TRANSPORT FOR THE South East

Report prepared to support the development of the Transport Strategy for the South East

Integrated sustainability appraisal

tfse.org.uk/transport-strategy

Integrated Sustainability Appraisal

Transport for the South East
23433701

April 2020

Integrated Sustainability Appraisal

ISA Report

Post Consultation Draft

Prepared by:
WSP on behalf of:
Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:
Steer
Transport for the South East

23433701

Contents

Appendices

Figures

Tables

Non-Technical Summary

Introduction

Transport for the South East is a newly established shadow sub-national transport body representing 16 Local Transport Authorities and five Local Enterprise Partnerships in the South East.

Transport for the South East has developed a Transport Strategy to realise its vision and strategic priorities for enhancing transport in the South East. The Transport Strategy identifies key transport corridors, journey types and types of initiatives that will be required to help the South East realise this economic potential, whilst ensuring the principles of sustainable development are followed to maximise social and environmental benefits.

An Integrated Sustainability Appraisal has been undertaken alongside the preparation of the Transport Strategy. Its role is to promote sustainable development by assessing environmental, social and economic impacts, as well as mitigating any potential adverse effects that the Transport Strategy might otherwise have.

This Integrated Sustainability Appraisal Report, including non-technical summary, represents the second stage of the Integrated Sustainability Appraisal process, following a Scoping Report which determined the issues to be included in the Integrated Sustainability Appraisal.

Integrated Sustainability Appraisal Methodology

The Integrated Sustainability Appraisal combines the following assessment processes:

Strategic Environmental Assessment

Strategic Environmental Assessment is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted environmental effects.

Health Impact Assessment

Health Impact Assessment is a process to identify the likely health effects of plans, policies or development and to implement measures to avoid negative impacts and / or promote opportunities to maximise the benefits.

Habitats Regulations Assessment

'Screening' under the Habitats Regulations has been undertaken alongside the development of the Transport Strategy in order to identify likely significant effects on European sites for nature conservation, i.e. Special Areas of Conservation, Special Protection Areas, and Ramsar sites (wetlands of international importance).

Equalities Impact Assessment

The Equalities Impact Assessment process focuses on assessing and recording the likely equalities effects as a result of a policy, project or plan. It seeks to ensure that the policy,

project or plan does not discriminate or disadvantage people, and enables consideration of how equality can be improved or promoted.

Community Safety Audit

Community Safety Audits are used to identify where potential community safety issues could arise, e.g. through level of use, accessibility, vehicle speed, or proximity to sensitive receptors.

Natural Capital Approach

Natural capital is used to describe the natural environment in terms of the benefits it provides to people (also known as ecosystem services), including food, recreation, and clean air and water. These ecosystem services fall across many sustainability topics. A natural capital approach is therefore useful for understanding the inter-dependencies between nature, people, the economy and society, and ensuring that natural capital is considered as an integrated system.

Environmental Baseline

Biodiversity

The South East is a key area for a range of priority habitats, including ancient woodland; broadleaved, mixed and yew woodland; lowland heath habitats; and coastal habitats such as vegetated shingle and offshore chalk exposure. The Transport for the South East study area also contains a wealth of protected sites, including:

- One UNESCO World Biosphere Reserves (Brighton & Lewes Downs);
- 51 Special Areas of Conservation;
- 22 Special Protection Areas;
- 16 Wetlands of International Importance (Ramsar sites);
- 559 Sites of Special Scientific Interest;
- 48 National Nature Reserves; and
- 13 Marine Conservation Areas.

Historic Environment

The historic environment encompasses buried heritage assets (archaeological and palaeoenvironmental remains) and above ground assets (standing buildings, structures, monuments and designed landscapes of historic interest and their setting). Designated historical sites in the South East region include:

- World Heritage Sites – there is one in the region; Canterbury Cathedral. Canterbury is also listed as one of five nationally designated Areas of Archaeological Importance.
- Scheduled Monuments – there are 2,657 scheduled monuments across the region.
- Statutorily Listed Buildings – the South East has the second highest density of listed buildings of all England's regions with a total of 76,799 listed buildings, of which 1,743 are Grade I listed, 3,946 are Grade II* listed and 71,110 are Grade II listed.
- Registered Battlefields – there are six within the region, including the Battle of Hastings, Battle of Lewes, and Battle of Cheriton.
- Registered Parks and Gardens – there are 376 listed parks and gardens across the region.

- Heritage Coasts – these include areas on the Isle of Wight, near Eastbourne and near Folkestone.

Landscape and Townscape

Designated landscapes in the Transport for the South East study area include:

- National Parks – there are two (New Forest and the South Downs) which cover approximately 20% of the total South East area.
- Areas of Outstanding Natural Beauty – there are eight: Chichester Harbour, Chilterns, Cranbourne Chase & West Wiltshire Downs, High Weald, Isle of Wight, Kent Downs, North Wessex Downs, and Surrey Hills.

Soils and Resources

Much of the agricultural land in the South East is rated as of good to moderate quality (grades 3a-3b), whilst land in the far east of the region and around Chichester is of excellent quality (grade 1). There is a prevalence of aggregate (including marine) deposits in the South East, with quarries producing crushed rock, sand and gravel. Clays, silica sand and chalk are also common in the region, particularly in East Sussex, West Sussex, Hampshire, Surrey and Kent; whilst Robertsbridge in East Sussex has the largest known gypsum deposit in the UK. The UK generated 222.9 million tonnes of total waste in 2016, with England responsible for 85% of the UK total. Construction, demolition and excavation waste makes up around 60% of the entire amount of waste produced by the UK each year, making this the country's largest waste stream.

Water Environment

There are a number of 'main rivers' across the South East; these predominantly drain eastwards/ southwards. The Water Framework Directive sets an objective of aiming to achieve at least 'good ecological status' for all waterbodies by 2021, however by 2015, 77% of the region's rivers and canals were predicted to have still not have achieved overall good status. According to the Environment Agency, there are almost 900,000 properties at risk of one or more forms of flooding in the South East as a whole, with an estimated 668,900 at risk from surface water flooding. Areas with particular flood risk concerns in the South East include: London, Medway, Brighton & Hove, Portsmouth, Eastbourne, urban areas in the north west of Surrey, and the rural coastal authorities of Swale, Arun and Shepway. Maintaining water supplies as the climate changes and water becomes more scarce will be particularly challenging in the South East, especially in the Thames river basin region.

Air Quality

The Clean Air Strategy 2019 reports that road transport and other transport modes (including rail and shipping) contributed 34% and 17% respectively to total national nitrogen oxide emissions in 2016, and 12% to particulate matter emissions. Where air quality objectives are not likely to be achieved an Air Quality Management Area must be declared. These are predominantly associated with nitrogen dioxide emissions from vehicles. In the Transport for the South East area, there are currently 149 Air Quality Management Areas, of which 123 are declared for nitrogen dioxide, 11 are declared for both nitrogen dioxide and particulate matter, two are declared for particulate matter alone, and two for sulphur dioxide. The urban areas of Southampton, Bournemouth and Portsmouth failed to comply with the limit value for annual mean nitrogen dioxide in 2017.

Climate Change and Greenhouse Gases

Transport is the largest single contributor to greenhouse gas emissions in the UK, accounting for 27% in 2017. Greenhouse gas emissions from transport activities include carbon dioxide, methane and nitrous oxide. Road transport – particularly passenger cars – is the most significant source of greenhouse gas emissions in this sector. However, emissions from passenger cars have decreased since the early 2000s due to lower petrol consumption outweighing an increase in diesel consumption and, more recently, improvements in fuel efficiency – particularly for petrol cars. The last four years have also seen a remarkable surge in demand for electric vehicles in the UK – new registrations of 'plug-in' all-electric and electric-hybrid cars increased from 3,500 in 2013 to more than 195,000 by the end of February 2019. However, since 2013 there has been a small increase in emissions due to an increase in total vehicle kilometres travelled. A number of local authorities in the South East have declared 'climate emergencies', including committing to setting targets for zero net carbon emissions by 2050.

In terms of climate change impacts, there were approximately 2,000 more deaths in England and Wales during the August 2003 heatwave than for the same period averaged between 1998 and 2002. Most of these were concentrated in the South East and London, particularly among those over 75 years old. By 2040, more than half of summers are expected to exceed 2003 temperatures. The character of UK rainfall has also changed, with days of very heavy rain becoming more frequent. What in the 1960s and 1970s might have been a 1-in-125 day rainfall event is now considered to be a 1-in-85 day event. The key climate change-related challenges for the South East include: increased risk of flooding; water scarcity; health issues during increasingly frequent extreme weather events, such as heatwaves; the ability of infrastructure to cope with changing demand and use; organisational resilience to climate change; and changes to natural systems.

Noise and Vibration

Increased noise pollution affects quality of life and has been linked to health problems. Noise Important Areas have been identified throughout the South East in areas where transport noise is considered to be a problem. These are mainly located along roads and railways, with the majority of road Noise Important Areas located on motorways. The latter create significant noise with noise levels over 55 dBb in areas within 1km of the source. In addition, significant noise is generated by rail/road traffic connecting with the South East's busy ports and airports. The activities at airports, including take-off and landing, also generate high noise levels, whilst there is noise associated with the flight paths to and from these airports that will affect receptors in the South East. Recent vehicle innovations such as hybrid and electric cars have led to quieter vehicles. As these make up a greater proportion of vehicles on the road, associated noise levels will start to fall. Aircraft are also becoming quieter; however, it is anticipated that passenger numbers will continue to increase in the years ahead resulting in more flights and potential for increased noise levels.

Population and Equalities

The South East has the largest population of any government region of England, at almost 10 million. The districts in the South East generally have a high proportion of people over the age of 65, compared to the UK average. The population between 2019 and 2041 in the South East is expected to increase by 10% - particularly amongst the over 75s – with the greatest increase projected in Medway, and the smallest in West Berkshire. In terms of ethnicity, 91% of the

region is considered to be white, with just 9.3% from Black, Asian, and minority ethnic groups, which is considerably lower than the national average of 13%. In the South East, 95.1% of people identify as heterosexual, and 1.3% consider themselves to be lesbian, gay, bisexual and transgender, which are similar to the national figures. 65% of the population in the South East are religious, of which 92% state their religion as Christianity. The second largest religious group are Muslims, who make up 3.6% of the religious population.

Despite the relative prosperity of the region, 850,000 people (especially children and the over-60s) are living in the top 20% of income deprived areas in the country. According to the 2015 Index of Multiple Deprivation, Portsmouth is considered to be the most deprived of the eleven authority areas in the region, ranking 63rd most deprived out of 326 authorities in England. 20.4% of people in the region live in rural areas, which is above the national average of 18.8%. There is a considerable disparity between higher and lower performing rural areas in the region, in terms of household income, labour market skills, unemployment claimants and job density. In general, the lowest performing rural local authorities are located on or near to the coast.

Health

The South East region generally has a better life expectancy for both males and females when compared to the national average. Of the eleven authorities, West Sussex has the greatest life expectancy for males (80.6 years), whilst Surrey has the greatest life expectancy for females (84.6 years). Medway has the lowest life expectancy for both males (78.5 years) and females (82.2 years), both of which are below the national average. In general, the overall health of residents across the South East is good, with Hampshire, Surrey, West Berkshire and West Sussex all bettering the national average. However, the overall health of residents in Southampton and Portsmouth is described as being worse than the national average. When looking at disabilities and impairments, 6.9% of the population stated that their day to day activities are 'limited a lot' and 8.8% described it as 'limited a little'. On the whole, the South East has good levels of physical activity, which is reflected in the low levels of obesity. Despite this, the region has a high number of people diagnosed with diabetes, with six of the eleven authorities having significantly higher diagnoses than the national average. The proportion of people living with dementia in East Sussex, Hampshire, West Sussex and the Isle of Wight is significantly higher than the national average.

Community Safety

Between 2015 – 2017, there were 49.1 road traffic accidents (where somebody was either killed or seriously injured) per 100,000 people in the region. This is higher than the national average of 40.8. Of the eleven authority areas, the Isle of Wight had the highest number of accidents at 57.7 per 100,000, whilst Medway had the lowest (31.4 per 100,000). In 2017 there were 267 fatalities from road traffic accidents in the region (5% fewer than in 2016); however, this remains higher than any other region in the UK. Six of the top ten higher risk roads in the UK are in the South East. In 2017/2018, the number of reported sexual offences committed on public transport in the UK, increased by 16% (60% of these assaults were against females). The number of violent offences increased by 26%. Delays caused by disrupted behaviour also increased.

Economy

The South East is home to the UK's most important international and national transport assets, including the busiest airports serving the most destinations, ports on the main

international shipping line, and cross channel services from Dover and through Eurotunnel. Initially drawn by strong connectivity to international markets, businesses have clustered around international gateways and are now benefitting from proximity to other businesses in their sector. With marine, maritime and defence industry concentrated around the ports of Portsmouth and Southampton, and the 'Gatwick Diamond' being a focus for the professional services sector, international gateways are economic hubs in their own right. The economy of the South East is further driven by five large sectors which account for nearly 29% of the total output. These sectors are construction, education, health, business support (e.g. office administration services), and retail. In addition, tourism is vital to the rural and coastal economies of the South East contributing over £7.5 billion per year. However, a ratio of median house price to median earnings of nearly 9.5 compared to the national average of 7.5 puts into sharp focus the affordability constraints facing the South East.

Integrated Sustainability Appraisal

Other than schemes already under planning and development including those led by Local Enterprise Partnerships, Highways England and National Rail, further transport interventions are not specified in the Transport Strategy – these will follow in later corridor studies and in the forthcoming Strategic Investment Plan.

The Integrated Sustainability Appraisal therefore covers the following key aspects of the Transport Strategy:

- The 23 strategic corridors considered to have the greatest potential for sustainability enhancements and economic growth (representing the 'spatial alternatives'); and
- General transport interventions that would help address the challenges faced by the six journey types (representing the 'policy alternatives').

Assessment of Strategic Corridors

The assessment of each of the 23 corridors has been undertaken using spatial indicators for each of the Sustainability Objectives. The sensitivities/constraints and opportunities within a set distance buffer of the central point of each transport corridor have been identified, and the potential for significant effects highlighted. In summary, the assessment shows that:

- The economic indicators are the most susceptible to potential positive effects of future development across the corridors. Where new economic developments are proposed and where existing major international companies, economic assets and priority sector areas are located within the corridors, positive effects have been recorded.
- Positive effects on a growing population have also been identified for those corridors where housing developments are proposed.
- In terms of deprivation, (including overall deprivation, health deprivation and crime deprivation) those corridors that are considered significantly deprived, have been identified as being more sensitive to the negative effects arising from future developments. Corridors with low levels of deprivation have potential to be more resilient change, whilst those with mixed levels of deprivation have potential to be more sensitive to both negative and positive effects of future development.

- Health across the 23 corridors is varied, and the assessment has highlighted the opportunities of future development to both improve health as well as worsen the current situation. Those corridors where excess weight and physical inactivity is significantly worse than the national average, have been identified as being more sensitive to negative effects of development, than those that significantly outperform the national average.
- The number of high risk roads and the number of people who are killed or seriously injured, varies across the corridors. Sensitivities of these receptors will be dependent upon where development takes place and the opportunities for improving safety related to each intervention.
- The water environment across the corridors is likely to be sensitive to the negative effects associated with future developments. All corridors intersect multiple flood zones, and the majority intersect ground source protection zones, which are sensitive to contamination. Eleven corridors intersect flood risk areas, which are high risk areas for people, critical services and commercial and public assets from surface water flooding and potential negative effects have been identified.
- The South East area is heavily designated for its biodiversity, landscape and heritage. All designated areas and sites that have been intersected by the corridor and its buffer, have been considered highly sensitive to the negative effects that could arise from future transport development.
- National trails across the regions have potential to benefit from both the negative and positive effects of development, depending on the nature of proposals that come forward.
- The agricultural land across the corridors is highly diverse, with combinations of poor quality and non-agricultural land surrounding urban areas, with rural areas composing of higher quality versatile soils. Given the variation, the sensitivity of agricultural land is highly dependent upon where development takes place and the type of transport intervention.

Assessment of General Interventions

The general categories of transport interventions – mentioned through the Transport Strategy's 'types of initiatives' as ways of addressing the challenges faced by the region's six journey types – have been assessed as having the following predicted impacts:

- New highways are likely to result in large impacts on biodiversity due to the expected impacts arising from habitat loss and severance, including potential loss or damage to irreplaceable habitats in the region, as well as loss of ecosystem service provision. The scale of new roads and the magnitude of impacts means that residual impacts are likely and opportunities for biodiversity net gain are likely to be challenging. Negative effects are expected from new roads on the historic environment, particularly with regards to buried archaeology and setting of heritage assets. There would be both direct and indirect negative effects on landscape, relating to visual amenity, character, quality and tranquillity, all of which are under pressure from development throughout the region. New roads would also have a negative effect on air quality and noise in the region, as well as increased carbon emissions, as an increase in traffic volume is anticipated as a result,

although they have the potential to relieve impacts in congested areas. Embodied carbon, i.e. supply chain emissions associated with the construction of new roads and manufacture of their constituent parts, will also increase. Finally, permanent damage to and loss of soil can occur as a result of new road building. Positive impacts are expected to include improved road safety, improved accessibility and more reliable journey times.

- Highway improvements would have a lesser impact than new roads on biodiversity, archaeology and landscape, as the extent of land take would be limited by the nature and scale of the schemes. There is potential for a large impact on climate change to arise from highway improvement schemes, as they can increase road capacity and thus result in an increase in greenhouse gases, however, vulnerability to flood risk and other climatic factors will vary on a site-specific basis and depend on design achievable in the setting. While increased capacity could lead to negative air quality and noise impacts, road users are likely to experience more reliable journey times and increased accessibility.
- Non-infrastructure highway options are likely to have a negligible or no effect on most environmental objectives, with the exception of landscape and townscape where potential negative effects may occur from features such as signage, signals and other traffic management in regard to visual amenity, character, quality and setting, although this is much reduced from new highways infrastructure. Potential positive effects on population, health and community safety could occur from traffic management and road signage options.
- New railway lines have the potential for significant negative effects on biodiversity in a similar way to new roads but additionally may fragment or degrade farmland and result in the loss of agricultural land. Permanent damage to and loss of soil can also occur as a result of new railways. The loss of soil and habitats are likely to result in a reduction of ecosystem service provision. There is potential for significant negative effects on the historic environment and landscape because they could impact on the setting of historic assets and archaeology and would introduce new linear features into the landscape, which may affect its quality and character.
- Improving existing rail infrastructure will have reduced environmental impacts compared to new railway lines and stations. The largest beneficial effects from these improvements would occur in relation to population, health and community safety due to the potential for an increase in rail passenger number as a result, and the improved experience and safety of travel for them.
- Improvements to other public transport services such as buses and light rail would have the largest beneficial effect on population and equalities due to the likely increased uptake of public transport travel by elderly and disadvantaged people and the improvement in accessibility between communities and rural areas with towns. Modal shift as a result of the improvements would also result in beneficial effects on air, noise, climate change, health and community safety. The economy is also likely to benefit from the introduction of light rail in urban areas, as it is often used as a means of regeneration. However, there could potentially be adverse effects on townscape and cultural heritage if not sensitively designed, whilst the development phase could disturb contaminated soil.
- New and improved walkways and cycleways would have the largest beneficial effects on the ISA Sustainability Objectives, with a significant beneficial effect expected on health

due to the active, physical nature of the mode – assuming that walkways and cycleways are well connected, and maintained in good condition. Enhancements or opportunities in respect to biodiversity, air quality, climate change, noise, population and community safety are likely from the creation of new or improved walking and cycling routes. This is due predominantly to the connectivity for and between communities and employment areas, accessibility to and reliability of the routes and the potential enhancements to biodiversity through the protection or creation of green corridors. However, these policy alternatives are unlikely to provide economic benefit in relation to long distance movement of people and freight.

- Similarly, the provision of 'other interventions' – information, congestion charging, ticketing – would mostly result in the same objectives being benefited. Potential negative effects from 'other interventions' may occur in regard to the historic environment and landscape and townscape if the installation of features to support the provisions impacted on the character, quality or setting of the historic or landscape environments.

Health Impact Assessment

The general transport interventions were assessed against the following determinants of health: air quality, noise, physical activity, road safety, economy and employment, and access and accessibility. The assessment identified that interventions related to highways, including new roads, road improvements and other non-infrastructure related improvements, are likely to result in negative health outcomes, particularly in relation to air quality. The other interventions related to rail, bus, walking and cycling, and behaviour change are all likely to result in some positive health outcomes, particularly in relation to physical activity.

Habitats Regulations Assessment

A Habitats Regulation Screening Assessment was undertaken to consider whether the Transport Strategy may have significant impacts upon European sites. The assessment was based solely upon the preliminary information available in relation to the locations of the strategic corridors, rather than specific transport schemes. Through screening for potential impacts, it was not possible to categorically demonstrate that the Transport Strategy will not have any impacts upon European sites.

Given the possibility of significant effects associated with the Transport Strategy, further, detailed assessment through Appropriate Assessment is considered necessary to satisfy the requirements of the Habitats Regulations. It will only be possible to undertake this level of assessment once specific schemes are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

Equalities Impact Assessment

The Equalities Impact Assessment considered the impact that the general transport interventions might have on persons, or groups of persons, who share characteristics which are protected under the Equality Act 2010, and also includes others considered to be vulnerable in society such as low-income groups. The assessment found that the interventions are likely to result in a positive impact on protected characteristics, particularly age and deprivation. Improvements to the transport network, including pedestrian and cycleways, should result in more reliable and comfortable journeys, encouraging users to move away from private vehicles.

Community Safety Audit

There are a number of considerations for community safety for the Transport Strategy and subsequent development of transport in the Region. These include:

- Improving the feeling of safety particularly after dark.
- Reducing congestion, managing flows through improved road and cycleway infrastructure and taking into consideration the site-specific issues for bus stops, light rail stops or train stations to reduce conflict between users.
- Incorporation of safety features (barriers etc), traffic control measures including widening, improved signage, junction improvements, separation of pedestrians and cyclists and incorporation of green infrastructure to reduce the risk of accidents on the road, public transport, foot or cycleways.

Mitigation

Mitigation measures have been proposed to avoid or reduce the effects identified as potentially negative through the corridor and policy assessments on the Sustainability Objectives. These include a number of measures including embedding environmental and social priorities into the Strategy and further assessment at project level. :

Monitoring

The purpose of monitoring is to provide an important measure of the sustainability outcomes of the Transport Strategy, and to measure the performance of the Strategy against environmental objectives and targets. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage environmental information.

Transport for the South East will use a set of Key Performance Indicators to monitor the outcomes of the Transport Strategy in advancing the Economic, Social and Environmental Strategic Priorities. Given the potential for adverse effects predicted by the Integrated Sustainability Appraisal for many of the environmental topics, as well as some of the social topics, these are particularly important to monitor.

1 Introduction

1.1.1 Transport for the South East (TfSE) is a newly established shadow sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs) in the South East (SE), as shown in Figure 1.1, and listed in Table 1.1.

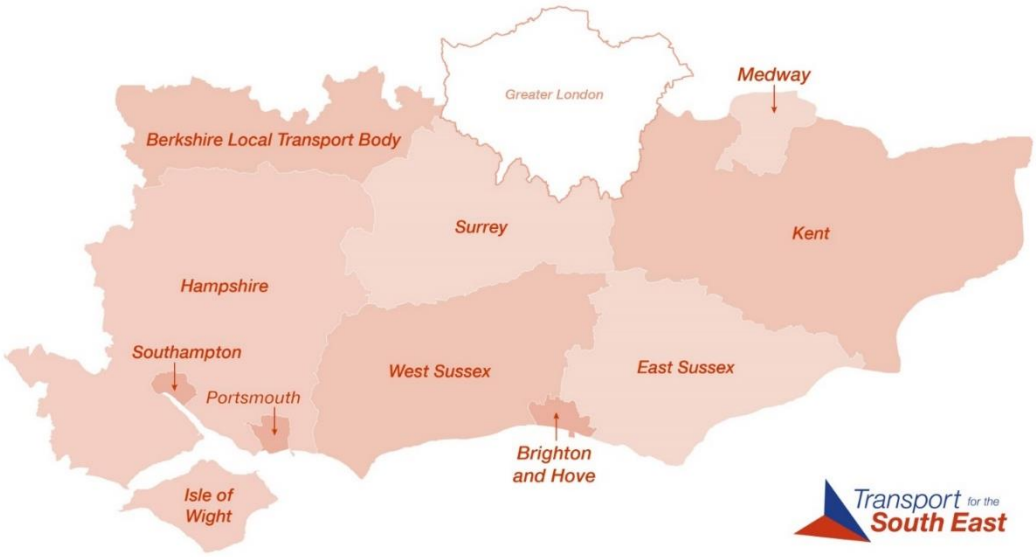

Figure 1.1: Study Area

Table 1.1: LTAs and LEPs represented by TfSE

Local Transport Authorities	Local Enterprise Partnerships
• Berkshire Local Transport Body, comprising: – Bracknell Forest – Reading – Royal Borough of Windsor and Maidenhead; – Slough – West Berkshire – Wokingham • Brighton & Hove City Council • East Sussex County Council • Hampshire County Council • Isle of Wight Council • Kent County Council • Medway Council • Portsmouth City Council • Southampton City Council • Surrey County Council • West Sussex County Council	• Coast to Capital • Enterprise M3 • Solent • South East • Thames Valley Berkshire

1.1.2 The key mechanism for expressing how TfSE will realise its vision and strategic priorities will be through its Transport Strategy. An Economic Connectivity Review[1] was completed as the first stage in the development of the Transport Strategy. This identified the key transport corridors which are economically important and the additional uplift in economic activity that could be realised from increased infrastructure investment.

1.1.3 The TfSE Transport Strategy has now been drafted to identify the journey types and types of initiatives that will be required to help realise this economic potential, whilst ensuring the principles of sustainable development are followed to maximise social and environmental benefits.

1.1.4 More detail is provided on the Transport Strategy in Chapter 2.

1.1.5 An Integrated Sustainability Appraisal (ISA) has been undertaken alongside the preparation of the Transport Strategy. Its role is to promote sustainable development by assessing environmental, social and economic impacts, as well as mitigating any potential adverse effects that the Transport Strategy might otherwise have.

1.1.6 The ISA (as set out in Figure 1.2) combines the following assessment processes:

- Strategic Environmental Assessment (SEA);
- Health Impact Assessment (HIA);
- Habitats Regulations Assessment (HRA);
- Equalities Impact Assessment (EqIA); and
- Community Safety Audits (CSA).

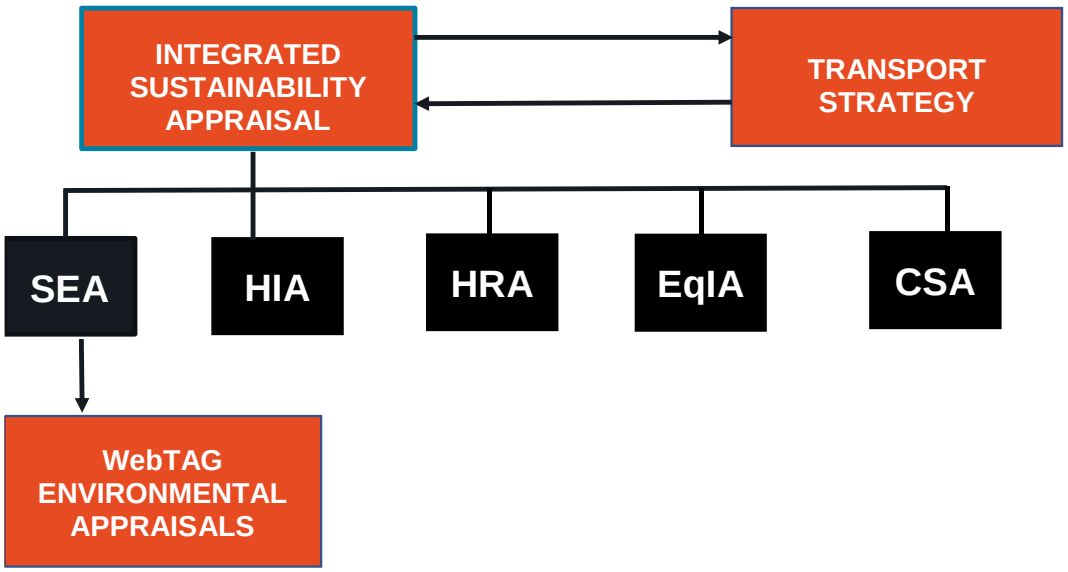

Figure 1.2: ISA and Component Processes

1.1.7 With the exception of the Health Impact Assessment (HIA) and Community Safety Audits (CSA), the component assessment processes are all required by separate legislation. While it is

[1] Transport for the South East. 2018. Economic Connectivity Review Final Report.

important that these assessments are undertaken according to legal requirements, they also feed into the ISA as the main tool to assess the Transport Strategy.

1.1.8 WebTAG (Web-based Transport Analysis Guidance) is the Department for Transport's (DfT) guidance for appraising individual transport schemes, i.e. highways and other public transport interventions including rail and aviation. This includes guidance on conducting 'social impact appraisal', 'wider economic impacts appraisal', and 'environmental impact appraisal', the latter of which is intended to build on the baseline data and impact assessment work carried out as part of an EIA[2]. As the Transport Strategy does not detail specific new transport interventions, this level of appraisal has not been required as part of the ISA.

1.1.9 More detail is provided on the ISA methodology in Chapter 3.

1.1.10 This ISA Report sets out the second stage of the ISA process, following a Scoping Report which determined the issues to be included in the SA. This report sets out:

- Information on the Transport Strategy (Chapter 2);
- The methodology used for the ISA and its constituent processes (Chapter 3);
- A summary of the sustainability issues and opportunities identified during scoping (Chapter 4);
- The results of the ISA assessments, along with proposed mitigation and monitoring (Chapter 5); and
- The next steps in the ISA process (Chapter 6).

[2] Department for Transport. 2015. TAG Unit A3. Environmental Impact Appraisal. Available from: https://www.gov.uk/government/publications/webtag-tag-unit-a3-environmental-impact-appraisal-december-2015

2 Transport Strategy

2.1 Purpose of the Transport Strategy

2.1.1 Transport for the South East's vision for the region is:

> By 2050, the South East of England will be a leading global region for emission-free, 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, giving our residents and visitors the highest quality of life in the country.

2.1.2 The Transport Strategy provides the key mechanism for expressing how TfSE will realise its vision, and the strategic goals and priorities that underpin it. These goals and priorities (set out in Table 2.1) help to translate the vision into more targeted and tangible actions.

Table 2.1: Strategic goals and priorities

Strategic Goals	Strategic Priorities
Economic Improve productivity and attract investment to grow our economy and better compete in the global marketplace.	• Better connectivity between our major economic hubs, international gateways (ports, airports and rail terminals) and their markets. • More reliable journeys for people and goods travelling between the South East's major economic hubs and to and from international gateways. • A transport network that is more resilient to incidents, extreme weather and the impacts of a changing climate. • A new approach to planning that helps our partners across the SE meet future housing, employment and regeneration needs sustainably. • A 'smart' transport network that uses digital technology to manage transport demand, encourage shared transport and make more efficient use of our roads and railways.
Social Improve health, safety, wellbeing, quality of life, and access to opportunities for everyone.	• A network that promotes active travel and active lifestyles to improve our health and wellbeing. • Improved air quality supported by initiatives to reduce congestion and encourage further shifts to public transport. • An affordable, accessible transport network for all that promotes social inclusion and reduces barriers to employment, learning, social, leisure, physical and cultural activity.

	• A seamless, integrated transport network with passengers at its heart, making journey planning, paying for and using different forms of transport simpler and easier. • A safely planned, delivered and operated transport network with no fatalities or serious injuries among transport users, workforce or the wider public.
Environmental Protect and enhance the South East's unique natural and historic environment.	• A reduction in carbon emissions to net zero by 2050 and minimise the contribution of transport and travel to climate change. • A reduction in the need to travel, particularly by private car, to reduce the impact of transport on people and the environment. • A transport network that protects and enhances our natural, built and historic environments. • Use of the principle of 'biodiversity net gain' in all transport initiatives. • Minimisation of transport's consumption of resources and energy.

2.1.3 The strategy development process has provided the opportunity to take a different perspective on the transport requirements in the SE. This involved taking a strategic spatial view and focusing on transport's role in supporting and driving the economy, whilst ensuring the principles of sustainable development are followed to maximise social and environmental benefits (or mitigate dis-benefits).

2.1.4 The strategy development process has also taken advantage of the opportunities provided by the regional perspective, by considering transformative change in transport and development rather than just focussing on the operational challenges of the current system and current development patterns specified in Borough and District Local Plans. Consequently, a key function of the Transport Strategy is to articulate the benefits of proposed policy initiatives or investment in the region in terms of the role it can play in helping to unlock and enable its wider economic potential.

2.1.5 In outline, the Transport Strategy sets out:

- The purpose of the Strategy;
- Background information on the characteristics of the SE region and its transport networks;
- The vision, goals and principles of the Strategy, and how these will be applied;
- The Strategy itself, organised around six thematic journey types;
- How the Strategy will be implemented, including funding and financing, monitoring and evaluation, and governance; and
- Next steps, including a future programme of studies.

2.2 Elements of the Transport Strategy

2.2.1 The SE is served by a relatively dense network of highways and railways. It is also home to some of the largest international gateways in the UK. TfSE has designed the Transport Strategy to focus on multi-modal strategic transport corridors, as shown in Figure 2.1 below.

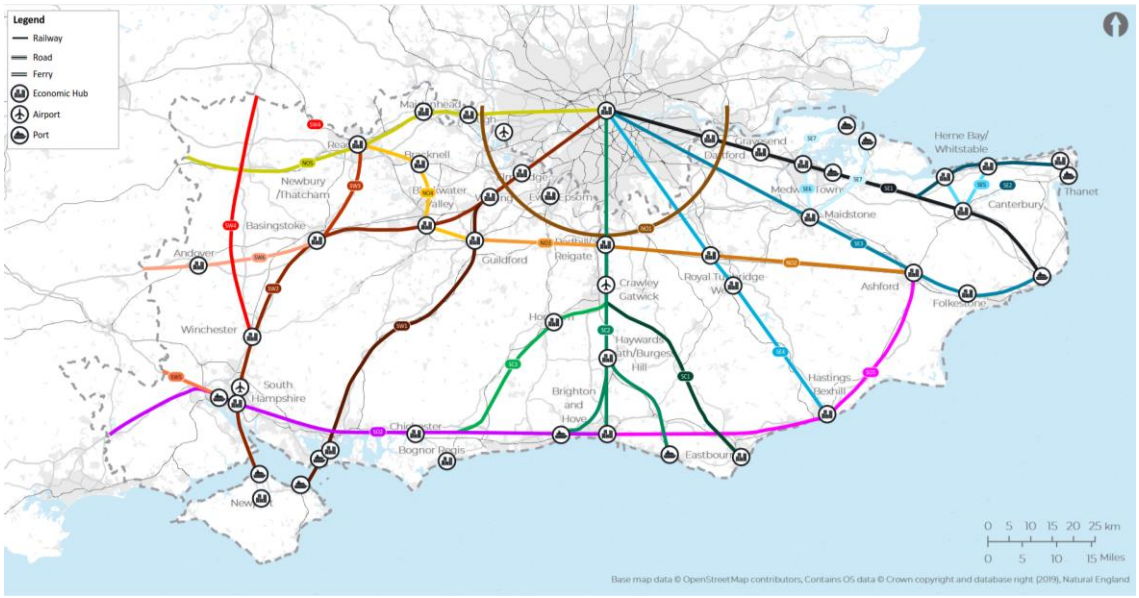

Figure 2.1: Strategic corridors in the South East

2.2.2 There are 23 strategic corridors, as follows:

- SE1 – M2/A2/Chatham Main Line (Dartford – Dover)
- SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate)
- SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup)
- SE4 – A21/Hastings Line (Hastings – Sevenoaks)
- SC1 – A22/A264/Oxted Line (Crawley – Eastbourne)
- SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon)
- SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell)
- SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)
- SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury)
- SW3 – A33/Basingstoke – Reading Line (Basingstoke – Reading)
- SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)
- SW5 – A36/Wessex Main Line (New Forest)
- SW6 – A303/West of England Main Line (Andover – Basingstoke)
- SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)
- IO1 – M25 (Dartford – Slough)
- IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)
- IO3 – A228/A229/Medway Valley Line (Maidstone – Medway Towns)
- IO4 – Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)
- IO5 – A25/North Downs Line (Guildford – Redhill)
- IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading)
- OO1 – A28/A290/A291 (Canterbury – Whitstable)
- OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)
- OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)

2.2.3 Each corridor has diverse challenges and opportunities. The Transport Strategy does not seek to prescribe a solution to each individual corridor. However, it does examine different 'journey types'. The Transport Strategy also indicates the types of initiatives (schemes and/or policies) that TfSE believes will help the region to address the challenges. The six thematic journey types and their associated 'types of initiatives' are shown in Table 2.2.

2.2.4 Note that these 'types of initiatives' include short term interventions which are already in development, for example by Local Enterprise Partnerships, Highways England and Network Rail. The Transport Strategy does not set out *new* scheme proposals in specific locations. Instead it gives examples of the sort of general transport interventions – such as junction improvements, lowering speed limits, new railways, or improved bus services – that might be appropriate for addressing the challenges faced by each journey type across the region.

Table 2.2: Thematic journey types and initiatives

Thematic Journey Types		Types of Initiatives
 **Radial**	Radial journeys are longer distance passenger journeys between the South East and Greater London area and, in the case of Berkshire and Hampshire, between the South East and the South West / South Midlands. These journeys typically use the Strategic Road Network that radiates from the M25 towards the South Coast and West of England and/or Main Line railways that terminate in Central London.	• Provide additional capacity and resilience on radial railways, particularly the busiest corridors such as the South Western Main Line and Brighton Main Line (addresses Challenges 3 and 5). • Improve the resilience of the Strategic Road Network, potentially by adopting demand management policies (addresses Challenges 3 and 5). • Improve connectivity by both road and rail to deprived communities – particularly potential 'left-behind towns' in Swale, Thanet and Hastings (addresses Challenges 1 and 2). • Extend radial routes (e.g. Crossrail from Abbey Wood to Ebbsfleet, and/or extend South Eastern franchise passenger services to the Isle of Grain) that serve particularly large new housing developments (addresses Challenge 1). • Facilitate an increase in radial journeys by public transport, particularly to/from Outer London and to/from Heathrow Airport (addresses Challenge 6). • Reduce human exposure to noise and poor air quality from radial roads, particularly where these run through urban areas such as Guildford and Portsmouth (e.g. by lowering speed limits, reallocating road space to cleaner transport modes, moving routes underground and/or away from urban areas, and/or supporting the uptake of cleaner technologies such as Electric Vehicles (addresses Challenge 4).
 **Orbital and coastal**	Orbital and coastal journeys describe longer distance passenger journeys that use corridors that run perpendicular to the radial corridors described previously. The roads and railways serving these flows are sparser and have lower capacity and speeds than most radial corridors. They provide important links between economic hubs across the South East but have perhaps not received the level of investment that their function warrants in recent years.	• In the longer term, introduce demand management policies on congested high-capacity corridors such as the M25, ideally when alternative public transport options are available (addresses Challenge 1). • Deliver the Lower Thames Crossing, which will provide an alternative route around the north of the M25, avoiding the South West Quadrant (addresses Challenge 1). • Encourage the wider electrification of the network and/or wider use of bi-mode trains across the south east to enable more direct, longer distance services on orbital corridors such as the North Downs Line (addresses Challenge 2). • Provide capacity enhancements at bottlenecks where orbital railways cross busy radial routes, such as at Redhill (addresses Challenge 2). • Improve long distance rail connectivity and capacity between the Midlands and North of England into the region along orbital corridors and support the introduction of more direct east-west services to Gatwick Airport (addresses Challenge 2).

		• Build a consensus on a way forward for the M27/A27/A259/East Coastway/West Coastway Corridor based on a multi-modal approach that seeks to reduce conflicts between different users on this corridor (addresses Challenge 3). • Improve orbital connectivity between Gatwick Airport and Hampshire and Kent (addresses Challenge 4). • Improve orbital links between the M3 and M4, ideally in a way that avoids directing heavy traffic through urban areas such as Bracknell (addresses Challenges 4 and 5 – and potentially Challenge 1 by relieving pressure on the M25 South West quadrant). • Reduce the exposure to the adverse environmental impacts of road traffic on orbital corridors that pass through urban centres such as Gosport, Hastings, Portsmouth and Worthing, which may include lowering speed limits, reallocating road space to cleaner transport modes, and/or supporting the uptake of cleaner technology such as Electric Vehicles (addresses Challenge 5). • Deliver better public transport alternatives on the M25 Corridor, such as extending Crossrail 1 into North Kent (addresses Challenge 6).
 **Interurban**	Inter-urban journeys describe medium-distance passenger journeys between economic hubs and the Strategic Road Network. These journeys are predominantly served by the region's Major Road Network and any railways that mirror these corridors.	• Support existing Major Road Network and Large Local Majors schemes (e.g. A22 junction improvements) that bring secondary routes up to an appropriate standard for these routes (addresses Challenges 1 and 4). • Support initiatives that enhance, or at the very least, maintain the viability of bus services on inter-urban corridors (addresses Challenge 2). • Deliver better inter-urban rail connectivity, such as direct rail services from Brighton/Lewes to Uckfield (addresses Challenge 3). • Adopt a holistic approach to each corridor to ensure that traffic is not displaced form the Strategic Network onto the Major Road Network or local network (addresses Challenge 5).
 **Local**	Local journeys are short distance journeys that are typically undertaken at the beginning or end of an individual journey to or from a transportation hub or service to a destination. Local journeys can take be undertaken by almost any mode of transport, including walking and cycling. In rural areas, where the bus network	• Develop high-quality public transport services on urban corridors, such as Bus Rapid Transit and Light Rail Transit, where there is a viable business case (addresses Challenges 1 and 2). • Improve air quality on urban corridors by, for example, lowering speed limits, reallocating road space to cleaner transport modes, and/or supporting the uptake of cleaner technology such as Electric Vehicles (addresses Challenge 2). • Prioritise the needs of pedestrians and cyclists over the private car (addresses Challenges 1 and 2). • Invest (or encourage others to invest) in integrated passenger information systems to provide passengers with dynamic, multi-modal travel information (addresses Challenge 3).

	is much sparser than in urban areas, the choice of mode for these journeys may be more limited.	• Develop integrated transport hubs (bus, rail, park and ride, new mobility and cycle parking), integrated smart ticketing, and integrated timetables, where feasible (addresses Challenge 3). • Lobby government to protect and enhance funding for socially necessary bus services in rural areas (addresses Challenges 4 and 5). • Lobby government to freeze rail fares in real terms and provide lower off-peak fares in the longer term (addresses Challenge 5).
 **International Gateways and freight**	The SE is home to many of the most important and busiest international gateways in the country. These gateways serve both passenger and freight markets. Many of the people who use and who benefit from these gateways live outside the SE and, indeed, outside the UK. These international gateways are therefore critically important for the whole country.	• Improve public transport access to Heathrow Airport through delivering the Western and Southern rail access schemes (addresses Challenge 1). • Support the use of demand management policies at Heathrow, such as high car access charges, to minimise traffic growth arising from expansion at this airport (addresses Challenge 1). • Provide appropriate links and improvements to the highways and railway networks at expanding and/or relocating ports in the South East (addresses Challenges 2 and 3). This should include improvements to the A34 (serving Southampton) and A2 (serving Dover). • Deliver Lower Thames Crossing and improvements the A229, Junction 3 of the M2 and Junction 5 of the M20 (addresses Challenge 3 and 4). • Implementing rail freight schemes, such as electrification and gauge enhancements, to increase capacity on strategic routes and encourage modal shift from road to rail (addresses Challenges 5 and 6). • Improve the efficiency of freight vehicle operations through adoption of new technologies (addresses Challenge 7). • Help international gateways adapt to changes in trade patterns. This may include investing in facilities to customs checkpoints away from bottlenecks at locations such as Dover (addresses Challenge 8). • Develop a Freight Strategy and Action Plan for the South East to improve the efficiency of freight journeys (addresses all challenges).

 **Future**	Future journeys encompass any journey type that may be facilitated by an emerging technology. This is an exciting and rapidly developing area of transport that has the potential to deliver significant change to all aspects of mobility.	• 'Future-proof' the digital and energy infrastructure within the South East by making provision for accelerated future uptake (addresses Challenge 1). • Incorporate 'Mobility as a Service' into the current public transport network, to provide better accessibility for a wider range of the population (addressing Challenges 2, 3, 4 and 5). • Encourage consistency in the smart ticketing arrangements across the South East, seek the use of Pay as you go and contactless payment (addresses Challenge 4). • Develop a Future Mobility Strategy for the South East to enable Transport for the South East to influence the roll out of future journey initiatives in a way that will meet Transport for the South East's vision (helps to address all challenges).

3 ISA Methodology

3.1 Component Processes

3.1.1 The ISA combines the following assessment processes:

- Strategic Environmental Assessment (SEA);
- Health Impact Assessment (HIA);
- Habitats Regulations Assessment (HRA);
- Equalities Impact Assessment (EqIA); and
- Community Safety Audits (CSA).

3.1.2 Detail on each of these, and how they fit into the ISA of the Transport Strategy, is set out below.

Strategic Environmental Assessment

3.1.3 SEA is used to describe the application of environmental assessment to plans and programmes in accordance with European Council Directive 2001/42/EC.[3] The SEA Directive is enacted in England through the "Environmental Assessment of Plans and Programmes Regulations" (SI 2004/1633, known as the SEA Regulations).[4]

3.1.4 An SEA is mandatory for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste or water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent of projects listed in the EIA Directive.

3.1.5 SEA is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted environmental effects. The effects predicted at this stage will remain at a strategic level.

3.1.6 The approach adopted for the SEA of the Transport Strategy follows that set out in the Practical Guide to SEA[5] and the Planning Practice Guidance to SEA[6]. It involves the

---

[3] Directive 2001/42/EC. Available from: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042

[4] SI 2004 No. 1633, The Environmental Assessment of Plans and Programmes Regulations 2004. Available from: http://www.legislation.gov.uk/uksi/2004/1633/pdfs/uksi_20041633_en.pdf

[5]. Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive [online] available at: **https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf** (Accessed December 2015).

[6]. Department for Communities and Local Government (2015) Strategic environmental assessment and sustainability appraisal [online] available at: **http://planningguidance.communities.gov.uk/blog/guidance/strategic-environmental-assessment-and-sustainability-appraisal/** (Accessed January 2016).

development of an assessment framework comprising a series of SA objectives, assessment criteria and indicators. This framework is developed from an understanding of environmental problems and opportunities identified through a review of existing baseline information and a review of other plans, programmes and environmental protection objectives relevant to the plan area (i.e. SE England) and subject matter (transport).

3.1.7 The key stages of the SEA process are the following:

- Stage A: Setting the context and objectives, establishing the baseline and deciding on scope;
- Stage B: Developing and refining strategic alternatives and assessing their effects;
- Stage C: Preparing the Environmental Report;
- Stage D: Consulting on the draft plan or programme and the Environmental Report; and
- Stage E: Monitoring the significant effects of implementing the plan or programme on the environment.

Health Impact Assessment

3.1.8 HIA is a process to identify the likely health effects of plans, policies or development and to implement measures to avoid negative impacts and / or promote opportunities to maximise the benefits.

3.1.9 There is no adopted formal methodology for HIA although there is a body of practice and guidance at policy level. Assessment of health can be undertaken as a discrete process within an HIA and can also be embedded within environmental assessments.

3.1.10 The approach adopted for the HIA of the Transport Strategy is therefore to combine it with the SEA process, with 'health' included as a topic for assessment alongside the environmental topics. There is also a separate HIA provided in Appendix C to provide further context for the assessment.

Habitats Regulations Assessment

3.1.11 Under Article 6 (3) of the EU Habitats Directive as transposed into the UK law by the Habitats Regulations[7], an assessment (referred to as a Habitats Regulations Assessment or HRA) needs to be undertaken in respect of any plan or project which:

- Either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the Natura 2000 network – these are Special Areas of Conservation (SACs), candidate SACs (cSACs), and Special Protection Areas (SPAs). In addition, Ramsar sites (wetlands of international importance), potential SPAs (pSPA) and in England possible SACs (pSACs), are considered in this process as a matter of law or Government policy. [These sites are collectively termed 'European sites' in HRA]; and
- Is not directly connected with, or necessary to, the management of the site.

[7] The Conservation of Habitats and Species Regulations 2017. Available from: http://www.legislation.gov.uk/uksi/2017/1012/contents/made

3.1.12 Guidance on the Habitats Directive sets out four distinct stages for assessment under the Directive:

- Stage 1: Screening: the process which initially identifies the likely impacts upon a Natura 2000 site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant;
- Stage 2: Appropriate Assessment: the detailed consideration of the impact on the integrity of the Natura 2000 sites of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site;
- Stage 3: Assessment of alternative solutions: the process which examines alternative ways of achieving the objectives of the plans or projects that avoid adverse impacts on the integrity of the Natura 2000 site; and
- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain: an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

3.1.13 The first stage of the HRA – Screening – has been undertaken alongside the development of the Transport Strategy in order to identify likely significant effects on European sites, as required by the legislation. Whilst feeding in to the SEA process (specifically the 'biodiversity' topic), the HRA Screening has been undertaken as a standalone assessment and is attached at Appendix F.

3.1.14 Stages 2 to 4 of the HRA have not been progressed due to the strategic nature of the Transport Strategy, and the associated absence of specific transport interventions.

Equalities Assessment

3.1.15 The Equality Act 2010 includes a public-sector equality duty which requires public organisations and those delivering public functions to show due regard to the need to eliminate unlawful discrimination, harassment, victimisation; to advance equality of opportunity; and to foster good relations between communities.

3.1.16 The Equality Impact Assessment (EqIA) process focuses on assessing and recording the likely equalities effects as a result of a policy, project or plan. It seeks to ensure that the policy, project or plan does not discriminate or disadvantage people, and enables consideration of how equality can be improved or promoted. The equality duty came into force in April 2011 and covers the following Personal Protected Characteristics:

- Age;
- Disability;
- Gender;
- Gender reassignment;
- Marriage & civil partnership;
- Pregnancy & maternity;
- Race;

- Religion or belief; and
- Sexual orientation.

3.1.17 The approach adopted for the EqIA of the Transport Strategy has been to combine it with the SEA process, with 'equalities' included as a topic for assessment alongside the environmental topics. There is also a separate EqIA provided at Appendix D to provide further context for the assessment.

Community Safety Audit

3.1.18 CSAs are used to identify where potential community safety issues could arise, e.g. through level of use, accessibility, vehicle speed, or proximity to sensitive receptors. Recommendations can also be made regarding future option development such as lighting or visibility in design that may help reduce accidents and/or crime.

3.1.19 There is no statutory requirement nor any adopted formal methodology for CSA of plans or programmes. However, there is relevant guidance on Road Safety Audits for significant County Council and developer promoted highway schemes.

3.1.20 The approach adopted for the CSA of the Transport Strategy has been to combine it with the SEA process, with 'community safety' included as a topic for assessment alongside the environmental topics. There is also a separate CSA provided at Appendix E to provide further context for the assessment.

3.2 Natural Capital Approach

3.2.1 Natural capital is used to describe the natural environment in terms of the benefits it provides to people (also known as ecosystem services), including food, recreation, and clean air and water. These ecosystem services fall across many sustainability topics. A natural capital approach is therefore useful for understanding the inter-dependencies between nature, people, the economy and society, and ensuring that natural capital is considered as an integrated system.

3.2.2 In 2011, the Government stated, through Commitment 32 of the Natural Environment White Paper, that it would "work with its transport agencies and key delivery partners to contribute to the creation of coherent and resilient ecological networks." In response to this, Natural England published a report in 2014 investigating how land within or adjacent to transport corridors (the 'soft estate') can be used or enhanced for green infrastructure that delivers biodiversity gain, ecological connectivity and ecosystem services[8].

3.2.3 A £3 million pilot project followed in 2015-2017, drawing together Natural England, Highways England, Network Rail, and Nature Improvement Area (NIA) partnerships in northern England[9]. The aim of the pilot was to ensure that transport corridors not only accommodate more

[8] Davies, H., Frandsen, M. & Hockridge, B. 2014. NEWP32 Transport green corridors: literature review, options appraisal and opportunity mapping. Natural England Commissioned Reports, Number 168. Available from: http://publications.naturalengland.org.uk/publication/5752930789490688

[9] Natural England, Defra and Highways England. 2014. Available from: https://www.gov.uk/government/news/greener-transport-network-to-provide-highways-for-wildlife

wildlife (especially pollinators), but to benefit transport users and the wider public by making infrastructure more resilient to the growing impacts of climate change, such as increased flooding and winter storms.

3.2.4 Its findings and recommendations have helped influence the recent Varley review into Network Rail lineside vegetation management, the establishment of the Linear Infrastructure Network (LINet)[10], and Natural England's work on developing an eco-metric tool (in collaboration with project partners including WSP). The pilot has also had an ongoing impact within Highways England and with the Office of Road and Rail (ORR), and a similar approach is desired for transport corridors across the country. Other research has also been published by Natural England on green bridges[11].

3.2.5 The UK National Ecosystem Assessment (UK NEA)[12] revealed that the loss, fragmentation and deterioration of natural habitats in the UK since the 1940s has caused a decline in the provision of many ecosystem services. The national 'State of Nature 2019' report[13] shows that this declining trend is continuing. Though not the key cause, transport networks have nevertheless contributed to this decline; however, they also have the potential to improve ecosystem service delivery.

3.2.6 The UK's natural capital accounts[14] show that approximately 20-25 million tonnes of carbon has been sequestered by vegetation in the UK each year between 2007 and 2015, whilst around 1.5 million tonnes of air pollutants have been removed each year. This equates to a monetary value of approximately £1.5 billion for carbon sequestration and £1 billion for pollution removal in 2015. Natural capital therefore has a mitigating effect on the emissions of carbon and air pollutants associated with transport. Natural capital within or adjacent to transport corridors (the 'soft estate') can be used to enhance delivery of other ecosystem services, such as water purification, flood reduction, and provision of habitat for wildlife. In addition, the greening of transport routes (especially walking and cycling routes) can enhance people's physical and mental health and wellbeing, for example by reducing stress levels.

3.2.7 The UK Government has developed WebTAG guidance for environmental impact appraisal of transport schemes[15]. This sets out a natural capital style approach for appraising the WebTAG environmental topics of Landscape, Townscape, Historic Environment, Biodiversity, and Water

[10] Linear Infrastructure Network (no date) Available from: https://www.tcpa.org.uk/linear-infrastructure-network. LINet seeks to maximise linear infrastructure resilience, environmental performance and return on investment.

[11] Land Use Consultants. 2015. Green Bridges: A literature review. Natural England Commissioned Reports, Number 181. Available from: http://publications.naturalengland.org.uk/publication/6312886965108736

[12] UK National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge

[13] State of Nature. 2019. Available from: https://www.rspb.org.uk/our-work/state-of-nature-report/

[14] Office for National Statistics (ONS)

[15] Department for Transport. 2015. TAG Unit A3. Environmental Impact Appraisal. Available from: https://www.gov.uk/government/publications/webtag-tag-unit-a3-environmental-impact-appraisal-december-2015

Environment[16], using a methodology developed by Natural England, Historic England, and the Environment Agency, in collaboration with the DfT. The methodology is based around qualitative assessment of natural capital resources that cut across these environmental topics.

3.2.8 The WebTAG guidance for environmental impact appraisal does not incorporate assessments explicitly for soils and/or resources; however, the guidance on Biodiversity includes consideration of earth heritage (geological) interests. Furthermore, soils and natural resources are key natural capital assets in themselves. The sustainability topic Soils and Resources is therefore included in the natural capital approach for this ISA. Other sustainability topics within this ISA are linked to ecosystem services where appropriate.

3.3 ISA of the Transport Strategy

3.3.1 The ISA of the Transport Strategy has followed the stages required for Strategic Environmental Assessment (SEA). The Scoping Report therefore represented Stage A, whilst this report is the product of Stages B and C. These stages are described in more detail below.

Stage A: Scoping

3.3.2 A Scoping Report was issued to stakeholders on 24 April 2019 and represents Stage A of the process. This report set the context and scope of the ISA through:

- Identifying likely options for delivery of the Transport Strategy (Chapter 2 of the Scoping Report);
- Review of relevant policies, baseline information and future trends (Chapter 3 of the Scoping Report);
- Identifying key issues and opportunities for the Transport Strategy, reflecting for example the increased pressure of development on the natural environment or the beneficial health effects of active travel (Chapter 4 of the Scoping Report);
- Identifying Sustainability Objectives to feed into an overall framework for appraisal of options (Chapter 4 of the Scoping Report); and
- Setting out next steps (Chapter 5 of the Scoping Report).

3.3.3 A summary of the results from Scoping is provided in Chapter 4 of this Report. The appraisal framework against which the Transport Strategy has been assessed is provided in Section 4.4.

Consultation on the ISA Scope

3.3.4 A five-week consultation on the scope of the ISA was undertaken with the three statutory consultees (the Environment Agency, Historic England and Natural England) in addition to other stakeholders representing environmental and social interests. These organisations were consulted between 25 April 2019 and 30 May 2019. The full suite of responses from statutory consultees and other stakeholders is provided in Appendix G, along with a comment on how

[16] The WebTAG guidance for environmental impact appraisal does not incorporate assessments explicitly for soils and/or resources; however, the guidance on Biodiversity includes consideration of earth heritage (geological) interests. As such – and because of the important of soils and natural resources for the provision of ecosystem services – the sustainability topic Soils and Resources is included in the natural capital approach for this ISA.

they have been accounted for in the preparation of this ISA Report. The main themes for comments raised included:

- Additional local environmental designations to be considered in addition to importance of undesignated receptors;
- The importance of natural capital and use of ecosystems services assessment at subsequent stages of assessment;
- The importance of walking and cycling as modes of transport;
- Support for promoting biodiversity and environmental net gain; and
- The importance of avoiding greenhouse gas emissions in the Transport Strategy.

Stage B: Assessment

3.3.5 The ISA assessment covers two key elements of the Transport Strategy:

- The 23 strategic corridors (i.e. the 'spatial alternatives') – these have been individually assessed by identifying sensitivities/constraints and opportunities, generally within 2km of the central point of each transport corridor, to identify where there is potential for significant effects on each of the ISA Sustainability Objectives.
- The general transport interventions likely to be delivered through the 'types of initiatives' for each of the Strategy's thematic journey types (i.e. the 'policy alternatives') – these have been assessed against each of the ISA Sustainability Objectives to identify where there is potential for significant effects.

3.3.6 The listed schemes already under planning and development by Local Enterprise Partnerships, Highways England and National Rail have previously been assessed as part of the Appraisal of Sustainability for the NN NPS, and so have not been appraised individually in the ISA.

3.3.7 The assessments (presented in Sections 5.3 and 5.4 of this report) for the corridors and general interventions are presented in a table format using the colour coding shown in

3.3.8 Table 3.1 and Table 3.2, along with an accompanying narrative description of the assessment findings.

Table 3.1: Key to potential sensitivity to significant effect

Key to Potential Sensitivities	
Likely to be sensitive to positive effect	+
Negligible or no effect	0
Likely to be sensitive to negative effect	-
Likely to be sensitive to both positive and negative effects	+/-

Table 3.2: Key to effects of generic interventions

Key to Effects of Generic Interventions	
Potential for significant positive effects	++
Potential for minor positive effects	+
Potential for minor negative effects	-
Potential for significant negative effects	- -
Potential for both positive and negative effects	+/-
Negligible or no effect	0

3.3.9 Following on from the findings of the assessments, Section 5.7 of this report includes a list of proposed mitigation and enhancement measures for any negative or positive significant effects that have been predicted.

Stages C and D: Reporting and Consultation

3.3.10 This report sets out the results of the ISA – incorporating the SEA, HIA, EqIA, CSA, and a summary of the HRA Screening – and constitutes the 'Environmental Report' under the SEA Regulations.

3.3.11 This ISA Report will be issued to consultees in Autumn 2019 for a twelve-week consultation period, alongside the Transport Strategy.

3.3.12 An ISA Statement will be prepared following the consultation period to summarise how responses to consultation and the ISA have influenced the development of the Transport Strategy.

Stage E: Monitoring

3.3.13 This report sets out recommendations for monitoring the social, environmental and economic effects of implementing the Transport Strategy in Section 5.8 of this report.

3.4 Limitations and Assumptions

3.4.1 The SEA Regulations require that limitations and assumptions should be described.

3.4.2 The ISA covers the whole of the TfSE region (the study area), though the assessment of spatial alternatives generally focuses on the area within 2km of the central point of each strategic

corridor. It is considered that this is sufficient to capture significant effects over large geographic areas at a strategic level, although it is acknowledged that for assessment of specific schemes at subsequent stages of development, study areas will need to be re-defined. In some cases, the corridor needed to be extended beyond the 2km in order to cover both the rail and road infrastructure within the corridor. Where this is the case, it has been recorded in Appendix A. It should be noted that the exercise was undertaken in order to establish sensitivity of corridors and differs from defining geographic areas in Step 4 of the Corridor Study.

3.4.3 For the HRA, potential effects beyond 2km are considered where appropriate, in particular for European sites designated for their bat or bird species, or for those with hydrological connectivity to the transport corridors.

3.4.4 The specific transport interventions set out in the Transport Strategy are being delivered by other organisations, including Highways England and Network Rail. Although they form part of the Transport Strategy, TfSE is not the authority responsible for their development and delivery. The policy framework for the delivery of these major schemes is the National Networks National Policy Statement[17] (NN NPS) and as such these major schemes have been assessed within the related Appraisal of Sustainability[18]. As such, these schemes have not been individually assessed as part of the ISA, they are assessed as part of policy interventions described below. The NN NPS, in addition to Local Transport Plans are also considered in terms of cumulative effects.

3.4.5 The Transport Strategy does not contain new transport interventions for each of the corridors – these will be developed through the forthcoming Area Studies. As such, only high-level assessments of the broad corridors (spatial alternatives) and the general (non-spatial) transport interventions (policy alternatives) have been undertaken for the ISA. It is noted that a Multi Criteria Assessment Framework (MCAF) tool has been developed for the initial sifting of options for prioritising strategic interventions in a corridor. The framework is consistent with the requirements of the Department for Transport's (DfT) guidance, WebTAG and also reflects the Sustainability Objectives of this ISA. It has also been assumed that relevant design and safety standards will be applied to the development of transport interventions subsequent to the Strategy.

[17] DfT, 2014, National Policy Statement for National Networks

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387222/npsnn-print.pdf

[18] Ramboll, 2014, The National Networks National Policy Statement: Appraisal of Sustainability

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387692/aos-report.pdf

4 Identifying Sustainability Issues and Opportunities

4.1 Introduction

4.1.1 This section sets out the sustainability policy context and the current baseline, future trends, and issues and opportunities for the Transport Strategy. It also sets out the appraisal framework, against which the Transport Strategy is assessed.

4.2 Policy Context

4.2.1 The sustainability legislation and overarching policy documents of relevance to the ISA of the Transport Strategy are set out in the ISA Scoping Report. Transport policy and context has also been reviewed for the Transport Strategy.

4.3 Overview of Baseline

4.3.1 The following section provides an overview of the baseline, taken from the ISA Scoping Report. Note that transport trends and future scenarios have also been considered as part of the Transport Strategy.

Biodiversity

4.3.2 According to the SE England Biodiversity Forum[19], the SE is a key area for a range of priority habitats. For example, the SE holds over 40% of England's Ancient Woodland, making this important habitat more common in the SE than most other regions of the UK. The SE also holds more than 30% of England's broadleaved, mixed and yew woodland; and more than 40% of its lowland heath habitats. Coastal habitats are also well represented in the region. For example, the SE holds more than 60% of the nation's vegetated shingle resource; and more than 40% of Europe's offshore chalk exposure, with the South Downs and the cliffs of Dover being obvious examples.

4.3.3 The TfSE study area also contains a wealth of protected sites:

- One UNESCO World Biosphere Reserves (Brighton & Lewes Downs);
- 51 Special Areas of Conservation (SAC);
- 22 Special Protection Areas (SPA);
- 16 Wetlands of International Importance (Ramsar sites);
- 559 Sites of Special Scientific Interest (SSSI);
- 48 National Nature Reserves (NNR); and
- 13 Marine Conservation Areas.

[19] Climate UK. 2012. A Summary of Climate Change Risks for South East England. Available from: https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n1708.pdf&ver=1350

4.3.4 In addition to sites listed above, local designations such as Local Wildlife Sites and undesignated biodiversity is also present throughout the region.

4.3.5 Studies such as the 'State of Nature 2019' report[20] and Defra's 25 Year Environment Plan[21] have shown that nationally biodiversity has been declining despite the prevalence of conservation efforts, and approximately 15% of all species across the UK are under threat of extinction. The most important habitats (those for which the UK has a European level responsibility) also remain in relatively poor condition (71% unfavourable for the UK versus an EU average of 30%).

Historic Environment

4.3.6 The historic environment encompasses buried heritage assets (archaeological and palaeoenvironmental remains) and above ground assets (standing buildings, structures, monuments and designed landscapes of historic interest and their setting).

