



Strategic Environmental Assessment (SEA) for Renfrewshire Council Local Transport Strategy 2025-2035

Environmental Report

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1. Welcome

1.1. Background

AECOM has been commissioned to undertake a Strategic Environmental Assessment (SEA) in support of the Renfrewshire Local Transport Strategy, also known as Travel Renfrewshire 2035, (hereafter referred to as “the LTS”) on behalf of Renfrewshire Council.

SEA is a systematic process for evaluating the environmental consequences of proposed plans, strategies, or programmes to ensure environmental issues are fully integrated and addressed at the earliest appropriate stage of decision making, with a view to promoting sustainable development.

This Environmental Report, which is the main output of the SEA process, accompanies the LTS.

1.2. The Renfrewshire LTS

The former Renfrewshire LTS was published in 2007 and presented a 10-to-20-year vision for transport in the local authority area (shown in **Figure 1-1**). After ten years, an LTS Refresh was published, which provided an update on Renfrewshire Council’s achievements against the actions set out 2007 LTS and set out a broad direction of travel for Renfrewshire for the next ten years.

As the former LTS was coming towards the end of its 10-to-20-year timeframe, the Council has developed a new strategy that will cover the period 2025-2035.

The LTS for Renfrewshire sets the future direction for the Council’s approach to the development and upkeep of the transport infrastructure and policy within the council area. The LTS also sets out how the Council will contribute to the delivery of the obligations set out in the National and Regional Transport Strategies and other key policy drivers. To achieve this, transport policies and actions have been developed, and indicators identified to monitor the progress made on these actions.

A number of key tasks have been undertaken:

- Analysis of data, undertaking a Policy Review and consultation.
- Identification of a Vision Statement, objectives and indicators.
- Generation of options and development of an Action Plan.
- Developing alternative approaches.
- Undertaking a full Strategic Environmental Assessment (SEA) and Integrated Impact Assessment.
- Development of a LTS.

The final LTS sits alongside this report.

Figure 1-1: Plan Area for the Renfrewshire Local Transport Strategy (Source: AECOM)

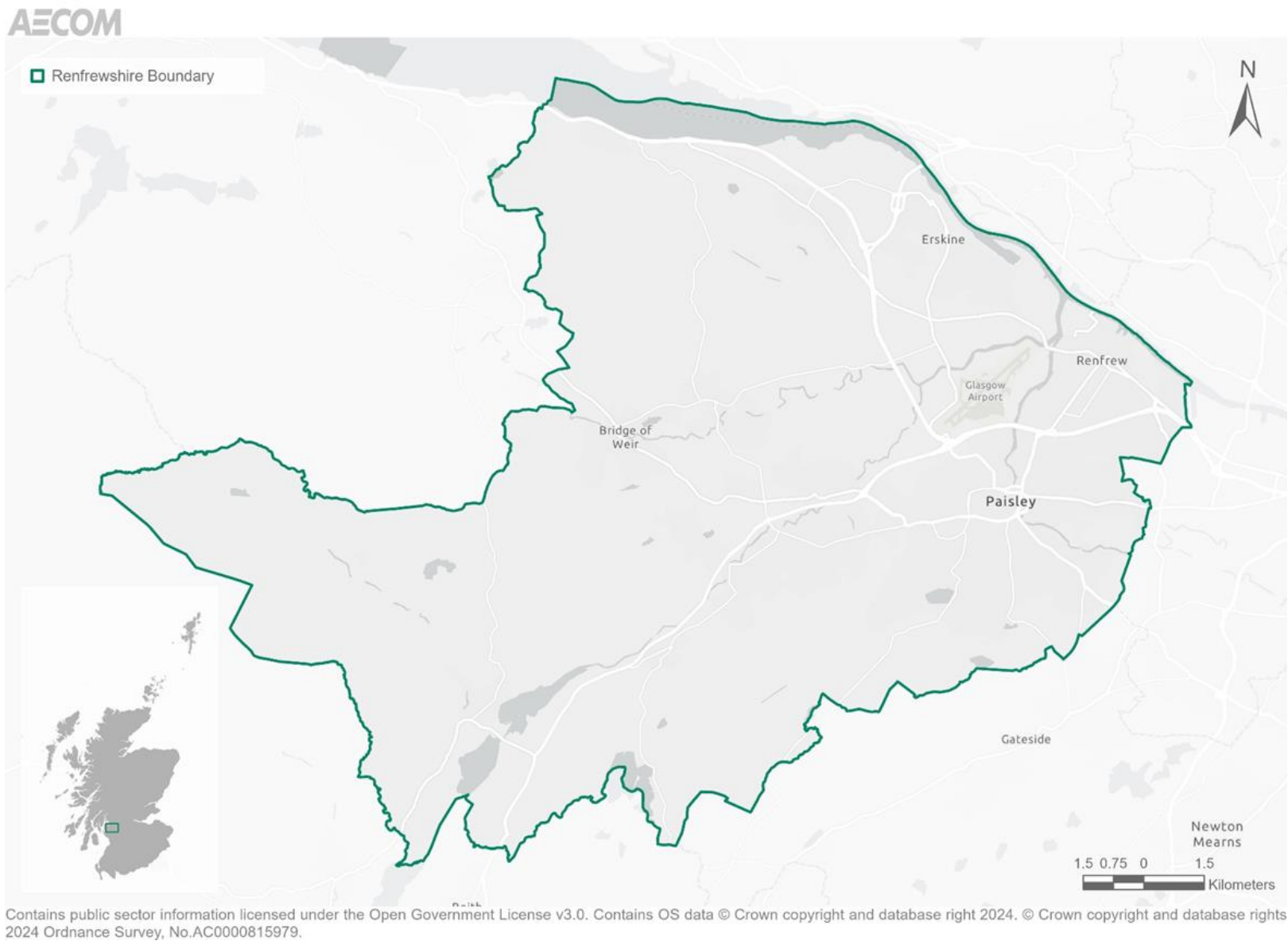


Table 1-1: Key facts relating to the Renfrewshire LTS

Responsible authority	Renfrewshire Council
Title of plan	Renfrewshire Local Transport Strategy
Subject	Transport strategy
Purpose	The Renfrewshire Local Transport Strategy will provide a strategic framework for future transport planning across Renfrewshire.
Timescale	To 2035
Area covered by the plan	The council area of Renfrewshire (Figure 1-1 above).
Summary of content	The Renfrewshire Local Transport Strategy sets strategic transport planning policy for Renfrewshire in the next 10 years. It sets out which transport interventions Renfrewshire Council intends to deliver (depending on available funding and further understanding on feasibility of actions) during the LTS period.

1.3. Vision, Priorities and Objectives for the LTS

The following vision statement details what Renfrewshire Council is aiming to achieve with the LTS:

‘Renfrewshire to be an attractive place to live, work and visit, with walking, wheeling and cycling and public transport opportunities that are inclusive, affordable, integrated and safe to use; and a transport system which supports net zero targets, inclusive economic growth and the health and wellbeing of all.’

The LTS follows five priorities set out in the strategy:

- Equality and Accessibility;
- Net Zero Emissions;
- Inclusive Economic Growth;
- Safety and Security; and

- Resilience and Maintenance.

The LTS captures a range of transport interventions, known as ‘actions’, under the following themes:

- Active Travel.
- Behaviour Change.
- Public Transport and Shared Mobility.
- Road Safety.
- Parking.
- Road Network and Freight.
- Environment.
- Digital Technology.

The following objectives form part of the criteria against which actions will be monitored and evaluated in future years:

- Objective 1: Support fair and equitable access to sustainable modes of transport in Renfrewshire, that is integrated and easy to use for all.
- Objective 2: Support the continued reduction in harmful transport emissions across Renfrewshire.
- Objective 3: Increase the proportion of trips undertaken by walking, wheeling and cycling and public transport for everyday journeys.
- Objective 4: Improve transport connections within Renfrewshire and to neighbouring local authorities to support inclusive economic growth.
- Objective 5: Improve the safety of Renfrewshire's transport network through meeting Scottish Government casualty reduction targets; and
- Objective 6: Provide a secure, resilient and well-maintained transport network that meets the needs of users.

2. SEA Explained

2.1. Introduction

This report has been prepared in accordance with the European Directive 2001/42/EC and section 15 of the Environmental Assessment (Scotland) Act 2005 (hereafter referred to as the “2005 Act”).

The 2005 Act requires all qualifying plans, programmes, and strategies (PPS) to undergo SEA. This provides a systematic process for identifying, reporting, and mitigating the environmental impacts of an emerging PPS.

