Strategic Transport Projects Review (STPR2)
Consultancy Support Services Contract

STRATEGIC TRANSPORT PROJECTS REVIEW

PROTECTING OUR CLIMATE AND IMPROVING LIVES

Impact Assessments Non-Technical Summary

December 2022

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Contents

1. Introduction

1.1. Purpose of Summary

The purpose of this document is to provide a non-technical summary of the various Impact Assessments (see Section 3) that have been undertaken to inform the development of the Strategic Transport Projects Review (STPR2).

1.2. What is the second Strategic Transport Projects Review

The long-term vision for Scottish transport policies and objectives underpinning the STPR2 are identified in the second National Transport Strategy (NTS2) published in February 2020.

The overarching aims of the STPR2 are:

- Conduct a whole-Scotland, evidence-based review which focuses on the performance of the strategic transport network across all transport modes against clear criteria on operational performance, safety, and environmental impact, whilst fundamentally supporting Scotland's National Strategy for Economic Transformation.
- To identify and align with outcomes and priorities that have been defined in the NTS2;
- Ensure that the outcomes of STPR2 align with other Scottish Government national plans, policies and strategies, the Revised Draft of the fourth National Planning Framework (NPF4), the Climate Change Plan Update (2020), and the commitments made to City Region Deals, in addition to considering emerging legislation, such as the Planning (Scotland) Act (2019) and the Climate Change (Emissions Reduction Targets) (Scotland) Act (2019);
- To make recommendations for potential transport investments for Scottish Ministers to consider as national investment priorities in an updated Infrastructure Investment Plan 2021-22 to 2025-26, published on 4 February 2021.

1.3. Content / Scope

It is recognised that Scotland's geography is unique and varied, ranging from rural lowlands to remote uplands and from large cities to sparsely inhabited islands, meaning no two parts of Scotland are the same, nor are their travel patterns and demands. For that reason, the STPR2 is being progressed at both a national and regional level in order to appraise options in the context of place.

The national focus considers the strategic links between the cities and key ports, international gateways, and cross-border links, whilst the regional focus considers the role of the strategic network in the context of regional economic geographies and changes emanating from, for example, the Planning Review, Enterprise and Skills Review, and City and Regional Growth Deals. This approach enables examination of regional issues which would have significant effects on the national strategic network, to deliver national investment priorities.

A total of 11 regions have been established for the STPR2: Argyll & Bute, Ayrshire & Arran, Edinburgh & South-East, Forth Valley, Glasgow City Region, Highlands & Islands, North-East Scotland, Tay Cities, Scottish Borders, Shetland Islands, and South-West Scotland. Within North-East Scotland, Scottish Borders and South-West Scotland work was carried out in advance of the STPR2 commission, and collectively these are referred

to as the STPR2 Advanced Studies. Further details of the regional structure are set out in the National Case for Change Report.

Figure 1 shows the 11 regions established for the STPR2.

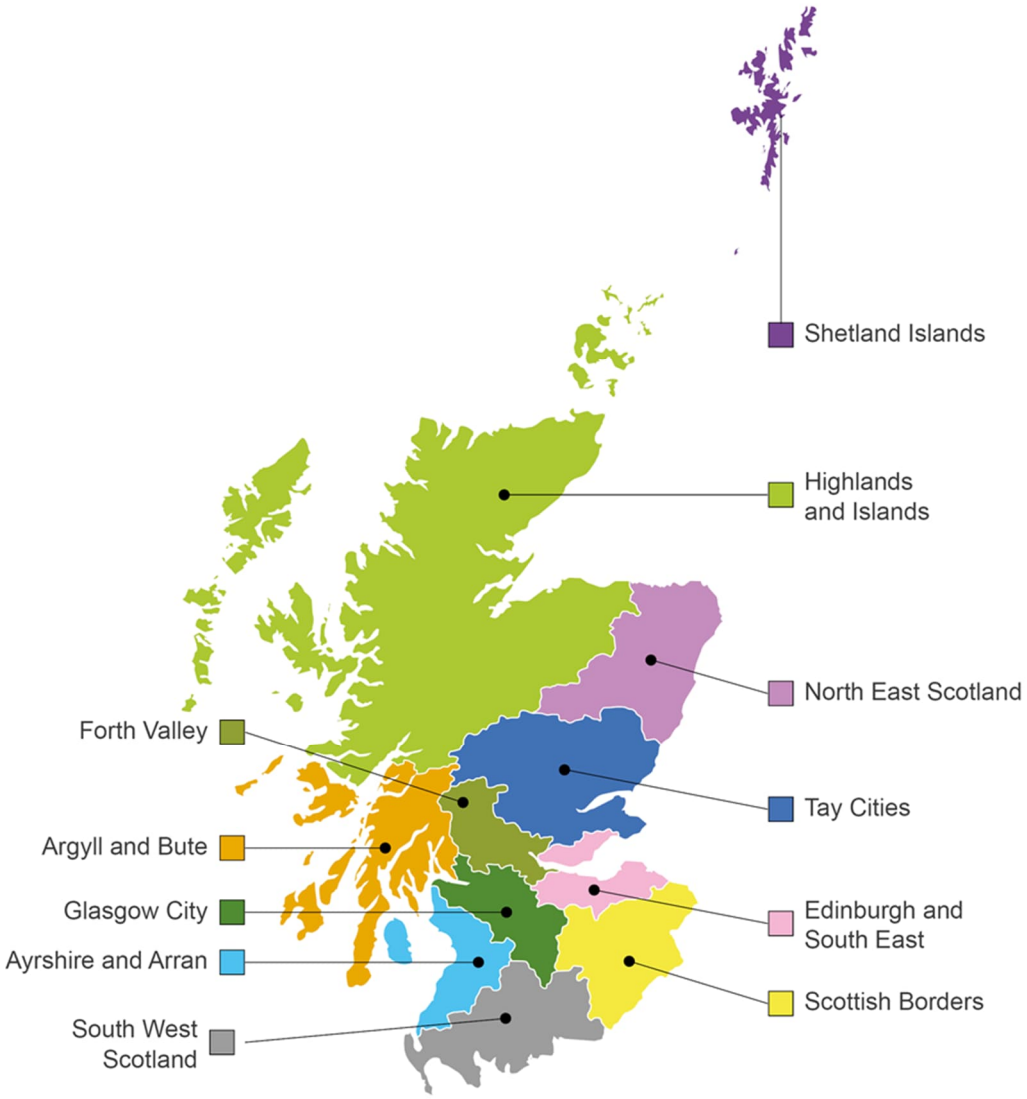

Figure 1: STPR2 Regions

The STPR2 involves conducting an evidence-based review of the performance of Scotland's strategic transport network across active travel, bus, ferry, rail and the trunk road network. The outcomes from the STPR2 will:

- Enhance accessibility across Scotland for residents, visitors and businesses;
- Create better connectivity with sustainable, smart and cleaner transport options;
- Highlight the vital contribution that transport investment can play in enabling and sustaining Scotland's economic growth.

As a result of the COVID-19 pandemic, the STPR2 has taken a two Phased approach. The Phase 1 report published in February 2021 focused on short to medium term measures that could support and extend the increase in travel by sustainable travel modes, and

those that could be brought forward to support economic recovery. This final Non-Technical Summary incorporates and therefore supersedes the Phase 1 recommendations and covers the period from 2022 to 2042.

With the challenges faced by society as a result of the pandemic, it is vitally important to consider transport investments around the overall vision set out in the NTS2 to ensure that we continue, at pace, towards the delivery of a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.

The role of the STPR2 is to provide the evidence base to recommend the transport investment priorities for Scottish Ministers for the next 20 years, in the face of great uncertainty and challenges. As we emerge from the short-term impacts associated with the COVID-19 pandemic, it is vitally important to consider transport investments around the overall vision set out in the NTS2 to ensure that we continue, at pace, towards the delivery of a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.

1.4. STPR2 Final Recommendations

A number of overarching recommendations have been developed, which in combination constitute the fundamental components of the proposed transport investment plan, alongside an evidence base and robust rationale which ‘makes the case’ for the interventions. It is a key part of the first and second NTS2 Delivery Plans, as Government demonstrates the steps it is taking to achieve its outcomes. It also creates a foundation for business case development of the interventions, with the STPR2 forming the strategic case for the investments.

A total of 45 recommendations are presented in the final STPR2 Technical Report. These consist of some interventions that are specific to a particular location, others apply to certain regions in the country, and finally some of the recommendations are applicable across the whole country. For presentational purposes, the recommendations have been grouped into six themes, as follows:

- Improving active travel infrastructure
- Influencing travel choices and behaviour;
- Enhancing access to affordable public transport;
- Decarbonising transport;
- Increasing safety and resilience on the strategic transport network;
- Strengthening strategic connections.

In many cases the interventions build on the individual investment and policy decisions taken in recent years, but the overall balance of the recommendations will help deliver the NTS2. These recommendations were assessed for the SEA and other Impact Assessments listed in Section 3 and the results are summarised in Section 4 of this Non-Technical Summary.

2. Policy Context

The STPR2 is influenced by legislative requirements and a number of government policies, strategies and commitments. These include, but are not limited to:

- The NTS2 and its associated Delivery Plans provides the national transport policy framework, setting out a clear vision of a sustainable, inclusive, safe and accessible transport system which helps deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors;
- The Climate Change Plan Update reflects the ambition of the new targets set in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. These comprise the reduction of Scotland's greenhouse gas emissions to net zero by 2045 at the latest;
- The second Cleaner Air for Scotland Strategy sets out how the Scottish Government will deliver further air quality improvements over the next five years;
- The Revised Draft NPF4 puts planning at the heart of delivering green, inclusive and long-term sustainable development in Scotland. As the NPF4 has been developed alongside the Infrastructure Investment Plan and the STPR2, it embeds the importance of "place" across land-use planning and transport. The Revised Draft NPF4 also sets the context for developing an investment programme that is aligned with the Sustainable Travel Hierarchy presented in the NTS2;
- The Bute House Agreement details collaboration between the Scottish Government and the Scottish Green Party Parliamentary Group on the climate emergency, economic recovery, child poverty, the natural environment, energy and the constitution in relation to building a green economic recovery from COVID-19 over the next five years.