4.3.7 The numbers of assets provided below are derived from the Historic England Fact Sheet[22], and so apply to the SE region as a whole:

- World Heritage Sites – there is one in the region; Canterbury Cathedral. Canterbury is also listed as one of five nationally designated Areas of Archaeological Importance.
- Scheduled Monuments – there are 2,657 scheduled monuments across the region.
- Statutorily Listed Buildings – the SE has the second highest density of listed buildings of all England's regions with a total of 76,799 listed buildings, of which 1,743 are Grade I listed, 3,946 are Grade II* listed and 71,110 are Grade II listed.
- Registered Battlefields – there are six within the region, including the Battle of Hastings, Battle of Lewes, and Battle of Cheriton.
- Registered Parks and Gardens – there are 376 listed parks and gardens across the region.
- Heritage Coasts – these include areas on the Isle of Wight, near Eastbourne and near Folkestone.

4.3.8 Whilst direct (physical) impacts on designated historical sites are strongly restricted, adverse effects on the setting of designated heritage assets does still occur, for example relating to visual intrusion, or aspects such as traffic, lighting and noise. This can be a sensitive planning issue. Conversely, asset enhancement has the potential to lead to an increase in tourism and associated revenue, learning and access opportunities associated with the region's cultural heritage.

Landscape and Townscape

4.3.9 Designated landscapes in the study area include:

- National Parks – there are two (New Forest and the South Downs) which cover approximately 20% of the total SE area.

[20] State of Nature. 2019. Available from: https://www.rspb.org.uk/our-work/state-of-nature-report/

[21] HM Government. 2018. A Green Future: Our 25 Year Plan to Improve the Environment Annex 1: Supplementary evidence report

[22] Historic England. 2018. Listing Fact Sheet

- Areas of Outstanding Natural Beauty (AONB) – there are eight: Chichester Harbour, Chilterns, Cranbourne Chase & West Wiltshire Downs, High Weald, Isle of Wight, Kent Downs, North Wessex Downs, and Surrey Hills.

4.3.10 Designated landscapes such as National Parks, AONBs, and Special Landscape Areas are afforded some protection against development within their boundaries, however they may still be impacted indirectly through changes to setting. Major roads and railway lines such as the M3, A3 and A24 pass through and close to important designated sites such as the South Downs National Park. Gatwick – the second busiest airport in the UK by total passenger traffic – is surrounded by Areas of Outstanding Natural Beauty, including the Surrey Hills AONB, Kent Hills AONB, and the High Weald AONB.

4.3.11 Landscape and townscape character and quality is particularly vulnerable to development (including the construction and operation of transport infrastructure), for example through loss of tranquillity, increased lighting, and visual intrusion, as well as the incremental loss of landscape features.

Soils and Resources

4.3.12 According to Natural England's Agricultural Land Classification, much of the agricultural land in the SE is rated as of good to moderate quality (grades 3a-3b). Land in the far east of the region and around Chichester, is of the best and most versatile in the region, rated excellent (grade 1).

4.3.13 There is a prevalence of aggregate (including marine) deposits in the SE. There are approximately 100 sites in the region, 17 of which are quarries producing crushed rock, whilst the remainder are worked for sand and gravel[23]. Clays, silica sand and chalk are also common in the region, particularly in East Sussex, West Sussex, Hampshire, Surrey and Kent; whilst Robertsbridge in East Sussex has the largest known gypsum deposit in the UK.

4.3.14 The UK generated 222.9 million tonnes of total waste in 2016, with England responsible for 85% of the UK total. Construction, demolition and excavation (CDE) waste makes up around 60% of the entire amount of waste produced by the UK each year, making this the country's largest waste stream. However, once hazardous waste and navigational dredging spoil is excluded, 76% of CDE waste is currently being recovered and recycled for alternative uses[24]. This exceeds the EU target of 70%, which the UK must meet by 2020.[25]

Water Environment

4.3.15 There are a number of 'main rivers' across the SE; these predominantly drain eastwards/ southwards. The Water Framework Directive (WFD) sets an objective of aiming to achieve at least 'good ecological status' for all waterbodies by 2021. The SE River Basin Management

[23] South East of England Aggregates Working Party. 2012. South East Aggregates Monitoring Report

[24] MRW. 2019. CDE recycling levels. Available from: https://www.mrw.co.uk/knowledge-centre/do-the-numbers-reflect-true-cde-recycling-levels/10040434.article

[25] Defra. 2018. UK Statistics on Waste. Available from: https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management

Plan, published in 2009[26], stated that, by 2015, 18% of the region's rivers and canals will have improved in quality, but that 77% would still not have achieved overall good status. This was stated to be due to "limited understanding of pressures on the water environment, their sources, and the action required to tackle them".

4.3.16 National Flood Zone data tends to correlate with the location of Environment Agency Main Rivers and ordinary watercourses as areas with the greatest risk of flooding. According to the Environment Agency, there are almost 900,000 properties at risk of one or more forms of flooding in the SE as a whole, with an estimated 668,900 at risk from surface water flooding[27]. Defra's national level mapping of key Flood Risk Areas includes three areas within the SE: London, Medway, and Brighton & Hove. In addition, the SE Regional Climate Change Vulnerability Assessment (RVA) found that Portsmouth, Eastbourne, and urban areas in the north west of Surrey, as well as the rural coastal authorities of Swale, Arun and Shepway, have particularly high numbers of properties in high flood risk areas.

4.3.17 Maintaining water supplies as the climate changes will be particularly challenging in the SE, particularly in the Thames river basin region. The SE is considered a water stressed area by the Environmental Agency[28], five of the six water companies which supply water to the SE (South East Water, Affinity Water (previously Veolia Water South East and Folkestone & Dover Water), Southern Water, Thames Water, and Sutton and East Surrey Water) are classified as being under 'serious' levels of water stress. The future implications of climate change projections for the SE include: increased coastal and flood-plain flood events leading to damage to property and disruption to economic activity; water shortages; and higher incidence of damage to transportation, utilities and communications infrastructure caused by an increase in the number of extreme weather events (e.g. heat, high winds and flooding).

Air Quality

4.3.18 The Clean Air Strategy 2019 reports that road transport and other transport modes (including rail and shipping) contributed 34% and 17% respectively to total national nitrogen oxide (NO_x) emissions in 2016, and 12% to particulate matter ($PM_{2.5}$) emissions. The adverse impact of ports on air quality arises mainly through the ships themselves, whilst the effect of airports is principally from surface access via road transport. Currently, the most challenging pollutant in terms of limit value compliance is nitrogen dioxide (NO_2). A Defra statistical release in April 2018[29] revealed that whilst concentrations of NO_2 at roadside sites decreased between 1997 and 2011, levels have since plateaued.

[26] Defra & Environment Agency. 2009. Available from: https://www.gov.uk/government/publications/south-east-river-basin-management-plan

[27] Environment Agency. 2010. State of the Environment – South East England. Available from: https://www.secouncils.gov.uk/wp-content/uploads/pdfs/_publications/1_SoE_Feb_2010.pdf

[28] Environment Agency. 2013. Water stressed areas- final classification. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/244333/water-stressed-classification-2013.pdf

[29] Defra. 2018. Defra National Statistics Release: Air Quality statistics in the UK 1987 to 2017

4.3.19 Where air quality objectives are not likely to be achieved an Air Quality Management Area (AQMA) must be declared. These are predominantly associated with NO_2 emissions from vehicles. As such, AQMAs are mostly located within urban areas and sections of the road network which are heavily trafficked and frequently congested. In the TfSE area, there are currently 149 AQMAs, of which 123 are declared for NO_2, 11 are declared for both NO_2 and PM_{10}, two AQMAs are declared for PM_{10} alone, and two for sulphur dioxide (SO_2).

4.3.20 Defra has reported the following zones within the TfSE study area as failing to comply with the limit value for annual mean NO_2 in 2017: Southampton Urban Area, Bournemouth Urban Area, and Portsmouth Urban Area[30]. The only compliant zone for annual mean NO_2 is Littlehampton. For PM_{10} and $PM_{2.5}$ limit values, compliance is reported for all zones[31].

Climate Change and Greenhouse Gases

4.3.21 Transport is the largest single contributor to greenhouse gas (GHG) emissions in the UK. GHG emissions from transport activities include carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). In 2017, transport accounted for 124.2 $MtCO_2$, equivalent to 27% of total GHG emissions in the UK, compared to 24% from energy supply, 17% from business, and 15% from the residential sector.[32] Whilst GHG emissions from the latter sectors have declined since 2016, emissions from the land-based transport sector are broadly unchanged, and remain similar to 1990 levels. The Paris Agreement 2015 will require future Future Carbon budgets prepared under the Climate Change Act to keep global temperature rise to well below 2°C and pursue efforts to limit temperature increase even further to 1.5°C.

4.3.22 Road transport is the most significant source of GHG emissions in this sector, in particular passenger cars. Emissions from passenger cars have decreased since the early 2000s due to lower petrol consumption outweighing an increase in diesel consumption and, more recently, improvements in fuel efficiency – particularly for petrol cars, and to a lesser extent diesel cars.[33] The last four years have also seen a remarkable surge in demand for electric vehicles in the UK – new registrations of 'plug-in' all-electric and electric-hybrid cars increased from 3,500 in 2013 to more than 195,000 by the end of February 2019.[34] However, since 2013 there has been a small increase in emissions due to an increase in total vehicle kilometres travelled.[35]

[30] Defra. 2018. Air Pollution in the UK 2017. Available from: https://uk-air.defra.gov.uk/library/annualreport/

[31] NB – this does not reflect local authorities annual status reports, where there are exceedances of the annual mean NO2 objective at monitoring locations.

[32] Department for Business, Energy & Industrial Strategy. 2017. UK Greenhouse Gas Emissions. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/776083/2017_Final_emissions_statistics_one_page_summary.pdf

[33] Department for Transport. 2018. TAG data book. Available from: https://www.gov.uk/government/publications/tag-data-book

[34] Electric car market statistics. 2019. Available from: https://nextgreencar.com/electric-cars/statistics/

[35] Department for Business, Energy & Industrial Strategy. 2018. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695930/2017_Provisional_Emissions_statistics_2.pdf

4.3.23 In terms of climate change impacts, the average temperature in central England has risen by about 1°C since the 1970s, and research by the Met Office[36] reveals that the risk of a heatwave exceeding the temperatures experienced in the European heatwave of 2003 has at least doubled. During the August 2003 heatwave there were an estimated 2,000 more deaths in England and Wales than for the same period averaged between 1998 and 2002. Most of these were concentrated in the SE and London, particularly among those over 75 years old. By 2040, more than half of summers are expected to exceed 2003 temperatures.

4.3.24 The character of UK rainfall has also changed, with days of very heavy rain becoming more frequent. What in the 1960s and 1970s might have been a 1-in-125 day rainfall event is now considered to be a 1-in-85 day event. An extended period of extreme winter rainfall as was experienced in December 2015 is now thought to be seven times more likely as a result of anthropogenic emissions of GHG.

4.3.25 The South East has the greatest end-user carbon dioxide emissions compared to other regions in England, with transport being the greatest contributing sector[37]. A number of local authorities in the South East[38] have declared 'climate emergencies', including committing to setting targets for zero net carbon emissions by 2050. The key climate change-related challenges for the SE include: increased risk of flooding; water scarcity; health issues during increasingly frequent extreme weather events, such as heatwaves; the ability of infrastructure to cope with changing demand and use; organisational resilience to climate change; and changes to natural systems[39].

Noise and Vibration

4.3.26 Increased noise pollution affects quality of life and has been linked to health problems. Following the strategic noise mapping undertaken to satisfy the EU Environmental Noise Directive, noise action plans have been developed. These provide a framework to manage environmental noise and its effects, with Noise Important Area (NIAs) being identified in areas where transport noise is considered to be a problem. Noise action plans also aim to protect quiet areas in agglomerations (large urban areas) where noise quality is good.

4.3.27 There are numerous NIAs throughout the SE. These are either located along either roads or railways with the majority of road NIAs located on trunk roads. Data from the England Noise Map Viewer[40] shows that roads such as motorways create significant noise with noise levels over 55 dBb in areas within 1km of the source (L_{den}, 24-hour annual average noise level with

[36] Environment Agency. 2016. Adapting to a changing climate. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/526000/climate-adrep-environment-agency.pdf

[37] Department for Business, Energy & Industrial Strategy. 2019. UK local authority carbon dioxide emissions estimates 2017. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/812139/Local_authority_2017_greenhouse_gas_emissions_statistical_release.pdf

[38] As of June 2019: Brighton and Hove, Hastings, Lewes, Maidstone, Portsmouth, and Reigate & Banstead.

[39] Climate UK. 2012. A Summary of Climate Change Risks for South East England. Available from: https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n1708.pdf&ver=1350

[40] Extrium. 2012. England Noise Map Viewer. Available from: http://www.extrium.co.uk/noiseviewer.html

weightings applied for the evening and night periods). Areas affected are exacerbated where roads along the Major Route Network merge or where rail noise is also recorded. Road traffic noise levels are higher than the UK average across the SE in part due to the population density compared to other UK regions.

4.3.28 In addition, significant noise is generated by rail/road traffic connecting with the SE's busy ports and airports. The activities at airports, including take-off and landing, also generate high noise levels, whilst there is noise associated with the flight paths to and from these airports that will affect receptors in the SE.

4.3.29 Recent vehicle innovations such as hybrid and electric cars have led to quieter vehicles. As these make up a greater proportion of vehicles on the road, associated noise levels will start to fall. Aircraft are also becoming quieter; however, it is anticipated that passenger numbers will continue to increase in the years ahead resulting in more flights and potential for increased noise levels.

Population and Equalities

4.3.30 The SE has the largest population of any government region of England. According to the latest ONS population projections, the current population of the SE stands at 9,214,300[41]. The districts in the SE generally have a high proportion of people over the age of 65, compared to the UK average. The population between 2019 and 2041 in the SE is expected to increase by 10%, with the greatest increases seen in the over 75s, although there is some level of uncertainty associated with population predictions. Of the eleven authorities, the largest population increase is projected in Medway, with an increase of 13.5%, whilst the smallest population increase is projected in West Berkshire at 5.6%. The population increases within the Isle of Wight, Portsmouth, Southampton, Hampshire, Surrey and West Berkshire are all below the regional and national averages, of 10%[42].

4.3.31 91% of the region is considered to be white and 85% are British nationals. 9.3% of the SE population come from BAME (Black, Asian, and minority ethnic) groups, which is considerably lower than the national average of 13%[43]. However, following the national trend, the region is likely to become increasingly diverse.

4.3.32 In the SE, 95.1% of people identify as heterosexual, 1% higher than the national average, and 1.3% considered themselves to be LGBT (lesbian, gay, bisexual and transgender), which is slightly lower than the national average of 1.6%[44]. According to the national LGBT Survey, 65% of the responders stated they avoided being open about their sexual orientation whilst using public transport for fear of a negative reaction from others[45].

---

[41] ONS. 2016. 2016-Based Subnational Population Projections for Local Authorities and Higher Administrative Areas in England

[42] ONS. 2016. 2016-Based Subnational Population Projections for Local Authorities and Higher Administrative Areas in England

[43] Elevation Networks. 2016. UK BME Population, Briefing Paper. Available from: www.elevationnetworks.org/wp.../UK-BME-Population-Briefing-Paper-Mar2016.pdf

[44] ONS. 2017. Annual Population Survey, Sexual Identity

[45] Government Equalities Office. 2018. National LGBT Survey, Research Report

4.3.33 65% of the population in the SE are religious, of which 92% state their religion as Christianity. The second largest religious group are Muslims, who make up 3.6% of the religious population. The least represented religious group are Jewish, making up just 0.3% of the religious population.

4.3.34 Despite the relative prosperity of the region, 850,000 people (especially children and the over-60s) are living in the top 20% of income deprived areas in the country[46]. According to the 2015 Index of Multiple Deprivation, Portsmouth is considered to be the most deprived of the eleven authority areas in the region, ranking 63rd most deprived out of 326 authorities in England[47].

4.3.35 20.4% of people in the region live in rural areas, which is the fourth highest of the national regions and above the national average of 18.8%[43]. There is a considerable disparity between higher and lower performing rural areas in the region, in terms of household income, labour market skills, unemployment claimants and job density. In general, the lowest performing rural local authorities are located on or near to the coast[48].

Health

4.3.36 The SE region generally has a better life expectancy for both males and females when compared to the national average. On average, males in the region have a life expectancy of 80.6 years, which is 0.9 years higher than the national average, whilst women have an average life expectancy of 84 years, which is 1.1 years higher than the national average. Of the eleven authorities, West Sussex has the greatest life expectancy for males (80.6 years), whilst Surrey has the greatest life expectancy for females (84.6 years). Medway has the lowest life expectancy for both males (78.5 years) and females (82.2 years), both of which are below the national average[49].

4.3.37 In general, the overall health of residents across the SE is good, with Hampshire, Surrey, West Berkshire and West Sussex all bettering the national average. However, the overall health of residents in Southampton and Portsmouth is described as being worse than the national average. According to the 2011 Census, 49% of people in the region described their health as very good, whilst 4.4% of the population describe their health as either bad or very bad, which is similar to the national average[50]. When looking at disabilities and impairments, 6.9% of the population stated that their day to day activities are 'limited a lot' and 8.8% described it as 'limited a little'[50].

4.3.38 On the whole, the SE has good levels of physical activity, which is reflected in the low levels of obesity. Despite this, the region has a high number of people diagnosed with diabetes, with six of the eleven authorities having significantly higher diagnoses than the national average[49].

---

[46] South East England Councils. 2011. Deprivation and Public Sector Reliance in the South East, A Briefing Paper from South East England Councils.

[47] ONS. 2015. Index of Multiple Deprivation

[48] South East England Intelligent Network. 2008. The Rural South East: An Evidence Base

[49] Public Health England. 2016. Local Authority Health Profiles, South East Region

[50] Nomis. 2011. 2011 Census

4.3.39 The proportion of people living with dementia in East Sussex, Hampshire, West Sussex and the Isle of Wight is significantly higher than the national average. Due to an ageing population, the number of people living with dementia is likely to increase, as will the number of people with physical and sensory impairments. There will also be more people living longer with multiple long-term conditions.

Community Safety

4.3.40 Between 2015 – 2017, there were 49.1 road traffic accidents (where somebody was either killed or seriously injured) per 100,000 people in the region. This is higher than the national average of 40.8. Of the eleven authority areas, the Isle of Wight had the highest number of accidents at 57.7 per 100,000, whilst Medway had the lowest (31.4 per 100,000)[49]. In 2017 there were 267 fatalities from road traffic accidents in the region (5% fewer than in 2016); however, this remains higher than any other region in the UK[51].

4.3.41 According to British EurorRAP Results 2017[52], the SE region is the worst performing region in the UK, with regards to road safety. The average risk of a serious crash on single carriageways in the SE, is nearly twice that of the West Midlands. According to the report, six out the top ten higher risk roads in the UK were in the SE[52].

4.3.42 In 2017/2018, the number of reported sexual offences committed on public transport in the UK, increased by 16% (60% of these assaults were against females). The number of violent offences increased by 26% to 11,711 in 2017/18. Delays caused by disrupted behaviour also increased from 1,432,726 to 1,548,462[53].

Economy

4.3.43 The SE is home to the UK's most important international and national transport assets – the busiest airports serving the most destinations, ports on the main international shipping line, and cross channel services from Dover and through Eurotunnel providing capacity equivalent to a second Gatwick. As a result, the SE has become a powerhouse in the transport and logistics sector with a Gross Value Added (GVA) of over £8 billion per year.

4.3.44 The SE is at the leading edge of research into the future of the transport and logistics sector with institutions such as the Transport Research Laboratory in Wokingham, backed up by high quality research facilities at the University of Portsmouth, Canterbury Christ Church University and Southampton Solent University.

4.3.45 The economy of the SE is further driven by five large sectors which account for nearly 29% of the total output[54]. These sectors are construction, education, health, business support (e.g. office administration services), and retail. In addition, tourism is vital to the rural and coastal economies of the SE contributing over £7.5 billion in GVA per year.

---

[51] Department for Transport. 2017. Reported Road Casualties Great Britain: Annual report

[52] British European Road Assessment Program (EuroRAP). 2017. Cutting The Cost Of Dangerous Roads

[53] British Transport Police. 2018. Annual Report 2017 -2018

[54] Cambridge Econometrics. 2017. Local Economic Forecasting Model

4.3.46 Initially drawn by strong connectivity to international markets, businesses have clustered around international gateways and are now benefitting from proximity to other businesses in their sector. With marine, maritime and defence industry concentrated around the ports of Portsmouth and Southampton, and the 'Gatwick Diamond' being a focus for the professional services sector, international gateways are economic hubs in their own right.

4.3.47 A ratio of median house price to median earnings of nearly 9.5 compared to the national average of 7.5 puts into sharp focus the affordability constraints facing the SE. However, the SE is proactively responding to its low levels of housing affordability to prevent it from becoming a constraint on the future growth of the economy.

4.4 Sustainability Appraisal Framework

4.4.1 While not specifically required by the SEA Regulations, sustainability objectives are a recognised way of considering the environmental, social and economic effects of a plan or programme, and comparing the effects of alternatives.

4.4.2 The sustainability objectives (set out in Table 4.1 below) were developed using:

- The review of key policy documents;
- The baseline data collation;
- An assessment of future trends; and
- The identification of sustainability issues and opportunities.

Table 4.1: Sustainability Appraisal Framework

Topic	Key Sustainability Issues Identified	Sustainability Objective
Natural Capital and Ecosystem Services	• Deterioration in quality, and severance/loss of connectivity of ecosystems. • Effects on ecosystems with high (potential) ecosystem services provision, and/or those close to centres of population.	To maintain and enhance the provision of ecosystem services from the region's natural capital, and deliver environmental net gain.
Biodiversity	• Loss, damage or fragmentation of statutory and non-statutory wildlife sites, habitats and wildlife corridors. • Impacts on protected species and wider biodiversity.	To protect and enhance protected habitats, species, valuable ecological networks and ecosystem functionality in the region, and deliver biodiversity net gain.
Historic Environment	• Direct and indirect impacts on internationally, nationally and locally designated heritage assets, including their settings.	To protect and minimise harm to the historic environment, and to maximise opportunities for enhancement.
Landscape and Townscape	• Direct and indirect impacts on designated landscapes, including their settings. • Erosion of the character and quality of the SE's landscapes.	To protect and enhance the quality of the region's distinctive landscapes, townscapes and visual amenity.
Soils and Resources	• Deterioration in quality of, and loss of soils, including the best and most versatile agricultural land. • Use of resources and production and disposal of waste in transport-related construction.	To promote the use of brownfield land and existing infrastructure in the region, protect geologically/ agriculturally important land, promote the sustainable use of resources and natural assets, and seek opportunities to deliver a circular economy.
Water Environment	• Increasing development associated with a rising population (including transport infrastructure) affecting surface water runoff and can increase flood risk on a local and catchment scale. • Increased traffic flows can add to contamination of surface water runoff.	To protect and enhance surface and groundwater quality; reduce and manage flood risk from all sources and coastal erosion risks by locating infrastructure in lower risk areas.
Air Quality	• Increased usage of highways adding to local and regional air pollution. • Increased usage of ports and airports adding to local and regional air pollution.	To protect and enhance air quality by reducing transport related emissions.
Climate Change and GHG Emissions	• Transport is the largest contributor to the UK's GHG emissions. • Climate change (extreme heat, flooding and storms) can impact on the quality and safety of transport infrastructure.	To eliminate GHG emissions (including through encouraging modal shift, electric vehicle uptake, low carbon construction), and maximise resilience to climate change.
Noise and Vibration	• Increased use of transport adding to noise impacts on human health due to stress and sleep disturbance, as well as annoyance.	To reduce exposure to transport related noise and vibration, including noise pollution and annoyance.

	• Increased use of transport adding to noise impacts on wildlife and designated sites. • Transport trends changing future noise profiles and climate change affecting impact on population.	
Population and Equalities	• A growing population and associated increase in demand for travel. • Public transport provision for those in rural areas, for the elderly, for those in areas of deprivation, and for those who are socially isolated.	To increase the capacity and efficiency of the transportation network to support demographic changes, including improving access by equalities groups and deprived communities.
Health	• An ageing population, with restricted access to private transport. • Increasing problems of physical inactivity and obesity. • Increasing use of private vehicles adding to air and noise pollution.	To protect and enhance physical and mental health through active travel, access to public transport, and reductions in pollution.
Community Safety	• Increasing crime levels on public transport. • High levels of serious injuries and fatalities on the SE road network compared to the rest of the UK. • Safety concerns for pedestrians and cyclists.	To promote safe transport through reducing accidents and improving security, as well as through regeneration of areas.
Economy	• Links between transport and productivity in the SE region. • Uncertainty around future demand for and supply of infrastructure, as well as the spatial and temporal distribution of movement.	To promote a strong economy through the transport network with opportunities for the population to access centres of employment, reliable journey times and increasing trade?

5 Sustainability Appraisal

5.1 Introduction

5.1.1 Other than schemes already under planning and development including those led by Local Enterprise Partnerships, Highways England and National Rail, further transport interventions are not specified in the Transport Strategy – these will follow in later corridor studies and in the forthcoming Strategic Investment Plan. The location-specific schemes specified in the Transport Strategy have thus already been assessed as part of the Appraisal of Sustainability for the NN NPS and will not be appraised individually in the ISA.

5.1.2 This section therefore presents the findings of the assessment covering two key aspects of the Transport Strategy:

- The 23 strategic corridors (i.e. the 'spatial alternatives'); and
- General transport interventions that would help address the challenges faced by the six journey types (i.e. the 'policy alternatives').

5.1.3 Mitigation and enhancement measures for negative or positive significant effects are set out below in Section 5.7.

5.2 Consideration of Alternatives

5.2.1 Consideration of reasonable alternatives is a key feature of the SEA process.

5.2.2 The purpose of the Transport Strategy is to assess which major transport corridors across the SE region have the greatest potential for sustainability enhancements and economic growth, and to prioritise corridors for the subsequent development of transport interventions. The ISA has informed the development of the Transport Strategy by identifying potentially significant constraints and opportunities for each of these corridors from an environmental and social perspective. As such, the 23 strategic corridors represent the 'spatial alternatives' assessed through the ISA process.

5.2.3 The Transport Strategy also considers broad 'types of initiatives' for addressing the challenges faced by each of the six thematic journey types, aimed at facilitating economic growth in the region, whilst simultaneously enhancing social and environmental benefits. These 'types of initiatives' each comprise at least one different category of general transport intervention – for example new or improved highways or railways, or enhancements to bus or cycling routes – all of which would result in different impacts on the environment, economy and society. These general transport interventions therefore represent the 'policy alternatives' assessed through the ISA process.

5.3 Assessment of Strategic Corridors

5.3.1 The 23 corridors included in this assessment are labelled as follows:

- SE1 – M2/A2/Chatham Main Line (Dartford – Dover)
- SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate)

- SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup)
- SE4 – A21/Hastings Line (Hastings – Sevenoaks)
- SC1 – A22/A264/Oxted Line (Crawley – Eastbourne)
- SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon)
- SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell)
- SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)
- SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury)
- SW3 – A33/Basingstoke – Reading Line (Basingstoke – Reading)
- SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)
- SW5 – A36/Wessex Main Line (New Forest)
- SW6 – A303/West of England Main Line (Andover – Basingstoke)
- SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)
- IO1 – M25 (Dartford – Slough)
- IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)
- IO3 – A228/A229/Medway Valley Line (Maidstone – Medway Towns)
- IO4 – Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)
- IO5 – A25/North Downs Line (Guildford – Redhill)
- IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading)
- OO1 – A28/A290/A291 (Canterbury – Whitstable)
- OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)
- OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)

The assessment of each of the 23 corridors has been undertaken using spatial indicators for each of the ISA Sustainability Objectives, as shown in Table 5.1 below.

Table 5.1: Spatial indicators used in the assessment of strategic corridors

ISA Objective	Spatial Indicators
Natural Capital & Ecosystem Services	Natural capital (and therefore ecosystem service provision) is represented through spatial indicators B1-6, HE1-5, L1-5, S1, and W1-2 below (following the approach set out in Section 3.2 of this report).
Biodiversity	B1 - Special Areas of Conservation (SAC) B2 - Special Protection Areas (SPA) B3 - Ramsar sites B4 - Sites of Special Scientific Interest (SSSI) B5 - National Nature Reserves (NNR) B6 - Marine Conservation Areas
Historic Environment	HE1 - World Heritage Sites HE2 - Scheduled Monuments HE3 - Historic Parks & Gardens HE4 - Historic Battlefields HE5 - Ancient Woodlands
Landscape & Townscape	L1 - National Parks L2 - Areas of Outstanding Natural Beauty (AONB) L3 - Heritage coasts L4 - Greenbelt L5 - National trails
Soils & Resources	S1 - Agricultural Land Classification
Water Environment	W1 - Ground Source Protection Zone W2 - Flood Zone
Air Quality	A1 - Air Quality Management Areas (AQMA)
Climate Change & Greenhouse Gases	CC1 - Indicative Flood Risk Areas CC2 - Per Capita Emissions
Noise & Vibration	N1 - Noise Action Important Areas
Population & Equalities	P1 - Index of Multiple Deprivation (IMD) - Overall Deprivation P2 - Planned Housing Developments
Health	H1 - IMD - Health H2 - Percent Physically Active Adults H3 - Excess Weight in Adults
Community Safety	CS1 - IMD - Crime CS2 - KSI Casualties on England Roads CS3 - EuroRAP Road Safety
Economy	E1 - Economic Assets E2 - Planned Major Employment Areas E3 - International Companies E4 - Priority Sector Areas

5.3.2 The sensitivities/constraints and opportunities within a set distance buffer of the central point of each transport corridor have been identified, and the *potential* for significant effects highlighted. The key for the assessment of potential sensitivity to significant effects is as follows:

Key to Potential Sensitivities	
Likely to be sensitive to positive effect	+
Negligible or no effect	0
Likely to be sensitive to negative effect	-
Likely to be sensitive to both positive and negative effects	+/-

5.3.3 Where possible, the buffer around each strategic corridor has been set at 2km. However, the spatially diverging routes of some of the road networks and railways represented by the strategic corridors, means buffers of varying sizes (up to a maximum of 10km) have been used in order to capture these routes. The specific buffers used for each corridor are listed in each of the corridor assessments in Appendix A.

5.3.4 A summary of the assessment for each of the 23 corridors is shown in Table 5.2 below. Individual assessments are provided in Appendix A.

Table 5.2: Summary of the sensitivity assessment of strategic corridors

	Natural Capital & Ecosystem Services																			Other Sustainability Components																			
	Biodiversity						Historic Environment					Landscape & Townscape					Soils	Water Environment		Air	Climate Change		Noise	Population & Equality		Health			Community Safety			Economy								
Corridor ID	B1 - SAC	B2 - SPA	B3 - Ramsar	B4 - SSSI	B5 - NNR	B6 - Marine Conservation Area	HE1 - World Heritage Sites	HE2 - Scheduled Monuments	HE3 - Historic Parks & Gardens	HE4 - Historic Battlefields	HE5 - Ancient Woodlands	L1 - National Parks	L2 - AONB	L3 - Heritage coasts	L4 - Greenbelt	L5 - National trails	S1 - Agricultural Land Classification	W1 - Ground Source Protection Zone	W2 - Flood Zone	A1 - AQMA	CC1 - Flood Risk Areas	CC2 - Per Capita Emissions	N1 - Noise Action Important Areas	P1 - IMD - Overall Deprivation	P2 - Planned Housing Developments	H1 - IMD - Health	H2 - Percent Physically Active Adults (18+)	H3 - Excess Weight in Adults (18+)	CS1 - IMD - Crime	CS2 - KSI Casualties on England Roads	CS3 - EuroRAP Road Safety	E1 - Economic Assets	E2 - Planned Major Employment Areas	E3 - International Companies	E4 - Priority Sector Areas
SE1	-	-	-	-	-	-	-	-	-	0	-	0	-	-	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	-	-	+/-	+/-	+	+	+	+
SE2	-	-	-	-	0	-	0	-	-	0	-	0	-	0	0	0	+/-	-	-	+/-	0	+/-	+/-	-	+	+/-	+/-	-	-	+/-	+/-	+	+	0	+
SE3	-	-	-	-	-	-	-	-	-	0	-	0	-	-	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	-	+/-	+/-	+/-	+	+	+	+
SE4	-	-	0	-	0	-	-	-	-	-	-	0	-	0	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+
SC1	-	-	0	-	0	-	0	-	-	0	-	-	-	0	0	+/-	+/-	-	-	0	0	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	0	+	0	+
SC2	-	0	0	-	-	-	0	-	-	-	-	-	-	-	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+

	Natural Capital & Ecosystem Services																			Other Sustainability Components																							
	Biodiversity						Historic Environment					Landscape & Townscape					Soils	Water Environment		Air	Climate Change		Noise	Population & Equality		Health			Community Safety			Economy										
Corridor ID	B1 - SAC	B2 - SPA	B3 - Ramsar	B4 - SSSI	B5 - NNR	B6 - Marine Conservation Area	HE1 - World Heritage Sites	HE2 - Scheduled Monuments	HE3 - Historic Parks & Gardens	HE4 - Historic Battlefields	HE5 - Ancient Woodlands	L1 - National Parks	L2 - AONB	L3 - Heritage coasts	L4 - Greenbelt	L5 - National trails	S1 - Agricultural Land Classification	W1 - Ground Source Protection Zone	W2 - Flood Zone	A1 - AQMA	CC1 - Flood Risk Areas	CC2 - Per Capita Emissions	N1 - Noise Action Important Areas	P1 - IMD - Overall Deprivation	P2 - Planned Housing Developments	H1 - IMD - Health	H2 - Percent Physically Active Adults (18+)	H3 - Excess Weight in Adults (18+)	CS1 - IMD - Crime	CS2 - KSI Casualties on England Roads	CS3 - EuroRAP Road Safety	E1 - Economic Assets	E2 - Planned Major Employment Areas	E3 - International Companies	E4 - Priority Sector Areas										
SC3	-	-	-	-	0	0	0	-	-	0	-	-	-	0	-	+/-	+/-	-	-	+/-	0	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	0	+	+	+								
SW1	-	-	-	-	-	-	0	-	-	0	-	-	-	0	-	+/-	+/-	-	-	+/-	0	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+								
SW2	-	-	-	-	-	0	-	-	-	0	-	-	-	-	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+								
SW3	0	-	0	-	-	0	0	-	-	0	-	0	-	0	-	+/-	+/-	-	-	+/-	0	+/-	+/-	+/-	+	0	+/-	+/-	+/-	+/-	0	+	+	+	+								
SW4	-	0	0	-	-	0	0	-	-	-	-	-	-	0	-	+/-	+/-	-	-	+/-	0	+/-	+/-	+/-	+	0	+/-	+/-	+/-	+/-	+/-	+	+	0	+								
SW5	-	-	-	-	0	0	0	-	-	0	-	-	0	0	0	0	+/-	0	-	+/-	0	+/-	+/-	+/-	+	+/-	+/-	+/-	-	+/-	0	+	+	+	+								

	Natural Capital & Ecosystem Services																		Other Sustainability Components																	
	Biodiversity						Historic Environment					Landscape & Townscape					Soils	Water Environment		Air	Climate Change		Noise	Population & Equality		Health			Community Safety			Economy			
Corridor ID	B1 - SAC	B2 - SPA	B3 - Ramsar	B4 - SSSI	B5 - NNR	B6 - Marine Conservation Area	HE1 - World Heritage Sites	HE2 - Scheduled Monuments	HE3 - Historic Parks & Gardens	HE4 - Historic Battlefields	HE5 - Ancient Woodlands	L1 - National Parks	L2 - AONB	L3 - Heritage coasts	L4 - Greenbelt	L5 - National trails	S1 - Agricultural Land Classification	W1 - Ground Source Protection Zone	W2 - Flood Zone	A1 - AQMA	CC1 - Flood Risk Areas	CC2 - Per Capita Emissions	N1 - Noise Action Important Areas	P1 - IMD - Overall Deprivation	P2 - Planned Housing Developments	H1 - IMD - Health	H2 - Percent Physically Active Adults (18+)	H3 - Excess Weight in Adults (18+)	CS1 - IMD - Crime	CS2 - KSI Casualties on England Roads	CS3 - EuroRAP Road Safety	E1 - Economic Assets	E2 - Planned Major Employment Areas	E3 - International Companies	E4 - Priority Sector Areas
SW6	-	-	0	-	0	0	-	-	-	0	-	0	-	0	0	0	+/-	-	-	0	0	+/-	0	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	0	+
SW7	-	-	-	-	0	0	0	-	-	-	-	0	-	0	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	0	+/-	+/-	-	+/-	+/-	+	+	+	+
IO1	-	-	-	-	-	0	0	-	-	0	-	0	-	0	-	+/-	+/-	-	-	+/-	-	+/-	+/-	-	+	0	-	-	+/-	+/-	+/-	+	+	+	+
IO2	-	-	-	-	-	-	0	-	-	0	-	0	-	0	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	-	-	+/-	+/-	+	+	+	+
IO3	-	0	0	-	0	0	0	-	-	0	-	0	-	0	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	-	-	+/-	+/-	+	+	0	+
IO4	-	0	0	-	-	0	0	-	-	0	-	0	-	0	-	0	+/-	-	-	+/-	0	+/-	+/-	+/-	+	0	+/-	-	+/-	+/-	+/-	0	+	+	+
IO5	-	0	0	-	0	0	0	-	-	0	-	0	-	0	-	+/-	+/-	-	-	+/-	0	+/-	+/-	0	+	0	+/-	+/-	+/-	+/-	+/-	+	+	+	+

	Natural Capital & Ecosystem Services																		Other Sustainability Components																				
	Biodiversity						Historic Environment					Landscape & Townscape					Soils	Water Environment		Air	Climate Change		Noise	Population & Equality		Health			Community Safety			Economy							
Corridor ID	B1 - SAC	B2 - SPA	B3 - Ramsar	B4 - SSSI	B5 - NNR	B6 - Marine Conservation Area	HE1 - World Heritage Sites	HE2 - Scheduled Monuments	HE3 - Historic Parks & Gardens	HE4 - Historic Battlefields	HE5 - Ancient Woodlands	L1 - National Parks	L2 - AONB	L3 - Heritage coasts	L4 - Greenbelt	L5 - National trails	S1 - Agricultural Land Classification	W1 - Ground Source Protection Zone	W2 - Flood Zone	A1 - AQMA	CC1 - Flood Risk Areas	CC2 - Per Capita Emissions	N1 - Noise Action Important Areas	P1 - IMD - Overall Deprivation	P2 - Planned Housing Developments	H1 - IMD - Health	H2 - Percent Physically Active Adults (18+)	H3 - Excess Weight in Adults (18+)	CS1 - IMD - Crime	CS2 - KSI Casualties on England Roads	CS3 - EuroRAP Road Safety	E1 - Economic Assets	E2 - Planned Major Employment Areas	E3 - International Companies	E4 - Priority Sector Areas
IO6	-	-	0	-	0	0	0	-	-	0	-	0	-	0	-	+/-	+/-	-	-	+/-	0	+/-	+/-	0	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+
OO1	-	-	-	-	-	-	-	-	0	0	-	0	0	0	0	+/-	+/-	-	-	+/-	0	+/-	0	+/-	+	+/-	+/-	-	+/-	+/-	+/-	+	+	0	+
OO2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	0	+/-	+/-	-	-	+/-	-	+/-	+/-	-	+	+/-	+/-	-	+/-	+/-	+/-	+	+	+	+
OO3	-	-	-	-	-	-	0	-	-	0	-	-	-	0	-	+/-	+/-	-	-	+/-	-	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+

5.3.5 In summary Table 5.2 shows that:

- The economic indicators are the most susceptible to potential positive effects of future development across the corridors. Where new economic developments are proposed and where existing major international companies, economic assets and priority sector areas are located within the corridors, positive effects have been recorded.
- Positive effects on a growing population have also been identified for those corridors where housing developments are proposed (also see cumulative effects at Section 5.6 below).
- In terms of deprivation, (including overall deprivation, health deprivation and crime deprivation) those corridors that are considered significantly deprived, have been identified as being more sensitive to the negative effects arising from future developments. Corridors with low levels of deprivation have potential to be more resilient change, whilst those with mixed levels of deprivation have potential to be more sensitive to both negative and positive effects of future development.
- Health across the 23 corridors is varied, and the assessment has highlighted the opportunities of future development to both improve health as well as worsen the current situation. Those corridors where excess weight and physical inactivity is significantly worse than the national average, have been identified as being more sensitive to negative effects of development, than those that significantly outperform the national average.
- The number of high risk roads and the number of people who are killed or seriously injured, varies across the corridors. Sensitivities of these receptors will be dependent upon where development takes place and the opportunities for improving safety related to each intervention.
- The water environment across the corridors is likely to be sensitive to the negative effects associated with future developments. All corridors intersect multiple flood zones, and the majority intersect ground source protection zones, which are sensitive to contamination. Eleven corridors intersect flood risk areas, which are high risk areas for people, critical services and commercial and public assets from surface water flooding and potential negative effects have been identified.
- The SE area is heavily designated for its biodiversity, landscape and heritage. All designated areas and sites that have been intersected by the corridor and its buffer, have been considered highly sensitive to the negative effects that could arise from future transport development.
- National trails across the regions have potential to benefit from both the negative and positive effects of development, depending on the nature of proposals that come forward.
- The agricultural land across the corridors is highly diverse, with combinations of poor quality and non-agricultural land surrounding urban areas, with rural areas composing of higher quality versatile soils. Given the variation, the sensitivity of agricultural land is highly dependent upon where development takes place and the type of transport intervention, as shown in Section 5.4 below.

5.4 Assessment of General Interventions

5.4.1 The general categories of transport interventions – mentioned through the 'types of initiatives' as ways of addressing the challenges faced by the region's six journey types – include:

- Highways – new roads and major widening;
- Highways – improvements, i.e. junction and roundabout improvements, parking, and minor widening;
- Highways – non-infrastructure options, i.e. traffic management and road safety (signage, signalling, visibility, traffic/speed restrictions);
- Rail – new railway lines and stations;
- Rail – improvements to stations, services and signalling;
- Bus and Light Rail – development of urban infrastructure and transit schemes, priority measures, and improvements to stops, services and information;
- Walking and Cycling – new cycleways and new walkways, and improvements to existing ones;
- Other – technology and innovation, public transport information provision, congestion schemes, ticketing, and behavioural change.

5.4.2 It should be noted that the Transport Strategy does not give equal weight to each of these general interventions. For example:

- The changing dynamics traffic flow patterns of the road network means there will always be a need for localised improvements to address specific issues that will continue to arise. New roads, improvements or extension of existing ones should be prioritised in the short term but become a lower priority in the longer term. In the longer-term highways schemes should target ports, development opportunities and deprived communities;
- Railway schemes are high priority across all timelines – Brighton Main Line upgrades are prioritised for the short term, while new Crossrail lines are a longer-term goal;
- Interchanges - are a high priority across all timelines where these would facilitate multi modal journeys and create opportunities for accessible development;
- Urban transit schemes (Bus Rapid Transit and/or Light Rail Transit schemes, where appropriate for the urban areas they serve), are high priority and generally medium to long term;
- Public transport access to airports is a high priority and, in the case of Heathrow Airport, must be delivered alongside airport expansion;
- Road and public transport access to ports is also high priority, and prioritised for delivery in the short term;
- Technology is medium priority and, in some cases, relatively long term;
- Planning policy interventions are relatively high priority and short term; and
- Demand management policy interventions are a much longer-term goal.

How the general categories of transport interventions relate to the 'types of initiatives' and 'journey types' is shown in

5.4.3 Table 5.3.

Table 5.3: General transport interventions included within the Transport Strategy

Thematic Journey Types	Types of Initiatives	Highways – new	Highways – improve	Highways – non-infrastruc.	Rail – new	Rail – improve	Bus & Light Rail	Walking and Cycling	Other
 Radial	Provide additional capacity and resilience on radial railways, particularly the busiest corridors such as the South Western Main Line and Brighton Main Line (addresses Challenges 3 and 5).								
	Improve the resilience of the Strategic Road Network, potentially by adopting demand management policies (addresses Challenges 4 and 6).								
	Improve connectivity by both road and rail to deprived communities – particularly potential 'left-behind towns' in Swale, Thanet and Hastings (addresses Challenges 1 and 2).								
	Extend radial routes (e.g. Crossrail from Abbey Wood to Ebbsfleet, and/or extend South Eastern franchise passenger services to the Isle of Grain) that serve particularly large new housing developments (addresses Challenge 1).								
	Facilitate an increase in radial journeys by public transport, particularly to/from Outer London and to/from Heathrow Airport (addresses Challenge 6).								
	Reduce human exposure to noise and poor air quality from radial roads, particularly where these run through urban areas such as Guildford and Portsmouth (e.g. by lowering speed limits, reallocating road space to cleaner transport modes, moving routes underground and/or away from urban areas, and/or supporting the uptake of cleaner technologies such as Electric Vehicles (addresses Challenge 4).								

Thematic Journey Types	Types of Initiatives	Highways – new	Highways – improve	Highways – non-infrastruc.	Rail – new	Rail – improve	Bus & Light Rail	Walking and Cycling	Other
 Orbital and coastal	In the longer term, introduce demand management policies on congested high-capacity corridors such as the M25, ideally when alternative public transport options are available (addresses Challenge 1).			■					
	Deliver the Lower Thames Crossing, which will provide an alternative route around the north of the M25, avoiding the South West Quadrant (addresses Challenge 1).	■							
	Encourage the wider electrification of the network and/or wider use of bi-mode trains across the south east to enable more direct, longer distance services on orbital corridors such as the North Downs Line (addresses Challenge 2).					■			
	Provide capacity enhancements at bottlenecks where orbital railways cross busy radial routes, such as at Redhill (addresses Challenge 2).					■			
	Improve long distance rail connectivity and capacity between the Midlands and North of England into the region along orbital corridors and support the introduction of more direct east-west services to Gatwick Airport (addresses Challenge 2).				■	■			
	Build a consensus on a way forward for the M27/A27/A259/East Coastway/West Coastway Corridor based on a multi-modal approach that seeks to reduce conflicts between different users on this corridor (addresses Challenge 3).		■	■		■	■		
	Improve orbital connectivity between Gatwick Airport and Hampshire and Kent (addresses Challenge 4).	■	■	■	■	■			

Thematic Journey Types	Types of Initiatives	Highways – new	Highways – improve	Highways – non-infrastruc.	Rail – new	Rail – improve	Bus & Light Rail	Walking and Cycling	Other
	Improve orbital links between the M3 and M4, ideally in a way that avoids directing heavy traffic through urban areas such as Bracknell (addresses Challenges 4 and 5 – and potentially Challenge 1 by relieving pressure on the M25 South West quadrant).								
	Reduce the exposure to the adverse environmental impacts of road traffic on orbital corridors that pass through urban centres such as Gosport, Hastings, Portsmouth and Worthing, which may include lowering speed limits, reallocating road space to cleaner transport modes, and/or supporting the uptake of cleaner technology such as Electric Vehicles (addresses Challenge 5).								
	Deliver better public transport alternatives on the M25 Corridor, such as extending Crossrail 1 into North Kent (addresses Challenge 6).								
 Interurban	Support existing Major Road Network and Large Local Majors schemes (e.g. A22 junction improvements) that bring secondary routes up to an appropriate standard for these routes (addresses Challenges 1 and 4).								
	Support initiatives that enhance, or at the very least, maintain the viability of bus services on Interurban corridors (addresses Challenge 2).								
	Deliver better Interurban rail connectivity, such as direct rail services from Brighton to Uckfield (addresses Challenge 3).								
	Adopt a holistic approach to each corridor to ensure that traffic is not displaced form the Strategic Network onto the								

Thematic Journey Types	Types of Initiatives	Highways – new	Highways – improve	Highways – non-infrastruc.	Rail – new	Rail – improve	Bus & Light Rail	Walking and Cycling	Other
	Major Road Network or local network (addresses Challenge 5).								
Local	Develop high-quality public transport services on urban corridors, such as Bus Rapid Transit and Light Rail Transit, where there is a viable business case (addresses Challenges 1 and 2).								
	Improve air quality on urban corridors by, for example, lowering speed limits, reallocating road space to cleaner transport modes, and/or supporting the uptake of cleaner technology such as Electric Vehicles (addresses Challenge 2).								
	Prioritise the needs of pedestrians and cyclists over the private car (addresses Challenges 1 and 2).								
	Invest (or encourage others to invest) in integrated passenger information systems to provide passengers with dynamic, multi-modal travel information (addresses Challenge 3).								
	Develop integrated transport hubs (bus, rail, park and ride, new mobility and cycle parking), integrated smart ticketing, and integrated timetables, where feasible (addresses Challenge 3).								
	Lobby government to protect and enhance funding for socially necessary bus services in rural areas (addresses Challenges 4 and 5).								
	Lobby government to freeze rail fares in real terms and provide lower off-peak fares in the longer term (addresses Challenge 5).								

Thematic Journey Types	Types of Initiatives	Highways – new	Highways – improve	Highways – non-infrastruc.	Rail – new	Rail – improve	Bus & Light Rail	Walking and Cycling	Other
 International Gateways and freight	Improve public transport access to Heathrow Airport through delivering the Western and Southern rail access schemes (addresses Challenge 1).								
	Support the use of demand management policies at Heathrow, such as high car access charges, to minimise traffic growth arising from expansion at this airport (addresses Challenge 1).								
	Provide appropriate links and improvements to the highways and railway networks at expanding and/or relocating ports in the South East (addresses Challenges 2 and 3). This should include improvements to the A34 (serving Southampton) and A2 (serving Dover).								
	Deliver Lower Thames Crossing and improvements the A229, Junction 3 of the M2 and Junction 5 of the M20 (addresses Challenges 3 and 4).								
	Implementing rail freight schemes, such as electrification and gauge enhancements, to increase capacity on strategic routes and encourage modal shift from road to rail (addresses Challenges 5 and 6).								
	Improve the efficiency of freight vehicle operations through adoption of new technologies (addresses Challenge 7).								
	Help international gateways adapt to changes in trade patterns. This may include investing in facilities to customs checkpoints away from bottlenecks at locations such as Dover (addresses Challenge 8).								

Thematic Journey Types	Types of Initiatives	Highways – new	Highways – improve	Highways – non-infrastruc.	Rail – new	Rail – improve	Bus & Light Rail	Walking and Cycling	Other
	Develop a Freight Strategy and Action Plan for the South East to improve the efficiency of freight journeys (addresses all challenges).								
 Future	'Future-proof' the digital and energy infrastructure within the South East by making provision for accelerated future uptake (addresses Challenge 1).								
	Incorporate 'Mobility as a Service' into the current public transport network, to provide better accessibility for a wider range of the population (addressing Challenges 2, 3, 4 and 5).								
	Encourage consistency in the smart ticketing arrangements across the South East, seek the use of Pay as you go and contactless payment (addresses Challenge 4).								
	Develop a Future Mobility Strategy for the South East to enable Transport for the South East to influence the roll out of future journey initiatives in a way that will meet Transport for the South East's vision (helps to address all challenges).								

5.4.4 The likely impacts of these general interventions on the environment, economy and society are described in the following paragraphs, and summarised graphically in Table 5.4.

5.4.5 New highways are likely to result in large impacts on biodiversity due to the expected impacts arising from habitat loss and severance, including potential loss or damage to irreplaceable habitats in the region, as well as loss of ecosystem service provision. The scale of new roads and the magnitude of impacts means that residual impacts are likely and opportunities for biodiversity net gain are likely to be challenging. Negative effects are expected from new roads on the historic environment, particularly with regards to buried archaeology and setting of heritage assets. There would be both direct and indirect negative effects on landscape, relating to visual amenity, character, quality and tranquillity, all of which are under pressure from development throughout the region. New roads would also have a negative effect on air quality and noise in the region, as well as increased carbon emissions, as an increase in traffic volume is anticipated as a result, although they have the potential to relieve impacts in congested areas. Embodied carbon, i.e. supply chain emissions associated with the construction of new roads and manufacture of their constituent parts, will also increase. Finally, permanent damage to and loss of soil can occur as a result of new road building. Positive impacts are expected to include improved road safety, improved accessibility and more reliable journey times.

5.4.6 Highway improvements would have a lesser impact than new roads on biodiversity, archaeology and landscape, as the extent of land take would be limited by the nature and scale of the schemes. There is potential for a large impact on climate change to arise from highway improvement schemes, as they can increase road capacity and thus result in an increase in greenhouse gases, however, vulnerability to flood risk and other climatic factors will vary on a site-specific basis and depend on design achievable in the setting. While increased capacity could lead to negative air quality and noise impacts, road users are likely to experience more reliable journey times and increased accessibility.

5.4.7 Non-infrastructure highway options are likely to have a negligible or no effect on most environmental objectives, with the exception of landscape and townscape where potential negative effects may occur from features such as signage, signals and other traffic management in regard to visual amenity, character, quality and setting, although this is much reduced from new highways infrastructure. Potential positive effects on population, health and community safety could occur from traffic management and road signage options.

5.4.8 New railway lines have the potential for significant negative effects on biodiversity such as habitat loss and severance, including potential loss or damage to irreplaceable habitats in the region, as well as loss of ecosystem service provision. New railway lines may fragment or degrade farmland and result in the loss of agricultural land. Permanent damage to and loss of soil can also occur as a result of new railways. The loss of soil and habitats are likely to result in a reduction of ecosystem service provision. There is potential for significant negative effects on the historic environment and landscape because they could impact on the setting of historic assets and archaeology and would introduce new linear features into the landscape, which may affect its quality and character.

5.4.9 Improving existing rail infrastructure will have reduced environmental impacts compared to new railway lines and stations. The largest beneficial effects from these improvements would occur in relation to population, health and community safety due to the potential for an increase in rail passenger number as a result, and the improved experience and safety of travel for them.

5.4.10 Improvements to other public transport services such as buses and light rail would have the largest beneficial effect on population and equalities due to the likely increased uptake of public transport travel by elderly, young and disadvantaged people and the improvement in accessibility between communities and rural areas with towns. Modal shift as a result of the improvements would also result in beneficial effects on air, noise, climate change, health and community safety. The economy is also likely to benefit from the introduction of light rail in urban areas, as it is often used as a means of regeneration. However, there could potentially be adverse effects on townscape and cultural heritage if not sensitively designed, whilst the development phase could disturb contaminated soil.

5.4.11 New and improved walkways and cycleways would have the largest beneficial effects on the ISA Sustainability Objectives, with a significant beneficial effect expected on health due to the active, physical nature of the mode – assuming that walkways and cycleways are well connected, and maintained in good condition. Enhancements or opportunities in respect to biodiversity, air quality, climate change, noise, population and community safety are likely from the creation of new or improved walking and cycling routes. This is due predominantly to the connectivity for and between communities and employment areas, accessibility to and reliability of the routes and the potential enhancements to biodiversity through the protection or creation of green corridors. However, these policy alternatives are unlikely to provide economic benefit in relation to long distance movement of people and freight.

5.4.12 Similarly, the provision of 'other interventions' – information, congestion charging, ticketing – would mostly result in the same objectives being benefited. Potential negative effects from 'other interventions' may occur in regard to the historic environment and landscape and townscape if the installation of features to support the provisions impacted on the character, quality or setting of the historic or landscape environments.

5.4.13 A summary of the (pre-mitigation) assessment for each of the general interventions by ISA Sustainability Objective is shown below in Table 5.4. The full assessment matrix is provided in Appendix B. The key used for this assessment is as follows:

Key to Effects of Generic Interventions	
Potential for significant positive effects	++
Potential for minor positive effects	+
Potential for minor negative effects	-
Potential for significant negative effects	- -
Potential for both positive and negative effects	+/-
Negligible or no effect	0

Table 5.4: Summary of the assessment of general transport interventions

General Transport Interventions	Applicable Thematic Journey Types	Sustainability Objectives												
		Natural Capital	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
Highways – new roads and major widening	Radial; Orbital & Coastal; International Gateways & Freight	--	--	--	--	--	-	- -	--	--	+/-	-	+/-	++
Highways – improvements to junctions and roundabouts, parking and minor widening	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	+ / -	-	-	-	-	+/-	-	--	-	+/-	-	+	+
Highways – non-infrastructure options, e.g. traffic management and road safety	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	0	0	-	-	0	0	+/-	0	0	+	+	+	+
Rail – new railway lines and stations	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	- -	--	--	--	--	-	+	+	+/-	+/-	+/-	+	++
Rail – improvements to stations, services and signalling	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	0	+/-	+/-	+/-	-	0	+	+	0	+	+	+	+
Bus and light rail – development of urban infrastructure, priority measures, and improvements to stops, services and information	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	0	0	-	+/-	-	0	+	+	+	++	+	+	+
Walking and cycling – new or improved walkways and cycleways	Local	+	+	0	+/-	0	0	+	+	+	+	++	+	+/-
Other – public transport information, congestion schemes, ticketing, behavioural change	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	0	0	-	-	0	0	+	+	+	+	+	+	+

5.5 Interaction with other Assessments

5.5.1 As described in Section 3.1, in addition to SEA, there are a number of other assessments that have been incorporated into the assessments above. These are presented in full in Appendices C – F, and summarised below.

Health Impact Assessment

5.5.2 An assessment of health, population, environment and deprivation was undertaken for the general transport interventions listed in section 5.4. The interventions were assessed against the following determinants of health: air quality, noise, physical activity, road safety, economy and employment, and access and accessibility.

5.5.3 The assessment identified that interventions related to highways, including new roads, road improvements and other non-infrastructure related improvements, are likely to result in negative health outcomes, particularly in relation to air quality. The other interventions related to rail, bus, light rail, walking and cycling, and behaviour change are all likely to result in some positive health outcomes, particularly in relation to physical activity.

Habitats Regulations Assessment

5.5.4 A Habitats Regulation Screening Assessment (HRSA) was undertaken to consider whether the Transport Strategy may have significant impacts upon European sites (Natura 2000 or Ramsar sites). The assessment was based solely upon the preliminary information available in relation to the locations of the strategic corridors, rather than specific plans (policies) and / or projects. Through screening for potential impacts, it was not possible to categorically demonstrate that the Transport Strategy will not have any impacts upon European sites.

5.5.5 Given the possibility of significant effects associated with the Transport Strategy, further, detailed assessment through Appropriate Assessment is considered necessary to satisfy the requirements of the Habitats Regulations. It will only be possible to undertake this level of assessment once specific plans and/or projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

Equalities Impact Assessment

5.5.6 An Equalities Impact Assessment (EqIA) was undertaken to assess the general transport interventions (listed in section 5.4) from an equality perspective. The EqIA has considered the impact that these interventions might have on persons, or groups of persons, who share characteristics which are protected under the Equality Act 2010, and also includes others considered to be vulnerable in society such as low-income groups.

5.5.7 The assessment found that the interventions are likely to result in a positive impact on protected characteristics and other considered characteristics, particularly age and deprivation. Improvements to the transport network, including pedestrian and cycleways, should result in more reliable and comfortable journeys, encouraging users to move away from private vehicles.

Community Safety Audit

5.5.8 There are a number of considerations for community safety for the Transport Strategy and subsequent development of transport in the Region. These include:

- Improving the feeling of safety particularly after dark, for example through the incorporation of lighting, CCTV or providing service information.
- Reducing congestion, managing flows through improved road and cycleway infrastructure and taking into consideration the site-specific issues for bus stops, light rail stops or train stations would reduce conflict between users.
- Reducing risk of accidents through design and incorporation of safety features.

5.6 Cumulative Effects

5.6.1 The SEA Regulations require that cumulative effects are considered when identifying likely significant effects. Cumulative effects arise, for instance:

- Where several individual policies have a combined effect on an objective; or
- Where several plans each have insignificant effects but together have a significant effect.

5.6.2 A review of plans and policies identified a number of plans for cumulative effects assessment, in addition to cumulative effects within the Transport Strategy. This is set out in Table 5.5 below.

5.6.3 It should be noted that at the strategic level, this list is not exhaustive and cumulative effects arising from individual projects and plans should be revisited as part of a project level assessment of the plan. For example, noise, dust and visual have a combined effect which can only be determined at the project level.

Table 5.5: Identification of Cumulative Effects

Policy or Plan	Potential source of Cumulative Effects
TfSE Transport Strategy	There is potential for cumulative regional impacts on all topics from development of multiple corridors. The nature and extent of the effects will depend on final schemes selected but, in particular, there is potential for cumulative effects from multiple new road or rail schemes.
National Networks National Policy Statement, DfT, 2014 The NPS sets out the need for, and Government's policies to deliver, development of NSIPs on the national road and rail networks and strategic rail freight interchanges in England.	The National Networks NPS supports both development of major rail infrastructure (including new and re-opened alignments) and also road improvements (including adding additional lanes to existing dual and single carriageway trunk roads, adding new slip roads, and improving junctions). An expanded network of strategic rail freight interchanges will also be developed. The Appraisal of Sustainability for the National Networks NPS[55] recognises that some developments will have adverse local impacts on noise, emissions, landscape / visual amenity, loss of greenfield/ agricultural land, biodiversity, cultural heritage and water resources. There may be a number of additive effects where priorities identified by the TfSE Strategy are not covered by the NN NPS.
Airports National Policy Statement, DfT, 2018	Expansion at London Heathrow in addition to making best use of existing aviation capacity (e.g. London Gatwick) is likely to increase transport requirements for all modes. The Appraisal of Sustainability for the Airports NPS[56] identifies a number of significant adverse effects on communities, quality of life, biodiversity, noise, soil, water, air quality, carbon, waste and resources, historic environment and landscape.
Local Plans	Local plans are prepared by the Local Planning Authority (LPA), usually the Council or the national park authority for the area. They provide a vision for the future of each area and a framework for addressing housing needs and other economic, social and environmental priorities. The Local Plan documents for the SE are identified at Appendix A of the Scoping Report. Allocations for economic and residential development are likely to stimulate transport demand and conversely improvements in economic transport corridors are likely to stimulate development. Sustainability Appraisals undertaken for Local Plans have similar topics to those listed for this ISA and identify potential for significant effects.

[55] Ramboll for Department for Transport, 2014, The National Policy Statement for National Networks Appraisal of Sustainability.

[56] WSP for Department of Transport, 2018, Appraisal of Sustainability: Airports National Policy Statement

Local Transport Plans	Local Transport Plans enable Local Authorities to plan for transport in their areas. They can identify both strategic policy and implementation plans for delivering this policy. Therefore, like the Transport Strategy they identify policy options for implementing transport improvements, including different modes of transport. They also prioritise a number of areas and schemes for development over the plan period. Sustainability Appraisals undertaken for Local Transport Plans have similar topics to those listed for this ISA and identify potential for significant effects.

5.6.4 The review of plans and policies has identified a number of areas for cumulative effects:

- Natural Capital and Ecosystem Services – There is potential deterioration in quality, and severance / loss of connectivity of ecosystems and green infrastructure, with consequent reductions in ecosystem service provision. This may be particularly prevalent where there is development from a number of sources (e.g. from local plans) close to population centres, or that stimulated by transport corridors.
- Biodiversity – There is potential for cumulative loss, damage or fragmentation of statutory and non-statutory wildlife sites and habitats. Although it is assumed that protected species would be mitigated at a project level, there are wider impacts on biodiversity. Net gain over multiple development plans may be difficult to achieve.
- Historic Environment – There is potential for cumulative direct and indirect impacts on internationally, nationally and locally designated heritage assets, including their settings. This is in addition to cumulative effects on undesignated and unknown assets, the latter being potentially important.
- Landscape and Townscape – There is potential for cumulative direct and indirect impacts on designated landscapes and townscapes, including their settings. There is also potential for cumulative erosion of the character and quality of the SE's landscapes and townscapes.
- Soils and Resources – There is potential for cumulative deterioration in quality of, and loss of soils, including the best and most versatile agricultural land. There would be a cumulative use of resources and production and disposal of waste in construction.
- Water Environment – There is potential for cumulative increase in surface water runoff and flood risk; and impacts on surface water and groundwater, particularly from physical alteration as a result of development. Transport-related cumulative effects on potable water are likely to be limited.
- Air Quality – There may be cumulative benefits from transport initiatives in the SE in improving air quality, but increased uptake of vehicular traffic (especially in the short term) may worsen air quality in some areas.
- Climate Change and Greenhouse Gases – There may be cumulative benefits from transport initiatives in the SE in reducing greenhouse gases, but increased development is also likely to increase transport related greenhouse gas emissions, particularly where this leads to increases in vehicular traffic. Climate change adaptation measures are likely to be specific to each development, but there may be cumulative benefits if implemented region-wide.
- Noise and Vibration – There are likely to be cumulative effects arising from noise of increased development, particularly transport related development such as road and rail, with cumulative effects on health and wellbeing, tranquillity and wildlife.
- Health – There may be cumulative effects, both positive and negative (depending on schemes implemented), from multiple transport schemes on health outcomes related to social isolation, physical inactivity and obesity. There may also be cumulative effects on health relating to air quality and noise.

- Equalities – There may be cumulative benefits from the integration of multiple transport interventions enabling more reliable and comfortable public transport, which is accessible by walking and/or cycling.
- Community Safety – There may be cumulative benefits (depending on scheme design) on fear of crime and transport related accidents, due to opportunities to improve safety standards on all forms of transport.
- Economy – there are likely to be cumulative economic benefits in relation to development in the SE due to links between transport and productivity in the SE region.

5.7 Mitigation

5.7.1 The SEA Regulations require that mitigation measures are considered to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan. The measures are known as 'mitigation' measures. Mitigation measures include both proactive avoidance of adverse effects and actions taken after potential effects are identified.

5.7.2 The mitigation measures proposed in Table 5.6 are designed to avoid or reduce the effects identified as potentially negative through the corridor and policy assessments on the ISA Objectives.