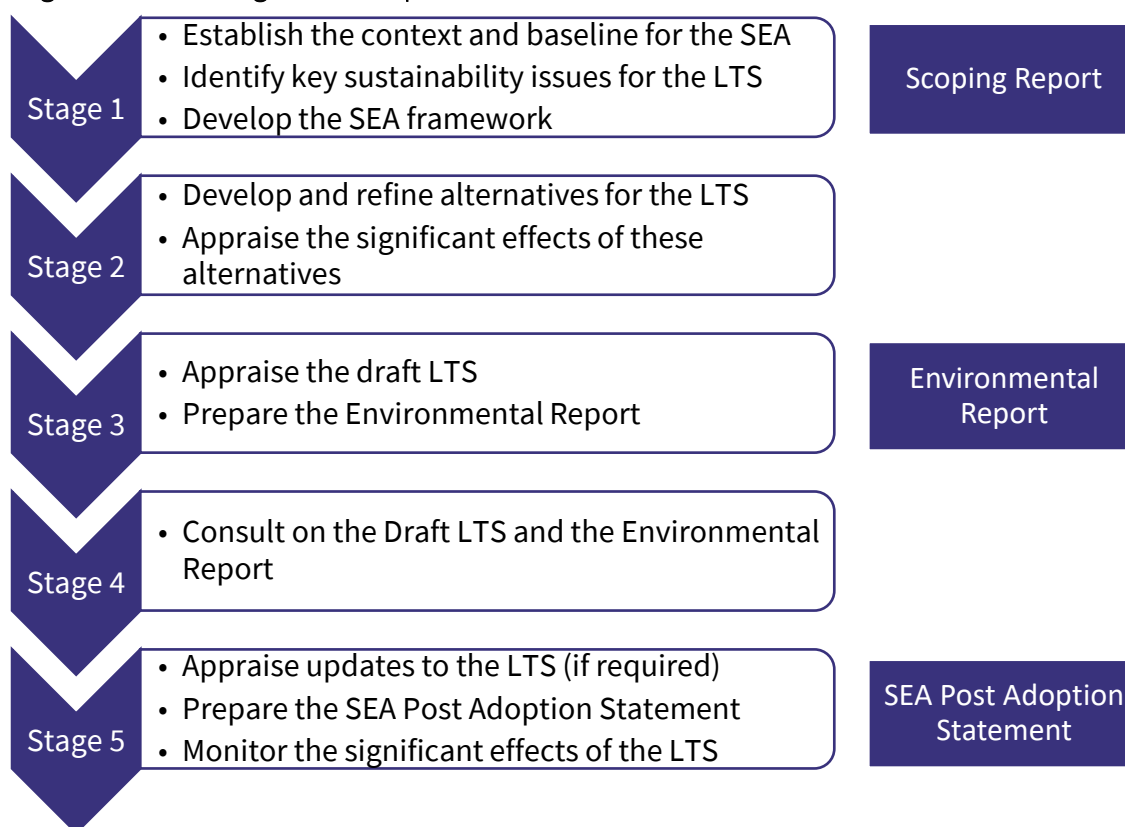
The LTS is a qualifying plan in accordance with Section 5(3) of the 2005 Act, and an SEA is therefore required.

2.2. Key Stages of the SEA

This Environmental Report follows the process required by the SEA Regulations. There is guidance published by government on undertaking SEA, specifically ‘A Practical Guide to the Strategic Environmental Assessment Directive’; the ‘Practical Guide’. This sets out a five-stage process for undertaking SEA. This process, in conjunction with the SEA Regulations, guides this assessment.

The stages and outputs for the SEA are shown in **Figure 2-1**. The Environmental Report comprises Stage 3.

Figure 2-1: The stages and outputs for the SEA



2.3. Purpose of the Environmental Report

In line with the 2005 Act and Transport Scotland's Guidance on Local Transport Strategies, a report (known as the Environmental Report) must be published for consultation alongside the Draft LTS.

Its purpose is to identify, describe and evaluate the likely significant effects on the environment of implementing:

- the LTS; and
- reasonable alternatives for the LTS.

The report and consultation responses must both be considered when finalising the LTS.

The Environmental Report is the second document to be produced as part of the SEA process for the LTS. The first document was the Scoping Report prepared in July 2024 (Renfrewshire Local Transport Strategy Strategic Environmental Assessment: Scoping Report), which included information about the baseline and the 'framework' against which the LTS actions have been assessed.

2.4. Structure of the Environmental Report

2.4.1. SEA Topics

The information in this Environmental Report has been presented through eight SEA topics, which have been informed by the issues/topics in the 2005 Act. These are:

- Air quality and noise pollution
- Biodiversity, flora and fauna, and geodiversity
- Climatic factors
- Cultural heritage
- Landscape
- Material assets
- Population and human health
- Soil and water resources.

2.4.2. Environmental Report Chapters

In line with the provisions of the Environmental Assessment (Scotland) Act 2005, this Environmental Report has been structured as follows:

- **Chapter 3** presents an overview of the scoping process for the SEA (Stage 1 in **Figure 2-1**).
- **Chapter 4** presents an assessment of a number of alternative approaches relating to the broad principles underpinning the LTS. These have been assessed as reasonable alternatives (Stage 2).
- **Chapter 5** presents an assessment of the LTS actions, in terms of their likely significant environmental effects (Stage 3).
- **Chapter 6** presents proposals for monitoring the significant environmental effects of the LTS actions, and opportunities for enhancements (linked to Stage 5).
- **Chapter 7** subsequently sets out the next steps for the LTS and accompanying SEA process.

3. Scope of the SEA

3.1. SEA Scoping Report

The Environmental Assessment (Scotland) Act 2005 requires that: “Before deciding on the scope and level of detail of the information to be included in the environmental report to be prepared in accordance with section 14; the responsible authority shall send to each consultation authority such sufficient details of the qualifying plan or programme as will enable the consultation authority to form a view on those matters”. In Scotland, the consultation bodies are Historic Environment Scotland (HES), the Scottish Environmental Protection Agency (SEPA) and NatureScot.

These authorities were consulted on the scope of the SEA for the LTS actions through the release of an SEA Scoping Report (prepared by AECOM) to consultees in July 2024.

Comments from the consultation bodies were returned in August 2024 and the Scoping Report has been provided in **Appendix A**. The consultee’s comments are presented in **Appendix B**, alongside an overview of how they have been considered and addressed through the ongoing development of the SEA.

3.2. Content of the Scoping Report

Reflecting the requirements of the SEA Regulations, the following information is presented in the Scoping Report for the eight SEA topics:

- **Context review:** This explored the environmental and sustainability ‘context’ for the SEA / LTS through reviewing high level messages (e.g. internationally, from central government and at the regional level) with a view to establishing the focus for the SEA.
- **Baseline data:** This established the baseline situation in the area in the absence of the LTS (including the future baseline) in order to help identify the plan’s likely significant effects.
- **Key issues:** This identified particular problems or opportunities (‘issues’) that should be a focus of the SEA.
- Considering this information, developing an **SEA framework** comprising SEA objectives and assessment questions, which can then be used as a guiding framework for the subsequent assessment.

3.3. Issues / Topics Scoped into the SEA

Scoping identified a range of environmental topics that should be a particular focus of SEA. In this respect, in terms of the SEA ‘issues’ suggested by Schedule 3 of the Environmental Assessment (Scotland) Act 2005, the following were scoped in through the scoping process:

- Air quality and noise pollution
- Biodiversity, flora and fauna, and geodiversity
- Climatic factors
- Cultural heritage
- Landscape
- Material assets
- Population and human health
- Soil and water resources

It is noted that the Environmental Assessment (Scotland) Act 2005 highlights that the Environmental Report should present information on the likely significant effects on the environment, including on issues such as biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including

architectural and archaeological heritage; landscape; and the inter-relationship between these issues.

3.4. SEA Framework

The key environmental issues relating to the LTS actions have been translated into an SEA ‘Framework’ of objectives and assessment questions. The SEA Framework provides a way in which the likely significant environmental effects of the LTS actions and alternatives can be identified and subsequently analysed based on a structured and consistent approach.

As discussed above, the SEA Framework and the assessment findings in this Environmental Report have been streamlined and presented under eight SEA topics. In this respect the accompanying objectives and assessment questions for each topic have been refined as appropriate in recognition of the high-level nature of the LTS actions at this stage.

The SEA Framework is presented in **Table 3-1**.

Table 3-1: SEA Framework

SEA Topic	SEA Objectives
Air Quality and Noise Pollution	Deliver improvements to air quality in Renfrewshire by supporting the use of more sustainable modes of travel, including active travel and public transport. Support the achievement of air quality objectives. Reduce noise from transportation sources.
Biodiversity, Flora and Fauna, and Geodiversity	Conserve and enhance internationally, nationally, and locally designated sites for biodiversity and geodiversity in accordance with their significance and in line with established good practice. Take a strategic, landscape-scale approach, focused on habitat connectivity across the transport network and climate change resilience. Ensure accordance with the mitigation hierarchy (avoid, mitigate, compensate) in order to reduce negative effects of new transport infrastructure on ecological and geological resources.
Climatic Factors	Support climate change mitigation through limiting the contribution of transport to GHG emissions. Support the resilience of the transport network to the potential effects of climate change, including flooding and extreme heat events. Linked to the biodiversity objective, support the restoration of natural processes, and avoid actions that further constrain the natural environment's ability to respond to climate change.

Cultural Heritage	Conserve and enhance Renfrewshire’s historic environment, including both designated and non-designated heritage assets. Protect archaeological assets from impacts as a result of the construction of new transport infrastructure. Consider links to landscape and place-making and promote an understanding of the local heritage resource.
Landscape	Protect and enhance the character, quality and setting of Renfrewshire’s landscape, townscape and villagescape features. Integrate high quality green infrastructure into new transport infrastructure, linking it to the wider landscape. Recognise close links with other objectives, including biodiversity and heritage.
Material Assets	Promote sustainable management and design solutions that encourage the reduction, re-use and recycling of waste and materials during the construction, maintenance, and operational phases of transportation projects and schemes.
Population and Human Health	Improve access to key services, facilities and amenities. Improve access to education, employment and economic opportunities. Improve access to high quality green networks. Promote good health by encouraging active modes of travel (for example, walking and cycling). Improve road safety, including for vulnerable users.

Soil and Water Resources

Promote the efficient use of land, with a focus on avoiding the loss of best and most versatile agricultural land as far as possible.

Minimise the impact the transport network has on water quality and the physical state of water bodies.

4. Assessment of Reasonable Alternatives

4.1. Assessing Reasonable Alternatives in SEA

The assessment of ‘reasonable alternatives’ is a key element of the SEA process to meet the requirements of the 2005 Act.

A central facet of the SEA process to date has been the appraisal of reasonable alternatives for the LTS. The 2005 Act is not prescriptive as to what constitutes a reasonable alternative, stating only that the Environmental Report should “identify, describe and evaluate the likely significant effects on the environment of implementing the plan...and reasonable alternatives to the plan... taking into account the objectives and geographical scope of the plan...”.

In developing reasonable alternatives for the SEA, a central consideration has been with respect to the key choices being made relating to the provisions. In this regard this Environmental Report has assessed a range of options as reasonable alternatives, with a view to exploring the options with particular potential for significant environmental effects. These assessments are designed to inform plan makers and stakeholders on the relative sustainability merits of alternative approaches the LTS actions could take on various elements associated with the proposals.

