7.5%
South East (Inner Orbital)	32,424	24,518	32%	24,533	520,825	803,100	(282,275)	65%	48,075	9.2%	0.32	1,321,668	1,200,989	10.0%
South East Radial	54,210	43,659	24%	26,485	863,835	1,227,200	(363,365)	70%	99,120	11.5%	0.40	2,046,826	1,890,222	8.3%
South West Radial	136,285	103,332	32%	35,253	1,829,625	2,369,100	(539,475)	77%	244,495	13.4%	0.46	3,865,956	3,614,311	7.0%
South East Radial	45,169	34,892	29%	22,046	758,315	1,227,100	(468,785)	62%	66,695	8.8%	0.31	2,048,852	1,874,915	9.3%
South East	226,759	174,429	30%	29,545	3,325,155	4,656,700	(1,331,545)	71%	399,585	12.0%	0.42	7,675,038	7,108,836	8.0%

Area	Current Dwellings (2019)	Planned Dwellings (up to 2050)	% Dwelling Growth	Current Jobs (2017)	Planned Jobs (up to 2050)	% Job Growth	Number of LSOAs in Planning Authority	Number of LSOAs in Most Deprived Areas	% of Total LSOAs	In Scope Population	Population NVQ4+	NVQ Level 4+ (%)
Outer Orbital	1,541,926	200,309	13%	1,373,870	129,332	9%	2,038	415	20%	2,081,200	834,300	40%
South West (Outer Orbital)	714,661	74,984	10%	694,725	33,725	5%	970	195	20%	983,300	392,300	40%
South Central (Outer Orbital)	632,893	76,507	12%	546,285	26,256	5%	822	121	15%	843,400	376,400	45%
South East (Outer Orbital)	386,842	77,261	20%	293,780	92,066	31%	497	144	29%	503,300	166,300	33%
Inner Orbital	1,646,633	278,783	17%	1,846,655	294,760	16%	2,293	243	11%	2,396,900	1,077,400	45%
South West (Inner Orbital)	951,399	135,195	14%	1,134,900	104,511	9%	1,334	82	6%	1,381,200	673,900	49%
South Central (Inner Orbital)	283,964	31,714	11%	317,550	38,166	12%	368	16	4%	379,600	193,000	51%
South East (Inner Orbital)	551,581	125,003	23%	520,825	169,010	32%	757	150	20%	802,800	302,900	38%
South East Radial	916,857	108,221	12%	863,835	64,422	7%	1,190	137	12%	1,223,000	569,400	47%
South West Radial	1,666,060	210,179	13%	1,829,625	138,237	8%	2,304	277	12%	2,364,500	1,066,200	45%
South East Radial	884,030	186,359	21%	758,315	232,760	31%	1,176	282	24%	1,225,900	437,500	36%
South East	3,326,636	491,630	15%	3,325,155	418,491	12.6%	4,504	691	15.3%	4,646,700	1,980,700	42.6%