Table 5.6: Mitigation

ISA Topics	Mitigation / Enhancement	Mechanism
Air Quality, Climate Change and GHG Emissions, Population and Equalities, Health.	New transport infrastructure or upgrade to existing infrastructure should include provisions for walking and cycling and connectivity to public transport modes.	Already embedded within Transport Strategy's Strategic Priorities and underpinning Principles Project level Equalities or Diversity Impact Assessment
Biodiversity, Historic Environment, Landscape and Townscape, Soils, Noise.	Optioneering and design of new transport infrastructure should avoid landscape/ townscape, historic environment and nature conservation designations.	Needs to be embedded within Transport Strategy's Strategic Priorities and underpinning Principles Area Studies: Multi Criteria Assessment and Option Assessment Framework Environmental Assessments (e.g. EIA), HRA
Natural Capital and Ecosystem Services, Biodiversity	New transport infrastructure or upgrade to existing infrastructure should deliver a net gain in biodiversity (in line with the requirements of the Environment Bill and using the net gain principles as developed by CIEEM/IEMA/CIRIA in 2016), and aim to contribute towards major new initiatives such as Nature	Already embedded within Transport Strategy's Strategic Priorities; needs to be included within the underpinning Principles Area Studies

	Recovery Networks and large scale woodland creation ambitions of the 25 Year Environment Plan and Environment Bill.	Biodiversity net gain calculation (using the Defra Metric 2.0)
Natural Capital and Ecosystem Services, Biodiversity, Landscape, Water Environment, Soils and Land Use, Population and Equalities, Health	Design of new transport infrastructure should retain and enhance ecosystem functionality and green (as well as blue) infrastructure.	Already embedded within Transport Strategy's Strategic Priorities; needs to be included within the underpinning Principles Area Studies Environmental Assessments, e.g. Landscape design and assessment, and Ecosystem Services Assessment
Natural Capital and Ecosystem Services, Biodiversity, Landscape, Water Environment, Soils and Land Use, Population and Equalities, Health	Design of new transport infrastructure should seek environmental net gain such as pollination, flood risk management, clean air, carbon reduction, infrastructure resilience, and connecting people with nature, as well as other place-making and visitor economy objectives. (Environmental net gain should be underpinned by biodiversity net gain).	Already embedded within Transport Strategy's Strategic Priorities; needs to be included within the underpinning Principles Area Studies: Further Appraisal Environmental net gain calculation (e.g. using the Ecometric)
Landscape and townscape, historic environment	Design and optioneering should consider direct and indirect impacts such as setting in relation to landscape quality and the historic environment.	Already embedded within Transport Strategy's Strategic Priorities; needs to be included within the underpinning Principles Area Studies: Further Appraisal Environmental assessment Design
Population and equalities, health, Community Safety	Community safety, health and equalities should be considered in design, for example, pedestrian networks, including linking new developments into existing infrastructure, integrating modes of transport (both public and active), lighting and other safety design considerations, materials used (contrasting colours, non-slip surfaces), accessibility for all including those with reduced mobility or disability, well-being, affordability of schemes, active travel.	Already embedded within Transport Strategy's Strategic Priorities and underpinning Principles Project level CSA, EqIA, HIA

Climate change and greenhouse gases, Waste and resources	Optioneering and design should seek to achieve zero GHG emissions through reducing the need to travel by non-sustainable means, and efficient use of materials, low energy and renewables in infrastructure (e.g. lighting, provision of vehicle charging).	Already embedded within Transport Strategy's Strategic Priorities and underpinning Principles Area Studies: Option Assessment Framework; Further Appraisal Carbon Footprinting; Lifecycle assessment; Design Future Mobility Strategy
Climate change, Soils and resources, Natural capital and ecosystem services	Optioneering and design should seek to adapt to climate change, in terms of: location (avoiding areas of flood and erosion risk);working with natural processes (adopting natural flood risk management measures and Sustainable Urban Drainage Schemes alongside transport routes); use of materials (e.g. to with-stand extreme weather events); and provision of transport information.	Needs to be embedded within Transport Strategy's Strategic Priorities and underpinning Principles Area Studies: Option Assessment Framework Flood Risk Assessment; Geotechnical Assessment; Ecosystem Services Assessment; Design
Natural capital and ecosystem services, Water Environment, Biodiversity, Soils	Optioneering and design should seek to ensure environmental protection, including avoiding damage to soils, water resources.	Needs further embedding within Transport Strategy's Strategic Priorities and underpinning Principles Area Studies: Further Appraisal Drainage strategy and design; Project level design
Landscape and townscape, historic environment	Preservation in situ (of unknown assets as well as known ones) should be considered earlier in the design stages, before route options are selected. The local distinctiveness of landscapes and heritage assets should also be considered in design.	Needs further embedding within Transport Strategy's Strategic Priorities and underpinning Principles Area Studies: Option Assessment Framework; Environmental assessment; Design

5.7.3 Further mitigation measures are proposed with respect to the findings of the HRA. Any development that would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, will be subject to assessment under part 6 of the habitats regulations at project application stage. If it cannot be ascertained that there would be no adverse effects on site integrity the project will have to be refused or pass the tests of regulation 61 and 62, in which case any necessary compensatory measures will need to be secured in accordance with regulation 66. In addition:

- development should not be located within any European site so that no direct habitat loss will occur;
- wherever possible works should be avoided where there is a direct transmission pathway to European sites (such as a European site downstream of a new road);
- buffer zones should be provided between construction/improvement works and European sites (the size and extent of which should be dependent upon the nature of impact and the sensitivity of receptors); and
- there should be a general presumption against the permitting of construction/improvement works which generate adverse effects in proximity to European sites, which are sensitive to those effects – e.g. where adverse impacts on the water environment are identified; and that improved access to European sites will be closely monitored and managed to ensure the integrity of the sites is not compromised.

5.7.4 These mitigation measures should be used to inform the subsequent development of specific interventions along the prioritised corridors.

5.7.5 Once developed, these specific interventions, or schemes, will need to undergo further stages of assessment. These assessments will require further, more detailed information to be obtained in relation to each of the ISA topics. Potential sources of such information are set out in Table 5.7 below.

Table 5.7: Further information requirements for future assessments

Topic	Potential sources of additional data (and tools) for subsequent WebTAG Appraisal of specific transport interventions
Natural Capital and Ecosystem Services	• Non-statutory ecological and geological sites • Woodland Trust sites • Environmental stewardship schemes • Public Rights of Way • Local green infrastructure sites • Biodiversity Opportunity Areas • Priority and BAP habitats • Phase 1 habitats (or other detailed habitat data e.g. derived from a remote sensing assessment using aerial imagery, LiDAR and algorithms approved by Natural England) • Environment Agency water quality data (e.g. river ecological status) • Ecosystem services potential data (e.g. from Natural England) • Outdoor Recreation Valuation Tool (ORVal)[57] • Natural Environment Valuation Online tool (NEVO)[58]

[57] Day, B. H., and G. Smith. 2018. Outdoor Recreation Valuation (ORVal) User Guide: Version 2.0, Land, Environment, Economics and Policy (LEEP) Institute, Business School, University of Exeter. Available from: https://www.leep.exeter.ac.uk/orval/

[58] SWEEP. 2018. Natural Environment Valuation Online tool (NEVO). Available from: https://sweep.ac.uk/portfolios/natural-environment-valuation-online-tool-nevo/

	• Eco-metric tool[59] • Natural Capital Planning Tool (NCPT)[60] • Cultural ecosystem services assessment, e.g. using a participatory GIS tool[61]
Biodiversity	• Priority and BAP habitats • Non-statutory ecological designated sites • Woodland Trust sites • Protected and priority species records • Local green infrastructure sites • Environmental stewardship schemes • Local Biodiversity Partnerships data • Biodiversity Opportunity Areas • Land Cover Map data • Local wildlife sites • Phase 1 habitats (or other detailed habitat data e.g. derived from a remote sensing assessment using aerial imagery, LiDAR and algorithms approved by Natural England) • Defra Metric 2.0
Historic Environment	• Conservation areas • Listed Buildings • Historic England Heritage at Risk register • Historic Ordnance Survey maps • British Geological Survey data • Burial grounds • Archaeological Priority Areas • Archaeologically Sensitive Areas • Non-designated sites of sites of local and national importance
Landscape and Townscape	• Local landscape designations, including Country Parks, Special Landscape Areas and Areas of Great Landscape Value • Locally protected views • Local conservation areas • Locally listed sites and buildings • Public Rights of Way • National Landscape Character Area objectives
Water Environment	• River Basin Management Plans • Strategic Flood Risk Assessments (SFRAs) • Surface Water Management Plans (SWMPs) • Aquifer designations • Groundwater Vulnerability areas • Water Framework Directive waterbody status • Environment Agency water quality data (e.g. river ecological status)
Air Quality	• UK Government's National Atmospheric Emissions Inventory (NAEI) • Clean Air Zone data

[59] Defra. 2019. Eco-metric. Available from: https://ecosystemsknowledge.net/ecometric

[60] CEEP. No date. Natural Capital Planning Tool. Available from: http://ncptool.com/

[61] Natural England (2015) Participatory GIS. Available from: https://ecosystemsknowledge.net/participatory-gis-tool-pgis

Climate Change and Greenhouse Gases	• Local authority flood risk data • Local authority emissions data • Green Alliance data • UK Regional Climate Change Projections 2018
Noise and Vibration	• Defra's Noise Exposure data
Soils, Land Use, Resources and Waste	• Non-statutory geological sites, e.g. RIGS • Waste and mineral site allocations • Local contaminated land registers • South East of England Aggregates Working Party data
Population and Equalities	• Local authority monitoring reports • Local transport plans • Public Rights of Way • Ward demographics data from the Office for National Statistics (ONS)
Health	• Data from local clinical commissioning groups (CCGs) • Local authority public health profiles/ health reports • Air Quality Management Areas (AQMAs) • Noise Action Planning Important Areas • Local green infrastructure sites • Public Rights of Way • Sport England data • Outdoor Recreation Valuation Tool (ORVal)
Community Safety	• Crime data from local authorities and police • Local authority monitoring reports
Economy	• Local Enterprise Partnerships data • Local authority labour market profiles • Key local employment/economic sites

5.8 Monitoring

5.8.1 The SEA Regulations require that monitoring is undertaken on a plan so that the significant effects of implementation can be identified and remedial action imposed. The purpose of the monitoring is to provide an important measure of the environmental outcome of the final plan, and to measure the performance of the plan against environmental objectives and targets. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage environmental information.

5.8.2 Specific transport interventions (other than short term interventions which are already in development) are not specified in the Transport Strategy, but will follow in the corridor studies and the Strategic Investment Plan.

5.8.3 The Transport Strategy states that a mechanism for monitoring and evaluating the progress of the Strategy will be established. TfSE will use a set of Key Performance Indicators to monitor the outcomes of the Transport Strategy in advancing the Strategic Priorities outlined in Section 2.1 of this ISA Report. These indicators are listed in Table 5.8 below.

Table 5.8: Monitoring via Key Performance Indicators

Strategic Priorities	Indicators
Economic	
Better connectivity between our major economic hubs, international gateways and their markets.	• The delivery of improved road and railway links on corridors in need of investment. • Improved public transport access to Heathrow Airport. • Improved long-distance rail services (measured by journey time and service frequency).
More reliable journeys for people and goods travelling between the SE's major economic hubs and to and from international gateways.	• Improved Journey Time Reliability on the Strategic Road Network, Major Road Network, and local roads (where data is available). • Improved operating performance on the railway network, measured by Public Performance Measure (PPM) and other available passenger and freight performance measures, where available (e.g. right time delivery).
A transport network that is more resilient to incidents, extreme weather and the impacts of a changing climate.	• Reduced delays on the highways network due to poor weather. • Reduced number of days of severe disruption on the railway network due to poor weather. • Metrics delating to reduced delay on road network suffering from Road Traffic Collisions.
A new approach to planning that helps our partners across the SE meet future housing, employment and regeneration needs sustainably.	• The percentage of allocated sites in Local Plans developed in line with Local Transport Plans.
A 'smart' transport network that uses digital technology to manage transport demand, encourage shared transport and make more efficient use of our roads and railways.	• Increase in the number of bus services offering Smart Ticketing payment systems. • Number of passengers using smart ticketing. • Number of passengers using shared transport.
Social	
A network that promotes active travel and active lifestyles to improve our health and wellbeing.	• Increase in the length of the National Cycle Network in the South East. • Increase in the length of segregated cycleways in the South East. • Increase mode share of trips undertaken by foot and cycle. • Number of bikeshare schemes in operation in the area. • Mode share of walking and cycling.
Improved air quality supported by initiatives to reduce congestion and encourage further shifts to public transport.	• Reduction in NOx, SOx and particulate pollution levels in urban areas.
An affordable, accessible transport network for all that promotes social inclusion and reduces	• A reduction in the indicators driving the Indices of Multiple Deprivation in the South

Strategic Priorities	Indicators
barriers to employment, learning, social, leisure, physical and cultural activity.	East, particularly in the most deprived areas in the SE area.
A seamless, integrated transport network with passengers at its heart, making journey planning, paying for and using different forms of transport simpler and easier.	• Increase in the number of cross-modal interchanges and/or ticketing options in the South East.
A safely planned, delivered and operated transport network with no fatalities or serious injuries among transport users, workforce or the wider public.	• Reduction in the number of people Killed and Seriously Injured by road and rail transport.
Environmental	
A reduction in carbon emissions to net zero by 2050 to minimise the contribution of transport and travel to climate change.	• Reduction in carbon emissions by transport.
A reduction in the need to travel, particularly by private car, to reduce the impact of transport on people and the environment.	• A net reduction in the number of trip kilometres undertaken per person each weekday. • A reduction in the mode share of the private car (measured by passenger kilometres).
A transport network that protects and enhances our natural, built and historic environments.	• No transport schemes or interventions result in net degradation in the natural capital of the South East, instead aiming for environmental net gain for priority ecosystem services (such as natural flood risk management).
Use of the principle of 'biodiversity net gain' in all transport initiatives.	• No transport schemes or interventions result in a net loss of biodiversity, but seek to achieve a minimum of 10% net gain in biodiversity managed for 30 years in line with the requirements of the Environment Bill.
Minimisation of transport's consumption of resources and energy.	• Reduction in non-renewable energy consumed by transport.

6 Next Steps

6.1.1 This ISA Report was issued for public consultation in Autumn 2019 for a twelve-week consultation period, alongside the Transport Strategy. It has been updated following consultation.

6.1.2 An ISA Statement will be prepared following the consultation period to summarise how responses to consultation and the ISA have influenced the development of the Transport Strategy.

6.1.3 A number of further studies are also being progressed, these include:

- Areas focussed studies, focusing on groups of corridors as shown in Figure 5.3: South Central Area; South East Area; and South West Area; Inner Orbital Area; Outer Orbital Area.
- Freight Strategy and Action Plan;
- Future Mobility Strategy;
- Mobility as a Service; and
- Smart and Integrated Ticketing.

Control Information

Prepared by

WSP, on behalf of Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
www.steergroup.com

Prepared for

Transport for the South East

Steer project/proposal number

23433701

Client contract/project number

Click here to enter text.

Author/originator

Helen Davies

Reviewer/approver

Ursula Stevenson

Other contributors

Marc Griffin, Jo North, Katie Dean, Claire Beard, Katie Burrough

Distribution

Client: Client Team
Steer/ Project Management
WSP: Team

Version control/issue number

ISA Report V01 (First Draft)
ISA Report V02 (Second Draft)

Date

18 July 2019
27 September 2019

Complex questions.
Powerful answers.

Explore **steergroup.com** or visit one of our 21 offices:

Bogotá, Colombia
Bologna, Italy
Boston, USA
Brussels, Belgium
Leeds, UK
Lima, Peru
London, UK
Los Angeles, USA
Manchester, UK
Mexico City, Mexico
New Delhi, India
New York, USA
Panama City, Panama
Rome, Italy
San Juan, Puerto Rico
Santiago, Chile
São Paulo, Brazil
Toronto, Canada
Vancouver, Canada
Washington DC, USA

steer

4 October 2019

Transport Strategy for the South East: ISA Report Appendices A & B - Assessment of Strategic Corridors & General Interventions

Transport for the South East
23433701

4 October 2019

Transport Strategy for the South East: ISA Report Appendices A & B - Assessment of Strategic Corridors & General Interventions

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Transport for the South East

23433701

Contents

List of Tables

Appendix A: Assessment of Strategic Corridors

Table A.1: Assessment of Strategic Corridor SE1

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects 12 SACs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects three SPA sites; The Swale, Medway Estuary and Marshes and the Thames Estuary and Marshes. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The corridor buffer intersects three Ramsar sites; The Swale, Medway Estuary and Marshes and the Thames Estuary and Marshes. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	The corridor buffer intersects 41 SSSIs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	The corridor buffer intersects six national nature reserves, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	There are six marine conservation areas located within the corridor buffer. All of these sites have potential to be sensitive to the negative effects associated with future development within the corridor.	-
	Historic Environment	World Heritage Sites	Canterbury Cathedral, The Tower of London, Palace of Westminster and Maritime Greenwich are all located within the corridor buffer. These sites have potential to be sensitive to the negative effects arising from future developments within the corridor buffer.	-
		Scheduled Monuments	There are 275 scheduled monuments located within the corridor buffer all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Historic Parks & Gardens	There are 80 historic parks and gardens located across the corridor, all which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefields within the corridor buffer, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 551 ancient woodlands sites located across the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The corridor buffer does not go through any National Parks, therefore no sensitivities have been identified.	0
		AONB	The majority of the corridor buffer lies within the Kent Downs AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if future developments arise within their boundaries.	-
		Heritage coasts	The north eastern edge of the corridor buffer is within the Dover to Folkestone and the South Foreland Heritage Coast Area, which could be sensitive to potential negative effects from future developments within the corridor.	-
		Greenbelt	The north western section of the corridor buffer lies within the Greater London Greenbelt. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the North Downs Way and the Thames Path National Trails. There is potential for these trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. Low grades (grades 4, 5, urban and non agricultural grades) are more prevalent in the urban areas of Greater London, Dartford, Rochester, Chatham, Sittingbourne, Canterbury and Dover. Between these urban areas, the soil varies between grades 1-4, with the best and most versatile land lying along the north eastern edge of the corridor buffer. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	The corridor buffer lies across 147 Ground Source Protection Zones, which includes 92 Zone 1s (areas with the highest risk of contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects a large number of areas which have been designated as either Flood Zone 2s or Flood Zone 3s, which are spread across the entire length of the corridor. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other	**Air**	AQMA	The corridor buffer passes through 30 AQMAs, 4 of which are located outside of the South East boundary. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
	Climate Change	Flood Risk Areas	There are two flood risk areas across the corridor. One is located in the north western section of the corridor buffer (London Flood Risk Area) and the other is located in Medway. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-
		Per Capita Emissions	The corridor buffer crosses the authority areas of Medway and Kent, where per capita emissions are either better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions. (It should be noted that this data only includes those local authority areas located within the south east study area)	+/-
	Noise	Noise Action Important Areas	The corridor buffer passes through two noise sensitive areas; Greater London Urban Area and the Medway Towns NIA. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	In general, the overall deprivation across the corridor buffer is varied. There are LSOAs around Chatham, Dover, Gillingham and Greater London that are amongst the top 10% of deprived neighbourhoods in the country. There are also neighbourhoods across the corridor buffer that are in the top 10% least deprived in the country (surrounding Maidstone and Longfield). Those areas considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Planned Housing Developments	There are 24 major housing developments planned across the whole length of the corridor. These developments are likely to benefit from the potential positive effects of future developments within the corridor.	+
	Health	IMD - Health	Health deprivation across the corridor buffer is generally low, with pockets of high deprivation located in Central London, Rochester, Dartford and Sittingbourne (top 10% most deprived). More of the corridor buffer lies within areas in the top 10% least deprived neighbourhoods than the top 10% pf most deprived. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in Medway is similar to the national average, whilst the percentage in Kent is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of adult that have excess weight is significantly worse than the national average in Kent and similar to the national average in Medway. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the current high levels of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development. (It should be noted that this data only includes those local authority areas located within the south east study area)	-

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Community Safety	IMD - Crime	The level crime deprivation across the corridor buffer is generally high. High levels of deprivation are noted within Greater London Rochester, Sittingbourne, Dover and Dartford (top 10% most deprived). Given the high levels of deprivation recorded across the corridor buffer those areas of considered to be highly deprived are likely to be more sensitive to negative effects arising from future developments.	-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the span of the corridor, is significantly worse than the national average in Kent and better than the national average in Medway. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes Greater London which is beyond the south east study area)	+/-
		EuroRAP Road Safety	The corridor buffer intersects the A20, A259, A252, A274 and the A226, which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are four key economic assets across the corridor, including two university campuses (University of Kent and Canterbury Christ Church University) and two enterprise zones. These assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There is a high number of major employment developments planned across the length of the corridor. The largest of these developments (10,000+ jobs) is the Swanscombe Peninsula development located in the north western part of the corridor. These developments have potential to benefit from the positive effects associated with future developments.	+

SE1: M2/A2/Chatham Main Line (Dartford – Dover)				Buffer Size: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		International Companies	There are two international companies based across the corridor; Laing o Rourke which is in the construction sector and Kings Ferry in the transport and logistics sector. These companies have potential to benefit from the positive effects associated with future developments.	+
		Priority Sector Areas	The corridor buffer is comprised of one priority sector areas (transport and logistics) which has potential to benefit from the positive effects associated with future developments. These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Table A.2: Assessment of Strategic Corridor SE2

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There are five SAC sites located within the corridor buffer; Stodmarsh, Blean Complex, Thanet Coast, Tankerton Slopes and Swalecliffe and Margate and Long Sands. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	There are four SPA sites located within the corridor buffer; Outer Thames Estuary, Stodmarsh, Thanet Coast & Sandwich Bay and the Swale SPAs. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	There are three Ramsar sites located within the corridor buffer; The Swale, Stodmarsh and Thaney Coast and Sandwich Bay SPAs. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	There are eight SSSIs located within the Corridor, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are no NNRs located within the corridor, therefore no sensitivities have been identified.	0
		Marine Conservation Area	There are two MCZ located within the corridor; The Swale Estuary and Thanet Coast. These two areas could be sensitive to potential negative effects arising from future developments within the corridor.	-

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Scheduled Monuments	There are 30 scheduled monuments located within the corridor, which all could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	Lees Court historic garden intersects the buffer along the western edge. This park could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 69 areas of ancient woodlands located within the corridor. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor, therefore no sensitivities have been recorded.	0
		AONB	The corridor buffer intersects the Kent Downs AONB in the west of the corridor. This area could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the AONB boundary.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been recorded.	0

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Greenbelt	There are no areas of greenbelt land located within the corridor buffer, therefore no sensitivities have been recorded.	0
		National trails	There are no national trails located within the corridor, therefore no sensitivities have been recorded.	0
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. The best and most versatile land (grades 1-2) are located in Brogdale, Goodnestone, Boughton-und-Blean, Chislet, Grays and Flete. Urban grades are found in Faversham, Whitstable, Herne Bay, Westgate-on-Sea, Margate, Broadstairs and Ramsgate. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	The corridor buffer intersects 17 ground source protection zone, of which 9 are zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 44 flood zone, which are spread the length of the corridor. Of these flood zones, 11 are flood zone 3s and 33 flood zone 2s. These zones have potential to be sensitive to negative effects of future developments within the corridor.	-

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Other Sustainability Components	**Air**	AQMA	The corridor buffer intersects 3 AQMAs. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore, no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor buffer is located in wholly in Kent where per capita emissions are better than the England average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	+/-
	Noise	Noise Action Important Areas	Thanet noise sensitive area is located in the east of the corridor buffer and covers the towns of Birchington-on-Sea, Westergate-on-Sea, Margate, Broadstairs and Ramsgate. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Population & Equality	IMD - Overall Deprivation	There are more areas within the corridor buffer that are considered deprived than not deprived. The highest levels of deprivation are in Faversham, Margate and Ramsgate. There are 15 LSOAs in the buffer that feature amongst the top 10% of most deprived neighbourhoods in the country and 17 feature in the top 20% of most deprived neighbourhoods in the country. Given levels of deprivation across the corridor, there is potential that those LSOAs that are significantly deprived to be more sensitive to the negative effects associated with future development.	-
		Planned Housing Developments	There are nine major housing developments planned across the corridor, the majority of which are located west of Ramsgate and Broadstairs. These developments have potential to benefit from the positive effects of future developments within the economic corridor.	+
	Health	IMD - Health	Levels of health deprivation vary across the corridor. The highest levels of deprivation are in Herne Bay, Margate and Ramsgate. There are 9 LSOAs in the buffer that feature amongst the top 10% of most deprived neighbourhoods in the country and 11 that feature in the top 20% of most deprived neighbourhoods in the country. As you move further inland, health deprivation generally lowers, with one LSOA north of Canterbury, featuring amongst the top 10% of least deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Percent Physically Active Adults (19+yrs) 2016/17	The buffer is located wholly within Kent, where the percentage of physically active adults is similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The buffer is located wholly within Kent, where the number of adults with excess weight is significantly worse than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	-
	Community Safety	IMD - Crime	Crime deprivation across the corridor buffer is high, with 19 LSOAs located amongst the top 10% of deprived neighbourhoods in the country and 15 in the top 20% of deprived neighbourhoods. These LSOAs are located in Westergate, Margate, Ramsgate, Faversham and Herne Bay. There are 6 LSOAs in the top 20% of least deprived neighbourhoods in the country. Given levels of deprivation across the corridor, there is potential that those LSOAs that are significantly deprived to be more sensitive to the negative effects associated with future development.	-

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		KSI Casualties on England Roads compared to England Avg	The buffer is located wholly within Kent, where the number of people who are killed or seriously injured on the roads is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The A251, A254 and A255 are listed as some of the most dangerous roads in the country. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The University of Kent is located within the corridor buffer, which has potential to benefit from the positive effects of future developments within the corridor.	+
		Planned Major Employment Areas	There are several major employment developments planned along the corridor. The largest development (2,500-5,000) is planned outside of Woodchurch. Smaller developments (250-2,500) are planned in Herne Bay, Faversham and Ramsgate. These areas have potential to benefit from the positive effects associated with future developments within the corridor.	+
		International Companies	There are no major international companies located within the corridor buffer, therefore, no sensitivities have been identified.	0

SE2: A28/A299/Chatham Main Line (Faversham – Ramsgate)				Corridor Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		Priority Sector Areas	The western part of the corridor buffer is located within the transport and logistics priority sector, which has potential to benefit from the positive effects associated with future development within the corridor.	+

Table A.3: Assessment of Strategic Corridor SE3

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
Natural Capital and Ecosystem Services	Biodiversity	SAC	There are eight SACs located within the corridor, all of which are located within the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The south eastern edge of the corridor buffer intersects the Dungeness, Romney Marsh and Rye Bay SPA site. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The north western part of the corridor buffer (located outside of the south east boundary) intersects the Lee Valley SPA site. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		SSSI	There are 70 SSSI sites located within the corridor buffer, of which 13 are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are three NNRs located within the corridor buffer; Lydden Temple Ewell, Wye and Swanscombe Skull Site. These sites all could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	The south eastern part of the corridor buffer intersects the Dover to Folkestone MCZ, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Historic Environment	World Heritage Sites	Although located outside of the south east boundary, the corridor buffer intersects the Palace of Westminster, Westminster Abbey and St. Margaret's Church, the Tower of London and Maritime Greenwich, all of which are listed as world heritage sites. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Scheduled Monuments	There are 312 scheduled monuments located within the corridor buffer, a number of which are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Historic Parks & Gardens	There are 132 listed parks and gardens located within the corridor buffer, a number of which are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 742 ancient woodland sites located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been identified.	0
		AONB	The majority of the corridor buffer, which is located within the south east boundary, intersects the Kent Downs AONB. This area could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	The south eastern edge of the corridor buffer intersects the South Foreland and Dover to Folkstone heritage coast areas, both of which could be sensitive to potential negative effects from future developments within the corridor	-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Greenbelt	The north eastern half of the corridor buffer intersects the London Area Greenbelt land. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the North Downs Way, which has potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor is varied. Non-agricultural and urban land classification are more prominent around the towns of Maidstone, Dartford, Aylesford, Folkstone, Dover, Ashford and the Greater London area. Between these main settlements land varies between grades 1 to 4, with the best and most versatile land located south west of Dartford, areas around Maidstone and between Maidstone and Folkstone. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 289 ground source protection zones within the corridor buffer. Of these zone, 146 are classed as zone 1s (highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Flood Zone	The corridor buffer intersects 38 flood zones, which are spread the length of the corridor. Of these flood zones, 18 are flood zone 3s and 20 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are 54 AQMAs located within the corridor buffer. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	The corridor buffer intersects the Greater London and Medway flood risk areas. These are areas described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-
		Per Capita Emissions	The corridor buffer is located in Kent local authority district, where per capita emissions are significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita	+/-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			emissions. (It should be noted that per capita emissions data used, does not extend beyond the south east boundary)	
	Noise	Noise Action Important Areas	The corridor buffer intersects the Greater London Urban and The Medway Towns noise action areas. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Deprivation across the corridor buffer is varied. The north western areas, located within the Greater London Area (outside of the south east boundary) are generally more deprived than other areas within the corridor, with a high number of LSOAs located within the top 10% of deprived neighbourhoods in the country. Areas around Rochester, Folkstone, Dover and Maidstone also have a number of LSOAs within the top 10% of deprived neighbourhoods in the country. Between these urban areas, deprivation is lower, with some LSOAs located around Sittingbourne, Maidstone, Sevenoaks and Meopham within the top 10% of least deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are 21 major housing developments planned along the corridor, all of which are likely to benefit from the positive effects of future developments within the corridor.	+

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
	Health	IMD - Health	Health deprivation across the corridor buffer is varied. The north western areas, located within the Greater London Area (outside of the south east boundary) are generally more deprived than other areas within the corridor, with a high number of LSOAs located within the top 10% of deprived neighbourhoods in the country. Areas around Rochester, Folkstone, Dover and Maidstone also have a number of LSOAs within the top 10% of deprived neighbourhoods in the country. Between these urban areas, deprivation is lower, with the majority of the LSOAs amongst the top 10% of least deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The buffer is located within Kent and Medway, where the percentage of physically active adults is similar to the national average in Medway and significantly better in Kent. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data only includes those local authority areas located within the south east study area)	+/-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		Excess Weight in Adults (18+ yrs.) 2016/17	The buffer is located within both Medway and Kent, where the number of adults with excess weight is significantly worse than the national average in Kent and similar in Medway. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development. (It should be noted that this data only includes those local authority areas located within the south east study area)	-
	Community Safety	IMD - Crime	Crime deprivation across the corridor buffer is varied. The north western areas, located within the Greater London Area (outside of the south east boundary) are generally more deprived than other areas within the corridor, with a high number of LSOAs located within the top 10% of deprived neighbourhoods in the country. Areas around Dartford, Ashford, Rochester, Gravesend, Folkstone, Charing Dover and Maidstone also have a number of LSOAs within the top 10% of deprived neighbourhoods in the country. Between these urban areas, deprivation is generally lower, with some LSOAs located around Sittingbourne, Plaxol, Maidstone, Kings Hill and Mersham within the top 10% of least deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		KSI Casualties on England Roads compared to England Avg	The number of people who are killed or seriously injured on the roads is significantly worse than the national average in Kent and significantly better in Medway. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data only includes those local authority areas located within the south east study area)	+/-
		EuroRAP Road Safety	Sections of the A20 (south of Ashford) and the M20 (north of Wrotham as well as the A274, A259, A2033 and A2034. are listed as some of the most dangerous roads in the country. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The Ebbsflet Garden City enterprise zone, Innovation Park, Ken Medical Campus, Ford Halstead and the East Malling Research Station are all located within the corridor buffer. These assets all have potential to benefit from future developments along the corridor.	+
		Planned Major Employment Areas	There are 44 major employment sites planned across the corridor, the most significant of which are located in Swanscombe, where over 15,000 jobs could be provided. These sites have potential to be benefit from the positive effects arising from future developments along the corridor.	+

SE3: M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) - 10km				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		International Companies	Laing o Rourke and FM Conway are the only major international companies located within the corridor buffer, both of which are likely to benefit from future developments within the corridor.	+
		Priority Sector Areas	The corridor buffer is almost entirely located within the transport and logistics priority sector area. This priority sector is likely to benefit from the positive effects associated with future developments along the corridor.	+

Table A.4: Assessment of Strategic Corridor SE4

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects the Hastings Cliffs SAC which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The south eastern edge of the corridor buffer intersects the Dungeness, Romney Marsh and Rye Bay SPA. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	There are no Ramsar sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		SSSI	31 SSSI sites located within the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are no NNR sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Marine Conservation Area	The south western edge of the corridor buffer intersects the Beachy Head MCA. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Historic Environment	World Heritage Sites	There are four world heritage sites located within the corridor; Tower of London, Maritime Greenwich, Palace of Westminster, Westminster Abbey and St. Margaret's Church. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Scheduled Monuments	There are 130 scheduled monuments located within the corridor buffer. These monuments could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 99 historic parks and gardens located within the corridor, which could be sensitive to potential negative effects arising from future developments within the corridor.	-

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Historic Battlefields	The historic battlefield of the Battle of Hastings (1066) is located within the corridor buffer. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ancient Woodlands	There are 822 ancient woodland sites located within the corridor. These woodland sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been recorded.	0
		AONB	The corridor buffer intersects both the High Weald and the Kent Downs AONBs. These sites could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		Heritage coasts	There are no heritage coast sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Greenbelt	The buffer intersects the London area greenbelt, which have potential to be sensitive to the negative effects associated with future development within the corridor.	-
		National trails	The corridor buffer intersects both the North Downs Way and the Thames Path National Trails. There is potential for these national trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	Agricultural land across the corridor is varied. A high proportion of the land is classed as grade 3 (good quality), however there are areas of grade 2 (high quality) land located outside of Tonbridge, north of Sevenoaks. Urban and non-agricultural land becomes more prominent in the northern parts of the corridor buffer where the corridor crosses into Greater London, as well as smaller pockets around Sevenoaks, Royal Tonbridge Well, Tonbridge and Hastings. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure	+/-

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	
	Water Environment	Ground Source Protection Zone	The corridor buffer crosses 163 ground source protections zones, of which 64 are zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer crosses seven flood zone 2s and eight flood zone 3s. These zones have potential to be sensitive to the negative effects of future developments within the corridor.	-
Other Sustainability Components	**Air**	AQMA	The corridor buffer passes through 25 AQMAs, the majority of which are located outside of the south east area, within Greater London. Just five AQMAs are located within the south east boundary. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	The corridor buffer intersects the two flood risk areas; however, it should be noted that both areas are located outside of the south east boundary, in Greater London. These areas have potential to be sensitive to the negative effects of future developments within the corridor.	-

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Per Capita Emissions	The corridor buffer is located within East Sussex and Kent where per capita emissions are better than national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions (It should be noted that per capita emissions data used, does not extend beyond the south east boundary).	+/-
	Noise	Noise Action Important Areas	There are three noise sensitive areas located within the corridor buffer, two are located within Greater London, whilst one is located in Hastings and Bexhill. There is potential for the NIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Deprivation across the corridor buffer is varied. The middle section deprivation is low with some LSOAs amongst the least deprived neighbourhoods in the country. However, as the buffer extends towards Hastings in the south east and Greater London in the north west, high levels of deprivation become more prominent. A high number of these LSOAs are amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There is one major housing development planned (250-1,000 new homes) on the outskirts of Bexhill. This development has potential to benefit from the positive effects associated with future development within the corridor.	+

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Health	IMD - Health	Health deprivation across the corridor buffer is varied. The middle section deprivation is low with some LSOAs amongst the least deprived neighbourhoods in the country. However, as the buffer extends towards Hastings in the south east and Greater London in the north west, high levels of deprivation become more prominent. A high number of these LSOAs are amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The corridor buffer is located within East Sussex and Kent. Physical activity levels in East Sussex is similar to the national average, whereas Kent is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the current low levels of activity in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development. (It should be noted that physically the active adults data used, does not extend beyond the south east boundary).	+/-

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Excess Weight in Adults (18+ yrs.) 2016/17	Adults with excess weight in East Sussex is significantly better than the national average, whilst Kent is significantly worse than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development. (It should be noted that the physically active adults data used, does not extend beyond the south east boundary).	+/-
	Community Safety	IMD - Crime	Crime deprivation across the corridor buffer is varied. In the south eastern section deprivation is low, however, as the buffer towards Hastings high levels of deprivation become more prominent. The further the buffer extends into greater London (outside of the south east boundary) the greater the levels of crime deprivation become, with a high number LSOAs amongst the top 10% of most deprived neighbourhoods in the country. There are pockets of high deprivation located around Royal Tonbridge Wells and Tonbridge. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in both Kent and East Sussex is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-

SE4: A21/South Eastern Main Line (Hastings – Sevenoaks)				Buffer Distance: 6km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		EuroRAP Road Safety	Sections of the A21 and A2101 are listed as some of the most high risk roads in the country. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	Ford Halstead Defence Science and Technology Laboratory (Dstl) Research Site is located within the corridor. This site has potential to be sensitive to the positive effects of future development within the corridor. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+
		Planned Major Employment Areas	There are six planned major employment areas located within the corridor buffer, the majority of which are located within Hastings and Bexhill. These sites have potential to benefit from the positive effects of future development within the corridor. (It should be noted that this data excludes Greater London which is beyond the south boundary)	+
		International Companies	FM Conway is the only major international company located within the corridor buffer. The company has potential to be sensitive to the positive effects of future development within the corridor (it should be noted that this data excludes Greater London which is beyond the south east boundary).	+
		Priority Sector Areas	The corridor buffer is located within the Transport and Logistics priority sector area. This area has potential to benefit from the positive effects associated with future development within the corridor.	+

Table A.5: Assessment of Strategic Corridor SC1

SC1: A22/A264/Oxted Line (Crawley – Eastbourne)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects that Ashdown Forest SAC, which has potential to be sensitive to the negative effects arising from future development within the corridor.	-
		SPA	The corridor buffer intersects that Ashdown Forest SPA, which has potential to be sensitive to the negative effects arising from future development within the corridor.	-
		Ramsar	There are no Ramsar sites located within the corridor buffer. No sensitivity recorded.	0
		SSSI	There are 14 SSSI sites located within the corridor buffer, all of which have the potential to be sensitive to the negative effects arising from future developments within the corridor buffer.	-
		NNR	There are no NNRs located within the corridor buffer. No sensitivity is recorded.	0
		Marine Conservation Area	The southern tip of the corridor buffer intersects the Beachy Head East MCZ, which has the potential to be sensitive to the negative effects arising from future developments within the corridor buffer.	-
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer. No sensitivity has been recorded.	0
		Scheduled Monuments	There are 39 scheduled monuments located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development within the corridor buffer.	-
		Historic Parks & Gardens	There are 5 historic parks and gardens located within the corridor buffer, all of which could be sensitive to the negative effects arising from future development within the corridor.	-
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivity has been recorded.	0
		Ancient Woodlands	There are 441 ancient woodland sites located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development within the corridor buffer.	-

SC1: A22/A264/Oxted Line (Crawley – Eastbourne)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Landscape & Townscape	National Parks	The southern section of the corridor buffer passes through the South Downs National Park, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the park boundary.	-
		AONB	The northern part of the corridor buffer intersects the High Weald AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	There are no areas of greenbelt located within the corridor buffer, therefore no sensitivities have been identified.	0
		National trails	The southern part of the corridor buffer intersects the South Downs Way, which has potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is generally graded 3-4 (good/moderate - poor). Areas around Crawley, Eastbourne, Wych Cross, Ringles Wood and Eastbourne are described as non-agricultural and urban grades. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-

SC1: A22/A264/Oxted Line (Crawley – Eastbourne)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Water Environment	Ground Source Protection Zone	There are 9 ground source protection zones within the corridor buffer. Of these zone, 3 are classed as zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	There are 13 flood zones that cross the corridor buffer - 6 flood zone 3s and 7 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are no AQMAs located within the corridor buffer. No sensitivities have been recorded.	0
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer. No sensitivity is recorded.	0
		Per Capita Emissions	The corridor straddles both East and West Sussex. Per capita emissions in East Sussex are significantly better than the national average, whilst per capita emissions are similar to the national average in West Sussex. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	The corridor buffer intersects the Crawley NAIA in the north and the Eastbourne NAIA in the south. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-

SC1: A22/A264/Oxted Line (Crawley – Eastbourne)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Population & Equality	IMD - Overall Deprivation	Overall deprivation across the whole corridor buffer is low, with the majority of LSOAs being amongst the top 10% of LSOAs in the country. There is one LSOA in Eastbourne within the top 10% of most deprived neighbourhoods and two in the top 20%. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are two planned housing developments located within the corridor buffer - one in Uckfield and one north of Eastbourne. Both developments have potential to benefit from the positive effects associated with future development.	+
	Health	IMD - Health	Health deprivation across the whole corridor buffer is low, with the majority of LSOAs being amongst the top 10% of LSOAs in the country. There is one LSOA in Eastbourne within the top 10% of most deprived neighbourhoods and three in the top 20%. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults across the corridor buffer is similar in East Sussex and significantly better in West Sussex. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of adults deemed to have excess weight across the corridor buffer is significantly better in East Sussex and similar in West Sussex. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could	+/-

SC1: A22/A264/Oxted Line (Crawley – Eastbourne)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	
	Community Safety	IMD - Crime	Crime deprivation cross the corridor buffer is low, with the majority of LSOAs being amongst the top 10% of LSOAs in the country. There are two LSOAs in Eastbourne within the top 10% of most deprived neighbourhoods and four in the top 20%. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in both East and West Sussex, is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	A275 and A259 are listed as some of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are no major economic assets located within the corridor buffer. No sensitivities have been recorded.	0
		Planned Major Employment Areas	There are two planned major housing developments within the corridor buffer. These are both likely to benefit from the positive effects associated with future development within the corridor buffer.	+
		International Companies	There are no major international companies located within the corridor buffer. No sensitivities have been recorded.	0

SC1: A22/A264/Oxted Line (Crawley – Eastbourne)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Priority Sector Areas	The northern part of the corridor buffer is located within the advanced engineering and manufacturing and financial and professional services sectors. Both sectors are likely to benefit from the positive effects associated with future developments within the corridor.	+

Table A.6: Assessment of Strategic Corridor SC2

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects three SACs; Castle Hill, Lewes Downs and Mole Gap to Reigate Escarpment. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor does not go through any SPAs, therefore no sensitivities have been identified.	0
		Ramsar	The corridor buffer does not go through any Ramsar sites; therefore, no sensitivities have been identified.	0
		SSSI	The corridor buffer intersects 35 SSSIs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	The corridor buffer intersects two National Nature Reserves; Castle Hill and Lewes Downs (Mount Caburn), both of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	There is one Marine Conservation Zone located within the corridor, Beachy Head West, which could be sensitive to potential negative effects arising from future developments within the corridor.	-

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Historic Environment	World Heritage Sites	There are no world heritage sites located along the corridor, therefore no sensitivities have been identified.	0
		Scheduled Monuments	There are 297 scheduled monuments located within the corridor, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 96 historic parks and gardens located across the corridor, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There is one historic battlefield in the east of the corridor, on the outskirts of Lewes (Battle of Lewes 1264). This site which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ancient Woodlands	There are 761 ancient woodlands sites across the entire length of the corridor, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The southern section of the corridor buffer passes through the South Downs National Park, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the park boundary.	-
		AONB	The corridor buffer passes through the High Weald AONB, and the Surrey Hills AONB. These areas could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		Heritage coasts	A small section in the southern section of the lies within the Sussex Heritage Coast, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Greenbelt	The middle section of the corridor buffer crosses greenbelt land belonging to 7 local authorities. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the South Downs Way National Trail, North Downs Way National Trail and the Thames Path National Trail. There is potential for both trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g.	+/-

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. Low grades (grades 4, 5, urban and non agricultural grades) are more prevalent in the urban areas of Brighton, Hove, Crawley, Burgess Hill, Haywards Heath, Horley, Reigate and Greater London. Between these areas, grades vary between 2 and 5, with the best and most versatile land lying north of Brighton. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 94 Ground Water Protection Zones across the corridor, mainly in the southern and norther sections. These include 48 Zone 1s (areas with the highest risk of contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects a large number of areas which have been designated as either Flood Zone 2s or Flood Zone 3s, which are spread across the entire length of the corridor. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability	**Air**	AQMA	The corridor buffer passes through 34 AQMAs, the majority of which are mainly concentrated around the London area, in the northern section of the corridor. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Climate Change	Flood Risk Areas	There are Flood Risk Areas in the northern section (surrounding London) and the northern section (surrounding Brighton) of the corridor. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-
		Per Capita Emissions	The corridor buffer passes through the authority areas of Brighton, West Sussex, East Sussex and Surrey, where per capita emissions are either better or similar to the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	The corridor buffer passes through three noise sensitive areas; Brighton and Hove, Crawley Urban Area and Greater London. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	In general, the overall deprivation across the corridor buffer low. The majority of LSOAs are within the top 10%, 20% and 30% least deprived neighbourhoods. However, high deprivation is noted surrounding London and Croydon. Those areas within Greater London considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are 20 planned major housing developments across the length of the corridor, the largest of which is in West Sussex aiming to deliver more than 5,001 homes. These developments are likely to benefit from the potential positive effects of future developments within the corridor.	+

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
	Health	IMD - Health	The majority of the corridor buffer passes through LSOAs in the top 10% and 20% of least deprived neighbourhoods in the country, with regards to health. Higher levels of deprivation are noted within Greater London, where a number of LSOAs are located within the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	Physical activity across the four authority areas is either similar or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	Adults with excess weight across the four authority areas is either similar or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
	Community Safety	IMD - Crime	The level crime deprivation across the corridor buffer is varied. High levels of deprivation are noted within the London, Crawley, Blectchingly and Brighton, whilst the rest of the corridor buffer is less deprived.	+/-

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
			Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the four authority areas. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes Greater London which is beyond the south boundary)	+/-
		EuroRAP Road Safety	The corridor buffer intersects the A27, A217, A259, A2021 and the A264, which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are four key economic assets across the corridor, including two university campuses, one research facilities and one enterprise zone. These assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There are 20 major employment developments planned across the length of the corridor, the largest is located in West Sussex (1,001- 2,500 jobs). These developments have potential to benefit from the positive effects associated with future developments.	+
		International Companies	There are four international companies based across the corridor, both located just outside Crawley, with two in the finance sector and within the professional services sector. These companies have potential to benefit from the positive effects associated with future developments.	+

SC2: A23-M23/Brighton Mainline				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Priority Sector Areas	The corridor buffer is comprised of three priority sector areas - transport and logistics and financial and professional services and advanced engineering and manufacturing. These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Table A.7: Assessment of Strategic Corridor SC3

SC3: A24/A264/Arun Valley Line (Crawley – Fontwell)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There are two SACs located within the corridor buffer; Arun Valley and Duncton to Bignor Escarpment. Both of these sites have potential to be negatively affected by future development across the corridor.	-
		SPA	The Arun Valley SPA site is the only SPA located within the corridor buffer. This site has the potential to be negatively affected by future development within the corridor.	-
		Ramsar	The Arun Valley Ramsar site is the only SPA located within the corridor buffer. This site has the potential to be negatively affected by future development within the corridor.	-
		SSSI	There are 26 SSSI sites located within the corridor buffer. All of which have potential to be negatively affected by future developments within the corridor.	-
		NNR	There are no NNRs located within the corridor buffer. No sensitivities have been identified.	0
		Marine Conservation Area	There are no MCAs located within the corridor buffer. No sensitivities have been identified.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer. No sensitivities have been identified.	0

SC3: A24/A264/Arun Valley Line (Crawley – Fontwell)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Scheduled Monuments	There are 73 scheduled monuments located within the corridor buffer, all of which could be sensitive to the negative effects associated with future developments within the corridor.	-
		Historic Parks & Gardens	There are 12 historic parks and gardens located within the corridor buffer. These sites could be sensitive to the negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivities have been identified.	0
		Ancient Woodlands	There are 365 ancient woodland sites located within the corridor buffer. These sites have potential to be sensitive to the negative effects associated with future development.	-
	Landscape & Townscape	National Parks	The southern section of the corridor buffer passes through the South Downs National Park, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the park boundary.	-
		AONB	The northern part of the corridor buffer is situated in the High Weald AONB. These areas could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	The northern tip of the corridor buffer intersects part of the London Area Greenbelt. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the South Downs Way, which has potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-

SC3: A24/A264/Arun Valley Line (Crawley – Fontwell)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. Areas in the north particularly around Crawley and Horsham are described as having urban and non-agricultural grades. The best and most versatile soils are found in the south around the areas of Barnham, Eastergate and Yapton. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 48 ground source protection zones located within the corridor buffer. These include 19 Zone 1s (areas with the highest risk of contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	There are 50 flood zones that cross the corridor buffer - 24 flood zone 3s and 26 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability	**Air**	AQMA	There are two AQMAs located in the corridor buffer; one in Crawley and one in Storrington. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer. No sensitivity is recorded.	0

SC3: A24/A264/Arun Valley Line (Crawley – Fontwell)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Per Capita Emissions	The corridor buffer is located within the West Sussex and Surrey authority areas. Per capita emissions are similar to the national average in West Sussex and better in Surrey. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	The corridor buffer intersects the Brighton/Worthing/Littlehampton NAIA in the south and the Crawley Urban Area NAIA in the north. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Overall deprivation is generally low across the corridor, with the majority of LSOAs being amongst the top 10% of least deprived neighbourhoods in the country. There is one LSOA in Bognor Regis which is amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are 16 planned housing developments across the corridor buffer, the largest developments of which are located in Bognor Regis, Littlehaven and Crawley. These developments are likely to benefit from the positive effects associated with future developments within the corridor buffer.	+/-

SC3: A24/A264/Arun Valley Line (Crawley – Fontwell)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Health	IMD - Health	Health deprivation is generally low across the corridor, with the majority of LSOAs being amongst the top 10% of least deprived neighbourhoods in the country. There is one LSOA in Bognor Regis and one in Littlehampton which are amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in both West Sussex and Surrey is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of adults that have excess weight in West Sussex is similar to the national average, whilst the percentage in in Surrey is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
	Community Safety	IMD - Crime	Crime deprivation is varied across the corridor. Higher levels of deprivation are seen in Crawley and littlehampton, whilst deprivation between these main settlements is much lower. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SC3: A24/A264/Arun Valley Line (Crawley – Fontwell)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		KSI Casualties on England Roads compared to England Avg	The percentage of people killed or seriously injured in both local authority areas is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments	+/-
		EuroRAP Road Safety	The A27 the A272 which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are no major economic assets located within the corridor buffer. No sensitivities have been recorded.	0
		Planned Major Employment Areas	There are 11 major employment developments planned across the corridor, the majority of which are located around Crawley. These developments have potential to benefit from the positive effects associated with future developments.	+
		International Companies	There are three major international companies based in Crawley; Lloyds Bank, Grant Thornton and KPMG. These companies have potential to benefit from the positive effects associated with future developments.	+
		Priority Sector Areas	The northern part of the corridor buffer is located within the advanced engineering and manufacturing and financial and professional services sectors. Both of these sectors are likely to benefit from the positive effects associated with future developments within the corridor.	+

Table A.8: Assessment of Strategic Corridor SW1

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There are 7 SACs located across the corridor buffer, all of which have the potential to be negatively affected by future development within the corridor.	-
		SPA	There are 6 SPAs located across the corridor buffer, all of which have the potential to be negatively affected by future development within the corridor.	-
		Ramsar	There are 4 Ramsar sites located across the corridor buffer, all of which have the potential to be negatively affected by future development within the corridor.	-
		SSSI	There are 35 SSSI sites located across the corridor buffer, all of which have the potential to be negatively affected by future development within the corridor.	-
		NNR	There are 3 NNRs located within the corridor buffer; Butster Hill, Ashford Hangers and Thursley. These sites have potential to be sensitive to the negative effects associated with future developments within the corridor.	-
		Marine Conservation Area	The very southern tip of the corridor buffer intersects the Bembridge MCA. This site has potential to be sensitive to the negative effects associated with future developments within the corridor.	-
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer. No sensitivity has been recorded.	0

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Scheduled Monuments	There are 110 scheduled monuments located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development.	-
		Historic Parks & Gardens	There are 24 historic parks and gardens located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development.	-
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivities have been identified.	0
		Ancient Woodlands	There are 200 ancient woodland sites located within the corridor buffer. These sites have potential to be sensitive to the negative effects associated with future development.	-
	Landscape & Townscape	National Parks	The corridor buffer passes through the South Downs National Park, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the park boundary.	-
		AONB	The corridor buffer intersects the Surrey Hills and Isle of Wight AONBs. These areas could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Greenbelt	The northern part of the corridor buffer intersects a large section of the London Area Greenbelt. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the South Downs Way and the North Downs Way national trails, both of which have potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	Agricultural land across the corridor buffer is generally good to poor, with a prominence of non-agricultural, urban and Grades 3, 4 and 5s. There is one small pocket south of Havent which is classed as being a high quality (grade 1). Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 43 ground source protection zones located within the corridor buffer. These include 16 Zone 1s (areas with the highest risk of contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Flood Zone	There are 50 flood zones that cross the corridor buffer - 27 flood zone 3s and 23 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are eight AQMAs located within the corridor buffer, the majority of which are located in Portsmouth. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer. No sesitivity is recorded.	0
		Per Capita Emissions	The corridor buffer intersects five local authority areas; Surrey, Hampshire, West Sussex, Portsmouth and the Isle of Wight. Per capita emissions across these authority areas is either significantly better or similar to the national average. Per capita emission within the corridor have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Noise	Noise Action Important Areas	The corridor buffer intersects the Greater London Urban Area NAIA in the north and the Portsmouth Urban Area NAIA in the south. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Overall deprivation in those LSOAs north of Portsmouth, is low, with a high number of the LSOAs making up the top 10% of the least deprived neighbourhoods in the country. Conversly deprivation in Portsmouth and on the Isle of Wight is considerably higher. The corridor buffer intersects 19 LSOAs in Portsmouth and 2 on the Isle of Wight that are amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are 12 planned housing developments located across the corridor, the majority of which are located in Portsmouth. These housing developments are likely to benefit from the positive effects associated with future development within the corridor.	+
	Health	IMD - Health	Health deprivation in those LSOAs north of Portsmouth, are very low, with the majority of the LSOAs making up the top 10% of the least deprived neighbourhoods in the country. Conversly deprivation in Portsmouth and on the Isle of Wight is considerably higher. The corridor buffer intersects 17 LSOAs in Portsmouth that are amongst the top 10% of most deprived neighbourhoods in the country.	+/-

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults across the five authority areas is either significantly bettter, or similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of adults that have excess weight, across the five authority areas is either significantly bettter, or similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Community Safety	IMD - Crime	Crime deprivation is varied across the corridor buffer, with pockets of deprivation found in Woking, Guildford and Ryde. Crime deprivation is more dominant in Portsmouth and Havant, with the majority of the LSOAs in amongst the top 10% of most deprived neighbourhoods in the country. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the five authority areas is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments	+/-
		EuroRAP Road Safety	The A3054, A0355, A3 and the A286 are listed as some of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The University of Portsmouth, the University of Surrey, the 5G innovation centre and the Tech Forest Enterprise Zone are all located within the corridor buffer. These economic assets have the potential to benefit from the positive effects associated with future development within the corridor buffer.	+

SW1: A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Planned Major Employment Areas	There are 31 planned major employment areas across the corridor buffer, the highest density of which are located in Portsmouth and Woking. These areas are likely to benefit from the positive effects associated with future developments within the corridor buffer.	+
		International Companies	There are four major international companies located within the corridor buffer; Ben Anislie Racing, GKN, Airbus and Mott Macdonald. These companies all have the potential to benefit from the positive effects associated with future developments within the corridor buffer.	+
		Priority Sector Areas	The corridor buffer intersects a number of priority sectors; marine, maritime and defence; transport and logistics; advanced engineering and manufacturing; and IT. These sectors are likely to benefit from the positive effects associated with future developments within the corridor.	+

Table A.9: Assessment of Strategic Corridor SW2

SW2: M3/South Western Mainline				**Buffer Distance: 8km**
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects seven SACs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects 5 SPAs; New Forest, Solent and Southampton Water (Within the south east boundary) Lee Valley, Thames Basin Heaths and South West London Waterbodies (outside of the south east boundary). These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	corridor buffer intersects four Ramsar sites; New Forest, Solent and Southampton Water (Within the south east boundary) Lee Valley and South West London Waterbodies (outside of the south east boundary). These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	The corridor buffer intersects 74 SSSIs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are 5 NNR located along the corridor, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	There are no designated Marine Conservation Zones within the corridor buffer, however there is a Proposed Marine Conservation Zone located in the south of the corridor (Yarmouth to Cowes). At present the as the site remains undesignated therefore the sensitivity has been recorded as negligible. However, once the site become designated, there is potential it to be sensitive to the negative effects arising from development within the corridor.	0
	Historic Environment	World Heritage Sites	The Royal Botanical Gardens at Kew (outside of the south east boundary) is the only world heritage site located within the corridor buffer. This site could be sensitive to potential negative effects arising from future developments within the corridor buffer.	-

SW2: M3/South Western Mainline				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Scheduled Monuments	There are 350 scheduled monuments located within the corridor, a number of which are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 168 historic parks and gardens located across the corridor. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefields located across the corridor buffer, therefore no sensitivity has been recorded.	0
		Ancient Woodlands	The corridor and surrounding buffer intersects 75 areas of ancient woodland, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The corridor buffer passes through the South Downs National Park and the New Forest National Park, both of which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		AONB	A small section at the southern end of the corridor lies within the Isle of Wight AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	A small section of the southern end of the corridor buffer (on the Isle of Wight) intersects a heritage coast (Hamstead), which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Greenbelt	The eastern section of the corridor buffer lies within Greenbelt land, managed by 13 local authorities. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the South Downs Way National Trail, as well as the Thames Path. There is potential for both trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-

SW2: M3/South Western Mainline				Buffer Distance: 8km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. Low grades (grades 4, 5, urban and non agricultural grades) are more prevalent around the major towns and cities of Southampton, Cowes, Winchester, Eastleigh, Basingstoke, Fleet, Farnborough, Woking, Epsom and Greater London. The best and most versatile land is located between Basingstoke and Southampton, which is predominantly comprised of grade 3 land, with pockets of grades 1 and 2. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 122 Ground Water Protection Zones across the corridor, mainly located around the Winchester area. These include 51 Zone 1s (areas with the highest risk of contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects a large number of areas which have been designated as either Flood Zone 2s or Flood Zone 3s, which are spread across the entire length of the corridor. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other	**Air**	AQMA	The corridor buffer passes through 55 AQMAs, which are mainly concentrated around the Greater London Area. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-

SW2: M3/South Western Mainline				Buffer Distance: 8km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
	Climate Change	Flood Risk Areas	The eastern section of the corridor buffer lies within a large Flood Risk Area located around London. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-
		Per Capita Emissions	The corridor buffer crosses the authority areas of the Isle of Wight, Southampton, Hampshire, Bracknell Forest, Surrey and Windsor and Maidenhead, where per capita emissions are either better or similar to the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	The corridor buffer passes through five noise sensitive areas. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	In general, the overall deprivation across the corridor buffer quite varied. Low levels of deprivation are noted in Winchester, Kingsworthy and Kingston Upon Thames (top 10% least deprived). However, there are also LSOAs around London and Southampton in particular, that are amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SW2: M3/South Western Mainline				Buffer Distance: 8km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		Planned Housing Developments	There are 28 major housing developments planned across the whole length of the corridor, the largest of which is located outside Farnborough, delivering 1,501-2,500 new homes. All other developments aim to deliver between 0- 1,500 new homes. These developments are likely to benefit from the potential positive effects of future developments within the corridor.	+
	Health	IMD - Health	The majority of the corridor buffer passes through LSOAs in the top 10% or 20% of least deprived neighbourhoods in the country, with regards to health. However, areas around Southampton and London, that feature amongst the top 10% of most deprived LSOAs in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	Physical activity across the six authority areas is either considered similar or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	Adults with excess weight across the six authority areas is either considered similar or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-

SW2: M3/South Western Mainline				Buffer Distance: 8km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
	Community Safety	IMD - Crime	The level crime deprivation across the corridor buffer is varied. High levels of deprivation are noted within London and Southampton (top 10% most deprived). Low levels of deprivation are noted in Winchester, Upton Grey and Kingsworthy (top 10% least deprived). Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the six authority areas varies. In Hampshire, Surrey, Southampton and the Isle of Wight, the number is significantly worse than the national average. Bracknell Forest is significantly better than the national average, whilst Windsor and Maidenhead is similar. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
		EuroRAP Road Safety	The corridor buffer intersects the A272, A3054 and A335 which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are 15 key economic assets across the corridor, including 5 university campuses, 7 research facilities and 3 enterprise zones. These assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There are several major employment developments planned across the length of the corridor, the largest is Basingstoke Garden Town (10,000+). These developments have potential to benefit from the positive effects associated with future developments.	+

SW2: M3/South Western Mainline				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		International Companies	There are 5 international companies based across the corridor, of which 2 are in the marine maritime sector, 2 in the defence sector and 1 in the Data and IT sector. These companies have potential to benefit from the positive effects associated with future developments.	+
		Priority Sector Areas	The corridor buffer is comprised of 5 priority sector areas - Marine, maritime and defence, transport and logistics and financial and professional services, advance engineering and manufacturing and IT. These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Table A.10: Assessment of Strategic Corridor SW3

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and	**Biodiversity**	SAC	There are no SACs located within the corridor buffer, therefore no sensitivities have been identified.	0
		SPA	The Thames Basin Heaths SPA is located within the corridor buffer, which has potential to be sensitive to the negative effects associated with future developments within the corridor buffer.	-
		Ramsar	There are no Ramsar sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		SSSI	There are 15 SSSI sites located within the corridor buffer all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	Castle Bottom NNR is located within the corridor buffer, and has potential to be sensitive to the negative effects associated with future development within the corridor.	-

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Marine Conservation Area	There are no MCAs located within the corridor buffer, therefore no sensitivities have been identified.	0
	Historic Environment	World Heritage Sites	There are no world heritage located within the corridor buffer, therefore no sensitivities have been identified.	0
		Scheduled Monuments	There are 32 scheduled monuments located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 18 historic parks and gardens located within the corridor buffer, that could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 229 ancient woodland sites located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been identified.	0
		AONB	A small part of the western edge of the buffer intersects the North Wessex Downs AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	The northern part of the corridor buffer intersects a section of the London Area Greenbelt. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		National trails	The Thames Path is intersected in the northern part of the corridor buffer. The path has potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. In between the urban areas of Reading and Basingstoke, the soils vary between grades 2 and 4. The best and most versatile land is located towards the east of Basingstoke where grades 2 can be found. Some grade 2 soils can also be found around Bramley. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 22 ground source protection zones within the corridor buffer, of which 7 are classed as zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 53 flood zones, which are spread the length of the corridor. Of these flood zones, 32 are flood zone 3s and 21 flood zone 2s. These zones have potential to be sensitive to negative effects of future developments within the corridor.	-
Other	**Air**	AQMA	There are three AQMAs located within the corridor buffer; one encompasses the whole of Reading, one incorporates much of the M4 that cross cuts the corridor buffer and the other is in Wokingham. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by	+/-

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore, no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor buffer intersects the Hampshire, West Berkshire, Reading, Wokingham, Bracknell Forest and Winsor and Maidenhead authority areas. Per capita emissions across these authority areas is either significantly better or similar than the national average, with the exception of West Berkshire, where per capita emissions are significantly worse than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	+/-
	Noise	Noise Action Important Areas	The Reading and Wokingham NAIA is located in the north of the corridor buffer. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Overall deprivation across the corridor buffer is relatively low, with the majority of the comprising LSOAs being ranked within the top 10% of least deprived neighbourhoods in the country. There are two LSOAs in Reading that feature amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from	+/-

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		Planned Housing Developments	There are nine planned housing developments located within the corridor buffer, the largest of which is located in Basingstoke. These developments are likely to benefit from the positive effects associated with future developments within the corridor.	+
	Health	IMD - Health	Health deprivation across the corridor buffer is low, with the majority of the LSOAs in the corridor buffer amongst the top 10% of least deprived neighbourhoods in the country. There is one LSOA located in Reading that is amongst the top 20% of least deprived neighbourhoods in the country. It is therefore deemed that neighbourhoods within the corridor will be less sensitive to changes in transport, therefore no effects have been identified.	0
		Percent Physically Active Adults (19+yrs) 2016/17	The number of physically active adults across the six authority areas within the buffer, is either similar or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The number of adults with excess weight across the six authority areas within the buffer, is either similar or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also	+/-

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	
	Community Safety	IMD - Crime	Crime deprivation across the corridor buffer is varied. There are four LSOAs (two in Reading and two in Basingstoke) amongst the top 10% of most deprived neighbourhoods in the country, and 9 in the top 20% of most deprived (four in Basingstoke, four in Reading and one in West Green). Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of physically active adults across the six authority areas varies; West Berkshire and Winsor and Maidenhead are similar to the national average, Wokingham, Reading and Bracknell Forest is better than the national average, whilst Hampshire is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential that this receptor will be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	There are no roads within the corridor buffer that have been identified as high risk roads in terms of safety, therefore no sensitivities have been recorded.	0
	Economy	Economic Assets	The University of Reading and Basing View Enterprise zone are both located within the corridor, and both could benefit from future developments within the corridor buffer.	+
		Planned Major Employment Areas	There are 11 major employment areas planned across the corridor buffer; one in Basingstoke. Two in Chineham, one on Shinfield and six in Reading. These employment sites have potential to benefit from future development within the corridor.	+
		International Companies	There are two major international companies based in the economic corridor; Oracle and Microsoft. Both companies are likely to benefit from future developments within the corridor.	+