The SEA process has therefore considered reasonable alternatives through the approach set out above.

4.2. Development of Alternatives to Assess Through the SEA

4.2.1. Development of Options and Themes for the LTS

The process undertaken to develop actions for this LTS included a number of steps.

Subsequent to the identification of problems and opportunities for the LTS, and the development of a Vision Statement, Priorities and Objectives, the next step was to develop a list of options. This was primarily informed by stakeholder engagement and public consultation findings, supplemented by Renfrewshire Council officer input and options identified in existing strategy / policy documents.

The long list of options was then consolidated, and grouped by eight themes, as follows:

- Active Travel
- Behaviour Change
- Public Transport and Shared Mobility
- Road Safety
- Parking
- Road Network and Freight
- Environment
- Digital Technology

A short list of options then underwent a high-level appraisal, and options retained following the appraisal form the basis of the Action Plans in the LTS.

To inform this process, the SEA process has considered a number of different approaches for the eight LTS themes considered. Rather than considering individual options, groupings of options have been considered as reasonable alternatives. This enables the relative environmental merits of different strategic approaches under each theme to be effectively considered, recognising the interplay between the different LTS options being considered.

4.2.2. Alternatives Considered

In light of the above, the SEA has considered a series of reasonable alternatives under the LTS themes, these are listed below. It is noted that Active Travel and Behaviour Change have been combined for the purposes of the assessment of alternatives undertaken through the SEA.

Active Travel and Behaviour Change:

- **Alternative AT/BC-A Do minimum:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes will proceed. It would also limit interventions to: minimum investment in different schemes; maintenance works; and no commitments to larger and/or longer-term scheme funding.

- **Alternative AT/BC-B Infrastructure:** This would deliver infrastructure actions designed to enhance active travel networks across Renfrewshire. This includes for example the delivery of extensions to the cycle path network, additional cycle parking provision, pedestrian network improvements, enhanced lighting and public charging network for electric bikes, potentially linked to mobility hubs.
- **Alternative AT/BC-C Behaviour change:** This would focus on interventions designed to support behaviour change to active travel modes. Actions could include, for example: cycle training; signage and wayfinding strategies; public bike hire schemes; support for parents, carers, schools and employers to encourage behaviour change; the implementation of travel plans and maintenance plans; and monitoring and evaluation frameworks for active travel modes.

Public Transport and Shared Mobility:

- **Alternative PT/ST-A Business as usual:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes will proceed. It would also limit interventions to: minimum investment in different schemes; maintenance works; and no commitments to larger and/or longer-term scheme funding.
- **Alternative PT/ST-B Infrastructure:** This would deliver infrastructure which enhances public transport networks. Actions could include, for example, bus priority lanes, bus priority at junctions, support development of Clyde Metro, and bus stop improvements.
- **Alternative PT/ST-C Integration, Affordability and Accessibility:** This alternative would seek to improve integration between public transport modes and with other modes of transport, and to improve accessibility. It would also seek to enhance the affordability of public transport. Actions would include for example the enhancement of facilities and accessibility at transport hubs; improvements in integrated ticketing; removal of physical accessibility barriers for public transport modes (including at stations); and implementation of Community Bus Hubs.

- **Alternative PT/ST-D Bus network, Community and Demand Responsive Transport, and Car Club Schemes:** This alternative would seek to enhance bus services across Renfrewshire and facilitate improvements to Community and Demand Responsive Transport. Actions captured under this alternative would include those such as working with partners to increase the frequency and improve reliability of bus services across Renfrewshire (including rural areas); supporting development of new bus links; and supporting SPT to establish local bus franchising. It would also include supporting provision of existing and new Community Transport and Demand Responsive Transport schemes and car club schemes.

Road Safety:

- **Alternative RS-A Business as usual:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes will proceed. It would also limit interventions to: minimum investment in different schemes; maintenance works; and no commitments to larger and/or longer-term scheme funding. It would also seek to continue working towards the Scottish Government's casualty reduction targets.
- **Alternative RS-B Infrastructure:** This would deliver physical schemes to improve road safety. Actions would include for example the implementation of 20 mph zones, traffic calming measures on local roads and measures to reduce congestion outside of schools.
- **Alternative RS-C Enforcement and partnerships:** This would focus on the enforcement of measures which support road safety. Actions include for example schemes such as the introduction of 20 mph speed limits on urban residential streets, increased enforcement of speed limits and road safety measures and improved collaborations with schools to support road safety.

Parking:

- **Alternative P-A Business as usual:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes will proceed. It would also limit interventions to: minimum investment in different schemes; maintenance works; and no commitments to larger and/or longer-term scheme funding.

- **Alternative P-B Park and ride / mobility hub provision:** This would facilitate the expansion of Park and ride / mobility hub provision in Renfrewshire.
- **Alternative P-C Comprehensive parking management:** This would improve parking provision for groups with specific needs (including people with disabilities and those with access to an electric vehicle), enforce pavement parking regulations, and investigate the potential for workplace parking licenses and / or local road user charges in Renfrewshire.

Road Network and Freight:

- **Alternative RN-A Business as usual:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes will proceed. It would also limit interventions to: minimum investment in different schemes; maintenance works; and no commitments to larger and/or longer-term scheme funding.
- **Alternative RN-B Improved operation of the road network:** This alternative would seek to deliver enhancements to the operation of the road network without the delivery of significant new physical infrastructure.
- **Alternative RN-C Efficient freight network:** This alternative would seek to support and facilitate innovation and best practice in Renfrewshire's freight transport network. This alternative would also seek to make rail a more attractive option as an alternative to road for freight transport.
- **Alternative RN-D Economic development/economic growth:** This alternative would seek to facilitate significant new physical road infrastructure, with a view to supporting economic development and growth. Schemes would include new road links, junction capacity upgrades and enhancements to existing road corridors.

Environment:

- **Alternative ENV-A Business as usual:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes will proceed. This would rely on existing national and local initiatives for climate change mitigation and adaptation.

- **Alternative ENV-B Initiate climate change mitigation and adaptation measures:** This would take a twofold approach to supporting climate change mitigation and adaptation through Renfrewshire’s transport network. In terms of mitigation, it would seek to decarbonise Renfrewshire Council’s vehicle fleet. In terms of adaptation, it would seek to implement climate change adaptation and resilience measures to strengthen and protect the transport network from weather related events.

Digital Technology:

- **Alternative DT-A Business as usual:** This would comprise a do minimum alternative, which would assume that committed plans, developments and schemes relating to digital infrastructure will continue.
- **Alternative DT-B Digital technology innovations:** This would seek to deliver a range of digital technology innovations to support the transport network in Renfrewshire. This would include initiatives such as consideration of an integrated journey planning app, Real Time Passenger Information at bus stops and an expansion of the Urban Traffic Control network across the strategy area. The alternative would also seek to work with partners to add connections to the existing fibre network in Renfrewshire to continue to improve digital connectivity.

4.3. Assessment Findings

Table 4-1 through to Table 4-7 present assessment findings in relation to the LTS themes introduced above. These are organised by the eight SEA topics.

For each SEA topic, a commentary on the likely effects is presented. Options are also ranked numerically reflecting their relative sustainability performance, with ‘1’ the most favourable ranking.

It is noted that where the relative performance of the Alternatives is uncertain - such as when the ranking depends on specific details that are not yet defined - this is indicated with a ‘?’ in the ‘Rank of Preference’ column.

Table 4-1: Appraisal of Reasonable Alternatives – Active Travel & Behaviour Change

SEA Topic	Discussion of Potential Effects and Relative Merits of Options Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change	Rank of Preference		
		A	B	C
Air Quality and Noise Pollution	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality. Alternative AT/BC-B has the potential for significant positive effects on air quality and noise pollution. By enhancing and expanding active travel networks, this Alternative could reduce reliance on private vehicles, leading to lower local emissions and noise levels. Positive effects would be compounded if specific interventions were delivered in and around particularly sensitive areas in Renfrewshire. Alternative AT/BC-C also has the potential for positive effects on air quality and noise pollution by encouraging more people to use active travel modes. However, the realisation of these effects might be slower and less pronounced than infrastructure changes, as this Alternative relies on changing public behaviour over time and its area of influence is limited to the locations within Renfrewshire best placed to support modal shift, including locations with good existing public transport and active travel networks.	3	1	2