3. Impact Assessment and Consultation Requirements

The STPR2 is accompanied by various assessments that have been integrated into each stage of STPR2 development. These comprise a Strategic Environmental Assessment (SEA), a Habitats Regulation Appraisal, an Equality Impact Assessment (EqIA), a Child Rights and Wellbeing Impact Assessment (CRWIA), an Island Communities Impact Assessment (ICIA) and a Fairer Scotland Duty Assessment (FSDA). These assessments interact with each other, complement each other and ensure the STPR2 is environmentally sustainable and socially equitable. They share baseline data wherever possible.

Figure 2 shows the impact assessments required for the STPR2. Individual technical reports have been produced for each impact assessment and these are available at Strategic Transport Projects Review 2.

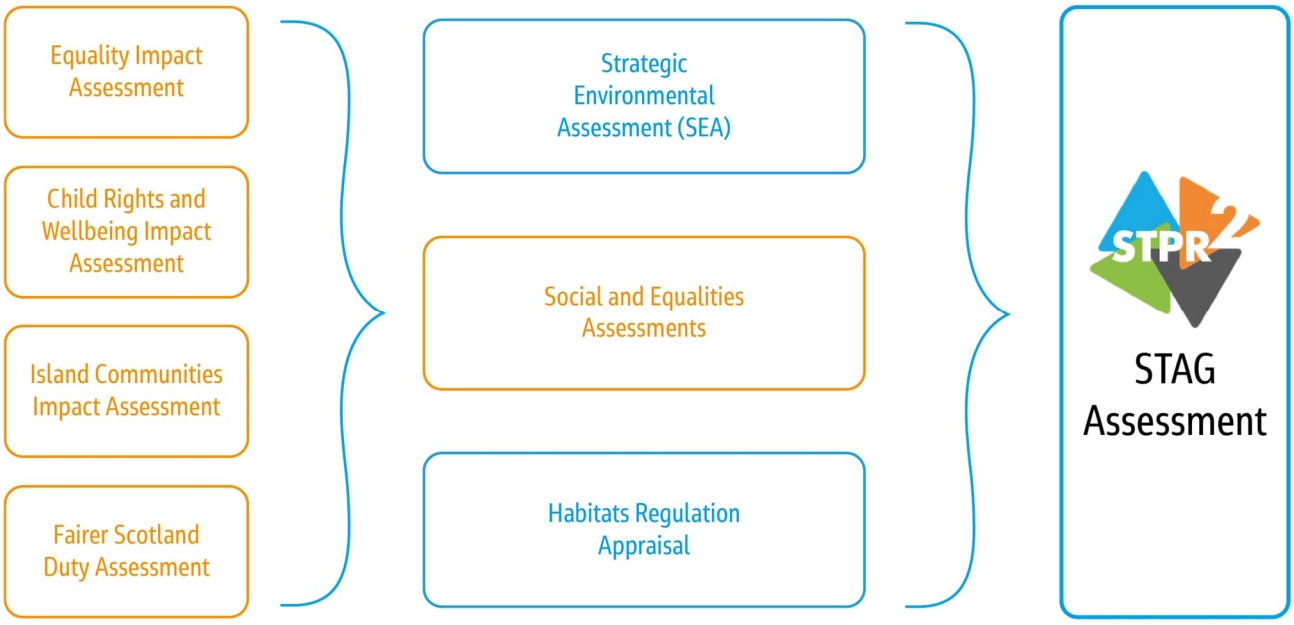

Figure 2: STPR2 Impact Assessments

3.1. SEA Requirements

SEA is a means of systematically assessing the likely impact of a public plan on the environment. Under the Environmental Assessment (Scotland) Act 2005, those bodies preparing qualifying Scottish plans are required to undertake a SEA of plans that are likely to have significant environmental effects, if implemented. The Act transposes the requirements of the European Community SEA Directive.

As the STPR2 falls under this section of the Act, a 'screening' report did not need to be prepared, as it was clear that a SEA would be required. Thus, the key remaining stages of the STPR2 SEA are:

- SEA Scoping (completed and consulted on between December 2019 and February 2020);
- Draft Environmental Report (completed and consulted on between January and April 2022). This assessment stage establishes the likely significant (positive and negative) environmental effects of implementing the STPR2. Any potential reasonable alternatives are considered at this stage, along with viable mitigation measures to avoid, reduce or offset significant adverse effects. The assessment and a summary of key findings are included in this final Environmental Report, which was made available for consultation alongside the final STPR2 Technical Report;
- Final Environmental Report (December 2022) that responds to SEA consultation comments and any post-consultation updates to the STPR2;
- Post-adoption Statement. This statement will be produced after the STPR2 has been adopted. It will outline how the assessment and consultation responses have been taken into account within the finalised STPR2. It will also include the final

environmental monitoring programme for the STPR2 implementation. Post-adoption statements are intended to improve the transparency of the decision-making process within plans such as the STPR2.

The SEA Directive topics that need to be 'scoped' in or out at the SEA scoping stage are:

- Climatic factors;
- Air quality;
- Population and human health;
- Material assets
- Water environment;
- Biodiversity, fauna and flora;
- Soil;
- Cultural heritage;
- Landscape and visual amenity.

All of these SEA topics were scoped into the SEA. The baseline data for these topics is summarised in section 4.1 of this Non-Technical Summary. The baseline data and consultation feedback informed the development of a series of SEA objectives that relate to each of the topics listed above. These SEA objectives were used in a matrix-based assessment of the STPR2 recommendations as presented in section 4 of the STPR2 Summary Report. The assessment results are summarised in section 4.2 of this Non-Technical Summary.

3.2. Habitats Regulations Appraisal

The purpose of Habitats Regulations Appraisal (HRA) is to determine potential impacts on European Union-designated 'European sites'. These sites include Special Areas of Conservation (SACs) designated under the Habitats Directive (92/43/EEC) and Special Protection Areas (SPAs) designated under the Birds Directive (2009/147/EEC). In addition, Candidate and Possible SACs, Potential SPAs and Ramsar wetlands should also be included in appraisals.

Each stage in the development of the STPR2 has been reviewed to determine any potential indirect or direct likely significant effects on European sites. The statutory consultation authority for HRAs in Scotland, NatureScot (formerly SNH), were consulted in September 2019 and have continued to be engaged in the HRA process for the STPR2.

The HRA has been produced concurrently with the SEA but has been delivered as a separate report. The HRA concluded that no likely significant effects were identified due to the intentionally high-level of detail in the 45 STPR2 recommendations. This provides the opportunity to design schemes to avoid or adequately mitigate effects on European sites. In line with case law, a refreshed and more detailed HRA process will be required for individual schemes (for example, local transport plan and/or planning applications) as they are devised and developed, particularly if they have been flagged in the HRA. The HRA also recommended that some wording about the need for project-level HRA should be added to the final version of the STPR2 Technical Report and this has now been done.

3.3. Equality Impact Assessment

As a public body, Transport Scotland has a legal duty when creating new plans and policies to pay due regard to the Public Sector Equality Duty (PSED) included within the

Equality Act 2010. The PSED aims to eliminate unlawful discrimination, promote equality and cohesion between different groups with protected characteristics and advance equality of opportunity. The EqIA identifies potential impacts of the STPR2 on groups with protected characteristics and demonstrates Transport Scotland's due regard to the PSED.

3.4. Child Rights and Wellbeing Impact Assessment

In Section 1 of the Children and Young People (Scotland) Act (2014) Scottish Ministers have committed to keep under consideration whether there are any steps which they could take which would or might secure better or further effect in Scotland of the United Nations Convention on the Rights of the Child (UNCRC) requirements. The general principles of the Act (as identified by UNICEF, 2019) are:

- Non-discrimination;
- Best interest of the child;
- Right to survival and life development;
- Right to be heard.

Completion of the CRWIA for the STPR2 feeds into this consideration and review process.

3.5. Island Communities Impact Assessment

The Islands (Scotland) Act was passed by the Scottish Parliament in 2018 and is only one of a handful of place-based pieces of legislation to focus specifically on islands in the world. The measures it contains, like the Island Communities Impact Assessment, are designed to meaningfully improve outcomes for island communities.

As a Relevant Authority under Sections 7 and 8 of the Act, Transport Scotland has a legal duty to carry out an Island Community Impact Assessment (ICIA) when creating new plans and policies that are likely to have an effect on an island community which is significantly different from its effect on other communities (including other island communities) in Scotland.

3.6. Fairer Scotland Duty Assessment

The Equality Act 2010 (Authorities subject to the Socio-economic Inequality Duty) (Scotland) Regulations 2018 (more commonly known as the 'Fairer Scotland Duty'), places a legal responsibility on Transport Scotland to actively consider how it can reduce inequalities of outcome caused by socio-economic disadvantage when making strategic decisions. Public bodies must also publish a written assessment under the Fairer Scotland Duty, demonstrating how they have considered inequalities of outcome when making any major strategic decision.

4. Environmental Baseline and Findings

4.1. Scotland's Environmental Baseline and Trends

A summary of the key national-level baseline findings for each SEA topic is provided below:

4.1.1. Climatic Factors

Climate change is a threat to all countries and the expected impacts will affect infrastructure and its operation. Ensuring current and future infrastructure is resilient against the following anticipated impacts is vital:

- Average temperatures increasing across all seasons;
- Our weather will remain variable and may become more variable;
- Typical summers will be warmer and drier;
- Intense heavy rainfall events will increase in frequency in both winter and summer
- Rising sea levels;
- Fewer days / periods of frost and snowfall.