SW3: A33/Basingstoke – Reading Line (Basingstoke – Reading)			Buffer Distance: 6km	
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Priority Sector Areas	There are three priority sectors that intersect the corridor buffer; IT, advance engineering and manufacturing and marine. Maritime and defence. These priority sectors are likely to benefit from the positive effects associated with future developments along the corridor.	+

Table A.11: Assessment of Strategic Corridor SW4

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)			Buffer Distance: 10km	
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem	**Biodiversity**	SAC	There are six SACs located across the corridor buffer; Kennet and Lambourn Floodplain, River Lambourn, Kennet Valley Alderwoods and River Itchen, which are located within the south east boundary, whilst Little Wittenham, and Cothill Fen are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	There are no SPA sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ramsar	The corridor does intersect any Ramsar sites, therefore no sensitivities have been identified.	0
		SSSI	The corridor buffer intersects 58 SSSIs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are two NNR located within the corridor buffer; Ashford Hill is located within the south east boundary, whilst Cothill is located south of Oxford, outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Marine Conservation Area	There are no MCAs located within the corridor buffer, therefore no sensitivities have been recorded.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Scheduled Monuments	There are 282 scheduled monuments located within the corridor, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 20 historic parks and gardens located across the corridor, with one (Nuneham Courtenay) located outside of the south east boundary. which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are two historic battlefield sites locate across the corridor buffers; The Battle of Cheriton (1644) and The Battle of Newbury (1643). Both sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ancient Woodlands	There are 808 ancient woodlands sites across the entire length of the corridor, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The corridor buffer passes through the South Downs National Park which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within its boundary.	-
		AONB	The corridor buffer intersects the North Wessex Downs AONB. This area could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within its boundary.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Greenbelt	The northern part of the corridor buffer, located outside of the south boundary, intersects part of the Oxford Greenbelt. Despite being located outside of the south east boundary, the land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the Ridgeway National Trail and the Thames Path in the north and the South Downs National Trail in the south. There is potential for these trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is predominantly good (grade 3), with the best and most versatile land being located north of Newbury, where grade 3 soils are interbedded with grade 2 soils. Soils types are poorer or classed as urban and non-agricultural, around the main settlements of Newbury, Andover and Winchester. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 89 Ground Water Protection Zones across the corridor, mainly located around the Winchester area. These include 37 Zone 1s (areas with the highest risk of contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	There are five large flood zone areas located across the corridor buffer, which is comprised of both flood zone 2 and 3 areas. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Other Sustainability Components	**Air**	AQMA	There are six AQMAs located within the corridor buffer; one in Eastleigh, one in Winchester, one in Newbury, one in Thatcham and two located outside on the south east boundary in of Marcham and Abingdon. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore, no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor buffer is located across the authority areas of Hampshire and West Berkshire. Per capita emissions are similar to the national average in Hampshire and significantly worse in West Berkshire. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions. (it should be noted that per capita emissions data has only been used for those authority areas located within the south east boundary)	+/-

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Noise	Noise Action Important Areas	The corridor buffer intersects the Southampton Urban Area NAIA. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Overall deprivation across the corridor buffer is relatively low, with the majority of LSOAs being amongst the top 10 and 20% of least deprived neighbourhood in the country. There is one LSOA in Newbury that is amongst the top 20% of most deprive neighbourhoods in the country. Given the low levels of deprivation, the corridor has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0
		Planned Housing Developments	There are four planned major housing developments across the length of the corridor, the majority of which are located in Andover. These developments are likely to benefit from the potential positive effects of future developments within the corridor.	+
	Health	IMD - Health	Health deprivation is significantly low across the corridor buffer, with the majority of LSOAs being amongst the top 10% of least deprived neighbourhoods in the country. Given the low levels of deprivation, the corridor buffer has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults across the two local authority areas within the corridor buffer, is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes areas beyond the south east boundary)	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The number of adult with excess weight across the two local authority areas within the corridor buffer, is similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes areas beyond the south east boundary)	+/-
	Community Safety	IMD - Crime	Crime across the corridor buffer is varied. Crime within the towns of Andover and Newbury is generally higher than the rural areas between them. There are no LSOAs amongst the top 10% of most deprived neighbourhoods in the country but eight are in the top 20%. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SW4: A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester)				Buffer Distance: 10km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in West Berkshire is similar to the national average, whilst the number in Hampshire is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes areas beyond the south east boundary)	+/-
		EuroRAP Road Safety	The A34, A342 and A272 are both listed as some of the most dangerous roads in the country. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	University of Winchester, Chilbolton Observatory (Atmospheric and radio) and the International Seismological Centre (Earthquakes) are all located within the corridor buffer. These assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There are four major employment developments planned across the length of the corridor, all of which have potential to benefit from the positive effects associated with future developments.	+
		International Companies	There are no major international companies based within the corridor buffer. No sensitivities have been identified.	0
		Priority Sector Areas	The corridor buffer is comprised of three priority sector areas - transport and logistics, IT and marine maritime and defence These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Table A.12: Assessment of Strategic Corridor SW5

SW5: A36/Wessex Main Line (New Forest)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There are two SACs located within the corridor buffer; The New Forest and Solent Maritime. Both sites have the potential to be sensitive to the negative effects associated with future development within the corridor.	-
		SPA	There are two SACs located within the corridor buffer; The New Forest and Solent & Southampton Water. Both sites have the potential to be sensitive to the negative effects associated with future development within the corridor.	-
		Ramsar	There are two Ramsar sites located within the corridor buffer; The New Forest and Solent & Southampton Water. Both sites have the potential to be sensitive to the negative effects associated with future development within the corridor.	-
		SSSI	There are four SSSI sites located within the corridor buffer; Southampton Common, The New Forest, the River Test and the Lee-on-the Solent to Itchen Estuary. These sites all have the potential to be sensitive to the negative effects associated with future development.	-
		NNR	There are no NNRs located within the corridor buffer. No sensitivities have been identified.	0
		Marine Conservation Area	There are no MCAs located within the corridor buffer. No sensitivities have been identified.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer. No sensitivities have been identified.	0
		Scheduled Monuments	There are 35 scheduled monuments located within the corridor buffer. All of these sites have the potential to be negatively affected by future developments within the corridor.	-
		Historic Parks & Gardens	There are two historic parks and gardens located within the corridor buffer; Central Parks and Southampton Cemetery. Both sites have the potential to be sensitive to the negative effects associated with future development within the corridor.	-

SW5: A36/Wessex Main Line (New Forest)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivities have been identified.	0
		Ancient Woodlands	There are 12 ancient woodland sites located within the corridor buffer. These sites have potential to be sensitive to the negative effects associated with future development.	-
	Landscape & Townscape	National Parks	The north west part of the corridor is located within the New Forest National Park, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the park boundary.	-
		AONB	There are no AONBs located within the corridor buffer. No sensitivities have been identified.	0
		Heritage coasts	There are no heritage coast areas located within the corridor buffer. No sensitivities have been identified.	0
		Greenbelt	There are no greenbelt areas located within the corridor buffer. No sensitivities have been identified.	0
		National trails	There are no national trails located within the corridor buffer. No sensitivities have been identified.	0
	Soils & Resources	Agricultural Land Classification	Agricultural land across the corridor buffer is generally low, with a prominence of non-agricultural, urban and Grades 4 and 5s. There is one small pocket south of Romsey which is classed as being a good quality (grade 2). Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are no ground source protection zones located within the corridor buffer. No sensitivity has been recorded.	0

SW5: A36/Wessex Main Line (New Forest)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Flood Zone	There are 31 flood zones that cross the corridor buffer of which 16 flood zone 3s 15 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are ten AQMAs located within the corridor buffer, all of which are located within Southampton. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer. No sensitivity is recorded.	0
		Per Capita Emissions	The corridor buffer is located within Hampshire and Southampton local authority areas. Per capita emissions in Hampshire are similar to the national average, whilst emission in Southampton are significantly better. Per capita emission within the corridor have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	+/-
	Noise	Noise Action Important Areas	Almost half of the corridor buffer is located within the Southampton Urban Area NAIA. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-

SW5: A36/Wessex Main Line (New Forest)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Population & Equality	IMD - Overall Deprivation	There is a clear split between those LSOAs located in Hampshire compared to those located in Southampton. Deprivation is significantly higher in Southampton than in Hampshire, with the majority of the LSOAs in amongst the top 10-20% of deprived neighbourhoods in the country. Conversely, Hampshire has some of the least deprived neighbourhoods in the country. Those areas in Southampton considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are four planned housing developments located within the corridor buffer, all of which are located in Southampton. These developments are likely to benefit from the positive effects associated with future developments within the corridor.	+
	Health	IMD - Health	Again, there is a clear split between those LSOAs located in Hampshire compared to those located in Southampton. Health Deprivation is significantly higher in Southampton than in Hampshire, with the majority of the LSOAs in amongst the top 10-20% of deprived neighbourhoods in the country. Conversely, Hampshire has some of the least deprived neighbourhoods in the country. Those areas in Southampton considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults within Kent is significantly higher than the national average in Kent and similar in Southampton. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-

SW5: A36/Wessex Main Line (New Forest)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of adults described as having excess weight across the two authority areas is similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
	Community Safety	IMD - Crime	Crime deprivation is fairly high across the whole corridor, with the majority of LSOAs being amongst the top 10% of most deprived neighbourhoods in the country. Given the high levels of deprivation recorded across the corridor buffer those areas of considered to be highly deprived are likely to be more sensitive to negative effects arising from future developments.	-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the two local authority areas is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	There are no roads across the corridor buffer that are deemed to be significantly dangerous, therefore no sensitivity has been recorded.	0
	Economy	Economic Assets	There are two universities and one research centre located within the corridor buffer. These assets have the potential to benefit from the positive effects associated with future development within the corridor.	+
		Planned Major Employment Areas	There are 12 major employment developments planned across the corridor, the majority of which are located in Southampton. These developments have potential to benefit from the positive effects associated with future developments.	+

SW5: A36/Wessex Main Line (New Forest)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		International Companies	Cunard is the only major international company located within the corridor buffer. The company has potential to be sensitive to the positive effects of future development within the corridor.	+
		Priority Sector Areas	There are two priority sectors located within the corridor buffer; marine, maritime and defence and transport and logistics. These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Table A.13: Assessment of Strategic Corridor SW6

SW6: A303/West of England Main Line (Andover – Basingstoke)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem	**Biodiversity**	SAC	The corridor buffer intersects the Salisbury Plain SAC, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects the Salisbury Plain SPA and Porton Down SPA. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	There are no Ramsar sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		SSSI	There are 11 SSSI sites located within the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are no NNRs located within the corridor buffer, therefore no sensitivities have been recorded.	0

SW6: A303/West of England Main Line (Andover – Basingstoke)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Marine Conservation Area	There are no MCAs located within the corridor buffer, therefore no sensitivities have been recorded.	0
	Historic Environment	World Heritage Sites	Although it falls beyond the south east boundary, Stonehenge is included within the western part of the corridor buffer. This world heritage site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Scheduled Monuments	The are 484 scheduled monuments located within the corridor buffer, which all could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	The are 14 historic parks and gardens located within the corridor buffer, which all could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefields located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Ancient Woodlands	There are 19 ancient woodland sites located within the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been recorded.	0
		AONB	The northern edge of the corridor buffer intersects the North Wessex Downs AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the AONB boundary.	-
		Heritage coasts	There are no heritage coast sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Greenbelt	There are no areas of greenbelt located within the corridor buffer, therefore no sensitivities have been recorded.	0
		National trails	There are no national trails located within the corridor buffer, therefore no sensitivities have been recorded.	0

SW6: A303/West of England Main Line (Andover – Basingstoke)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Soils & Resources	Agricultural Land Classification	The majority of the land located within the corridor buffer is classed as grade 3 (good quality), however there are some pockets of grade 2 (high quality) land located outside of Basingstoke, north of Andover and south of Dorrington. Urban and non agricultural land is located around Andover, Basingstoke, Amesbury, Dorrington and Tidworth. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 51 ground source protection zone located within the south of the buffer, which includes 30 zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The buffer intersects 13 flood zone 2s and 13 flood zone 3s. These areas have potential to be sensitive to the negative effects of future developments within the corridor.	-
Other Sustainability	**Air**	AQMA	There are no AQMAs located within the corridor buffer, therefore no sensitivities have been recorded.	0
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor buffer is located wholly in Hampshire where per capita emissions are similar to the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel	+/-

SW6: A303/West of England Main Line (Andover – Basingstoke)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	
	Noise	Noise Action Important Areas	There are no noise important areas located within the corridor buffer, therefore no sensitivities have been recorded.	0
	Population & Equality	IMD - Overall Deprivation	The majority of the corridor buffer is comprised of LSOAs within the top 10-20% of least deprived neighbourhoods in the country. There are 12 LSOAs (mainly in Basingstoke and Andover) that fall within the top 30% of most deprived neighbourhoods in the country and one LSOA in Andover in the top 20% of deprived LSOAs. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are eight planned housing developments across the corridor buffer, the largest of which are located in Picket Piece and Worting. These developments have potential to benefit from the positive effects of future developments within the corridor.	+
	Health	IMD - Health	With regards to health the corridor buffer has low levels of deprivation, with the majority of the buffer comprising of LSOAs within the top 10% of least deprived neighbourhoods in the country. There are eight LSOAs across the corridor buffer (predominantly in Basingstoke and Andover) that fall amongst the top 30% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising	+/-

SW6: A303/West of England Main Line (Andover – Basingstoke)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		Percent Physically Active Adults (19+yrs) 2016/17	The corridor buffer is located wholly in Hampshire where the percentage of physically active adults are similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	Excess weight in adults across Hampshire is similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
	Community Safety	IMD - Crime	Levels of crime deprivation across the corridor buffer is varied. The towns of Amesbury, Andover and Basingstoke have higher levels of deprivation, with two neighbourhoods in Basingstoke amongst the top 10% of deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SW6: A303/West of England Main Line (Andover – Basingstoke)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		KSI Casualties on England Roads compared to England Avg	The buffer is located wholly within Hampshire, where the number of people who are killed or seriously injured on the roads is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The A3026, A343, A33, A3010 and A340 all fall within the corridor buffer. These roads are listed as some of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The Chilbolton Observatory and the Basing View Enterprise Zone are both located within the corridor. These economic assets both have potential to benefit from the positive effects of future developments within the corridor.	+
		Planned Major Employment Areas	There are four planned major employment areas within the corridor buffer - Andover business Park, Basingstoke Garden Town, Scott House and land north of Whitchurch. These sites have potential to benefit from the positive effects associated with future development within the corridor.	+
		International Companies	There are no major international companies located within the corridor buffer, therefore no sensitivities have been identified.	0
		Priority Sector Areas	The eastern edge of the corridor buffer intersects three priority sectors; IT, Marine, Maritime and Defence and Advanced Engineering and Manufacturing. These priority sectors have potential to benefit from the positive effects of future development within the corridor.	+

Table A.14: Assessment of Strategic Corridor SW7

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects seven SACs; Hartslock Wood, Wimbledon Common, Richmond Park and parts of Kennet & Lambourn Floodplain are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects the Thames Basin Heaths and South West London Waterbodies SPAs. Both sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The corridor buffer intersects the South West London Waterbodies Ramsar site, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	The corridor buffer intersects 112 SSSI's, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	The corridor buffer does not go through any NNRs, therefore no sensitivities have been recorded.	0
		Marine Conservation Area	There are no marine conservation areas within the corridor buffer, therefore no sensitivities have been recorded.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located along the corridor, therefore no sensitivities have been recorded.	0
		Scheduled Monuments	There are 88 scheduled monuments located within the corridor, with a high number located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 155 historic parks and gardens located across the corridor, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There is one historic battlefield on the outskirts of Newbury, (Battle of Newbury 1643) which could be sensitive to potential negative effects arising from future developments within the corridor.	-

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Ancient Woodlands	There are 622 ancient woodland sites located within the corridor buffer, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The corridor buffer does not pass through any National Parks, therefore no sensitivities have been recorded.	0
		AONB	The eastern section of the corridor buffer passes through the North Wessex Downs AONB. This area could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	The corridor buffer does not intersect a heritage coast, therefore no sensitivities have been recorded.	0
		Greenbelt	The eastern part of the corridor buffer crosses greenbelt land belonging to six local authorities. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundaries.	-
		National trails	The western section of the corridor buffer intersects the Ridgeway National Trail. There is potential for the Ridgeway Trail to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. The eastern part (located outside of the south east boundary) is predominantly urban, but there are some patches of grade 1 (best and most versatile) located west of Slough. The further west, the less urban the land classification becomes and much of the soils are dominated by grade 2 and 3. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of	+/-

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	
	Water Environment	Ground Source Protection Zone	The majority of the corridor buffer intersects a number of ground source protection zones, which includes numerous Zone 1's (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects a large number of areas which have been designated as either Flood Zone 2s or Flood Zone 3s, which are spread across the entire length of the corridor. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability	**Air**	AQMA	The corridor buffer passes through 46 AQMAs. The majority of these are located within London, in the eastern section of the corridor. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	The eastern section of the corridor buffer intersects the Greater London Flood Risk. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Per Capita Emissions	The corridor buffer is located across the authority areas of Hampshire, West Berkshire, Reading, Wokingham, Windsor and Maidenhead, Bracknell Forest, Surrey, Slough and Buckinghamshire, where per capita emissions vary. All authority areas are either significantly better than the national average or similar, with the exception of Bracknell Forest, where per capita emissions are considerably worse than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions. (it should be noted that per capita emissions data has only been used for those authority areas located within the south east boundary)	+/-
	Noise	Noise Action Important Areas	The corridor buffer passes through three noise sensitive areas; Reading and Wokingham, Slough Urban Area and Greater London. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	In general, the overall deprivation across the corridor buffer varied. However, there are LSOAs around London and reading that are amongst the top 10% of most deprived neighbourhoods in the country. Low deprivation is noted around Twickenham, Richmond and the area surrounding Wokingham. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)			Buffer Distance: 8km	
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Planned Housing Developments	There are a ten major housing developments planned across the whole length of the corridor; Nine are planned to deliver less than 1,000 homes, whilst One in Slough is slightly larger, delivering 1,001- 1,500 homes. These developments have potential to benefit from the positive effects associated with future developments.	+
	Health	IMD - Health	The majority of the corridor buffer passes through LSOAs in the top 10% of least deprived neighbourhoods in the country, with regards to health. Given the low levels of deprivation, the corridor has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0
		Percent Physically Active Adults (19+yrs) 2016/17	Physical activity across the corridor buffer is classed as either significantly better than the national average or similar, the only exception is in Slough, where levels of inactivity is high and significantly worse than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport, worsening the current situation in Slough. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	Adults with excess weight across the eight authority areas is either similar to or significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)				Buffer Distance: 8km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Community Safety	IMD - Crime	The level crime deprivation across the corridor buffer is varied, albeit generally high. High levels of deprivation are noted within London especially. Given the high levels of deprivation recorded across the corridor those areas of considered to be highly deprived are likely to be more sensitive to negative effects arising from future developments.	-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the eight authority areas, is either significantly better or similar to the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
		EuroRAP Road Safety	The corridor buffer intersects the A329 and the A4, which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are three university campuses, eight research facilities across the length of the corridor. These assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There are 17 smaller (potential to create 250- 1,000 jobs) across the length of the corridor. There is one (located in Slough) with the potential to create between 1,001 and 2,500 jobs. These developments have potential to benefit from the positive effects associated with future developments.	+
		International Companies	There are six international companies based across the corridor, of which all six are in the data and IT sector. These companies have potential to benefit from the positive effects associated with future developments.	+

SW7: M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough)				Buffer Distance: 8km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		Priority Sector Areas	The corridor buffer is comprised of four priority sector areas - Transport and logistics, financial and professional services, advanced engineering and manufacturing and IT. These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Table A.15: Assessment of Strategic Corridor IO1

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
Natural Capital and Ecosystem Services	Biodiversity	SAC	The corridor buffer intersects two SACs; Windsor Forest & Great Park and Mole Gap to Reigate Escarpment. Both SACs could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects two SPAs; Thames Basin Heaths and South West London Waterbodies. Both SPAs could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The South West London Waterbodies Ramsar is intersected by the M25 corridor. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	The corridor buffer intersects 44 SSSI sites, of which 12 are located outside of the south east boundary. These SSSI sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	Ashtead Common is the only national nature reserve within the corridor buffer. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Marine Conservation Area	There are no marine conservation areas within the corridor buffer, therefore no sensitivities have been identified.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located along the corridor, therefore no sensitivities have been identified.	0
		Scheduled Monuments	There are 88 scheduled monuments located within the corridor buffer, of which seven are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 22 historic parks and gardens located across the corridor. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefields located across the corridor, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 113 ancient woodlands sites located within the corridor buffer, of which 45 sites are located outside of the south east boundary. These could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The corridor buffer does not pass through any National Parks, therefore no sensitivities have been identified.	0
		AONB	The eastern section of the corridor buffer passes through the Surrey Hills AONB, whilst the western section of the corridor buffer passes through the Kent Downs AONB. These areas could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		Heritage coasts	The corridor buffer does not intersect a heritage coast, therefore no sensitivities have been identified.	0
		Greenbelt	Almost the entire length of the corridor buffer crosses greenbelt land belonging to 22 local authorities. This land could be sensitive to potential negative effects arising from future	-

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
			developments within the corridor, particularly if new developments arise within the greenbelt boundaries.	
		National trails	The corridor buffer intersects the Thames Path and the North Downs Way. There is potential for the North Downs Way and the Thames Path to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The land across the corridor buffer is predominantly urban or non-agricultural. Between the larger towns the land is generally grade 3 (good) but there are some smaller pockets of higher grades 1 and 2, located south of Dartford, north of Sevenoaks and east of Slough. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There is a large number of Ground Source Protection Zones across the entire length of the corridor, which include Zone 1's (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects a large number Flood Zone 3s, and Flood Zone 2s which are spread across the entire length of the corridor. There is a high density within the eastern section of the corridor. These zones have potential to be sensitive to the negative effects associated with future development,	-
Other	**Air**	AQMA	The corridor buffer passes through 37 AQMAs. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current	+/-

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
	ISA Topic	Spatial Indicator	Description	Sensitivity Score
			situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	
	Climate Change	Flood Risk Areas	The northern edge of the corridor buffer intersects the Greater London Flood Risk Area at multiple points. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-
		Per Capita Emissions	The corridor buffer intersects the authority areas of Slough, Windsor and Maidenhead, Kent and Surrey, where per capita emissions are considered to be significantly better than the national average, with the exception of Windsor and Maidenhead, where per capita emissions are similar to the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	The corridor buffer intercepts three Noise Sensitive Areas. These are Greater London Urban Area, Slough Urban Area and Crawley Urban Area. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	In general, the overall deprivation across the corridor buffer varied. There are LSOAs around Dartford and Crockenhill are amongst the top 10% of deprived neighbourhoods in the country. There are however, a greater number of LSOAs within the corridor buffer that are amongst the top 10% least deprived in the country. This includes areas around Tadworth, Lower Kingswood and Leatherhead.	-

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
			Given the high levels of deprivation recorded across the corridor buffer those areas of considered to be highly deprived are likely to be more sensitive to negative effects arising from future developments.	
		Planned Housing Developments	There are four major housing developments planned across the whole length of the corridor, the largest located in Ockham (between 1,001- 1,500 new homes). There are three others which plan for less than 1,000 new homes. These developments have potential to benefit from the positive effects associated with future developments.	+
	Health	IMD - Health	The health deprivation across the corridors is generally low. The majority of the corridor buffer passes through LSOAs in the top 10%, 20% and 30% of least deprived neighbourhoods in the country, with regards to health. Given the low levels of deprivation, the corridor has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0
		Percent Physically Active Adults (19+yrs) 2016/17	Physical activity across the corridor buffer is mixed. The authorities of Windsor and Maidenhead, Kent and Surrey are considered to be significantly better than the national average, whilst they are significantly worse in Slough. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the current low levels of activity in Slough, it is likely that the authority area could be more sensitive to the potential negative effects of development. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	-

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		Excess Weight in Adults (18+ yrs.) 2016/17	Adults with excess weight across the corridor buffer is either significantly better than or similar to the national average, with the exception of Slough and Kent, where excess weight is significantly worse. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the current high levels of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	-
	Community Safety	IMD - Crime	The level crime deprivation across the corridor buffer is varied. High levels of deprivation are noted within Warwick Wold, Darenth and Dartford. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change. Sensitivity of this receptor would be highly dependent upon where development takes place.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the corridor buffer is varied. The authority area of Slough is significantly better than the national average, whilst Winsor and Maidenhead is similar to the national average. Both Surrey and Kent are significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-

IO1: M25 (Dartford – Slough)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		EuroRAP Road Safety	The corridor buffer intersects the A4, A2044, A242 and the A313 which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	Royal Holloway University and the Ford Halstead (research site of Dslt) is located within the corridor. Both assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There are 21 major employment developments planned across the length of the corridor, which all comprise of smaller developments (250-1,000 jobs). These developments have potential to benefit from the positive effects associated with future developments within the corridor.	+
		International Companies	There is one international company (Laing o Rourke) located along the corridor, which has potential to benefit from the positive effects associated with future developments within the corridor.	+
		Priority Sector Areas	The corridor buffer is comprised of four priority sector areas; advanced engineering and manufacturing, transport and logistics, financial and professional services and IT. These sectors have potential to benefit from future developments within the corridor.	+

Table A.16: Assessment of Strategic Corridor IO2

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	North Downs Woodlands is the only SAC located within the corridor buffer. This site has the potential to be sensitive to the negative effects arising as a result of development.	-
		SPA	There are four SPA sites located within the corridor buffer; Medway Estuary and Marshes, the Swale, Thames Estuary and Marshes and the Outer Thames Estuary. These sites all have the potential to be sensitive to the negative effects arising from future development.	-
		Ramsar	There are three Ramsar sites located within the corridor buffer; Medway Estuary and Marshes, the Swale and the Thames Estuary and Marshes. These sites have the potential to be sensitive to the negative effects arising as a result of development.	-
		SSSI	There are 10 SSSI sites located within the corridor buffer, all of which has the potential to be sensitive to the negative effects arising from future development within the corridor buffer.	-
		NNR	There are two NNRs located within the corridor buffer; High Halstow and Elmley. Both of these sites have the potential to be sensitive to the negative effects arising from future development within the corridor buffer.	-
		Marine Conservation Area	There are two marine conservation zones located within the corridor buffer; Medway Estuary and The Swale Estuary, both of which have the potential to be sensitive to the negative effects arising from future developments within the corridor buffer.	-

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer. No sensitivity has been recorded.	0
		Scheduled Monuments	There are 89 scheduled monuments located within the corridor buffer, all of which have the potential to be sensitive to the negative effects arising as a result of future development within the corridor buffer.	-
		Historic Parks & Gardens	There are three historic parks and gardens located within the corridor buffer; Leeds Castle, Mote Park and The Officer's Terrace. These sites have the potential to be sensitive to the negative effects arising as a result of future development.	-
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivity has been recorded.	0
		Ancient Woodlands	There are 109 ancient woodland sites located within the corridor buffer, all of which have the potnetial to be sensitive to the negative effects associated with future development within the corridor buffer.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer. No sensitivity has been recorded.	0
		AONB	The corridor buffer intersects the Kent Downs AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	A small part of the north western part of the corridor buffer intersects the London Area Greenbelt. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the North Downs Way, which has potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land within the corridor buffer is varied. The best and most versitle land is found in Cooling, Upper Stoke, Newington, Bobbing, Oad Street and Tunstall. Poorer grades are found around the the Medway and the Swale Estuaries. The settlements of Chatham, Gillingham, Maidstone, Sittingbourne, Sheerness and Queenborough are described as having urban and non-agricultural grades. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Water Environment	Ground Source Protection Zone	There are 22 ground source protection zones within the corridor buffer. Of these zone, 12 are classed as zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	Much of the central part of the corridor is dominated by flood zones 3 in the Medway and Swale estuaries. Additional flood zone 3s and 2s are found in Chatham, Sittingbourne and Maidstone. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are seven AQMAs located within the corridor buffer, the majority of which are clustered around Maidstone, Chatham and Gillingham. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There is one large flood risk area located around Chatham and Gillingham. These are areas described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	+/-
		Per Capita Emissions	The corridor buffer is located in the authority districts of Kent and Medway, where per capita emissions are significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative	+/-

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions. (It should be noted that per capita emissions data used, does not extend beyond the south east boundary)	
	Noise	Noise Action Important Areas	The is one large noise action area located around Chatham and Rochester. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Overall deprivation across the corridor buffer is varied, with high levels noted in Chatham, Rochester, Sittingbourne and Sheerness. Lower levels of deprivation are noted on the outskirts of Maidstone and Sittingbourne. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are ten major housing developments planned across the corridor buffer. These developments are likely to benefit from the positive effects arising from future developments within the corridor.	+
	Health	IMD - Health	Levels of health deprivation across the corridor buffer are low, with a high number of LSOAs located within the top 10% of least deprived neighbourhoods in the country. However, there are some LSOAs located in the top 10% of most deprived neighbourhood in the country, these are predominantly located in Chatham and Sheerness.	+/-

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in Medway is similar to the national average, whilst in Kent the percentage is significantly better. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of adults considered to have excess weight in Kent is significantly worse than the national average, whilst the figure is similar to the national average in Medway. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the current high levels of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	-
	Community Safety	IMD - Crime	Crime deprivation across the corridor buffer is high, with the majority of LSOAs being located within the top 10% and 20% of the most deprived neighbourhoods in the country. Conversely, there are 11 LSOAs located within the top 10% of least deprived neighbourhoods in the country. Given levels of deprivation across the	-

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			corridor, there is potential that those LSOAs that are significantly deprived to be more sensitive to the negative effects associated with future development.	
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the corridor, is significantly worse than the national average in Kent and better than the national average in Medway. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments. (It should be noted that this data excludes Greater London which is beyond the south east boundary)	+/-
		EuroRAP Road Safety	The A249, A226 and the A274 are considered to be some of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The Ken Medical Practice is the only key economic asset located within the corridor buffer. This asset is likely to benefit from the positive effects associated form future development within the corridor.	+
		Planned Major Employment Areas	There are 24 major employment developments planned across the corridor. The largest of which are located in Wallend, Kingsnorth and Rushenden. These areas are likely to benefit from the positive effects associated with future development within the corridor buffer.	+

IO2: A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
		International Companies	Kings Ferry is the only major international company located within the corridor buffer. The company has potential to be sensitive to the positive effects of future development within the corridor.	+
		Priority Sector Areas	The corridor buffer is comprised of one priority sector areas (transport and logistics) which has potential to benefit from the positive effects associated with future developments.	+

Table A.17: Assessment of Strategic Corridor IO3

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		Spatial Indicator	Description	Sensitivity Score
Natural Capital and Ecosystem	Biodiversity	SAC	The corridor buffer intersects two SACs; Peters Pit and North Downs Woodlands. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	There are no SPAs located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Ramsar	There are no Ramsar sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		SSSI	There are eight SSSI sites located across the corridor buffer; Cobham Woods, Halling to Trottiscliffe Escarpment, Holborough to Burham Marshes, Peter's Pit, Wouldham to Detling Escarpment, Aylesford Pit, Allington Quarry and Allington Quarry. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		NNR	There are no NNRs located within the corridor buffer, therefore no sensitivities have been identified.	0
		Marine Conservation Area	There are no MCAs located within the corridor buffer, therefore no sensitivities have been identified.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Scheduled Monuments	There are 29 scheduled monuments located within the corridor buffer, all of which have potential to be sensitive to the negative effects arising from future developments along the corridor.	-
		Historic Parks & Gardens	The corridor buffer intersects the Mote Park (Grade II listed), located in the south east of Maidstone. The park could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 37 ancient woodland sites located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been identified.	0
		AONB	The corridor buffer intersects the Kent Downs AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Greenbelt	The northern part of the corridor buffer intersects the London Area Greenbelt land. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the North Downs Way, which has potential to benefit from both the negative and positive effects of future developments, but would be dependent on the nature of the proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor is varied. In between the urban areas of Maidstone, Larkfield, Rochester and Chatham, the soils vary between grades 1 and 4. The best and most versatile land is located around Maidstone, where grades 1 and 2 can be found. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 38 ground source protection zones within the corridor buffer. Of these zone, 16 are classed as zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 19 flood zones, which are spread the length of the corridor. Of these flood zones, 8 are flood zone 3s and 11 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Other Sustainability Components	**Air**	AQMA	There are six AQMAs located within the corridor buffer. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	The corridor buffer intersects the Medway flood risk area. These are areas described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-
		Per Capita Emissions	The corridor buffer intersects the local authority areas of Kent and Medway, where per capita emissions are significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions. (It should be noted that per capita emissions data used, does not extend beyond the south east boundary)	+/-
	Noise	Noise Action Important Areas	The northern part of the corridor buffer intersects the Medway Towns noise action important area. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Population & Equality	IMD - Overall Deprivation	Overall deprivation within the corridor is varied. Seven LSOAs located in Chatham are amongst the top 10% of most deprived neighbourhoods in the country, whilst five are in the top 20% of most deprived neighbourhoods. There are also two LSOAs in Rochester and five in Maidstone, that are amongst the top 20% of most deprived neighbourhoods in the country. Conversely, two LSOAs in Aylesford, 17 in Maidstone two in Chatham and one in Rochester, are amongst the top 10% of least deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are five major housing developments planned along the corridor, all of which are likely to benefit from the positive effects of future developments within the corridor.	+
	Health	IMD - Health	Health deprivation within the corridor is relatively low. Two LSOAs located in Chatham, and one in Rochester are amongst the top 10% of most deprived neighbourhoods in the country. Conversely, there are 11 LSOAs across the corridor that are amongst the top 10% of least deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in Medway is similar to the national average, whilst the percentage in Kent is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Excess Weight in Adults (18+ yrs.) 2016/17	The number of adults with excess weight across the corridor buffer is significantly worse than the national average in Kent and similar to the national average in Medway. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the current high levels of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	-
	Community Safety	IMD - Crime	Crime across the corridor is varied, with areas around Chatham, Strood, Maidstone and Rochester, being significantly deprived with regards to crime. There are 19 LSOAs across the corridor buffer that are amongst the top 10% of most deprived neighbourhoods in the country, whilst 22 are amongst the top 20% of deprived LSOAs in the country. Conversely there are eight LSOAs that are amongst the top 10% of least deprived neighbourhoods in the country. Given the high levels of deprivation recorded across the corridor buffer those areas of considered to be highly deprived are likely to be more sensitive to negative effects arising from future developments.	-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in Kent is significantly worse than the national average, whilst in Medway (northern part of the corridor) those killed or seriously injured is significantly better. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential that this receptor will be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The A274 located south of Maidstone, is listed as one of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-

IO3: A228/A229/Medway Valley Line (Maidstone – Medway Towns)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Economy	Economic Assets	There are two enterprise zones located within the corridor buffer; Innovation Park (near Rochester Airport) and Ken Medical Campus (north of Wavering). These zones are likely to benefit from the positive effects associated with future developments arising along the corridor.	+
		Planned Major Employment Areas	There are 13 major employment developments planned along the corridor, which are likely to benefit from the positive effects of future developments within the corridor.	+
		International Companies	There are no major international companies located within the corridor buffer, therefore no sensitivities have been identified.	0
		Priority Sector Areas	The corridor buffer is almost entirely located within the transport and logistics priority sector area. This priority sector is likely to benefit from the positive effects associated with future developments along the corridor.	+

Table A.18: Assessment of Strategic Corridor IO4

IO4: Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital	**Biodiversity**	SAC	The corridor buffer intersects the Wye and Crundale Downs SAC in the south east . This SAC could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	There are no SPAs located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Ramsar	There are no Ramsar located within the corridor buffer, therefore no sensitivities have been recorded.	0

IO4: Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		SSSI	There are eight SSSIs located within the corridor buffer, that could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	The Wye National Nature Reserve is located within the corridor. This site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	There are no MCAs located within the corridor buffer, therefore no sensitivities have been recorded.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer, therefore no sensitivities have been recorded.	0
		Scheduled Monuments	There are 12 scheduled monuments located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are eight historic parks and gardens located within the corridor buffer, that could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 612 ancient woodland sites located within the corridor buffer. These sites all could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been recorded.	0
		AONB	The corridor buffer intersects both the Kent Downs and the High Weald AONBs. These areas could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		Heritage coasts	There are no heritage coasts located within the corridor buffer, therefore no sensitivities have been recorded.	0

IO4: Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Greenbelt	The corridor buffer crosses the London Area Greenbelt which crosses five local authority boundaries. These areas could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		National trails	There are no national trails located within the corridor, therefore no sensitivities have been recorded.	0
	Soils & Resources	Agricultural Land Classification	The agricultural land across the buffer is varied. Non-agricultural and urban land classification are more prominent around the towns of Redhill, Tonbridge and Ashford. Between these main settlements land varies between grades 2 to 4, with the best and most versatile land located between Tonbridge and Ashford. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-
	Water Environment	Ground Source Protection Zone	There are 16 ground source protection zones located within the buffer, of which three are classed as Zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 49 flood zone, which are spread the length of the corridor. Of these flood zones, 27 are flood zone 3s and 22 flood zone 2s. These zones have potential to be sensitive to negative effects of future developments within the corridor.	-
Other	**Air**	AQMA	There are two AQMAs located within the corridor buffer; one located in Redhill and one Tonbridge. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a	+/-

IO4: Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)				Buffer Distance: 2km
	ISA Topic	**Spatial Indicator**	**Description**	**Sensitivity Score**
			negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore, no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor buffer includes both Surry and Kent local authority districts. Both districts have per capita emissions that are significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	+/-
	Noise	Noise Action Important Areas	There is one noise action important areas located within the Crawley Urban Area. There is potential for this NAIA to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Deprivation across the corridor buffer is relatively low. Ashford has the highest amounts of deprivation with eight LSOAs listed amongst the top 20% of deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

IO4: Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Planned Housing Developments	There are two planned major housing developments located within Ashford. These developments have potential to benefit from the positive effects associated with future developments.	+
	Health	IMD - Health	The majority of the LSOAs within the corridor buffer are amongst the top 10% of least deprived neighbourhoods in the country. There are four LSOAs within the corridor which are amongst the top 40% of most deprived neighbourhoods in the country. Given the low levels of deprivation, the corridor has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in Surrey and Kent is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The number adults with excess weight in Surrey is significantly better than the national average, whilst the number in Kent is significantly worse than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	-
	Community Safety	IMD - Crime	Levels of crime deprivation is varied across the corridor buffer. Higher levels of deprivation are seen in Pluckley, Ashford and Nutfield some LSOAs are amongst the top 10% of most deprived neighbourhoods in the country.	+/-

IO4: Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			Those areas around Crawley that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in Surrey is significantly worse than the national average, in both Surrey and Kent. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The A274 crosses into the corridor buffer at Headcorn. This road is listed as one of the most dangerous roads in the country. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are no major economic assets within the corridor buffer, therefore no sensitivities have been recorded.	0
		Planned Major Employment Areas	There are nine major employment sites planned across the corridor buffer. These sites are likely to benefit from the positive effects of future developments within the corridor.	+
		International Companies	Easistore is the only major international company based in the corridor. The company has potential to benefit from the significant positive effects arising from future developments.	+
		Priority Sector Areas	The corridor buffer crosses two priority sectors; advanced engineering and manufacturing and transport and logistics. Both sectors have potential to benefit from positive effects associated with future development.	+

Table A.19: Assessment of Strategic Corridor IO5

IO5: A25/North Downs Line (Guildford – Redhill)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects Mole Gap to Reigate Escarpment SAC, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	There are no SPAs located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ramsar	There are no Ramsar sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		SSSI	There are 11 SSSI sites located within the corridor buffer that could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are no NNRs located within the corridor buffer, therefore no sensitivities have been identified.	0
		Marine Conservation Area	There are no Marine Conservation Areas located within the corridor buffer, therefore no sensitivities have been identified.	0
	Historic Environment	World Heritage Sites	There are no World Heritage Sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Scheduled Monuments	There are 44 scheduled monuments located within the corridor buffer that could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 12 historic parks and gardens located within the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Ancient Woodlands	There are 640 ancient woodland sites located across the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-

IO5: A25/North Downs Line (Guildford – Redhill)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer, therefore no sensitivities have been identified.	0
		AONB	The corridor buffer is located within the Surrey Hills AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the AONB boundary.	-
		Heritage coasts	There are no heritage coast sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	The corridor buffer crosses the London Area Greenbelt which crosses five local authority boundaries. These areas could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		National trails	The North Downs Way National Trail runs the length of the corridor. There is potential for this trail to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is predominantly classed as urban and non-agricultural, particularly around the towns of Guildford, Dorking, Reigate and Redhill. In between these settlements the land varies between grades 3 (good) to 4 (poor). There is one small area of land located east of Guildford of grade 2 quality. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-

IO5: A25/North Downs Line (Guildford – Redhill)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Water Environment	Ground Source Protection Zone	There are 47 ground source protection zones located within the corridor buffer, of which 18 of these are zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 48 flood zone, which are spread the length of the corridor. Of these flood zones, 21 are flood zone 3s and 27 flood zone 2s. These zones have potential to be sensitive to negative effects of future developments within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are 5 AQMAs all of which are located within the eastern part of the corridor buffer. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore, no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor buffer is located in wholly in Surrey where per capita emissions are better than the England average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	+/-
	Noise	Noise Action Important Areas	There are two noise action important areas located within the corridor buffer; Crawley Urban Area and Greater London Urban Area. There is potential for these NAIAs to be sensitive to both	+/-

IO5: A25/North Downs Line (Guildford – Redhill)				Buffer Distance: 4km
	ISA Topic	**Spatial Indicator**	**Description**	**Sensitivity Score**
			negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	
	Population & Equality	IMD - Overall Deprivation	Levels of deprivation across the corridor buffer are relatively low, with 47 LSOAs within the corridor buffer amongst the top 10% of least deprived LSOAs in the country. There are two LSOAs within the corridor buffer which are amongst the top 20% of least deprived neighbourhoods in the country. Given the low levels of deprivation, the corridor has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0
		Planned Housing Developments	There are three planned major housing developments located within the corridor buffer. These sites have potential to benefit from the positive effects associated with future developments within the corridor.	+
	Health	IMD - Health	The majority of the LSOAs within the corridor buffer are amongst the top 10% of least deprived neighbourhoods in the country. There are two LSOAs within the corridor buffer which are amongst the top 30% of most deprived neighbourhoods in the country. Given the low levels of deprivation, the corridor has potential to be more resilient to negative effects associated with future developments, and for this reason a negligible effect has been identified.	0
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in Surrey is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-

IO5: A25/North Downs Line (Guildford – Redhill)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Excess Weight in Adults (18+ yrs.) 2016/17	The number adults with excess weight in Surrey is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	+/-
	Community Safety	IMD - Crime	Crime deprivation in the corridor buffer is generally low however there are two LSOAs (one in Guildford and one in Nutfield) that are amongst the top 10% of most deprived neighbourhoods in the country, and three LSOAs that are amongst the top 20% of deprived neighbourhoods in the country. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in Surrey is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The A248, A217 and A25 are all located within the corridor buffer and all feature as some of the most dangerous roads in the country. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The 5G Innovation Centre and the University of Surrey are both based in the corridor buffer, both od which have potential to benefit from future developments within the corridor.	+

IO5: A25/North Downs Line (Guildford – Redhill)				Buffer Distance: 4km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Planned Major Employment Areas	There are six planned major employment areas located within the corridor buffer, which have potential to benefit from the positive effects associated with future developments within the corridor.	+
		International Companies	There is one major international company located within the corridor buffer, which has potential to benefit from the positive effects associated with future developments within the corridor.	+
		Priority Sector Areas	There are two priority sectors located within the corridor buffer; advanced engineering and manufacturing and transport and logistics. Both of these sectors have potential to benefit from the positive effects arising from future developments within the corridor.	+

Table A.20: Assessment of Strategic Corridor IO6

IO6: A31/A322/A329/A331/North Downs Line (Guildford – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There is one SAC located in the corridor buffer; Thursley, Ash, Pirbright & Chobham. This site has the potential to be sensitive to the negative effects associated with future development.	-
		SPA	The Thames Basin Heath is the only SPA located within the corridor buffer. This site has the potential to be sensitive to the negative effects associated with future development within the corridor.	-
		Ramsar	There are no Ramsar sites located within the corridor buffer. No sensitivity has been recorded.	0
		SSSI	There are 24 SSSI sites located in the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development.	-
		NNR	There are no NNR sites located within the corridor buffer. No sensitivity has been recorded.	0
		Marine Conservation Area	There are no MCA sites located within the corridor buffer. No sensitivity has been recorded.	0
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer. No sensitivity has been recorded.	0
		Scheduled Monuments	There are 45 scheduled monuments located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development within the corridor.	-
		Historic Parks & Gardens	There are 16 listed parks and gardens located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development within the corridor.	-
		Historic Battlefields	There are no historic battlefield sites located within the corridor buffer. No sensitivity has been recorded.	0

IO6: A31/A322/A329/A331/North Downs Line (Guildford – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Ancient Woodlands	There are 174 ancient woodland sites located within the corridor buffer, all of which have the potential to be sensitive to the negative effects associated with future development within the corridor.	-
	Landscape & Townscape	National Parks	There are no historic battlefield sites located within the corridor buffer. No sensitivity has been recorded.	0
		AONB	The southern part of the corridor buffer intersects the Surrey Hills AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the AONB boundary.	-
		Heritage coasts	There are no heritage coast sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	The southern part of the corridor and the eastern flank, intersects a large section of the London Area Greenbelt. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The corridor buffer intersects the North Downs Way National Trail, as well as the Thames Path. There is potential for both trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across most of the corridor buffer is predominantly comprised of urban and non-agricultural grades. There are some pockets of high quality (grade 2) soils on the periphery of the corridor buffer around Twyford, Tongham and West Clandon. Some good to moderate soils (Grade 3) surrounf Guildford and Wokingham. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of	+/-

IO6: A31/A322/A329/A331/North Downs Line (Guildford – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	
	Water Environment	Ground Source Protection Zone	There are 28 ground source protection zones located within the corridor buffer, of which 12 of these are zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 55 flood zone, which are spread the length of the corridor. Of these flood zones, 26 are flood zone 3s and 29 flood zone 2s. These zones have potential to be sensitive to negative effects of future developments within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are 7 AQMAs located across the corridor buffer. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer, therefore, no sensitivities have been recorded.	0
		Per Capita Emissions	The corridor crosses six authority areas; Hampshire, Surrey, Bracknell Forest, Reading, West Berkshire and Winsor and Maidenhead. Per capita emissions across these authority areas is either similar or significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active	+/-

IO6: A31/A322/A329/A331/North Downs Line (Guildford – Reading)				Buffer Distance: 6km
	ISA Topic	**Spatial Indicator**	**Description**	**Sensitivity Score**
			travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	
	Noise	Noise Action Important Areas	There are two NAIAs located in the corridor buffer; Reading/Wokingam, Greater London Urban Area and Aldershor Urban Area. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Deprivation across the corridor buffer is low, with the majority of the LSOAs being amongst thetop 10% of least deprived neighbourhoods in the country. There are three LSOAs amongst the top 20% of least deprived neighbourhoods in the country. It is therefore deemed that neighbourhoods within the corridor buffer will be less sensitive to changes in transport, therefore no effects have been identified.	0
		Planned Housing Developments	There are 11 major housing developments planned across the corridor buffer, the largest development of which is located in Aldershot, which could provide 2,500-5000 new homes. These developments are likely to benefit from positive effects associated with future developments.	+
	Health	IMD - Health	Health deprivation is relatively low within the corridor buffer, with the majority of the LSOAs being amongst the top 10% of least deprived neighbourhoods in the country. There are two LSOAs in Aldershot that are amongst the top 10% of most deprived neighbourhoods in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults	The percentage of physically active adults across the six authority areas is significantly better than the national average, with the exception of Reading, where the figure is similar to the national average.	+/-

IO6: A31/A322/A329/A331/North Downs Line (Guildford – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		(19+yrs) 2016/17	There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	
		Excess Weight in Adults (18+ yrs.) 2016/17	The percentage of physically active adults across the six authority areas is either significantly better than the national average or similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
	Community Safety	IMD - Crime	Crime deprivation is varied across the corridor buffer, with higher levels noted in Reading, Aldershot and Guildford. Rural areas between these main settlements demonstrate lower levels of deprivation. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change. Sensitivity of this receptor would be highly dependent upon where development takes place.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured across the six authority areas is varied. The figures in both Surrey and Hampshire is significantly worse than the national average, whilst levels in Bracknell Forest, Reading and Wokingham is significantly better than the nationala average. Levels in Maidenhead is similar to the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-

IO6: A31/A322/A329/A331/North Downs Line (Guildford – Reading)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		EuroRAP Road Safety	A322 is listed as one of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	The University of Surrey, European Centre for Medium-Range Weather Forecasts, Transport Research Laboratory, Pirbright Institute (Infectious diseases of farm animals) and the 5G innovation centre, are all located within the corridor buffer. These economic assets have potential to benefit from the positive effects associated with future development within the corridor buffer.	+
		Planned Major Employment Areas	There are 17 major employment developments planned across the corridor buffer, all of which have the potential to benefit the positive effects associated with future development within the corridor.	+
		International Companies	There are seven major international companies located within the corridor buffer, all of which have the potential to benefit from the positive effects associated with future developments within the corridor.	+
		Priority Sector Areas	The corridor buffer is comprised of the IT, marine, maritime and defence and the advanced engineering and manufacturing priority sectors. These sectors are likely to benefit from the positive effects associated with future development within the corridor buffer.	+

Table A.21: Assessment of Strategic Corridor OO1

OO1: A28/A290/A291 (Canterbury – Whitstable)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There are two SACs located within the corridor buffer; Blean Complex (two separate sites) and Tankerton Slopes and Swalecliffe. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The northern edges of the corridor buffer intersect the Swale, Outer Thames Estuary and the Thanet Coast and Sandwich Bay SPAs. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The northern edges of the corridor buffer intersect the Swale and the Thanet Coast and Sandwich Bay Ramsar sites, both of which could be sensitive to potential negative effects arising from future development within the corridor.	-
		SSSI	There are two SSSIs located within the corridor buffer; East Blean Woods and West Blean and Thornden Woods, both of which could be sensitive to potential negative effects arising from future development within the corridor.	-
		NNR	There is one NNR located within the corridor buffer (Blean Woods), which is spread over two separate sites. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	The northern edges of the corridor buffer intersect the Thanet Coast MCA (north east) and the Swale MCA (north west). These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Historic Environment	World Heritage Sites	Canterbury Cathedral World Heritage Site is located in the south of the corridor buffer. This world heritage site could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Scheduled Monuments	There are 25 scheduled monuments located within the corridor buffer. These sites have potential to be sensitive to the negative effects arising from future developments.	-

OO1: A28/A290/A291 (Canterbury – Whitstable)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Historic Parks & Gardens	There are no historic parks or gardens located within the corridor buffer. No sensitivity is recorded.	0
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivity is recorded.	0
		Ancient Woodlands	There are 34 ancient woodland sites located within the corridor buffer. These sites have potential to be sensitive to the negative effects arising from future development within the corridor buffer.	-
	Landscape & Townscape	National Parks	There are no national parks located within the corridor buffer. No sensitivity is recorded.	0
		AONB	There are no AONBS located within the corridor buffer. No sensitivity is recorded.	0
		Heritage coasts	There are no heritage coast areas located within the corridor buffer. No sensitivity is recorded.	0
		Greenbelt	There are no greenbelt areas located within the corridor buffer. No sensitivity is recorded.	0
		National trails	The south of the corridor buffer intersects the North Downs Way. There is potential for these national trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land is varied across the corridor buffer. Whitstable, Herne Bay and Canterbury consist of urban and non agricultural grades, whilst areas in between these settlements have higher agricultural land grades. The best and most versatile land is found in east of Herne Bay, south of Canterbury, Honey Hill and Calcott. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-

OO1: A28/A290/A291 (Canterbury – Whitstable)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Water Environment	Ground Source Protection Zone	The corridor buffer intersects three ground source protection zones, of which one is graded as zone 1 (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 9 flood zone 3s and 11 flood zone 2s. These zones have potential to be sensitive to the negative effects of future developments within the corridor.	-
Other Sustainability Components	**Air**	AQMA	There are two AQMAs located within the corridor buffer; one in Canterbury and one south of Herne Bay. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There are no flood risk areas located within the corridor buffer. No sensitivity is therefore recorded.	0
		Per Capita Emissions	The corridor buffer is located wholly in Kent, where per capita emissions are significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions	+/-

OO1: A28/A290/A291 (Canterbury – Whitstable)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Noise	Noise Action Important Areas	There are no noise important areas located within the corridor buffer. No sensitivity is therefore recorded.	0
	Population & Equality	IMD - Overall Deprivation	Overall deprivation across the corridor buffer is relatively low, with five LSOAs located within the top 10% of least deprived neighbourhoods in the country. There are no LSOAs within the top 10% of most deprived neighbourhoods, but there are nine within the top 20%. These LSOAs are predominantly located around Herne Bay and Canterbury. Those areas of considered to be more deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are four major housing developments planned across the corridor; one in Canterbury, one in Sturry and two in Herne Bay. These developments are likely to benefit from the positive effects associated with development.	+
	Health	IMD - Health	High levels of health deprivation are found in Herne Bay and Canterbury, with two LSOAs in the top 10% and 9 LSOAs in the top 20% of most deprived neighbourhoods in the country. Lower levels of deprivation, particularly those in the top 10-20% of least deprived neighbourhoods are found in between the three main settlements. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

OO1: A28/A290/A291 (Canterbury – Whitstable)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Percent Physically Active Adults (19+yrs) 2016/17	The corridor buffer is located wholly in Kent where the percentage of physically active adults is significantly higher than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	Adults with excess weight in Kent is significantly worse than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	-
	Community Safety	IMD - Crime	Crime deprivation is varied within the corridor. There are two LSOAs within the top 10% of most deprived neighbourhoods in the country and seven in the top. Conversely, there are three in the top 10% of least deprived LSOAs in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads in Kent, is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-

OO1: A28/A290/A291 (Canterbury – Whitstable)				Buffer Distance: 2km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		EuroRAP Road Safety	The A290 and A28 are listed as some of the most dangerous roads in Britain. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are two universities located within the corridor, both of which are likely to benefit from the positive effects associated with future developments.	+
		Planned Major Employment Areas	There are two proposed major employment areas within the corridor, which are likely to benefit from the positive effects associated with future development.	+
		International Companies	There are no large international companies located within the corridor. No sensitivities have been recorded.	0
		Priority Sector Areas	The south of the corridor buffer intersects the transport and logistics sector, which is likely to benefit from future development within the corridor.	+

Table A.22: Assessment of Strategic Corridor OO2

OO2: A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	There are five SAC sites in the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects the Dungeness, Romney Marsh and Rye Bay SPA, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The corridor buffer intersects the Pevensey Levels, Dungeness, Romney Marsh and Rye Bay SPA sites, both of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	There are 35 SSSI sites located across the corridor, all of could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	There are six NNRs within the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	There are two MCAs located within the corridor buffer; Beachy Head West and Beachy Head. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Historic Environment	World Heritage Sites	There are no world heritage sites located within the corridor buffer, therefore no sensitivities have been identified.	0
		Scheduled Monuments	There are 196 scheduled monuments located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 14 historic parks and gardens located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are two historic battlefield sites located within the corridor buffer; Battle of Lewes (1264) and Battle of Hastings (1066). Both sites could be sensitive to potential negative effects arising from future developments within the corridor.	-

OO2: A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Ancient Woodlands	There are over 800 ancient woodland sites located within the corridor buffer, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Landscape & Townscape	National Parks	The western part of the corridor buffer intersects the South Downs National Park, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the Park's boundary.	-
		AONB	The middle section of the corridor buffer is located within the High Weald AONB, whilst the eastern tip intersects the Kent Downs AONBs. These areas could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within the AONB boundaries.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer, therefore no sensitivities have been identified.	0
		Greenbelt	There are no areas of greenbelt land located within the corridor buffer, therefore no sensitivities have been recorded.	0
		National trails	The western part of the corridor buffer intersects the South Downs Way National Trail, whilst the eastern edge intersects the North Downs Way. There is potential for these trails to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. The eastern parts of the corridor buffer have some of the best and most versatile land (grades 1 and 2). Lower non agricultural grades are found in the west around the urban areas of Eastbourne, Brighton, Newhaven, Bexhill and Hastings. Between these settlements the land is generally a grade 3 (good). Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of	+/-

OO2: A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	
	Water Environment	Ground Source Protection Zone	There are 71 ground source protection zones within the corridor buffer. Of these zone, 26 are classed as zone 1s (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects 37 flood zone, which are spread the length of the corridor. Of these flood zones, 25 are flood zone 3s and 12 flood zone 2s. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability	**Air**	AQMA	There are four AQMAs located in the west of the corridor buffer. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There is one flood risk areas located within the corridor buffer around Brighton. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-

OO2: A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Per Capita Emissions	The corridor buffer includes Brighton and Hove, East Sussex and Kent authority districts. All three of these authority districts have per capita emissions that are significantly better than the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	There are three noise action areas in the corridor buffer; Eastbourne, Brighton/Wothing/Littlehampton and Bexhill/Hastings. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	Deprivation across the corridor buffer is high, particularly in Bexhill, Rye, Hastings and Eastbourne, where a number of LSOAs are amongst the top 10% of most deprived neighbourhoods in the country. Given levels of deprivation across the corridor, there is potential that those LSOAs that are significantly deprived to be more sensitive to the negative effects associated with future development.	-
		Planned Housing Developments	There are four major housing developments planned along the corridor; two in Eastbourne, one in Bexhill and one in Kingsnorth. These developments are likely to benefit from the positive effects of future developments within the corridor.	+
	Health	IMD - Health	Health deprivation across the corridor buffer is relatively low, however there are smaller pockets of deprivation seen in Brighton, Eastbourne and Hastings, where a number of LSOAs are amongst the top 10% of most deprived neighbourhoods in the country. In general, the east of the corridor buffer is significantly less deprived than the west.	+/-

OO2: A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			Those areas in Hastings and Eastbourne that are considered more deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		Percent Physically Active Adults (19+yrs) 2016/17	The percentage of physically active adults in Brighton and Have and Kent is significantly better than the national average, whilst the number of physically active adults in West Sussex is similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	The number adults with excess weight in Brighton and Hove and East Sussex is similar to the national average, whilst the number in Kent is significantly worse than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects, but this would dependent upon the types of developments that come forward. However, considering the high number of adults with excess weight in Kent, it is likely that the authority area could be more sensitive to the potential negative effects of development.	-
	Community Safety	IMD - Crime	Crime deprivation across the corridor buffer is varied, with high levels of deprivation in Brighton, Hastings and Rye. Conversely areas in Eastbourne in the west and Mersham in the west, are amongst the top 10% of least deprived neighbourhoods in the country. Those areas in Hastings and Rye that are considered to be more deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-

OO2: A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton)				Buffer Distance: 5km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads is significantly worse than the national average, across the three authority areas. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for this receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The A259, A2036, A2101, A21, A2102 and the A20 are located within the corridor buffer, all of which are listed as some of the most dangerous roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are two universities and one enterprise zone located within the corridor buffer. These assets are likely to benefit from the positive effects of future developments within the corridor.	+
		Planned Major Employment Areas	There are 16 major employment developments planned along the corridor; one in Eastbourne, four in Bexhill, one in Hastings and three in Kingsnorth. These developments are likely to benefit from the positive effects of future developments within the corridor.	+
		International Companies	American Express is the only major company located within the corridor Buffer, in Brighton. This company is likely to benefit from the positive effects of future developments within the corridor.	+
		Priority Sector Areas	The eastern part of the corridor buffer is located within the transport and logistics sector, whilst the western part of the corridor buffer is located within the financial and professional services sector. Both sectors are likely to benefit from the positive effects associated with future developments along the corridor.	+

Table A.23: Assessment of Strategic Corridor OO3

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
Natural Capital and Ecosystem Services	**Biodiversity**	SAC	The corridor buffer intersects seven SACs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SPA	The corridor buffer intersects six SPAs, all of which could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Ramsar	The corridor buffer intersects seven Ramsar sites, all of could be sensitive to potential negative effects arising from future developments within the corridor.	-
		SSSI	The corridor buffer intersects 61 SSSIs. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		NNR	The corridor buffer intersects four National Nature Reserves. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Marine Conservation Area	There is one marine conservation areas within the corridor buffer; Beachy Head - West, which could be sensitive to potential negative effects arising from future developments within the corridor.	-
	Historic Environment	World Heritage Sites	There are no world heritage sites located along the corridor.	0
		Scheduled Monuments	There are 243 scheduled monuments located within the corridor, of which 34 sites are located outside of the south east boundary. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Parks & Gardens	There are 16 historic parks and gardens located across the corridor. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-
		Historic Battlefields	There are no historic battlefields located within the corridor buffer. No sensitivity has been recorded.	0
		Ancient Woodlands	There are 227 ancient woodlands sites, located across the corridor buffer, of which 12 are located outside of the corridor buffer. These sites could be sensitive to potential negative effects arising from future developments within the corridor.	-

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Landscape & Townscape	National Parks	The corridor buffer passes through the South Downs National Park and the New Forest National Park, both of which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within their boundaries.	-
		AONB	The corridor buffer passes through the Chichester Harbour AONB, which could be sensitive to potential negative effects from future developments within the corridor, particularly if new developments arise within AONB boundary.	-
		Heritage coasts	There are no heritage coast areas located within the corridor buffer. No sensitivity has been recorded.	0
		Greenbelt	A small section in the western part of the corridor buffer crosses the Bournemouth Greenbelt land. This land could be sensitive to potential negative effects arising from future developments within the corridor, particularly if new developments arise within the greenbelt boundary.	-
		National trails	The eastern section of the corridor buffer intersects the South Downs Way National Trail. There is potential for this trail to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.	+/-
	Soils & Resources	Agricultural Land Classification	The agricultural land across the corridor buffer is varied. Low grades (grades 4, 5, urban and non agricultural grades) are more prevalent in the west, particularly around the New Forest, as well as around the major coastal towns and cities. The best and most versatile land (grades 1 and 2) is found south of Chichester and north of Littlehampton. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Online developments that make good use of existing infrastructure could result in positive effects, whilst new developments within areas of high agricultural land quality, have potential to be sensitive to the negative effects associated with future development.	+/-

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Water Environment	Ground Source Protection Zone	There are 78 Ground Source Protection Zones across the corridor, mainly located in the eastern section. There are 40 Zone 1s located across the corridor buffer (Highest sensitivity to contamination). Future development within these protected areas could result in degradation in ground water quality, therefore a negative sensitivity has been recorded.	-
		Flood Zone	The corridor buffer intersects a large number of areas which have been designated as either Flood Zone 2s or Flood Zone 3s, which are spread across the entire length of the corridor. The most prominent flood zones are located around Portsmouth, Hayling Island and Chichester. These zones all have potential to be sensitive to the negative effects associated with future development within the corridor.	-
Other Sustainability	**Air**	AQMA	The corridor buffer passes through 27 AQMAs, that are predominantly located around the larger towns and cities of Southampton, Portsmouth, Eastleigh, Chichester, Worthing and Brighton. These sites have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. The sensitivities of these AQMAs would be highly dependent upon the nature of the proposals that come forward.	+/-
	Climate Change	Flood Risk Areas	There is a Flood Risk Area in the eastern section of the corridor, located around Brighton. These areas are described as high risk areas to people, critical services and commercial and public assets from surface water flooding. These areas have potential to be sensitive to negative effects arising from future developments within the corridor.	-

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Per Capita Emissions	The corridor buffer crosses the authority areas of West Sussex, Brighton and Hove, Portsmouth, Southampton and Hampshire. Per capita emissions across these authorities are either better or similar to the national average. Per capita emission within the corridor buffer have potential to be sensitive to both positive and negative effects of future developments, and would highly depend upon the proposals that are brought forward. An increase in sustainable transport modes and encouragement of active travel could help to reduce per capita emissions, whilst roads schemes that make private transport more desirable, could result increase per capita emissions.	+/-
	Noise	Noise Action Important Areas	The corridor buffer passes through five noise sensitive areas, located in Southampton, Portsmouth, Worthing and Brighton. There is potential for these NAIAs to be sensitive to both negative and positive effects of future development within the corridor and would be highly dependent upon the nature of the proposals that come forward.	+/-
	Population & Equality	IMD - Overall Deprivation	The overall deprivation across the corridor buffer is varied. However, there are LSOAs around Portsmouth, Littlehampton and Southampton, that are amongst the top 10% of most deprived neighbourhoods in the country. Low levels of deprivation are noted in Eastbourne, Worthing and Bognor Regis, that are amongst the top 10% least deprived in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Planned Housing Developments	There are a high number of major housing developments planned across the whole length of the corridor. There are three which plan to develop between 2,501 and 5,000 homes, located in Welbourne (Hampshire), West of Bersted (West Sussex) and Land at Nyton Road (West Sussex). The majority of housing developments across the corridor buffer plan for less than 1,000 new homes. These developments have potential to benefit from the positive effects associated with future developments.	+

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
	Health	IMD - Health	The majority of the corridor buffer passes through LSOAs in the top 10% of least deprived neighbourhoods in the country, with regards to health. However, areas around Brighton, Portsmouth and Southampton, that feature amongst the top 10% and 20% of most deprived LSOAs in the country. Those areas of considered to be highly deprived are more sensitive to negative effects arising from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	+/-
		Percent Physically Active Adults (19+yrs) 2016/17	Physical activity across the five authority areas, is classed as either significantly better or similar to the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
		Excess Weight in Adults (18+ yrs.) 2016/17	Those adults with excess weight across the five authority areas, is classed similar to the national average, with the exception of the Brighton which is significantly better than the national average. There is potential for the sensitivity of this receptor to be susceptible to both negative and positive effects. The plan could provide opportunities to increase recreation and active travel, but it could also encourage an increased reliance upon private transport. The sensitivity of this receptor would therefore be dependent upon the types of developments that come forward.	+/-
	Community Safety	IMD - Crime	The level crime deprivation across the corridor buffer is varied. High levels of deprivation are noted within the New Forest, Southampton, Portsmouth and Brighton, where a number of LSOAs are amongst the top 10% of most deprived neighbourhoods in the country. Those areas that are considered to be more deprived, have potential to be more sensitive to negative effects arising	+/-

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
			from future developments, whilst those areas with low levels of deprivation are likely to be more resilient change.	
		KSI Casualties on England Roads compared to England Avg	The number of people killed or seriously injured on the roads across the six authority areas is significantly worse than the national average. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
		EuroRAP Road Safety	The corridor buffer intersects the A259, A32 and the A335 which are listed as some of the highest risk roads in the UK. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. If safety improvements are proposed, then there is potential for that receptor to be more sensitive to the positive effects of future developments.	+/-
	Economy	Economic Assets	There are eight key economic assets across the corridor, including 6 university campuses, one research facilities and one enterprise zones. These assets have potential to benefit from the positive effects associated with future developments within the corridor.	+
		Planned Major Employment Areas	There are 56 major employment developments planned across the length of the corridor. All of these are smaller developments (250-2,500). These developments have potential to benefit from the positive effects associated with future developments.	+
		International Companies	There are six international companies based across the corridor, of these companies, three are in defence, one is in finance and three are in Marine and Maritime. These companies have potential to benefit from the positive effects associated with future developments.	+

OO3: M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood)				Buffer Distance: 6km
ISA Topic		**Spatial Indicator**	**Description**	**Sensitivity Score**
		Priority Sector Areas	The corridor buffer is comprised of three priority sector areas - Marine, maritime and defence, transport and logistics and financial and professional services. These priority sectors have potential to benefit from the positive effects associated with future developments.	+

Appendix B: Assessment of General Interventions

Table B.1: Assessment of General Interventions

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	--	--	--	--	--	-	- -	--	--	+/-	-	+/-	++
Highways – new roads and major widening	***Natural Capital and Biodiversity*** There are likely to be impacts on biodiversity including habitat loss and severance. The region has substantial areas of Ancient Woodland and other irreplaceable habitats which, if lost, damaged or segregated would constitute a significant and permanent impact on natural capital and ecosystems. The South East region contains several ecological designated sites which are sensitive environments and protected by law and through policy. In addition to designated sites, such as the UNESCO biosphere reserve at Brighton and Lewes Downs, and protected species, there is potential for significant impact on undesignated biodiversity which is already under pressure from development and climate change risks. Although mitigation and enhancements are likely to be proposed, it may take several years before new planting and species use new habitats provided. Opportunities for biodiversity net gain are likely to be more challenging with new roads, due to scale of impact. ***Historic Environment and Landscape*** The South East has a high concentration of designated landscapes, townscapes and heritage assets, including several National Parks, AONBs and Heritage Coasts. New roads are likely to have both direct and indirect negative effects on these landscapes, in addition to landscape quality outside these designations. There is also likely to be a negative impact on heritage assets from new roads, particularly on buried archaeology and historic landscapes but also on the setting of other historic assets such as scheduled monuments, listed buildings, historic parks and gardens, conservation areas and undesignated assets of importance. The historic environment, landscapes and tranquillity are under pressure from development throughout the region and opportunities to mitigate for new roads should be undertaken at a landscape scale to support wider green infrastructure networks. ***Soils and Water Environment*** New highway schemes are likely to result in modifications and discharges to watercourses. They will result in the loss of land, including 'Best and Most Versatile' agricultural land, and have the potential to contaminate and damage soils adjacent to the highway. They would result in larger scale construction, comprising use of natural resources and generation of waste. ***Air Quality, Climate Change and Noise***												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	New roads provide new sources of air pollution, although they may also relieve congestion associated and air quality impacts elsewhere. There are currently 149 Air Quality Management Areas (AQMAs) in the South East region, mostly in urban areas where high traffic volume and frequent congestion occurs. New roads present the opportunity to improve air quality in AQMAs if the operation of the new road relieves congestion, and could result in AQMA objectives being met. However, new roads would encourage increased car use and therefore contribution to GHG emissions, making carbon emissions targets more challenging. Construction is likely to result in large quantities of embodied carbon. The vulnerability of new highways to climate change would depend on whether they were built in areas prone to flooding and are relieving other transport routes in areas of flood risk, in addition to the resilience of materials used in design to withstand higher temperatures and storms. They are likely to introduce new sources of noise. ***Population, Health and Community Safety*** New highways are built to high standards of safety and can improve on accident levels in comparison to existing roads. New roads are likely to encourage more road traffic, although may have pedestrian and cycle provision included in the design. New roads are likely to provide better access for rural communities, who do not have access to public transport, however, there are likely to be some residual land/community severance effects. Use of new roads will largely depend on access to private car, so is unlikely to benefit all sectors of society. Car use does not encourage active travel so is unlikely to benefit health, although there may be opportunities for embedding cycling and walking routes in design. ***Economy*** Economic growth will be supported by improved connectivity, reliability and journey experience as a result of transport improvements. The extent of this growth will be context specific, it will be dependent on the current economic landscape, the economic centres served, and the scale of the intervention proposed.												
Highways – improvements, i.e. junction and roundabout improvements, parking, and minor widening	+ / -	-	-	-	-	+/-	-	--	-	+/-	-	+	+
	Natural Capital and Biodiversity A loss of connectivity of, or a deterioration in ecosystems could occur as a result of new highways schemes due to their scale and linear nature. This may result in a negative effect on the region's natural capital through a loss or degradation of ecosystem provision. The improvements could involve small scale loss of habitat. There are likely to be opportunities for mitigation, compensation and net gain, although this would take time to establish.												