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change			
Biodiversity, Flora and Fauna, and Geodiversity	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative AT/BC-B has the potential for direct adverse effects in relation to this SEA topic due to the potential of habitat fragmentation, if not carefully planned. Construction activities may also lead to temporary adverse effects through the disturbance of local fauna and flora, and road kills. However, adverse effects can be limited if interventions avoid Renfrewshire's sensitive ecological/geological locations and mitigated by following best practice construction techniques. This Alternative also has the potential to also have beneficial effects, if enhancement measures are delivered alongside the infrastructure improvements. For example, extensions of active travel network can enhance local biodiversity through the delivery of green corridors and environmentally designs. Alternative AT/BC-C is likely to perform most favourably for biodiversity, flora, fauna, and geodiversity as it focuses on promoting active travel without the need for new infrastructure development, thereby avoiding potential disturbances to habitats. By encouraging behaviour changes, this Alternative can limit disturbance on habitats and species and support conservation efforts. Although not an adverse effect, this Alternative precludes opportunities for positive effects for biodiversity through the delivery of new infrastructure.	3	2	1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change	Rank of Preference		
		A	B	C
Climatic Factors	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. This Alternative would do less to address Renfrewshire Council's Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030. Alternative AT/BC-B supports reductions in greenhouse gas emissions through improved active travel infrastructure. By improving and expanding the existing active travel network, this will likely lead to more walking and cycling journeys in Renfrewshire, which will help the council area meet its climate targets at a faster rate. This Alternative has the potential to adversely impact local resilience to climate change by adding impermeable surfaces as part of the expanded active travel network. However, careful design, such as using appropriate drainage systems, can help mitigate these effects. Alternative AT/BC-C is likely to result in positive effects in relation to climatic factors by encouraging more sustainable travel behaviours. However, the realisation of these effects might be slower and less pronounced than infrastructure changes, as this Alternative relies on changing public behaviour over time and its area of influence is limited to the locations within Renfrewshire best placed to support modal shift, including locations with good existing public transport and active travel networks.	3	=1	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change	Rank of Preference		
		A	B	C
Cultural Heritage	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative AT/BC-B has the potential for positive effects on the historic environment of Renfrewshire by incorporating aesthetic and historical considerations into the design and location of the expanded active travel network. In doing so, new pathways and public spaces can be designed to complement and better reveal the significance of Renfrewshire's historic assets. Additionally, improved infrastructure can increase access to heritage features, making them more accessible and promoting local heritage tourism. A reduction in car traffic associated with this Alternative can also improve the setting of historic environment assets by limiting noise and air pollution, visual impacts and other negative impacts. However, potential for adverse effects on local historic environment may arise from construction activities, which could potentially damage archaeological sites, historic buildings, or landscapes. Mitigation for this would be the use of best practice construction methods and sensitive planning. Alternative AT/BC-C would have minimal direct impact on the historic environment of Renfrewshire. As with Alternative AT/BC-B, Alternative AT/BC-C has the potential to result in a limitation in car usage, which can improve the setting of historic environment assets.	3	1	2

SEA Topic	Discussion of Potential Effects and Relative Merits of Options Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change	Rank of Preference		
		A	B	C
Landscape	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative AT/BC-B has the potential for positive effects on the local landscape and townscape character. For example, new cycle paths and pedestrian areas can be designed to blend with the natural environment and enhance the visual appeal of the area. Additionally, a reduction in car traffic due to improved active travel infrastructure can improve landscape character, limiting visual, noise, and air pollution, making the environment more pleasant and visually appealing. However, there is potential for both beneficial and adverse effects depending on the design of the expanded network. Poorly designed infrastructure could disrupt the natural landscape and detract from its visual quality, while well-designed infrastructure could enhance it. Alternative AT/BC-C is likely to have minimal direct effects on the local landscape. However, like Alternative AT/BC-B, has the potential to result in less traffic, which can improve landscape character by limiting visual, noise, and air pollution.	3	1	2

SEA Topic	Discussion of Potential Effects and Relative Merits of Options Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change	Rank of Preference		
		A	B	C
Material Assets	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative AT/BC-B has the potential for adverse effects on local non-renewable material assets, such as the use of asphalt for construction of new paths and pedestrian areas. This can be mitigated by using renewable alternatives like bio-asphalt. Additionally, the maintenance of the expanded active travel network will require additional materials, especially as increased use of these networks is anticipated from this Alternative. Appropriate waste management and the use of sustainable materials can help mitigate these risks. Like Alternative AT/BC-B, an increase in usage of the active travel network as a result of Alternative AT/BC-C would likely result in an increase in the maintenance of the active travel network, requiring the use of non-renewable materials like asphalt. However, this is unlikely to be likely to be significant. Using sustainable materials like bio-asphalt can also help mitigate these effects.	1	3	2
Population and Human Health	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. The Alternative may do less to maximise the opportunities available from accessibility and transport.	3	=1	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options Alternative AT/BC-A: Do minimum Alternative AT/BC-B: Infrastructure Alternative AT/BC-C: Behaviour change	Rank of Preference		
		A	B	C
	Under Alternative AT/BC-B, expanding the active travel network could bring a range of benefits for health and wellbeing and enhancing accessibility to services, facilities and opportunities. Additionally, reducing reliance on private vehicles in Renfrewshire could deliver a range of other benefits to the local communities in several ways. For example, households may save money on fuel and transport costs, while fewer vehicle journeys could enhance the local environment by limiting noise pollution and improving air quality. Safety improvements, such as enhanced lighting, also has the potential to reduce car accidents and crime. In a similar way, Alternative AT/BC-C also has the potential to deliver benefits by enabling more people to engage with the existing active travel network.			
Soil and Water Resources	Alternative AT/BC-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative AT/BC-B has the potential for adverse effects on local soil and water resources from the expansion of the active travel network, such as the permanent loss of high-quality agricultural land. Additionally, construction activities could pose risks of soil compaction and ground/water contamination if not appropriately managed. However, potential adverse effects can be avoided from with a sensitive design and mitigated by best-practice construction methods. Alternative AT/BC-C is not likely to result in direct effects on local soil and water resources.	1	3	1

Table 4-2: Appraisal of Reasonable Alternatives – Public Transport and Shared Mobility

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual				
	Alternative PT/ST-B: Infrastructure				
	Alternative PT/ST-C: Integration, Affordability and Accessibility				
	Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
Air Quality and Noise Pollution	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality. Alternative PT/ST-B is expected to have positive effects on Renfrewshire's air quality and noise pollution. By enhancing public transport networks with bus priority lanes, bus priority at junctions, bus stop improvements, and support development of Clyde Metro, it would limit congestion and encourage the use of public transport, leading to lower emissions and noise levels. There is potential for temporary adverse effects for this Alternative due to a temporary increase in emissions and noise pollution during the construction of any new infrastructure.	4	1	=2	=2

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual				
	Alternative PT/ST-B: Infrastructure				
	Alternative PT/ST-C: Integration, Affordability and Accessibility				
	Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	Alternatives PT/ST-C and PT/ST-D are also likely to result in positive effects on local air quality and noise pollution by improving the accessibility of public transport, reducing the number of private vehicles on the roads.				
Biodiversity, Flora and Fauna, and Geodiversity	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative PT/ST-B has the potential for mixed effects on local biodiversity, flora and fauna, and geodiversity. Positive effects are anticipated as this Alternative is likely to reduce traffic congestion and vehicle emissions, which can improve local air quality and noise levels. This will limit the impact of human activity on natural habitats. This Alternative also has the potential for direct adverse effects on habitats and species from the construction of new infrastructure. However, this option also has the potential to deliver positive effects for biodiversity through new development.	3	4	=1	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual				
	Alternative PT/ST-B: Infrastructure				
	Alternative PT/ST-C: Integration, Affordability and Accessibility				
	Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	Alternative PT/ST-C and Alternative PT/ST-D have would have minimal direct impact on biodiversity, flora and fauna, and geodiversity; however, like Alternative PT/ST-B, these Alternatives can contribute to an improvement in environmental quality by limiting the number of cars on the road through an increase in public and shared transport usage. Although not an adverse effect, this Alternative precludes opportunities for positive effects for biodiversity through the delivery of new infrastructure.				
Climatic Factors	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. This Alternative would potentially do less to address Renfrewshire Council's Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030.	4	1	=2	=2
	Alternatives PT/ST-B, PT/ST-C, and PT/ST-D are likely to result in positive effects in relation to climate change mitigation, by limiting the number of private vehicles on Renfrewshire's roads, reducing the council area's carbon footprint.				

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual				
	Alternative PT/ST-B: Infrastructure				
	Alternative PT/ST-C: Integration, Affordability and Accessibility				
	Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	Alternative PT/ST-B has the added potential benefit of being able to improve the area's ability to adapt to climate change related weather events by incorporating resilient design into new public transport infrastructure projects. Alternative B may also further to stimulate modal shift.				
Cultural Heritage	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	3	4	=1	=1
	Alternatives PT/ST-B, PT/ST-C, and PT/ST-D are likely to lead to positive indirect effects on the historic environment of Renfrewshire, through a reduction in car traffic as a result of the Alternatives promoting public transport can improve the setting of historic environment assets by limiting noise and air pollution, visual impacts and other negative impacts. Additionally, positive effects may arise from increasing accessibility via public transport to the council area's heritage assets.				

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual				
	Alternative PT/ST-B: Infrastructure				
	Alternative PT/ST-C: Integration, Affordability and Accessibility				
	Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	The increased number of physical transport infrastructure schemes likely to be initiated through Alternative PT/ST-B have the potential to lead to adverse effects on key heritage assets (including designated features and areas) located in the vicinity of the locations targeted for interventions. The significance of effects from these interventions will however depend on design, layout and scale of the schemes, and mitigation and avoidance measures proposed. It should also be noted that well-designed schemes have the potential to lead to enhancements to the public realm and the setting of the historic environment. Similarly, measures which help to relieve congestion may support improvements to local distinctiveness and the quality of the public realm, with benefits for the setting of the historic environment.				
Landscape	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	3	4	=1	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual Alternative PT/ST-B: Infrastructure Alternative PT/ST-C: Integration, Affordability and Accessibility Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	Alternatives PT/ST-B, PT/ST-C, and PT/ST-D can improve landscape and townscape character by reducing the number of private vehicle journeys in Renfrewshire through an increase in public transport use. This would likely limit traffic congestion and associated visual and noise pollution. Alternative PT/ST-B, through facilitating the delivery of additional transport infrastructure, has additional potential to lead to adverse effects on landscape character locally. This includes through the loss of features of landscape value, impacts on local distinctiveness and effects on tranquillity.				
Material Assets	Alternative PT-ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative PT/ST-B has the potential for adverse effects on local non-renewable material assets used in the construction, and maintenance, of new infrastructure. These adverse effects can be avoided by using sustainable materials and mitigated by adhering to appropriate waste management practices.	=1	4	=1	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual				
	Alternative PT/ST-B: Infrastructure				
	Alternative PT/ST-C: Integration, Affordability and Accessibility				
	Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	Alternatives PT/ST-C and PT/ST-D are unlikely to result in any significant effects on local material assets.				
Population and Human Health	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. The Alternative may do less to maximise the opportunities available from accessibility and transport. Alternatives PT/ST-B, PT/ST-C, PT/ST-D are likely to result in positive effects for population and human health. For Alternative PT/ST-B, this would be achieved by reducing traffic congestion by increasing the number of people using public transport. This can lead to lower pollution levels, which benefits public health. Additionally, a more efficient transport network can improve travellers' overall experience. This Alternative would also support accessibility to services, facilities and opportunities, and support local vitality. Alternative PT/ST-C will make public transport more accessible and affordable, encouraging more people to use it instead of private vehicles. Additionally, improving accessibility at transport hubs and removing physical barriers can make public transport more inclusive, benefiting people with specific mobility needs.	4	1	=2	=2