4.1.2. Air quality

- Air pollution originates from organic and human sources;
- Urban air quality has improved significantly during the past 70 years as industry has moved outside of urban areas and regulations have incentivised technological innovation in residential heating and vehicles;
- Scotland has declared 38 Air Quality Management Areas where air quality objectives are not being met. Almost all of these are located in urban areas due to emissions of nitrogen oxides and particulates primarily originating from road transport.

4.1.3. Population and Human Health

- There are also significant numbers of people living in remote communities on the mainland and on the islands surrounding Scotland;
- The population is forecast to increase from 5.4 million (current) to 5.7 million by 2026.
- Scotland's obesity rates continue to be amongst the highest in the developed world and are a significant public health issue. Women and children in the most deprived areas are affected by extreme obesity;
- Transport is a significant contributor to poor air quality in urban areas. There are significant short and long-term air pollution impacts on human health;
- The Covid-19 pandemic has led to an increase in walking and cycling as people have sought to avoid public transport.

4.1.4. Material Assets

- Scotland has significant valuable material assets, encompassing those within the natural and built environments;
- The country has access to a range of crucial natural resources that underpin the operation of the country, such as water, soil, fossil fuels and minerals;
- The built environment encompasses the country's infrastructure for transport, waste management, energy and land-use, capturing a wide range of policies.

4.1.5. Water Environment

- Scotland has two river basin management plans to improve the condition of inland water bodies and coastal waters;

- Effective protection of coastal areas and management of inland water basins is key to managing flood risk. There is a need to avoid development in areas which are or are likely to be highly vulnerable to flood risk;
- Scotland's water provides an essential resource for providing drinking water for the population and as a resource in agriculture and industry, as well as supporting a rich diversity of habitats and species.

4.1.6. Biodiversity, Flora and Fauna

- Scotland has a vast number of designated and undesignated areas that contain important habitats and species;
- Scotland's protected sites include 241 Special Areas of Conservation (SAC), 153 Special Protection Areas (SPA) and 51 Ramsar sites. There are a further 1,423 Sites of Special Scientific Interest (SSSI) and 30 Marine Protected Areas (MPAs).

4.1.7. Soil

- Soil is a non-renewable resource and one of Scotland's most important assets, underpinning much of the natural environment, providing the basis for food, regulating water quality and acting as a foundation for the built environment;
- Scotland has significant areas of peatlands that act as carbon sinks, playing a key role in climate change mitigation. It is important to minimise disturbance of carbon-rich soils, as disturbances can lead to significant releases of carbon.

4.1.8. Cultural Heritage

- Scotland has a rich historic environment with a variety of sites and assets, some of which are protected by international, national or local designations and some that are undesignated;
- Assets of historic value include buildings, sites of archaeological significance, battlefields, townscapes and landscapes;
- Scotland's heritage is a key factor in the country's significant tourism industry.

4.1.9. Landscape and Visual Amenity

- Scotland has an array of stunning landscapes and sceneries, including important protected sites, such as two National Parks and 40 National Scenic Areas (NSAs);
- Scotland's landscape character is very diverse. This is described and mapped in the Landscape Character Assessment of Scotland, commissioned by NatureScot (formerly SNH);
- Scotland's planning system safeguards the special qualities of NSAs, with NatureScot acting in an advisory capacity;
- Scotland's landscapes play a valuable role in Scotland's cultural heritage and contributing to the economy by attracting tourism.

4.2. What are the Likely Significant Environmental Effects of the STPR2?

The SEA used a set of bespoke objectives and assessment criteria, that cover each of the environmental topics scoped into the assessment to identify the likely significant environmental effects of the STPR2. The SEA objectives and assessment criteria presented have been developed from:

- a comprehensive review of the baseline issues and policy requirements;
- a gap analysis review of the STAG criteria;
- feedback received from the SEA Consultation Authorities (NatureScot, SEPA and HES)

and wider stakeholder engagement.

A summary of the likely significant environmental effects is presented below against each of the SEA topics.

4.2.1. Climatic Factors

Overall, most of the recommendations are anticipated to result in minor positive effects on reducing greenhouse gas emissions as the interventions proposed seek to promote a modal shift to more sustainable transport options. Some of the interventions related to safety and resilience and strengthening strategic connections are anticipated to result in uncertain effects on greenhouse gas emissions as they are not likely to encourage modal shift. In addition, some of the recommendations have the potential to result in an increase in motorised traffic to and from the mainland, potentially increasing emissions. Recommendations relating to the road network are anticipated to result in minor negative effects on greenhouse gas emissions as several of the interventions proposed have the potential to increase capacity for the number of vehicles on the trunk road network, thus increasing associated transport emissions. However, the decarbonisation of ferry networks is likely to result in major positive effects on reducing greenhouse gas emissions as this will directly contribute to the achievement of Scotland's CO_2 emissions reduction target.

Most of the recommendations will help adapt the transport network to the predicted effects of climate change by prioritising the adaptation of transport connections to critical infrastructure, islands and coastal communities that are more vulnerable to the projected impacts of climate change. In particular, there is a recommendation that is focused on trunk road and motorway climate change adaptation and resilience.

4.2.2. Air quality

Overall, most of the recommendations are anticipated to result in minor positive effects on air quality as the interventions proposed seek to promote a modal shift to more sustainable transport options and, consequently, will help reduce all forms of transport-related air pollution and improve air quality throughout Scotland. The recommendations relating to strategic connections and increasing safety and resilience are anticipated to result in uncertain effects on air quality as it is not clear whether the proposed interventions would result in a reduction or increase in transport-derived air pollutant emissions or, consequently, any improvements in air quality across Scotland. Recommendations relating to the road network are anticipated to result in minor negative effects on air quality as several of the interventions proposed have the potential to increase capacity for the number of vehicles on the trunk road network, thus increasing associated transport emissions and potentially reducing air quality.

The fixed link interventions proposed have the potential to result in increases in motorised traffic to and from the mainland, potentially resulting in increases in emissions and reductions in air quality.

The decarbonisation of ferry networks could result in major positive effects on air quality by reducing emissions of key air pollutants (NOx, particulates, SO_2) from ferry transport, helping to limit polluting traffic growth, and potentially limiting more polluting vehicles in sensitive areas.

4.2.3. Population and Human Health

A significant majority of recommendations are anticipated to result in minor positive effects on quality of life and human health, as the interventions proposed will improve quality of life and human health and increase sustainable access to essential services, employment and the natural environment. The freight interventions are anticipated to result in neutral effects on quality of life and human health as the relationship between most interventions and quality of life and human health is unclear. Recommendations relating to the road network are generally anticipated to result in uncertain effects on quality of life and human health as while some of the interventions proposed may improve access to essential services, employment and the natural environment, this access will be achieved via the road network and therefore will not be sustainable.

Many of the recommendations are anticipated to result in uncertain effects on noise and vibration as it is unclear if the proposed interventions will reduce noise and vibration and this will be dependent on the location and nature of the interventions adopted. The active travel and behavioural change recommendations are generally anticipated to result in minor positive effects on noise and vibration as most of the interventions proposed will help encourage a modal shift to more sustainable modes of travel. The technology recommendations are anticipated to result in neutral effects on noise and vibration as the interventions proposed are not expected to have any notable effect on this topic. The strategic connections recommendations are generally anticipated to result in minor negative effects on noise and vibration as most of the interventions proposed will potentially increase noise and vibration on the transport network during both the construction and operation of any improvements to the transport network.

The public transport recommendations are anticipated to result in neutral effects on developing high quality places as the various interventions proposed are unlikely to have a notable effect on this objective. The influencing travel choices recommendations are anticipated to result in uncertain effects on developing high quality places, as, although they are likely to improve safety on the transport network, they will not directly help promote, invest in, build or maintain infrastructure to support the development of high-quality places. The active travel recommendations are anticipated to result in minor positive effects on developing high quality places as the interventions proposed will help to support the development of high-quality places by prioritising pedestrians in the public realm. Some of the interventions will also help support the development of places that feel safe to all users through improvements to active travel routes, including road crossings and lighting, and measures to reduce traffic volumes and/or speeds and campaigns to promote better driver behaviour.

The vast majority of the recommendations are anticipated to result in minor positive effects on safety as these interventions will help improve safety on the transport network by potentially reducing the likelihood of transport-related road accidents and casualties by encouraging a modal shift to more sustainable modes of travel, including the expansion of 20mph zones and limits, a modal shift of freight from road to rail, proposals for freight rest stops and upgrades to existing mobility hubs and public transport facilities. The bus and mass transit recommendations are anticipated to result in uncertain effects on safety as while several of the proposals will support the development of places that feel safe to all users by reducing road traffic, it is unlikely that the other proposals would significantly contribute to safety.

4.2.4. Material Assets

Most of the recommendations are anticipated to result in minor positive effects on the sustainable use of the transport network by promoting or improving the sustainable use of the transport network through planning for future travel arrangements where journeys are made by a number of different modes (including active travel modes), for example, improvements to the ferry network. Some of the interventions proposed also support improvements to transport technology and promote the sustainable use and management of existing infrastructure, including upgrades to or replacement of vessels, and the decarbonisation of the ferry network. The behavioural change and mass transit recommendations are anticipated to result in uncertain effects on the sustainable use of the transport network as there is not a clear link between several of the interventions proposed (for example, expansion of 20mph zones and limits across Scotland) and sustainable use of the transport network. However, one of the mass transit interventions is considered to result in major positive effects on the sustainable usage of the transport network as it involves proposals for bus rapid transit, rail conversion and tram network extension, thereby potentially helping plan for future travel arrangement where journeys are made by a number of different modes and help with planning for the future capacity of public transport.