	Sustainability Objectives												
General Intervention	**Natural Capital & Ecosystem Services**	**Biodiversity**	**Historic Environment**	**Landscape & Townscape**	**Soils**	**Water Environment**	**Air**	**Climate Change**	**Noise**	**Population & Equalities**	**Health**	**Community Safety**	**Economy**
	Historic Environment and Landscape On-line highway works could lead to a cumulative effect on the historic environment, townscape and landscape, both directly and indirectly, although this would be limited to the context of the existing highway. There may be opportunities to improve both landscape and setting of existing roads. ***Soils and Water Environment*** Although watercourses may be affected, highway improvements could provide the opportunity to improve existing drainage network, reducing polluted run-off and potential for contamination. Although small areas of land are lost, the on-line improvements are more likely to make best use of existing highway land. Any works will require use of mineral resources and will likely produce waste. ***Air Quality, Climate Change and Noise*** The improvements would reduce congestion thereby improving air quality, however, road capacity may increase which in time would allow greater traffic flows, increasing air pollution, noise and GHG emissions, making carbon emissions targets more challenging. There are numerous AQMAs and Noise Important Areas (NIAs) within the South East region which could be affected by highway improvements, both beneficially (e.g. if congestion is relieved and low noise surfacing is used) and negatively (e.g. through increased traffic and an increase in heavy vehicles). Adaptation to climate change, including vulnerability to flood risk and extreme weather will depend on design. ***Population, Health and Community Safety*** Road safety and amenity near to roads may improve as a result of junction improvements, but the additional capacity created may put non-vehicular users from using the highway. The region has a higher than the national average number of road traffic accidents and therefore highway improvements could improve road safety and therefore have a beneficial impact on community safety. Use of roads will largely depend on access to private car, so is unlikely to benefit all sectors of society. Car use does not encourage active travel is unlikely to benefit health, although there may be opportunities for embedding cycling and walking routes in design. Improvements may contribute to reducing road congestion, however the increased capacity could lead to an increase in traffic, resulting in poor air quality and noise impacting on health. ***Economy***												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	Economic growth will be supported by improved connectivity, reliability and journey experience as a result of transport improvements. The extent of this growth will be context specific, it will be dependent on the current economic landscape, the economic centres served, and the scale of the intervention proposed.												
Highways – non-infrastructure options, i.e. traffic management and road safety (signage, signalling, visibility, traffic/speed restrictions)	0	0	-	-	0	0	0	0	0	+	+	+	+
	Natural Capital and Biodiversity No land take and therefore no loss of ecosystems provision is expected and non-infrastructure measures are unlikely to have a beneficial or negative impact on biodiversity. ***Historic Environment and Landscape*** Likely to be small scale of works which would be unlikely to have significant effects on natural or built environment. Local distinctiveness, built environment and landscape are unlikely to be significantly affected by small scale signage. However some negative effects on the character and setting of historic features, and associated negative effects on visual amenity may occur from the installation of signage, signals and other traffic management features. ***Soils and Water Environment*** Water resources and soils are unlikely to be affected. There will some small-scale use of natural resources and production of waste from works. ***Air Quality, Climate Change and Noise*** Efficient traffic management can improve traffic flow, leading to reduction in noise and air quality and GHG emissions. However, this may also encourage an increase in vehicular traffic. These measures are unlikely to result in adaptation to climate change. ***Population, Health and Community Safety*** Better managed traffic can bring benefits for pedestrians and cyclists through improved road conditions. Traffic management can improve road safety encouraging non-vehicular means of transport, reduce severance and congestion. Many positive effects will be medium term due to the expected increase in traffic levels offsetting them in a few years. ***Economy***												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	Economic growth will be supported by improved connectivity, reliability and journey experience as a result of transport improvements. The extent of this growth will be context specific, it will be dependent on the current economic landscape, the economic centres served, and the scale of the intervention proposed.												
Rail – new railway lines and stations	- -	--	--	--	--	-	+	+	+/-	+/-	+/-	+	++
	Natural Capital and Biodiversity The scale (length) and linear nature of new railways lines, likely to occur through green areas and farmland has the potential to degrade, damage or fragment habitats including potential to impact on designated and non-designated sites of ecological value. The region has substantial areas of Ancient Woodland and other irreplaceable habitats which, if lost, damaged or segregated would constitute a significant and permanent impact on natural capital and ecosystems. Although mitigation and enhancements are likely to be proposed, it may take several years before new planting and species use new habitats provided. ***Historic Environment and Landscape*** New rail-lines are likely to have some both direct and indirect negative effects on designated landscapes, in addition to landscape quality outside these designations, by introducing new linear features into the landscape. There is also likely to be a negative impact on heritage assets, particularly on, such as buried archaeology, and historic landscapes but also on the setting of other historic assets such as scheduled monuments, listed buildings, historic parks and gardens, conservation areas and undesignated assets of importance. Historic townscapes may be affected by building new rail stations. The historic environment, landscapes and tranquillity are under pressure from development throughout the region. ***Soils and Water Environment*** New rail schemes are likely to result in modifications and discharges to watercourses. They will result in the loss of land, including 'Best and Most Versatile' agricultural land, and have the potential to contaminate and damage soils adjacent to the rail line. They would result in larger scale construction, comprising use of natural resources and generation of waste. ***Air Quality, Climate Change and Noise*** Potential at certain locations to increase noise levels beyond statutory limits and contrary to policy seeking to avoid or reduce the effects of noise on health and quality of life. A reduction in road traffic volumes if more journeys and freight movements are made by rail could reduce greenhouse gas emissions of the overall transport network. The vulnerability of new rail lines to climate change would depend on whether												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	they were built in areas prone to flooding and are relieving other transport routes in areas of flood risk, in addition to the resilience of materials used in design to withstand higher temperatures and storms. Similarly, the potential for new highways to enhance places will depend on design and whether they are urban or rural. New roads are however, likely to have some negative effects on heritage assets, such as buried archaeology, and existing landscapes. ***Population, Health and Community Safety*** New railway lines may increase the impacts of noise and air quality on local receptors, though the additional rail journeys provided may ease congestion on roads reducing air and noise impacts from road, improve journey times and reliability, and lead to improved safety on the road networks. New rail links would have a positive impact on communities in terms of improving the accessibility to services and jobs which meet a community's needs. ***Economy*** New railway lines may contribute to and enhance wider and long term economic prosperity by facilitating the building of a strong economy, by providing reliable and affordable transport choice to support growth. New rail line interventions could provide better - faster and more reliable – routes for the population who work at the international gateway hubs, particularly where there is travel across multiple districts within the region for journeys to work, thereby having a beneficial impact on the region's economy.												
Rail – improvements to stations, services and signalling	0	+/-	+/-	+/-	-	0	+	+	0	+	+	+	+
	Natural Capital and Biodiversity Upgrades are likely to occur within rail land, with limited ecological value. Only small scale land take is likely to be required for upgrades which is unlikely to affect existing biodiversity. Small scale loss of habitat may occur but upgrade proposals could be used to enhance the biodiversity value off-site and potentially provide opportunities achieve biodiversity net gain. ***Historic Environment and Landscape*** Historic assets could be impacted by upgrade works where existing stations include Listed Buildings and upgrades would need to protect and conserve historic assets. Upgrading of stations could also provide an opportunity to restore/conserve historic assets that are currently in poor conditions or at risk and could present an opportunity to enhance the historic environment particularly in the setting of heritage features through improved design and landscaping. However, new facilities may also erode the townscape character and the setting of built heritage. ***Soils and Water Environment***												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	It is unlikely that upgrades to stations would cause negative effects on best and most versatile soils on agricultural land as works would likely be in railway land. Any works in brownfield sites could encounter contaminated land/soil requiring remediation or removal and disposal but the opportunity may exist, where practicable, for upgrade works to reuse existing materials and therefore promote waste minimisation and sustainable use of materials. ***Air Quality, Climate Change and Noise*** Upgrades will improve the station facilities and enhance rail users' experience which could increase the uptake of journeys by rail and as a result reduce car journeys which would have a beneficial effect by reducing transport related emissions. GHG emission reductions through a modal shift from road to rail would have a beneficial effect. There would be opportunities to incorporate climate change adaptation. Upgrades would be unlikely to create any new noise generating sources that could cause noise pollution or annoyance in regard to either human health or wildlife. ***Population, Health and Community Safety*** Increased uptake of rail travel may occur as a result of improved stations, services and efficiencies of journeys through upgrading signalling. Upgrades could result in a beneficial effect for equalities groups and deprived communities through improved access to stations and better/more appropriate information on services. Beneficial effects on health may occur if station upgrades promote access for pedestrians and cyclists through specific improvements (such as secure cycle parking). Community safety improvements are likely to arise when station upgrades enhance security which reduces crime for users of public transport which has been increasing in the SE region. The vulnerability of rail upgrades to climate change would depend on whether they relieve existing features at risk in areas prone to flooding and enhance resilience of the rail service in terms of operational risk during severe weather events. ***Economy*** Local and regional economic centres would benefit from increases in rail passenger numbers and more reliable rails services achieved though upgrades to stations and improved signalling. Access to employment centres could be enhanced through improvements to rail services, particularly if upgrades improve service reliability and reduce journey times.												
Bus and light rail – development of urban infrastructure, priority	0	0	-	+/-	-	0	+	+	+	++	+	+	+
	Natural Capital and Biodiversity												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
measures, and improvements to stops, services and information	There is unlikely to be any land take or significant works that could impact on protected species. Development of light rail, and improvements to bus stops, services and information is likely to occur within existing urban/transport footprints. Therefore, there will be no impact on biodiversity and no opportunity for providing improvements. ***Historic Environment and Landscape*** Townscape, sense of place, visual amenity, heritage assets and the settings of these could all be negatively affected through the development of light rail transit schemes in urban areas, in particular due to the introduction of overhead electrical wires. However, in the future, with advances in technology, trams are more likely to run via battery without the need for overhead wires. Furthermore, light rail can have a distinct role in the "branding" of places. Similarly, insensitive design of bus improvements could result in negative effects on the region's designated landscape and/or designated heritage assets. However, if the design of bus stop improvements takes into account the character and setting, there may be opportunity to protect and enhance distinctive townscapes and visual amenity. ***Soils and Water Environment*** There are unlikely to be any significant impacts on water. Bus improvement schemes will use small amounts of materials and produce limited waste. However, the development of light rail transit schemes in existing roads/brownfield sites could encounter contaminated land/soil requiring remediation or removal and disposal; but the opportunity may exist, where practicable, for works to reuse existing materials and therefore promote waste minimisation and sustainable use of materials. ***Air Quality, Climate Change and Noise*** Air quality, noise and GHG emissions along enhanced routes will improve, particularly if 'green' buses and light rail are used, as passengers take advantage of the improved service. There is unlikely to be any effect on vulnerability to climate change as these measures apply to existing infrastructure. ***Population, Health and Community Safety*** Improved waiting facilities and road safety and accessibility to town centres associated with service improvements could have a beneficial effect on access to services by equality groups and deprived communities. In particular, there is a higher proportion of elderly people in the SE districts than the national average and the most rapid population increase in the SE is expected to be seen in the over 75s, therefore, improved bus and new tram services and waiting facilities could have a beneficial effect with regards to access to public transport for the elderly. Service improvements could enhance the physical and mental health of the population, including the elderly, by improving access.												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	Better pedestrian and cyclist facilities at bus and tram stops will encourage walking/cycling in conjunction with bus/tram use which could have beneficial effects on physical and mental health and reduce emissions through non-motorised vehicle use to access public transport. A better bus service may provide a viable journey alternative to those experiencing severance. Improvements to passenger waiting facilities and available information would better meet the needs of society and vulnerable groups. Accessibility to the countryside would increase through the provision of additional bus services; it is unlikely to change as a result of stop improvements. Improved bus and new tram services will provide better access and encourage a modal shift, thereby reducing barriers to growth such as congestion. ***Economy*** Economic growth will be supported by improved connectivity, reliability and journey experience as a result of bus improvements. The extent of this growth will be context specific, it will be dependent on the current economic landscape, the economic centres served, and the scale of the intervention proposed. Light rail also has the potential to stimulate associated investment activity, such as urban renewal projects and residential and commercial development, often in areas that were previously inaccessible or unviable. Cities around the world demonstrate that higher property values and increased commercial and community activity occur within walking distance of new light rail stops.												
Walking and cycling – new walkways and cycleways and improvements to existing ones	+	+	0	+/-	0	0	+	+	+	+	++	+	+/-
	Natural Capital and Biodiversity The new routes could involve small scale loss of habitat, but could also be designed to enhance the biodiversity value, e.g. through creation of linking corridors, though new habitat would take time to establish. As with all linear infrastructure, habitat fragmentation could occur but the scale of walking and cycle paths means any fragmentation would be minor due to the width of such paths. Improvements to existing routes create an opportunity to enhance habitats and ecological networks. Natural capital enhancements are possible through the connection of green spaces and protection of habitats linking population centres which may otherwise be lost of severed through a lack of maintenance or through other development. ***Historic Environment and Landscape*** New walkways and cycleways are not likely to have a negative effect on designated heritage sites or their settings, provided the new route is chosen carefully and design appropriately to its setting. Well-designed walkways and cycleways can contribute to the sense of place and appearance of an area, and could present opportunities to enhance the quality of visual amenity of heritage assets and townscapes by managing public access to or past the historic features and through the region's towns.												

General Intervention	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	Sustainability Objectives												
	Soils and Water Environment Walkways and cycleways (including on-road cycle routes and off-road cycle paths) are unlikely to affect water resources or be the source of operational contamination. A small volume of mineral resource would be required and generate waste. ***Air Quality, Climate Change and Noise*** New walkways and cycleways would encourage modal shift, leading to reductions in air quality, noise and GHG emissions from the transport network. There would the opportunity to include climate adaptation measures in design relation to flood risk and choice of materials. ***Population, Health and Community Safety*** Reduced GHG emissions would result in a beneficial impact from improvements to the health of the users, better connected local communities and, if carefully designed, safer communities as a result of more people walking and cycling. If walkways and cycleways incorporate natural features such as tree planting, hedgerows or other linear green space, their use may also result in enhanced connections with nature and reduced stress levels, contributing to mental health and wellbeing benefits. Provision of off-road routes for cyclists and pedestrians will reduce the number of collisions involving them. People are more likely to choose active travel for journeys if there are suitable networks to travel on. Provision of cycle/footpaths between rural settlements and onward to urban centres will reduce severance, improve accessibility to jobs and amenities and, in the opposite direction, will open up access to the countryside. ***Economy*** Economic growth will be supported by improved connectivity, reliability and journey experience as a result of transport improvements. The extent of this growth will be context specific, it will be dependent on the current economic landscape, the economic centres served, and the scale of the intervention proposed. Walking and cycling are unlikely to meet economic needs for travel along main economic corridors in the SE.												
Other – public transport information provision, congestion schemes, ticketing, and behavioural change	0	0	-	-	0	0	+	+	+	+	+	+	+
	Natural Capital and Biodiversity Congestion schemes would require some online works to install technology and signage associated with the implementation of the scheme but it is likely that such works would have limited impact on natural capital, biodiversity or ecosystem service provision. ***Historic Environment and Landscape***												

General Intervention	Sustainability Objectives												
	Natural Capital & Ecosystem Services	Biodiversity	Historic Environment	Landscape & Townscape	Soils	Water Environment	Air	Climate Change	Noise	Population & Equalities	Health	Community Safety	Economy
	Depending on the siting of technology and signage for congestion schemes, there could be minor adverse impacts on the historic environment (if assets were directly affected) and on landscape/townscape as the installation of technology and signage would change the setting and visual appearance of a location or corridor. ***Soils and Water Environment*** Works would likely occur online, within the existing highway or transport facility and therefore no effect is likely in regard to soil or water. On-site flood risk would be a consideration for the resilience of the intervention but it is not considered that the scheme would contribute to flood risk. ***Air Quality, Climate Change and Noise*** Improved information provided about public transport – timetables, pricing, routes, alternatives and contacts – would have a beneficial impact on air quality, noise and health as greater uptake of public transport resulted. Congestion charging would be expected to have a beneficial impact on air quality and noise through a reduction in both of these aspects, and on the economy as the scheme would generate additional revenue for future funding of sustainable transport solutions instead of building new or extending existing road networks. ***Population, Health and Community Safety*** Information provision should be provided on a transboundary basis to achieve the most beneficial impact on the economy as users would more easily be able to link public transport modes in one journey and become less reliant on the car for journeys between counties and across the region. Improved accessibility to more people would be a beneficial impact of improved public transport provision, particularly if information included facilities for visually impaired people and people with other physical disabilities to easily obtain the information necessary for them to access the transport easily and safely. ***Economy*** Economic growth will be supported by improved connectivity, reliability and journey experience as a result of transport improvements. The extent of this growth will be context specific, it will be dependent on the current economic landscape, the economic centres served, and the scale of the intervention proposed.												

Control Information

Prepared by	Prepared for
Steer 28-32 Upper Ground London SE1 9PD +44 20 7910 5000 www.steergroup.com	Transport for the South East

Steer project/proposal number	Client contract/project number
23433701	N/K

Author/originator	Reviewer/approver
Katie Dean	Ursula Stevenson

Other contributors	Distribution
Helen Davies	Client: Client Team Steer/ Project Management WSP: Team

Version control/issue number	Date
V1.0 Draft for Client V2.0 Draft for Client	18 July 2019 27 September 2019

Complex questions.
Powerful answers.

Explore **steergroup.com** or visit one of our 21 offices:

Bogotá, Colombia
Bologna, Italy
Boston, USA
Brussels, Belgium
Leeds, UK
Lima, Peru
London, UK
Los Angeles, USA
Manchester, UK
Mexico City, Mexico
New Delhi, India
New York, USA
Panama City, Panama
Rome, Italy
San Juan, Puerto Rico
Santiago, Chile
São Paulo, Brazil
Toronto, Canada
Vancouver, Canada
Washington DC, USA

steer

4 October 2019

Transport Strategy for the South East: ISA Report Appendix C - Health Impact Assessment

Transport for the South East
23433701

4 October 2019

Transport Strategy for the South East: ISA Report Appendix C - Health Impact Assessment

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Transport for the South East

23433701

Contents

Executive Summary

Overview

A Health Impact Assessment (HIA) of general transport interventions within the South East region was undertaken in support of the Integrated Sustainability Appraisal (ISA) alongside the preparation of a Transport Strategy to encourage sustainable development.

Health issues considered included both direct and indirect effects from the general interventions upon the South East region wider community, including its population and economy.

Community baseline data was applied to establish the demographic, social and health profiles for the population within the geographical scope of the HIA. Several baseline data sources were used ranging from Public Health England Key Indicators to 2011 Census Data. Where appropriate and available, the baseline information was updated with more recent published data.

An assessment of health, population, environment and deprivation was undertaken for general transport interventions listed in section 5.4 of the ISA ranging from new infrastructure, improvements to existing infrastructure, and behavioural change. The general transport interventions were assessed against the following determinants of health; air quality, noise, physical activity, road safety, economy and employment, and access and accessibility.

The assessment has identified that general transport interventions related to highways, including new roads, online improvements and other non-infrastructure related improvements are likely to result in negative health outcomes, particularly in relation to air quality. The other general transport interventions related to rail, bus, light rail, walking and cycling, and behaviour change were all likely to result in some positive health outcomes, particularly in relation to physical activity.

1 Introduction

1.1 Transport for the South East (TfSE) is a newly established shadow sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs) in the South East (SE).

1.2

1.3 An Integrated Sustainability Appraisal (ISA) has been undertaken alongside the preparation of the Transport Strategy. Its role is to promote sustainable development by assessing environmental, social and economic impacts, as well as mitigating any potential adverse effects that the Transport Strategy might otherwise have.

1.4 One of the topics assess within the ISA is human health, and the impacts the Transport Strategy is likely to have on the health of people in the South East.

1.5 In considering the effect on human health, a health impact assessment (HIA) has been undertaken to further consider the relationship between health and transport, and the likely significant effects of the Transport Strategy on human health.

1.6 The outcomes of this assessment have informed the ISA.

2 Scope and Methodology

2.1 A rapid desktop HIA was undertaken in June and July 2019. The key tasks for this HIA were to;

- Develop a summary health and wellbeing baseline, and profile of the South East;
- Identify relevant evidence from literature;
- Assess the potential health and wellbeing impacts of the Transport Strategy, and the nature and likelihood of such impacts;
- Develop recommendations for minimising potential negative, and maximising potential positive, health and wellbeing impacts; and
- Suggest health and wellbeing indicators that can be used to monitor the Transport Strategy.

Scope

Study area

2.2 This is a rapid desk-based health impact assessment of the direct and indirect effects on local communities resulting from the proposed policies of the TfSE Transport Strategy. The geographic scope of this HIA is therefore the South East region.

Study population

2.3 The population scope of this HIA includes residents within the South East region of England.

2.4 The main vulnerable groups within population that were considered were:

- Children and young people,
- Older people,
- People with disabilities, and mobility impairment,
- People with existing health conditions,
- Unemployed and low-income groups, and
- Socially excluded or isolated groups.

Determinants of health

2.5 The key determinants of health and wellbeing that were considered were:

- Air Quality,
- Noise,
- Physical Activity,
- Road safety,
- Economy and employment, and
- Access and accessibility.

Baseline assessment, community health profile and evidence

2.6 The baseline assessment, community profile and evidence base were developed from existing publicly available data including:

- Public Health England Local Authority Health Profiles,
- Office for National Statistics Labour Market Profiles, and

- Public Health England “Local Health”.

Appraisal of Impacts

2.7 The general transport interventions were assessed against each of the determinants of health, looking first at the baseline conditions of the determinant category within the study area, evidence of how each determinant impact human health and then the effect that the general transport interventions have on the health of the target population as presented in Table 5.13.

Recommendations

2.8 A set of mitigation and enhancement measures were identified to reduce the potential negative, and enhance the potential positive, health and wellbeing impacts of the Transport Strategy.

Assumptions and Limitations

2.9 At this stage it is difficult to assess the specific localised populations (e.g. at Ward level) who are more or less likely to benefit from the general transport interventions.

2.10 Specific mitigation measures relating to health for each general transport intervention have been made within the SEA Environmental Report and were informed by this health impact assessment. Health and wellbeing indicators that can be used to monitor the Transport Strategy are reported in the ISA Report.

3 Health Impact Assessment

3.1 HIA is a systematic approach to identifying the differential health and wellbeing impacts, both positive and negative, of projects and plans.

3.2 HIA uses both qualitative and quantitative evidence, including public and other stakeholders' perceptions and experiences, as well as public health knowledge. It is particularly concerned with the distribution of effects within a population, as different groups are likely to be affected in different ways, and therefore looks at how health and social inequalities might be reduced or increased by a proposed project or plan.

3.3 The aim of a HIA is to support and add value to the decision-making process by providing a systematic analysis of the potential impacts, as well as recommending opportunities, where appropriate, to enhance positive impacts, mitigate negative impacts and reduce health inequalities.

3.4 HIA has been defined as;

"…a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population".

3.5 In this context, 'health' is defined by the World Health Organisation as;

"…a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

3.6 Health determinants are the personal, social, cultural, economic and environmental factors that influence the health of individuals or populations. These include a range of factors such as income, employment, education and social support.

3.7 Health Inequality can be defined as the difference in either health status, or the distribution of health determinants, between different population groups. Some health inequalities are unavoidable, others are not so and may well be unjust and unfair.

3.8 HIA's apply the below model of health and well-being (Figure 3.1). The Socio-Environmental Model of Well Being considers that health and well-being are a result of external influences, where an individual or family experiences a combination of adverse external factors which could result in health inequality.

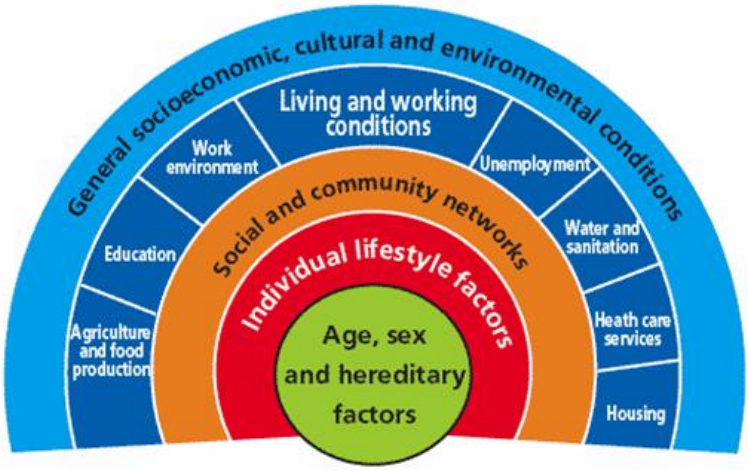

Figure 3.1 Socio-Environmental Model of Wellbeing[1]

3.9 The overall aim of this HIA will be to identify the aspects of the general transport interventions which have the potential to affect people's health, both directly and indirectly. Some effects may be positive, others could be negative. This HIA will include recommendations which will remove or mitigate as far as possible any potential negative impacts on people's health. It will also identify opportunities to maximise the potential benefits to people's health.

[1] Dahlgren G, Whitehead M. 1991. Policies and strategies to promote social equity in health: background document to WHO – strategy paper for Europe. Institute for Future Studies: Stockholm

4 Community Profile

4.1 Amongst the communities living in, and directly affected by any changes brought about by the policies of the Transport Strategy, the proportion and profile of vulnerable groups, identified in section 2.4 above, have been described below using publicly available data.

4.2 Community profile data has been used to express the status of vulnerable groups with respect to their vulnerable health status and / or derivation. In some cases Health Profile Indicators are implicit rather than explicit, where direct Health Profile Indicators were not available.

Table 4.1 Public Health Profile for the South East

Health Determinant	Baseline Evidence
Lifestyle	The estimated proportion of the adult population that are physically active in the South East is higher (69.8%) compared to England (66.3%). The percentage of adults classified as overweight or obese is lower in the South East (60.3%) compared to the national average (62%). Between 2017 and 2018 there was a 17.3% prevalence of obese children in Year 6, compared to 19% in England. Admission rates for alcohol related conditions is better in the South East (0.52%) compared to the national average (0.63%). Smoking prevalence is adults is lower (12.9%) compared to the national average (14.4%). Between 2017 and 2018 there were 665 hospital admission episodes of drug related mental and behavioural disorders compared to 7,258 for England[2]. Violent crime offences in the South East are lower (2.32%) compared to the England average (23.7%).
Unemployment/Economy	Between September and November 2018, the employment rate within the South East was 78.8% for those aged 16-64 years[3], which is higher than the UK rate of 75.8%. In the same period the unemployment rate within the South East was 3.2% which is lower than the UK rate of 4%.

[2] NHS (2018) Statistics on Drug Misuse, England 2018 (November Update)

[3] ONS (2019) Regional labour market statistics in the UK: January 2019

	0.3% of the South East region population claim Job Seekers Allowance which is lower when compared to the national average of 0.6%[4]. The South East is fast growing and a very prosperous area with the second largest regional economy in the UK (after London). The regional Gross Domestic Product (GDP) amounted to roughly £318 billion in 2016 representing roughly 15% of the UK GDP[5]. The South East has a more varied economy than many other regions, with less reliance on the public sector and industries such as ICT, pharmaceuticals, biotech, healthcare, high tech engineering and aerospace that are thoroughly established within the region[5].
Health	Census Data[6] shows that 49% of South East population consider themselves in 'Very Good' health, 35% in 'Good' health, 12% in 'Fair' health, 3% in 'Bad' health and 1% in 'Very Bad' health. This varies compared to the statistics for England and Wales where 47% of the population stated they were in 'Very Good' health, 34% in 'Good' health, 13% in 'Fair' health, 4% in 'Bad' health and 1% in 'Very Bad' health. Most of the South-East population (84%) are in 'Very Good' or 'Good; health when compared to the national statistics (81%). 6.9% of the South East region population stated in the 2011 Census that their day to day activities were limited a lot by a long-term health condition or disability, 8.8% had their day to day activities limited a little and 84.3% of the population's day to day activities were not limited[7]. The South-East region had a lower percentage of the population with daily activities limited a lot and limited a little compared to the national average (8.3%) and (9.3%) respectively. Subsequently, the South East had a higher percentage of the population wit day to day activities not limited compared to the national averages. Between 2015 and 2017, life expectancy for males and females (80.6 years) and (84 years) respectively were both higher than the England average (79.6 years) and (83.1 years) respectively. Furthermore, all-cause mortality rates are lower in the South East (0.29%) when compared to the England average (0.33%). Early death rates from cancer in the South East (0.13%) are slightly below the England average (0.14%).

[4] ONS (2019) JSA01 Regional labour market: Jobseeker's allowance for local and unitary authorities

[5] European Commission (2019) Regional Innovation Monitor Plus: South East of England

[6] NOMIS (2011) QS302EW General Health

[7] NOMIS (2011) QS303EW Long Term Health Problem or Disability

	Early death rates from cardiovascular diseases in the South East is lower (0.06%) than the England average (0.07%).
Income	Between 1997 and 2016, the Gross Disposable Household Income (GDHI) per head was £22, 375 for the South East[8] which is higher than the national average of £19,432.
Education	In 2011, 19.1% of the South East region population (aged 16-74) had no academic or professional qualifications, lower than the national average (22.5%) at the time. Between 2017 to 2018, average attainment 8 score (scores of pupils at the end of key stage 4 (GCSE)) were higher in the South East (47.8) compared to the national average of 46.7[9].
Deprivation	Despite that parts of the South East are relatively prosperous, this overshadows the fact that in 2011, a very large number of South East residents (roughly 500,000) live in areas that rank within the 20% most deprived areas in the country[10]. Roughly 850,000 South East region residents live in the 20% most income deprived areas in the country and roughly 230,000 over 60's in income deprived households all of which were higher than the North East and East Midlands regions. In 2016, roughly 12.9% of the South East region's children were in low income families which is lower than the national average (17%). Statutory homelessness in the South East is slightly lower (0.07%) when compared to the national average (0.08%).
Transport/Accessibility	Roughly 71% of those in employment within the South East region mainly travel to work by car and 10% by rail[11]. The South East contains a series of key transport infrastructure including several ports, airports, major roads and rail links. Despite these good transport links, one of the main transport challenges relates to connectivity across the region (i.e. there are no major east-west road connections other than the A27) which means the transport of goods would have to be on smaller and

[8] ONS (2018) Regional gross disposable household income, UK: 1997 to 2016

[9] Public Health England (2019) South East Health Profile

[10] South East England Councils (2011) Deprivation and public-sector reliance in the South East

[11] House of Commons (2018) Parliamentary debate 25/4/18: Transport for the South East

	unsuitable roads or utilise the M25, a similar situation exists with rail links.
Collisions	Between 2015 – 2017, 0.05% of road casualties resulted in death or serious injury which is higher compared to the national average (0.04%). 5.8% of casualties in reported road accidents in 2016 within the South East occurred in accidents in which at least one driver or rider was over the drink-drive limit – the South East was the fourth highest of all the regions[12].

[12] DfT (2018) Reported road casualties in Great Britain: Estimates for accidents involving illegal alcohol levels: 2016 (final)

5 Assessment of Effects

5.1 The analysis of health impact has focussed on the determinants identified above in section 4-1 which fall into the following categories:

- Air Quality
- Noise
- Physical Activity
- Road safety
- Economy and employment
- Access and accessibility

5.2 The general transport interventions related to the thematic journey types of the Transport Strategy have each been assessed against the above, looking first at the baseline conditions of the determinant category within the study areas, evidence of how each determinant affects health, and then the effect that the development has on the health of the study area population via the determinant category.

5.3 The Assessment is summarised in Table 5.1 below, and uses the following symbols;

Table 5.1: Symbology and Health Effect

Symbol	Health Effect
✓	Likely positive health outcome
x	Likely negative health outcome
?	Uncertain effect
0	No effect

Air Quality

Evidence

5.4 The association between health effects and exposure to air pollutants is now well established, with distinct health risks associated with exposure to particulates available at a local level[13] [14].

5.5 The impact of long term human exposure to particulate matter (PM) pollution is estimated to have an effect on mortality equivalent to nearly 29,000 deaths in the UK[13]. There is no known threshold concentration below which NO_2 or PM_{10} have no effect on a population's health.

5.6 Many of the sources of PM are also sources of NO_2. Links between the occurrence of NO_2 and health effects has strengthened substantially in recent years, though some of these are co-

[13] COMEAP (2010) The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. A report prepared by the Committee on the Medical Effects of Air Pollutants. Available at: http//www.comeap.org.uk/

[14] COMEAP (2012) Statement on Estimating the Mortality Burden of Particulate Air pollution at a Local Level. Available at: http//www.comeap.org.uk/

incidental with PM, as noted by the Committee on the Medical Effects of Air Pollutants[15], some could be attributed to other co-existing pollutants such as Poly Aromatic Hydrocarbons (PAH) and Volatile Organic Compounds (VOC).

5.7 Defra have estimated that the effect of NO_2 on mortality is equivalent to 23,500 deaths in the UK annually, though this estimated has not been endorsed by COMEAP[16]. Any increases in mortality are likely to be either because of cardiovascular and/or respiratory mortality, particularly with regards to an elevated short-term exposure to NO_2 [17].

5.8 Due to the correlation between differing airborne pollutants and similar health effects, one pollutant can often mask the effects of another and it is not always possible to discreetly isolate the health effects of a single pollutant. The causal mechanism, primarily cardiovascular and respiratory, leading to increased mortality with increased exposure to particulate matter is well-founded, though process behind NO_2 contributing to cardiovascular damage, respiratory diseases or cancer are less understood.

5.9 Studies have reported statistically significant associations between long-term exposure to NO_2 and lung function in children, respiratory infections in early childhood and effects on adult lung function. Though mortality, lung cancer and cardiovascular and cerebrovascular effects in adults are predominantly weighted towards PM mass and not NO_2 (studies cited in COMEAP/2014/06 Annex B[18]. Similar rates of mortality per 10 µg/m3 of $PM_{2.5}$ and NO_2 have been found in some studies[19]. Though a greater effect of NO_2 (6%) than $PM_{2.5}$ (3%) was found on total mortality when the broader range of NO_2 concentrations were considered. The US Environmental Protection Agency (EPA) found that there was consistent evidence in single-city studies in diverse locations but inconsistent evidence among other large cohorts of multiple US locations.

5.10 A meta-analysis of available long term studies on NO_2 concluded that the magnitude of effect of the long term exposure to NO_2 on mortality is at least important as that of $PM_{2.5}$.

Baseline

5.11 Air pollution has been estimated to affect local health, with statistics in 2015 and 2016 being similar to or below the average for England. 2017 saw a rise in deaths within the South East compared to the national average.

---

[15] COMEAP (2015) Statement of the Evidence of the Effects of Nitrogen Dioxide on Health

[16] Defra analysis using interim recommendations from COMEAP's working group on NO_2

[17] Mills *et* al. (2015) Quantitative systematic review of the associations between short-term exposure to nitrogen dioxide and mortality and hospital admissions. *BMJ Open 2015;5: e006946. doi: 10.1136/bmjopen-2014-006946*

[18] COMEAP (2014) Evidence for the effects of NO_2 on health. Available at: **https://www.gov.uk/government/groups/committee-on-the-medical-effects-of-air-pollutants-comeap**

[19] Environmental Protection Agency (2013) Integrated Science Assessment for Oxides of Nitrogen – Health Criteria (First External Review Draft). **http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=259167**

Table 5.2 Percentage of mortality attributable to particulate air pollution[20]

Area	2015	2016	2017
South East	4.7%	5.5%	5.6%
England	4.7%	5.3%	5.1%

5.12 Admissions for Chronic Obstructive Pulmonary Disease (COPD) is better in the South East when compared to the national average and the trend is decreasing and getting better.

Table 5.3 Total COPD hospital admissions between 2012 and 2013 for the South East region and England[21]

Area	Total COPD admissions per 1,000 of the population	Recent Trend
South East	1.61	Decreasing and getting better
England	2.15	Increasing and getting worse

5.13 Between 2017 and 2018, admissions to hospital for children (aged under 19) with asthma were lower in the South East region compared to England, however there has been no significant change in recent trends in the South East compared to a decreasing and getter better trend nationally.

Table 5.4 Hospital admissions for asthma in children

Area	Hospital admissions for asthma in children (under 19 years), per 100,000 of the population	Recent Trend
South East	153.3	No significant change
England	186.4	Decreasing and getting better

5.14 Between 2015 and 2017 the fraction of deaths attributed to particulate air pollution has steadily increased in the South East and as of 2017, 5.6% of deaths were attributed to particulate matter from vehicles, which is higher than the national average at the time of 5.1%.[22]

[20] Public Health England (2019) Public Health Outcomes Framework: 3.01 Fraction of mortality attributable to particulate air pollution

[21] Public Health England (2019) Inhale – Interactive Health Atlas of Lung Conditions in England

[22] Public Health England (2019) Public Health Outcomes Framework: 3.01 Fraction of mortality attributable to particulate air pollution. Accessed online: https://data.england.nhs.uk/dataset/phe-indicator-30101

Noise

Evidence

5.15 The health impacts of environmental noise are widely acknowledged. Several reviews of impacts have been published (for example, WHO 2011[23]) which highlight potential impacts on cardio-vascular disease, cognitive impairment and sleep disturbance and annoyance.

5.16 The World Health Organisation (WHO) consider the health burden of environmental noise in terms of Disability-Adjusted Life Years (DALYs). One DALY can be thought of as one lost year of "healthy" life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.

5.17 Therefore, any noise impacts resulting in one DALY lost can be thought of as one lost year of 'healthy life'. DALYs considers life expectancy and the incidence of disease, weighted by the severity of the disease (from zero to 1, where 0 is perfect health and 1 is year of life lost).

5.18 WHO estimate that, in EU Member States and other western European countries, DALYs lost are 61,000 years for ischaemic heart disease, 45,000 years for cognitive impairment of children, 903,000 years for sleep disturbance and 654,000 years for annoyance. Swift[24] provided a review of impacts (specifically relating to airports) focussing on sleep disturbance and stress as pathways leading to poor cardiovascular health and the potential mis-attribution of certain conditions, e.g. obesity and diabetes, as confounding factors whereas these conditions themselves may have resulted from sleep disturbance.

5.19 Children are vulnerable to a range of health outcomes associated with environmental noise, including road traffic noise[25]. This includes demonstrating annoyance responses to noise as well as stress, along with increased levels of adrenaline and noradrenaline. Though noise does not cause more serious mental health problems, there is growing evidence for an association with increased hyperactivity symptoms. Increased levels of noise have been associated with changes in cardiovascular functioning, as well as an effect on low birth weight[26,27]. Clear

[23] WHO (2011) Burden of disease from environmental noise: Quantification of healthy life years lost in Europe. Accessed online: http://www.euro.who.int/__data/assets/pdf_file/0008/136466/e94888.pdf

[24] *A Review of the Literature Related to Potential Health Effects of Aircraft Noise*, Hales Swift, Purdue University, 2010.

[25] van Kamp I, Davies H. Noise and health invulnerable groups: a review. Noise Health. 2013; 15:153–9.

[26] Ristovska G, Laszlo HE, Hansell AL. Reproductive outcomes associated with noise exposure—a systematic review of the literature. Int J Environ Res Public Health. 2014;11(8):7931–52.

[27] Hohmann C, Grabenhenrich L, de Kluizenaar Y, et al. Health effects of chronic noise exposure in pregnancy and childhood: a systematic review initiated by ENRIECO. Int J Hyg Environ Health.2013;216:217–29.

evidence exists on the links between the effect of school noise exposure on children's cognitive skills such as reading and memory[28,29,30] as well as test scores[31,32].

5.20 Long term noise exposure is believed to have an influence on psychological health, although, except for annoyance, there is not as strong a link as for other health outcomes.

5.21 Studies from adults suggest that repeated elevation of blood pressure in relation to noise exposure might have pathological effects on health in the long term.[33]

Baseline

5.22 The noise effects of motorised traffic are particularly acute in proximity to the major transport hubs within the region. This includes populations surrounding the Strategic Road Network (SRN) such as Portsmouth, Southampton and Winchester, Crawley, Maidstone and in proximity to the M25. In addition, areas such as Portsmouth, Southampton, Newhaven and Dover are also exposed to noise from shipping activities associated with major ports within the region. Areas within proximity to and beneath flight paths of Heathrow experience increased noise with similar effects occurring to populations surrounding Gatwick Airport. Populations in proximity to Southampton and Bournemouth airports also experience increased noise associated with air traffic, admittedly to a lesser extent than Heathrow and Gatwick. In addition to noise resulting from road, aviation and shipping, other sources in the region include the Brighton mainline in and out of London, South Eastern mainline from Charing Cross to Dover, Chatham Mainline from London Victoria to Dover, Hastings Mainline from Charing Cross to Hastings and HS1 from St Pancras to Folkestone and rail services to Gatwick airport.

5.23 Table 5.5 shows that in 2016, 4.9% of the South East population were exposed to daytime noise levels over 65dB resulting from transport, lower than the England average. However, the percentage of the South East population exposed to night-time noise levels more than 55dB from transport is ever so slightly higher than the England average.

[28] Evans GW, Hyge S, Bullinger M. Chronic noise and psychological stress. Psychol Sci. 1995; 6:333–8

[29] Evans GW, Bullinger M, Hygge S. Chronic noise exposure and physiological response: a prospective study of children living under environmental stress. Psychol Sci. 1998; 9:75–7

[30] Hygge S, Evans GW, Bullinger M. A prospective study of some effects of aircraft noise on cognitive performance in schoolchildren. Psychol Sci. 2002; 13:469–74

[31] Stansfeld, S., Clark, C. 'Health Effects of Noise Exposure in Children'. Curr Envir Health Rpt (2015) 2:171–178

[32] Kuh D, Ben-Shlomo Y. A lifecourse approach to chronic disease epidemiology. Oxford: Oxford University Press; 2004

[33] Munzel T, Gori T, Babisch W, et al. Cardiovascular effects of environmental noise exposure. Eur Heart J. 2014; 356:829–36.

Table 5.5 Percentage of the population exposed to road, rail and air transport noise during day and night[34]

Area	Percentage of the population exposed to road, rail and air transport noise of 65dB (A) or more, during the daytime	Percentage of the population exposed to road, rail and air transport noise of 55dB (A) or more, during the night-time
South East	4.9%	8.6%
England	5.5%	8.5%

5.24

Physical Activity

Evidence

5.25 Being physically active plays an essential role in ensuring health and well-being. It is known that physical activity benefits many parts of the body; the heart, skeletal muscles, bones, blood (for example, cholesterol levels), the immune system and the nervous system. Exercise and physical activity can reduce some of the risk factors for non-communicable diseases (NCDs), including reducing blood pressure, improving blood cholesterol levels, and lowering body mass index (BMI)[35].

Table 5.6 Relationships between physical activity and health[36]

Health Topic	Evidence of the effect of Physical Activity
Overall death rate	Approximately 30% risk reduction for the most active compared with the least active
Cardiovascular health	20% to 35% lower risk of cardiovascular disease, coronary heart disease and stroke
Metabolic health	30% to 40% lower risk of type 2 diabetes in at least moderately active people compared with those who are sedentary
Musculo-skeletal Health	36% to 68% risk reduction of hip fracture at the highest level of physical activity
Falls	Older adults who participate in regular physical activity have an approximately 30% lower risk of falls
Cancer	Approximately 30% lower risk of colon cancer and 20% lower risk of breast cancer for adults participating in daily physical activity
Mental Health	Approximately 20% to 30% lower risk for depression and dementia for adults participating in daily physical activity.

[34] Public Health England (2019) Public Health Outcomes Framework

[35] 'Global Health Risks: Selected figures and tables' www.who.int/entity/healthinfo/global_burden_disease/global_health_risks_report_figures.ppt'

[36] Start active, Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers. Accessed online: http://www.ssehsactive.org.uk/userfiles/Documents/startactivestayactive.pdf

5.26 Physical activity plays an important part in several diseases, such as type 2 diabetes, heart disease and some cancers. The World Health Organization (WHO) estimates that physical inactivity is the fourth leading risk factor for global mortality[37] and physical inactivity is responsible for 6% of deaths globally – around 3.2 million deaths per year, including 2.6 million in low and middle-income countries, and 670,000 of these deaths are premature.[38] Symptoms of depression in adolescents have also been linked to higher BMI and low levels of physical activity[39], particularly among young women.[40]

5.27 It has been stated that the impact of physical inactivity on mortality could even rival tobacco use as a cause of death.[41]

5.28 Walkable environments assist a population to achieve their physical activity targets, compared with less walkable area residents. Populations meet physical activity targets where safe places to walk exist within ten minutes of home. The presence or absence of walkable streets is related to longevity, even after adjustment for demographic and socioeconomic factors and baseline health status.[42]

5.29 Switching journeys from cars to walking, cycling and public transport not only has a large beneficial impact on the individual's health, but a wider benefit to the population health as there are corresponding decreases in overall air pollution levels.

5.30 Increasing levels of cycling and walking can reduce the risk of diseases such as cardiovascular disease, diabetes and dementia. Those that are most inactive will benefit the most.

5.31 Countries with the highest levels of active travel generally have the lowest obesity rates.

Baseline

5.32 As shown in the Public Health Profile Indicators (Table 4.1), the proportion of adults who are physically active in the South-East region was 3.5% higher compared to the England average.

5.33 Table 5.7 below shows proportions of adults undertaking specific activities in the South-East region compared to the England average. The South East has a higher percentage of adults

---

[37] 'Global Health Risks: Selected figures and tables' www.who.int/entity/healthinfo/global_burden_disease/global_health_risks_report_figures.ppt

[38] World Health Organization, Global Recommendations on Physical Activity for Health (WHO, 2011): http://whqlibdoc.who.int/publications/2010/9789241599979_eng.pdf

[39] Hill AJ, Draper E, Stack J. A weight on children's minds: body shape dissatisfactions at 9-years old. International Journal of Obesity 1994; 18:383-389.

[40] Ball K, Burton NW, Brown WJ. A prospective study of overweight, physical activity, and depressive symptoms in young women. Obesity 2009; 1791:66-71.

[41] I.-M. Lee et al., 'Effect of physical activity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy', The Lancet (2012) 380: 219: http://press.thelancet.com/physicalactivity.pdf, p. 227.

[42] Takano T, Nakamura H, Watanabe N. Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces. J Epidem Community Health. 2002;56(12):913–918. doi: 10.1136/jech.56.12.913.

who walk at least once a week compared to the England average and likewise with the percentage of adults that cycle at least once a week.

Table 5.7 Physical Activity Levels Across the South East compared to the England average between 2014 and 2015[43]

Area	Adults who do any walking, at least once per week	Adults who do any cycling, at least once per month
South East	81.7%	16.8%
England	80.6%	14.7%

Road Safety

Evidence

5.34 Traffic collision casualty rates tend to decline as public transit travel increases in an area. Residents of public transport-oriented communities have only about a quarter of the per capita traffic fatality rate as residents of sprawled, private car-dependent communities.[44]

5.35 British roads are now among the safest in the world, but cyclists and pedestrians remain particularly vulnerable road users. Aside from the effect that casualties have on individuals and their families, pedestrian and cyclist casualties are a significant burden on local health services. Furthermore, safety concerns are often cited as a reason why people do not cycle or, for example, allow children to walk to school meaning that they are missing the opportunity to do more physical activity and improve their health.[45]

5.36 Whether children actively commute to school may be determined by parents' perception of safety of the mode of transport, lack of time in the morning and social factors such as no other children to walk with.[46]

[43] Public Health England (2018) Physical Activity Key Indicators

[44] Evaluating Public Transportation Health Benefits 14 June 2010 Todd Litman Victoria Transport Policy Institute for The American Public Transportation Association (http://www.apta.com/resources/reportsandpublications/Documents/APTA_Health_Benefits_Litman.pdf)

[45] Cambridgeshire County Council, 2015. Transport and Health JSNA – Active Travel. Accessed online: https://cambridgeshireinsight.org.uk/wp-content/uploads/2017/08/Transport-and-Health-JSNA-2015-Active-Transport.pdf

[46] J Salmon, Salmon L., Crawford D., Hume C., and A Timperio, 2007. Associations Among Individual, Social, and Environmental Barriers and Children's Walking or Cycling to School. American Journal of Health Promotion, November/December 2007, Vol. 22, No. 2, pp. 107-113.

5.37 The most common cause of death for children aged 5-14 years is being hit by a vehicle, and 35% of all pedestrian fatalities are people over the age of 70.[47]

Baseline

5.38 As shown in the Public Health Profile indicators above (Table 4.1), the percentage of people killed or seriously injured on roads in the South East is slightly higher (0.05%) equating to 49.1 per 100,000 compared to the national average (0.04%) equivalent to 40.8 per 100,000 of the population.

5.39 Between 2007 and 2017, roughly 41% of pedal cyclist casualties in Great Britain occurred in London and the South-East Region[48]. Similarly, of the total motorcycle accidents within Great Britain over the same period, 47% occurred within London and the South East[48].

Economy and Employment

Evidence

5.40 In general, motorised road transport better serves those who are already more advantaged, with the richest 10% of the population receiving almost four times as much public spending on their transport needs as the poorest 10%, due to their overall higher level of travelling and greater use of cars and trains instead of buses.[49]

5.41 Residents in deprived communities tend to travel less, but feel the impacts from travel, such as poorer air quality, higher noise levels and higher collision rates, due to having a higher density of main roads in their area.[50]

5.42 Employment is an important determinant of health; having a job or an occupation provides a vital link between an individual and society, and enables people to contribute to society and achieve personal fulfilment.[51,52]

5.43 The WHO identifies several ways in which employment benefits mental health.[53] These include the provision of structured time, social contact and satisfaction arising from involvement in a

[47] Sustainable Development Commission, 2011. Fairness in a Car Dependant Society. Accessed online: http://www.sd-commission.org.uk/data/files/publications/fairness_car_dependant.pdf.

[48] DfT (2018) Statistical Release: Reported road casualties in Great Britain: 2017 annual report

[49] Sustainable Development Commission, 2011. Fairness in a Car Dependant Society. Accessed online: http://www.sd-commission.org.uk/data/files/publications/fairness_car_dependant.pdf.

[50] Faculty of Public Health Transport and Health Briefing Statement. Accessed online: https://www.fph.org.uk/uploads/Position%20statement%20Transport%20and%20health.pdf

[51] Doyle C, Kavanagh P, Metcalfe O, and T Lavin. 2005. Health Impacts of Employment: A Review. The Institute of Public Health in Ireland. Accessed online: http://www.publichealth.ie/sites/default/files/documents/files/IPH_Employment_Health_24pp.pdf

[52] Sustainable Development Commission, 2011. Fairness in a Car Dependant Society. Accessed online: http://www.sd-commission.org.uk/data/files/publications/fairness_car_dependant.pdf

[53] World Health Organisation. Mental Health. Available at: http://www.who.int/mentalhealth/en

collective effort. Therefore, the loss of a job or the threat of losing a job is considered detrimental to health.[54]

5.44 Income is a key factor through which employment status affects health and wellbeing. The Department of Work and Pensions study found that:

"employment is generally the most important means of obtaining adequate economic resources, which are essential for material well-being and full participation in today's society … employment and socio-economic status are the main drivers of social gradients in physical and mental health and mortality".[55]

5.45 Children, particularly from low-income families, are more sensitive than adults to air pollution, noise and other environmental factors. Pregnant women in poverty and deprivation can lead to adverse health effects on unborn babies'.[56]

5.46 The Marmot Review was commissioned by the Department of Health to consider health inequalities in England. The Review identifies six policy objectives for reducing health inequalities, one of which is to 'Create fair employment and good work for all'. The Review identifies the importance of work for health: 'being in good employment is protective of health. Conversely, unemployment contributes to poor health'.[57]

5.47 The London Health Commission's report Health in London: Review of the London Health Strategy High Level Indicators describes unemployment as: 'a significant risk factor for poor physical and mental health and a major determinant of health inequalities. It is associated with morbidity, injuries and premature mortality, especially through increased risk of coronary heart disease. It is also related to depression, anxiety, self-harm and suicide'.[58]

5.48 The type of job a person has and the working conditions he or she is exposed to will also affect health. It is also important to consider the impact that employment has on other aspects of people's lives that are important for health, for example; family life, social life and caring responsibilities for family members.

Baseline

5.49 Table 5.8 below shows the percentage of the South-East population economically inactive is lower when compared to the England average. Subsequently, the percentage of the population economically active is higher than the England average.

---

[54] Marmot M, Wilkinson R, editors. The solid facts. 2nd ed. Geneva: World Health Organisation; 2003

[55] Waddell, G., Burton, A. K., 2007. Is work good for your health and well-being? The Stationery Office.

[56] Xu Xiaohui; Sharma Ravi K.; Talbott Evelyn O.; et al. (2011) PM_{10} air pollution exposure during pregnancy and term low birth weight in Allegheny County, PA, 1994-2000 INTERNATIONAL ARCHIVES OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH Volume: 84 Issue: 3 Pages: 251-257

[57] Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish D., Grady, M. and Geddes, I., 2010, Fair society, healthy lives: Strategic review of health inequalities in England post-2010, The Marmot Review. Page 26, para 1.

[58] Greater London Authority, 2005, Health in London: Review of the London Health Strategy High Level Indicators, London Health Commission

Table 5-8 Percentage of the Population Economically Active and Inactive[59]

Area	Economically Inactive (%)	Economically Active (%)
South East	27.9%	72.1%
England	30.1%	69.9%

5.50 As shown in Table 5.9, of the economically active percentage of the population, the South East had a greater proportion of the population employed as Managers, Directors, Senior Officials, Associate Professionals and Technical compared to the England average. Subsequently, the proportion of the population in the South East in Skilled Trades, Sales and Customer Service, Process and Plant Machine Operatives and Elementary Occupations is lower than the national averages.

Table 5-9 Percentage of the Population by Occupation[60]

Area	Managers Directors and Senior Officials (%)	Professional and Technical (%)	Administrative and Secretarial (%)	Skilled Trades (%)	Caring, leisure and other service occupations (%)	Sales and Customer Service (%)	Process and Plant Machine Operatives (%)	Elementary Occupations (%)
South East	12.3	32.6	11.5	11.1	9.3	7.9	5.7	9.7
England	10.9	30.3	11.5	11.4	9.3	8.4	7.2	11.1

Access and Accessibility

Evidence

5.51 Transportation and access are known to promote social inclusion, as social exclusion can occur because of a community not being able to easily access transport options, amongst other things.

5.52 The Social Exclusion Unit states that 'participation in social, cultural and leisure activities is very important to people's quality of life and can play a major part in meeting policy goals like improving health, reducing crime and building cohesive communities'. Problems with transport and the location and delivery of services contribute to social exclusion by preventing

[59] NOMIS (2014) Key Statistics: Economic Activity

[60] NOMIS (2013) QS606EW Occupation (Minor Groups)

people from participating in work or learning and from accessing healthcare, food shopping and other local activities.[61]

5.53 According to the Department for Transport, 'over the course of a year over 1.4 million people miss, turn down or simply choose not to seek healthcare because of transport problems'[62]. Capacity to reach healthcare services is affected by the accessibility of transport modes, availability of financial support for those on low incomes and the location of healthcare services[63]. Groups impacted by disability and of certain ages may experience even greater barriers to health and social care services.[64]

5.54 Community severance is separation of different areas within a community by the flow of traffic.[65] Social networks are susceptible to severance by physical barriers, such as roads and traffic, which can create both real and perceived barriers to social contact. For example, children may not be allowed to visit friends unaccompanied because of parental concern over road traffic accidents.

5.55 A study illustrating the effect of traffic on social contacts in three streets was performed in San Francisco.[66] It was found that people living on the street with lightest traffic had twice as many acquaintances and three times as many friends as those people who lived on the street with the heaviest traffic.

5.56 Social capital was measured across different neighbourhoods and it was found that people in "car-dependent" localities were less likely to know and trust their neighbours and to participate in local organizations than people who lived in "walkable", pedestrian orientated localities with less traffic and congestion.[67]

5.57 A similar study in Bristol also demonstrated that the volume and speed of motorised traffic can reduce opportunities for positive interactions between residents in a neighbourhood and can contribute to increased social isolation.[68]

---

[61] Social Exclusion Unit, 2003. Making the connections: Final report of Transport and Social Exclusion.

[62] Social Exclusion Unit, 2003. Making the connections: Final report of Transport and Social Exclusion.

[63] Randall, C., 2012, Measuring National Well-being - Where We Live – 2012, Office for National Statistics

[64] Hamer, L., 2004, Improving patient access to health services: a national review and case studies of current approaches, Health Development Agency

[65] McCarthy M. Transport and health. In: Marmot M, Wilkinson RG, editors. Social determinants of health. Oxford; New York: Oxford University Press; 1999.

[66] Appleyard D, Lintell M. The environmental quality of city streets: the resident's viewpoint. Am Instit Planners J 1972; 38:84-101

[67] Leyden KM. Social capital and the built environment: the importance of walkable neighbourhoods. Am J Public Health 2003; 93:1546-51.

[68] Hart, J & Parkhurst, G (2011) Driven to excess: Impacts of motor vehicles on the quality of life of residents of three streets in Bristol UK. World Transport Policy & Practice, 17 (2). pp 12-30.

Baseline

5.58 As Table 5.10 shows, 44.5% of the South East population travel to work by car or van (either driving or as a passenger) which is higher than the England average (40.1%). Furthermore, the percentage of the South-East population that travel to work by public transport (underground, metro, light rail, tram, train, bus, minibus and coach) is considerably lower (8.2%) compared to the England average (11%). A higher percentage of the population in the South-East travel to work on foot and via bicycle (9.4%) compared to the national average (8.9%).

5.59 3% of the South East region population travelled to work by bus, lower than the national average. Bus travel has steadily declined over recent years with factors affecting bus patronage being congestion, changes in car ownership, reductions in local authority supported services and increased online shopping.[69]

Table 5.10 Percentage of the Population by Method of Travel to Work[70]

Method of Travel to Work	Percentage of the South East Population (%)	Percentage of the England Population (%)
Work mainly at or from home	4.5	3.5
Underground, metro, light rail, train	0.2	2.6
Train	5.0	3.5
Bus, minibus or coach	3.0	4.9
Taxi	0.3	0.3
Motorcycle, scooter or moped	0.6	0.5
Driving a car or van	41.3	36.9
Passenger in a car or van	3.2	3.3
Bicycle	2.0	1.9
On foot	7.4	6.9
Other method of travel to work	0.5	0.4
Not in employment	32.1	35.3

5.60 Table 5.11 shows that 60.6% of the South East population travel between 2 and 20km to get to work which is lower than the England average of 67.6%. Subsequently a higher percentage of the South East population (18.7%) travel distances between 20km and 60km and over compared to the England average (13.7%). This is reflected within the average distance travelled to work with the South East being 16.6km compared to the England average of 14.9km[70].

[69] DfT (2017) Statistical release – Annual Bus Statistics: England 2016/17. Accessed online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/666759/annual-bus-statistics-year-ending-march-2017.pdf

[70] NOMIS (2013) QS701EW Method of Travel to Work

Table 5.11 Percentage of the Population by Distance Travelled to Work[71]

Distance Travelled to Work	**Percentage of the** South East **Population (%)**	**Percentage of the** England **Population (%)**
Less than 2km	16.6	16.6
2km to less than 5km	16.2	18.4
5km to less than 10km	14.2	17.3
10km to less than 20km	13.7	15.3
20km to less than 30km	7.1	5.7
30km to less than 40km	3.7	2.6
40km to less than 60km	4.0	2.3
60km and over	4.0	3.1
Work mainly at or from home	11.8	10.3
Other	8.9	8.5

5.61 Table 5.12 shows the proportion of households with no access to a car and access to 1 car is lower than the England average, however the proportion of households with access to 2 cars or more in the South East is considerably higher than the national averages.

