

Summary of Integrated Impact Assessments



Summary of Integrated Impact Assessment

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Our ref: 24137701 N/A
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Contents

1	Introduction.....	1
2	Methodology	2
3	Evidence base	3
	Overview of Study Areas	5
	Sustainability Appraisal Framework	9
4	Assessment.....	14
	Long-list Assessment	14
	Short-list Assessment	14
	Habitats Regulations Assessment	15
	ISA Results	15
5	Mitigation and Monitoring	29
	Mitigation	29
	Monitoring.....	36

Figures

Figure 1 ISA and Option Development	2
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Tables

Table 1 Evidence used for sensitivity assessment	3
Table 2 Sustainability Appraisal Framework.....	10
Table 3 ISA Assessment Summary	24
Table 4 Mitigation and Enhancement Measures.....	29
Table 5 Monitoring via key performance indicators	36

1 Introduction

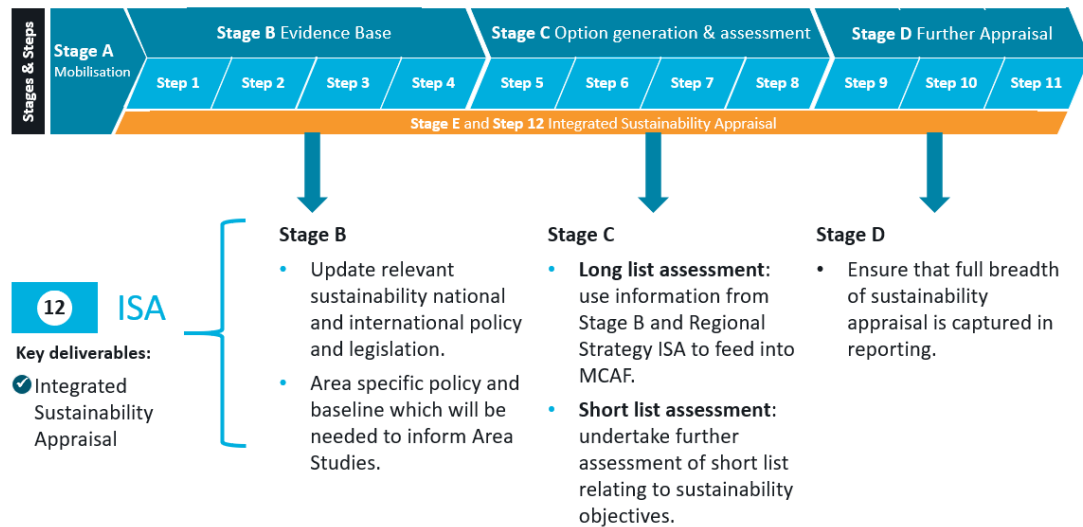
- 1.1 Transport for the South East (TfSE) is the sub-national transport body representing 16 Local Transport Authorities (LTAs) and five Local Enterprise Partnerships (LEPs) in the South East. TfSE's Transport Strategy was adopted in 2020, with a vision and three goals based around Economy, Society and the Environment. An integrated Sustainability Appraisal (ISA) was undertaken alongside the Strategy¹.
- 1.2 An Integrated Sustainability Appraisal (ISA) was produced alongside the preparation of the Transport Strategy to promote sustainable development by assessing environmental, social and economic effects, as well as mitigating any potential adverse effects that the Transport Strategy might otherwise have.
- 1.3 The ISA combined 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).
- 1.4 Following the Strategy, TfSE undertook a series of Area Studies and parallel workstreams to identify short-listed interventions for inclusion within TfSE's forthcoming Strategic Investment Plan (SIP), along with the evidenced case for their inclusion, in broad alignment with Department for Transport's Transport Analysis Guidance (TAG).
- 1.5 To ensure that each Area Study meets the vision, goals and priorities of the Transport Strategy, a non-statutory ISA was undertaken. Each ISA was embedded within the staged development of each Area Study.
- 1.6 ISA was undertaken for five areas:
 - Outer Orbital
 - Inner Orbital
 - South Central Radial
 - South East Radial
 - South West Radial
- 1.7 This report summarises the ISA results for the Area Studies for the TfSE Region.

¹ <https://transportforthesoutheast.org.uk/our-work/transport-strategy/>

2 Methodology

2.1 The ISA was embedded into the development of options as set out in Figure 1.

Figure 1 ISA and Option Development



2.2 Further information on how the ISA was embedded into the process is:

- **Stage B: Evidence Base** - A **policy review** was undertaken to update relevant international and national legislation and identify relevant local environmental policy to each Area Study. A **baseline review** was undertaken to identify key area-based environmental information, to sit alongside social, economic and transport data. The ISA Objectives developed for the Regional Strategy were reviewed for application to each Area Study. Issues and opportunities were used to develop a **Sustainability Appraisal Framework**.
- **Stage C: Option Generation and Assessment** - The information compiled in the Transport Strategy ISA including the assessment of strategic corridors and transport interventions informed the development and refinement of the interventions included within the **long list**. Using the evidence base and policy information gathered at Stage B, a policy alignment assessment was undertaken for the Multi-Criteria Assessment Framework (MCAF) to determine how well national and regional sustainability policies aligned with each of the interventions.
- **Stage D: Further Appraisal** - The Sustainability Objectives identified at Stage B were used to appraise each **short-listed intervention**. The assessment was informed by the MCAF findings as well as a GIS constraints exercise which highlighted **potential environmental, social and economic sensitives**, and the assessment of **general transport typologies**. The ISA report has identified key **mitigation, enhancement and monitoring measures** that should be considered for interventions being taken forward.

3 Evidence base

3.1 The evidence base was informed by the Stage B Evidence Base Report and comprised baseline information for each Area and a review of the policy context. It drew on information from the ISA of the Transport Strategy but includes further details specific to each Area.

3.2 Evidence used to assess the sensitivity of baseline information is presented in Table 1 below.

Table 1 Evidence used for sensitivity assessment

ISA Topic	Spatial Indicator
Natural Capital & Biodiversity	<ul style="list-style-type: none"> • Ancient woodland • Nature Improvement areas • Natural Areas • Priority Habitats • Marine Conservation Zones • Biosphere • Local Nature Recovery (LNR) • National Nature Reserve (NNR) • Ramsar sites • Special Area of Conservation (SAC) • Special Protection Area (SPA) • Site of Special Scientific Interest (SSSI) • Country Park
Historic Environment	<ul style="list-style-type: none"> • Listed Buildings • Parks and Gardens • Scheduled Monuments • Battlefield • World Heritage
Landscape	<ul style="list-style-type: none"> • Areas of Outstanding Natural Beauty (AONB) • National Parks • Greenbelt • Public right of ways (PRoWs) • Sustrans Routes (National, Regional and Local) • National Trails
Soils & Resources	<ul style="list-style-type: none"> • Best and Most Valuable (BMV) Land • Nitrate vulnerability Zones • Permitted Waste Sites

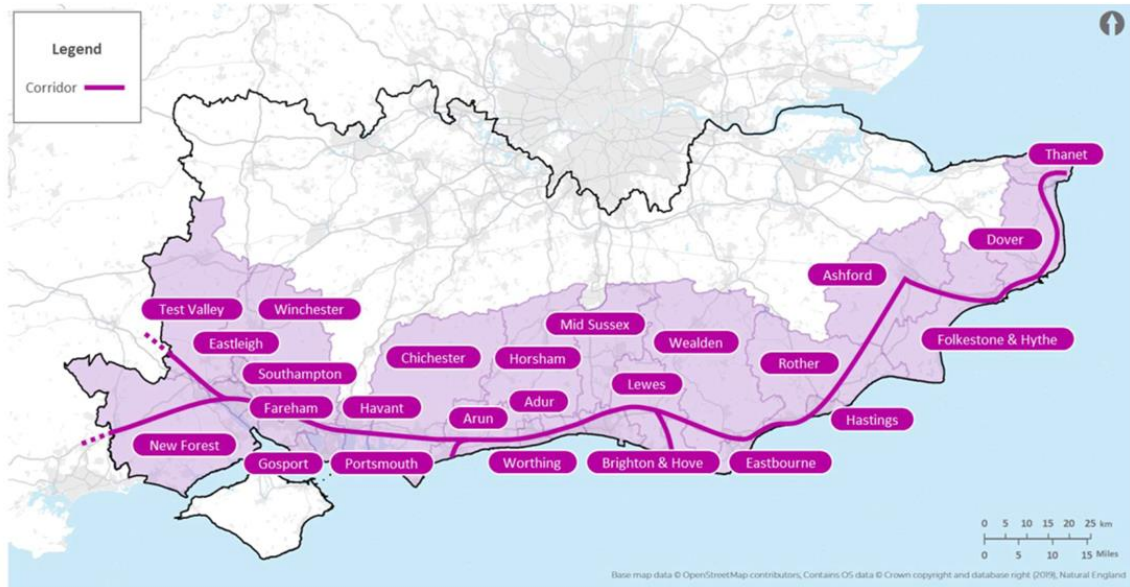
ISA Topic	Spatial Indicator
Water	<ul style="list-style-type: none"> • Water bodies • Aquifers • Groundwater Source Protection Zone
Air Quality	<ul style="list-style-type: none"> • Air Quality Management Areas (AQMA) • Clean Air Zones
Climate Change & GHGs	<ul style="list-style-type: none"> • Per Capita Emissions • Flood Zones • Flood Risk Areas
Noise	<ul style="list-style-type: none"> • Noise Important Area (NIA) • Defra Road Noise
Health and Equalities	<ul style="list-style-type: none"> • Excess Weight • Cycling frequency • Physically active • Unemployment • Index of Multiple Deprivation (IMD) - Overall • IMD - Health • Health Facilities Access • Education Access
Community Safety	<ul style="list-style-type: none"> • Killed or Seriously Injured (KSI) • IMD Crime • Accidents
Economy	<ul style="list-style-type: none"> • Economic Hubs • Major Employment Areas • Research Institutions • Enterprise Zones • Planned Employment • Planned Housing • Planned Mixed Use • Priority Sectors • Journey Time to Employment by Bicycle • Journey Time to Employment by Public Transport • Journey Time to Employment by Car

3.3 The review included international and national legislation as well as regional and local plans and policy. Plans specific to each Area Study included local development plans, transport plans and environmental plans.