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative PT/ST-A: Business as usual Alternative PT/ST-B: Infrastructure Alternative PT/ST-C: Integration, Affordability and Accessibility Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes				
	Similarly, Alternative PT/ST-D can enhance public health by improving bus services and community transport, making it easier for people to access essential services and reducing the reliance on private vehicles.				
Soil and Water Resources	Alternative PT/ST-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative PT/ST-B has the potential for mixed effects in relation to soil and water resources. Positive effects may be delivered if the new infrastructure can be designed to protect and enhance soil and water resources in Renfrewshire. For example, the implementation of bus priority lanes could include designs to manage stormwater more effectively. However, there is also potential for adverse effects from construction activities, such as soil compaction, contamination from construction waste, and the permanent loss of high-quality agricultural land. Alternatives PT/ST-C and PT/ST-D would have limited direct impact on soil and water resources in Renfrewshire.	=1	4	=1	=1

Table 4-3: Appraisal of Reasonable Alternatives – Road Safety

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative RS-A: Business as usual			
	Alternative RS-B: Infrastructure			
	Alternative RS-C: Enforcement and partnerships			
Air Quality and Noise Pollution	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality.	?	?	?
	With regard to Alternatives RS-B and RS-C, impacts from lower speeds on air quality and noise levels are uncertain. In one respect, cars are more efficient and produce fewer emissions at speeds closer to 50mph, and as such are less efficient at 20 mph than 30 mph. However, the greater the speed of vehicles in built-up areas, the higher is the incidence of acceleration, deceleration, and braking, all of which increase air pollution. Similarly, in terms of noise pollution, at speeds below 30mph this is closely linked to the extent to which vehicles accelerate, decelerate and brake. In this respect effects depend on the location of speed limits in association with other measures to enhance road safety (such as traffic calming measures), which may have inadvertent effects on air quality if located in inappropriate locations. It should also be noted that indirect effects of such measures on reducing traffic flows may also support a limitation of emissions. The relative performance of the Alternatives is therefore uncertain.			

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative RS-A: Business as usual			
	Alternative RS-B: Infrastructure			
	Alternative RS-C: Enforcement and partnerships			
Biodiversity, Flora and Fauna, and Geodiversity	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	3	2	1
	Indirect beneficial effects are anticipated with Alternatives RS-B and RS-C by making Renfrewshire's roads safer, which will result in less disturbance on local wildlife through a reduction in traffic collisions involving wildlife in both urban and rural areas.			
	However, for Alternative RS-B, there will likely be temporary adverse effects in relation to this topic due to disturbance from construction activities, and potential direct adverse effects if infrastructure results in land take from habitats.			
Climatic Factors	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. This Alternative would potentially do less to address Renfrewshire Council's Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030.	?	?	?
	With regard to Alternatives RS-B and RS-C, impacts from lower speeds on greenhouse emissions are uncertain. In one respect, cars are more efficient and produce fewer greenhouse gas emissions at speeds closer to 50mph, and as such are less efficient at 20 mph than 30 mph. However, the greater the speed of vehicles in built-up areas, the higher is the incidence of acceleration, deceleration, and braking, all of which increase emissions.			

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative RS-A: Business as usual			
	Alternative RS-B: Infrastructure			
	Alternative RS-C: Enforcement and partnerships			
	In this respect effects depend on the location of speed limits in association with other measures to enhance road safety (such as traffic calming measures), which may have inadvertent effects on emissions if located in inappropriate locations. It should also be noted that indirect effects of such measures on reducing traffic flows may also support a limitation of greenhouse gas emissions. The relative performance of the Alternatives is therefore uncertain.			
Cultural Heritage	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Higher speeds can impact on the fabric of the historic environment through issues such as vibration. Higher speeds also impact on the setting and wider significance of heritage assets through effects on noise and visual impacts. In this respect, beneficial effects are anticipated for Alternatives RS-B and RS-C, through their interventions to reduce speeds in Renfrewshire. However, Alternative RS-B may also result in adverse effects if new the construction of new infrastructure directly or indirectly impacts on historic environment assets and their setting.	3	2	1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative RS-A: Business as usual			
	Alternative RS-B: Infrastructure			
	Alternative RS-C: Enforcement and partnerships			
Landscape	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Higher speeds can impact on landscape and townscape character through effects on noise quality and visual impacts. In this respect, Alternatives RS-B and RS-C, have potential to reduce speeds in Renfrewshire, leading to beneficial effects on Renfrewshire's landscape and townscape character. However, Alternative RS-B may also result in adverse effects if new infrastructure does not fit in with the existing landscape. Careful planning and the incorporation of design features that respect the character of the local landscape can help mitigate these impacts.	3	2	1
Material Assets	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative RS-B has the potential for adverse effects on local non-renewable material assets used in the construction, and maintenance, of new infrastructure. These adverse effects can be avoided by using sustainable materials and mitigated by adhering to appropriate waste management practices. Alternative RS-C is unlikely to result in any significant effects on local material assets.	2	3	1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative RS-A: Business as usual			
	Alternative RS-B: Infrastructure			
	Alternative RS-C: Enforcement and partnerships			
Population and Human Health	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. The Alternative may do less to maximise the opportunities available from accessibility and transport.	3	=1	=1
	Beneficial effects are anticipated for Alternatives RS-B and RS-C, which will improve public health by improving road safety (with a particular focus on roads near schools), which is likely to result in fewer road accidents and fatalities.			
	An additional benefit for both of these Alternatives is that increasing road safety could encourage residents to partake in more healthier modes of travel, including walking and cycling. This would bring benefits to the overall health and wellbeing of the community.			
	It should also be noted uncertainties remain with regard to speed limits' impacts on air and noise quality.			
Soil and Water Resources	Alternative RS-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	=1	3	=1
	Alternative RS-B has the potential for adverse effects on local soil resources, through the permanent land take, contamination, and compaction of agricultural soil for new infrastructure.			
	Alternative RS-C is unlikely to have any effects on soil and water resources.			

Table 4-4: Appraisal of Reasonable Alternatives – Parking

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual			
	Alternative P-B: Park and ride/ mobility hub provision			
	Alternative P-C: Comprehensive parking management			
Air Quality and Noise Pollution	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality. Alternative P-B is likely to have beneficial effects on Renfrewshire’s air quality and noise pollution levels. By expanding Park and ride/ mobility hub facilities, it encourages the use of public transport, which will reduce the number of private vehicles on the road. This is likely to result in less congestion and idling, which in turn will improve local air quality and noise pollution. The positive benefits of this Alternative would be compounded if they are delivered in and around Renfrewshire’s environmentally sensitive areas. However, adverse effects may arise from and increase in noise and air quality issues at locations closer to the Park and ride/ mobility hub facilities. Alternative P-C is also likely to result in beneficial effects by improving electric vehicles infrastructure, which is likely to accelerate the transition of towards these cleaner and quieter vehicles. Additionally, should workplace parking licenses be implemented, this may encourage commuters to switch from private cars to modes of public / active transport. This would lead to beneficial effects on local air quality and noise levels.	3	2	1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual			
	Alternative P-B: Park and ride/ mobility hub provision			
	Alternative P-C: Comprehensive parking management			
Biodiversity, Flora and Fauna, and Geodiversity	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	=1	3	=1
	Alternative P-B may result in beneficial indirect effects by reducing traffic congestion and vehicle emissions, which can improve the condition of Renfrewshire's environment. New Park and ride/ mobility hub facilities have the potential to result in adverse effects on habitats, species and networks from land take, habitat loss and fragmentation and disturbance. However, this Alternative also has the potential to deliver positive effects for biodiversity through the development of new infrastructure.			
	Alternative P-C would offer no additional direct protection for biodiversity, flora, fauna, and geodiversity. Although not an adverse effect, this Alternative precludes opportunities for positive effects for biodiversity through the delivery of new infrastructure.			
Climatic Factors	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. This Alternative would potentially do less to address Renfrewshire Council's Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030.	3	1	2

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual			
	Alternative P-B: Park and ride/ mobility hub provision			
	Alternative P-C: Comprehensive parking management			
	Beneficial effects are anticipated for Alternative P-B, which can support climate change adaptation in Renfrewshire by reducing the number of vehicles on the road, which can help mitigate the impacts of extreme weather events on the transport network. Additionally, the new Park and ride / mobility hub facilities can be designed with resilient infrastructure, such as sustainable drainage systems, to withstand such events. This Alternative may also support a reduction in greenhouse gas emissions by encouraging the use of public transport and limiting the number of private vehicles on the road. However, it is also possible that the new Park and ride / mobility hub facilities would also encourage car use, with implications for greenhouse gas emissions. This particular effect remains uncertain at this stage. Beneficial effects are anticipated with Alternative P-C with regard to climate change mitigation, which can help facilitate a shift towards cleaner electric vehicles, thus reducing Renfrewshire's carbon footprint. No significant climate change adaption effects are anticipated from this Alternative.			