Table 5.12 Percentage of Households with Access to a Car or Van[72]

Car or Van Availability	Percentage of the South East Population (%)	Percentage of the **England** Population (%)
No cars or vans in household	18.6	25.8
1 car or van in household	41.7	42.2
2 cars or vans in household	29.8	24.7
3 cars or vans in household	7.1	5.5
4 or more cars or vans in household	2.8	1.9

[71] NOMIS (2014) QS702EW Distance Travelled to Work

[72] NOMIS (2013) QS416EW Car or Van Availability

Table 5.13 General Transport Interventions and Health Effects

Symbol	Health Effect
✓	Likely positive health outcome
x	Likely negative health outcome
?	Uncertain effect
0	No effect

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Air Quality	Noise	Physical Activity	Road Safety	Economy and Employment	Access and Accessibility		
Highways – new roads and major widening	Radial; Orbital & oastal; International Gateways & Freight	x	x	x	✓	✓	✓	New roads would likely increase capacity and number of vehicles moving through areas which may increase air quality and noise impacts on health for nearby receptors. The creation and expansion of the road network will not promote the use of active transport methods which may have negative effects on the physical activity and health of the South-East population. In addition, increased vehicle use may have further air quality and noise impacts. New roads are likely to afford benefits to road safety as they will be designed to modern standards. The provision of new roads may lead to increased accessibility to areas of employment which will benefit both the South East economy and access throughout the South East region.	New road schemes should aim to incorporate and expand footpath and cycleway infrastructure wherever possible to promote more active means of transport and to cycle-proof the strategic road network, reducing any severance from new road schemes by enhancing access for all users, including pedestrians, horse riders, and people with disabilities or health conditions[73]. New road schemes should aim to overcome the challenges of east to west connectivity through the South East region rather than connections with London and the South Coast.
Highways – improvements to junctions and roundabouts, parking and minor widening	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	x	x	?	?	✓	✓	Online improvements will help to ease congestion, but could also lead to increase in capacity, more traffic and increased impacts on air quality and noise.	Widening of roadways and junctions could lead to increased average vehicle speeds. At junctions, cycle lanes can increase accidents, especially if the lanes are not carried through the junction[74],[75]. Noise caused during construction works should consider the impact upon neighbouring communities in terms of timing and any other mitigation measures.
Highways – non-infrastructure options, e.g. traffic management and road safety	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	?	✓	✓	?	✓	?	Maintaining existing transport infrastructure will have a positive health economic impact and improving journey times through reducing congestion and improved air quality. Improved road surface can encourage cycle usage. In some cases, speed restrictions upon vehicles can result in increased emissions due to a reduction in optimum performance of vehicle engines, however certain	Maintenance methods should be appropriate and priority should be given to routes that are heavily used by both vehicle and non-vehicle users. Noise caused during construction works should consider impacts upon neighbouring communities in terms of timing and any other mitigation measures.

[73] Department for Transport (2017) Cycling and Walking Investment Strategy
[74] Coates, Nigel, 1999, 'The Safety Benefits of Cycle Lanes', Proceedings of the Velo-City '99 Conference held in Graz, Austria.

[75] http://www.cyclecraft.co.uk/digest/research.html

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Air Quality	Noise	Physical Activity	Road Safety	Economy and Employment	Access and Accessibility		
								circumstances, such as the M4, speed restrictions can also lead to improvements in air quality. Therefore, this intervention has the potential to lead to both a reduction or an improvement in air quality.	
Rail – new railway lines and stations	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	✓	?	✓	✓	✓	✓	New railway lines may increase impacts of noise and air quality on health by bringing transport routes closer to receptors, however the overall effect of rail on noise and public health is considerably lower than roads. For example, an estimated 32 million residents are exposed to road noise levels greater than 55 dB, whereas this figure is only 1 million residents for rail[76]. Based on 2016 figures, rail transport accounted for 1% of the UK's Greenhouse Gas Emissions compared to 27% for road transport[77]. New railway lines may afford benefits to health of the South-East population with improvements to air quality. There is evidence that shows improvements to public transport may increase its use, particularly for those who live nearby by. Some studies have also suggested that public transport interventions increase study participants total physical activity levels[78] which may have benefits to health, access and physical activity. An increase in uptake of rail services within the South East has the potential to reduce the number of vehicles on roads which may have a positive effect on road safety depending on the uptake of rail transport. New rail lines and stations will increase accessibility and access between areas within the South East and will also benefit the economy, providing greater access to employment.	Consideration of the use of electric trains or trains supplied by emission free renewable energy sources should be investigated to reduce potential impacts on air quality and noise levels.
Rail – improvements to stations, services and signalling	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	✓	?	✓	✓	✓	✓	There is evidence that shows improvements to public transport may increase its use, particularly for those who live nearby by. Some studies have also suggested that public transport interventions increase study participants total physical activity levels[79] which may have benefits to health, access and physical activity. The impacts to noise are currently unclear as there is the potential for improvements to stations, services and signalling to lead to increased number of services or speed or services which could impact noise levels experienced by nearby receptors. Upgrades to existing rail infrastructure can help make travelling by rail more attractive for passengers. Any shift from road to rail transport may assist in reducing air quality and noise impacts within the region but also indirectly lead to a reduction in congestion which could benefit road safety.	Secure cycle storage should be included in any station upgrade to encourage active travel. Opportunities should be sought to integrate rail with other forms of public and active travel modes. This could include the provision of information such as bus timetables or maps of pedestrian routes in the local area, or other infrastructure such as cycle hire hubs or car club parking spaces.

[76] Friends of the Earth (no date) Fact Sheet: Why travelling by rail is better for the environment.

[77] Department for Transport (2018) Table ENV0201 Greenhouse gas emissions by transport mode, United Kingdom: 2003 to 2016.

[78] National Institute for Health and Care Excellence (2018) NICE Guideline: Physical activity and the environment

[79] National Institute for Health and Care Excellence (2018) NICE Guideline: Physical activity and the environment

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Air Quality	Noise	Physical Activity	Road Safety	Economy and Employment	Access and Accessibility		
								Upgrades to existing stations could make them more accessible for passengers (i.e. better physical access to and within stations) and increase access through the region if additional capacity at stations can be provided which could benefit the economy and employment.	
Bus and light rail – development of urban infrastructure, priority measures, and improvements to stops, services and information	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	✓	✓	✓	✓	✓	✓	Improvements to bus stops, services and information has the potential to increase the attractiveness and reliability of travelling by bus for passengers. Any increase in bus usage, as well of use of new light rail transit schemes, could have beneficial effects on air quality and noise as well as road safety, with a potential reduction in the number of vehicles on roads in the South East. New and regular bus services between previously unconnected areas may have benefits on the economy by providing improved access to employment within the region. Benefits are most likely in urban centres and more rural locations within the region. There is evidence that shows improvements to public transport may increase its use, particularly for those who live nearby. Some studies have also suggested that public transport interventions increase total physical activity levels[80] which may have benefits to health, access and physical activity. The economy is also likely to benefit from the introduction of light rail in urban areas, as it is often used as a means of regeneration[81].	It is recommended that any new bus and light rail services are targeted around highly urbanised centres within the South East and more rural or distant communities that are deprived of public transport. Opportunities should be sought to integrate different modes of travel which could include the provision of information such as maps of pedestrians' routes in the local area, or cycle stands at bus and tram stops and stations.
Walking and cycling – new or improved walkways and cycleways	Local	✓	✓	✓	✓	✓	✓	New or improved cycle and pedestrian infrastructure will encourage active travel and improve safety for pedestrians and cyclists which may also indirectly result in a reduction in road congestion by providing attractive and reliable active travel options. In addition, modal shifts to more active transport may have benefits to noise and air quality in the South East, particularly around the major urban centres and transport hubs. Furthermore, improvements to or additional walking and cycling routes has the potential to improve accessibility within the South East on a local scale which could increase access to employment.	Walkways and cycleways should be improved, and designed, to enable access for all users, including those with reduced mobility or disability. Attention should be given to improve walking and cycling networks between urban areas and the surrounding countryside to improve access to green and open space. Walkable environments should be prioritised in new residential developments, and should be integrated in to existing pedestrian networks.
Other – public transport information, congestion schemes, ticketing, behavioural change	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	✓	✓	✓	✓	?	?	This intervention type includes measures to encourage a modal shift (cycle to work schemes), improve accessibility where there isn't currently a suitable mode of transport (provision of mopeds or scooters, community buses, bicycle hire) and more sustainable use of transport (car shares). There may be indirect benefits to road safety through the reduction in the number of vehicles on the road. Interventions such as cycle to work schemes, walking school busses, or provision of community buses will encourage healthier journey choices.	Consideration should be given to all travel users to ensure everyone is included in any campaigns to promote behaviour change. For example, over reliance on web based information, or e-ticketing, might disadvantage older people or people on low incomes who do not have regular internet access. Promotion of active travel, or limiting car access to public spaces, can also disadvantage people with reduced mobility.

[80] National Institute for Health and Care Excellence (2018) NICE Guideline: Physical activity and the environment

[81] DfT (2019) A Call for Evidence on the opportunities available to introduce new Light Rail Systems or other rapid transit solutions into towns and cities in England

Control Information

Prepared by

Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
www.steergroup.com

Prepared for

Transport for the South East

Steer project/proposal number

23433701

Client contract/project number

N/K

Author/originator

Claire Beard

Reviewer/approver

Ursula Stevenson

Other contributors

Nick Archibald, Helen Davies

Distribution

Client: Client Team
Steer/ Project Management
WSP: Team

Version control/issue number

V1.0 Draft for Client
V2.0 Draft for Client

Date

18 July 2019
09 September 2019

Complex questions.
Powerful answers.

September 2019

ISA Report Appendix D: Equality Impact Assessment

Transport for the South East
23433701

September 2019

ISA Report Appendix D: Equality Impact Assessment

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Transport for the South East

23433701

Contents

Executive Summary

An Equalities Impact Assessment (EqIA) of general transport interventions within the South East region was undertaken in support of the Integrated Sustainability Appraisal (ISA) alongside the preparation of a Transport Strategy to encourage sustainable development.

Equality issues considered included both direct and indirect effects from the general transport interventions upon the South East regions wider community, including its population and particularly groups that share protected characteristics as defined under the Equality Act 2010.

Baseline data was collected for the South East to compile a social profile for the region and includes information on gender, religion, age, disability, race and deprivation. Information was collected primarily from the Office of National Statistics using data retrieved during the 2011 Census. Where appropriate and available, baseline information was updated or supplemented with more recent published data.

An EqIA was undertaken for general transport interventions listed in section 5.4 of the ISA ranging from new infrastructure, improvements to existing infrastructure, and behavioural change. The general transport interventions were assessed against six protected characteristics including gender, religion, age, disability, race and deprivation and were given a qualitative score of positive (+), neutral (0) or negative (-) based on their likelihood to impact equality.

The assessment has identified that general transport interventions are likely to result in primarily positive equality impacts with several neutral impacts where not enough information is known at this stage.

1 Introduction

Background and Context

1.1 Transport for the South East (TfSE), the sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs) in the South East (SE).

1.2 An Integrated Sustainability Appraisal (ISA) has been undertaken alongside the preparation of the Transport Strategy. Its role is to promote sustainable development by assessing environmental, social and economic impacts, as well as mitigating any potential adverse effects that the Transport Strategy might otherwise have.

1.3 This Equalities Impact Assessment (EqIA) will assess general transport interventions related to the thematic journey types proposed in the Transport Strategy from an equality perspective, and will seek to identify whether such general transport interventions might have an adverse impact on equality of opportunity.

1.4 This EqIA has been completed at a strategic level for the Transport Strategy, and there is an assumption that location specific issues and design considerations at a scheme level will be assessed under scheme specific EqIAs, and that design standards will apply. It is also assumed that when transport interventions are considered at a later stage, the impacts of the relevant modes or interventions selected will be assessed for disproportionate effects on vulnerable users as a package of measures.

2 Legislation

2.1 The Equality Act 2010 came into force on 1 October 2010 and brought together over 116 separate pieces of legislation into a single Act. The Act provides a legal framework to protect the rights of individuals that share defined "protected characteristics" and advance equality of opportunity.

2.2 Those "protected characteristics" which identify the vulnerable groups who may be disproportionately impacted upon or discriminated against are outlined in Table 2.1. Protection extends to those who are perceived to have these characteristics or who suffer discrimination because they are associated with someone who has that characteristic, e.g. cares for someone with a disability.

Table 2.1 – Protected Characteristics covered with and Equality Impact Assessment

Protected Characteristic	People and Aspects Included
Gender	Men, women, married and single people; parenting, caring, flexible working and equal pay concerns.
Religion or belief	People who have a religious belief; people who are atheist or agnostic; people who have a philosophical belief which affects their view of the world or the way they live.
Age	Children (0-16), young people (17-25), working age people (15-64) and elderly people (65 and over).
Disability	People with physical, mental, sensory, visible or hidden impairment (e.g. cancer, HIV, dyslexia).
Race	People from various ethnic groups, as for the Census categories, e.g. White British, Chinese, British Asians, Travellers, Gypsies, Roma, those who are of Caribbean origin, people of mixed heritage, White Irish communities, and people of other nationalities who reside in Britain.
Sexual Orientation	Heterosexual and bisexual men and women, gay men and lesbians.
Gender reassignment (transgender/transsexual)	Anyone who is proposing to undergo, are undergoing or have undergone a process for the purpose of reassigning their sex.
Pregnancy and Maternity	Pregnant women and new mothers – protection against maternity discrimination (including as a result of breast feeding).
Marriage and civil partnership	People who are married or are civil partners

2.3 Section 149 of the Act provides for a Public-Sector Equality Duty. This requires that public bodies such as TfSE, in the exercise of their functions, give "due regard to the need to":

- Eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under the Act;
- Advance equality of opportunity between people who share a protected characteristic and those who do not. This includes:
  - Removing or minimising disadvantages suffered by people due to protected characteristics;

  - Taking steps to meet the needs of people with protected characteristics where these are different from the needs of other people; and
  - Encouraging people with protected characteristics to participate in public life or in other activities where their participation is disproportionately low.
- Foster good relations between people who share protected characteristic and those who do not. This includes:
  - Tackling prejudice;
  - Promoting understanding; and
  - Eliminating unlawful discrimination, harassment and victimisation.

2.4 The duty also applies to private sector companies when carrying out functions or services on behalf of public sector bodies.

3 Equality Impact Assessment

What is EqIA?

3.1 An Equality Impact Assessment (EqIA) considers the impact of a project or policy on persons or groups of persons who share characteristics which are protected under section 4 of the Equality Act 2010 ("protected characteristics") and might also include others considered to be vulnerable within society such as low-income groups. It is an information gathering tool which enables decision makers within public bodies to implement their equality duty under the Equality Act 2010.

3.2 An EqIA guides decision makers and designers to:

- Consider the effects of existing and proposed policy or practice on people who share a "protected characteristic"; and
- Identify opportunities to improve equality of opportunity and eliminate discrimination.

3.3 An EqIA should be carried out before making decisions, to inform and shape the outcomes. They should be updated throughout the decision-making process as necessary, as policy or practices are developed.

3.4 There are three stages to an EqIA; screening, full assessment and outcome monitoring. The screening stage determines which protected characteristics (which when following best practice can include other vulnerable groups in society not listed under the Act, such as low-income groups) are likely to experience disproportionate impacts, and therefore require consideration within the EqIA. This considers the nature of the public function being exercised and available information on users and impacts. This document represents the assessment on those groups identified.

4 Social Profile

4.1 A social profile for the South East Region has been compiled from publicly available data to provide context for the assessment. This comprises information on protected characteristic groups and the local communities likely to be impacted by this Transport Strategy.

4.2 The following baseline is also reflected in the Integrated Sustainability Assessment (paragraphs 4.3.29 to 4.3.34).

Protected Characteristics Profile

4.3 Data from the Office of National Statistics (ONS) has been gathered on the following protected characteristics from Section 4 of the Equality Act 2010:

- Gender
- Religion
- Age
- Disability
- Race

4.4 Certain protected characteristics, including sexual orientation, gender reassignment, pregnancy and maternity, and marriage and civil partnerships have not been included in the assessment due to a lack of publicly available data at the time of writing. Although not a protected characteristic under the Equality Act 2010, the social profile also includes data on deprivation as it provides a measure of a combination of social-economic metrics.

Gender

4.5 Males make up 49.3% of the SE region's population and females make up 51.7% of an overall population totalling 9.03 million people (2016). [1]. The South East of England proportions are reflective of England overall as shown in Table 4.1.

Table 4.1 Male and Female Populations within the South East Region and England

Location	Male	Female
South East	4,449,245	4,581,102
England	27,300,920	27,967,147

Religion

4.6 65% of the population in the SE identify with a religion as stated in the 2011 Census, of which 90% identify as Christian. The second largest religious group are Muslims, who make up approximately 4% of the religious population. The collation of other minority religions in the

[1] ONS. 2018. Subnational population projections for England: 2016-based. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2016based

SE totals approximately 6% and includes religions such as Hinduism, Sikhism, Judaism and Buddhism. Table 4.2 shows the breakdown per religious group out of the total population for the SE region and for England and Wales combined[2].

Table 4.2 Religious Groups within the South East Region and England and Wales (2011)

Location	Christian	Muslim	Other religion	No religion	Religion not stated
South East (2011)	60%	2%	3%	28%	7%
England & Wales (2011)	59%	5%	4%	25%	7%

4.7 A breakdown of minority religious groups was not available at the SE regional level but the national data (England & Wales) is provided below:

- Hinduism makes up approximately 1.5%;
- Sikhism makes up between 0.5 and 1%;
- Judaism makes up approximately 0.5%;
- Buddhism makes up approximately >0.5%; and
- Other religions make up approximately >0.5%.

Population and Age

4.8 The SE has the largest population of any government region of England. According to the latest ONS population projections, the current population of the SE stands at 9,030,000[3]. According to the 2018 mid-year population estimates, the districts in the SE generally have a lower proportion of females and males over the age of 65, compared to the England and Wales average, as shown in Figure 4-1 below[4].

[2] ONS (2011). Religion in England and Wales 2011. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/religion/articles/religioninenglandandwales2011/2012-12-11

[3] ONS. 2016. 2016-Based Subnational Population Projections for Local Authorities and Higher Administrative Areas in England. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2016based

[4] ONS. 2018. Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2018. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2018

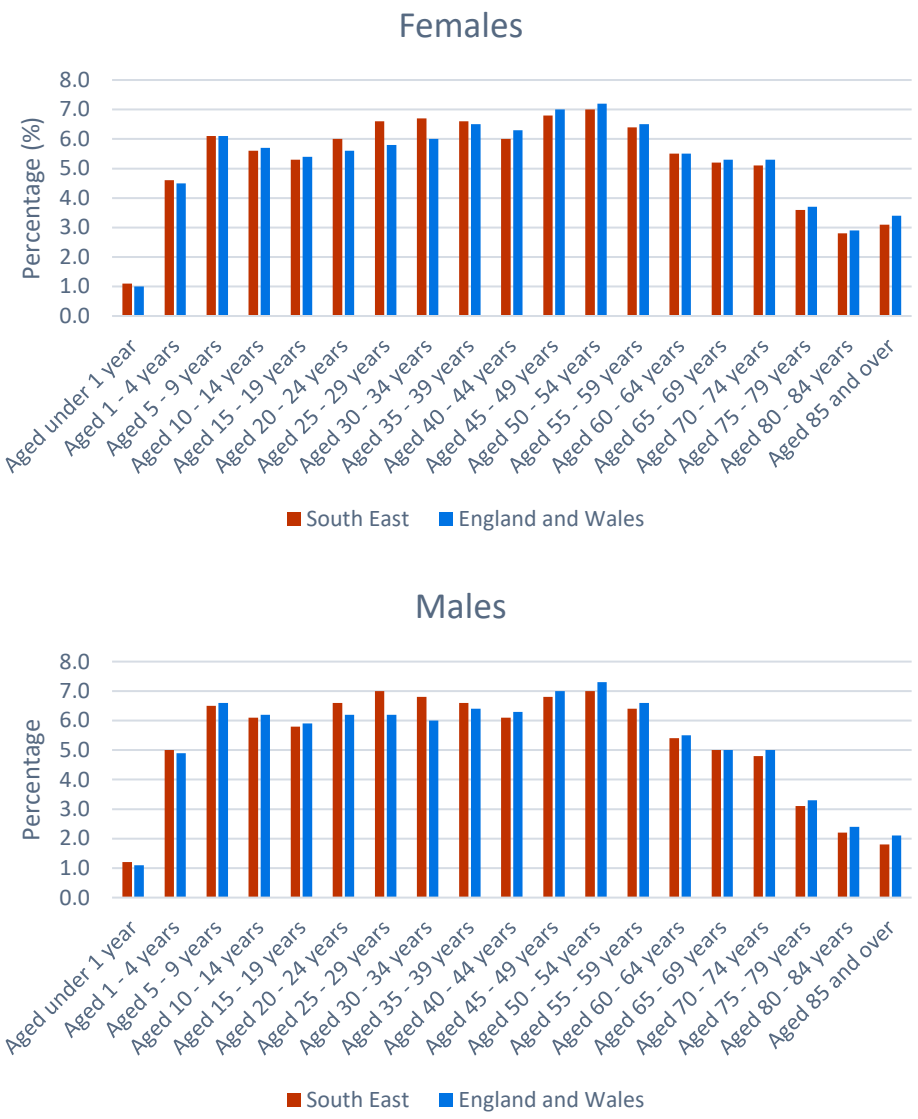

Figure 4-1 – Percentage of Population for Males and Females for age group for the South East region and England and Wales[4]

Disability

4.9 Disability can be assessed in terms of ability to undertake an activity. Table 4.3 shows the proportion of the population whose day to day activities are limited by a long-term health problem or disability. As shown, the South East is reflective of England overall with a marginally higher percentage identified as not limited.

Table 4.3 – Proportion of those living with limiting health problems or disability for the South East Region and England (2011)

Location	Limited a Lot	Limited a Little	Not Limited
South East (2011)	6.9%	8.8%	84.3%
England (2011)	8.5%	9.4%	82.1%

Race

4.10 The diversity of different ethnicities is relatively low in the region, approximately 91% of the region identify as White, with 85% identifying as White British. Approximately 9% of the SE population identify as being from a BAME (Black, Asian, and minority ethnic) background[5], which is considerably lower than the national average of approximately 14%[6].

Table 4.4 Ethnicity in the South East Region and England and Wales (2011)

Location	White British	White Other	Asian	Mixed	Black	Other
South East (2011)	85.2%	5.4%	5.2%	1.9%	1.6%	0.6%
England & Wales (2011)	86.0%		7.5%	2.2%	3.3%	1.0%

Unemployment and Deprivation

4.11 The proportion of unemployment in the South East is lower than the UK. In addition, the median gross weekly pay for full time workers is higher in the South East compared to the UK.

Table 4.5 Economic Profile

Unemployment and Deprivation	South East	United Kingdom
Economically active: Unemployed (%)	3.0	3.8
Gross Weekly Pay (full time workers) (£)	614.5	569.0

4.12 The English Indices of Deprivation 2015[7] are a collection of several separate indices (covering Income, Employment, Health Deprivation and Disability, Education Skills and Training, Barriers to Housing and Services, Crime and Living Environment) measuring deprivation within all local authorities in England.

4.13 Table 4.6 below shows the proportion of neighbourhoods that are in the most deprived 10 percent of area's nationally according to the Index of Multiple Deprivation 2015 nationally, for each of the five LEP's within the South East. Within the South East, the Solent LEP has the highest level of deprivation and Enterprise M3 has the lowest levels of deprivation.

[5] Gov.UK (2018). Regional ethnic diversity. Available from: https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/regional-ethnic-diversity/latest

[6] ONS (2011). Ethnicity and National Identity in England and Wales: 2011. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11

[7] Ministry of Housing, Communities and Local Government (2015). English indices of deprivation 2015. Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015

Table 4.6 Proportion of Deprivation within the LEPs of the South East*

	Coast to Capital	Enterprise M3	Solent	South East	Thames Valley Berkshire
Index of Multiple Deprivation (%)	2.3	0.0**	6.1	5.3	0.4

*The numbers in Table 4.5 are applicable to the entire LEP which may not entirely be within the South East Study area.

** Where the Index of Multiple Deprivation (%) is 0.0, this indicates that none of the neighbourhoods meet this criterion. This is not to say that there are no deprived people in the partnership area ranked as least deprived; rather where deprivation exists, it may not be concentrated within particular neighbourhoods.

Projected Population

4.14 The population between 2019 and 2041 in the SE is set to increase by 10%, with the greatest increases seen in the over 75's. Of the eleven authorities, the largest population increase is projected in Medway, with an increase of 13.5%, whilst the smallest population increase is projected in West Berkshire at 5.6%. The population increases within the Isle of Wight, Portsmouth, Southampton, Hampshire, Surrey and West Berkshire are all below the regional and national averages, of 10%[8]. Table 4.7 below shows the population projections per age group across the SE region.

Table 4.7 Population Projections 2019 - 2041

Age Group	2019	2041	% Increase
0-4	529.6	533.9	0.8%
5-9	581.1	544.5	-6.7%
10-14	560.9	565.5	0.8%
15-19	510.0	583.1	12.5%
20-24	529.5	570.6	7.2%
25-29	551.1	578.8	4.8%
30-34	555.4	581.6	4.5%
35-39	589.2	541.6	-8.8%
40-44	575.1	569.9	-0.9%
45-49	630.4	617.0	-2.2%
50-54	662.5	638.2	-3.8%
55-59	618.8	623.9	0.8%
60-64	521.3	600.7	13.2%
65-69	468.2	582.0	19.6%

[8] ONS. 2016. 2016-Based Subnational Population Projections for Local Authorities and Higher Administrative Areas in England

70-74	484.2	600.5	19.4%
75-79	337.0	557.5	39.6%
80-84	251.7	423.3	40.5%
85-89	160.1	283.4	43.5%
90+	98.0	240.	59.2%
All ages	9,214.3	10,236.2	10.0%

Baseline Summary

4.15 The SE is generally economically prosperous, with higher levels of income and employment than other regions across the UK. There are some pockets of deprivation across the region within the urban areas of Southampton, Portsmouth, Brighton and the cities within the county of Kent with however the scope of this assessment will be looking at the SE region as a whole.

4.16 As detailed schemes and interventions come forward, these should be assessed in more detail to understand the potential impacts on specific local populations and vulnerable groups.

5 Impact Assessment

5.1 The TfSE Transport Strategy: Strategic Context aims to improve transport in the South East using the following Strategic Objectives:

- Ensuring the delivery of a high quality, sustainable and integrated transport system that supports increased productivity to grow the South East and UK economy and compete in the global marketplace.
- Facilitating the development of a high quality, sustainable and integrated transport system that works to improve safety, quality of life and access to opportunities for all.
- Facilitate the delivery of a high quality, sustainable and integrated transport system that protects and enhances the South East's unique natural and historic environment.

5.2 It is also essential to ensure that no groups with protected characteristics (see Table 2.1 above) are adversely impacted by the Transport Strategy. Certain equality groups are unlikely to be impacted specifically as a result of this transport plan and have been scoped out of this assessment. These include:

- Sexual orientation
- Gender re-assignment
- Pregnancy & Maternity
- Marriage

5.3 As there are pockets of deprivation in the region (related to income and employment), this topic has been included in the equality assessment to capture the impacts likely to be felt by those that are vulnerable due to their economic position.

Assessment Methodology

5.4 The impact assessment will assess the general transport interventions outlined in the Integrated Sustainability Appraisal from an equality perspective.

5.5 Table 5.1 below provides an explanation of the assessment.

Table 5.1 Assessment Key

Symbol	Impact
+	Positive
0	Neutral
-	Negative

Assessment Summary

5.6 Overall, the general transport interventions should have a positive impact on the general public that are living, working or visiting the South East by providing a safer, resilient, sustainable and convenient transport opportunities for the region. Some of the most vulnerable groups will particularly benefit, specifically:

- People with limited or no access to cars;

- People with respiratory illnesses, and those more susceptible to poor air quality (particularly younger and older people); and
- People that require access to employment, education, health and/ or other services.

5.7 Although positive, there are still possible adverse impacts that would be felt by those with limited mobility who are unable to participate in active travel (such as older people or people with a disability which restricts participation). Therefore, the Strategy should incorporate measures for all levels of mobility so as not to exclude people who are unable to participate in active travel.

5.8 The matrix below summarises the policy, intervention, equality impacts and recommendation where adverse impacts have been identified. In the following, equality impact refers to the impacts the general transport interventions are likely to have on one or more of the five protected characteristic groups. It should be noted that it is assumed that when transport interventions are considered at a later stage, the impacts of the relevant modes or interventions selected will be assessed for disproportionate effects on vulnerable users as a package of measures, and therefore interventions are not assessed assuming the absence of complimentary interventions.

Table 5.13 General Transport Interventions and Equality Effects

Symbol	Impact
+	Positive
0	Neutral
-	Negative

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Gender	Religion	Age	Disability	Race	Deprivation		
Highways – new roads and major widening	Radial; Orbital & Coastal; International Gateways & Freight	0	0	+	+	0	+	Road users, including both private car and public transport users, will benefit from more capacity and greater journey time reliability through the re-distribution of traffic. Strategic improvements to roads are likely to have a beneficial impact on public transport and will therefore benefit people using these facilities to access education, employment and/or health services, particularly those beyond their local neighbourhood, particularly younger and older people, people with disabilities, as well as the unemployed. However, the provision of new roads may incur a reduction in air quality through increased air pollution. This is particularly detrimental to people with respiratory illnesses, younger and older people. New roads and widening may also result in beneficial or adverse impacts for active travel users should journey lengths change, barriers to travel increase or decrease or levels of perceived severance change. This is relevant to those with limited mobility (including older people and those with disabilities which restrict mobility), wheelchair users and parents and carers using push chairs.	Provision of electric public transport (including buses and taxis) and associated infrastructure to limit air pollution and carbon emissions.
Highways – improvements to junctions and roundabouts, parking and minor widening	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	+	0	+	+	0	+	The improvement of existing highways will benefit both private car and public transport users through relief of congestion and improved reliability of journey times. Strategic improvements are likely to have a beneficial impact on people using roads to access education, employment and/or health services, particularly those beyond their local neighbourhood, particularly younger and older people, people with disabilities, as well as the unemployed. Improvements to existing and provision of new walking, cycling and horse riding crossings and facilities will benefit those with reduced mobility (including older people and those with disabilities which restrict mobility), wheelchair users and parents and carers using push chairs, assuming design standards are applied. Should active travel users not be considered when designing these types of highway improvements there is potential for adverse impacts on these user groups.	None (positive impact)

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Gender	Religion	Age	Disability	Race	Deprivation		
Highways – non-infrastructure options, e.g. traffic management and road safety	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	0	0	+	+	0	+	Greater resilience in the strategic road network through improvement will help all transport users, including those using private cars, who are likely to experience more reliable journeys, and less likely to be impacted by travel disruption. Improvements to the safety of the road environment would provide increased protection for both users of private cars and public transport, as well as non-motorised users in the highway environment. Incorporating the needs and safety of all road users especially those with sight, hearing or mobility impairments in scheme design will be directly beneficial to the elderly and people with disabilities.	None (positive impact)
Rail – new railway lines and stations	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight	0	0	+	+	0	+	Rail users will benefit from more capacity and potentially faster train times, leading to greater journey reliability. Strategic improvements are likely to have a beneficial impact on people using rail networks to access education, employment and/or health services, particularly those beyond their local neighbourhood, particularly younger and older people, people with disabilities, as well as the unemployed. By providing alternative options to freight transportation via rail may reduce road congestion. This may also have knock-on effect of improving local air quality with a reduction in freight vehicles on the road network, helping to provide a cleaner environment by reducing air pollution, particularly for people with respiratory illnesses, younger and older people.	None (positive impact)
Rail – improvements to stations, services and signalling	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	0	0	+	+	0	+	Improved availability and accessibility of public transport in the region will benefit those without a personal car (this includes people living in more deprived areas and the unemployed), or those who may be unable to drive a car due to their age or poor health. Improved quality and service of public transport may attract more users, potentially, reducing private car use. This would have knock on benefits of a cleaner environment by reducing air pollution, particularly for people with respiratory illnesses, younger and older people. Improvements to stations and carriages to accommodate those with limited mobility (such as the disabled and elderly, including wheelchair users). Ensuring information is available both visibly, audibly and in multiple languages for those with sight or hearing impairments or those who may not understand the English language. Should users with limited mobility not be considered when devising improvements to stations and carriages, then there is potential for adverse impacts on these user groups.	None (positive impact)

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Gender	Religion	Age	Disability	Race	Deprivation		
								The provision of security measures including CCTV and lighting at stations and on train carriages will likely deter general crimes, but may not influence crimes that are race or faith orientated.	
Bus and Light Rail – development of urban infrastructure, priority measures, and improvements to stops, services and information	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	0	0	+	+	0	+	Improved availability and accessibility of public transport in the region will benefit those without a personal car (this includes those who live in more deprived areas and the unemployed), or who may be unable to drive a car due to their age or poor health. Improved quality and service of public transport may attract more users, potentially, reducing private car use. This would have knock on benefits of a cleaner environment by reducing air pollution, particularly for people with respiratory illnesses, younger and older people. Improvements of access to buses and bus and light rail stops/stations to accommodate those with limited mobility (such as the disabled and elderly, including wheelchair users). Ensuring information is available both visibly, audibly and in multiple languages for those with sight or hearing impairments or those who may not understand the English language.	Opportunities should be sought to integrate bus and light rail services with other transport modes such as pedestrian routes. Information provided at bus and tram stops could include details about the surrounding area accessible by walking or cycling. Bus and tram stops should be designed to accommodate users who need seating, such as those with a disability which restricts participation or reduced mobility.
Walking and cycling – new or improved walkways and cycleways	Local	0	0	+	0	0	+	The provision of new cycling and walking infrastructure could encourage the public to opt for a sustainable travel option instead of vehicle reliant services. This could lead to improved air quality in urban areas, which would benefit people with respiratory illnesses, the young and elderly. The modal shift from private cars to active travel will provide health benefits to those who choose this option. New and improved cycleways and walkways facilitate exercise and for those who may have felt they cannot walk/cycle in their area due to a lack of access to safe walk and cycle routes. Access to green areas or open space may be facilitated because of new/improved cycle and walkways which also provides health benefits. However, people with limited mobility (such as persons with a disability which restricts participation and the elderly) may not experience the benefits from active travel (walking and cycling), depending on the level of use that is possible for them.	The plan may consider improving or increasing services of public transport which are likely to be utilised by the elderly and people with mobility issues. Developments should cater for all levels of mobility so as not to exclude people who are unable to participate in active travel, for example ensuring walkways and are step-free, non-slip and visually appropriate to enable wheelchairs users, and those with reduced mobility or limited vision to access such routes.
Other – public transport information, congestion schemes, ticketing, behavioural change	Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future	+	+	+	+	+	+	The provision of public transport facilities could improve mobility in the region and accessibility to employment, education and / or health services for people who live outside urban areas or who cannot make door-to-door trips by public transport. Supporting people without access to private cars to use alternative modes of travel (taxis, private hire vehicles, public transport, active travel) will benefit people who cannot drive due to health reasons or their age, as well as those that do not own their own car.	Plans should consider to the needs of people with limited mobility and ensure that neighbourhood facilities are accessible to all users, as well as acknowledge the potential for localised racial or faith based hate crime when considering safety in design.

General Transport Interventions	Applicable Thematic Journey Types	Impact						Reasons	Mitigation measures / Recommendations
		Gender	Religion	Age	Disability	Race	Deprivation		
								The provision of public transport schemes would particularly benefit the unemployed and poor who live in more deprived areas, as well as socially isolated individuals needing access to community services and facilities. Improving the quality of streets and public realm, wayfinding signage will benefit all groups of people. It is assumed that design standards will be adhered to and specific consideration of certain types of disability such as wheelchair users, the deaf and blind would be given when designing improvements to public realm to ensure that there is no potential for adverse impacts on these vulnerable users. The provision of security measures including CCTV and lighting will likely deter general crimes, but may not influence crimes that are race or faith orientated.	

Control Information

Prepared by

Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
www.steergroup.com

Prepared for

Transport for the South East

Steer project/proposal number

23433701

Client contract/project number

N/K

Author/originator

Claire Beard

Reviewer/approver

Ursula Stevenson

Other contributors

Nick Archibald, Helen Davies

Distribution

Client: Client Team
Steer/ Project Management
WSP: Team

Version control/issue number

V1.0 Draft for Client
V2.0 Draft for Client

Date

18 July 2019
09 September 2019

Complex questions.
Powerful answers.

4 October 2019

Transport Strategy for the South East: ISA Report Appendix E - Community Safety Audit

Transport for the South East
23433701

4 October 2019

Transport Strategy for the South East: ISA Report Appendix E - Community Safety Audit

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Transport for the South East

23433701

Contents

1 Introduction

1.1 Crime, antisocial behaviour and the fear of crime can have a major effect on people's willingness to travel and access jobs and services. Whilst crime rates have been decreasing over recent decades crime rates generally remain higher in cities and towns than in rural areas.

1.2 Concerns about crime while traveling can deter people from walking, cycling or using public transport. This may be a particular problem in more deprived areas. For example, people in the most deprived areas are around five times more likely to say that they are concerned about crime in their area and safety at bus stops than those in the least deprived areas[1].Fear of crime is also greater after dark.

1.3 Certain groups are more reliant on public transport than others. Research has shown that women from black and minority ethnic communities are more dependent upon public transport than other groups. Women typically make more journeys by bus and on foot than men and travel at off-peak times more often than men. Furthermore, many older people rely upon public transport to maintain their independence.

1.4 Community Safety Audits (CSAs) are used to identify where potential community safety issues could arise, e.g. through level of use, accessibility, vehicle speed, or proximity to sensitive receptors. Due to the size of the area covered by the TfSE study area the approach adopted for the CSA of the Transport Strategy is to understand the nature of community safety issues for the transport modes that could be adopted within the economic corridors.

[1] http://www.community-safety.info/41.html

2 Description of potential interventions within the strategic corridors

2.1 The Transport Strategy considers 23 strategic corridors. For the purposes of this CSA, the possible interventions that could occur in these corridors have been grouped into three categories. These include:

Highways:

- New roads and major widening;
- Improvements, i.e. junction and roundabout improvements, parking and minor widening;
- Non-infrastructure options, i.e. traffic management and road safety (signage, signalling, visibility, traffic/speed restrictions).

Public transport:

- New railway lines and stations;
- Improvements to railway stations, services and signalling;
- Light rail – development of urban infrastructure; and
- Bus – priority measures, and improvements to stops, services and information.

Walking and Cycling:

- New cycleways and new walkways;
- Improvements to existing walkways and existing cycleways, and pedestrian and cycle crossings.

3 Community safety consideration

Table 3.1 provides a comparison of the potential safety considerations of the three intervention categories.

Table 3.1: Community Safety Concerns

Concerns	Highways	Public transport	Walking and cycling
Safety after dark	• Walking to or from poorly lit parking areas, e.g. in laybys. • Carjacking	• Potential exposure to drunken harassment and rowdy behaviour • Poorly lit public areas • Fear of crime increased where lighting is poor at bus or train stations • Poor or delayed connections/lack of information	• Potential exposure to drunken harassment and rowdy behaviour • Poorly lit footpaths/cyclepaths
Interaction with public/other road users	• Road rage and aggressive driving • Theft from vehicle • Vandalism of parked vehicles • Fear of crime in taxis • Carjacking	• Ticket touting • Loitering • Aggressive begging • Intimidation and harassment • Exposure to vandalism and graffiti • Violent assault by other passengers • Pick pocketing and other theft • Indecent assault (groping or exposure or sexual assault) • Hostile staring • Exposure to criminals	• Loitering • Aggressive begging • Intimidation and harassment • Exposure to vandalism and graffiti • Pick pocketing and other theft • Violent assault from other footway users • Indecent assault (groping or exposure or sexual assault) • Exposure to criminals • Bike theft

Concerns	Highways	Public transport	Walking and cycling
Accidents	• Excessive speed and careless driving • Congestion • Driver medical incident • Narrow or poorly maintained roads • Collision with wild animals • Poor signage • High HGV numbers • Poor vehicle maintenance record	• Accidents involving collision of bus or train. • Being pushed under a train or in front of a bus • Level crossings • Accidents boarding or alighting trains or buses	• Collision with pedestrians and/or other cyclists particularly in more densely populated areas or those with higher footway usage • Collision with street furniture, parked vehicles and landscaping • Poor visibility or weather conditions • Lack of separation of motor vehicles (e.g footbridge/crossing) • Lack of green infrastructure

Highways

3.1 Five people are killed on roads in the UK every day and more than 60[2] are seriously injured. Motorcycles represent only 1% of road traffic but 18% of deaths on the road. The most frequent cause of accidents[3] is driver error or reaction (69%). In 2017 the road environment contributed to 12% of accidents as a result of poor or defective road surface, weather or deposits on the road or issues associated with road markings, signage or signals.

3.2 Drivers may feel unsafe or anxious driving along roads which are regularly subject to congestion, where lanes are narrow or road width is significantly reduced by roadside parking. Individuals may have greater safety concerns where roads are poorly maintained, where there is congestion or heavy traffic at junctions or when entering or exiting highways.

3.3 Traffic accidents where the road user is at fault result from a range of situations including driver inexperience, speed, aggressive driving, disobeying road signals, travelling too close to vehicles or objects. Regularly witnessing such behaviour may make other road users, roadside residents and the community feel unsafe.

3.4 Persons travelling to or from their cars may fear for their safety or that of their parked cars in situations where lighting/CCTV is poor or in areas of high crime. Vehicle occupants will feel unsafe in situations where individuals try to enter or vandalise an occupied car, or subject occupants to aggressive behaviour or tailgating.

3.5 Measures which may improve community safety or the feeling of safety associated with the highway interventions include:

- Where new roads or major widening is proposed benefits come about primarily through design. Allowing for adequate separation of pedestrians and cyclists, adequate crossing facilities and incorporation of green infrastructure will optimise safety for all road users. Locating parking areas including laybys or roadside parking facilities in well-lit areas where there is pedestrian traffic, away from isolated areas or areas of known high vehicle crime will create a greater feeling of safety for road users and the local community.
- Where improvements to existing roads are proposed, such as junction upgrades or minor widening, the ability to incorporate safety features will be limited to what is currently present, land available within the road boundary, and feasibility of compulsory purchase of adjacent land. Nonetheless, upgrading junction safety, increasing carriageway width or provision of an additional carriageway will help to reduce congestion, create greater passing space, thus potentially reducing driver frustration and anger related road incidents. Installing pedestrian facilities at key junctions will also promote safety for pedestrians and cyclists.
- The non-infrastructure options, such as improved maintenance of road surface, haunching and upgrade of signage will potentially improve driver safety, reduce

[2] http://www.brake.org.uk/info-and-resources/facts-advice-research/road-safety-facts

[3] **https://www.gov.uk/government/collections/road-accidents-and-safety-statistics** - Contributory factors for reported road accidents RAS50

the risk of collision with non-motorised users, and limit speed related incidents. In rural areas there may be the potential to reduce risk of animal collision through the installation of upgrade of exclusion fencing.

Public transport

3.6 Results from the office for national statistics for National Rail[4], for the whole of the UK show that the most frequent cause of accidents on trains was collision with animals or collision with other objects, contributing to more than 60% of accidents. Of the 12 potential high-risk accidents involving passenger trains, collision with road vehicles at level crossings was the most frequent (42%). Information from the Rail Safety Standards Board[5] recorded 14,201 casualties (excluding suicide) in 2016/17 of which 297 were fatalities and 525 were major injuries.

3.7 Evidence from UK schemes demonstrates that light rail is safer for passengers than travelling by road. Therefore, modal shift from car to light rail could help to improve overall safety. There is no evidence that pedestrians and other road users are more at risk in areas where trams run on-street than in other areas[6].

3.8 The surroundings at a bus stop, light rail stop or train station can affect safety or the feeling of safety. Where facilities are in isolated areas or areas of high crime, or where staffing numbers are low, crime and the fear of crime is likely to increase. These fears could potentially be exacerbated at night, particularly if lighting is poor, CCTV is absent or if there is disorderly loitering at stations and bus shelters, particularly by young persons, or by homeless persons using the stations for shelter or amenities.

3.9 Overcrowding during peak periods makes thefts and indecent assaults easier to commit, with opportunities for harassment, intimidation or assault also potentially greater during quieter periods.

3.10 Lack of supervision from staff at other times of the day or night contributes to vandalism and graffiti, robbery and assault. It can increase the incidents of violent behaviour such as persons being pushed under a train or in front of a bus.

3.11 Measures which may improve community safety or the feeling of safety associated with the public transport interventions include:

- For new railway lines the provision of additional infrastructure into a previously greenfield site, could potentially increase the likelihood of collision with pedestrians and/or wild animals. Creation of at-grade crossings (level

[4] https://www.gov.uk/government/statistical-data-sets/rai05-rail-accidents-and-safety - Railway accidents:train accidents RAI0503

[5] https://www.gov.uk/government/statistical-data-sets/rai05-rail-accidents-and-safety - Railway accidents: RAI0501

[6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/776601/light-rail-and-other-rapid-transit-solutions-a-call-for-evidence.pdf - DfT. 2019. A Call for Evidence on the opportunities available to introduce new Light Rail Systems or other rapid transit solutions into towns and cities in England.

crossings/pedestrian crossings) with existing infrastructure should be avoided. The siting of new railways lines should consider the accessibility of any new stations, provision of adequate staff facilities, lighting and surveillance and connections to other transport infrastructure, all of which can improve the feeling of safety for passengers, particularly at night time.

- Upgrade to railway stations, services and signalling provides an opportunity to increase the feeling of safety by removing graffiti, vandalised infrastructure, provision of safety barriers which can prevent individuals falling or being pushed onto tracks, improved public conveniences and access to up to the minute timetable information. Lighting and CCTV improvements would improve the feeling of safety after dark.
- Light rail schemes should be designed with separate rights-of-way wherever possible, and priority at traffic lights to remove external disruption. Stops serving new light rail transit schemes should benefit from sufficient lighting, CCTV and current timetable information.
- Improvements to bus stops, services and information such as provision of CCTV, current timetable information and upgrades to shelters would add to the feeling of safety for users and provide greater certainty for travellers with respect to travel times.

Walking and cycling

3.12 According to Department for Transport Statistics [7] pedestrians failing to look properly was the primary cause of pedestrian road accidents in 2017. This may be particularly prevalent where users are in a rush, on mobile phones or where line of sight may be impaired such as where there are parked vehicles, HGVs or heavy traffic.

3.13 Pedestrians and cyclists will be more susceptible to injury, collision or intimidation by drivers or other users where there is limited or no separation of road traffic, where there is a high proportion of HGVs, inadequate number of crossings or inadequate safety measures at crossings and where cycling and walking facilities become overcrowded.

3.14 Measures which may improve community safety or the feeling of safety associated with the non-motorised user interventions include:

- Where new cycleways and walkways are proposed, design goals would be to separate pedestrians and cyclists and provide an attractive alternative to public transport or cars. Provision of attractive green infrastructure can improve feelings of safety and overall wellbeing, as well as having health benefits. Where new infrastructure intersects with road or rail, the crossings should be appropriately designed with adequate safety barriers and signalised crossings where appropriate. Providing facilities which do not require users to stop or dismount such as an over or underpass would prevent users stepping out into live traffic if they are in a rush or not concentrating.

[7] https://www.gov.uk/government/collections/road-accidents-and-safety-statistics - Contributory factors for reported road accidents RAS50

- Improvements to existing cycleways, pedestrian and cycle crossings would have beneficial safety implications where improved signage separates users travelling in different directions, reducing collision rates. Improved surfaces and crossing facilities, increasing capacity of existing facilities through widening, adding lighting or facilities such as water fountains would add to the community atmosphere and potentially improve the feeling of safety.

4 Recommendations

4.1 Incorporation of design features which promote safety or the feeling of safety has the potential to increase driver safety and potential uptake of public and active transport options.

4.2 There are a number of considerations for community safety for the Transport Strategy and subsequent development of transport in the Region. These include:

- Improving the feeling of safety particularly after dark, through the incorporation of improved staffing facilities (rail), lighting or CCTV in pedestrian or cycling routes, providing service information (buses/trains) and siting facilities in areas where users are at reduced risk of harassment, drunken or inappropriate behaviour from other members of the public after dark;
- Interaction with other users through incidents such as road rage, harassment, theft and vandalism can reduce the safety of road and footway users and impact the feeling of safety for the neighbouring community if it is a regular occurrence. Reducing congestion, managing flows through improved road and cycleway infrastructure and taking into consideration the site specific issues for bus stops or train stations would reduce conflict between users.
- Accidents and the risk of accidents increase where there is a high proportion of HGVs, excessive speed, careless driving and congestion, or where non motorised users interact frequently with vehicles such as in built up areas, busy or congested areas or at road crossings/level crossings. Incorporation of safety features (barriers etc), traffic control measures including widening, improved signage, junction improvements, separation of pedestrians and cyclists and incorporation of green infrastructure would reduce the risk of accidents on the road, public transport, foot or cycleways.

Control Information

Prepared by

Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
www.steergroup.com

Prepared for

Transport for the South East

Steer project/proposal number

23433701

Client contract/project number

N/K

Author/originator

Jo North

Reviewer/approver

Ursula Stevenson

Other contributors

Helen Davies

Distribution

Client: Client Team
Steer/ Project Management
WSP: Team

Version control/issue number

V1.0 Draft for Client
V2.0 Draft for Client

Date

18 July 2019
10 September 2019

Complex questions.
Powerful answers.

Explore **steergroup.com** or visit one of our 21 offices:

Bogotá, Colombia
Bologna, Italy
Boston, USA
Brussels, Belgium
Leeds, UK
Lima, Peru
London, UK
Los Angeles, USA
Manchester, UK
Mexico City, Mexico
New Delhi, India
New York, USA
Panama City, Panama
Rome, Italy
San Juan, Puerto Rico
Santiago, Chile
São Paulo, Brazil
Toronto, Canada
Vancouver, Canada
Washington DC, USA

steer

4 October 2019

Transport Strategy for the South East: ISA Report Appendix F - Information to Inform Habitats Regulations Screening

Transport for the South East
23433701

4 October 2019

Transport Strategy for the South East: ISA Report Appendix F - Information to Inform Habitats Regulations Screening

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
Click here to enter text.

Prepared for:

Transport for the South East

23433701

Contents

Executive Summary

Overview

Under the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive' and the Council Directive 79/409/EEC 'The Wild Birds Directive' it is necessary to consider whether the TfSE Transport Strategy may have significant impacts upon areas of nature conservation importance designated/classified under the Directives.

This HRA screening assessment has been produced as part of an Integrated Sustainability Appraisal (ISA) for the TfSE Transport Strategy.

Transport for the South East (TfSE) is a newly established shadow sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs). The development of the TfSE Transport Strategy will be the key mechanism for the TfSE to document its vision and strategic priorities, which include the following:

- Ensuring the delivery of a high quality, sustainable and integrated transport system that supports increased productivity to grow the South East and UK economy and compete in the global marketplace.
- Facilitating the development of a high quality, sustainable and integrated transport system that works to improve safety, quality of life and access to opportunities for all.
- Facilitate the delivery of a high quality, sustainable and integrated transport system that protects and enhances the South East's unique natural and historic environment.

Details and potential locations of projects or plans (policies) for implementing the TfSE are not currently available. Therefore, this screening assessment is provided at a high level. Potential development requirements are provided and considered assumptions are made regarding potential locations in relation to European Sites. These assumptions will require refinement as part of the HRA provided during the next tier of the Strategy.

A total of 72 international designated sites have been identified as being present within the initial ZoI (Zone of Influence) set for the TfSE Transport Strategy including; 38 SAC's; 14 Ramsar sites; 19 SPA's and 1 pSPA.

Through screening for potential impacts, it has not been possible to categorically demonstrate that the TfSE Transport Strategy will not have any impacts upon European sites.

Given the possibility of significant effects associated with the TfSE Transport Strategy, further, detailed assessment through Appropriate Assessment is considered necessary to satisfy the requirements of the Habitats Regulations. However, the TfSE Transport Strategy is to be published at a strategy level and will not give detail on potential projects or proposals for its implementation. As a result, it is considered that there is insufficient detail at this time to enable a more in-depth analysis to the degree required for Appropriate Assessment. It will only be possible to undertake this level of assessment once specific plans and/or projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

Full recommendations for mitigation will be made within each project/plan-level screening assessment and Appropriate Assessment. These will suggest measures to reduce the potential for any development to result in impacts upon the European Sites.

Recommendations for adoption in the TfSE Transport Strategy include the following:

- development will not be located within any European site so that no direct habitat loss will occur;
- wherever possible works will be avoided where there is a direct transmission pathway to European sites (such as a European site downstream of a new road);
- buffer zones will be provided between construction/improvement works and European sites (the size and extent of which should be dependent upon the nature of impact and the sensitivity of receptors);
- there would be a general presumption against the permitting of construction/improvement works which generate adverse effects in proximity to European sites, which are sensitive to those effects – e.g. where adverse impacts on the water environment are identified; and that improved access to European sites will be closely monitored and managed to ensure the integrity of the sites is not compromised.

The following over-arching mitigating statement is also recommended for incorporation within the TfSE Transport Strategy:

Any development that would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, will be subject to assessment under part 6 of the habitats regulations at project application stage. If it cannot be ascertained that there would be no adverse effects on site integrity the project will have to be refused or pass the tests of regulation 61 and 62, in which case any necessary compensatory measures will need to be secured in accordance with regulation 66.

1 Introduction

Introduction / Background

Transport for the South East (TfSE) is a newly established shadow sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs) in the South East (SE) of England. The development of the TfSE Transport Strategy will be the key mechanism for the TfSE to document its vision and strategic priorities (hereafter referred to as 'objectives'), at a regional level, which are to include the following:

- Ensuring the delivery of a high quality, sustainable and integrated transport system that supports increased productivity to grow the South East and UK economy and compete in the global marketplace.
- Facilitating the development of a high quality, sustainable and integrated transport system that works to improve safety, quality of life and access to opportunities for all.
- Facilitate the delivery of a high quality, sustainable and integrated transport system that protects and enhances the South East's unique natural and historic environment.

Under the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive and the Council Directive 79/409/EEC 'The Wild Birds Directive' it is necessary to consider whether the proposed TfSE Transport Strategy may have significant effects upon areas of nature conservation importance designated/classified under the Directives. This requirement is translated into UK law through the Conservation of Habitats and Species Regulations 2017 (as amended) ('The Habitat Regulations'). The Habitat Regulations place a duty upon 'Competent Authorities' to consider the potential for effects upon sites of European importance prior to granting consent for projects or plans. Should likely significant effects be identified by the initial screening process it is necessary to further consider the effects by way of an 'Appropriate Assessment'. Overall this process of assessment is known as Habitats Regulations Assessment (HRA) and further details of the applicable legislative context are summarised within Section 1.2 below.

In addition, the UK is a signatory to the Convention on Wetlands of International Importance especially Waterfowl Habitat (the Ramsar Convention)[1]. The Convention has three main 'pillars' of activity: the designation of wetlands of international importance as Ramsar sites; the promotion of the wise-use of all wetlands in the territory of each country; and international co-operation with other countries.

The UK has generally chosen to underpin the designation of its Ramsar sites through prior notification of these areas as Sites of Special Scientific Interest (SSSIs) in England. Accordingly, these receive statutory protection under the Wildlife and Countryside Act (1981) as amended.

1 Guidance provided by UK Government on the assessment of planning applications in relation to designated sites is given at https://www.gov.uk/guidance/protected-sites-and-areas-how-to-review-planning-applications, which clearly includes Ramsar sites within the highest level of protection.

Government has also issued policy statements relating to the special status of Ramsar sites. This extends the same protection at a policy level to listed Ramsar sites in respect of new development as that afforded to sites which have been designated under the EC Birds and Habitats Directives as part of the EU Natura 2000 network.

This document provides information to enable the screening of the TfSE Transport Strategy, covering the following four elements:

- determining whether the plan is directly connected with or necessary for the management of applicable sites;
- describing the project / plan that may have the potential for significant effects upon applicable sites;
- undertaking an initial scoping for potential direct and indirect impacts upon applicable sites; and
- assessing the likely significance of any potential effects identified as resulting from these impacts, both alone and in-combination with other plans and projects.

A description of the Plan and the designated sites identified are provided within Sections 2 and 3 respectively. Consideration of potential effects of the Plan upon the designated sites and whether these are likely to be significant is provided within Section 4.

Habitat Regulations Assessment Context

Legislative Context

Article 6 (3) of the European Union Habitats Directive (1992, as amended, 'the Habitats Directive') sets out the need for 'Appropriate Assessment' of plans or projects which have potential to affect the integrity of a Natura 2000 site (including Special Protection Area (SPA) and Special Area of Conservation (SAC) and candidate SAC (cSAC) sites such as those in proximity to the Project):

- *'Any plan or project likely to have a significant effect on a Natura 2000, either individually or in combination with other plans or projects, shall undergo an Appropriate Assessment to determine its implications for the site. The competent authorities can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site concerned'* (Article 6.3).

As the purpose of the Natura 2000 network is preservation of examples of species and habitats across Europe, rather than preservation of individual sites, Article 6 (4) allows for exceptional circumstances where negative effects may be permitted. This reads:

- *'In exceptional circumstances, a plan or project may still be allowed to go ahead, in spite of a negative assessment, provided there are no alternative solutions and the plan or project is considered to be of overriding public interest[2]. In such cases the Member State*

[2] An exact definition of 'imperative reasons of overriding public interest' is not provided, but EC guidance states *'It is reasonable to consider that the "imperative reasons of overriding public interest, including those of social and economic nature" refer to situations where plans or projects envisaged prove to be indispensable:*
- within the framework of actions or policies aiming to protect fundamental values for the citizens' life (health, safety, environment);
- within the framework of fundamental policies for the State and the Society;

must take appropriate compensatory measures to ensure that the overall coherence of the N2000 Network is protected.' (Article 6.4)

The Habitats Directive is translated into UK law through the Conservation of Habitats and Species Regulations 2017 ('Habitat Regulations'); Regulation 63 (1) states that *'A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which—*

- *(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and*
- *(b) is not directly connected with or necessary to the management of that site,*

—must make an Appropriate Assessment of the implications for that site in view of that site's conservation objective.'

Like the Habitats Directive, the Habitat Regulations also make allowance for projects or plans to be completed if they satisfy 'imperative reasons of overriding public interest (IROPI)' [3]. Regulations 64 and 68 relate to such situations.

Policy Context

It is a matter of Government policy (NPPF paragraph 176) that sites designated under the 1971 Ramsar Convention for their internationally important wetlands (commonly known as Ramsar sites), potential SACs (pSACs) and potential SPAs (pSPA) (where consultation has been initiated) are also considered in the same way as SACs, SPAs and cSACs.

For the purposes of this report all relevant sites as described above are collectively termed 'European sites'.

Stages of Habitats Regulations Assessment

Guidance on the Habitats Directive (European Commission, 2000) sets out the step wise approach which should be followed to enable Competent Authorities to discharge their duties under the Habitats Directive and provides further clarity on the interpretation of Articles 6 (3) and 6 (4). The process used is usually summarised in four distinct stages of assessment.

- Stage 1: Screening: the process which identifies whether effects upon a Natura 2000 site of a plan or project are possible, either alone or in combination with other plans or projects, and considers whether these effects are likely to be significant.
- Stage 2: Appropriate Assessment: the detailed consideration of the effect on the integrity of the Natura 2000 site of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function.

- within the framework of carrying out activities of economic or social nature, fulfilling specific obligations of public service.'

[3] *'(a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or .*
(b) any other reasons which the competent authority, having due regard to the opinion of the European Commission, consider to be imperative reasons of overriding public interest.'

- Stage 3: Assessment of alternative solutions: the process which examines alternative ways of achieving the objectives of the plan or project that avoid adverse effects on the integrity of the Natura 2000 site.
- Stage 4: Assessment where no alternative solutions exist and where adverse effects remain: an assessment of whether the development is necessary for IROPI and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

This report presents information to enable the screening assessment required as part of Stage 1 of the HRA process, to establish if the TfSE Transport Strategy could have a likely significant effect upon European sites. The assessment has been based solely upon the preliminary information available in relation to the locations of 'Strategic Corridors', rather than specific plans (policies) and / or projects.

The information presented within this assessment is therefore high-level and does not contain the level of detail typically presented for HRA screening exercises. For example, there are uncertainties regarding the nature, scale and footprint of any development associated with the strategic corridors. These uncertainties limit the capacity of the HRA to reasonably predict the effects on relevant European sites.

In the Opinion of Advocate General Kokott in Case C-6/04 Commission v UK [2005] ECR I-9017 at paragraph 49 she noted that an assessment of plans cannot by definition take into account all effects because "Many details are regularly not settled until the time of the final permission" and "[i]t would also hardly be proper to require a greater level of detail in preceding plans or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure".

In accordance, any policies or projects brought forward under the Transport Strategy are likely to require their own HRA assessment and this document does not preclude the need for further assessment at the next tier. However, the findings of this strategic level HRA can be incorporated into, and explored at the appropriate level of detail at the next tier.

The precautionary principle is applied at all stages of the HRA process. In relation to screening this means that projects and plans where effects are considered likely and those where uncertainty exists as to whether effects are likely to be significant must be subject to the second stage of the HRA process, Appropriate Assessment.

It should be noted that this HRA screening assessment has been produced as part of an Integrated Sustainability Appraisal (ISA) for the TfSE Transport Strategy. This assessment and any subsequent Appropriate Assessment (AA) that may be required, will be prepared in parallel to the ISA to ensure that all HRA-related considerations are fully integrated into TfSE Transport Strategy as it is developed.

Consultation on This Screening Report

Consultation forms an essential part of an HRA screening exercise. Natural England will be formally consulted on the findings of this screening exercise and due regard will be given to their representations.

2 Description of TFSE Strategy ('Plan')

Transport for the South East (TfSE) is a newly established shadow sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs) in the South East (SE) of England. The development of a TfSE Transport Strategy will be the key mechanism for the TfSE to document its vision and strategic priorities (objectives), at a regional level. These are to include the following:

- Ensuring the delivery of a high quality, sustainable and integrated transport system that supports increased productivity to grow the South East and UK economy and compete in the global marketplace.
- Facilitating the development of a high quality, sustainable and integrated transport system that works to improve safety, quality of life and access to opportunities for all.
- Facilitate the delivery of a high quality, sustainable and integrated transport system that protects and enhances the South East's unique natural and historic environment.

The Transport Strategy identified the key transport corridors which are economically important and the additional uplift in economic activity that could be realised from increased infrastructure investment. A total of 23 'Strategic Corridors' were identified across the Study Area for inclusion within the TfSE Transport Strategy (see Figure 1).

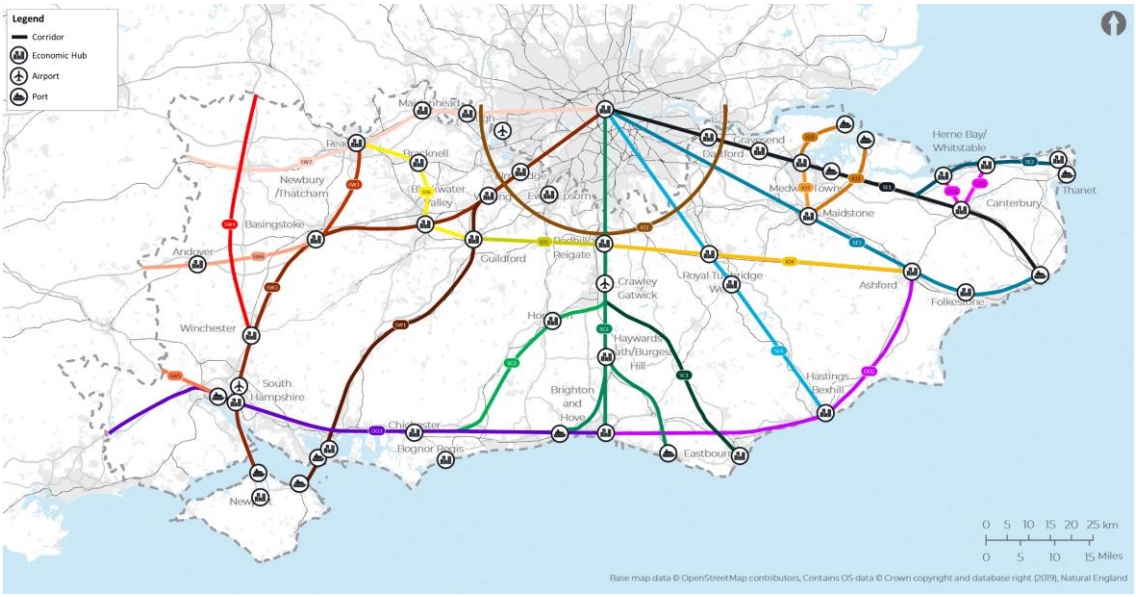

Figure 1: Strategic corridors in the South East

The Transport Strategy has now been drafted to identify the journey types and types of transport interventions that will be required to help realise economic potential, whilst

ensuring the principles of sustainable development are followed to maximise social and environmental benefits. The following general categories of transport interventions (or plans / policies) that might be appropriate to help realise the region's economic potential have been identified as the following:

Table 2-1 – Potential Transport Interventions

Transport Mode	Potential Transport Interventions	Applicable Thematic Journey Types
• Highways	• New roads • Online improvements - junction and roundabout improvements, parking, and minor widening; • Non-infrastructure options - traffic management and road safety (signage, signalling, visibility, traffic/speed restrictions).	• Radial; Orbital & Coastal; International Gateways & Freight
Rail	• New railway lines and stations • Upgrade to stations, services and signalling.	• Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future
Bus and light rail	• Priority measures, improvements to stops, services and information. • Development of urban infrastructure.	• Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future
Walking and Cycling	• New cycle ways and new walkways; • Improvements to existing walkways and existing cycleways.	• Local
Other	• Public transport information provision, congestion schemes, ticketing, behavioural change.	• Radial; Orbital & Coastal; Inter-urban; Local; International Gateways & Freight; Future

3 Relevant Designated Sites

The Zone of Influence (ZoI) is defined by the potential effects arising from the project or plan and the available pathways for those effects to reach and affect interest features of European sites.