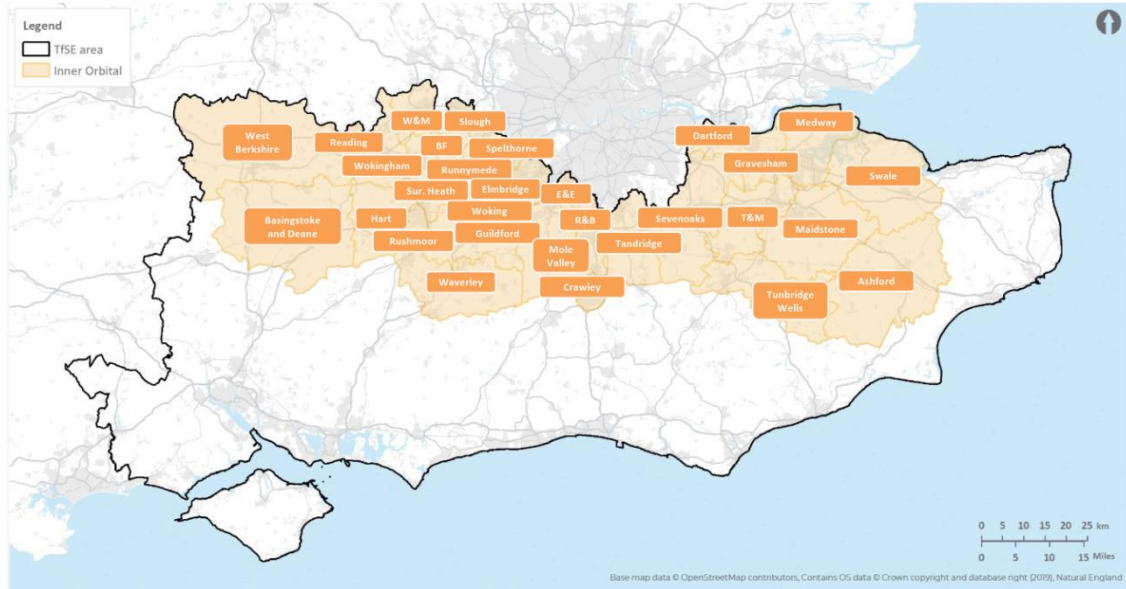
Overview of Study Areas

3.4 The South East Region was divided into five study areas described below.

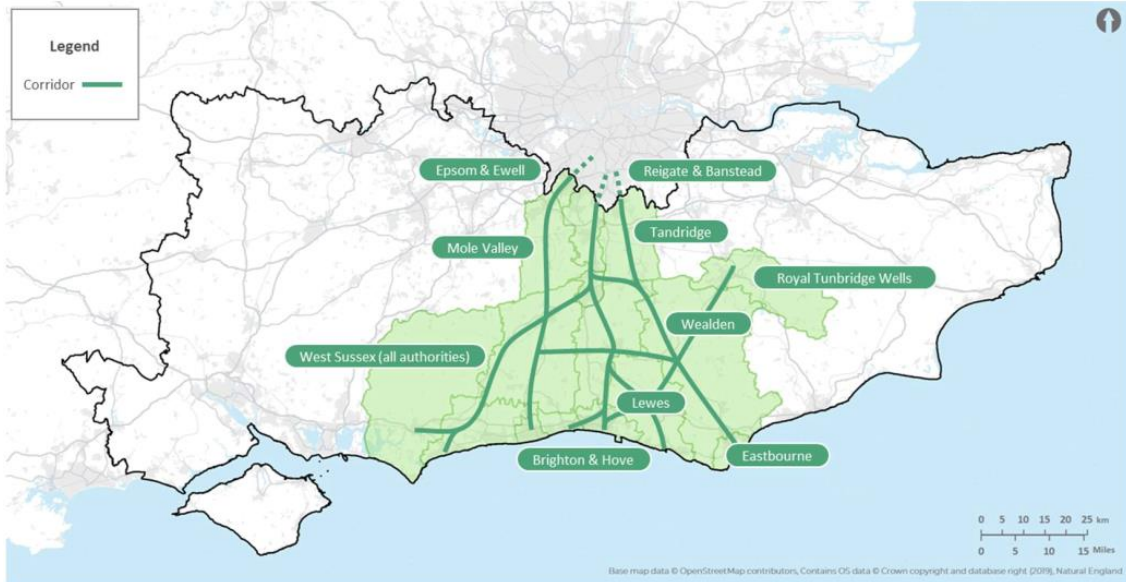
3.5 **The Outer Orbital (OOSA) Area Study** encompasses the strategic corridors along the coastline from the New Forest, Hampshire in the west, towards Thanet, Kent in the east. This area includes some of the largest, most productive areas in the South East as well as diverse and protected landscapes. However, the area also faces social challenges. Improvements in the area are required to improve transport connectivity and development in the region.



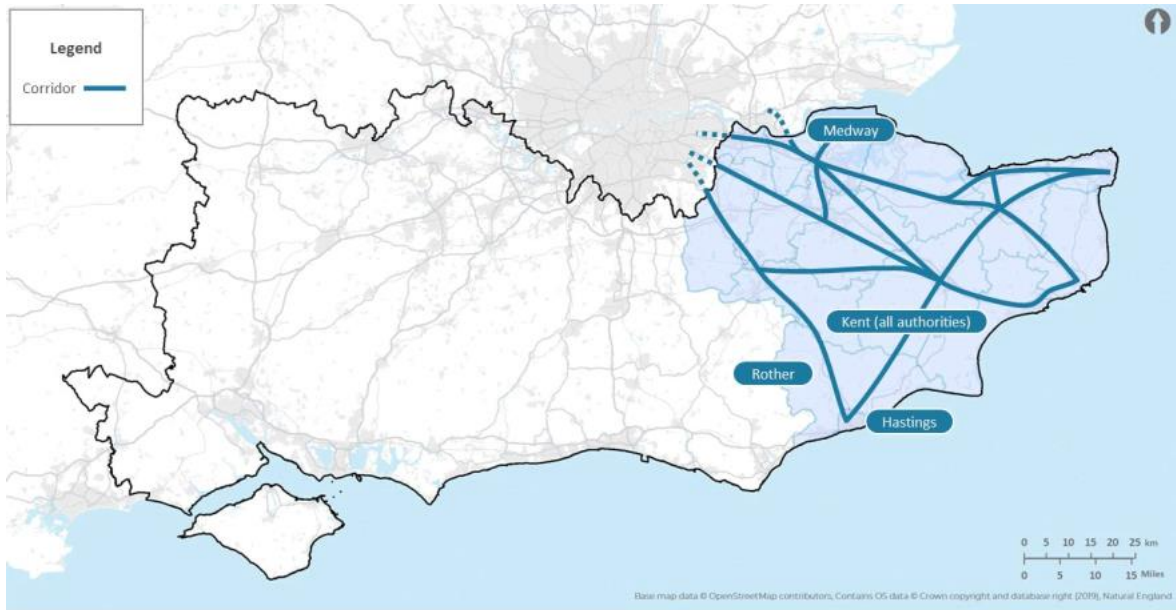
3.6 **The Inner Orbital (IOSA) Area Study** encompasses the key transport corridors that serve and connect the South East’s Major Economic Hubs and international gateways around the southern outskirts of London. This area is predominately urban containing the UK’s largest international airport whilst including a diverse range of protected landscapes. The area faces social challenges, with the need for reducing road congestion rates and improving transport connectivity and development in the region.