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual			
	Alternative P-B: Park and ride/ mobility hub provision			
	Alternative P-C: Comprehensive parking management			
Cultural Heritage	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Both Alternative P-B and Alternative P-C can improve the appreciation of Renfrewshire's historic environment by improving access to heritage sites. In the case of Alternative P-B, this would be through better transport connectivity, while also potentially improving the setting of heritage sites with a reduction in the number of cars on the roads in certain locations in Renfrewshire (including town centres) as a result of the Park and ride/ mobility hub expansion. For Alternative P-C access to heritage sites would also be improved if the interventions (additional parking options for specialist groups and electric vehicle users, and enforcement of the national pavement parking ban) are delivered close to the heritage assets, making them more attractive and accessible sites to visit. Associated measures also offer the potential to better reveal the significance of heritage assets if well designed. However, both of these alternatives have the potential for direct and indirect adverse effects on the council area's historic environment if new Park and ride / mobility hub facilities / parking spaces impacts on historic environment assets and their settings. Careful planning is required to avoid these potential adverse effects.	3	=1	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual			
	Alternative P-B: Park and ride/ mobility hub provision			
	Alternative P-C: Comprehensive parking management			
Landscape	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	=1	3	=1
	Alternative P-B has the potential for positive effects on Renfrewshire's landscape and townscape character through a reduction in car traffic due to an expansion of the Park and ride/ mobility hub facilities. This is likely to reduce the number of cars on the road, which limits visual and noise pollution, making the landscape more pleasant and visually appealing. However, there is potential for both beneficial and adverse effects depending on the design and location of the new Park and ride / mobility hub. Poor location and design could disrupt the local landscape through a loss of landscape features, impacts on local distinctiveness and effects on tranquillity. This may particularly be the case given that Park and ride/ mobility hub facilities tend to be delivered at the edge of settlements on the urban/rural fringe.			
	Uncertain effects are anticipated with Alternative P-C. As with Alternative P-B, there is potential for both beneficial and adverse effects depending on the design of the new parking provision.			

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
Material Assets	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	1	=2	=2
	Alternatives P-B and P-C have the potential for adverse effects on local non-renewable material assets, for example, through the use of materials for expanding Park and ride/ mobility hub provision and parking provision, respectively. These adverse effects can be avoided by using sustainable materials and mitigated by adhering to appropriate waste management practices.			
Population and Human Health	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Whilst these will support benefits for the local population and health and wellbeing, the Alternative may do less to maximise the opportunities available from accessibility and transport.	3	=1	=1
	Alternative P-B is likely to result in many positive effects for population and human health. Public health in the council area could be improved, particularly in urban areas where Park and ride/ mobility hub facilities serve, by replacing private vehicle journeys with public transport. This would lead to lower air pollution levels through a reduction in idling time and the overall distance of cars travelled in the council area, which would benefit public health. Less congestion on roads,			

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual Alternative P-B: Park and ride/ mobility hub provision Alternative P-C: Comprehensive parking management			
	and better accessibility to Park and ride/ mobility hub destinations, would also improve the overall experience for travellers. Alternative P-C is also likely to generate positive effects, by providing better parking options for groups with specific needs and promoting the use of electric vehicles. Improved parking provision for groups with specific needs will promote equality and accessibility in the community, making sure that individuals with mobility challenges can lead more independent lives. This can improve their quality of life and overall well-being. Additionally, electric vehicle infrastructure is a community asset of growing importance, so the improvement of this will benefit those with access to an electric vehicle in Renfrewshire, making them more convenient to use.			
Soil and Water Resources	Alternative P-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative P-B is likely to result in mixed effects in relation soil and water resources. Beneficial effects may arise from the more efficient use of Renfrewshire's transport network, limiting the need for land take for transport infrastructure. However, there is potential for adverse effects from construction of new Park and ride/ mobility hub facilities, such as soil compaction, an increase in surface runoff, and contamination from construction waste. Additionally, through the delivery of new physical transport infrastructure (such as Park and ride/ mobility hub facilities), Alternative P-B has the potential to lead to the	=1	3	=1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference		
		A	B	C
	Alternative P-A: Business as usual			
	Alternative P-B: Park and ride/ mobility hub provision			
	Alternative P-C: Comprehensive parking management			
	development on previously undeveloped land, including potentially productive land classified as the best and most versatile agricultural land.			
	Alternative P-C would have limited direct effects on soil and water resources.			

Table 4-5: Appraisal of Reasonable Alternatives – Road Network and Freight

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
Air Quality and Noise Pollution	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality.	=3	=1	=1	=3
	Alternative RN-B has the potential for beneficial effects on local air quality and noise pollution levels through an improvement in the quality of the environment from the easing of congestion and idling.				
	Alternative RN-C is also anticipated to result in beneficial effects on local air quality and noise pollution levels through a potential reduction in idling and an overall reduction in the number of freight journeys required.				

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
	Alternative RN-D is anticipated to result in mixed effects in relation to local noise and air quality. Positive impacts are likely through interventions that will make Renfrewshire's roads operate more efficiently. This has the potential to limit congestion and improve traffic flows, leading to lower local emissions and noise levels. However, there will likely be temporary adverse effects in relation to this topic from construction activities. Additionally, new road infrastructure may also encourage increased vehicle use, potentially leading to higher emissions and noise levels. The overall impact on air quality and noise will depend on the balance between improved efficiency and increased traffic volumes; therefore, uncertainty remains on this issue.				
Biodiversity, Flora and Fauna, and Geodiversity	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	2	=1	=1	4

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
	Alternative RN-B and Alternative RN-C are unlikely to have any significant direct effects on local biodiversity, flora and fauna, and geodiversity; however, indirect beneficial effects may arise through an improvement in the quality of the environment from the easing of congestion and idling from cars, and a more efficient freight network, respectively. Although not an adverse effect, these Alternatives preclude opportunities for positive effects for biodiversity through the delivery of new infrastructure. RN-D will involve the construction of significant infrastructure. Habitat loss, fragmentation, road kill, and disturbance during construction, have the potential for adverse effects on biodiversity, flora and fauna, and geodiversity. The significance of the adverse effect would be determined by the size of the infrastructure and its location in relation to sensitive ecological/geological sites. Considerate planning and the incorporation of green infrastructure, such as wildlife corridors and eco-bridges, can help mitigate these effects.				

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
	Alternative RN-A: Business as usual	A	B	C	D
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
Climatic Factors	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. This Alternative would potentially do less to address Renfrewshire Council’s Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030.	3	=1	=1	4
	Alternatives RN-B and RN-C have the potential for beneficial effects in relation to climate change mitigation through an improvement in the quality of the environment from the easing of congestion and idling from vehicles, and a more efficient freight network, respectively. Overall, these interventions will lead to fewer transport related emissions in Renfrewshire.				
	Mixed effects are anticipated for Alternative RN-D. Adverse effects may arise as these two Alternatives involve the construction of significant infrastructure. Firstly, there will be a release of emissions during the construction phase of new infrastructure, which would increase Renfrewshire’s carbon footprint. These Alternatives would also likely lead to an increase in impermeable surfaces, which in turn has the potential to raise local flood risk.				

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
	This issue could be managed through good design (e.g. the use of permeable surfaces) and sustainable drainage systems and may also provide an opportunity to upgrade the transport network's resilience to weather-related events. Potential adverse effects may also arise from Alternative RN-D if new road infrastructure leads to an increase in vehicle use, leading to higher emissions in the council area.				
Cultural Heritage	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative RN-B is likely to have positive effects on the historic environment of Renfrewshire, as a result of a more efficient road network. This Alternative may lead to less congestion and idling, which could improve the setting of historic sites. Additionally, access to historic sites and areas of historic interest would also improve through better traffic management. Associated measures also offer the potential to better reveal the significance of heritage assets if well designed.	2	=1	=1	3

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
	Regarding Alternative RN-C, freight movements can have a significant impact on the fabric of the historic environment through issues such as vibration and impacts on air quality. Freight movements also have an impact on the setting and wider significance of heritage assets through noise and visual impacts. This Alternative is therefore likely to lead to beneficial effects through the reduction in freight traffic in certain locations, including built up areas with greater concentrations of heritage assets. Like Alternative RN-B, Alternative RN-D may improve access to heritage assets, along new road links and junction upgrades. However, there is potential for adverse effects if new infrastructure directly or indirectly impacts on historic environment assets and their setting. Careful planning and the incorporation of design features that respect the historic character of the area can help mitigate these impacts.				
Landscape	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	2	=1	=1	=3

SEA Topic	Discussion of Potential Effects and Relative Merits of Options				Rank of Preference			
	Alternative RN-A: Business as usual	A	B	C	D			
	Alternative RN-B: Improved operation of the road network							
	Alternative RN-C: Efficient freight network							
	Alternative RN-D: Economic development/economic growth							
	Alternatives RN-B and RN-C are likely to have positive effects on Renfrewshire's landscape and townscape character, from a reduction in noise and visual impacts, as a result of a more efficient road and freight network, respectively. The reduction of congestion is also a potential positive effect for Alternative RN-D. Adverse effects on the local landscape may arise from Alternative RN-D by proposing the development of new infrastructure, which may not compliment the local landscape if not appropriately planned.							
Material Assets	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative RN-B and Alternative RN-C are unlikely to result in any significant effects on local material assets. Alternative RN-D have the potential for adverse effects on local non-renewable material assets used in the construction, and maintenance, of new infrastructure. These adverse effects can be avoided by using sustainable materials and mitigated by adhering to appropriate waste management practices.	1	=2	=2	4			

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
Population and Human Health	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Whilst these will support benefits for the local population and health and wellbeing, the Alternative may do less to maximise the opportunities available from accessibility and transport. Mixed effects are anticipated for Alternatives RN-B and RN-D. Positive effects are anticipated for Alternatives RN-B, RN-C and RN-D through the improvement of the road and freight network, leading to a reduction in congestion and idling, while also potentially reducing the number of transport-related accidents. This will improve the experience of driving through Renfrewshire and will also improve the quality of the local environment (through an improvement in emissions and noise pollution). However, in the case of Alternative RN-B, this may also make driving a more appealing form of transport, which could reduce the number of (healthier) active travel journeys. The construction of new infrastructure associated Alternative RN-D could cause disturbance to local communities in the form of temporary visual, air, and noise pollution. However, they would also help generate local income, for example, through employment of construction workers.	4	2	1	3

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference			
		A	B	C	D
	Alternative RN-A: Business as usual				
	Alternative RN-B: Improved operation of the road network				
	Alternative RN-C: Efficient freight network				
	Alternative RN-D: Economic development/economic growth				
Soil and Water Resources	Alternative RN-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	=1	=1	=1	4
	Alternatives RN-B and RN-C are unlikely to have any effects on soil and water resources.				
	Alternative RN-D has the potential for adverse effects on local soil resources, through the permanent land take, contamination, and compaction of agricultural soil for new infrastructure projects.				