Area	Average Workplace Earning	% South East Average	Average Resident Earning	% South East Average	Average House Price (2019)	Affordability Ratio (2019 - %)	Total Carbon Emissions (2018) kTCO2	Transport Carbon Emissions (2018) kTCO2	Minor Road Carbon Emissions (2018) kTCO2	Carbon Emissions per capita TCO2	Transport Carbon Emissions per capita TCO2	Minor Road Carbon Emissions per capita TCO2	Transport as % of total Carbon emissions
Outer Orbital	28,642	96%	30,701	93%	290,389	9.5	13,737	6,017	2,178	4.0	1.7	0.63	44%
South West (Outer Orbital)	29,144	98%	30,847	93%	273,147	8.9	6,959	3,183	1,046	4.3	2.0	0.64	46%
South Central (Outer Orbital)	28,247	95%	31,525	95%	326,031	10.3	5,181	2,223	924	3.7	1.6	0.65	43%
South East (Outer Orbital)	27,363	92%	29,831	90%	260,757	8.7	3,285	1,305	449	3.8	1.5	0.52	40%
Inner Orbital	30,907	104%	35,231	106%	360,162	10.2	19,669	9,368	2,118	5.0	2.4	0.54	48%
South West (Inner Orbital)	31,038	100%	36,506	110%	395,787	10.8	11,086	5,231	1,298	4.9	2.3	0.58	47%
South Central (Inner Orbital)	31,879	100%	35,202	106%	406,076	11.5	3,125	1,523	381	4.9	2.4	0.60	49%
South East (Inner Orbital)	30,236	100%	33,181	100%	295,557	8.9	6,640	3,134	613	5.0	2.4	0.46	47%
South East Radial	29,582	99%	32,665	99%	350,822	10.7	8,306	3,746	1,305	4.1	1.8	0.64	45%
South West Radial	30,318	102%	34,151	103%	343,180	10.0	18,045	8,414	2,344	4.7	2.2	0.61	47%
South East Radial	29,155	98%	31,912	96%	281,902	8.8	9,327	4,123	987	4.6	2.0	0.48	44%
South East	£29,807	100.0%	£33,108	100.0%	£324,890	9.8	34,496	15,764	4,462	4.5	2.1	0.58	46%

Appendix C
Development Opportunities and Challenges

Major Economic Hub	Main location of housing growth	Main location of employment growth	Strategic and Major Road Network risks	Public Transport opportunities	Active Transport opportunities
Ashford	Town centre, e.g. former Powergen site, (660 homes), and to the south and east of the town, e.g. Chilmington Green (2,500 homes), and the Cheesemans Green (559 homes).	North of the town e.g. Eureka Business park.	**Poor**: Development to the north is well served by the M20, but developments on the south will be forced to use the A2070, which sees some congestion in the morning peak..	**Fair**: Some development will be close to Ashford International railway station, however most development will be on the periphery of the town..	**Good**: Most housing development planned close to future major employment sites.
Bexhill/ Hastings	In Hastings development is focused in the town centre e.g. Hastings Station Yard (103 homes) and around the perimeter ring road. In Bexhill development is focussed on the perimeter of town e.g. Gullivers Bowls Club (39 homes).	In Hastings, focused in the town centre and around the perimeter ring road in the north east of the town. In Bexhill, mostly on the perimeter of town.	**Poor**: Developments risk adding pressure to the A259 between Hastings and Bexhill and the A21 into Hastings.	**Poor**: In Hastings, some development will occur near the railway station, but most will occur on the perimeter of the town to the north east. In Bexhill, development is also quite far from the town centre.	**Fair**: Approximately a third of development will occur in sites which are beyond easy walking/cycling access of the city centre.
Canterbury	South and west of the of the city e.g. Site 9 Howe Barracks (500 homes).	South of the city.	**Poor**: Pressure will be added to the A2 and the A28. The A28 already sees significant congestion in the AM peak.	**Fair**: Development will mostly occur over 3km away from Canterbury East station. However, developers have proposed improvements to the public transport network, such as better bus priority measures.	**Fair**: Most development is situated at the outer limit of what is feasible for active transport access.
Dartford	Most development is in the centre e.g. the Mill Pond Development site (400 homes), except for a site to the north of the A206 e.g. The Bridge (278 homes).	Most development in the centre, except for a site to the north of the A206.	**Poor**: Developments may add some strain to the M25. Congestion is already a significant issue on the M25 near the Dartford Crossing.	**Good**: Most development will occur close to Dartford station.	**Good**: All developments will occur in built up urban areas, with local amenities within walking/cycling distance of developments.
Folkestone	Large spread with some near the harbour e.g. the Folkestone Seafront development (1,000 homes), some to the west of the centre e.g. Shorncliffe Garrison, (1,200 homes) and a large site near Westenhange (5,500 homes).	Some in the town centre, but large volumes of development will occur at Westenhanger and Martello Lakes.	**Poor**: Developments may add some strain to the M20.	**Fair/poor**: Most development will occur around Folkestone Central railway station, but there are two major developments over 3.5km from the station.	**Fair/poor**: More than half of developments are located beyond walking/cycling distance from the town centre/public transport network.