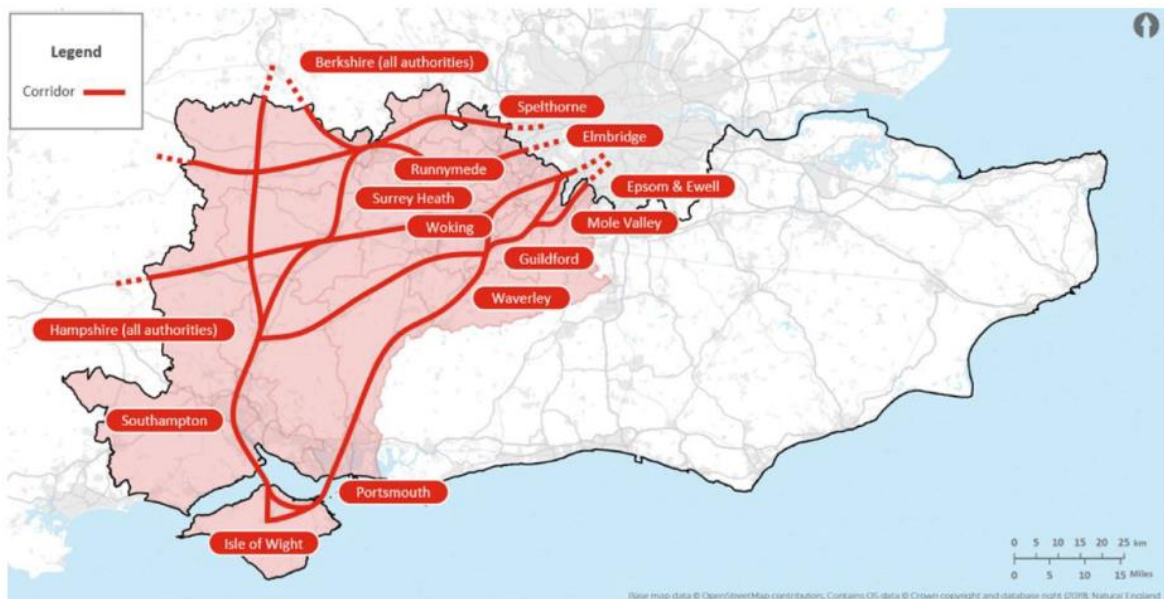
3.7 The **South Central Radial Study Area (SCRSA)** serves some of the largest and most productive conurbations in the South East, encompassing the London - Gatwick corridor in the north, extending into the south and expanding to connect much of the Sussex coastline with London. The SCRSA also includes three ports: Shoreham, Newhaven, and Littlehampton. It also boasts some of the most diverse landscapes in southern England, including the South Downs National Park. However, this area also faces challenges in terms of deprivation, particularly in some coastal communities, with additional constraints limiting economic activity, poor integration of rail networks to economic hubs, and long journey times.



3.8 The **South East Radial Study Area (SERSA)** encompasses the strategic corridors between London, Hastings, and coastal Kent/Medway. The major economic hubs in the SERSA include the largest settlements in this area, including the Medway Built Up Area (the third largest conurbation in the TfSE Area). The area also includes some of the busiest international gateways in the UK, most notably Dover and the Channel Tunnel. The SERSA is also home to some of the country's most natural and historic environments, including the Kent Downs AONB and High Weald AONB, Marine Conservation Areas and internationally designated sites of nature conservation.



3.9 The **South West Radial Study Area (SWRSA)** encompasses major economic hubs on the Greater London boundary and on the South Coast, as well as other major economic hubs within Berkshire, Surrey and Hampshire. The area includes a number of international gateways; Southampton Port and Airport, Portsmouth Port, and the ferry ports on the Isle of Wight. The major airports of Heathrow and Gatwick are located just outside of the SWRSA, with links to these hubs extending into the area. The SWRSA is an area of high economic productivity and prosperity, however it also contains some of the most deprived areas in the country. The SWRSA is also home to some of the country's most iconic natural and historic environments, including the Isle of Wight, New Forest AONB, and South Downs National Park.



Sustainability Appraisal Framework

- 3.10 Sustainability objectives were developed to assess the environmental, economic and social effects in each area. The Sustainability objectives are based on the policy review, baseline and sustainability issues and opportunities identified. The Sustainability Framework also aligns with Department for Transport's Transport Analysis Guidance – the Early Assessment and Sifting Tool (EAST)².
- 3.11 An overview of the Sustainability Appraisal Framework is provided below.

² Department for Transport. 2011. Early Assessment and Sifting Tool (EAST). Available at: <https://www.gov.uk/government/publications/transport-business-case>

Table 2 Sustainability Appraisal Framework

Topic	Key Sustainability Issues Identified	Sustainability Objective	Relevant EAST Criteria
Natural Capital and Ecosystem Services	<p>Deterioration in quality, and severance/loss of connectivity of ecosystems.</p> <p>Effects on ecosystems with high (potential) ecosystem services provision, and/or those close to centres of population.</p> <p>There's a need to support the objectives of the Natural Capital Investment Areas (NCIA)³.</p>	ISA 1: To maintain and enhance the provision of ecosystem services from the Study Areas' natural capital and deliver environmental net gain.	Natural environment
Biodiversity	<p>Loss, damage or fragmentation of statutory and non-statutory wildlife sites, priority habitats, marine conservation areas and wildlife corridors.</p> <p>Impacts on protected species and wider biodiversity.</p>	ISA 2: Need To protect and enhance protected habitats, species, valuable ecological networks and ecosystem functionality in the Study Area and deliver biodiversity net gain.	Natural environment
Historic Environment	Direct and indirect impacts on internationally, nationally and locally designated heritage assets, including their settings.	ISA 3: To protect and minimise harm to the historic environment, and to maximise opportunities for enhancement.	Heritage
Landscape and Townscape	<p>Direct and indirect impacts on designated landscapes, including their settings.</p> <p>Erosion of the character and quality of the SE's landscapes.</p>	ISA 4: To protect and enhance the quality of the Study Area's distinctive landscapes, townscapes and visual amenity.	Landscape, streetscape and urban environment

³ Natural Capital Investment Areas are locations where more resources are needed to help nature and support more green infrastructure. In the OOSA, 12 NCIA's have been identified by the South Downs National Park. Improving green infrastructure in these 12 areas will help promote wildlife connectivity between protected landscapes in the Surrey Hills, High Weald, and Chichester Harbour AONB.

Topic	Key Sustainability Issues Identified	Sustainability Objective	Relevant EAST Criteria
Soils and Resources	<p>Deterioration in quality of, and loss of soils, including the best and most versatile agricultural land.</p> <p>Use of resources and production and disposal of waste in transport-related construction.</p>	ISA 5: 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.	Natural environment
Water Environment	<p>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.</p> <p>Increased traffic flows can add to contamination of surface water runoff.</p>	ISA 6: 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.	Natural environment
Air Quality	<p>Increased usage of highways adding to local and regional air pollution.</p> <p>Increased usage of ports and airports adding to local and regional air pollution.</p>	ISA 7: To protect and enhance air quality by reducing transport related emissions.	Air quality
Climate Change and GHG Emissions	<p>Transport is the largest contributor to the UK’s GHG emissions.</p> <p>Climate change (extreme heat, flooding and storms) can impact on the quality and safety of transport infrastructure.</p>	ISA 8: To eliminate GHG emissions (including through encouraging modal shift, electric vehicle uptake, low carbon construction), and maximise resilience to climate change.	Carbon emissions – operational and embedded

Topic	Key Sustainability Issues Identified	Sustainability Objective	Relevant EAST Criteria
Noise and Vibration	<p>Increased use of transport adding to noise impacts on human health due to stress and sleep disturbance, as well as annoyance.</p> <p>Increased use of transport adding to noise impacts on wildlife and designated sites.</p> <p>Transport trends changing future noise profiles and climate change affecting impact on population.</p>	<p>ISA 9: To reduce exposure to transport related noise and vibration, including noise pollution and annoyance.</p>	<p>Noise</p>
Population and Equalities	<p>A growing population and associated increase in demand for travel.</p> <p>There are a number of places that are located within the top 10-20% of the most deprived areas nationally.</p> <p>Public transport provision for those in rural areas, for the elderly, for those in areas of deprivation, and for those who are socially isolated.</p>	<p>ISA 10: To increase the capacity and efficiency of the transportation network to support demographic changes, including improving access by equalities groups and deprived communities.</p>	<p>Social and distributional impacts</p>
Health	<p>An ageing population, with restricted access to private transport.</p> <p>Increasing problems of physical inactivity and obesity.</p> <p>Increasing use of private vehicles adding to air and noise pollution.</p> <p>There are disparities in life expectancy across the study areas.</p> <p>Mortality rate from COPD is significantly worse than the national average in four local authorities.</p>	<p>ISA 11: To protect and enhance physical and mental health through active travel, access to public transport, and reductions in pollution.</p>	<p>Wellbeing – physical activity</p>

Topic	Key Sustainability Issues Identified	Sustainability Objective	Relevant EAST Criteria
Community Safety	<p>Increasing crime levels on public transport.</p> <p>High levels of serious injuries and fatalities on the road network compared to the rest of the region and the UK.</p> <p>The number of people killed or seriously injured on the roads is significantly worse than the national average in 16 out of the 24 local authorities.</p> <p>Safety concerns for pedestrians and cyclists.</p>	<p>ISA 12: To promote safe transport through reducing accidents and improving security, as well as through regeneration of areas.</p>	<p>Wellbeing – injury or deaths</p>
Economy	<p>Links between transport and productivity in the SE region.</p> <p>Uncertainty around future demand for and supply of infrastructure, as well as the spatial and temporal distribution of movement.</p> <p>Levels of employment across vary across the South East.</p>	<p>ISA 13: 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</p>	<p>Economic case</p>

4 Assessment

Long-list Assessment

4.1 The ISA was embedded within the MCAF as set out below:

- Sustainability aspects formed part of the Strategic criteria. These included natural and historic environment, streetscape, climate change, fuel efficiency, embedded carbon, climate resilience, noise and air quality, health and wellbeing, severance, social deprivation, connectivity and physical activity.
- The database of international, national, regional and local policies, plans and documents created for the ISA for the Regional Strategy was reviewed and updated to identify key messages and policies of relevance.
- The MCAF grouped individual intervention options into transport typologies for a more efficient and transparent scoring and review process. Examples of typologies include active travel, highway infrastructure, public transport and railway infrastructure.
- The assessment within the ISA for the Regional Strategy was used as supporting information to ensure that the assessment of relevant sustainability aspects in the Strategic criteria were consistent, with quality assurance and moderation of scoring undertaken by topic specialists.