Table 4-6: Appraisal of Reasonable Alternatives – Environment

SEA	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative ENV-A: Business as usual Alternative ENV-B: Initiate climate change mitigation and adaptation measures		
Air Quality and Noise Pollution	Alternative ENV-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality. Alternative ENV-B is expected to result in beneficial effects in relation to air quality and noise pollution in Renfrewshire. Decarbonising Renfrewshire Council’s vehicle fleet would reduce emissions, while climate change adaptation measures could improve the resilience of the transport network, limiting congestion and associated air and noise pollution.	2	1
Biodiversity, Flora and Fauna, and Geodiversity	Alternative ENV-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative ENV-B is likely to result in positive effects on biodiversity, flora and fauna, and geodiversity. Firstly, this Alternative could result in a cleaner vehicle fleet, which could lead to lower levels of air pollution, with benefits for habitats and species. Additionally, adaptation measures to protect the transport network from weather-related events can help preserve habitats by preventing damage from flooding and erosion and offering the opportunity for the implementation for nature-based solutions.	2	1

SEA	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative ENV-A: Business as usual		
	Alternative ENV-B: Initiate climate change mitigation and adaptation measures		
Climatic Factors	Alternative ENV-A would continue to deliver committed plans, developments and schemes.	2	1
	Therefore, this Alternative is expected to result in neutral effects. This Alternative would potentially do less to address Renfrewshire Council's Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030.		
	Alternative ENV-B can support climate change adaptation by implementing measures to strengthen and protect the transport network from weather-related events. This includes improving infrastructure to withstand extreme weather, such as flooding and heatwaves, thereby enhancing the resilience of the transport network. Regarding climate change mitigation, this Alternative seeks to decarbonise Renfrewshire Council's vehicle fleet, which will reduce transport emissions in the council area, and help Renfrewshire meet its climate targets at a faster rate.		
Cultural Heritage	Alternative ENV-A would continue to deliver committed plans, developments and schemes.	2	1
	Therefore, this Alternative is expected to result in neutral effects.		
	Alternative ENV-B is likely to result in mixed effects in relation to the historic environment of Renfrewshire. Indirect positive effects may arise from climate change adaption and resilience measures to the local transport network, which could indirectly give some protection to Renfrewshire's historic assets from weather-related events. Associated measures also offer the potential to better reveal the significance of heritage assets if well designed. However, there is also potential for both direct and indirect adverse effects if new infrastructure impacts on historic environment assets and their settings, if not planned appropriately.		

SEA	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative ENV-A: Business as usual		
	Alternative ENV-B: Initiate climate change mitigation and adaptation measures		
Landscape	Alternative ENV-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative ENV-B has the potential for mixed effects on the local landscape and townscape character, depending on the design and implementation of the climate change adaptation and resilience measures to strengthen and protect the transport network. Climate change adaptation measures can lead to less traffic, which enhances the visual appeal of the area. However, the design and implementation of new infrastructure should be carefully managed to ensure it blends with the natural environment and does not detract from the landscape's visual quality.	2	1
Material Assets	Alternative ENV-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative ENV-B has the potential for adverse effects on local non-renewable material assets, for example, through the use of materials for constructing physical climate change adaptation and resilience measures. These adverse effects can be avoided by using sustainable materials and mitigated by adhering to appropriate waste management practices.	1	2
Population and Human Health	Alternative ENV-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Whilst these will support benefits for the local population and health and wellbeing, the Alternative may do less to maximise the opportunities available from accessibility and transport.	2	1

SEA	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative ENV-A: Business as usual		
	Alternative ENV-B: Initiate climate change mitigation and adaptation measures		
	Alternative ENV-B is likely to result in positive effects in relation to population and human health. For example, decarbonising Renfrewshire's vehicle fleet and implementing adaptation measures can improve visual, air, and noise quality, which benefits public health and the setting of residential areas. Additionally, a more resilient transport network to weather-related events will improve the overall travel experience for travellers in Renfrewshire.		
Soil and Water Resources	Alternative ENV-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	2	1
	Alternative ENV-B is likely to result in mixed effects in relation soil and water resources. Positive effects are likely due to the implementation of climate change adaptation measures, which could include strategies which prevents prevent soil erosion and manage stormwater effectively. However, there is potential for adverse effects from construction activities, such as soil compaction and contamination from construction waste. Appropriate waste management and sustainable construction practices can help mitigate these risks.		

Table 4-7: Appraisal of Reasonable Alternatives – Digital Technology

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
	Alternative DT-A: Business as usual Alternative DT-B: Digital technology innovations	A	B
Air Quality and Noise Pollution	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Maintaining the existing digital infrastructure without significant upgrades may continue the current trend of reliance on private vehicles (which has associated emissions and noise issues). Under this Alternative, local air quality and noise pollution levels are still likely to improve over the LTS period, as the country transitions its fleet to less-polluting electric vehicles and other measures are put in place to support improved air quality.	2	1
	Alternative DT-B is expected to result in positive effects on Renfrewshire’s air quality and noise pollution levels through the optimisation of traffic flows, reduction of congestion, an increase in the use of public transport and the number of people working from home. These interventions can lead to reduced vehicle emissions and noise levels, contributing to cleaner air and quieter environments.		
Biodiversity, Flora and Fauna, and Geodiversity	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects.	2	1
	Alternative DT-B would result in no direct effects on local biodiversity. Indirect beneficial effects may arise from this Alternative if it leads to a reduction in private vehicle use (with more people working from home, or taking public transport), which may limit traffic congestion, vehicle emissions, and noise pollution near sensitive habitats. However, the construction of new digital infrastructure should be carefully planned to avoid any potential disturbances to sensitive areas.		

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative DT-A: Business as usual Alternative DT-B: Digital technology innovations		
Climatic Factors	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. This Alternative would potentially do less to address Renfrewshire Council’s Climate Emergency, which aspires to make Renfrewshire a net zero council area by 2030. Alternative DT-B is likely to result in positive effects in relation to climate change adaptation and mitigation in Renfrewshire. Regarding adaptation, the real time information and the Urban Traffic Control system could help mitigate impacts of future flooding events by efficiently directing traffic in such events, thus limiting potential local congestion. Regarding climate change mitigation, the Alternative is likely to lead to a reduction in traffic and idling and is also likely to increase the use of public transport (for example through the provision of Real Time Information at bus stops – Action DT2). Overall, this would lead to fewer transport emissions in Renfrewshire.	2	1
Cultural Heritage	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative DT-B can enhance the historic environment of Renfrewshire by improving access to heritage sites through better transport connectivity and information systems. For example, improved Real Time Passenger Information can make it easier for visitors to visit Renfrewshire’s historic environment assets. Additionally, a reduction in private transport vehicles as a result of this Alternative, may improve the setting of historic assets (limiting visual and noise pollution). Associated measures also offer the potential to better reveal the significance of heritage assets if well designed. However, there is potential for both direct and indirect adverse effects if the new	2	1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative DT-A: Business as usual Alternative DT-B: Digital technology innovations digital infrastructure directly or indirectly impacts on historic environment assets and their settings. Careful planning is required to avoid such impacts.		
Landscape	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative DT-B has the potential for minor positive effects in relation to the local landscape and townscape character by limiting traffic congestion and associated visual, noise, and air pollution. The implementation of digital innovations such as an integrated journey planning app and Urban Traffic Control can lead to less traffic, which may enhance the visual appeal of the area. However, there is the potential for adverse effects if new digital infrastructure detracts from the landscape's visual quality.	2	1
Material Assets	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative DT-B has the potential for adverse effects on local non-renewable material assets and waste facilities, such as the use of materials for adding connections to the existing fibre network. Such effects can be mitigated by using sustainable alternatives and adhering to appropriate waste management practices.	1	2
Population and Human Health	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. The Alternative may do less to maximise the opportunities available from accessibility and transport.	2	1

SEA Topic	Discussion of Potential Effects and Relative Merits of Options	Rank of Preference	
		A	B
	Alternative DT-A: Business as usual Alternative DT-B: Digital technology innovations		
	Alternative DT-B is likely to result in positive effects by improving the efficiency and reliability of the local transport network, thus improving the overall experience of using Renfrewshire's roads and public transport. For example, more efficient traffic management and real-time information can reduce congestion on the council area's roads and improve the overall travel experience. This would also benefit the environmental quality of residential areas through a reduction in air and noise pollution. Additionally, by improving public transport and digital connectivity, this may save households money by offering a more attractive, and more economical, alternative to private vehicles.		
Soil and Water Resources	Alternative DT-A would continue to deliver committed plans, developments and schemes. Therefore, this Alternative is expected to result in neutral effects. Alternative DT-B is likely to result in mixed effects in relation soil and water resources. Beneficial effects may arise from the more efficient use of Renfrewshire's transport network, limit the need for land take for transport infrastructure. However, there is potential for adverse effects from construction activities related to digital connectivity infrastructure improvements, such as soil compaction and contamination from construction waste. Suitable waste management and sustainable construction practices can help mitigate these risks.	2	1

4.4. Summary of Findings

4.4.1. Active Travel & Behaviour Change

Alternative AT/BC-B, which focuses on enhancing active travel networks, is expected to have **positive effects**, particularly on air quality, noise pollution, climate change mitigation, and population health. However, **adverse effects** are also anticipated on biodiversity, climate change adaptation, material assets and soil resources due to construction activities.