The fixed link and safety and resilience recommendations are generally anticipated to result in minor negative effects on the SEA's key environmental requirement/ objective to reduce material consumption. This is because they will require the use of natural resources as several of the interventions proposed may require significant quantities of materials and construction related trips. It should also be noted that there is a potential opportunity for road schemes to improve surface conditions, and, alongside advancement in the types of materials used, reduce overall maintenance needs in the longer term, with associated positive effects. In addition, the decarbonisation of the ferry network is anticipated to result in uncertain effects on the use of natural resources and contributions to the circular economy; this is dependent on the methods and technologies adopted. The technology-related recommendations are generally anticipated to result in negligible effects on reducing use of natural resources. The remainder of the recommendations are anticipated to result in uncertain effects on reducing use of natural resources. Depending on the source and type of materials/natural resources used to construct some of the new infrastructure associated with several of the proposed recommendations, there is potential for negative effects on material assets in terms of natural resources usage. However, there is no clear link between other interventions proposed (for example, the expansion of 20mph zones and limits across Scotland) and the reduction in the use of natural resources.

4.2.5. Water Environment

The vast majority of the recommendations are anticipated to result in uncertain effects on the water environment, as there is potential for negative environmental impacts during construction and operation of the various interventions proposed, although this will be dependent on their location and/or design. Overall, the active travel and technology-related recommendations are anticipated to result in neutral effects on the water environment as minimal hard infrastructure is required for most of the interventions proposed. The fixed link recommendations are generally anticipated to result in at least minor negative effects on the water environment as the construction of any new infrastructure could potentially result in direct impacts on the water environment. However, the decarbonisation of the ferry network may result in minor positive effects on the water environment as this

intervention has the potential to protect or improve water quality by replacing older vessels.

4.2.6. Biodiversity, Flora and Fauna

Most of the recommendations are anticipated to result in uncertain effects on biodiversity, as there is potential for negative environmental impacts during construction and operation of the improvements, depending on the location and design of the interventions proposed. The active travel and technology-related recommendations are generally anticipated to result in neutral effects on biodiversity as minimal hard infrastructure is required for most of the interventions proposed. The strategic connections (fixed link) recommendations are generally anticipated to result in at least minor negative effects on biodiversity as the construction of these interventions could result in direct impacts on biodiversity (for example, through pollution or construction noise disturbance), including potential damage to or loss of designated and undesignated wildlife or geological sites. However, the decarbonisation of the ferry network (for example, the use of alternative fuel sources or transition to zero carbon emissions) is anticipated to result in minor positive effects on biodiversity as this intervention could potentially protect or enhance the integrity of existing habitat, and/or protect or enhance the integrity of internationally, nationally or locally designated biological or geological sites.

4.2.7. Soil

The vast majority of the recommendations are generally anticipated to result in uncertain effects on soil, as there is potential for negative environmental impacts during both the construction and operation of the various interventions proposed, although this will be dependent on the location and design of these interventions. The active travel and technology-related recommendations are generally anticipated to result in neutral effects on soil as minimal hard infrastructure is required for the majority of the interventions proposed.

4.2.8. Cultural Heritage

Most of the recommendations are anticipated to result in uncertain effects on cultural heritage as there is potential for a range of effects associated with the various interventions proposed. For example, the fixed link interventions have the potential for at least minor negative effects on designated and undesignated archaeological sites and other culturally and historically important features. These interventions could also affect key views to and from heritage assets. Several of the road interventions proposed could also result in negative environmental effects during both the construction and operation phases; however, the scale of the impacts is uncertain at this stage, particularly for junction improvements, realignment, widening and overtaking opportunities. There is also no clear relationship between the decarbonisation of the bus, rail and ferry networks and the protection or enhancement of cultural heritage. Any redevelopment of railway stations could also potentially lead to negative effects on cultural heritage, including cumulative effects across Scotland. Mitigation measures are listed in Section 6 of this Non-Technical Summary.

4.2.9. Landscape and Visual Amenity

The technology-related recommendations are anticipated to result in neutral effects on landscape and visual amenity as the proposed interventions will require minimal hard infrastructure. The remainder of the recommendations are anticipated to result in uncertain effects on landscape and visual amenity as there is potential for a range of effects associated with the various interventions proposed, depending on the scale, location and

design. However, urban realm improvements, for example, associated with some active travel interventions could lead to (post construction) improvements to the landscape in some locations.

There is also potential for negative environmental effects during both the construction and operation of several of the road interventions proposed. However, the scale of the effects is uncertain at this stage, particularly for junction improvements, realignment, widening and overtaking opportunities.

There is no clear relationship between the decarbonisation of the rail, bus and ferry networks (at this strategic level) and landscape and visual amenity.

4.3. In-Combination Effects

National-level Plans, Programmes or Strategies (PPS) that were most likely to have in-combination cumulative effects with the STPR2 were considered in the SEA.

Many of the STPR2 final recommendations align with PPS related to climate change, low carbon and clean air. The recommendations align with the commitments to reduce greenhouse gases and air pollutants, identifying and reducing sources of air pollution, protect nature and boost the economy. Combined positive effects are predicted for Population and Human Health, Climatic Factors, Air Quality and Water Environment.

Many recommendations align and support Revised Draft NPF4 National Developments through enhancement to provide multifunctional green infrastructure that provides greatest environmental, lifelong physical and mental health, social wellbeing and economic benefits. In particular, the ‘Liveable Places’ National Developments will help to achieve these benefits. Combined positive effects are predicted for Population and Human Health, Climatic Factors, Air Quality and Material Assets.

Combined positive effects are expected for Climatic Factors, Air Quality and Population and Human Health for some STPR2 recommendations relating to Scotland’s Accessible Travel Framework, which provides a national vision and outcomes for accessible travel and the development of rail services which support the implementation of increased infrastructure to improve rail capacity and connectivity. The same combined positive effects are predicted for many of the STPR2 recommendations that align with supporting modal shift from private vehicles to walking, cycling and wheeling for everyday journeys as well as the STPR2 Technology recommendations which support a vision for Scotland as a vibrant, inclusive, open and outward-looking digital nation.

The STPR2 island connectivity recommendations support other PPS that aim to meaningfully improve outcomes for island communities. Positive combined effects are predicted for Population and Human Health and Material Assets.

Many STPR2 recommendations align with the PPS that are committed to ensuring that Scotland’s transport network is able to serve its function in addition to being safe, resilient and in the best condition where combined positive effects are predicted for Population and Human Health.

5. Social and Equality Baseline and Findings

5.1. Introduction

This section identifies the baseline evidence and findings for the social and equality related impact assessments.

5.2. Scotland's Social and Equalities Baseline and Trends

A set of 'Equality' topics and objectives was developed to provide a framework for the assessment of impacts for the EqIA, CRWIA, ICIA and FSDA. Baseline evidence relating to groups covered by these assessments is cross-cutting and as such a summary of the key national-level baseline findings for the assessments is presented under each of the equality topics below.

5.2.1. Population

- Population estimates for Scotland show that 64% of the population are between the age of 16-64, 19% of the population are 65 and over with 17% under the age of 15. Recent data shows an increase in the average age of the population with 65 years and over age bracket growing by an average of 1.82% every year;
- Cities have the highest percentages of young working age adults while the local authorities with the highest percentage (26%) of people 65 and older are Argyll and Bute, Dumfries and Galloway, Na h-Eileanan Siar and South Ayrshire;
- Around 24% of Scotland's population live with a long-term physical or mental health condition that limits their daily life;
- Older people are more likely to use public transport for journeys in comparison to other age groups and there has been a 2% increase in the number of people aged 60+ in possession of a concessionary bus pass between 2009 and 2019;
- The 2011 Census found that most of the population in Scotland was white, with only Glasgow having a white population of less than 90%. Asian, Asian Scottish or Asian British was the second largest ethnicity in Scotland (2.7%), with the largest populations being in Glasgow (8.1%), Edinburgh (5.5%) and East Renfrewshire (5.1%).

5.2.2. Deprivation

- According to the Scottish Index of Multiple Deprivation 2020, the most deprived data zones in Scotland are located around urban areas and their suburbs, with the highest percentage of deprivation in Glasgow City, North Lanarkshire and South Lanarkshire;
- However, areas of high relative deprivation are also found in rural and island communities, though is likely to be more dispersed. Deprivation statistics provide a measure of 'relative deprivation', not affluence. As such, it is recognised that not every person in a deprived area will be deprived and likewise, that there will be some deprived people living in the least deprived areas. In particular, there are likely to be issues relating to transport for those experiencing poverty in less deprived rural areas;
- Of those living in the 10% most deprived areas of Scotland, 48% do not have access to a car and are also more likely to walk or catch the bus to travel to work or school.

5.2.3. Employment

- Transport can act as a key barrier to employment, and most importantly, to better employment (Joseph Rowntree Foundation, 2018). It represents a significant cost particularly to those that carry out low-paid, low-skilled or 'atypical' work that involved irregular shifts or hours (standard public transport services are not usually provided

during anti-social hours and walking/cycling may be unsafe) 'In-work' or working poverty is of particular concern in tackling poverty;

- Research has shown that job seekers from deprived backgrounds are constrained in their job search and find it difficult to attend interviews when they are dependent on inadequate public transport. (Davis *et al*., 2012). This can prevent people from deprived households from finding or keeping a job;
- In 2019, the Scottish Household Survey found that the majority (68%) of employed adults who did not work from home travelled to work by car or van. This percentage increased with annual net household income, rising to 74% of those with incomes greater than £50,000 per annum. For those without access to a car, public transport, walking or cycling are essential in providing access to employment.

5.2.4. Income and Wealth

- It is estimated that 19% of Scotland's population (1.03 million people each year) were living in relative poverty after housing costs in 2017-20 (Scottish Government, 2021). Over the same period 17% of the population (910,000 people) were living in poverty before housing costs (Scottish Government, 2021);
- Having a driving license and access to a car is strongly related to income, with driving license possession increasing with net annual household income. In 2019, 50% of adults in households with incomes less than £10,000 held a license, compared with 91% of households with an income greater than £50,000.