Short-list Assessment

4.2 Three key steps were undertaken to assess packages of interventions:

- **Sensitivity Assessment** - An initial sensitivity assessment was undertaken of the short-listed intervention options using spatial indicators for each of the Sustainability Objectives (Table 1).
- **Assessment of Typologies** - In order to maintain consistency, a baseline score was assigned for each of the typologies set out within the MCAF.
- **Assessment of Packages** – The assessment was then adjusted to reflect the individual interventions that make up each package.

4.3 It should be noted that interventions are still conceptual at this stage and further information such as land-take and design are not known. The assessment therefore makes assumptions that interventions would need to be developed within the framework of legislation reviewed in Step B. However, for some types of intervention such as highway improvements, legislation will be more challenging to meet, for example new limits on carbon emissions in relation to the Paris Agreement or biodiversity net gain in relation to Environment Bill and this is reflected in the assessment.

4.4 Additionally, it is assumed that best practice and current transport guidance, such as relevant design and safety standards will be applied to the development of transport interventions.

- 4.5 Similarly, the level of baseline information to inform assessment is limited. While the Area Studies have included local level information (such as local designations) to inform assessments, further detail would be needed at the project level, for example on habitat loss and creation to inform biodiversity net gain and natural capital assessment.

Habitats Regulations Assessment

- 4.6 The screening assessment was provided at a high level to reflect details and potential locations of interventions. Assumptions were made in relation to European sites which will require refinement as part of the HRA provided during the next tier of intervention development.
- 4.7 Zones of Influence (ZoI) could not be set at this point in time due to the lack of spatial information but direct and indirect pathways for effects including on functionally linked land have been considered. European sites including SPAs, SACs and Ramsar sites were identified for each Study Area, but there may be additional European sites outside of the Study Areas that fall within the ZoI for interventions.
- 4.8 Through screening for potential likely significant effects (LSE), it has not been possible to categorically demonstrate that the interventions will not have any LSE upon European sites either 'alone' or 'in-combination' with other plans or projects. In order to consider potential impacts in more detail, further information on the interventions and in-depth consultation with Natural England would be required. Notwithstanding the outcomes of future Appropriate Assessment and consultation with Natural England, recommendations 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 effects 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.

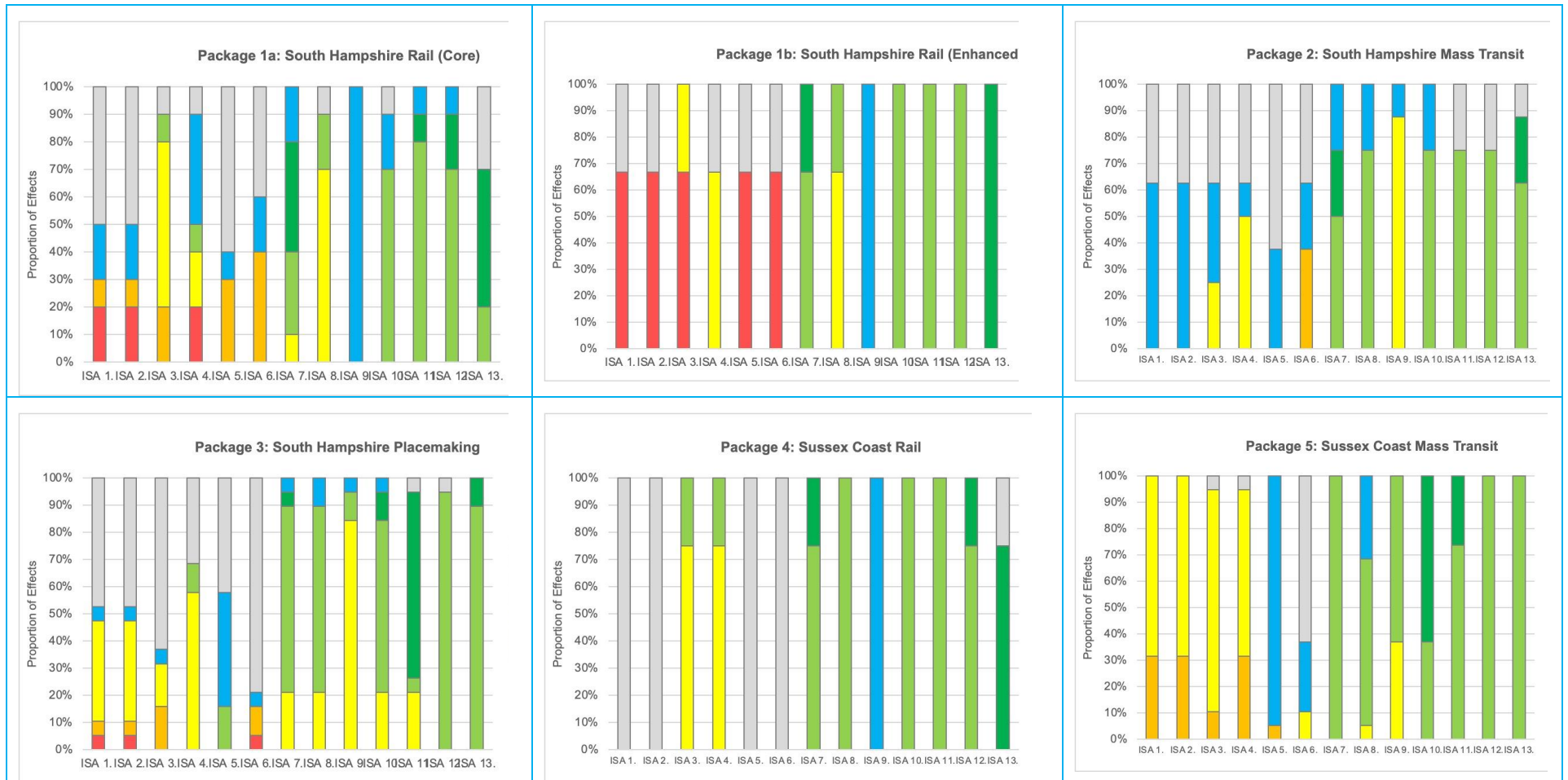
ISA Results

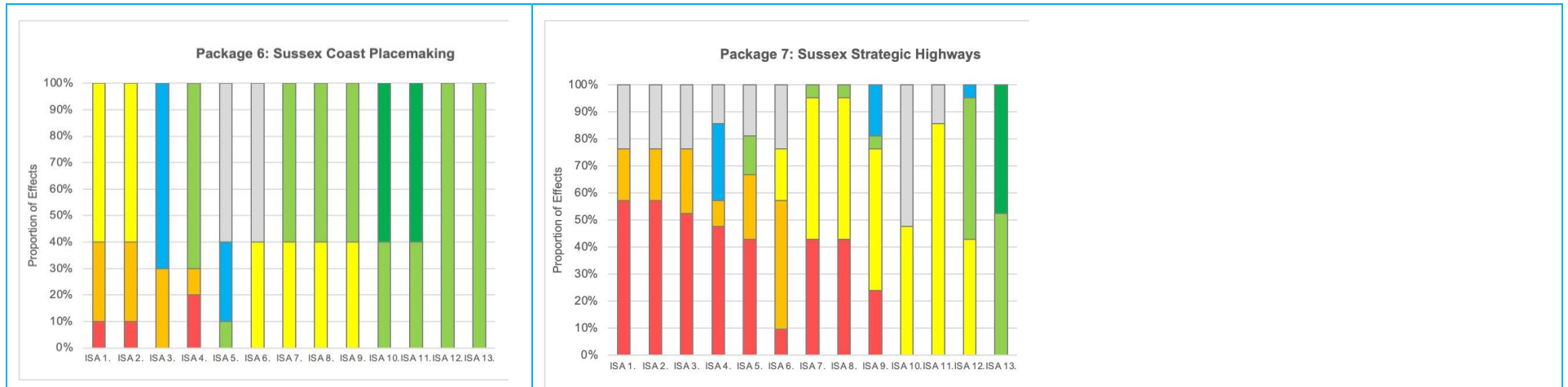
- 4.9 The conclusions of the HRA have been integrated into the assessment, the remainder of this section presents a summary of the results:
- An overview of the ISA for packages (containing multiple interventions) in each area.
 - A description of overall performance against each Sustainability Objective.