In order to identify all Strategic Corridors (out of a total of 23) where potential direct, indirect and in-combination impacts to European sites could reasonably be considered possible, an initial buffer of 2km around each Strategic Corridor was established. This buffer was extended accordingly where a corridor was located up/downstream of a European site and up to 30km where bats are qualifying features of a SAC, cSAC or pSAC.

This approach follows Highways England Design Manual for Roads and Bridges (DMRB) guidance and provides a contextual framework for the consideration of impacts[4].

Relevant designated sites include all those that fall within the potential ZoI for the Plan. 72 European sites lie within the potential ZoI's for the Plan, including: 19 SPA; 1 pSPA; 14 Ramsar and 38 SAC's (8 designated for bat interest) located within the 30km search area.

The reasons for designation of these sites are summarised in Table 3.1 (Annex A). The known vulnerabilities of these sites are summarised in Table 3.2 (Annex A), collated from the Natura 2000 standard data forms (JNCC, 2016) and Site Improvement Plans (Natural England (NE) (NE, 2014).

With regard for the qualifying features and information on vulnerability of the sites detailed in Annex A, the broad conservation objectives for SAC's and SPA's are to:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of qualifying natural habitats and habitats of qualifying species*
- *The structure and function (including typical species) of qualifying natural habitats*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely*
- *The populations of qualifying species; and*
- *The distribution of qualifying species within the site.*

The Habitats Directive provides further interpretation of the meaning of 'favourable conservation status' within Article 1 parts a, e and i as below:

[4] This approach is considered appropriate for this level of assessment; however, buffers may need to be revised to be specific to the individual plans and proposals produced by the TfSE as and when they become available.

- *'(a) conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status as defined in (e) and (i);…..*
- *(e) conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2. The conservative status of a natural habitat will be taken as "favourable" when:*
  - *its natural range and areas it covers within that range are stable or increasing, and*
  - *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
  - *the conservation status of its typical species is favourable as defined in (i);*
- *(i) conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2; The conservation status will be taken as "favourable" when:*
  - *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
  - *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
  - *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis'.*

Specific conservation objectives for Ramsar sites are not available.

4 Screening Assessment

Step 1: The Strategy and Management of International Sites

This stage considers whether The TfSE Transport Strategy is directly connected with or necessary to the management of European sites. Within this context 'directly' means that the plan is solely conceived for the conservation management of a site or group of sites and 'management' refers to the management measures required in order to maintain in favourable condition the features for which the European site has been designated.

The TfSE Transport Strategy is not directly connected with or necessary for the management of, any of the European sites listed in Section 3. It has not been conceived solely to further the conservation of the site(s) and nor is it essential to the management of the site(s). Therefore, further consideration of the Plan within the HRA process is required.

Step 2: Description of the TFSE Transport Strategy

A description of the TfSE Transport Strategy is provided in Section 2. However, details and potential locations of projects and / or specific plans (policies) for implementing the TfSE transport Strategy are not currently available. Therefore, at this stage it is has only been possible to describe potential development requirements and make considered assumptions upon potential locations in relation to European sites.

Step 3: Initial Scoping for Impacts and Effects on European Sites

Consideration of Impacts and Effects in Isolation

Table 4.1 overleaf provides an assessment of the potential development activities and associated impacts, which may arise as a result of the implementation of TfSE Transport Strategy.

Table 4.2 (Annex B) utilises the information included within Sections 2 and 3 (description of Plan and relevant designated sites), to identify whether potential impact / effect pathways between the 'Strategic Corridors' and relevant designated sites are likely, and whether these could result in likely significant effects (LSE's) upon the designated sites.

It should be noted that for recreational pressures an initial ZoI of ≤500m has been assumed, and as many designated sites are on private land only those sites identified as being potentially vulnerable to public access / disturbance (see Table 3.2) have been screened in, where required. The ZoI for hydrological threats has been assumed to be ≤2km where no above surface water connectivity (i.e. between strategic corridors and designated sites) is present. These ZoI's may need to be revised once more specific details in relation to TfSE Transport Strategy projects / plans (policies) become available.

Table 4-1 – Construction and Operation Impacts of TfSE Transport Strategy

TfSE Transport Strategy Objective (refer to Section 2 for details)	Possible Impacts
Objective 1: Improve productivity and attract investment to grow our economy and better compete in the global marketplace.	New roads Construction / improvement of transport links (to support economic prosperity) in or adjacent to European sites has the potential for the following short-term and long-term impacts during construction and operation, including: • Habitat Loss / Habitat Damage and/or Fragmentation: this may potentially compromise site integrity, wildlife corridors and migratory routes. • Air quality: proposals leading to traffic generated emissions within 200 m of a European site may result in significant effects (Natural England, 2018). Habitat degradation may result through the release of atmospheric pollutants and deposition of dust. • Hydrology: changes to localised drainage and water balance as a result of drainage; run-off etc. has the potential to lead to significant effects. Changes to water quality and / or quantity may affect composition of species within designated habitats. Bridges/viaducts can constrict water flows and increase siltation. Rivers and streams are susceptible to the introduction of invasive plant and animal species, which can be spread through construction activities. • Disturbance: noise/vibration/visual impacts to species may result in significant effects, for example, construction in proximity to SPAs may result in mortality of qualifying bird species due to reduced feeding/breeding ability. • Improving connectivity: this has the potential to positively impact upon the European sites by removing barriers to dispersal by providing/enhancing habitat corridors, which are resilient to the added impacts of climate change.
Objective 2: Improve health, safety, wellbeing, quality of life, and access to opportunities for everyone.	Construction / improvement of transport links (to improve safety, quality of life and access to opportunities for all) in or adjacent to European sites has the potential for short-term and long-term impacts during construction and operation, including: • Construction / adaption / improvement of transport links: this has the potential for short and long-term (construction and operational phase) impacts through: habitat loss/damage/fragmentation; air quality; hydrology; disturbance to associated species through noise, visual and vibration inputs (refer to Objective 1 above for further details).

TfSE Transport Strategy Objective (refer to Section 2 for details)	Possible Impacts
	• Construction of cycle paths and walkways: such development in or adjacent to European sites may result in construction phase impacts: habitat loss/ damage/ fragmentation; air quality; hydrology; disturbance to associated species through noise, visual and vibration inputs. In addition, increased human presence in proximity to designated sites may result in long-term (operational phase) impacts of visitor pressure to sites and disturbance to species. Habitat degradation (marine access: water sports, trampling of vegetation, soil compaction, erosion, fly tipping, air pollution through increased vehicle emissions) and disturbance (noise, light, visual) may result. • Improving connectivity: adapting the existing transport network may have the potential to positively impact upon the European sites by removing barriers to dispersal by providing/enhancing habitat corridors, which are resilient to the added impacts of climate change.
Objective 3: Protect and enhance the South East's unique natural and historic environment.	This objective will potentially positively impact upon the European sites. However, improved access in or adjacent to Natura 2000 and Ramsar sites may increase human presence in proximity to designated sites, which may result in long-term (operational phase) impacts of visitor pressure to sites and disturbance to species. Habitat degradation (marine access: water sports, trampling of vegetation, soil compaction, erosion, fly tipping, air pollution through increased vehicle emissions) and disturbance (noise, light, visual) may result.

Potential in Combination Impacts and Effects

Given the strategic nature of this screening assessment and the uncertainties surrounding the timing and effects of other county/regional level plans and projects, it is not practicable at this stage to identify all the possible plans and projects that may act 'in-combination' or to consider the specific nature of likely effects arising.

However, it is possible to outline at a strategic level the broad types of effects that may arise from the implementation of other plans and projects which should inform the overall implementation of TfSE Transport Strategy. Some of the effects (identified in Table 4.3 below) may occur as a result of TfSE Transport Strategy alone (and as specified in Table 4.1 above and Table 4.2, Annex B), but may also occur or be magnified as a result of a wider range of development actions and activities arising from the implementation of other plans and projects.

Table 4-3 – Potential strategic in-combination effects

Effects	Development actions and activities
Water resources and quality	• Sewage and industrial effluent discharges from new developments • Abstraction to secure water supplies for planned growth (housing, industry) • Flood and coastal risk management development (for example, implementation of new flood defences)
Soil and Geology.	• Changes in land use, in particular agricultural production
Air quality	• Increase in atmospheric pollutants (for example, road, rail, airports expansion) • Changes in atmospheric pollutants from power generation, in particular change in fossil fuel use 'cleaner' technologies in industrial and domestic use
Disturbance	• Construction and operation of new developments (transportation, residential, commercial, industrial) • Recreational pressures including trampling from settlements expansion, Improved access (for example, national coastal footpaths • Infrastructure at height (chimney stacks, wind turbines)
Habitat (and species) loss and fragmentation	• Direct land take (for example, road, rail, settlements, industrial) • Barriers to migration (for example, tidal power, bridge construction)

Further assessment of the cumulative impacts of different plans and projects will not be specifically undertaken for this screening assessment. The cumulative and in-combination effects of plans and projects with TfSE Transport Strategy have been considered as part of the ISA. Any subsequent next-tier screening assessments and Appropriate Assessment(s) will require consideration of the potential impacts of in-combination effects in greater detail as further information become available.

Step 4: Assessment of the Significance of Effects on Natura 2000 and Ramsar Sites

Table 4.4 below summarises the likelihood of occurrence of significant effects as a result of the TfSE Transport Strategy.

Table 4-4 – Likelihood of occurrence of significant effects as a result of TfSE Transport Strategy

TfSE Transport Strategy Objective (refer to Section 2 for details)	Possible Impacts
Objective 1: Ensure the delivery of a high quality, sustainable and integrated transport system that supports increased productivity to grow the South East and UK economy and compete in the global marketplace.	• This objective may require construction or improvement works, which could potentially lead to LSE's on all identified designated sites, excluding 4 SAC's (Dover to Kingsdown Cliff SAC, Blean Complex SAC, Margate and Long Sands SAC, Salisbury Plain SAC), which fall outside ZoI. Significant effects are likely through habitat loss/damage/fragmentation; air quality; hydrology; disturbance to associated species through noise, visual and vibration inputs. • Significant positive effects may also be realised through improved connectivity.
Objective 2: Facilitating the development of a high quality, sustainable and integrated transport system that works to improve safety, quality of life and access to opportunities for all.	• This objective may require construction or improvement works. This may potentially lead to LSE's on all identified designated sites, excluding 4 SAC's (Dover to Kingsdown Cliff SAC, Blean Complex SAC, Margate and Long Sands SAC, Salisbury Plain SAC), which fall outside ZoI. Significant effects are likely through habitat loss/damage/fragmentation; air quality; hydrology; disturbance to associated species through noise, visual and vibration inputs. • The construction of cycle paths and walkway may also increase human presence in proximity to designated sites, which may result in in long-term (operational phase) impacts of visitor pressure to sites and disturbance to species. • Significant positive effects may be realised through improved connectivity.
Objective 3: Facilitate the delivery of a high quality, sustainable and integrated transport system that protects and enhances the South East's unique natural and historic environment.	• 33 designated sites are identified as being subject to existing recreational/human disturbance pressures (see Annex B), which may be exacerbated by improved access. • Significant effects are likely through habitat loss/damage/fragmentation; air quality; hydrology; disturbance to associated species through noise, visual and vibration inputs. • Significant positive effects may be realised through improved connectivity.

Notwithstanding the requirement for further assessment, it is highly likely that within the regulation and permitting of the development of projects to implement the TfSE Transport Strategy, a range of environmental control measures will be required to ensure adverse impacts upon the environment are avoided or minimised. This will include the reduction of air quality emissions to below critical threshold levels as identified by Air Pollution Information System (APIS) and others. The control of water abstraction and discharge of water is required via the Water Framework Directive , the consideration of impacts on designated sites is

covered under the Habitats Regulations, Wildlife and Countryside Act 1981 (as amended), and national and location planning policy. These control measures will ensure that impacts associated with projects to implement TfSE Transport Strategy are minimised. This will be determined at the next tier of assessment, screening or AA stage, and it is likely that with the control measures in place, development that may result in significant adverse impacts on Natura 2000 or Ramsar sites would only be permitted in exceptional circumstances.

At this stage, is not possible to categorically demonstrate that the TfSE Transport Strategy will not have any impacts upon the Natura 2000 network or Ramsar sites.

5 Conclusion

Conclusion and Recommendations

Given the possibility of significant effects associated with TfSE Transport Strategy, further, detailed assessment is necessary to satisfy the requirements of the Habitats Regulations. This detailed assessment is described as an 'Appropriate Assessment'.

In order to consider potential impacts in more detail, further information on the proposals of TfSE Transport Strategy and in-depth consultation with Natural England would be required.

The TfSE Transport Strategy is to be published at a strategy level and will not give detail on potential projects or proposals for its implementation. As a result, it is considered that there is insufficient detail at this time to enable a more in-depth analysis to the degree required for Appropriate Assessment. It will only be possible to undertake this level of assessment once specific projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

An assessment of any likely significant in-combination effects will be made and full recommendations for mitigation will be provided within each project/plan-level Appropriate Assessment. These will suggest measures to reduce the potential for any development to result in impacts upon the European sites.

The following over-arching mitigating statement is also recommended for incorporation within the TfSE Transport Strategy:

Any development that would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, will be subject to assessment under part 6 of the habitats regulations at project application stage. If it cannot be ascertained that there would be no adverse effects on site integrity the project will have to be refused or pass the tests of regulation 61 and 62, in which case any necessary compensatory measures will need to be secured in accordance with regulation 66.

Where possible over-arching mitigating statements should be incorporated within TfSE Transport Strategy, for example:

- development will not be located within any European site so that no direct habitat loss will occur;
- wherever possible works will be avoided where there is a direct transmission pathway to European sites (such as a European site downstream of a new road);
- that buffer zones will be provided between construction/improvement works and European sites (the size and extent of which should be dependent upon the nature of impact and the sensitivity of receptors);
- there would be a general presumption against the permitting of construction/improvement works which generate particular adverse effects in proximity

to European sites, which are sensitive to those effects – e.g. where particular adverse impacts on the water environment are identified; and

- improved access to European sites will be closely monitored and managed to ensure the integrity of the sites is not compromised.

6 References

- APIS (2011). Air Pollution Information System Database, available at www.apis.ac.uk. Accessed 2nd July 2019
- Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971. UN Treaty Series No. 14583. As amended by the Paris Protocol, 3 December 1982, and Regina Amendments, 28 May 1987.
- Council of the European Union (1992). Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora. Available online: http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:31992L0043. Accessed 2nd July 2019
- Council of the European Union (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Available online: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:ev0024. Accessed 2nd July 2019
- Department for Communities and Local Government (DCLG) 2012. National Planning Policy Framework.
- DETR (1998) European Marine Sites in England & Wales: A guide to the Conservation (Natural Habitats &c.) Regulations 1994 and to the Preparation and Application of Management Schemes. Department of the Environment, Transport and the Regions: UK.
- European Commission (2000). Managing Natura 2000 Sites, the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Available http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf. Accessed 2nd July 2019.
- European Communities (2007). Guidance document on Article 6 (4) of the 'Habitats Directive' 92/43/EEC; Available: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf Accessed: accessed 2nd July 2019.
- Her Majesty's Stationary Office (2017). The Conservation of Habitats and Species Regulations 2017/490.
- HMSO (2007). The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007, SI 2007/1842.
- Joint Nature Conservation Committee (JNCC) (2016). SAC and SPA Standard Data Forms and Ramsar Information Sheets. Available online: http://www.jncc.gov.uk/. Accessed 2nd July 2019.
- Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. Available online: http://publications.naturalengland.org.uk/publication/4720542048845824 Accessed 15th July 2019

Annex A

Relevant Designated Site Information

Annex B

Impact Identification for Relevant Natura 2000 and Ramsar Sites

Control Information

Prepared by

Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
Click here to enter text.

Prepared for

Transport for the South East

Steer project/proposal number

23433701

Client contract/project number

N/K

Author/originator

Katie Burrough

Reviewer/approver

Ursula Digby

Other contributors

Distribution

Client: Client Team
Steer/ Project Management
WSP: Team

Version control/issue number

V1.0 Draft for Client
V2.0 Draft for Client

Date

18 July 2019
27 September 2019

Complex questions.
Powerful answers.

Explore **steergroup.com** or visit one of our 21 offices:

Bogotá, Colombia
Bologna, Italy
Boston, USA
Brussels, Belgium
Leeds, UK
Lima, Peru
London, UK
Los Angeles, USA
Manchester, UK
Mexico City, Mexico
New Delhi, India
New York, USA
Panama City, Panama
Rome, Italy
San Juan, Puerto Rico
Santiago, Chile
São Paulo, Brazil
Toronto, Canada
Vancouver, Canada
Washington DC, USA

steer

4 October 2019

Transport Strategy for the South East: ISA Report Appendix F - Annex A

Transport for the South East
23433701

4 October 2019

Transport Strategy for the South East: ISA Report Appendix F - Annex A

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Transport for the South East

23433701

Contents

Table 3.1 – Relevant Natura 2000 or Ramsar Sites

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Mole Gap to Reigate Escarpment SAC	1. IO5 – A25/North Downs Line (Guildford – Redhill) (1.3km) 2. IO1 – M25 (Dartford – Slough) (0km) 3. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (15km) 4. SE4 – A21/Hastings Line (Hastings – Sevenoaks) (3km) 5. SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) (16km) 6. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (16km) 7. IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) (16km)	N	892.3	Annex I habitats that are a primary reason for selection of this site: ▪ Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) ▪ Taxus baccata woods of the British Isles * Priority feature Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: ▪ European dry heaths ▪ Asperulo-Fagetum beech forests Annex II species present as a qualifying

[1] Distance taken from closest point

[2] Priority habitats are designated by an asterisk. These are defined as one in danger of disappearance, and for the conservation of which the European Community has particular responsibility (see Article 1(d) of the Habitats Directive). Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised for IROPI are those relating to human health or public safety, to beneficial consequences of primary importance for the environment.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	8. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (28km) 9. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (12km) 10. SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) (26km) 11. SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) (27km) 12. SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon) (11km) 13. IO4 – Redhill – Tonbridge Line/South Eastern Main Line (Ashford – Redhill) (11km)			feature, but not a primary reason for site selection: ▪ Great crested newt Triturus cristatus ▪ Bechstein`s bat Myotis bechsteinii
Singleton and Cocking Tunnels SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (14km) 2. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (12km)	N	1.88	Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Barbastelle Barbastella barbastellus ▪ Bechstein`s bat Myotis bechsteinii

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	3. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (9km)			
Ebernoe Common SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (9km) 2. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (11km) 3. IO5 – A25/North Downs Line (Guildford – Redhill) (22km) 4. IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) (22km) 5. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (26km) 6. SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon) (29km) 7. OO3 – M27/A27/A31/West Coastway	N	234.93	Annex I habitats that are a primary reason for selection of this site: ▪ Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) Annex II species that are a primary reason for site selection: ▪ Barbastelle Barbastella barbastellus ▪ Bechstein`s bat Myotis bechsteinii

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	Line (Brighton – Ringwood) (21km)			
Briddlesford Copses SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (3km) 2. SW5 – A36/Wessex Main Line (New Forest) (23km) 3. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (6km) 4. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (15km)	N	165.44	Annex II species that are a primary reason for site selection: ▪ Bechstein`s bat Myotis bechsteinii
Mottisfont Bats SAC	1. SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) (14km) 2. SW5 – A36/Wessex Main Line (New Forest) (8km) 3. SW6 – A303/West of England Main Line (Andover – Basingstoke) (15km)	N	196.55	Annex II species that are a primary reason for site selection: ▪ Barbastelle Barbastella barbastellus

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	4. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (15km) 5. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (10km)			
Chilmark Quarries SAC	1. SW6 – A303/West of England Main Line (Andover – Basingstoke) (28km)	N	10.16	Annex II species that are a primary reason for site selection: ▪ Greater horseshoe bat Rhinolophus ferrumequinum ▪ Barbastelle Barbastella barbastellus ▪ Bechstein`s bat Myotis bechsteinii Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Lesser horseshoe bat Rhinolophus hipposideros
St Albans Head to Durlston Head SAC	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway	N	283.4	Annex I habitats that are primary reason for selection of this site:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	Line (Brighton – Ringwood) (23km)			▪ Vegetated sea cliffs of the Atlantic and Baltic Coasts ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) Annex II habitats that are primary reason for selection of this site: ▪ Early gentian Gentianella anglica Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Greater horseshoe bat Rhinolophus ferrumequinum
The Mens SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (15km) 2. SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) (3km) 3. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (6km)	N	204.69	Annex I habitats that are a primary reason for selection of this site: ▪ Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	4. IO5 – A25/North Downs Line (Guildford – Redhill) (24km) 5. IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) (25km) 6. SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon) (23km) 7. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (21km)			Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Barbastelle Barbastella barbastellus
Dover to Kingsdown Cliff SAC	1. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (1.4km) 2. SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) Sidcup (1.4km)	N	184.54	Annex I habitats that are primary reason for selection of this site: ▪ Vegetated sea cliffs of the Atlantic and Baltic Coasts ▪ Annex I habitats present as a qualifying feature, but not a primary reason for site selection: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Lydden & Temple Ewell Downs SAC	1. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (0.8km)	N	62.77	Annex I habitats that are primary reason for selection of this site: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
Blean Complex SAC	1. OO1 – A28/A290/A291 (Canterbury – Whitstable) (0.3km) 2. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (1.7km) 3. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (1.3km)	N	522.89	Annex I habitats that are primary reason for selection of this site: ▪ Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli
North Downs Woodlands SAC	1. SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) Sidcup (1.1km) 2. IO3 – A228/A229/Medway Valley Line (Maidstone – Medway Towns) (0km)	N	288.58	Annex I habitats that are primary reason for selection of this site: ▪ Asperulo-Fagetum beech forests ▪ Taxus baccata woods of the British Isles * Priority feature

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Annex I habitats present as a qualifying feature, but not a primary reason for site selection: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
Richmond Park SAC	1. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km)	Y - M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury) has hydrological connectivity to Richmond Park SAC	846.27	Annex II species that are primary reason for selection of this site: Stag beetle Lucanus cervus
Butser Hill SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0km)	N	237.36	Annex I habitats that are primary reason for selection of this site: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Annex I habitats present as a qualifying feature, but not a primary reason for site selection: ▪ Taxus baccata woods of the British Isles * Priority feature
Wimbledon Common SAC	1. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (1.3km)	Y - M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury) has hydrological connectivity to Wimbledon Common SAC	351.38	Annex I habitats present as a qualifying feature, but not a primary reason for site selection: ▪ Northern Atlantic wet heaths with Erica tetralix ▪ European dry heaths Annex II species that are primary reason for selection of this site: ▪ Stag beetle Lucanus cervus
Woolmer Forest SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (1.8km)	N	670.15	Annex I habitats that are primary reason for selection of this site: ▪ Natural dystrophic lakes and ponds ▪ European dry heaths

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Depressions on peat substrates of the Rhynchosporion Annex I habitats present as a qualifying feature, but not a primary reason for site selection: ▪ Northern Atlantic wet heaths with Erica tetralix ▪ Transition mires and quaking bogs
Thursley, Ash, Pirbright & Chobham SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (1.3km) 2. IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) (0km) 3. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km)	Y - M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury), M25 (Dartford _ Slough), A31/A322/A329/A331/North Downs Line (Reading _ Redhill) and A3/A27/M275/Portsmouth Direct Line (Portsmouth _ Surbiton) have hydrological connectivity to Thursley, Ash, Pirbright & Chobham SAC	5154.5	Annex I habitats that are primary reason for selection of this site: ▪ Northern Atlantic wet heaths with Erica tetralix ▪ European dry heaths ▪ Depressions on peat substrates of the Rhynchosporion

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Solent & Isle of Wight Lagoons SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (1.9km) 2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (1.6km)	N	37.93	Annex I habitats that are primary reason for selection of this site: ▪ Coastal lagoons * Priority feature
Solent Maritime SAC	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0.7km) 2. SW5 – A36/Wessex Main Line (New Forest) (0.6km) 3. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km) 4. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury), M27/West Coastway line and South Western Mainline and A36 (New Forest) have hydrological connectivity to Solent Maritime SAC	11243.12	Annex I habitats that are primary reason for selection of this site: ▪ Estuaries ▪ Spartina swards (Spartinion maritimae) ▪ Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Annex I habitats present as a qualifying feature, but not a primary reason for site selection: ▪ Sandbanks which are slightly covered by sea water all the time ▪ Mudflats and sandflats not covered by seawater at low tide ▪ Coastal lagoons * Priority feature

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Annual vegetation of drift lines ▪ Perennial vegetation of stony banks ▪ Salicornia and other annuals colonizing mud and sand ▪ "Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")"
Pevensey Levels SAC	1. OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) (0km)	Y - A259_East_Coastway_Line has hydrological connectivity to Pevensey Levels SAC	3585.38	Annex II species that are primary reason for selection of this site: ▪ Ramshorn snail Anisus vorticulus
Ashdown Forest SAC	1. SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) (0km)	N	2715.88	Annex I habitats that are primary reason for selection of this site: ▪ Northern Atlantic wet heaths with Erica tetralix ▪ European dry heaths Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Great crested newt Triturus cristatus

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Lewes Downs SAC	1. SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon) (0km)	N	146	Annex I habitats that are primary reason for selection of this site: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
Castle Hill SAC	1. OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) (0km)	N	114.53	Annex I habitats that are primary reason for selection of this site: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Early gentian Gentianella anglica

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Dorset Heaths SAC	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	N	5719.54	Annex I habitats that are primary reason for selection of this site: ▪ Northern Atlantic wet heaths with Erica tetralix ▪ European dry heaths ▪ Depressions on peat substrates of the Rhynchosporion Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) ▪ Calcareous fens with Cladium mariscus and species of the Caricion davallianae * Priority feature ▪ Alkaline fens ▪ Old acidophilous oak woods with Quercus robur on sandy plains Annex II species that are a primary reason for selection of this site ▪ Southern damselfly Coenagrion mercurial

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Great crested newt Triturus cristatus
Kennet & Lambourn Floodplain SAC	1. SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) (0.1km) 2. SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) (0km)	Y – SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) and A34/South Western Main Line/Basingstoke _ Reading Line (Reading _ Winchester) have hydrological connectivity to Kennet & Lambourn Floodplain SAC	112.24	Annex II species that are primary reason for selection of this site: ▪ Desmoulin`s whorl snail Vertigo moulinsiana
Kennet Valley Alderwoods SAC	1. SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) (0.6km) 2. SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) (0km)	N	57.73	Annex I habitats that are primary reason for selection of this site: ▪ Aluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) * Priority feature
River Lambourn SAC	1. SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) (0km)	Y - M4/Great Western Main Line/Reading _ Taunton Line (Newbury _ Slough) and A34/South Western Main Line/Basingstoke _ Reading Line	28.78	Annex I habitats that are primary reason for selection of this site:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	2. SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) (0km)	(Reading _ Winchester) have hydrological connectivity to River Lambourn SAC		▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Annex II species that are primary reason for selection of this site: ▪ Bullhead Cottus gobio Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Brook lamprey Lampetra planeri
River Itchen SAC	1. SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) (0km) 2. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km) 3. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury), M27/West Coastway line and South Western Mainline and A34/South Western Main Line/Basingstoke _ Reading Line (Reading _ Winchester) have hydrological connectivity to River Itchen SAC	303.98	Annex I habitats that are primary reason for selection of this site: ▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Annex II species that are primary reason for selection of this site: ▪ Southern damselfly Coenagrion mercurial ▪ Bullhead Cottus gobio

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes ▪ Brook lamprey Lampetra planeri ▪ Atlantic salmon Salmo salar ▪ Otter Lutra lutra
Hastings Cliff SAC	1. SE4 – A21/Hastings Line (Hastings – Sevenoaks) (1.3km)	N	182.47	Annex I habitats that are primary reason for selection of this site: ▪ Vegetated sea cliffs of the Atlantic and Baltic Coasts
Folkestone to Etchinghill Escarpment SAC	1. SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) Sidcup (0km)	Y - M20/A20/High Speed 1/South Eastern Main Line (Dover _ Sidcup) has hydrological connectivity to Folkestone to Etchinghill Escarpment SAC	187.02	Annex I habitats that are primary reason for selection of this site: ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Dungeness SAC	1. OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) (1.3km)	N	3241.43	Annex I habitats that are primary reason for selection of this site: ▪ Annual vegetation of drift lines ▪ Perennial vegetation of stony banks Annex II species that are primary reason for selection of this site: ▪ Great crested newt Triturus cristatus
Thanet Coast SAC	1. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0.3km)	N	2815.95	Annex I habitats that are primary reason for selection of this site: ▪ Reefs ▪ Submerged or partially submerged sea caves
Margate and Long Sands SAC	1. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (1.7km)	N	64876.85	Annex I habitats that are primary reason for selection of this site: ▪ Sandbanks which are slightly covered by sea water all the time

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
River Avon SAC	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and A303/West of England Main Line (Andover _ Basingstoke) have hydrological connectivity to River Avon SAC	416.57	Annex I habitats that are primary reason for selection of this site: ▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Annex II species that are primary reason for selection of this site: ▪ Desmoulin`s whorl snail Vertigo moulinsiana ▪ Sea lamprey Petromyzon marinus ▪ Brook lamprey Lampetra planeri ▪ Atlantic salmon Salmo salar ▪ Bullhead Cottus gobio
Salisbury Plain SAC	1. SW6 – A303/West of England Main Line (Andover – Basingstoke) (1.7km)	N	21465.94	Annex I habitats that are primary reason for selection of this site: ▪ Juniperus communis formations on heaths or calcareous grasslands ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				(Festuco-Brometalia) (* important orchid sites) Annex II species that are primary reason for selection of this site: ▪ Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia
Arun Valley SAC	1. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (0km)	Y - A24/A264/Arun Valley Line (Crawley _ Horsham) has hydrological connectivity to Arun Valley SAC	487.48	Annex II species that are a primary reason for selection of this site ▪ Ramshorn snail Anisus vorticulus
Tankerton Slopes and Swalecliffe SAC	1. OO1 – A28/A290/A291 (Canterbury – Whitstable) (1.4km) 2. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0.4km)	Y - A28/A299/Chatham Main Line (Faversham _ Ramsgate) and A28/A290/A291 (Canterbury _ Whitstable) have hydrological connectivity to Tankerton Slopes and Swalecliffe SAC.	13.01	Annex II species that are a primary reason for selection of this site ▪ Fisher's estuarine moth Gortyna borelii lunata
The New Forest SAC	1. SW5 – A36/Wessex Main Line (New Forest) (0.09km)	Y - M27/West Coastway line and South Western Mainline and A36 (New Forest) have hydrological	29213.57	Annex I habitats that are a primary reason for selection of this site

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	connectivity to The New Forest SAC		▪ Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) ▪ Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea ▪ Northern Atlantic wet heaths with Erica tetralix ▪ European dry heaths ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) ▪ Depressions on peat substrates of the Rhynchosporion ▪ Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) ▪ Asperulo-Fagetum beech forests ▪ Old acidophilous oak woods with Quercus robur on sandy plains ▪ Bog woodland * Priority feature ▪ Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) * Priority feature

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site ▪ Transition mires and quaking bogs ▪ Alkaline fens Annex II species that are a primary reason for selection of this site: ▪ Southern damselfly Coenagrion mercuriale ▪ Stag beetle Lucanus cervus Annex II species present as a qualifying feature, but not a primary reason for site selection: ▪ Great crested newt Triturus cristatus
	Ramsar			
Avon Valley Ramsar	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - M27/West Coastway line and South Western Mainline has	1385.1	Designated as Ramsar under criteria 1, 2 and 6.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
		hydrological connectivity to Avon Valley Ramsar		▪ Ramsar criterion 1: The site shows a greater range of habitats than any other chalk river in Britain, including fen, mire, lowland wet grassland and small areas of woodland. ▪ Ramsar criterion 2: The site supports a diverse assemblage of wetland flora and fauna including several nationally-rare species ▪ Ramsar criterion 6: Species occurring at levels of international importance (as identified at designation): Over winter the area regularly supports: Gadwall, Anas Strepera.
Dorset Heathlands Ramsar	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0.4km)	N	6730.15	Designated as Ramsar under criteria 1, 2 and 3. ▪ Ramsar criterion 1: Contains particularly good examples of (i) northern Atlantic wet heaths with cross-leaved heath Erica tetralix and (ii) acid mire with Rhynchosporion. Contains largest example in Britain of southern Atlantic wet heaths with Dorset heath Erica ciliaris and cross-leaved heath Erica tetralix.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Ramsar criterion 2: Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species. ▪ Ramsar criterion 3: Has a high species richness and high ecological diversity of wetland habitat types and transitions, and lies in one of the most biologically-rich wetland areas of lowland Britain, being continuous with three other Ramsar sites: Poole Harbour, Avon Valley and The New Forest.
Solent and Southampton Water Ramsar	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (1.8km) 2. SW5 – A36/Wessex Main Line (New Forest) (0km) 3. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km)	Y - M27/West Coastway line and South Western Mainline, A36 (New Forest) and A3/A27/M275/Portsmouth Direct Line (Portsmouth _ Surbiton) have hydrological connectivity to Solent and Southampton Water Ramsar	5346.44	Designated as Ramsar under criteria 1, 2,5 and 6. ▪ Ramsar criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters,

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	4. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)			grazing marshes, reedbeds, coastal woodland and rocky boulder reefs. ▪ Ramsar criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. ▪ Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 51343 waterfowl (5 year peak mean 1998/99-2002/2003) ▪ Ramsar criterion 6: species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: Ringed plover , Charadrius hiaticula, Species with peak counts in winter: Dark-bellied brent goose, Branta bernicla bernicla, Eurasian teal , Anas crecca, Black-tailed godwit , Limosa limosa islandica.
New Forest Ramsar	1. SW5 – A36/Wessex Main Line (New Forest) (0.09km)	Y - M27/West Coastway line and South Western Mainline and A36 (New Forest) have hydrological	28002.81	Designated as Ramsar under criteria 1, 2 and 3.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	connectivity to New Forest Ramsar		▪ Ramsar criterion 1: Valley mires and wet heaths are found throughout the site and are of outstanding scientific interest. The mires and heaths are within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. This is the largest concentration of intact valley mires of their type in Britain. ▪ Ramsar criterion 2: The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plant are found on the site, as are at least 65 British Red Data Book species of invertebrate. ▪ Ramsar criterion 3: The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scare wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Chichester and Langstone Harbour Ramsar	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0.8km) 2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - M27/West Coastway line and South Western Mainline has hydrological connectivity to the Chichester and Langstone Harbour Ramsar	5346.4	Designated as Ramsar under criteria 1, 2,5 and 6. ▪ Ramsar criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: sali lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs. ▪ Ramsar criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. ▪ Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 51343 waterfowl (5-year peak mean 1998/99-2002/2003)

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Ramsar criterion 6: species/populations occurring at levels of international importance (as identified at designation). Species with peak counts in spring/autumn: Ringed ploverCharadrius hiaticula. Species with peak counts in winter: Dark-bellied brent goose Branta bernicla bernicla. Eurasian teal, Anas crecca and Black-tailed godwit Limosa limosa islandica.
Portsmouth Harbour Ramsar	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0.9km) 2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0.4km)	Y - M27/West Coastway line and South Western Mainline has hydrological connectivity to Portsmouth Harbour Ramsar	1248.77	Designated as Ramsar under criteria 3 and 6. ▪ Ramsar criterion 3: The intertidal mudflat areas possess extensive beds of eelgrass Zostera angustifolia and Zostera noltei which support the grazing dark-bellied brent geese populations. The mud-snail Hydrobia ulvae is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass Spartina anglica dominates large areas of the saltmarsh and there are also extensive areas of green algae Enteromorpha spp. and sea lettuce Ulva lactuca. More locally the saltmarsh is dominated by sea purslane Halimione

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				portulacoides which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species. ▪ Ramsar criterion 6: species/populations occurring at levels of international importance (as identified at designation). Species with peak counts in winter: Dark-bellied brent goose, Branta bernicla bernicla,
Pevensey Levels Ramsar	1. OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) (0km)	Y - A259_East_Coastway_Line has hydrological connectivity to Pevensey Levels Ramsar	3577.71	Designated as Ramsar under criteria 2 and 3. ▪ Ramsar criterion 2: The site supports an outstanding assemblage of wetland plants and invertebrates including many British Red Data Book species. ▪ Ramsar criterion 3: The site supports 68% of vascular plant species in Great Britain that can be described as aquatic. It is probably the best site in Britain for freshwater molluscs, one of the five best sites for aquatic beetles Coleoptera and supports an outstanding assemblage of dragonflies Odonata.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Dungeness, Romney Marsh and Rye Bay Ramsar	1. OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) (0km)	Y - A259_East_Coastway_Line and A21/Hastings Line (Hastings _ Sevenoaks) have hydrological connectivity to Dungeness, Romney Marsh and Rye Bay Ramsar	6377.63	Designated as Ramsar under criteria 1, 2 and 6. ▪ Ramsar criterion 1: it contains representative, rare, or unique examples of natural or near-natural wetland types: Annual vegetation of drift lines and the coastal fringes of perennial vegetation of stony banks (Ramsar wetland type E – sand, shingle or pebble shores). Natural shingle wetlands: saline lagoons (Ramsar wetland type J – coastal brackish/saline lagoons), freshwater pits (Ramsar wetland type K – coastal freshwater lagoons) and basin fens (Ramsar wetland type U – non-forested peatlands). ▪ Ramsar criterion 2: supports threatened ecological communities: consisting of a complex network of wetland habitats including saltmarsh, natural freshwater pits, fens, ponds, gravel pits, and grazing marsh and ditches. They support rich and diverse assemblages of bryophytes, vascular plants and invertebrates that are rare, threatened. the site is of international importance for nine

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				individual wetland species: greater water-parsnip Sium latifolium, Warne's thread-moss Bryum warneum, water vole Arvicola amphibious, aquatic warbler Acrocephalus paludicola, great crested newt Triturus cristatus, medicinal leech Hirudo medicinalis, a ground beetle Omophron limbatum, marsh mallow moth Hydraecia osseola hucherardi, De Folin's lagoon snail Caecum amoricum. ▪ Ramsar criterion 5: regularly supports 20,000 or more waterbirds: • In the non-breeding season, the site regularly supports 34,957 individual waterbirds (5 year peak mean 2002/3 – 2006/7). ▪ Ramsar criterion 6: regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season: Mute swan Cygnus olor, Shoveler Anas clypeata.
Thanet Coast and	1. OO1 – A28/A290/A291 (Canterbury – Whitstable) (0.3km)	Y - A28/A299/Chatham Main Line (Faversham _ Ramsgate) and A28/A290/A291 (Canterbury _	2169.23	Designated as Ramsar under criteria 2 and 6.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Sandwich Bay Ramsar	2. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0.2km)	Whitstable) have hydrological connectivity to Thanet Coast and Sandwich Bay Ramsar		▪ Ramsar criterion 2: Supports 15 British Red Data Book wetland invertebrates. ▪ Ramsar criterion 6: species/populations occurring at levels of international importance (as identified at designation). Species with peak counts in winter: Ruddy turnstone Arenaria interpres interpres.
Medway Estuary & Marshes Ramsar	1. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (0km) 2. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (1km)	Y - M2/A2/Chatham Main Line (Dartford _ Dover) and A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) have hydrological connectivity to Medway Estuary & Marshes Ramsar	4696.74	Designated as Ramsar under criteria 2, 5 and 6. ▪ Ramsar criterion 2: The site supports a number of species of rare plants and animals. The site holds several nationally scarce plants, including sea barley Hordeum marinum, curved hard-grass Parapholis incurva, annual beard-grass Polypogon monspeliensis, Borrer's saltmarsh-grass Puccinellia fasciculata, slender hare`s-ear Bupleurum tenuissimum, sea clover Trifolium squamosum, saltmarsh goose-foot Chenopodium chenopodioides, golden samphire Inula crithmoides, perennial

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				glasswort Sarcocornia perennis and one-flowered glasswort Salicornia pusilla. A total of at least twelve British Red Data Book species of wetland invertebrates have been recorded on the site. These include a ground beetle Polistichus connexus, a fly Cephalops perspicuus, a dancefly Poecilobothrus ducalis, a fly Anagnota collini, a weevil Baris scolopacea, a water beetle Berosus spinosus, a beetle Malachius vulneratus, a rove beetle Philonthus punctus, the ground lackey moth Malacosoma castrensis, a horsefly Atylotus latistriatuus, a fly Campsicnemus magius, a solider beetle, Cantharis fusca, and a cranefly Limonia danica. A significant number of non-wetland British Red Data Book species also occur. ▪ Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 47637 waterfowl (5 year peak mean 1998/99-2002/2003). ▪ Ramsar critetion 6: species/populations occurring at levels of international importance (as identified at designation). Species with peak counts in

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				spring/autumn: Grey plover Pluvialis squatarola. Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in spring/autumn: Black-tailed godwit, Limosa limosa islandica.
The Swale Ramsar	1. OO1 – A28/A290/A291 (Canterbury – Whitstable) (0.5km) 2. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0km) 3. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (0km) 4. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (0.9km)	Y - A28/A299/Chatham Main Line (Faversham _ Ramsgate) and A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) have hydrological connectivity to The Swale Ramsar	6514.71	Designated as Ramsar under criteria 2, 5 and 6. ▪ Ramsar criterion 2: The site supports nationally scarce plants and at least seven British Red data book invertebrates. ▪ Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 77501 waterfowl (5 year peak mean 1998/99-2002/2003) ▪ Ramsar criterion 6: species/populations occurring at levels of international importance (as identified at designation): Species with peak counts in spring/autumn: Common redshank, Tringa totanus tetanus. Species with peak counts in winter: Dark-bellied brent goose, Branta bernicla bernicla. Grey plover, Pluvialis squatarola.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in spring/autumn: Ringed plover Charadrius hiaticula, Species with peak counts in winter: Eurasian wigeon, Anas Penelope, Northern pintail, Anas acuta, Northern shoveler, Anas clypeata and Black-tailed godwit, Limosa limosa islandica.
South West London Waterbodies Ramsar	1. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0.5km) 2. IO1 – M25 (Dartford – Slough) (0km)	Y - M25 (Dartford _ Slough) has hydrological connectivity to South West London Waterbodies Ramsar	828.14	Designated as Ramsar under criteria 6. ▪ Ramsar criterion 6: species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: Northern shoveler Anas clypeata. Species with peak counts in winter: Gadwall Anas strepera Strepera.
Arun Valley Ramsar	1. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (0km)	Y - A24/A264/Arun Valley Line (Crawley _ Horsham) has	528.62	Designated as Ramsar under criteria 2, 3 and 5.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
		hydrological connectivity to Arun Valley Ramsar		▪ Ramsar criterion 2: The site holds seven wetland invertebrate species listed in the British Red Data Book as threatened. One of these, Pseudamnicola confusa, is considered to be endangered. The site also supports four nationally rare and four nationally scarce plant species ▪ Ramsar criterion 3: In addition to the Red Data Book invertebrate and plant species, the ditches intersecting the site have a particularly diverse and rich flora. All five British duckweed Lemna species, all five water-cress Rorippa species, and all three British water milfoils (Myriophyllum species), all but one of the seven British water dropworts (Oenanthe species), and two-thirds of the British pondweeds (Potamogeton species) can be found on site. ▪ Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 13774 waterfowl (5 year peak mean 1998/99-2002/2003) Species/populations identified subsequent to designation for possible future

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				consideration under criterion 6. Species with peak counts in winter: Northern pintail Anas acuta.
Thames Estuary & Marshes Ramsar	1. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (0km)	Y - A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) has hydrological connectivity to Thames Estuary & Marshes Ramsar	5588.59	Designated as Ramsar under criteria 2, 5 and 6. ▪ Ramsar criterion 2: The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates. ▪ Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 45118 waterfowl (5 year peak mean 1998/99-2002/2003) ▪ Ramsar criterion 6: species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: Ringed plover , Charadrius hiaticula, Black-tailed godwit , Limosa limosa islandica, Species with peak counts in winter: Grey plover , Pluvialis squatarola, Red knot , Calidris canutus islandica, Dunlin

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				, Calidris alpina alpina, Common redshank , Tringa totanus tetanus.
	SPA			
Ashdown Forest SPA	1. SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) (0km)	N	3207.08	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Dartford Warbler Sylvia undata, 29 pairs representing at least 1.8% of the breeding population in Great Britain (Count as at 1994) ▪ Nightjar Caprimulgus europaeus, 35 pairs representing at least 1.0% of the breeding population in Great Britain (Two year mean, 1991 & 1992)
Thursley, Hankley & Frensham	1. SW1 – A3/A27/M275/Portsmouth	Y - M3/M27/M271/A33/A326/South	1879.83	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Commons SPA	Direct Line (Portsmouth – Surbiton) (1.3km)	Western Main Line (Southampton _ Sunbury), A3/A27/M275/Portsmouth Direct Line (Portsmouth _ Surbiton) and A31/A322/A329/A331/North Downs Line (Reading _ Redhill) have hydrological connectivity to Thursley, Hankley & Frensham Commons SPA		populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Nightjar Caprimulgus europaeus 0.6% of the GB breeding population 5 year mean 1985 - 1990 ▪ Woodlark Lullula arborea 1.8% of the GB breeding population Count, as at 1994 ▪ Dartford warbler Sylvia undata at least 1.3% of the GB breeding population Count, as at 1984
Wealden Heaths Phase II SPA	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0.3km)	N	3923.8	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Dartford Warbler Sylvia undata, 123 pairs representing at least 7.7% of the breeding population in Great Britain

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Nightjar Caprimulgus europaeus, 103 pairs representing at least 3.0% of the breeding population in Great Britain ▪ Woodlark Lullula arborea, 105 pairs representing at least 7.0% of the breeding population in Great Britain
Thames Basin Heaths SPA	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0km) 2. IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) (0km) 3. SW3 – A33/Basingstoke – Reading Line (Basingstoke – Reading) (0km) 4. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km) 5. IO1 – M25 (Dartford – Slough) (1.4km)	Y - M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury) has hydrological connectivity to Thames Basin Heaths SPA	8311.06	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Dartford Warbler Sylvia undata, 445 pairs representing at least 27.8% of the breeding population in Great Britain (Count as at 1999) ▪ Nightjar Caprimulgus europaeus, 264 pairs representing at least 7.8% of the breeding population in Great Britain (Count mean (1998-99)) ▪ Woodlark Lullula arborea, 149 pairs representing at least 9.9% of the breeding

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				population in Great Britain (Count as at 1997)
Chichester and Langstone Harbours SPA	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0.8km) 2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - M27/West Coastway line and South Western Mainline has hydrological connectivity to Chichester and Langstone Harbours SPA	5810.03	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Little Tern Sterna albifrons, 100 pairs representing up to 4.2% of the breeding population in Great Britain (5 year mean, 1992-1996) ▪ Sandwich Tern Sterna sandvicensis, 158 pairs representing up to 1.1% of the breeding population in Great Britain (1998) On passage: ▪ Little Egret Egretta garzetta, 137 individuals representing up to 17.1% of the population in Great Britain (Count as at 1998) Over winter:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Bar-tailed Godwit Limosa lapponica, 1,692 individuals representing up to 3.2% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6) ▪ Little Egret Egretta garzetta, 100 individuals representing up to 20.0% of the wintering population in Great Britain (Count as at 1998) ▪ This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: On passage: ▪ Ringed Plover Charadrius hiaticula, 2,471 individuals representing up to 4.9% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6) Over winter: ▪ Black-tailed Godwit Limosa limosa islandica, 1,003 individuals representing up to 1.4% of the wintering Iceland - breeding

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				population (5 year peak mean 1991/2 - 1995/6) ▪ Dark-bellied Brent Goose Branta bernicla bernicla, 17,119 individuals representing up to 5.7% of the wintering Western Siberia/Western Europe population (5 year peak mean 1991/2 - 1995/6) ▪ Dunlin Calidris alpina alpina, 44,294 individuals representing up to 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6) ▪ Grey Plover Pluvialis squatarola, 3,825 individuals representing up to 2.5% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6) ▪ Redshank Tringa totanus, 1,788 individuals representing up to 1.2% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6) ▪ Ringed Plover Charadrius hiaticula, 846 individuals representing up to 1.7% of the wintering Europe/Northern Africa -

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				wintering population (5 year peak mean 1991/2 - 1995/6) Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl Over winter, the area regularly supports 93,142 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Wigeon Anas penelope, Bar-tailed Godwit Limosa lapponica, Dark-bellied Brent Goose Branta bernicla bernicla, Ringed Plover Charadrius hiaticula, Grey Plover Pluvialis squatarola, Dunlin Calidris alpina alpina, Black-tailed Godwit Limosa limosa islandica, Redshank Tringa totanus, Little Grebe Tachybaptus ruficollis, Little Egret Egretta garzetta, Shelduck Tadorna tadorna, Curlew Numenius arquata, Teal Anas crecca, Pintail Anas acuta, Shoveler Anas clypeata, Red-breasted Merganser Mergus serrator, Oystercatcher

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Haematopus ostralegus, Lapwing Vanellus vanellus, Knot Calidris canutus, Sanderling Calidris alba, Cormorant Phalacrocorax carbo, Whimbrel Numenius phaeopus.
Portsmouth Harbour SPA	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0.9km) 2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0.4km)	Y - M27/West Coastway line and South Western Mainline has hydrological connectivity to Portsmouth Harbour SPA	1248.77	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter: ▪ Dark-bellied Brent Goose Branta bernicla bernicla, 2,847 individuals representing at least 0.9% of the wintering Western Siberia/Western Europe population (5 year peak mean 1991/2 - 1995/6)
Dungeness, Romney Marsh and Rye Bay SPA	1. SE4 – A21/Hastings Line (Hastings – Sevenoaks) (0.4km) 2. OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) (0km)	Y - A259_East_Coastway_Line has hydrological connectivity to Dungeness, Romney Marsh and Rye Bay SPA	4010.29	The site qualifies under article 4.1 of the Directive (2009/147/EC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Bewick's swan Cygnus columbianus bewickii ▪ Bittern Botaurus stellaris ▪ Hen harrier Circus cyaneus ▪ Golden plover Pluvialis apricaria ▪ Ruff Philomachus pugnax ▪ Aquatic warbler Acrocephalus paludicola ▪ Marsh harrier Circus aeruginosus ▪ Avocet Recurvirostra avosetta ▪ Mediterranean gull Larus melanocephalus ▪ Sandwich tern Sterna sandvicensis ▪ Common tern Sterna hirundo ▪ Little tern Sterna albifrons The site qualifies under article 4.2 of the Directive (2009/147/EC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex I) in any season: Shoveler Anas clypeata The site qualifies under article 4.2 of the Directive (2009/147/EC) as it is used

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) in any season. In the non-breeding season, the area is regularly used by 34,625 individual waterbirds (5 year peak mean 2002/3 – 2006/7), including (but not limited to) Bewick's swan Cygnus columbianus bewickii, European white-fronted goose Anser albifrons albifrons, wigeon Anas penelope, gadwall A. strepera, shoveler A.clypeata, pochard Aythya ferina, little grebe Tachybaptus ruficollis, great crested grebe Podiceps cristatus, cormorant Phalacrocorax carbo, bittern Botaurus stellaris, coot Fulica atra, golden plover Pluvialis apricaria, lapwing Vanellus vanellus, sanderling Calidris alba, ruff Philomachus pugnax,whimbrel Numenius phaeopus and common sandpiper Actitis hypoleucos.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Outer Thames Estuary SPA	1. OO1 – A28/A290/A291 (Canterbury – Whitstable) (0.4km) 2. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0.4km) 3. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (1.1km)	Y - A28/A299/Chatham Main Line (Faversham _ Ramsgate), A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) and A28/A290/A291 (Canterbury _ Whitstable) has hydrological connectivity to Outer Thames Estuary SPA	392451.66	This site qualifies under Article 4.1 of the Directive (79/409/EEC). Over winter the area regularly supports: Gavia stellata (North-western Europe - wintering) - 38% of the population in Great Britain peak mean over the period 1989-2006/07 The area supports breeding populations of: Sternula albifrons (in breeding season) - 19.64% of GB population (2011 - 2015) Sterna hirundo (in breeding season) - 2.66% of GB population (2011 - 2015)
Thanet Coast & Sandwich Bay SPA	1. OO1 – A28/A290/A291 (Canterbury – Whitstable) (0.3km) 2. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0.2km)	Y - A28/A290/A291 (Canterbury _ Whitstable) has hydrological connectivity to Thanet Coast & Sandwich Bay SPA	1870.16	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter: ▪ Turnstone Arenaria interpres, 940 individuals representing at least 1.3% of the wintering Western Palearctic - wintering population (5 year peak mean 1991/2 - 1995/6)

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Medway Estuary & Marshes SPA	1. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (0km)	Y - A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) has hydrological connectivity to Medway Estuary & Marshes SPA	4686.32	This site qualifies under Article 4.1 of the Directive (79/409/EEC). During the breeding season the area regularly supports: Recurvirostra avosetta 6.2% of the GB breeding population 5 year mean, 1988-1992 Sterna albifrons 1.2% of the GB breeding population 5 year mean, 1991-1995 Sterna hirundo 0.6% of the GB breeding population Count,as at 1994 Over winter the area regularly supports: Cygnus columbianus bewickii 0.2% of the GB population 5 year peak mean 1991/92-1995/96 Recurvirostra avosetta 24.7% of the GB population 5 year peak mean 1991/92-1995/96. This site qualifies under Article 4.2 of the Directive (79/409/EEC). Over winter the area regularly supports: Anas acuta 1.2% of the population 5 year peak mean 1991/92-1995/96 Anas clypeata 0.8% of the population in Great Britain 5 year peak mean 1991/92-1995/96 Anas crecca, 1.3% of the population in Great Britain 5 year peak mean

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				1991/92-1995/96 Anas penelope 1.6% of the population in Great Britain 5 year peak mean 1991/92-1995/96 Arenaria interpres 0.9% of the population in Great Britain 5 year peak mean 1991/92-1995/96 Branta bernicla bernicla, 1.1% of the population 5 year peak mean 1991/92-1995/96 Calidris alpina alpine, 1.9% of the population 5 year peak mean 1991/92-1995/96 Calidris canutus, 0.2% of the population 5 year peak mean 1991/92-1995/96 Charadrius hiaticula, 1.6% of the population 5 year peak mean 1991/92-1995/96 Haematopus ostralegus, 1% of the population in Great Britain 5 year peak mean 1991/92-1995/96 Limosa limosa islandica 12.9% of the population in Great Britain 5 year peak mean 1991/92-1995/96 Numenius arquata 1.7% of the population in Great Britain 5 year peak mean 1991/92-1995/96 Pluvialis squatarola 2% of the population 5 year peak mean 1991/92-1995/96 Tadorna tadorna 1.5% of the population 5 year peak mean 1991/92-

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				1995/96 Tringa nebularia 2.6% of the population in Great Britain No count period specified. Tringa totanus 2.1% of the population 5 year peak mean 1991/92-1995/96 This site qualifies under Article 4.2 of the Directive (79/409/EEC). An internationally important assemblage of birds. Over winter the area regularly supports: 65496 waterfowl (5 year peak mean 1991/92-1995/96).
The Swale SPA	1. SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) (0km) 2. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (0km) 3. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (0.9km)	Y - A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) has hydrological connectivity to The Swale SPA	6509.88	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season; ▪ Avocet Recurvirostra avosetta, 103 pairs representing at least 17.5% of the breeding population in Great Britain (RBBP 1996) ▪ Marsh Harrier Circus aeruginosus, 24 pairs representing at least 15.0% of the

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				breeding population in Great Britain (Count, as at 1995) ▪ Mediterranean Gull Larus melanocephalus, 12 pairs representing at least 120.0% of the breeding population in Great Britain (RBBP 1996) Over winter; ▪ Avocet Recurvirostra avosetta, 89 individuals representing at least 7.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6) ▪ Bar-tailed Godwit Limosa lapponica, 542 individuals representing at least 1.0% of the wintering population in Great Britain (Count as at 91/92-95/96) ▪ Golden Plover Pluvialis apricaria, 2,862 individuals representing at least 1.1% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6) ▪ Hen Harrier Circus cyaneus, 23 individuals representing at least 3.1% of the wintering population in Great Britain (Count as at 1996/8) This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				populations of European importance of the following migratory species: On passage; ▪ Ringed Plover Charadrius hiaticula, 683 individuals representing at least 1.4% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6) Over winter; ▪ Black-tailed Godwit Limosa limosa islandica, 1,755 individuals representing at least 2.5% of the wintering Iceland - breeding population (5 year peak mean 1991/2 - 1995/6) ▪ Grey Plover Pluvialis squatarola, 2,021 individuals representing at least 1.3% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6) ▪ Knot Calidris canutus, 5,582 individuals representing at least 1.6% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Europe population (Count as at 91/92-95/96) ▪ Pintail Anas acuta, 966 individuals representing at least 1.6% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6) ▪ Redshank Tringa totanus, 1,640 individuals representing at least 1.1% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6) ▪ Shoveler Anas clypeata, 471 individuals representing at least 1.2% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6) Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl Over winter, the area regularly supports 65,390 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: White-

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				fronted Goose Anser albifrons albifrons, Golden Plover Pluvialis apricaria, Bar-tailed Godwit Limosa lapponica, Pintail Anas acuta, Shoveler Anas clypeata, Grey Plover Pluvialis squatarola, Knot Calidris canutus, Black-tailed Godwit Limosa limosa islandica, Redshank Tringa totanus, Avocet Recurvirostra avosetta, Cormorant Phalacrocorax carbo, Curlew Numenius arquata, Dark-bellied Brent Goose Branta bernicla bernicla, Shelduck Tadorna tadorna, Wigeon Anas penelope, Gadwall Anas strepera, Teal Anas crecca, Oystercatcher Haematopus ostralegus, Lapwing Vanellus vanellus, Dunlin Calidris alpina alpina, Little Grebe Tachybaptus ruficollis.
Salisbury Plain SPA	1. SW6 – A303/West of England Main Line (Andover – Basingstoke) (1.7km)	N	19715.99	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Stone Curlew Burhinus oedicnemus, 22 pairs representing at least 11.6% of the breeding population in Great Britain (Count as at 1998) Over winter: ▪ Hen Harrier Circus cyaneus, 14 individuals representing at least 1.9% of the wintering population in Great Britain (RSPB 1996/7)
South West London Waterbodies SPA	1. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0.5km) 2. IO1 – M25 (Dartford – Slough) (0km)	N	828.14	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter; ▪ Gadwall Anas strepera, 786 individuals representing at least 2.6% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6) ▪ Shoveler Anas clypeata, 1,075 individuals representing at least 2.7% of the wintering Northwestern/Central

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Europe population (5 year peak mean 1991/2 - 1995/6)
Arun Valley SPA	1. SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) (0km)	Y - A24/A264/Arun Valley Line (Crawley _ Horsham) has hydrological connectivity to Arun Valley SPA	528.62	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: Over winter; ▪ Bewick's Swan Cygnus columbianus bewickii, 115 individuals representing at least 1.6% of the wintering population in Great Britain (5 year peak mean for 1992/93 to 1996/7) Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 27,241 individual waterfowl (5 year peak mean for 1992/93 to 1996/97) including:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				Shoveler Anas clypeata, Teal Anas crecca, Wigeon Anas penelope, Bewick's Swan Cygnus columbianus bewickii.
Thames Estuary & Marshes SPA	1. IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) (0km) 2. SE1 – M2/A2/Chatham Main Line (Dartford – Dover) (1km)	N	4802.47	This site qualifies under Article 4.1 of the Directive (79/409/EEC). Over winter the area regularly supports: Circus cyaneus 1% of the population in Great Britain Five year peak mean for 1993/94 to 1997/98 Recurvirostra avosetta 28.3% of the population in Great Britain Five year peak mean for 1993/93 to 1997/98 The area qualifies under Article 4.2 of the Directive (79/409/EEC). Over winter the area regularly supports: Calidris alpina alpina 2.1% of the population Five year peak mean for 1993/94 to 1997/98 Calidris canutus 1.4% of the population Five year peak mean for 1993/94 to 1997/98 Limosa limosa islandica 2.4% of the population Five year peak mean for 1993/94 to 1997/98 Pluvialis squatarola 1.7% of the population Five year peak mean for 1993/94 to 1997/98 Tringa totanus 2.2%

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				of the population Five year peak mean for 1993/94 to 1997/98 On passage the area regularly supports: Charadrius hiaticula 2.6% of the population Five year peak mean for 1993/94 to 1997/98 The area also qualifies under Article 4.2 of the Directive (79/409/EEC) supporting an internationally important assemblage of birds. Over winter the area regularly supports: 75019 waterfowl (5 year peak mean 1991/92-1995/96) Including: Recurvirostra avosetta , Pluvialis squatarola , Calidris canutus , Calidris alpina alpina , Limosa limosa islandica , Tringa totanus
Avon Valley SPA	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	Y - M27/West Coastway line and South Western Mainline has hydrological connectivity to Avon Valley SPA	1385.08	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: Over winter:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				▪ Bewick's Swan Cygnus columbianus bewickii, 135 individuals representing at least 1.9% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6) This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter: ▪ Gadwall Anas strepera, 667 individuals representing at least 2.2% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
Dorset Heathlands SPA	1. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	N	8168.79	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Dartford Warbler Sylvia undata, 418 pairs representing at least 26.1% of the

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				breeding population in Great Britain (Three count mean, 1991-2 & 1994) ▪ Nightjar Caprimulgus europaeus, 386 pairs representing at least 11.4% of the breeding population in Great Britain (Two year mean 1991-1992) ▪ Woodlark Lullula arborea, 60 pairs representing at least 4.0% of the breeding population in Great Britain (Count as at 1997) Over winter: ▪ Hen Harrier Circus cyaneus, 20 individuals representing at least 2.7% of the wintering population in Great Britain (Count, as at 1991/2) ▪ Merlin Falco columbarius, 15 individuals representing at least 1.0% of the wintering population in Great Britain (Count, as at 1991/2)
Solent and Southampton Water SPA	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0km)	Y - M27/West Coastway line and South Western Mainline and A3/A27/M275/Portsmouth Direct Line (Portsmouth _ Surbiton) have hydrological	5505.86	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	2. SW5 – A36/Wessex Main Line (New Forest) (0km) 3. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km) 4. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	connectivity to Solent and Southampton Water SPA		During the breeding season; ▪ Common Tern Sterna hirundo, 267 pairs representing at least 2.2% of the breeding population in Great Britain (5 year peak mean, 1993-1997) ▪ Little Tern Sterna albifrons, 49 pairs representing at least 2.0% of the breeding population in Great Britain (5 year peak mean, 1993-1997) ▪ Mediterranean Gull Larus melanocephalus, 2 pairs representing at least 20.0% of the breeding population in Great Britain (5 year peak mean, 1994-1998) ▪ Roseate Tern Sterna dougallii, 2 pairs representing at least 3.3% of the breeding population in Great Britain (5 year peak mean, 1993-1997) ▪ Sandwich Tern Sterna sandvicensis, 231 pairs representing at least 1.7% of the breeding population in Great Britain (5 year peak mean, 1993-1997) This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				populations of European importance of the following migratory species: Over winter: ▪ Black-tailed Godwit Limosa limosa islandica, 1,125 individuals representing at least 1.6% of the wintering Iceland - breeding population (5 year peak mean, 1992/3-1996/7) ▪ Dark-bellied Brent Goose Branta bernicla bernicla, 7,506 individuals representing at least 2.5% of the wintering Western Siberia/Western Europe population (5 year peak mean, 1992/3-1996/7) ▪ Ringed Plover Charadrius hiaticula, 552 individuals representing at least 1.1% of the wintering Europe/Northern Africa - wintering population (5 year peak mean, 1992/3-1996/7) ▪ Teal Anas crecca, 4,400 individuals representing at least 1.1% of the wintering Northwestern Europe population (5 year peak mean, 1992/3-1996/7) Assemblage qualification: A wetland of international importance.