5.2.5. Education and Skills

- For school children, walking is the most common transport mode for travelling to school (51.5%) which contrasts with working age adults who primarily travel to work by car or van. Secondary school children are more likely to take the bus than get driven to school;
- Young people in rural areas are particularly dependent on public transport, especially for accessing education and training. However, the high cost and low availability of public transport in rural areas is a significant challenge for young people and can act as a barrier to their educational choices and overall progress into employment. For many rural young people, having a driving licence and being able to afford a car is essential;
- The ability to access education, employment and training is critical for low income households as a means of escaping poverty. Affordable and accessible transport can allow children from low-income households to access education and recreational opportunities, and allow parents to balance their parenting with their own educational or employment commitments;
- Furthermore, travel costs are also an issue for families with young people pursuing further education. Yearly travel passes are expensive and can diminish considerable portions of most household budgets with nearly one third of respondents to a recent survey (31.4%) stating that they pay more than £12 to travel to school, college, or university each week. (Scottish Youth Parliament, 2019).

5.2.6. Health and Health Inequality

- Transport is a significant contributor to emissions of oxides of nitrogen (NO_x) and particulate matter. In 2018, transport accounted for 54% of NO_x emissions, 16% of particulate matter PM_{10} and 21% of particulate matter $PM_{2.5}$ in Scotland (Transport Scotland, 2021). Long term exposure to elevated levels of such pollutants may contribute to the development of respiratory disease and reduced life expectancy;
- Air pollution disproportionately affects the most vulnerable people in society, including

the young, older people, people with existing medical conditions and people living in deprived urban areas. There is also potential for health inequalities widening in deprived urban areas due to emissions being concentrated in the most heavily trafficked roads, which are used more by disadvantaged people as places where they live, work and shop (Lucas et al, 2019). Furthermore, while it is not always the case that those living in the most deprived areas will experience the worst air quality, those who generate the least air pollution often suffers its effects the most;

- According to the Scottish Health Survey, 26% of children aged 2-15 are at risk of being overweight, including 13% at risk of obesity (Scottish Government, 2018). Public Health Scotland identified access to active travel and transport systems that encourage regular physical activity as an important factor in combating obesity as well as having beneficial impacts on mental health and wellbeing.

5.2.7. Transport Accessibility and Connectivity

- Accessibility issues are more likely to affect older people than other age groups with some older people having limited mobility, hearing or vision impairments, difficulties in understanding information or accessing digital resources and difficulties in alighting to and from transport services, using station facilities or standing for long periods of time. These factors may affect the ability to safely access and use public transport services;
- Accessible transport is an important aspect of enabling disabled people to enjoy equal access to full citizenship. Disabled adults are more likely to use the bus than non-disabled adults (11% of journeys vs 7%). In 2019, 44% of sick or disabled adults had used a bus in the last month compared to 39% of all adults. However, they were less likely to use a train;
- There are a range of accessibility issues that may affect a disabled person's ability to safely access and use public transport services. These include steps or multi layered stations, inaccessible transport information, lack of trained support staff and lack of accessible connectivity between modes;
- Cycling rates amongst disabled people are lower than those who are not disabled even though 65% of disabled cyclists use their cycle as a mobility aid. However, disabled cyclists cite inaccessible cycle infrastructure, cost of non-standard cycles and the inability to cycle in places where a mobility scooter would be allowed as the biggest barriers to cycling (Wheels for Wellbeing, 2020).

5.2.8. Safety and Security

- Safety is a key issue for children with regards to transport. There were 331 child pedestrian casualties recorded in Scotland in 2019, accounting for 44% of all pedestrian casualties. In particular children from deprived areas and certain ethnic groups are more at risk;
- People living in deprived areas tend to live in more hazardous environments, with greater proximity to high volumes of fast-moving traffic and high levels of on-street parking and, as such, they have higher levels of exposure to road traffic risk. There is strong relationship between deprivation and pedestrian casualties;
- Transgender identity, sexual orientation, sex, age, disability, race and religion are specific characteristic groups covered by the hate crime legislation. For many within these groups, concerns about discrimination and harassment are part of their day to day lives, and could affect their use of the transport network

5.2.9. Children and Young People

- The key factors affecting the ability of children and young people to access transport

options are their socio-economic background, geographical location and the accessibility and safety of public transport and active travel facilities available. The ability to access safe, convenient and cost-effective transport in turn has an impact on access to education, public services and economic opportunities, particularly for children from deprived socio-economic backgrounds;

- Young people in rural areas and island communities are more dependent on public transport, particularly for accessing education and training. However, the high cost and low availability of public transport in these areas is a significant challenge for young people and can act as a barrier to their educational choices and overall progress into employment.

5.2.10. Island Communities

- The Islands (Scotland) Act 2018 defines an island community as a community of two or more people, all of whom live permanently on the island with a common interest in the identity of that island;
- There are almost 100 populated islands within Scotland. At the time of the 2011 Census, the total island population was 103,700 which is 2% of the population of Scotland. The population of the islands increased by 4% between 2001 and 2011, more than reversing the 3 per cent decrease recorded between the 1991 and 2001 Census;
- Population decline is a real threat to the sustainability of many, although not all, of Scotland's island communities. Over the last 10 years, almost twice as many islands have lost populations as have gained;
- Respondents to the National Islands Plan Survey (2020) have stressed that island communities face many different transport challenges when carrying out their daily lives compared to those living in less rural areas of the mainland and urban areas;
- For example, the cost of transport on islands is much higher, relative to income, than in the rest of Scotland. Public transport services in rural areas often involve long journeys, sparse bus timetables and expensive tickets, in comparison to urban areas. In addition, integrated ticketing is not always available, meaning that multiple tickets are required, further adding to price and complexity. Owning a car is therefore seen as a solution; however, for low-income families, car ownership may be pushing them into poverty due to maintenance costs and higher fuel prices (SRUC, 2014).

5.3. What are the likely significant equalities effects of the STPR2?

This section sets out summarises the key findings for each of the different impact assessments.

5.3.1. Equality Impact Assessment

Improving active travel infrastructure

- Improving active travel infrastructure could potentially have a positive impact on groups with protected characteristics with regards to improving access to key services such as education, healthcare, employment, shopping and recreational activities as well as connecting towns and villages through an active travel network. Many groups with protected characteristics such as children, young people, women, ethnic minority groups and older people are less likely to have access to a car and more likely to depend on walking, cycling and wheeling to make their journeys. Therefore, the increased provision of high quality active travel infrastructure and networks could benefit these groups through increased access to destinations and an improvement in

sustainable travel facilities;

- Increased uptake of active travel could improve health outcomes through physical fitness and is also lead to air quality improvements if the uptake is matched by a reduction in private vehicle use and traffic congestion. Further traffic reduction measures outside of schools and behaviour change campaigns would likely lead to further localised air quality improvements. Improved health outcomes as a result of better air quality are of particular positive impact on those who are more vulnerable to air pollution, including children, older people, disabled people and pregnant women.
- Active travel infrastructure interventions would also be designed to accommodate; adapted cycles and, as such, address mobility issues experienced by groups such as disabled people and older people. Segregated infrastructure will also benefit people who are more likely to lack confidence or are underrepresented amongst cyclists such as women. However, the effects of reallocation on road space on other road users could have potential minor negative effects on certain groups such disabled people who rely on parking spaces close to essential services.

Influencing travel choices and behaviours

- The expansion of 20 mph zones would increase road safety through new infrastructure, a reduction in traffic speed and congestion and the creation of 'School Streets'. This would have a positive impact on those who are more likely to use active travel modes and especially for children who account for 44% of all pedestrian casualties. In particular children, from deprived areas and certain ethnic groups are more at risk. 20 mph zones could also result in reductions in noise and vibration and potential improvements as a result of traffic travelling at slower speeds and reductions in fuel consumption. This is likely to have positive impacts on those who are more vulnerable to the adverse effects of traffic related noise including children, older people and disabled people;
- Behaviour change initiatives and activities would focus on promoting inclusive transport choices. This includes providing information and promoting the use of active travel modes and public transport, as well as reducing some of the cost-related barriers associated with sustainable travel. However, the extent to which groups with protected characteristics can benefit from behaviour change initiatives will depend on which audiences are reached through initiatives, and through provision of ongoing support to enable groups to continue to use sustainable travel in the long term;
- Improving access to bikes for all could improve opportunity to access key services for a wide range of groups. This includes access to employment, education, health facilities and other transport services which are important to many groups with protected characteristics. Increased equality of opportunity could arise for those with mobility issues (including disabled people and older people) through the increased provision of e-bikes, specialist and adapted cycles for specific groups with mobility issues. However, the extent to which groups with protected characteristics will benefit from increased access to bikes will depend on the location of initiatives including, under this recommendation for example, bike libraries and bike storage facilities (in regard to both community access and proximity of cycle networks and required services), the ease of accessing subsidies and their promotion, and the uptake of social prescribing by healthcare professionals.

Enhancing access to affordable public transport

- Mass transit and bus interventions could potentially have a positive impact on groups

with protected characteristics with regards to improving access to key services such as education, healthcare, employment, shopping and recreational activities as well as connecting towns and villages through an active travel network;

- An increased uptake of public transport could improve health outcomes through air quality improvements if the uptake is matched by a reduction in private vehicle use and traffic congestion;
- Many public transport interventions include improvements to existing infrastructure and services which will result in a more accessible transport network. For example, improved public transport infrastructure at stations, regional hubs, interchanges and other facilities as well as new accessible mass transit and ferry vessels. All travellers with protected characteristics would benefit from improved facilities, but there would be a specific major positive impact for those with reduced mobility including disabled people, older people, pregnant women, and people travelling with young children;
- Investment in Demand Responsive Transport (DRT) and Mobility as a Service (MaaS) could have a positive impact on those with reduced mobility including older people, disabled people, pregnant women and people with small children by improving public transport connectivity and reducing the distance needed to be travelled in order to use a service;
- The impact of rail enhancements on protected characteristics groups will vary depending on the location of the enhancements and the extent to which they are complemented by other measures. For example, the development of local corridor enhancements could provide significant benefits for inclusive accessibility and public health along the alignment of the rural lines on the Highland mainline. Enhanced rail corridors can improve community accessibility through increased frequency and/or reduced journey times. This includes for groups with protected characteristics, especially if new stations are located in areas with the greatest need. Rail corridor enhancements can complement and other transport interventions as part of an inclusive transport network.