The following categories were used for the assessment:

Key to Effects	
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	+/-
Uncertain effects	?
Negligible or no effects	0

Outer Orbital Packages (without mitigation)





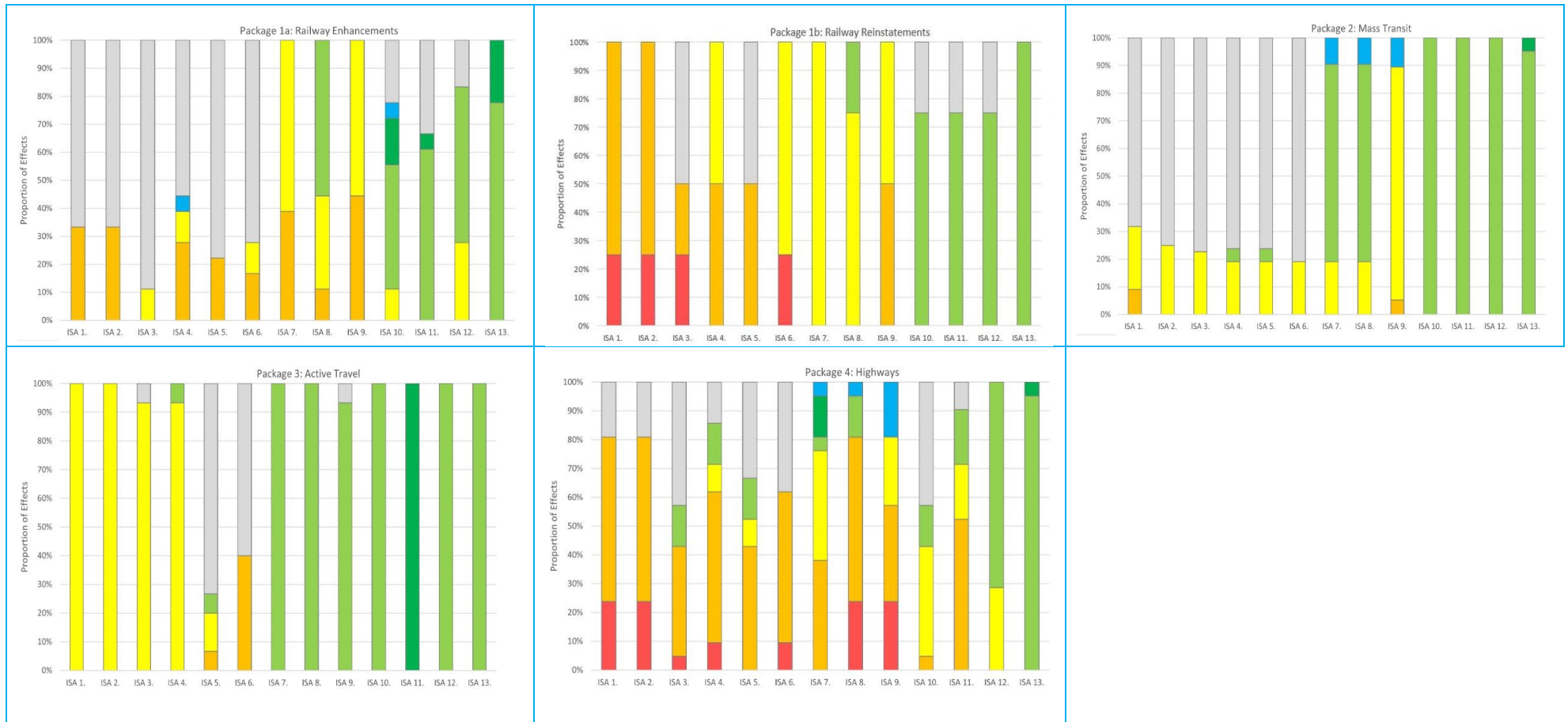
Inner Orbital Packages (without mitigation)



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South Central Radial (without mitigation)



South East Radial (with mitigation)



South West Radial (with mitigation)