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Development Opportunities and Challenges (2 of 3)

Major Economic Hub	Main location of housing growth	Main location of employment growth	Strategic and Major Road Network risks	Public Transport opportunities	Active Transport opportunities
Gravesend	One large hub around Ebbsfleet station (1,400 homes) and a smaller hub around Gravesend e.g. Heritage quarter (141 homes) and the Clifton slipways(133 homes).	Most development focused around Ebbsfleet and Northfleet.	**Poor**: Developments may add strain to the A227 and the A2. These roads already see high levels of congestion.	**Good**: Most development is planned around Gravesend and Ebbsfleet railway stations.	**Good**: Most housing development planned close to future major employment sites, urban amenities and public transport hubs.
Herne Bay/ Whitstable	Small development near Herne Bay e.g. Herne Bay Court Canterbury Road development (157 homes).	N/A	**Good**: Minimal strain to the Strategic road network.	**Good**: Development planned near Herne Bay.	**Good:** The majority of this development will occur within reasonable walking/cycling distance of the public transport network and town centre.
Maidstone	Across the area, with key sites to the south east e.g. Medvale House, (81 homes) and to the north of the town e.g. Invicta Park Barracks (1,300 homes).	North and west of the town.	**Poor**: Developments around Maidstone may add strain to the A229 and the M20. The A229 already sees high levels of congestion but the M20 is relatively uncongested.	**Fair/poor:** Some development planned around the major local stations, but some (e.g. Park Wood Trading Estate), is further away.	**Fair/good:** The majority of development will occur in locations within reasonable walking/cycling distances from the town centre.
Medway	Medway Council is preparing a new Local Plan. Previous consultation drafts have indicated that most new housing development should be located in areas relatively well-served by public transport, while other areas have been the focus of upfront government infrastructure funding.	Around Gillingham and Rochester e.g. Rochester Airport site.	**Fair**: Subject to the Local Plan, there is a risk of additional strain to the A2 and the A289. Both the A2 and the A289 have some congestion issues already at major junctions.	**Fair:** Development near Rochester and Gillingham is near railway stations but development on the Isle of Grain will require intervention to support sustainable travel (e.g. improved passenger rail access).	**Fair:** Approximately half of this development is in sites which are reasonable walking/cycling distance from town centre amenities, employment and public transport.
Tonbridge/ Royal Tunbridge Wells	In the centre, to the north east e.g. High Brooms (170 homes) and the south west e.g. Telephone Engineering Centre (170 homes).	In the town centre.	**Good**: Unlikely to have a significant impact on the Strategic or Major Road Networks.	**Good**: Most development will occur near Tunbridge wells station.	**Good**: Most future development is planned within walking and/or cycling distance of employment sites, amenities and public transport hubs.

South East Radial Area Study Evidence Base

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Development Opportunities and Challenges (3 of 3)

Major Economic Hub	Main location of housing growth	Main location of employment growth	Strategic and Major Road Network risks	Public Transport opportunities	Active Transport opportunities
Sittingbourne	A major development on the A249 (1400 homes); another major development just to the East of Snipeshill (850 homes); some small developments in the centre of the town.	Majority to the Northeast of the town.	**Fair**: May place some additional strain on the A249.	**Fair**: The majority around the Kemsley and Sittingbourne stations.	**Fair**: Development will happen in locations which are relatively easily accessible by active transportation modes.
Thanet	Across the area with particularly large developments at Westgate (2,000 homes) and Manston Court Road (1,400 homes).	Concentrated at the Westwood retail park and to the north of Manston airport.	**Poor**: May add some strain to the A28 or the A299. However, at present this road is relatively uncongested. .	**Fair/poor**: Some development will occur close to Ramsgate and Margate railway stations, but a large proportion will occur over 2.5km from either station.	**Poor**: A significant amount of development will occur in locations that are is beyond reasonable walking/cycling distance from the town centre and/or public transport hubs.

TRANSPORT FOR THE **South East**

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