Decarbonising transport

- Decarbonisation of bus, rail, ferry travel and the transition to zero emission infrastructure could also have potential positive impacts on groups who are more vulnerable to the adverse health impacts of transport-related emissions and air pollution. However, the benefits of decarbonisation of transport services are likely to be dispersed and local to key transport routes, station, stops and ferry ports. As such, the extent to which these benefits will be realised will depend on the interventions being located within areas of the highest levels of air pollution and with high proportion of more vulnerable groups.

Increasing safety and resilience on the strategic transport network

- Realignment / widening, and provision of overtaking opportunities could improve access to employment, educational, health, and open space and leisure facilities for those in protected characteristic groups, particularly where trunk roads are located in rural areas. However, this is likely to result in a negligible impact for groups with protected characteristics overall. Furthermore, these options could also potentially result in indirect negative health outcomes for some protected groups as a result of worsened air quality due to an increase in motorised vehicles, for example children, older people, pregnant people, and disabled people are more vulnerable to the adverse health effects of traffic pollution. Detailed assessment work at the local level would be

required to identify any specific impacts on groups with protected characteristics;

- The positive impacts of road safety cameras and localised speed limit reductions on trunk roads are likely to have an overall negligible effect across equality groups. There would potentially be an improved sense of road safety and security for those walking, cycling and wheeling. This would provide some positive effects for protected characteristic groups who are more likely to walk or cycle or are more vulnerable to fear of road danger, including children, young people, women and older people. However, the extent to which positive effects could be realised would depend on the location of the safety cameras and speed limit reductions along with complementary measures implemented to improve safety for these groups;
- Where the trunk road passes through a community, it often creates severance issues, particularly for vulnerable groups who may not have the confidence or ability to cross the trunk road to access local amenities. Measures to address severance would provide safer and more accessible environments for walking, wheeling, and cycling journeys. This in turn would improve access to services such as employment, education, health facilities and other transport services which are important to groups with protected characteristics such as children, women, disabled people and older people;
- The improvement of welfare facilities for hauliers will be developed under an evidenced action plan for freight stops to be planned, managed, and delivered in the future. The development of safer and more inclusive facilities at lorry parking and rest stops could have a positive impact for those employed in the freight industry. In particular, women and other drivers with protected characteristics who are significantly underrepresented in the road haulage industry and could have greater security concerns and needs for certain specific welfare facilities.

Strengthen strategic connections

- Investment in port infrastructure is likely to have a minor positive impact on groups with protected characteristics. Residents of island communities would benefit from improved accessibility at ports, which would benefit older people, disabled people, women (including through pregnancy and maternity) and children. Increased capacity and enhancements for freight would improve the transportation of goods to the island which is of particular benefit to those who have more barriers to travel such as affordability or mobility restrictions such as older people and disabled people;
- Cross border high speed rail (HSR) could increase travel choice, improve connectivity and potential for improved safety on the transport network particularly those who are more reliant on public transport including older people, children, young people, women and people from certain ethnic minority groups. However, the extent to which groups with protected characteristics will directly benefit from HSR will depend on the location of stations, the affordability of HSR fares and ability for certain groups to access the HSR network.

5.3.2. Child Rights and Wellbeing Impact Assessment

Improving active travel infrastructure

- Interventions for active travel and public transport infrastructure can have a positive impact on children and young people with regards to accessing key services such as education, healthcare, employment, shopping and recreational activities. Children and young people are less likely to have access to a car and are more likely to depend on walking, cycling, wheeling or public transport to make their journeys. Therefore, any

improvements to sustainable travel are likely to benefit children and young people through increased access to destinations and an improvement in facilities;
- Improved access to active travel options is also likely to benefit the whole community and so would not only have a positive knock-on effect for access to education, employment and other services for children and young people, but could also benefit children indirectly through, for example, better parent and carer access to employment. This would be particularly beneficial for deprived communities for whom transport costs are a higher proportion of income;
- An increase in active travel amongst children and young people is also likely to lead to improvements in health from increased physical exercise including helping to tackle childhood obesity;
- A reduction in private vehicle use and associated traffic congestion as a result of a modal shift to active travel and public transport use could also reduce transport emissions. This would have a potential positive impact on children who are particularly vulnerable to the adverse health effects of transport related emissions.

Influencing travel choices and behaviours

- Changing behaviours to reduce vehicle speeds, increase active travel uptake and reduce private vehicle use is likely to improve the perceptions of travel safety for those who are more likely to walk and cycle and are also vulnerable to fear of road danger. Measures to improve travel safety in deprived communities could have a particularly beneficial effect for children, as road safety accidents are higher in deprived areas.

Enhancing access to affordable public transport

- Interventions for public transport can have a positive impact on children and young people with regards to accessing key services such as education, healthcare, employment, shopping and recreational activities. Children and young people are less likely to have access to a car and are more likely to depend on public transport to make their journeys. Therefore, any improvements to public transport are likely to benefit children and young people through increased access to destinations and an improvement in facilities.

Decarbonising transport

- Decarbonisation of bus, rail, ferry travel could all have positive impacts on groups who are more vulnerable to the adverse health impacts of transport-related emissions and air pollution. This is especially the case with children who are more vulnerable to ill-effects. However, the benefits of decarbonisation of transport services are likely to be local to key transport routes, stations, bus stops and ferry ports. As such, the extent to which these benefits will be realised will depend on the decarbonised transport interventions being located within areas of the highest levels of air pollution and areas with high proportion of children and young people.

Increasing safety and resilience on the strategic transport network

- Measures such as road safety cameras, localised speed limit reductions on trunk roads, IMS software, roadside ITS infrastructure and an upgraded Scotland National Control Centre could potentially result in an improved sense of road safety and security for children and young people. However, the extent to which positive effects could be realised would depend on, for example, the location of the safety cameras and speed limit reductions along with complementary measures implemented to improve safety.

Strengthen strategic connections

- Strengthening strategic connections is likely to result in negligible connectivity improvements for children and young people. However, it is noted that for some ferry improvements and fixed link interventions, there may be a consequential increase in motorised traffic which could negatively impact the health of children through increased localised pollution;
- On the whole, the STPR2 recommendations are positive for children and young people. However, positive outcomes for children and young people will depend on the quality and location of transport facilities and routes, the success and range of campaigns (such as the uptake of social prescribing by healthcare professionals), and the success of reductions in traffic levels, speed and congestion. This assessment is dependent on final alignments, routes, available links between public transport modes, costs, payment methods and timetabling. The extent to which technology is adopted to encourage an uptake of public transport among children and young people and reduce anxieties, for example regarding payment methods and routes, will also influence the outcomes for children. The design of the public transport options in regard to accessibility considerations will also have an effect on success.

5.3.3. Island Communities Impact Assessment

Improving active travel infrastructure

- Active travel and bus interventions could potentially have a positive impact on island communities with regards to improving affordable access to key services such as education, healthcare, employment, shopping and recreational activities as well as connecting towns and villages through an active travel network. This would be of particular benefit for members of island communities without access to a car. However, the extent to which island communities will benefit will depend on the location and routing of active travel networks, the number of interventions adopted and the ability for those from island communities to access active travel networks including those living in remote locations;
- The effects of enhanced strategic cycle routes around Scotland have the potential through improved access to ferry terminals to improve wider access to the islands;
- Increased uptake of active travel may improve health outcomes through physical fitness and is also likely to lead to air quality improvements if the uptake is matched by a reduction in private vehicle use. Further traffic reduction measures outside of schools and behaviour change campaigns would likely lead to further localised air quality improvements. Improved health outcomes as a result of better air quality are of particular benefit to those who are more vulnerable to air pollution, including children, older people disabled people and pregnant women.

Influencing travel choices and behaviours

- Behaviour change initiatives and activities would focus on promoting inclusive transport choices. This includes providing information and promoting the use of active travel modes and public transport, as well as reducing some of the cost-related barriers associated with sustainable travel. However, the extent to which island communities can benefit from behaviour change initiatives will depend on which audiences are reached through initiatives, and through provision of ongoing support to enable groups to continue to use sustainable travel in the long term.

Enhancing access to affordable public transport

- Bus interventions could potentially have a positive impact on island communities with regards to improving affordable access to key services such as education, healthcare, employment, shopping and recreational activities as well as connecting towns and villages through an active travel network. This would be of particular benefit for members of island communities without access to a car. However, the extent to which island communities will benefit will depend on the location and routing of active travel networks, the number of interventions adopted and the ability for those from island communities to access active travel networks including those living in remote locations;
- Investment in DRT and MaaS could have a significant positive impact on island communities due to the flexibility of public transport services provided within each island;
- New mass transit, metro, integrated ticketing and bus priority options will not directly or indirectly impact island communities. However, there could be minor positive effects for those from island communities who travel to the mainland for key services;
- The rail enhancement options on the Edinburgh/Glasgow – Perth and Perth-Dundee-Aberdeen lines will not directly or indirectly impact island communities. However, while the Highland Mainline rail enhancement is also not directly applicable to islands, the Far North Kyle Line and West Highland may be used by tourists as part of journeys to the Hebrides, Orkney and Shetland Islands or by island communities to access destinations on the mainland. Enhancements on this line could increase tourists travelling by sustainable modes to the islands and well as providing improved services for island communities using these rail services on the mainland;
- Aberdeen Rapid Transit would improve both the surface access connectivity and accessibility of Aberdeen Ferry Terminal and Aberdeen Airport with the Aberdeen City Region by public transport. This would be to the benefit of users travelling to/from Orkney and Shetland, and those employed at the port and airport sites. This would be developed through working with Aberdeen Harbour Board and the Aberdeen Airport Authority, in recognition of the importance of efficient surface access to these gateways by a range of travel options. There would be no direct impact on islands; however, Rapid Transit would increase connectivity to/from Aberdeen Ferry Terminal and Aberdeen Airport, providing negligible benefits for users travelling to/from Orkney/Shetland;
- Improved public transport infrastructure at stations, regional hubs, interchanges and other facilities would provide accessibility benefits for all travellers with new facilities being designed to inclusive design standards. Multi-modal interchanges at ports and airports would help to support better connectivity on islands. Passengers travelling to/from/between islands can sometimes face long wait times before the next onward mode of travel, so enhancements to passenger waiting facilities would benefit island communities. This grouping is therefore expected to have a minor positive impact;
- Improving ferries and harbour infrastructure is likely to have a minor positive impact on island communities. Residents of island communities would benefit from improved accessibility at ports and on services. Increased capacity and enhancements for freight would improve the transportation of goods to the island which is of particular benefit to those who have more barriers to travel such as affordability or mobility restrictions or those who live in remote locations.