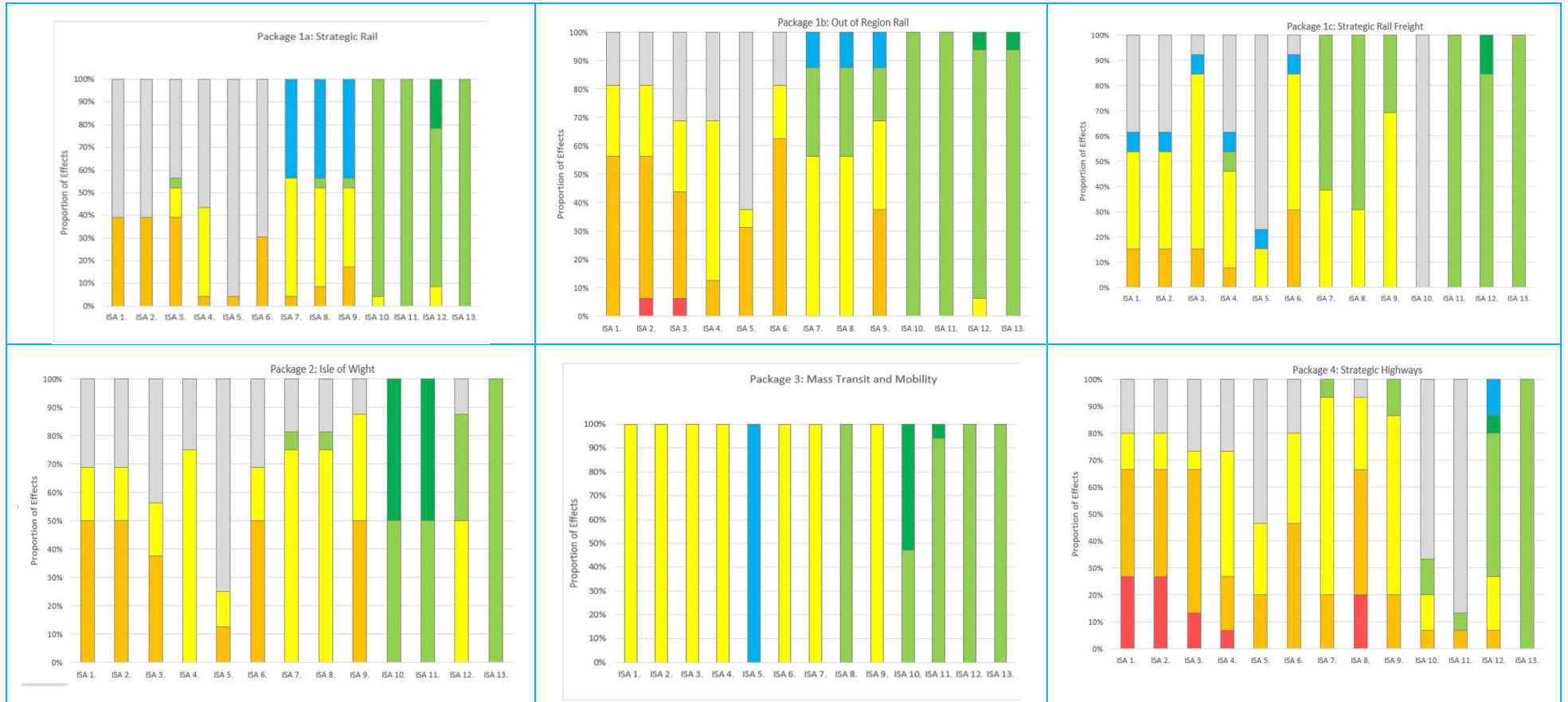


Table 3 ISA Assessment Summary

ISA Topic	Potential Intra-Project Cumulative Effects
<p>Natural Capital, Ecosystem Services and biodiversity</p>	<p>The assessment of packages in all Areas has resulted in mixed effects on biodiversity and natural capital. Larger scale road schemes include A27 Lewes – Polegate, A27 Arundel, A26 Lewes – Newhaven, A264 Horsham – Pease Pottage, SER - Lower Thames Crossing, A28 Canterbury, A34 Resilience and A3 Guildford Upgrades. Large scale rail schemes include the Southampton Central Tunnel Solution, West Coastway CMSP, Southern Rail Links to Heathrow, Eridge – Royal Tunbridge Wells, HS1 Services to Eastbourne and Crossrail extension. Several of these interventions are likely to result in significant negative effects at this stage of assessment. Although many options are online with existing infrastructure, they could still result in the loss of land and lead to damaged and segregated habitats. The construction and operation of the 3rd Thames Crossing at Reading or Lower Thames Crossing has the potential to generate negative impacts on the surrounding River Thames aquatic ecology.</p> <p>At this stage, it was not possible to determine whether the interventions will give rise to definitive likely significant effects on designated European sites either ‘alone’ or ‘in-combination’ with other plans or projects. Consequently, in line with the precautionary principle, further detailed assessment would be necessary to satisfy the requirements of the Habitats Regulations.</p> <p>Active travel schemes (e.g. South Hampshire Placemaking) have potential to result in positive effects. Although new routes could involve small scale loss of habitat (could be larger with strategic mobility hubs), they could also be designed to enhance the biodiversity value, e.g. through creation of linking corridors, though new habitat would take time to establish. 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 or severed through a lack of maintenance or through other development.</p> <p>The improvements to public transport, for example Mass Rapid Transit (MRT), Bus Rapid Transit (BRT) and some Railway Enhancements could reduce the numbers of cars on highways in close proximity to environmental protected areas and generate positive impacts to biodiversity and natural capital by limiting the levels of transport noise, improvements to air quality and minimising disturbance to protected areas.</p>
<p>Historic environment</p>	<p>The assessment of packages has resulted in mixed effects on the historic environment. Larger scale road schemes (e.g. A27 Lewes – Polegate, A27 Arundel, Crawley Western Link Road, A28 Birchington-on-Sea and A21 Pembury – Hastings Bypasses) and larger scale rail schemes (e.g. Southampton Central Crossings – Woolston Tunnel and St Deny’s Tunnel; Western and Southern Rail Links to Heathrow; Ebbsfleet Interchange; Ebbsfleet and North Kent Connectivity; Crossrail 2) are likely to result in some loss of land, which could potentially have particular negative effects on buried (designated and non-designated) 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.</p> <p>New transport infrastructure projects often require components such as street fixtures, lighting, furniture, signage, and maintenance equipment, which can also have a major visual impact, particularly in areas of high heritage value (such as Arundel, Lewes and Brighton).</p> <p>However, as air pollution is a key factor in the degradation of surfaces of historical buildings and monuments, diverting HGVs and long-distance traffic away from built up areas could help to lessen the impact on historical assets and their unique settings.</p> <p>Interventions that result in the reduction in single occupancy journeys will help to reduce air pollution, which could help prevent further degradation of some of the Region’s unique historic assets. The reduction in noise pollution and visual intrusion from lower levels of traffic in some areas could result in increased tranquillity, contribute to overall sense of place and the unique setting of heritage assets.</p>

<p>Landscape and townscape</p>	<p>The assessment of packages has resulted in mixed effects on landscape and townscapes. Larger scale road schemes (e.g. A27 Lewes- Polegate, A27 Arundel, A339 road upgrades Newbury and Basingstoke, 3rd Thames Crossing at Reading, A227 road upgrades, Crawley Western Link Road, A2270/A2101 Corridor Movement and Access Package, Lower Thames Crossing, A21 Pembury – Hastings, Herne Bypass, Maidstone Relief Road, A28 Canterbury, A34 Resilience and the A3 Guildford upgrades) and larger scale rail schemes (e.g. East Kent Connectivity HS1 Services to Eastbourne option and North Kent Connectivity) are likely to result in substantial loss of land and loss of visual amenity which could have significant negative effects on landscapes. These include protected landscapes such as the South Down National Park and Chichester Harbour, High Weald, Surrey Hills, Kent Downs and North Wessex AONBs. Conversely, provision of transport alternatives can reduce the number of cars and lessen the negative impact of traffic (M3 Junctions 6 and 7) on landscapes such as the National Park.</p> <p>New transport infrastructure projects often require components such as street fixtures, lighting, furniture, signage, and maintenance equipment, which can also have a major visual impact. However, there are also opportunities through the Railways Enhancement and Strategic Highways packages to provide enhancements where there are existing impacts from these components on the network.</p> <p>There are a number of schemes that provide positive placemaking opportunities (such as Packages for active travel schemes, MRT, BRT, ferry services and Strategic Mobility Hubs) which could result in positive cumulative effects. If mobility hub options make use of existing infrastructure, there is potential for positive effects due to efficient use of land.</p> <p>There is potential for improvement to access to PRowS, Sustrans routes and national trails benefiting landscape and increased tranquillity. Increased access to towns and villages from MRT may have also have beneficial effects on place making, through shaping the public realm in order to maximise shared value by paying particular attention to the physical, cultural, and social identities that define a place, whilst supporting its ongoing evolution. However, townscape, landscape, sense of place could also be negatively affected if new infrastructure is built, for example green belt land throughout Guildford area.</p>
<p>Soils and Resources</p>	<p>The assessment of packages has resulted in mixed effects on soils and resources. There is potential for deterioration in quality of, and loss of soils, including the best and most versatile agricultural land. The following interventions are located adjacent to or within areas of high agricultural land value and therefore have resulted in negative effects: A29 Realignment, A27 Tangmere, A27 Fontwell, A27 Worthing, A27 Arundel, A33 road upgrades (Basingstoke to Reading), A339 road upgrades (Newbury and Basingstoke), M25 Junction 5 eastbound slip road to Sevenoaks, A227 road upgrades - A227/A25 and A227/A20 junction upgrades, Western Rail Link to Heathrow, Crawley Western Link Road, A2270/A2101 Corridor Movement and Access Package, A26 Lewes – Newhaven, A22 Uckfield Bypass, new station to the north east or Horsham, North Kent Connectivity, Maidstone - Sittingbourne HS1 Link, Isle of Wight (IoW) Restoring Railway Sandown-Newport, M4 Junction 10 upgrades and M3 Junction 8/A303.</p> <p>If infrastructure development makes use of existing road network through reallocation of road space, there's potential for significant positive effects, however, if land take is required along with significant infrastructure and resources, there's potential for negative effects.</p> <p>All schemes are likely to result in the use of resources and production and disposal of waste in construction. The significance of the impact on resources will be dependent upon the schemes selected, therefore a number of uncertain effects have been identified. If large scale construction-intensive schemes are taken forward such as the Southampton Central Tunnel Solution, the A27 Arundel, 3rd Thames Crossing at Reading Western and Southern Rail Links to Heathrow, A2270/A2101 Corridor Movement and Access Package and the Eridge - Royal Tunbridge Wells, there is likely to be negative cumulative effects. The promotion of sustainable resources and waste minimisation could reduce significance.</p>

Water Environment	<p>The assessment of packages has resulted in mixed effects on the water environment. Large scale road schemes have potential to increase surface water runoff and flood risk, impact on surface water and groundwater, particularly from physical alteration as a result of development. Transport-related negative cumulative effects on potable water are likely to be limited. There is also potential for highway improvements to provide opportunities to improve existing drainage network, reducing polluted run-off and potential for contamination.</p> <p>Potential negative effects on the water environment have been identified for all ferries and river services options within SER Package 2, which are attributed to increased operations and therefore increased pollution and contamination risk from ferries operating.</p> <p>In particular, the 3rd Thames Crossing at Reading has the potential to cause significant negative impacts to the aquatic ecology of the River Thames and surrounding lakes throughout the construction and operation phases.</p> <p>The Southampton Central Tunnel Solution, Fawley passenger ferries and the A3024 Northam Bridge LLM Scheme have the potential to result in negative effects on the Solent and Southampton Water Ramsar and SPA, through disturbance of sediments and deposition of nitrogen which could contribute to water eutrophication. The IO Southern Rail Links to Heathrow have the potential to result in negative effects on the South West London Waterbodies Ramsar and SPA (ecologically designated aquatic environments). The Uckfield – Lewes rail intervention and A2270/A2101 Corridor Movement and Access Package has the potential to result in significant negative effects on the River Ouse and local waterbodies through disturbance of sediments and deposition of nitrogen which could contribute to eutrophication.</p> <p>The SER contains a number of Ramsar sites and other internationally significant sites designated for their aquatic ecology, in close proximity to several interventions, specifically Rochester, the River Thames and Hastings and Marine Conservation Zones such as the Medway Estuary, Beachy Head East and Swanscombe sites. The SWR also contains many Ramsar sites and other ecological sites designated for their aquatic environments, which are located in close proximity to several interventions located in coastal regions, specifically Solent and Southampton Water and Portsmouth Harbour Ramsar sites and marine conservation zones around the Isle of Wight (namely Yarmouth to Cowes and Bembridge), which have the potential to result in negative effects.</p>
Air quality	<p>The assessment of the packages impact on air quality has identified a range of likely effects depending on the typology of interventions. Those interventions that support active travel, smart motorways, BRT, support of public transport and ultra-low emission zones will all contribute to improving air quality. Significant positive effects have also been identified for some interventions, for example, the A272/A283 AQMA demand management. These types of options will help encourage a modal shift, leading to reductions in air pollution from the transport network. This is likely to have additional beneficial effects on health and wellbeing, biodiversity natural capital and ecosystem services.</p> <p>However, interventions such as new highways or highway improvements, for example the A27 Chichester, A27 Arundel, Crawley Western Link Road, A34 resilience, A3 Guildford upgrades could increase uptake of vehicular traffic which could lead to negative cumulative effects.</p>
Climate Change and Greenhouse Gases	<p>As for air quality, the assessment has identified a range of effects depending on the typology of interventions within packages. There may be positive effects from transport schemes such as active travel, smart motorways, support of public transport and ultra-low emission zones, demand management (roadspace reallocation), electrification of railways and specific rail options including Grain Branch Services, New HS1 Services, BRT which will all contribute to improving greenhouse gas emissions.</p>