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
				The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 53,948 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall Anas strepera, Teal Anas crecca, Ringed Plover Charadrius hiaticula, Black-tailed Godwit Limosa limosa islandica, Little Grebe Tachybaptus ruficollis, Great Crested Grebe Podiceps cristatus, Cormorant Phalacrocorax carbo, Dark-bellied Brent Goose Branta bernicla bernicla, Wigeon Anas penelope, Redshank Tringa totanus, Pintail Anas acuta, Shoveler Anas clypeata, Red-breasted Merganser Mergus serrator, Grey Plover Pluvialis squatarola, Lapwing Vanellus vanellus, Dunlin Calidris alpina alpina, Curlew Numenius arquata, Shelduck Tadorna tadorna.
New Forest SPA	1. SW5 – A36/Wessex Main Line (New Forest) (1km)	Y - M27/West Coastway line and South Western Mainline has	28002.81	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
	2. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0km)	hydrological connectivity to New Forest SPA		populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: ▪ Dartford Warbler Sylvia undata, 538 pairs representing at least 33.6% of the breeding population in Great Britain ▪ Honey Buzzard Pernis apivorus, 2 pairs representing at least 10.0% of the breeding population in Great Britain ▪ Nightjar Caprimulgus europaeus, 300 pairs representing at least 8.8% of the breeding population in Great Britain ▪ Woodlark Lullula arborea, 184 pairs representing at least 12.3% of the breeding population in Great Britain (Count as at 1997) Over winter: ▪ Hen Harrier Circus cyaneus, 15 individuals representing at least 2.0% of the wintering population in Great Britain
	pSPA			

Site Name	Strategic Corridor (and distance[1] from Natura 2000 / Ramsar site)	Hydrological connectivity (via watercourses) between Strategic Corridor/s and sites (Y/N)	Site Size (Ha)	Citation at time of designation[2]
Solent and Dorset Coast pSPA	1. SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) (0km) 2. SW5 – A36/Wessex Main Line (New Forest) (0km) 3. SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) (0km) 4. OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) (0.04km)	Y - M27/West Coastway line and South Western Mainline, A36 (New Forest), M3/M27/M271/A33/A326/South Western Main Line (Southampton _ Sunbury) and A34/South Western Main Line/Basingstoke _ Reading Line (Reading _ Winchester) have hydrological connectivity to Solent and Dorset Coast pSPA	Unknown	The proposal for Solent and Dorset Coast is to create a new SPA for internationally important populations of: ▪ common tern Sterna sandvicensis ▪ Sandwich tern Sterna hirundo ▪ little tern Sternula albifrons The site regularly supports more than 1% of the Great Britain breeding populations of three species listed in Annex I of the Birds Directive. Therefore, the site qualifies for SPA Classification in accordance with the UK SPA selection guidelines

Table 3.2 – Known threats and pressures upon relevant designated sites

Site name	Activities with greatest effect upon the site, as listed on Natura 2000 standard data forms or ramsar information sheet	Pressures and threats listed within the Site Improvement Plan
SAC		
Mole Gap to Reigate Escarpment SAC	The following high-ranking threats are present: ▪ Modification of cultivation practices ▪ Biocenotic evolution, succession ▪ Interspecific floral relations ▪ Air pollution, air-borne pollutants Activities management which is having a positive effect on the SPA comprises: ▪ Forest and Plantation management & use ▪ Modification of cultivation practices ▪ Grazing	The following current threats and pressures are listed within the Mole Gap to Reigate Escarpment SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Disease ▪ Inappropriate scrub control ▪ Change in land management ▪ Public access / disturbance ▪ Air pollution: risk of atmospheric nitrogen deposition
Singleton and Cocking Tunnels SAC	The following high-ranking threats are present: ▪ Modification of cultivation practices ▪ Changes in biotic conditions ▪ Outdoor sports and leisure activities, recreational activities ▪ Other ecosystem modifications	The following current threats and pressures are listed within the Singleton and Cocking Tunnels SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Habitat connectivity ▪ Habitat fragmentation ▪ Public access / disturbance

	Activities management which is having a positive effect on the SPA comprises: ▪ None recorded	▪ Air pollution: risk of atmospheric nitrogen deposition
Ebernoe Common SAC	The following high-ranking threats are present: ▪ Changes in biotic conditions ▪ Human induced changes in hydraulic conditions ▪ Forest and Plantation management & use ▪ Modification of cultivation practices ▪ Other ecosystem modifications Activities management which is having a positive effect on the SPA comprises: ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Ebernoe Common SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ forestry and woodland management ▪ Offsite habitat availability / management ▪ Habitat fragmentation ▪ Change in land management ▪ Hydrological changes ▪ Air pollution: risk of atmospheric nitrogen deposition ▪ Public access / disturbance
Briddlesford Copses SAC	The following high-ranking threats are present: ▪ Modification of cultivation practices ▪ Changes in biotic conditions ▪ Air pollution, air-borne pollutants ▪ Forest and Plantation management & use Activities management which is having a positive effect on the SPA comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Briddlesford Copses SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Forestry and woodland management ▪ Offsite habitat availability / management ▪ Habitat fragmentation ▪ Change in land management

	▪ Grazing ▪ Modification of cultivation practices	▪ Hydrological changes ▪ Air pollution: risk of atmospheric nitrogen deposition ▪ Public access / disturbance
Mottisfont Bats SAC	The following high-ranking threats are present: ▪ Unknown threat or pressure ▪ Changes in biotic conditions ▪ Forest and Plantation management & use Activities management which is having a positive effect on the SPA comprises: ▪ None recorded	The following current threats and pressures are listed within the Mottisfont Bats SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Feature location/ extent/ condition unknown ▪ Forestry and woodland management ▪ Offsite habitat availability/ management
Chilmark Quarries SAC	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Changes in biotic conditions ▪ Outdoor sports and leisure activities, recreational activities ▪ Other urbanisation, industrial and similar activities ▪ Abiotic (slow) natural processes Activities management which is having a positive effect on the SPA comprises: ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Chilmark Quarries SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Public access/ disturbance ▪ Natural changes to site conditions ▪ Offsite habitat availability and management ▪ Planning permission: general ▪ Air pollution: risk of atmospheric nitrogen deposition

St Albans Head to Durlston Head SAC	The following high-ranking threats are present: ▪ Biocenotic evolution, succession ▪ Grazing ▪ Invasive non-native species ▪ Cultivation ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SPA comprises: ▪ Grazing ▪ Modification of cultivation practices ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the St Albans Head to Durlston Head SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Undergrazing ▪ Inappropriate scrub control ▪ Invasive species ▪ Agricultural management practices ▪ Public access / disturbance ▪ Water pollution ▪ Habitat fragmentation ▪ Inappropriate coastal management ▪ Natural changes to site conditions ▪ Managed rotational burning
The Mens SAC	The following high-ranking threats are present: ▪ Forest and Plantation management & use ▪ Modification of cultivation practices ▪ Changes in biotic conditions ▪ Other ecosystem modifications Activities management which is having a positive effect on the SAC comprises: ▪ None identified	The following current threats and pressures are listed within the The Mens SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Forestry and woodland management ▪ Habitat connectivity ▪ Invasive species ▪ Change in land management ▪ Air Pollution: risk of atmospheric nitrogen deposition ▪ Public Access/Disturbance

Dover to Kingsdown Cliff SAC	The following high-ranking threats are present: ▪ Biocenotic evolution, succession ▪ Grazing ▪ Air pollution, air-borne pollutants Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Dover to Kingsdown Cliff SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate scrub control ▪ Undergrazing ▪ Air pollution: impact of atmospheric nitrogen deposition
Lydden & Temple Ewell Downs SAC	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Grazing ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Lydden & Temple Ewell Downs SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Overgrazing ▪ Public access/disturbance ▪ Air pollution: impact of atmospheric nitrogen deposition
Blean Complex SAC	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants Activities management which is having a positive effect on the SAC comprises: ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Blean Complex SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Air pollution: impact of atmospheric nitrogen deposition

	▪ Utility and service lines ▪ Improved access to site	
North Downs Woodlands SAC	The following high-ranking threats are present: ▪ Invasive non-native species ▪ Air pollution, air-borne pollutants ▪ Outdoor sports and leisure activities, recreational activities ▪ Forest and Plantation management & use Activities management which is having a positive effect on the SAC comprises: ▪ Grazing ▪ Modification of cultivation practices ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the North Downs Woodlands SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Public access/disturbance ▪ Forestry and woodland management ▪ Invasive Species ▪ Air pollution: impact of atmospheric nitrogen deposition
Richmond Park SAC	Information not provided in the Natura 2000 standard data form.	The following current threats and pressures are listed within the Richmond Park SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ None identified
Butser Hill SAC	The following high-ranking threats are present: ▪ Biocenotic evolution, succession ▪ Grazing	The following current threats and pressures are listed within the Butser Hill SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate scrub control

	Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices ▪ Forest and Plantation management & use	▪ Undergrazing ▪ Air pollution: impact of atmospheric nitrogen deposition
Wimbledon Common SAC	The following high-ranking threats are present: ▪ Other ecosystem modifications ▪ Forest and Plantation management & use ▪ Invasive non-native species ▪ Air pollution, air-borne pollutants Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Wimbledon Common SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Public access/disturbance ▪ Habitat fragmentation ▪ Invasive species ▪ Air pollution: impact of atmospheric nitrogen deposition
Woolmer Forest SAC	The following high-ranking threats are present: ▪ Invasive non-native species ▪ Unknown threat or pressure ▪ Modification of cultivation practices ▪ Human induced changes in hydraulic conditions ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SAC comprises:	The following current threats and pressures are listed within the Woolmer Forest SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Change in land management ▪ Invasive species ▪ Hydrological changes ▪ Feature location/ extent/ condition unknown: Annex I birds ▪ Public access/ Disturbance ▪ Feature location/ extent/ condition unknown: Woolmer Forest ▪ Military

	▪ Modification of cultivation practices	▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Wildfire/arson
Thrusley, Ash, Pirbright & Chobham SAC	The following high-ranking threats are present: ▪ Other human intrusions and disturbances ▪ Grazing ▪ Air pollution, air-borne pollutants ▪ Human induced changes in hydraulic conditions ▪ Biocenotic evolution, succession Activities management which is having a positive effect on the SAC comprises: ▪ Improved access to site ▪ Grazing ▪ Forest and Plantation management & use ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Thrusley, Ash, Pirbright & Chobham SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Public access/ Disturbance ▪ Undergrazing ▪ Forestry and woodland management ▪ Hydrological changes ▪ Inappropriate scrub control ▪ Invasive species ▪ Wildfire/ arson ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Feature location/ extent/ condition unknown ▪ Military ▪ Habitat fragmentation

Solent & Isle of Wight Lagoons SAC	The following high-ranking threats are present: ▪ Changes in abiotic conditions ▪ Air pollution, air-borne pollutants ▪ Human induced changes in hydraulic conditions ▪ Invasive non-native species ▪ Interspecific floral relations Activities management which is having a positive effect on the SAC comprises: ▪ Improved access to site ▪ Modification of cultivation practices ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Solent & Isle of Wight Lagoons SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Hydrological changes ▪ Inappropriate weed control ▪ Coastal squeeze ▪ Invasive species ▪ Air pollution: impact of atmospheric nitrogen deposition
Solent Maritime SAC	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Changes in abiotic conditions ▪ Fishing and harvesting aquatic resources ▪ Changes in biotic conditions ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SAC comprises: ▪ Grazing ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Solent Site Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Public access/ Disturbance ▪ Coastal squeeze ▪ Fisheries: commercial marine and estuarine ▪ Water pollution ▪ Changes in species distribution ▪ Climate change ▪ Change to site conditions ▪ Invasive species ▪ Direct land take from development

	▪ Improved access to site ▪ Mowing / cutting of grassland ▪ Forest and Plantation management & use	▪ Biological resource use ▪ Change in land management ▪ Inappropriate pest control ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Hydrological changes ▪ Direct impact from 3rd party ▪ Extraction: non-living resources ▪ Other:
Pevensey Levels SAC	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Invasive non-native species ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SAC comprises: ▪ Forest and Plantation management & use ▪ Modification of cultivation practices ▪ Annual and perennial non-timber crops ▪ Grazing ▪ Improved access to site	The following current threats and pressures are listed within the Pevensey Levels SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate water levels ▪ Invasive species ▪ Water pollution

Ashdown Forest SAC	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Human induced changes in hydraulic conditions ▪ Modification of cultivation practices ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Ashdown Forest SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Change in land management ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Public access/ disturbance ▪ Hydrological changes
Lewes Downs SAC	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) ▪ Outdoor sports and leisure activities, recreational activities ▪ Grazing Activities management which is having a positive effect on the SAC comprises:	The following current threats and pressures are listed within the Lewes Downs SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Game management: pheasant rearing ▪ Undergrazing ▪ Public access/ disturbance ▪ Air pollution: impact of atmospheric nitrogen deposition

	▪ Modification of cultivation practices ▪ Grazing ▪ Forest and Plantation management & use ▪ Improved access to site	
Kennet & Lambourn Floodplain SAC	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Human induced changes in hydraulic conditions ▪ Modification of cultivation practices Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices ▪ Forest and Plantation management & use ▪ Grazing ▪ Annual and perennial non-timber crops	The following current threats and pressures are listed within the Kennet & Lambourn Floodplain SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Situation ▪ Water pollution ▪ Invasive species ▪ Hydrological changes ▪ Inland flood defence works ▪ Inappropriate cutting/mowing ▪ Change in land management ▪ Inappropriate water levels ▪ Hydrological changes ▪ Water pollution
Kennet Valley Alderwoods SAC	The following high-ranking threats are present: ▪ Human induced changes in hydraulic conditions ▪ Interspecific floral relations Activities management which is having a positive effect on the SAC comprises: ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Kennet Valley Alderwoods SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate water levels ▪ Game management: other

	▪ Modification of cultivation practices	
River Lambourn SAC	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Human induced changes in hydraulic conditions ▪ Invasive non-native species Activities management which is having a positive effect on the SAC comprises: ▪ None identified.	The following current threats and pressures are listed within the River Lambourn SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Siltation ▪ Water pollution ▪ Invasive species ▪ Hydrological changes ▪ Inland flood defence works ▪ Inappropriate cutting/mowing ▪ Chane in land management ▪ Inappropriate water levels ▪ Hydrological changes ▪ Water pollution
River Itchen SAC	The following high-ranking threats are present: ▪ Human induced changes in hydraulic conditions ▪ Grazing ▪ Pollution to groundwater (point sources and diffuse sources) Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices ▪ Grazing ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the River Itchen SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Water pollution ▪ Physical modification ▪ Siltation ▪ Overgrazing ▪ Water abstraction ▪ Inappropriate weed control ▪ Hydrological changes ▪ Inappropriate water levels ▪ Change in land management

		▪ Inappropriate cutting/mowing ▪ Invasive species ▪ Undergrazing ▪ Inappropriate ditch management ▪ Inappropriate scrub control ▪ Forestry and woodland management
Hastings Cliff SAC	The following high-ranking threats are present: ▪ Human induced changes in hydraulic conditions ▪ Air pollution, air-borne pollutants ▪ Pollution to groundwater (point sources and diffuse sources) Activities management which is having a positive effect on the SAC comprises: ▪ Grazing ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Hastings Cliff SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate coastal management ▪ Water pollution ▪ Air pollution: impact of atmospheric nitrogen deposition
Folkestone to Etchinghill Escarpment SAC	The following high-ranking threats are present: ▪ Biocenotic evolution, succession ▪ Air pollution, air-borne pollutants ▪ Grazing Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Folkestone to Etchinghill Escarpment SAC Improvement Plan (NE, 2015), which includes the SAC within it: ▪ Undergrazing ▪ Inappropriate scrub control ▪ Air pollution: impact of atmospheric nitrogen deposition

	▪ Grazing	
Dungeness SAC	The following high-ranking threats are present: ▪ Other human intrusions and disturbances ▪ Military use and civil unrest ▪ Interspecific faunal relations ▪ Invasive non-native species ▪ Changes in biotic conditions Activities management which is having a positive effect on the SAC comprises: ▪ Grazing ▪ Interpretative centres ▪ Modification of cultivation practices ▪ Improved access to site	The following current threats and pressures are listed within the Dungeness SAC Improvement Plan (NE, 2015), which includes the SAC within it: ▪ Military ▪ Vehicles: illicit ▪ Predation ▪ Changes in species distribution ▪ Invasive species ▪ Inappropriate scrub control ▪ Overgrazing ▪ Public access/ disturbance ▪ Direct impact from 3rd party ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Inappropriate water levels ▪ Inappropriate ditch management ▪ Coastal squeeze ▪ Water pollution ▪ Fisheries: Commercial marine and estuarine
Thanet Coast SAC	The following high-ranking threats are present: ▪ Outdoor sports and leisure activities, recreational activities ▪ Pollution to groundwater (point sources and diffuse sources)	The following current threats and pressures are listed within the Thanet Coast SAC Improvement Plan (NE, 2015), which includes the SAC within it: ▪ Changes in species distribution ▪ Invasive species

	▪ Invasive non-native species ▪ Changes in biotic conditions ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SAC comprises: ▪ Modification of cultivation practices ▪ Improved access to site ▪ Grazing	▪ Public access/disturbance ▪ Hydrological changes ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Water pollution ▪ Fisheries: commercial marine and estuarine
Margate and Long Sands SAC	The following high-ranking threats are present: ▪ Fishing and harvesting aquatic resources Activities management which is having a positive effect on the SAC comprises: ▪ None Identified.	The following current threats and pressures are listed within the Margate and Long Sands SAC Improvement Plan (NE, 2015), which includes the SAC within it: ▪ Fisheries: commercial marine and estuarine
River Avon SAC	The following high-ranking threats are present: ▪ Changes in biotic conditions ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SAC comprises: ▪ Grazing	The following current threats and pressures are listed within the River Avon SAC Improvement Plan (NE, 2015), which includes the SAC within it: ▪ Physical modification ▪ Siltation ▪ Water abstraction ▪ Changes in species distribution ▪ Invasive species ▪ Public access/ disturbance ▪ Hydrological changes

	▪ Annual and perennial non-timber crops ▪ Modification of cultivation practices ▪ Forest and Plantation management & use	▪ Inappropriate weed control ▪ Change in land management ▪ Habitat fragmentation
Salisbury Plain SAC	The following high-ranking threats are present: ▪ Changes in biotic conditions ▪ Interspecific floral relations ▪ Grazing Activities management which is having a positive effect on the SAC comprises: ▪ Grazing ▪ Modification of cultivation practices ▪ Improved access to site ▪ Annual and perennial non-timber crops	The following current threats and pressures are listed within the Salisbury Plain SAC Improvement Plan (NE, 2015), which includes the SAC within it: ▪ Changes in species distribution ▪ Air pollution: impact of atmospheric nitrogen deposition
Arun Valley SAC	The following high-ranking threats are present: ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SAC comprises: ▪ Forest and Plantation management & use ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Arun Valley SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate water levels ▪ Water pollution ▪ Inappropriate ditch management
Tankerton Slopes and Swalecliffe SAC	The following high-ranking threats are present:	Remains unknown. Improvement plan not available.

	▪ Remains unknown, not included on Natura 2000 form. Activities management which is having a positive effect on the SAC comprises: ▪ Remains unknown, not included on Natura 2000 form.	
Castle Hill SAC	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Grazing ▪ Fertilisation Activities management which is having a positive effect on the SAC comprises: ▪ Improved access to site ▪ Modification of cultivation practices ▪ Grazing	The following current threats and pressures are listed within the Castle Hill SAC Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Undergrazing ▪ Fertiliser use ▪ Air Pollution: impact of atmospheric nitrogen deposition
Dorset Heaths SAC	The following high-ranking threats are present: ▪ Invasive non-native species ▪ Biocenotic evolution, succession ▪ Human induced changes in hydraulic conditions ▪ Outdoor sports and leisure activities, recreational activities	The following current threats and pressures are listed within the Dorset Heaths Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Inappropriate scrub control ▪ Public Access/Disturbance ▪ Undergrazing

	▪ Grazing Activities management which is having a positive effect on the SAC comprises: ▪ Forest and Plantation management & use ▪ Modification of cultivation practices ▪ Improved access to site ▪ Grazing	▪ Forestry and woodland management ▪ Drainage ▪ Water pollution ▪ Invasive species ▪ Habitat fragmentation ▪ Conflicting conservation objectives ▪ Wildfire / arson ▪ Air Pollution: impact of atmospheric nitrogen deposition ▪ Deer
The New Forest SAC	The following high-ranking threats are present: ▪ Outdoor sports and leisure activities, recreational activities ▪ Biocenotic evolution, succession ▪ Human induced changes in hydraulic conditions ▪ Problematic native species ▪ Forest and Plantation management & use Activities management which is having a positive effect on the SAC comprises: ▪ Improved access to site ▪ Grazing ▪ Forest and Plantation management & use ▪ Modification of cultivation practices	The following current threats and pressures are listed within the New Forest Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Drainage ▪ Inappropriate scrub control ▪ Fish stocking ▪ Deer ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Public Access/Disturbance ▪ Change in land management ▪ Changes in species distributions ▪ Water Pollution ▪ Forestry and woodland management ▪ Inappropriate ditch management ▪ Invasive species

			▪ Vehicles ▪ Inappropriate cutting/mowing ▪ Direct impact from 3rd party
Ramsar			
Chichester and Langstone Harbour Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Erosion ▪ Eutrophication ▪ Pollution- domestic sewage	N/A	
Portsmouth Harbour Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Eutrophication ▪ Unspecified development: urban use – Disturbance and land-take pressures ▪ Coastal engineering: coastal squeeze arising from coastal defences	N/A	
Pevensey Levels Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Introduction/invasion of non-native plant species ▪ Pollution- domestic sewage	N/A	

Dungeness, Romney Marsh and Rye Bay Ramsar	Information not yet available	N/A
Thanet Coast and Sandwich Bay Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Vegetation succession: lack of ditch management ▪ Water diversion for irrigation/domestic/industrial use ▪ Eutrophication: subsidence created sump effect ▪ Pollution – pesticides/agricultural runoff ▪ Recreational/tourism disturbance (unspecified): Disturbance of turnstones Arenaria interpres, especially by dog walking and kite surfing/boarding, which can result in loss of condition to birds if unmanaged ▪ Unspecified development: urban use: ongoing management and new development on coast disturb wintering birds if unmanaged	N/A
Medway Estuary & Marshes Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include:	N/A

	▪ Water diversion for irrigation/domestic/industrial use ▪ Dredging: maintenance of port facilities and jetties ▪ Erosion ▪ Eutrophication ▪ Recreational/tourism disturbance (unspecified) ▪ Transport infrastructure development	
The Swale Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Erosion	N/A
South West London Waterbodies Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ None identified	N/A
Arun Valley Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Water extraction (not covered elsewhere): for public water supply	N/A
Avon Valley Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include:	N/A

	▪ Disturbance to vegetation through cutting / clearing ▪ Vegetation succession ▪ Drainage/land-claim for agriculture ▪ Sedimentation/siltation ▪ Introduction/invasion of non-native plant species ▪ Pollution – domestic sewage ▪ Pollution – agricultural fertilisers ▪ Recreational/tourism disturbance (unspecified) ▪ Reservoir/barrage/dam impact: flow regime	
Dorset Heathlands Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Acid rain ▪ Pollution – unspecified	N/A
Solent and Southampton Water Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Erosion	N/A
New Forest Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include:	N/A

	▪ Commercial-scale forest exploitation ▪ Drainage/land-claim: (unspecified) ▪ Introduction/invasion of non-native plant species ▪ Recreational/tourism disturbance (unspecified)	
Thames Estuary & Marshes Ramsar	Factors (past, present or potential) which may adversely affect the site's ecological character, including changes in land (including water) use and development projects, include: ▪ Dredging ▪ Erosion ▪ Eutrophication ▪ General disturbance from human activities	N/A
SPA		
Ashdown Forest SPA	The following high-ranking threats are present: ▪ Outdoor sports and leisure activities, recreational activities ▪ Human induced changes in hydraulic conditions ▪ Air pollution, air-borne pollutants ▪ Modification of cultivation practices Activities management which is having a positive effect on the SPA comprises:	The following current threats and pressures are listed within the Ashdown Forest SPA Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Change in land management ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Public access/ disturbance ▪ Hydrological changes

	▪ Modification of cultivation practices	
Thursley, Hankley & Frensham Commons SPA	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Outdoor sports and leisure activities, recreational activities ▪ Biocenotic evolution, succession ▪ Other human intrusions and disturbances Activities management which is having a positive effect on the SPA comprises: ▪ Forest and Plantation management & use ▪ Improved access to site ▪ Grazing ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Thursley, Hankley & Frensham Commons SPA Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Public access/ disturbance ▪ Undergrazing ▪ Forestry and woodland management ▪ Hydrological changes ▪ Inappropriate scrub control ▪ Invasive species ▪ Wildfire/arson ▪ Feature location/ extent/ condition unknown ▪ Military ▪ Habitat fragmentation
Wealden Heaths Phase II SPA	The following high-ranking threats are present: ▪ Unknown threat or pressure ▪ Outdoor sports and leisure activities, recreational activities ▪ Invasive non-native species ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Wealden Heaths Phase II SPA Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Change in land management ▪ Invasive species ▪ Hydrological changes

	▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Forest and Plantation management & use ▪ Modification of cultivation practices	▪ Feature location/ extent/ condition unknown: Annex I birds ▪ Public access/ Disturbance ▪ Feature location/ extent/ condition unknown: Woolmer Forest ▪ Military ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Wildfire/arson
Thames Basin Heaths SPA	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Other human intrusions and disturbances ▪ Biocenotic evolution, succession ▪ Forest and Plantation management & use ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SPA comprises: ▪ Grazing ▪ Modification of cultivation practices ▪ Improved access to site ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Thames Basin Heaths SPA Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Public access/ disturbance ▪ Undergrazing ▪ Forestry and woodland management ▪ Hydrological changes ▪ Inappropriate scrub control ▪ Invasive species ▪ Wildfire/arson ▪ Feature location/ extent/ condition unknown ▪ Military ▪ Habitat fragmentation

Chichester and Langstone Harbours SPA	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Changes in abiotic conditions ▪ Changes in biotic conditions ▪ Fishing and harvesting aquatic resources ▪ Sport and leisure structures Activities management which is having a positive effect on the SPA comprises: ▪ Forest and Plantation management & use ▪ Improved access to site ▪ Modification of cultivation practices ▪ Grazing	The following current threats and pressures are listed within the Chichester and Langstone Harbours SPA Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Public access/ disturbance ▪ Coastal squeeze ▪ Fisheries: commercial marine and estuarine ▪ Water pollution ▪ Changes in species distributions ▪ Climate change ▪ Changes to site conditions ▪ Invasive species ▪ Direct land take from development ▪ Biological resource use ▪ Change in land management ▪ Inappropriate pest control ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Hydrological changes ▪ Direct impact from 3rd party ▪ Extraction: non-living resources ▪ Other
Portsmouth Harbour SPA	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Changes in biotic conditions	The following current threats and pressures are listed within the Solent Improvement Plan (NE, 2014), which includes the SAC within it: ▪ Public access/ Disturbance

	▪ Changes in abiotic conditions ▪ Outdoor sports and leisure activities, recreational activities ▪ Fishing and harvesting aquatic resources Activities management which is having a positive effect on the SPA comprises: ▪ None reported.	▪ Coastal squeeze ▪ Fisheries: commercial marine and estuarine ▪ Water pollution ▪ Changes in species distribution ▪ Climate change ▪ Change to site conditions ▪ Invasive species ▪ Direct land take from development ▪ Biological resource use ▪ Change in land management ▪ Inappropriate pest control ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Hydrological changes ▪ Direct impact from 3rd party ▪ Extraction: non-living resources ▪ Other
Dungeness, Romney Marsh and Rye Bay SPA	The following high-ranking threats are present: ▪ Other human intrusions and disturbances ▪ Military use and civil unrest ▪ Interspecific faunal relations ▪ Invasive non-native species ▪ Changes in biotic conditions Activities solent-lagooanagement which is having a positive effect on the SPA comprises: ▪ Grazing	-

	▪ Interpretative centres ▪ Modification of cultivation practices ▪ Improved access to site	
Outer Thames Estuary SPA	The following high-ranking threats are present: ▪ Renewable abiotic energy use ▪ Fishing and harvesting aquatic resources ▪ Marine water pollution ▪ Shipping lanes, ports, marine constructions ▪ Military use and civil unrest Activities management which is having a positive effect on the SPA comprises: ▪ None reported.	The following current threats and pressures are listed within the Outer Thames Estuary SPA Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Fisheries: commercial marine and estuarine
Thanet Coast & Sandwich Bay SPA	The following high-ranking threats are present: ▪ Outdoor sports and leisure activities, recreational activities ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Invasive non-native species ▪ Changes in biotic conditions ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Thanet Coast & Sandwich Bay SPA Improvement Plan (NE, 2015), which includes the SPA within it: ▪ Changes in species distribution ▪ Invasive species ▪ Public access/disturbance ▪ Hydrological changes ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Water pollution ▪ Fisheries: commercial and estuarine

	▪ Improved access to site ▪ Grazing	
Medway Estuary & Marshes SPA	The following high-ranking threats are present: ▪ Changes in biotic conditions ▪ Invasive non-native species ▪ Changes in abiotic conditions ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SPA comprises: ▪ Improved access to site ▪ Modification of cultivation practices ▪ Annual and perennial non-timber crops	The following current threats and pressures are listed within the Greater Thames Complex Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Coastal squeeze ▪ Public Access/Disturbance ▪ Invasive species ▪ Changes in species distributions ▪ Fisheries: Commercial marine and estuarine ▪ Invasive species ▪ Vehicles: illicit ▪ Fisheries: Commercial Threat marine and estuarine ▪ Air Pollution: risk of Threat Not yet determined atmospheric nitrogen deposition
The Swale SPA	The following high-ranking threats are present: ▪ Changes in biotic conditions ▪ Changes in abiotic conditions ▪ Outdoor sports and leisure activities, recreational activities ▪ Fishing and harvesting aquatic resources ▪ Invasive non-native species	The following current threats and pressures are listed within the Greater Thames Complex Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Coastal squeeze ▪ Public Access/Disturbance ▪ Invasive species ▪ Changes in species distributions

	Activities management which is having a positive effect on the SPA comprises: ▪ Annual and perennial non-timber crops ▪ Modification of cultivation practices ▪ Improved access to site ▪ Grazing	▪ Fisheries: Commercial marine and estuarine ▪ Invasive species ▪ Vehicles: illicit ▪ Fisheries: Commercial Threat marine and estuarine Air Pollution: risk of Threat Not yet determined atmospheric nitrogen deposition
Salisbury Plain SPA	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Changes in biotic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Grazing ▪ Annual and perennial non-timber crops ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Salisbury Plain SPA Improvement Plan (NE, 2015), which includes the SPA within it: ▪ Changes in species distribution ▪ Air pollution: impact of atmospheric nitrogen deposition
South West London Waterbodies SPA	The following high-ranking threats are present: ▪ Invasive non-native species ▪ Abiotic (slow) natural processes ▪ Changes in biotic conditions ▪ Outdoor sports and leisure activities, recreational activities ▪ Marine and Freshwater Aquaculture	The following current threats and pressures are listed within the South West London Waterbodies Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Public Access/Disturbance ▪ Changes in species ▪ Distributions ▪ Invasive species ▪ Natural changes to site conditions

	Activities management which is having a positive effect on the SPA comprises: ▪ None reported.	▪ Fisheries: Fish stocking ▪ Inappropriate weed control
Arun Valley SPA	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Improved access to site ▪ Modification of cultivation practices ▪ Grazing ▪ Interpretative centres ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the Arun Valley Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Inappropriate water levels ▪ Water pollution ▪ Inappropriate ditch management
Thames Estuary & Marshes SPA	The following high-ranking threats are present: ▪ Changes in abiotic conditions ▪ Invasive non-native species ▪ Outdoor sports and leisure activities, recreational activities ▪ Changes in biotic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Modification of cultivation practices	The following current threats and pressures are listed within the Thames Estuary & Marshes Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Coastal squeeze ▪ Public Access/Disturbance ▪ Invasive species ▪ Changes in species distributions ▪ Fisheries: Commercial marine and estuarine

	▪ Interpretative centres ▪ Improved access to site ▪ Grazing ▪ Annual and perennial non-timber crops	▪ Invasive species ▪ Vehicles: illicit ▪ Fisheries: Commercial Threat marine and estuarine Air Pollution: risk of Threat Not yet determined atmospheric nitrogen deposition
New Forest SPA	The following high-ranking threats are present: ▪ Air pollution, air-borne pollutants ▪ Fishing and harvesting aquatic ressources ▪ Biocenotic evolution, succession ▪ Human induced changes in hydraulic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Improved access to site ▪ Grazing ▪ Modification of cultivation practices ▪ Forest and Plantation management & use	The following current threats and pressures are listed within the New Forest Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Drainage ▪ Inappropriate scrub control ▪ Fish stocking ▪ Deer ▪ Air pollution: impact of atmospheric nitrogen deposition ▪ Public Access/Disturbance ▪ Change in land management ▪ Changes in species distributions ▪ Water Pollution ▪ Forestry and woodland management ▪ Inappropriate ditch management ▪ Invasive species ▪ Vehicles ▪ Inappropriate cutting/mowing ▪ Direct impact from 3rd party

Solent and Southampton Water SPA	The following high-ranking threats are present: ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Fishing and harvesting aquatic resources ▪ Changes in abiotic conditions ▪ Changes in biotic condition ▪ Outdoor sports and leisure activities, recreational activities Activities management which is having a positive effect on the SPA comprises: ▪ Grazing ▪ Modification of cultivation practices ▪ Forest and Plantation management & use ▪ Improved access to site ▪ Mowing / cutting of grassland	The following current threats and pressures are listed within the Solent Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Public Access/Disturbance ▪ Coastal squeeze ▪ Fisheries: Commercial marine and estuarine ▪ Water Pollution ▪ Changes in species distributions ▪ Climate change ▪ Change to site conditions ▪ Invasive species ▪ Direct land take from development ▪ Biological Resource Use ▪ Change in land management ▪ Inappropriate pest control ▪ Air Pollution: impact of atmospheric nitrogen deposition ▪ Hydrological changes ▪ Direct impact from 3rd party ▪ Extraction: non-living resources ▪ Other
Dorset Heathlands SPA	The following high-ranking threats are present: ▪ Invasive non-native species ▪ Biocenotic evolution, succession ▪ Human induced changes in hydraulic conditions	The following current threats and pressures are listed within the Dorset Heaths Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Inappropriate scrub control ▪ Public Access/Disturbance

	▪ Outdoor sports and leisure activities, recreational activities ▪ Grazing Activities management which is having a positive effect on the SPA comprises: ▪ Interpretative centres ▪ Grazing ▪ Modification of cultivation practices ▪ Forest and Plantation management & use ▪ Improved access to site	▪ Undergrazing ▪ Forestry and woodland management ▪ Drainage ▪ Water pollution ▪ Invasive species ▪ Habitat fragmentation ▪ Conflicting conservation objectives ▪ Wildfire / arson ▪ Air Pollution: impact of atmospheric nitrogen deposition ▪ Deer
Avon Valley SPA	The following high-ranking threats are present: ▪ Human induced changes in hydraulic conditions ▪ Pollution to groundwater (point sources and diffuse sources) ▪ Changes in biotic conditions Activities management which is having a positive effect on the SPA comprises: ▪ Grazing ▪ Forest and Plantation management & use ▪ Modification of cultivation practices ▪ Mowing / cutting of grassland	The following current threats and pressures are listed within the Avon River and Valley Site Improvement Plan (NE, 2014), which includes the SPA within it: ▪ Physical modification ▪ Siltation ▪ Water pollution ▪ Water abstraction ▪ Changes in species distributions ▪ Invasive species ▪ Public Access/Disturbance ▪ Hydrological changes ▪ Inappropriate weed control ▪ Change in land management ▪ Habitat fragmentation
pSPA		

Solent and Dorset Coast pSPA	N/A	N/A

Complex questions.
Powerful answers.

Explore **steergroup.com** or visit one of our 21 offices:

Bogotá, Colombia
Bologna, Italy
Boston, USA
Brussels, Belgium
Leeds, UK
Lima, Peru
London, UK
Los Angeles, USA
Manchester, UK
Mexico City, Mexico
New Delhi, India
New York, USA
Panama City, Panama
Rome, Italy
San Juan, Puerto Rico
Santiago, Chile
São Paulo, Brazil
Toronto, Canada
Vancouver, Canada
Washington DC, USA

steer

4 October 2019

Transport Strategy for the South East: ISA Report Appendix F - Annex B

Transport for the South East
23433701

4 October 2019

Transport Strategy for the South East: ISA Report Appendix F - Annex B

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Transport for the South East

23433701

Contents

Impact Identification for Relevant Natura 2000 and Ramsar Sites

Site Name: Mole Gap to Reigate Escarpment SAC

Distance from Potential Transport Development: 13 strategic corridors are located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), with two located within 2km (IO5 – A25/North Downs Line (Guildford – Redhill) (1.3km) and IO1 – M25 (Dartford – Slough) (0km) at their closest points).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats / GCN) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Mole Gap to Reigate Escarpment SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation.	Due to IO1 – M25 (Dartford – Slough) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Air pollution	IO1 – M25 (Dartford – Slough) is located within the SAC and there may		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. SAC components (woodland, heathland and grassland habitats in particular) may be vulnerable to air pollution impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as being vulnerable to disturbance impacts. Increased visitor pressure through improved access has the potential to intensify this and potentially cause significant effects.		

Site Name: Singleton and Cocking Tunnels SAC

Distance from Potential Transport Development: 3 strategic corridors are located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), with all sites >2km.

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI of the SAC.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to allow communities to be self-sufficient and reduce travel would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Singleton and Cocking Tunnels SAC as a result of TfSE Transport Strategy.

Site Name: Ebernoe Common SAC

Distance from Potential Transport Development: 7 strategic corridors are located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), with all sites >2km distant.

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Ebernoe Common SAC as a result of TfSE Transport Strategy.

Site Name: Briddlesford Copses SAC

Distance from Potential Transport Development: 4 strategic corridors are located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), with all sites >2km distant.

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Briddlesford Copses SAC as a result of TfSE Transport Strategy.

Site Name: Mottisfont Bats SAC

Distance from Potential Transport Development: 5 strategic corridors are located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), with all sites >2km distant.

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Mottisfont Bats SAC as a result of TfSE Transport Strategy.

Site Name: Chilmark Quarries SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), located 21km distant.

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Chilmark Quarries SAC as a result of TfSE Transport Strategy.

Site Name: St Albans Head to Durlston Head SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 30km ZoI of the SAC (see Table 3.1, Appendix A), located 23km distant.

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of St Albans Head to Durlston Head SAC as a result of TfSE Transport Strategy.

Site Name: The Mens SAC

Distance from Potential Transport Development: 7 strategic corridors are located within the 30km ZoI of the SAC, all located >2km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (bats) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of The Mens SAC as a result of TfSE Transport Strategy.

Site Name: Dover to Kingsdown Cliff SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI of the SAC, closest 1.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
None identified			

Site Name: Lydden & Temple Ewell Downs SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, 856m distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Recreational pressure and Human disturbance	The SAC is currently identified as being vulnerable to disturbance impacts. Increased visitor pressure through improved access has the potential to intensify this and potentially cause significant effects.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of The Lydden & Temple Ewell Downs SAC as a result of TfSE Transport Strategy.

Site Name: Blean Complex SAC

Distance from Potential Transport Development: 3 strategic corridors are located within the 2km ZoI, closest 304m distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
None identified			

Site Name: North Downs Woodlands SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI, SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) (1.1km) and IO3 – A228/A229/Medway Valley Line (Maidstone – Medway Towns) (0km) at their closest points (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to IO3 – A228/A229/Medway Valley Line (Maidstone – Medway Towns) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of the North Downs Woodlands SAC as a result of TfSE Transport Strategy.
Air pollution	IO3 – A228/A229/Medway Valley Line (Maidstone – Medway Towns) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. SAC components (woodland and grassland habitats in particular) may be vulnerable to air pollution impacts		

	within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.
Recreational pressure and Human disturbance	The SAC is currently identified as being vulnerable to disturbance impacts. Due to proximity increased visitor pressure through improved access has the potential to intensify this and potentially cause significant effects.

Site Name: Richmond Park SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other corridors are located with the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Richmond Park SAC as a result of TfSE Transport Strategy.
Air pollution	SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure.		

	Air pollution impacts within 200m of roads, may result in habitat deterioration or change in habitat dynamics and species composition, which may in turn impact on key species (stag beetle).	
Hydrological Change (water quality or quantity)	SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) has hydrological connectivity to the SAC. There may be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.	

Site Name: Butser Hill SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other corridors were located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Butser Hill SAC as a result of TfSE Transport Strategy.
Air pollution	SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure.		

	SAC components (woodland and dry grassland habitat) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.

Site Name: Wimbledon Common SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, 1.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) has hydrological connectivity to the SAC. There may also be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Wimbledon Common SAC as a result of TfSE Transport Strategy.
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance impacts. Increased visitor pressure through improved access has the potential to intensify this and potentially cause significant effects.		

Site Name: Woolmer Forest SAC

Distance from Potential Transport Development: 1 strategic corridor within the 2km ZoI, 1.8km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance impacts. Increased visitor pressure through improved access has the potential to intensify this and potentially cause significant effects.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Woolmer Forest SAC as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	The habitats within the SAC (dry and wet heaths etc) are at threat from human induced hydraulic changes. Any change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Thursley, Ash, Pirbright & Chobham SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the SAC, and another within the 2km ZoI, closest point 1.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	The IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) and SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. SAC components (dry heaths and wet heaths) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thrusley, Ash, Pirbright & Chobham SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation.	Due to IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) and SW2 – M3/M27/M271/A33/A326/South Western Main Line		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	(Southampton – Sunbury) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury), IO1 – M25 (Dartford – Slough), IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading), and SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) have hydrological connectivity to the SAC. The habitats within the SAC (dry and wet heaths) are also at threat from human induced hydraulic changes. Any change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance impacts. Increased visitor pressure through improved access has the potential to intensify this and potentially cause significant effects.		

Site Name: Solent & Isle of Wight Lagoons SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI, closest point 1.6km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	The SAC is noted to be at threat from human induced changes in hydraulic conditions. Changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Solent & Isle of Wight Lagoons SAC as a result of TfSE Transport Strategy.

Site Name: Solent Maritime SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the SAC, and a further 2 within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) are located within the SAC. There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air pollution impacts within 200m of roads, may result in habitat deterioration or change in habitat dynamics and species composition, which may in turn impact on key species (stag beetle).	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Solent Maritime SAC as a result of TfSE Transport Strategy.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury), M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and SW5 – A36/Wessex Main Line (New Forest) has hydrological connectivity to the SAC. The SAC is also noted to be at threat from pollution to ground water. Changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Pevensey Levels SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, which in turn may impact the key species (Ramshorn snail).	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Pevensey Levels SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation.	Due to OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) being located within the SAC there may be direct impacts through land		

	take in relation to development and / or improvements of transport infrastructure.
Hydrological Change (water quality or quantity)	OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) has direct hydrological connectivity to the Pevensey Levels SAC. The SAC is also at threat from pollution to ground water. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.

Site Name: Ashdown Forest SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other SAC are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) is located within the SAC. There may be direct impacts / disturbance of key species (GCN) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Ashdown Forest SAC as a result of TfSE Transport Strategy.
Air pollution	The SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. SAC components (dry heaths and wet heaths) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	The habitats within the SAC (dry and wet heaths) are at threat from human induced changes to hydraulic. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Habitat Loss / Damage / Fragmentation.	Due to the SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Lewes Downs SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other strategic corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	The SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. SAC components (dry grassland) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Lewes Downs SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	Due to the SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) being located within the SAC there may be direct impacts through land take in relation to		

	development and / or improvements of transport infrastructure.
Recreational pressure and Human disturbance	The SC2 – M23/A23/Brighton Main Line (Brighton – Coulsdon) is located within close proximity to the SAC. The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.

Site Name: Castle Hill SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. SAC components (dry grassland) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Castle Hill SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	Due to the OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		

Site Name: Dorset Heaths SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No others corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SAC and there is potential for direct impacts / dispersal of key species (GCN) may be impacted and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Dorset Heaths SAC as a result of TfSE Transport Strategy.
Air pollution	Due to the OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) being located within the SAC there may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. SAC components (dry / wet heaths, fens, grasslands, woodlands) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	The habitats within the SAC (dry and wet heaths in particular) are at threat from human induced changes to hydraulic. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Kennet & Lambourn Floodplain SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC, and a further within 0.1km (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss and fragmentation of key species	The SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) is located within the SAC and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) within proximity. There may be direct impacts and impacts on dispersal of key species (Desmoulin`s whorl snail) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Kennet & Lambourn Floodplain SAC as a result of TfSE Transport Strategy.
Air pollution	The SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) is located within the SAC and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) is within proximity (i.e. ≤200m - the anticipated ZoI for road emissions). Therefore there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, which in turn may impact the key species (Desmoulin`s whorl snaill).		
Habitat Loss / Damage / Fragmentation.	Due to the A34 being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough), and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) have hydrological connectivity to SAC. The key species (Desmoulin`s whorl snail) is restricted to calcareous wetlands. The SAC is at threat from human induced changes to hydraulic conditions and pollution to ground water. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Kennet Valley Alderwoods SAC

Distance from Potential Transport Development: 1 strategic corridor is located the SAC, and a further within the 2km ZoI, closest point 0.6km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	The SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) is located within the SAC and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) within proximity (i.e. ≤200m - the anticipated ZoI for road emissions). Therefore, there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Kennet Valley Alderwoods SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation.	Due to the SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		

Hydrological Change (water quality or quantity)	The SAC is at threat from human induced changes to hydraulic conditions and pollution to ground water. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.

Site Name: River Lambourn SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the SAC/ No others are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) and SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) is located within the SAC. There may be direct impacts / disturbance of watercourses and key species (bullhead and brook lamprey) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of River Lambourn SAC as a result of TfSE Transport Strategy.
Air pollution	Due to the SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) and SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) being located within the SAC there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, which in turn may impact the key species (bullhead and brook lamprey).		
Habitat Loss / Damage / Fragmentation.	Due to the SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) and SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) being located within the SAC there may be direct impacts through watercourse diversions / re-alignments in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	SW7 – M4/Great Western Main Line/Reading – Taunton Line (Newbury – Slough) and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) have hydrological connectivity to the SAC. The SAC is also noted to be at threat from pollution to ground water and hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: River Itchen SAC

Distance from Potential Transport Development: 3 strategic corridors are located within the SAC (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester), SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) are located within the SAC. There may be direct impacts / disturbance of watercourses and key species (fish, damselfly, white clawed crayfish and otter) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of River Itchen SAC as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	species composition, which in turn may impact the key species.		
Habitat Loss / Damage / Fragmentation.	Due to the SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester), SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) being located within the SAC there may be direct impacts through watercourse diversions / re-alignments in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury), OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) have hydrological connectivity to SAC. The SAC is also noted to be at threat from water pollution and human induced hydraulic changes. Change to water quality and/or flow as a result of development and / or		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Hastings Cliff SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, closest point 1.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	The SAC is noted to be at threat from water pollution and human induced hydraulic changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Hastings Cliff SAC as a result of TfSE Transport Strategy.

Site Name: Folkestone to Etchinghill Escarpment SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	The SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. SAC components (dry grasslands) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Folkestone to Etchinghill Escarpment SAC as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation.	Due to the SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water	The M20/A20/High Speed 1/South Eastern Main Line (Dover _ Sidcup) has hydrological connectivity to the SAC. There may be		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
quality or quantity)	potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.		

Site Name: Dungeness SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, closest point 1.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	The SAC is noted to be at threat from inappropriate water levels. Changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Dungeness SAC as a result of TfSE Transport Strategy.

Site Name: Thanet Coast SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, closest point 0.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thanet Coast SAC as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	The SAC is noted to be at threat from pollution to groundwater and hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Margate and Long Sands SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, closest point 1.7km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
None identified			

Site Name: River Avon SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SAC. There may be direct impacts / disturbance of watercourses and key species (fish,) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of River Avon SAC as a result of TfSE Transport Strategy.
Air pollution	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, which in turn may impact the key species (fish).		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation	Due to the OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is being located within the SAC there may be direct impacts through watercourse diversions / re-alignments in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and SW6 – A303/West of England Main Line (Andover – Basingstoke) have hydrological connectivity to the SAC. The SAC is also noted to be at threat from pollution to groundwater and hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Salisbury Plain SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, closest point 1.7km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
None identified			

Site Name: Arun Valley SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) is located within the SAC. There may be direct impacts / disturbance of watercourses and key species (Ramshorn snail) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Arun Valley SAC as a result of TfSE Transport Strategy.
Air pollution	The SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) is located within the SAC and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and		

	species composition, which in turn may impact the key species (Ramshorn snail).
Habitat Loss / Damage / Fragmentation	Due to the SE3 – M20/A20/High Speed 1/South Eastern Main Line (Dover – Sidcup) being located within the SAC there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.
Hydrological Change (water quality or quantity)	The SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) has hydrological connectivity to the SAC. The SAC is also noted to be at threat from pollution to groundwater and hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.

Site Name: Tankerton Slopes and Swalecliffe SAC

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI, located 1.4km distant (OO1 – A28/A290/A291 (Canterbury – Whitstable)) and 0.4km distant (SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate)) (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	The SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) and OO1 – A28/A290/A291 (Canterbury – Whitstable) has hydrological connectivity to the SAC. Therefore, changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may potentially alter dynamics of habitat/species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of Tankerton Slopes and Swalecliffe SAC as a result of TfSE Transport Strategy.

Site Name: The New Forest SAC

Distance from Potential Transport Development: 1 strategic corridor is located within the SAC, and one further within the 2km ZoI, 0.09km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SAC and SW5 – A36/Wessex Main Line (New Forest) within close proximity. There may direct impacts / disturbance of key species (GCN, Southern damselfly, stag beetle) and therefore the function/integrity of SAC could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SAC.	It is not possible to conclude that there will be no likely significant effects on the integrity of The New Forest SAC as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. SAC components (heaths / grasslands) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and SW5 – A36/Wessex Main Line (New Forest) has hydrological connectivity to the SAC. Habitats are also at threat from human induced changes in hydraulic conditions. Therefore, changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may potentially alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Avon Valley Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar. No others are located with the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the Ramsar. There may direct impacts / disturbance of key species (birds, wetland plants / invertebrates) and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Avon Valley Ramsar as a result of TfSE Transport Strategy.
Air pollution	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the Ramsar and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Ramsar components (wetland habitats) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) has hydrological connectivity to Avon Valley Ramsar. Habitats are also at threat from human induced changes in hydraulic conditions. Therefore, changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may potentially alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The Ramsar is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Dorset Heaths Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the within the 2km ZoI, closest point 0.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	Ramsar components include wet heaths and scare wetland plant species. Therefore, changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may potentially alter dynamics of habitat/species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Dorset Heaths Ramsar as a result of TfSE Transport Strategy.

Site Name: Solent and Southampton Water Ramsar

Distance from Potential Transport Development: 3 strategic corridors are located within the Ramsar, and a further within the 2km ZoI, 1.8km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	The SW5 – A36/Wessex Main Line (New Forest), SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) are located within the Ramsar and there may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Ramsar components (wetland habitats) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Solent and Southampton Water Ramsar as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		

Disturbance / fragmentation of key species	There may disturbance of key species (birds) and therefore the function/integrity of Ramsar could be compromised.
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood), SW5 – A36/Wessex Main Line (New Forest) and SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) have hydrological connectivity to the Ramsar. Changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may potentially alter dynamics of habitat/species composition.

Site Name: The New Forest Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar, and one other within the 2km ZoI, 0.09km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the Ramsar and SW5 – A36/Wessex Main Line (New Forest) within proximity. There may direct impacts / disturbance of key species (wetlands plants / invertebrates) and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of The New Forest Ramsar as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development of transport infrastructure. Ramsar components (wetlands habitat) may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and SW5 – A36/Wessex Main Line (New Forest) has hydrological connectivity to the Ramsar. Habitats are also at threat from human induced changes in hydraulic conditions. Therefore, changes to water quality and/or flow as a result of development and / or improvements of transport infrastructure may potentially alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The Ramsar is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Chichester and Langstone Harbour Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar, and a further within the 2km ZoI, closest point 0.8km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the Ramsar and SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) is located within close proximity. There may disturbance of key species (birds) and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Chichester and Langstone Harbour Ramsar as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	Ramsar components (wetlands habitats, including coastal woodlands, saltmarshes in particular), may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) has hydrological connectivity to Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Portsmouth Harbour Ramsar

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI, closest point 0.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (birds) may be impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the RAmsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Portsmouth Harbour Ramsar as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Pevensey Levels Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the Ramsar. Key species (freshwater molluscs/invertebrates) may be directly / indirectly impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Pevensey Levels Ramsar as a result of TfSE Transport Strategy.
Air pollution	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the Ramsar. There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Ramsar components (wetland plants), may be vulnerable to air quality impacts within 200m of roads, resulting in		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	habitat deterioration or change in habitat dynamics and species composition.		
Habitat Loss / Damage / Fragmentation.	Due to the OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) being located within the Ramsar there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) has hydrological connectivity to the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Dungeness, Romney Marsh and Rye Bay Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar. No other corridors are located within 2km (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the Ramsar. Key species (birds) may be directly disturbed or dispersal routes impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Dungeness, Romney Marsh and Rye Bay Ramsar as a result of TfSE Transport Strategy.
Air pollution	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the Ramsar. There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Ramsar components (wetland habitats), may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to the OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) being located within the Ramsar there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) has hydrological connectivity to the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Thanet Coast and Sandwich Bay Ramsar

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI, closest 183m distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The dispersal of key species (birds) may be impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thanet Coast and Sandwich Bay Ramsar as a result of TfSE Transport Strategy.
Air pollution	The SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) is located within proximity to the Ramsar (i.e. ≤200m - the anticipated ZoI for road emissions). There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Ramsar components (wetland habitats), may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Hydrological Change (water quality or quantity)	SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) and OO1 – A28/A290/A291 (Canterbury – Whitstable) have hydrological connectivity to the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The Ramsar is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects. Dog walking, kite surfing / boarding, are noted which could result in loss of conditions to birds if unmanaged.		

Site Name: Medway Estuary & Marshes Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar, and a further within the 2km ZoI, closest point 1km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) is located within the Ramsar and SE1 – M2/A2/Chatham Main Line (Dartford – Dover) within proximity. Key species (birds/invertebrates) may be directly impacted. Dispersal may also be impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Medway Estuary & Marshes Ramsar as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Ramsar components (wetland plants), may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to the IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) being located within the Ramsar there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	SE1 – M2/A2/Chatham Main Line (Dartford – Dover) and IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) have hydrological connectivity the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SAC is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: The Swale Ramsar

Distance from Potential Transport Development: 2 strategic corridors are located within the Ramsar, and two further within the 2km ZoI, 0.5km (OO1 – A28/A290/A291 (Canterbury – Whitstable)) and 0.9km (SE1 – M2/A2/Chatham Main Line (Dartford – Dover)) distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) and IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) are located within the Ramsar. Key species (birds/invertebrates) may be directly impacted. Dispersal may also be impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of The Swale Ramsar as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Ramsar components (wetland plants), may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to the SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) and IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) being located within the Ramsar there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) and IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) have hydrological connectivity to the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: South West London Waterbodies Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within Ramsar, and a further 0.5km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	IO1 – M25 (Dartford – Slough) is located within the Ramsar and SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) within proximity. There may disturbance of key species (birds) and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of South West London Waterbodies Ramsar as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation.	Due to IO1 – M25 (Dartford – Slough) being located within the Ramsar there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Air pollution	IO1 – M25 (Dartford – Slough) is located within the Ramsar. There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Hydrological Change (water quality or quantity)	IO1 – M25 (Dartford – Slough) has hydrological connectivity to the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		

Site Name: Arun Valley Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Fragmentation of key species	The SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) is located within the Ramsar. Dispersal of key species (birds/invertebrates) may be impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Arun Valley Ramsar as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	Due to the SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) being located within the Ramsar there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Air pollution	The SC3 – A24/A264/Arun Valley Line (Crawley – Fontwell) is located within the Ramsar. There may be impacts through acidification and deposition as a result		

	of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).
Hydrological Change (water quality or quantity)	Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds/invertebrates).

Site Name: Thames Estuary & Marshes Ramsar

Distance from Potential Transport Development: 1 strategic corridor is located within the Ramsar (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Loss / disturbance / fragmentation of key species	The IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) is located within the Ramsar. Key species (birds) may be directly impacted. Dispersal may also be impacted and therefore the function/integrity of Ramsar could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the Ramsar.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thames Estuary & Marshes Ramsar as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Ramsar components (wetland habitats), may be vulnerable to air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) has hydrological connectivity to the Ramsar. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition.		

Site Name: Ashdown Forest SPA

Distance from Potential Transport Development: strategic corridor is located within the SPA. No others are present within 2km (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) is located within the SPA. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Ashdown Forest SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Habitat Loss / Damage / Fragmentation.	Due to the SC1 – A22/A264/Oxted Line (Crawley – Eastbourne) being located within the SPA there may be direct impacts through land take in relation to		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The SPA is noted to be at threat from human induced changes to hydraulic conditions. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Thursley, Hankley & Frensham Commons SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, 1.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) is located within proximity to the SPA. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thursley, Hankley & Frensham Commons SPA as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury), SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) and IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading) has hydrological connectivity to SPA. The SPA is also noted to be at threat from hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	habitat/species composition, and in turn key species (birds).		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Wealden Heaths Phase II SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, 0.3km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) is located within proximity to the SPA. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Wealden Heaths Phase II SPA as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	The SPA is noted to be at threat from human induced changes to hydraulic conditions. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Thames Basin Heaths SPA

Distance from Potential Transport Development: 4 strategic corridors are located within the SPA, and a further is located within the 2km ZoI, closest point 1.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton), IO6 – A31/A322/A329/A331/North Downs Line (Guildford – Reading), SW3 – A33/Basingstoke – Reading Line (Basingstoke – Reading) and SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) are located within the SPA. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thames Basin Heaths SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Habitat Loss / Damage / Fragmentation.	Due to strategic corridors being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) has hydrological connectivity to SPA. The SPA is noted to be at threat from hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Chichester and Langstone Harbours SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA and a further within the 2km ZoI, closest point 0.8km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation	Due to strategic corridors being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Chichester and Langstone Harbours SPA as a result of TfSE Transport Strategy.
Disturbance / fragmentation of key species	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SPA and the SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) is located within proximity. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) has hydrological connectivity to SPA. The SPA is noted to be at threat from pollution to groundwater and hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Portsmouth Harbour SPA

Distance from Potential Transport Development: 2 strategic corridors are located within the 2km ZoI, closest point 0.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Fragmentation of key species	Dispersal of key species (birds) may be impacted and therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Portsmouth Harbour SPA as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) has hydrological connectivity to Portsmouth Harbour SPA. The SPA is noted to the at threat from pollution to groundwater. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Dungeness, Romney Marsh and Rye Bay SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA, and one other within the 2km ZoI, closest point 0.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the SPA and SE4 – A21/Hastings Line (Hastings – Sevenoaks) within proximity. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Dungeness, Romney Marsh and Rye Bay SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to the OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) is located within the SPA being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The OO2 – A27/A259/A2070/East Coastway Line/Marshlink Line (Ashford – Brighton) has hydrological connectivity to SPA. There may be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Outer Thames Estuary SPA

Distance from Potential Transport Development: 3 strategic corridors are located within the 2km ZoI, closest point 0.4km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Fragmentation of key species	Dispersal of key species (birds) may be impacted and therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Outer Thames Estuary SPA as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate), IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) and OO1 – A28/A290/A291 (Canterbury – Whitstable) has hydrological connectivity to SPA. There may be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.		

Site Name: Thanet Coast & Sandwich Bay SPA

Distance from Potential Transport Development: 3 strategic corridors are located within the 2km ZoI, closest point 183m distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Fragmentation of key species	Dispersal of key species (birds) may be impacted and therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thanet Coast & Sandwich Bay SPA as a result of TfSE Transport Strategy.
Hydrological Change (water quality or quantity)	OO1 – A28/A290/A291 (Canterbury – Whitstable) have hydrological connectivity to SPA. The SPA is noted to be at threat from pollution to groundwater and hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).		

Site Name: Medway Estuary & Marshes SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA. No other corridors are located within 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) is located within the SPA. There may disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Medway Estuary & Marshes SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Habitat Loss / Damage / Fragmentation.	Due to the IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) being located within		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) has hydrological connectivity to the SPA. There may be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: The Swale SPA

Distance from Potential Transport Development: 2 strategic corridors are located within the SPA, and a further 0.9km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SE2 – A28/A299/Chatham Main Line (Faversham – Ramsgate) and IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) are located within the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of The Swale SPA as a result of TfSe Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Habitat Loss / Damage / Fragmentation.	Due to strategic corridors being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	IO2 - A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) has hydrological connectivity to the SPA. There may be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Salisbury Plain SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the 2km ZoI, closest point 1.7km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Fragmentation of key species	The SW6 – A303/West of England Main Line (Andover – Basingstoke) is located within proximity to the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Salisbury Plain SPA as a result of TfSE Transport Strategy.

Site Name: South West London Waterbodies SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA, and a further within 2km ZoI, 0.5km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	IO1 – M25 (Dartford – Slough) is located within proximity to the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of South West London Waterbodies SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify this and cause significant effects.		

Site Name: Arun Valley SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA. No other corridors are located with the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	Dispersal of key species (birds) may be impacted to therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Arun Valley SPA as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	Due to strategic corridors being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Hydrological Change (water quality or quantity)	The SPA is noted to be at threat from pollution to groundwater. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of		

	habitat/species composition, and in turn key species (birds).
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).

Site Name: Thames Estuary & Marshes SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA, and one further within the 2km ZoI, 1km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) is located within the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Thames Estuary & Marshes SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Habitat Loss / Damage / Fragmentation.	Due to the IO2 – A228/A249/A278/A289/Chatham Main Line/Sheerness Line (Medway Ports) being located within the SPA there may be direct impacts through land take in		

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
	relation to development and / or improvements of transport infrastructure.		
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify human disturbance and cause significant effects.		

Site Name: Avon Valley SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA. No others are present within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Avon Valley SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		
Habitat Loss / Damage / Fragmentation.	Due to the OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) being		

	located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) has hydrological connectivity to SPA. The SPA is also noted to be at threat from pollution to groundwater and human induced changes in hydraulic conditions. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify human disturbance and cause significant effects.

Site Name: Dorset Heathlands SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within proximity to the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Dorset Heathlands SPA as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	Due to the OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure.		

	Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).
Hydrological Change (water quality or quantity)	The SPA is noted to be at threat from human induced changes in hydraulic conditions. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify human disturbance and cause significant effects.

Site Name: Solent and Southampton Water SPA

Distance from Potential Transport Development: 4 strategic corridors are located within the SPA. No other corridors are located within the 2km ZoI (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton), SW5 – A36/Wessex Main Line (New Forest), SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) are located within proximity to the SPA. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Solent and Southampton Water SPA as a result of TfSE Transport Strategy.
Habitat Loss / Damage / Fragmentation	Due to strategic corridors being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.		

Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) and SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton) have hydrological connectivity to SPA. The SPA is also noted to be at threat from pollution to groundwater / hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify human disturbance and cause significant effects.

Site Name: New Forest SPA

Distance from Potential Transport Development: 1 strategic corridor is located within the SPA, and one further within the 2km ZoI, 1km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) is located within the SPA and SW5 – A36/Wessex Main Line (New Forest) within proximity. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of New Forest SPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure. Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).		

Habitat Loss / Damage / Fragmentation.	Due to the OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) being located within the SPA there may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.
Hydrological Change (water quality or quantity)	The OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) has hydrological connectivity to the SPA. The SPA is also noted to be at threat from pollution to groundwater / hydrological changes. Change to water quality and/or flow as a result of development and / or improvements of transport infrastructure may alter dynamics of habitat/species composition, and in turn key species (birds).
Recreational pressure and Human disturbance	The SPA is currently identified as vulnerable to disturbance. Increased visitor pressure through improved access has the potential to intensify human disturbance and cause significant effects.

Site Name: Solent and Dorset Coast pSPA

Distance from Potential Transport Development: 3 strategic corridors are located within the pSPA, and one further within the 2km ZoI, 0.04km distant (see Table 3.1, Appendix A).

The TfSE goals and objectives to support economic prosperity and improve transport safety, quality of life and access for all may require construction / adaption / improvement of transport links within the ZoI.

Possible Impact	Description of Impact / Potential Effect	Matters for Consideration in TfSE Transport Strategy	Likelihood of Significant Effects
Disturbance / fragmentation of key species	The SW1 – A3/A27/M275/Portsmouth Direct Line (Portsmouth – Surbiton), SW5 – A36/Wessex Main Line (New Forest), SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) are located within the SPA and OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood) within close proximity. There may be disturbance of key species (birds) and impacts to dispersal routes therefore the function/integrity of SPA could be compromised.	Any project brought forward under TfSE Transport Strategy, which may involve construction/improvements to infrastructure in order to meet goals and objectives of the TfSE would require careful consideration of potential effects on the SPA.	It is not possible to conclude that there will be no likely significant effects on the integrity of Solent and Dorset Coast pSPA as a result of TfSE Transport Strategy.
Air pollution	There may be impacts through acidification and deposition as a result of increased road traffic and/or development / improvements of transport infrastructure.		

	Air quality impacts within 200m of roads, resulting in habitat deterioration or change in habitat dynamics and species composition, and in turn key species (birds).
Habitat Loss / Damage / Fragmentation.	There may be direct impacts through land take in relation to development and / or improvements of transport infrastructure.
Hydrological Change (water quality or quantity)	OO3 – M27/A27/A31/West Coastway Line/East Coastway Line (Brighton – Ringwood), SW5 – A36/Wessex Main Line (New Forest), SW2 – M3/M27/M271/A33/A326/South Western Main Line (Southampton – Sunbury) and SW4 – A34/South Western Main Line/Basingstoke – Reading Line (Reading – Winchester) have hydrological connectivity to the pSPA. There may be potential for indirect impacts (through sedimentation or pollution) to water courses as a result of development and / or improvements of transport infrastructure which may alter dynamics of habitat/species composition.
Recreational pressure and Human disturbance	It is currently unknown whether the pSPA is situated in area of high recreational demand. Increased visitor pressure through improved access has the potential to intensify human disturbance and cause significant effects.

steer Transport for the South East wsp

DNV UKAS ENVIRONMENTAL MANAGEMENT 013

Complex questions.
Powerful answers.

Explore **steergroup.com** or visit one of our 21 offices:

Bogotá, Colombia
Bologna, Italy
Boston, USA
Brussels, Belgium
Leeds, UK
Lima, Peru
London, UK
Los Angeles, USA
Manchester, UK
Mexico City, Mexico
New Delhi, India
New York, USA
Panama City, Panama
Rome, Italy
San Juan, Puerto Rico
Santiago, Chile
São Paulo, Brazil
Toronto, Canada
Vancouver, Canada
Washington DC, USA

steer