Decarbonising transport

- Decarbonisation of bus and ferry travel and the transition to zero emission

infrastructure would all have potential positive impacts on island communities by reducing emissions at ferry terminals and to some extent, along bus routes. The installation of charge points at ferry terminals, leading to improved multi-modal integration would have also have a positive impact on island communities. The development of renewable energy systems could also lead to the development/installation of infrastructure that can target the natural renewable assets of the Island Communities;

- The investment into decarbonisation of the ferry network would drive island connectivity improvements across the Clyde and Hebrides Ferry Service (CHFS) and North Isles Ferry Service (NIFS) networks leading to a beneficial impact on island communities. As the STPR2 only focuses on the CHFS and NIFS network, further assessment is required if there is a significant difference with islands predominantly served by local authority or privately run ferries, for example Shetland and Orkney;
- Further benefits may be realised through the procurement of new vessels and infrastructure which would potentially be designed to improve accessibility standards than currently. This would be of benefit to those with accessibility limitations including older people, disabled people and pregnant women or travellers with pushchairs or young children.

Increasing safety and resilience on the strategic transport network

- Measures to increase safety and resilience on the strategic road network will not directly island communities. However, increased safety, reliability and resilience of the trunk road network could provide access to and from the ferry connections on both the mainland and islands. The network also provides access to airports which operate lifeline services between the mainland and Scottish islands;
- Realignment / widening, overtaking opportunities and dualling could improve access to employment, educational, health, and open space and leisure facilities for those in protected characteristic groups, particularly where trunk roads are located in rural areas However, this is likely to result in a negligible impact for groups with protected characteristics overall. Furthermore, these options could also potentially result in indirect adverse health outcomes for some protected groups as a result of worsened air quality due to an increase in motorised vehicles, for example children, older people, pregnant people, and disabled people are more vulnerable to the adverse health effects of traffic pollution. Again, detailed assessment work at the local level would be required to identify any specific impacts on groups with protected characteristics.

Strengthen strategic connections

- The implementation of fixed links between islands and the mainland will increase connectivity and access to services as well as potentially supporting job growth on the islands. This would have a significant positive impact in both Low and High scenarios by improving connectivity and accessibility and reducing reliance on the CHFS network;
- Island communities experience reduced access to goods and services, and higher living and fuel costs, which can impact on the budgets of low-income households. The STPR2 will potentially reduce inequalities of outcome by investing in ferries and ports and therefore enhancing passenger and freight connectivity and ensuring the supply of essential goods to deprived communities in remote areas;
- The implementation of fixed links between islands and the mainland will increase connectivity and access to services as well as potentially supporting job growth on the

islands. This enables residents of island communities to have more equitable and fairer access to opportunities and facilities and as such reduce the socio-economic disadvantages that are a consequence of living on islands (and remote communities, in the case of Ardnamurchan / Morvern) compared to the Scottish mainland, or in urban areas for example;
- The reconfiguration of ferry services following the installation of Fixed Links may also support other island communities who will not benefit directly from Fixed Links but from increased or improved ferry connectivity;
- However, interventions for fixed links and new ferry vessels and infrastructure could result in localised increases in traffic emissions along certain routes and at key ferry terminals and ports resulting in potential negative air quality impacts for some island communities.

5.3.4. Fairer Scotland Duty Assessment

Improving active travel infrastructure

- Active travel infrastructure and interventions could potentially have a positive impact on socio-economically disadvantaged groups with regards to improving access to key services such as education, healthcare, employment, shopping and recreational activities as well as connecting towns and villages through an active travel network. Interventions could target many urban and suburban communities across Scotland, including deprived communities, and could have a positive impact on those with no access to a private vehicle or those who may benefit from more affordable travel options;
- Increased uptake of active travel could reduce health inequalities and improve physical health and mental wellbeing outcomes. It is also likely to lead to air quality improvements if the uptake is matched by a reduction in private vehicle use and traffic congestion. The extent to which improved health outcomes as a result of better air quality will be realised amongst socio-economically disadvantaged groups will depend on the how connected interventions are to deprived areas and areas experiencing existing high levels of air pollution.

Influencing travel choices and behaviours

- Behaviour change initiatives and activities would focus on promoting inclusive transport choices. This includes providing information and promoting the use of active travel modes and public transport, as well as reducing some of the cost-related barriers associated with sustainable travel. Greater knowledge of the transport network and financial incentives/discounts can help people find cheaper alternatives to private car travel resulting in more affordable access to essential services such employment, education, healthcare and leisure facilities. Therefore such interventions could provide positive impacts for socio-economically disadvantaged groups, who experience cost barriers to transport;
- There would also potentially be an improved sense of road safety and security for those walking, cycling and wheeling. This would provide some positive effects for those from deprived areas who are more likely to walk or cycle or are more vulnerable to pedestrian casualties. The implementation of 20mph schemes could also help to reduce road safety concerns. This helps to reduce inequalities of outcome associated with poor physical and mental health and life chances by reducing road danger, traffic emissions and noise and increasing active travel opportunities;
- However, the extent to which active travel and behaviour change interventions will

reduce inequalities of outcome will depend on the extent that the interventions listed are adopted, the location and routing of the network, its proximity to local services, the ability for those from deprived and disadvantaged communities to access the active travel network and initiatives, and through provision of ongoing support to enable groups to continue to use sustainable travel in the long term.

Enhancing access to affordable public transport

- People from lower-income households are more likely to use bus to travel to work or make other journeys and less likely to have access to a car. Therefore, interventions that improve bus reliability and journey times such as strategic bus priority will potentially improve access to key services for those who are more dependent on bus travel and result in a positive impact;
- Investment in DRT and Maas could potentially provide a major positive impact in tackling inequality, with improved public transport, bus connectivity supporting reduced social isolation and improved health and wellbeing;
- New mass transit, metro and rapid transit options are likely to have a positive impact on groups who rely on public transport by increasing options for travel to key destinations;
- The impact of rail enhancements on socio-economically disadvantaged groups will vary depending on the location of the enhancements and the extent to which they are complemented by other measures. For example, the development of local corridor enhancements could provide significant benefits for inclusive accessibility and public health along the alignment of the rural lines on the Highland mainline. Improvements to the rail network within the Central Belt and on cross-border routes could provide benefits for inclusive accessibility through improved journey times and more capacity for people living in some of the most deprived areas in Scotland, particularly in Glasgow City, North Lanarkshire and West Lothian.

Decarbonising transport

- Air pollution disproportionately affects people living in deprived urban areas and as such the decarbonisation of bus, rail, ferry services and the transition to zero emission infrastructure could have potential positive impacts on groups who are more vulnerable to the adverse health impacts of transport-related emissions and air pollution;
- However, the benefits of decarbonisation of transport services are likely to be dispersed and local to key transport routes, station, stops and ferry ports. As such, the extent to which these benefits will be realised will depend on the decarbonised transport interventions being located within areas of the highest levels of air pollution and areas with high levels of deprivation

Increasing safety and resilience on the strategic transport network

- Interventions to increase safety and resilience on the strategic road network would have negligible impacts on socio-economically disadvantaged groups overall. However, there are potential positive benefits that may be experienced at the local level. For example, evidence shows that people from deprived neighbourhoods are more likely to be injured or killed as road users. Therefore, improved safety enhancements including road safety cameras and localised speed limit reductions on trunk roads could benefit those from deprived areas. However, it is acknowledged that wider factors affect road casualty rates and that more detailed assessment work is required to understand the safety benefits associated with individual schemes and how this might impact on people from deprived areas;

- Installation of roadside ITS infrastructure could improve public transport journey times and reliability, and accessibility to travel information. This would potentially provide minor positive impacts for low income groups who are more reliant on bus travel for work journeys;
- Where the trunk road passes through a community, it often creates severance issues, particularly for vulnerable groups who may not have the confidence or ability to cross the trunk road to access local amenities. Evidence demonstrates that addressing severance issues around timing and attitudinal barriers, such as improved lighting to enhance real and perceived safety during the evening, and around omission barriers, such as wider pavements to address mobility barriers, would provide safe and accessible environments for walking, wheeling, and cycling journeys. This in turn would improve access to services such as employment, education, health facilities and other transport services which are important to socio-economically disadvantaged groups;
- The improvement of welfare facilities for hauliers will be developed under an evidenced action plan for freight stops to be planned, managed, and delivered in the future. Although there is no direct benefit to the wider community, the development of safer and more inclusive facilities at lorry parking and rest stops could have a positive impact for those employed in the freight industry who are likely to be on low incomes and socio-economically disadvantaged.