	<p>Conversely, the construction of road schemes such as such as A27 Chichester, A27 Arundel, 3rd Thames Crossing at Reading, A227 Road Upgrades, Crawley Western Link road, A21 Pembury – Hastings, A28 Birchington-on-Sea, Herne Bypass, Maidstone Relief Road, A228 Medway Valley, A34 Online enhancements, A3 Guildford Online enhancements and A3/A247 Ripley Junction could increase uptake of vehicular traffic which could lead to negative cumulative effects. These options are likely to have high levels of embodied carbon associated with both construction and operation.</p> <p>The vulnerability of the transport options will depend on whether the location and the resilience of the design and materials used to withstand chronic and acute effects of climate change (e.g., future precipitation and temperatures changes). Interventions within areas of flood risk include Western and Southern Rail Links to Heathrow, Reading - South Reading - Basingstoke (A33/B3031), Wokingham - Blackwater Valley MRT (A321 or B327/B3016), Mere oak (South Reading) Strategic Mobility Hub, Farnborough Strategic Mobility Hub, East Sussex Regional Cycleways, Surrey Regional Cycleways, West Sussex regional cycleways, A23 Gatwick – Crawley, A23/A27 Patcham Junction and major rail upgrades of SWML (Southwest Main Line upgrades Woking and London, South of Woking and Portsmouth line upgrades).</p> <p>Climate change generally negatively affects the operation of the rail and road network, for example, flooding, snowfall, high temperatures and wind. Climate change adaptation measures are likely to be specific to each development, but there may be benefits if implemented across multiple interventions.</p>
<p>Noise and Vibration</p>	<p>The assessment of packages has identified a number of uncertain effects on noise and vibration. There are likely to be negative effects arising from noise from increased development, particularly large road and rail schemes (packages for highways and major rail schemes) and some ferry operations such as IoW.</p> <p>There may be positive effects from transport schemes such as the electrification of rail lines, road toll, mobility hubs, ferry services and MRT, BRT, which all support a modal shift and contribute to reducing noise pollution. Active Travel and improvements to regional cycleways are likely to have a positive effect on noise and vibration as they will help to reduce the number of car users.</p>
<p>Health and Equalities</p>	<p>The assessment of packages has identified generally positive effects on health and equalities. Most options will provide greater connectivity, which is likely to have positive effects on the populations living in the study areas. Greater connectivity will help communities gain greater access to jobs, services and facilities. Access to activities provides the potentiality for people to participate in education, work, social, leisure, cultural, etc. opportunities which in turn contribute to overall health and wellbeing.</p> <p>The association between health effects and exposure to air pollutants is now well established, with distinct health risks associated with exposure to particulates. Older people, infants and those with long term health conditions are the most likely to be vulnerable to the effects of air pollution. There is potential for some negative effects at certain locations associated with new road schemes (such as A27 Chichester, A27 Arundel, the 3rd Thames Crossing at Reading and Crawley Western Link Road) if these were to come forward in areas close to large receptors communities as well as negative effects from rail freight options (such as unlocking more rail freight paths via Salisbury and Trowbridge and introducing regular rail freight to the South West region).</p> <p>Conversely, active travel schemes and mass transit may reduce air pollution in some locations and if multiple interventions were to come forward there’s potential for positive cumulative effects. These interventions provide an increased likelihood of uptake in active travel modes by improving accessibility, as well as being accessible to all social groups, including low-income groups.</p>

<p>Community Safety</p>	<p>The assessment of packages has generally identified positive effects on community safety. It is assumed that all schemes will be built to a high standard of safety. There may be potential for positive effects (depending on scheme design) on fear of crime and transport related accidents due to opportunities to improve safety standards on all forms of transport.</p> <p>Level crossings present a safety risk for all users and Network Rail believe that the best way of reducing level crossing risk is to eliminate the crossing completely by closing it. The removal of West Worthing Level Crossing, Totton Level Cross along with others, would result in significant positive effects. Several highway interventions have been designed to improve road safety such as A21 Pembury – Hastings and the longer-term Worthing solution, which should improve road safety by diverting long-distance and freight traffic away from densely populated, built-up areas. Other highway interventions, including the Lewes – Polegate scheme, will enable active travel interventions to be brought forward and improve safety in the villages of Wilmington and Berwick. Safety upgrades would also be delivered at the M3 Junction 8/A303, M4 Junction 10 and through the resilience of rail freight (to the Midlands and to address congestion).</p> <p>Active travel schemes (such as Package 3 -South Hampshire Placemaking and Package 6 – Sussex Coast Placemaking) would also result in positive effects. Provision of off-road routes for cyclists and pedestrians will reduce the number of collisions involving them. The longer-term Gatwick Diamond Freight Consolidation Centre should improve safety by improving freight handling centres and diverting freight traffic away from densely populated, built-up areas. Strategic Mobility Hubs (such as IO Package 3a) would result in positive community safety effects. An integrated transport system has the potential to result in higher demand for public transport and reduce the number of cars on the IOSA’s highways. A reduction in cars will lead to reduced levels of congestion and subsequently the number of accidents and near misses, enhancing safety across the IOSA. Upgrades to existing Park and Ride schemes and integrating active modes with another aim of reducing highway trips in urban centres not only ensure greater community safety but improvements to public health and equality with greater accessibility to active modes of transport.</p>
<p>Economy</p>	<p>The assessment of packages has identified generally positive effects. The majority of schemes will provide greater connectivity, which is likely to have positive effects on the populations living in the study areas. Interventions may contribute to and enhance wider and long-term economic prosperity by facilitating the building of a strong, low carbon economy, and by providing reliable and affordable transport choice to support growth. Economic centres throughout the South East would benefit from increases in rail passenger numbers and more reliable rails services achieved through upgrades to stations, electrification and improved interchange. Access to employment centres could be enhanced through improvements to rail services as well, encouraging continued economic growth. Greater connectivity and capacity across the wider SE Region, including major airports, tourism to the South Downs National Park and access to and from London, contributing further to the local and regional economy.</p> <p>Stand out interventions that are likely to improve the economy significantly are the Lower Thames Crossing and Other HS1 Services Extend international services option. An increase in international services and connectivity from south of the river to the north of the River Thames will bring a substantial economic boost to the SERSA and the wider Region.</p>

5 Mitigation and Monitoring

Mitigation

- 5.1 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.
- 5.2 The mitigation and enhancement measures proposed in Table 4 are designed to avoid, reduce or enhance the effects identified as potentially significant (positive, negative or uncertain) which were identified through assessments of intervention packages on the ISA Framework Objectives.
- 5.3 Whilst ISAs typically identify mitigations, opportunities can also be identified. Many of the packages of interventions have positive sustainability outcomes and impacts, as during the planning and delivery of intervention, opportunities can be seized to enhance the impacts of interventions (e.g. increasing biodiversity). This is also in line with Section 62 of the Environment Act 2015 whereby (amended form text contained within the Act):
1. A National Park authority [...] shall seek to foster the economic and social well-being of local communities within the National Park, but without incurring significant expenditure in doing so, and shall for that purpose co-operate with local authorities and public bodies whose functions include the promotion of economic or social development within the area of the National Park.
 2. In exercising or performing any functions in relation to, or so as to affect, land in a National Park [...] if it appears that there is a conflict between those purposes, shall attach greater weight to the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the area comprised in the National Park.

Table 4 Mitigation and Enhancement Measures

ISA Topics	Mitigation / Enhancement	Mechanism
All	<p>Consider prioritising types of interventions in relation to meeting the transport mode hierarchy; for example, favouring behavioural changes and the reallocation of existing space before identifying new land take for transport solutions.</p> <p>All proposals should incorporate principles for place-making, biodiversity net gain, natural capital and ecosystem services.</p>	Project level design and assessment

ISA Topics	Mitigation / Enhancement	Mechanism
Air Quality, Climate Change and GHG Emissions, Population and Equalities, Health.	<p>New transport infrastructure or upgrades to existing infrastructure should include provisions for walking and cycling and connectivity to public transport modes.</p> <p>Air Quality Action Plans should be implemented as part of the Transport Strategies. These should include measures to complement interventions, such as promotion and encouragement of public transport.</p> <p>In general, measures to discourage individual car trips over other alternative transport modes (public transport) should be implemented.</p>	Project level Equalities or Diversity Impact Assessment
Biodiversity, Historic Environment, Landscape and Townscape, Soils, Noise.	Design of new transport infrastructure should avoid landscape/ townscape, historic environment and nature conservation designations.	Environmental Assessments (e.g. EIA, HRA, LVIA)
Natural Capital and Ecosystem Services, Biodiversity	<p>New transport infrastructure or upgrade to existing infrastructure should deliver a net gain in biodiversity and aim to contribute towards major new initiatives such as Nature Recovery Networks and large-scale woodland creation ambitions of the 25 Year Environment Plan and the upcoming Environment Bill.</p> <p>Interventions should consider environmental effects on natural capital and biodiversity early in the design stage and design out negative effects with measures such as avoidance and mitigation. In general, areas of previously undeveloped land should be avoided.</p> <p>Large scale road schemes should be considered only if no other alternative is suitable to address issues as they will involve an unavoidable element of natural capital reduction and fragmentation of habitats.</p> <p>Scheme proposals should consider biodiversity issues in their design and include considerations for reinforcing existing wildlife corridors, providing new biodiversity opportunities, restoring and connecting habitats.</p>	<p>Project level design and assessment</p> <p>Biodiversity net gain calculations (using the Defra Metric 3.0)⁴</p>

⁴ Natural England (2021) Biodiversity Net Gain Metric [Available at: <http://publications.naturalengland.org.uk/publication/6049804846366720>]

ISA Topics	Mitigation / Enhancement	Mechanism
Natural Capital and Ecosystem Services, Biodiversity	<p>Where possible, development should not be located within any National Site Network (NSN) site (the replacement of the Natura 2000 network with a new network of SPA and SACs) site so that no direct habitat loss will occur, as well as avoiding works where there is a direct transmission pathway to NSN sites.</p> <p>Buffer zones should be implemented between construction works and NSN sites, with size and extent depending on the nature of effect and sensitivity of receptors. Improved access to NSN sites will be monitored and managed closely to ensure the integrity of the sites are not compromised. There would be a general presumption against the permitting of construction works generating particular adverse effects in close proximity to NSN sites.</p>	Project design and assessment
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.	<p>Project level design and assessment</p> <p>Environmental Assessments, e.g. Landscape design and assessment, and Ecosystem Services Assessment</p>
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).	<p>Project level design and assessment</p> <p>Environmental net gain calculation (e.g. using the Ecometric)</p>

ISA Topics	Mitigation / Enhancement	Mechanism
Natural Capital and Ecosystem Services, Biodiversity	Any design likely to have a significant effect on an NSN site (alone or in combination with other interventions), will be subject to assessment under part 6 of the Habitats Regulations. 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.	Environmental assessment
Landscape and townscape, historic environment	Design and optioneering should consider direct and indirect effects such as setting in relation to landscape quality and the historic environment. The design and implementation of larger interventions should go through the EIA process and/or other environmental assessment to quantify effects on receptors and seek to improve landscape conditions as part of design and mitigation measures. Interventions within AONB or National Parks e.g. New Forest should be carried out with cooperation from the relevant authority to ensure that they do not adversely affect the landscape character or status of the AONB. These authorities should be engaged as part of the implementation of the transport strategies.	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.	Project level CSA, EqIA, HIA

ISA Topics	Mitigation / Enhancement	Mechanism
Population and equalities and Health	<p>Ensure the needs and aspirations of groups with protected characteristics are considered in delivering transport solutions, in addition, including those from low-income households.</p> <p>This could include measures such as:</p> <p>Fair pricing for public transport and road user charging;</p> <p>Consideration of grants and exemptions for electric vehicles, clean air zones and other vehicle restriction and charging schemes;</p> <p>Engagement with protected characteristic groups specifically to ensure the needs of these groups are identified;</p> <p>Consideration needs to be given to those who may not have the same understanding of or access to technology (for example the elderly, those with learning difficulties or in low-income groups); and</p> <p>Ensure that active travel routes enable access for all users, including those with reduced mobility or disabilities.</p>	<p>Project specific EqIA and HIA for digital solutions and projects seeking behavioural change</p> <p>Disability Discrimination Act (DDA) compliance</p>
Climate change and greenhouse gases, Waste and resources	<p>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), and the maintenance of interventions to ensure they can withstand chronic and acute effects of climate change.</p>	<p>Carbon Footprinting; Lifecycle assessment; Design</p> <p>Future Mobility Strategy</p>
Climate change, Soils and resources, Natural capital and ecosystem services	<p>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.</p>	<p>Flood Risk Assessment; Geotechnical Assessment; Ecosystem Services Assessment; Design</p>
Natural capital and ecosystem services, Water Environment, Biodiversity, Soils	<p>Design should seek to ensure environmental protection, including avoiding damage to soils, water resources.</p>	<p>Drainage strategy and design;</p> <p>Project level design</p>

ISA Topics	Mitigation / Enhancement	Mechanism
Historic environment	<p>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.</p> <p>The design of interventions regardless of scale should be sensitive to adjacent heritage assets. In an urban setting, many assets will likely be directly adjacent to roads and subsequent intervention focuses. In a rural setting, the potential for buried heritage assets will be more prevalent.</p> <p>There is an opportunity to enhance the setting of heritage assets in urban environments with the provision of mobility hubs, improved public transport services and highway improvements. Opportunities for aesthetic and setting enhancements should be considered where practicable.</p>	Environmental assessment; Design
Biodiversity, Natural Capital, Population and equalities and health	<p>The incorporation of natural features such as tree planting, hedgerows and floral arrangements along walk/cycleways to enhance connections to nature and reduced stress levels, contributing to mental health and wellbeing benefits.</p>	Project level CSA, EqIA, HIA, BNG
Climate Change Soils and Resources and Water Resources and Flooding	<p>Any form of construction and operation should be undertaken as sustainably as possible, making use of tools and processes, such as circular economy, waste hierarchy, the Civil Engineering Environmental Quality Assessment (CEEQUAL) and the Building Research Establishment Environmental Assessment Method (BREEAM).</p> <p>As flood risk is a key risk in relation to climate change, any intervention that introduces physical infrastructure (either new infrastructure or upgraded) should provide flood defence opportunities or flood risk benefit where practicable.</p> <p>Sustainable design and construction techniques should be promoted such as low energy lighting and low noise road surfaces.</p> <p>Where land take is required, preference should be given to brownfield land/ previously developed land.</p>	Project level design and assessment

ISA Topics	Mitigation / Enhancement	Mechanism
Noise	<p>Noise Action Plans and management plans should be implemented. These should include measures to complement interventions, such as promotion and encouragement of public transport, and provision of noise barriers or low road noise surfaces.</p> <p>New highway schemes have the potential to lead to significant negative noise effects to nearby receptors and introduce new receptors to negative noise effects. If alternative interventions are not feasible, then avoidance of receptors should be pursued alongside measures such as accompanying provision of shared and active transport facilities, and the prioritisation and promotion of these transport modes. Suitable mitigation measures to reduce noise for sensitive receptors including noise barriers and low road noise surfaces should also be incorporated into the scheme design.</p>	<p>Noise Action Plan</p> <p>Project level design and assessment</p>
Water Environment	<p>Ferries should consider design and fuel type and encourage responsible vessel practices and understanding of the distribution of marine mammals, to ensure that services will have the minimal impact on the environment.</p> <p>The incorporation of Sustainable Drainage Systems (SuDS) into all interventions where practicable.</p> <p>Avoidance of alteration and crossing of watercourses should be considered of any physical intervention. If avoidance is not possible a system to identify vulnerable watercourses with the potential to be affected by multiple interventions should be developed.</p> <p>Enhancement and restoration potential should be considered for interventions near watercourses.</p>	<p>Project level design and assessment</p>

Monitoring

- 5.4 Monitoring should be undertaken on a plan 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. It will also identify any significant effects of implementation and where remedial action should be imposed. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage environmental information.
- 5.5 At the previous Transport Strategy stage, TfSE proposed a set of Key Performance Indicators to monitor the outcomes of the Transport Strategy in advancing the Strategic Priorities. TfSE will continue to track the progress made towards the outcome orientated key performance indicators, which are described Table 5 below. No new monitoring measures are proposed in this ISA though additional measures may be required at the local/project scale of interventions when these are further developed.

Table 5 Monitoring via key performance indicators

Strategic Priorities	Indicators
Economic	
Better connectivity between our major economic hubs, international gateways and their markets.	<ul style="list-style-type: none"> • 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 South East's major economic hubs and to and from international gateways.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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 relating 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Reduction in NOx, SOx and particulate pollution levels in urban areas.
An affordable, accessible transport network for all that promotes social inclusion and reduces barriers to employment, learning, social, leisure, physical and cultural activity.	<ul style="list-style-type: none"> • A reduction in the indicators driving the Indices of Multiple Deprivation in the South 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • No transport schemes or interventions result in net degradation in the natural capital of the South East.
Use of the principle of 'biodiversity net gain' in all transport initiatives.	<ul style="list-style-type: none"> • Transport schemes or interventions to demonstrate environmental net gain.
Minimisation of transport's consumption of resources and energy.	<ul style="list-style-type: none"> • Reduction in non-renewable energy consumed by transport.

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Steer project/proposal number

24137701

Client contract/project number

N/A

Author/originator

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Distribution

Client: TfSE

Steer: Project Team

Version control/issue number

V1 Internal for Review
V2 Draft Final for Client
V3 Final for Client
V4 Updated final for client

Date

30 May 2022
6 June 2022
16 June 2022
20 October 2022