Strengthen strategic connections

- By encouraging modal shift from private car to rail and freight mode shift from HGVs to rail, rail interventions could contribute to improving local air quality. This could result in reduced inequalities of health outcomes caused by poor air quality in areas ranking highest in terms of health deprivation. However, as the air quality improvements are likely to be dispersed over a wider area the benefits on the most deprived areas are likely to be negligible overall;
- Cross border high speed rail (HSR) could increase travel choice, improved connectivity and potential for improved safety on the transport network particularly those who are more reliant on public transport. However, the extent to which socio-economically disadvantaged groups with protected characteristics will directly benefit from HSR will depend on the location of stations, the affordability of HSR fares and ease of access to the HSR network;
- HSR also provides indirect benefits, for example, rail freight, regional and local passenger services will be able to utilise the additional capacity freed up on the existing network by moving long distance passenger services to the new HSR lines. This could create benefits for socio-economically disadvantaged groups using local services to access employment, education, healthcare and shopping locally;
- By encouraging modal shift from private car to rail, HSR could contribute to improving air quality. Improved health outcomes as a result of better air quality are of particular benefit to those deprived areas who are more vulnerable to air pollution. However, the effects from HSR alone are likely to be dispersed and therefore negligible to those living in deprived areas;
- Increased sustainable access to Grangemouth Investment Zone would consist of improved active travel and bus connections from neighbouring towns and stations, along with enhanced freight interventions. Therefore, this intervention could potentially have a positive impact on these groups by removing transport barriers to existing and new employment in the Grangemouth area.

6. Mitigation and Enhancement Recommendations

6.1. SEA

The environmental assessment aims to prevent, reduce or offset any significant adverse effects as far as possible before mitigation measures are proposed. In addition to preventing or minimising adverse effects, mitigation measures have also been provided for SEA topics where many uncertain effects were predicted in the assessment.

Mitigation recommendations have been made for each of the SEA topics listed in Section 4 of this Non-technical Summary and are presented Section 9 of the Environmental Report. Due to the climate emergency and the requirement to meet Scottish climate change targets, particular emphasis was placed on climate change recommendations.

In addition to mitigation measures, recommendations for the STPR2 enhancement opportunities have been provided wherever possible.

The mitigation measures and enhancement opportunities consider:

- The environmental baseline data;
- The environmental requirements emerging from the PPS review;
- The SEA Objectives and Assessment Guide questions;
- Feedback received from the regional and national workshops, including local context and feasibility;
- Key issues and opportunities identified during the continuing development of the STPR2, the EqIA and other accompanying assessments;
- Feedback from the SEA Consultation Authorities.

Further environmental assessment will be required at the project level. At the STPR2 strategic level, where locations of interventions are sometimes unknown or where design detail is not yet available, many uncertain effects were assessed in the SEA. This applied to most of the SEA topics. Further environmental assessment will therefore enable the clear identification of constraints, opportunities and ecosystem services at the site/ project level, which in turn will allow the development of targeted and detailed mitigation, enhancement and monitoring measures.

6.2. Social and Equality Impact Assessments

Recommendations for mitigation against potential negative impacts and opportunities to advance equality of opportunity and reduce inequalities of outcome have been identified within each of the impact assessments.

However, the extent to which groups covered by the assessments will benefit from the recommendations set out in the STPR2 will depend on the location of interventions, the ability for certain groups to access the transport network and infrastructure and connectivity to the key services that are of most importance to these groups.

Fundamentally, further assessment work will be required at the individual project level to understand the effects on groups with protected characteristics, children and young people, island communities and socio-economically disadvantaged groups. The assessment for the STPR2 has been undertaken at a strategic level with locations of interventions sometimes unknown or detailed design not yet available. Further assessment work will therefore enable the clear identification of communities affected and therefore

more detailed assessment of the impacts and opportunities and allow the development of targeted and detailed mitigation, enhancement and monitoring measures.

7. Monitoring

7.1. Environmental Monitoring

Section 19 of the 2005 Environmental Assessment (Scotland) Act requires the Responsible Authority, Transport Scotland, to monitor significant environmental impacts arising as a result of the implementation of the plan, programme or strategy. The purpose of the monitoring is to identify any unforeseen adverse effects at this early planning stage and to enable appropriate remedial action to be taken.

There are a wide range of existing monitoring programmes in place at the national and local level to monitor environmental status and assess performance against established environmental indicators, many of which are relevant to the STPR2. These existing monitoring programmes are listed by SEA topic below. The full references to these programmes can be found in the main Environmental Report.

Climatic Factors: Greenhouse Gas Emissions

- Scottish greenhouse gas emissions data are collected as part of the Scottish Government statistics series and includes information on international aviation and shipping. The Annual Compendium of Scottish Energy Statistics reports on energy consumption from transport. The collation and collection of data on greenhouse gas emissions is also considered in various plans, including the Climate Change Plan and Carbon Account for Transport.

Climatic Factors: Climate Adaptation

- Scotland's Second Climate Change Adaptation Programme.

Air Quality

- Monitoring and reporting of air quality currently takes place at 98 monitoring sites throughout Scotland and in some instances, includes real time monitoring data. Air pollution levels across Scotland are updated hourly;
- The Air Pollution Information System (APIS) monitors air pollution trends in the UK (including deposition values of sulphur and nitrogen, and concentration levels for ammonia (NH_3), sulphur dioxide (SO_2) and nitrogen oxide (NOx), and their effects on habitats and species;
- Key performance indicators aligned to Cleaner Air for Scotland: The Road to a Healthier Future are also monitored.

Population and Human Health

- Key sources of transport-related noise are reported via local authority environmental noise mapping and Marine Scotland collects data on the impacts of marine noise, including the construction of infrastructure and the operation of infrastructure and boats. Noise monitoring is also relevant to the Biodiversity SEA Topic;
- Road safety is monitored by Transport Scotland;
- Transport Scotland also publishes annual statistics on participation in active travel;
- National and regional data on income, employment, education, health, access to

services, crime and housing is reported via the Scottish Index of Multiple Deprivation (SIMD) tool every four years.

Material Assets: Sustainable Use of the Transport Network

- Monitoring of transport trend data in Scotland is undertaken by Transport Scotland

Material Assets: Natural Resources

- Proportions of recycled or secondary aggregates used in the construction of transport infrastructure is monitored by Transport Scotland;
- Natural resources are also monitored through Scotland's Natural Capital Index, which monitors a variety of habitat types in terms of their ecosystem services potential

Water Environment

- The water environment is monitored through a combination of surveillance, operational and investigative monitoring as set out in SEPA's WFD Aquatic Monitoring Strategy. SEPA's monitoring responsibilities also include nitrates and protected areas, the results of which are maintained in a register of protected areas;
- To monitor surface water flooding and coastal erosion, Flood Risk Management Strategies are available for each of the 14 Local Plan Districts in Scotland. Local Flood Risk Management Plans have also been developed in parallel with the Flood Risk Management Strategies, and projects such as Dynamic Coast have been developed to assess coastal change and identify assets at risk.

Biodiversity

- Biodiversity reporting is undertaken both nationally and locally via a number of mechanisms, including via the State of Nature Scotland reports and the requirement for public bodies to report every three years to demonstrate compliance with the biodiversity duty, including reporting on progress towards Scotland's Biodiversity Strategy;
- Biodiversity reporting is also undertaken via channels such as NatureScot's Site Conditioning Monitoring Programme and Site Check Monitoring Method (2018) which are supplemented by the Joint Nature Conservation Committee (JNCC) Seabird Monitoring Programme (2021) and the British Trust for Ornithology (BTO) Wetland Bird Survey;
- Changes in habitat (for example, woodland, grassland or wetland converted into artificial sites) is monitored via the Habitat Map of Scotland (HabMoS), and changes to habitat connectivity can be measured by NatureScot's Ecosystem Health Indicator 8: Connectivity.

Soil

- The Soil Monitoring Action Plan (Soil MAP) collects and displays data on Scotland's soils, including soil erosion, peatland, soil carbon and soil sealing. The Soil MAP Implementation Plan has been developed in conjunction with the Soil MAP and identifies additional monitoring needs for Scotland's soils;
- Scotland's Environment Web also publishes information on ecosystem health indicators, including indicators for soil carbon and soil sealing;
- A number of organisations also collect and publish data and information on soil in Scotland, including The James Hutton Institute, Scotland's Rural College, British Geological Survey, Forestry and Land Scotland, and Scottish Forestry.

Cultural Heritage

- HES monitors Scotland's heritage assets through regular condition assessments and measures such as the HES System for Integrated Geoscience Mapping (SIGMA) and Properties in Care Asset Management System (PiCAMS), as set out in the HES Asset Management Plan.

Landscape and Visual Amenity

- Scotland's Landscape Monitoring Programme is a joint venture between NatureScot and HES which aims to monitor landscape change throughout Scotland. The programme monitors four key landscape indicators: landscape qualities, public perception, land cover, and built development.

The final high-level monitoring framework for the STPR2 will be included in the SEA Post Adoption Statement. This will refer to existing monitoring regimes such as those listed above. It will also ensure the timing of the environmental monitoring coincides with the programme for delivery of specific STPR2 interventions.

7.2. Social and Equalities Monitoring

The Scottish Household Survey is a continuous survey based on a sample of the general population in private residences in Scotland and is run through a consortium led by Ipsos MORI. The survey questionnaire collects data on the use and views of different transport modes through a travel diary as well as information on characteristic of households members including age, gender identity, ethnic groups, religion, income, and disability and health. The information is used to feed into the annual report on Transport and Travel in Scotland including differences in transport use across different social groups.

The Sustrans Hands Up Scotland Survey collects data on how children across Scotland travel to school and nursery. Established in 2008, the survey has provided an insight into journeys to school for more than a decade and is the largest national dataset on school travel.

The above survey scan be used to monitor impacts and views on the groups covered by the social and equality impact assessments in relation to the STIP.

8. Next Steps

An SEA Post Adoption Statement will be required as the final part of the SEA process. This is expected to be in early 2023.

SEA Post Adoption Statements are intended to improve the transparency of decision-making within plan-making and strategic planning for projects such as the STPR2.

The Post Adoption Statement will document:

- how environmental considerations have been integrated into the plan;
- how the SEA findings have been incorporated into the plan;
- how the environment-related feedback from the consultation on the STPR2 and Environmental Report has been incorporated into the plan;
- the reasons for choosing the plan in light of other reasonable alternatives considered by the SEA;
- the measures to be taken to monitor the significant environmental effects of implementing the plan.