Alternative AT/BC-C aims to encourage active travel through non-infrastructure interventions, leading to **positive effects**, particularly on air quality, climate change mitigation, and population health, with minimal direct impacts on biodiversity and soil resources.

Neutral effects are anticipated for Alternative AT/BC-A.

Overall, Alternative AT/BC-C performs most favourably across the SEA topics, followed by Alternative AT/BC-B and Alternative AT/BC-A.

4.4.2. Public Transport and Shared Mobility

Alternative PT/ST-B proposes enhancements to public transport networks, which is expected to have **positive effects**, particularly on air quality and noise pollution. However, **adverse effects** are also anticipated, particularly on biodiversity, climate change adaptation, material assets and soil resources due to construction activities.

Alternative PT/ST-C and Alternative PT/ST-D aim to improve public transport accessibility and affordability, leading to **positive effects**, particularly air quality, noise pollution, climate change mitigation, and population health.

Neutral effects are anticipated for Alternative PT/ST-A.

Overall, Alternative PT/ST-C and Alternative PT/ST-D perform most favourably across the SEA topics, followed by Alternative PT/ST-B and Alternative PT/ST-A.

4.4.3. Road Safety

Alternative RS-B proposes physical road safety improvements, which is expected to have **positive effects**, particularly on population and human health. However, **adverse effects** are also anticipated, especially on biodiversity, climate change adaptation, material assets and soil resources due to construction activities.

Alternative RS-C focuses on enforcing road safety measures, leading to **positive effects**, especially biodiversity and population human and health.

Neutral effects are anticipated for Alternative RS-A.

Overall, Alternative RS-C performs most favourably across the SEA topics, followed by Alternative RS-B and Alternative RS-A.

A summary of each topics' assessment scores is provided in **Table 4-8**.

4.4.4. Parking

Alternative P-B is expected to have **positive effects**, particularly on air quality, noise pollution, and climate change mitigation, by encouraging public transport use.

Alternative P-C aims to improve parking for people with disabilities and electric vehicle users, while also discouraging commuters from using private vehicles, leading to **positive effects** on air quality and accessibility.

However, **adverse effects** for both **Alternative P-B and P-C** are also anticipated on biodiversity, climate change adaptation, material assets and soil resources due to construction activities.

Neutral effects are anticipated for Alternative P-A.

Overall, Alternative P-B performs most favourably across the SEA topics, followed by Alternative P-C, and then Alternative P-A.

4.4.5. Road Network and Freight

Alternative RN-B aims to enhance operation of the existing transport network, and is expected to have **positive effects**, particularly on air quality, noise pollution, climate change mitigation, and population health.

Alternative RN-C aims to make Renfrewshire's freight network more efficient and is expected to have **positive effects**, particularly on air quality, noise pollution, climate change mitigation, and population and human health.

Alternative RN-D focuses on new road infrastructure, which is expected to have **positive effects**, particularly on population and human health. However, **adverse effects** are also anticipated, especially on biodiversity, heritage, landscape, climate change adaptation, material assets and soil resources, due to construction activities.

Neutral effects are anticipated for Alternative RN-A.

Overall, Alternatives RN-B and RN-C perform most favourably across the SEA topics, followed by Alternative RN-D and Alternative RN-A.

4.4.6. Environment

Alternative ENV-B aims to create a healthier and greener environment, leading to **positive effects**, particularly on biodiversity and climate change adaptation.

Neutral effects are anticipated for Alternative DT-A.

Overall, Alternative ENV-B performs most favourably across the SEA topics, followed by Alternative ENV-A.

4.4.7. Digital Technology

Alternative DT-B proposes implementing initiatives like on-demand mobility services and Real Time Passenger Information, which are expected to have **positive effects**, especially on air quality, noise pollution, population and human health, climate change mitigation by optimising traffic flow and reducing congestion.

Neutral effects are anticipated for Alternative DT-A.

Overall, Alternative DT-B performs most favourably across the SEA topics, followed by Alternative DT-A.

Table 4-8: Reasonable Alternative Assessment Score Summary

	Air Quality and Noise Pollution	Biodiversity, Flora and Fauna, and Geodiversity	Climatic Factors	Cultural Heritage	Landscape	Material Assets	Population and Human Health	Soil and Water Resources
Active Travel and Behaviour Change								
Alternative AT/BC-A: Do minimum	3	3	3	3	3	1	3	1
Alternative AT/BC-B: Infrastructure	1	2	=1	1	1	3	=1	3
Alternative AT/BC-C: Behaviour change	2	1	=1	2	2	2	=1	1

Public Transport and Shared Mobility								
Alternative PT/ST-A: Business as usual	4	3	4	3	3	=1	4	=1
Alternative PT/ST-B: Infrastructure	1	4	1	4	4	4	1	4
Alternative PT/ST-C: Integration, Affordability and Accessibility	=2	=1	=2	=1	=1	=1	=2	=1
Alternative PT/ST-D: Bus network, Community and Demand Responsive Transport, and Car Club Schemes	=2	=1	=2	=1	=1	=1	=2	=1

Road Safety								
Alternative RS-A: Business as usual	?	3	?	3	3	2	3	=1
Alternative RS-B: Infrastructure	?	2	?	2	2	3	=1	3
Alternative RS-C: Enforcement and partnerships	?	1	?	1	1	1	=1	=1
Parking								
Alternative P-A: Business as usual	3	=1	3	3	=1	1	3	=1
Alternative P-B: Park and ride/ mobility hub provision	2	3	1	=1	3	=2	=1	3
Alternative P-C: Comprehensive parking management	1	=1	2	=1	=1	=2	=1	=1

Road Network and Freight								
Alternative RN-A: Business as usual	=3	2	3	2	2	1	4	=1
Alternative RN-B: Improved operation of the road network	=1	=1	=1	=1	=1	=2	2	=1
Alternative RN-C: Efficient freight network	=1	=1	=1	=1	=1	=2	1	=1
Alternative RN-D: Economic development/ economic growth	=3	4	4	3	3	4	3	4
Environment								
Alternative ENV-A: Business as usual	2	2	2	2	2	1	2	2
Alternative ENV-B: Initiate climate change mitigation and adaptation measures	1	1	1	1	1	2	1	1

Digital Technology								
Alternative DT-A: Business as usual	2	2	2	2	2	1	2	2
Alternative DT-B: Digital technology innovations	1	1	1	1	1	2	1	1

5. Assessment of the LTS

5.1. Introduction

This chapter presents assessment findings and recommendations in relation to the LTS.

The chapter is structured to present:

- An outline of the LTS actions;
- An assessment of the LTS actions under the eight SEA topics identified through scoping;
- Consideration of cumulative effects; and
- The overall conclusions at this stage and recommendations for the next stage of plan-making.

5.2. Methodology

The assessment identifies and evaluates ‘likely significant effects’ on the baseline, drawing on the SEA framework (see **Table 3-1**) identified through scoping as a methodological guide.

Every effort is made to predict effects accurately; however, this is inherently challenging given the strategic nature of the LTS actions under consideration and understanding of the baseline (now and in the future under a ‘no plan’ scenario) that is inevitably limited. Given uncertainties there is a need to make assumptions, e.g., in relation to LTS actions’ implementation and aspects of the baseline that might be impacted. Assumptions are made cautiously and explained within the text (with the aim of striking a balance between comprehensiveness and conciseness). In many instances, given reasonable assumptions, it is not possible to predict ‘significant effects’, but it is possible to comment on merits (or otherwise) of the LTS actions in more general terms.

Finally, it is important to note that effects are predicted taking account of the criteria presented within Schedule 2 of the 2005 Act. As such, for example, account is taken of the probability, duration, frequency, and reversibility of effects as far as possible. Cumulative effects are also considered, i.e., the potential for the Strategy to impact an aspect of the baseline when implemented alongside other plans, programmes, and projects. These effect ‘characteristics’ are described within the assessment as appropriate.

5.3. Preferred Approach for the LTS

The preferred approach for the LTS has been developed through a multi-stage process.

Initially, identified problems and opportunities were used to shape a Vision Statement, Priorities, and Objectives. These elements were supported by a set of policies that guide actions and objectives. An alignment exercise made sure that the objectives were informed by the identified problems and opportunities, as well as the priorities and objectives outlined in the National Transport Strategy 2 (NTS2) and Strathclyde Partnership for Transport's (SPT) Regional Transport Strategy (RTS).

The next phase involved generating a list of options. These options were primarily informed by stakeholder and public consultation findings, supplemented by input from Renfrewshire Council officers and existing strategy/policy documents, including the 2017 Renfrewshire Local Transport Strategy. Special consideration was given to policies such as Infrastructure First and Local Living from National Planning Framework 4 (NPF4), which emphasises sustainable travel and local living. The process also took into account the Sustainable Travel Hierarchy and Sustainable Investment Hierarchy in NTS2, alongside existing targets, such as reducing car kilometres by 20% by 2030 against a 2019 baseline. It is noted that while there remains a commitment to reduce reliance on cars, a Renewed Policy Statement, published in June 2025 by Transport Scotland, sets out that a new, longer-term target for reducing car use will be developed.

Additionally, wider policies not directly related to transport were considered due to the close relationship between transport and other areas like health, the economy, reducing inequalities, and tackling climate change.

As discussed under the 'reasonable alternatives' discussion, the initial list of options was consolidated, and eight themes were identified:

- Active Travel.
- Behaviour Change.
- Public Transport and Shared Mobility.
- Road Safety.
- Parking.
- Road Network and Freight.
- Environment.
- Digital Technology.

The LTS takes forward policies (and accompanying actions) under the eight themes listed above.

5.4. Approach to the Appraisal

The assessment of the policies/actions included in the LTS is presented below by SEA topic.

5.4.1. Air Quality and Noise Pollution

Policies under the Active Travel, Behaviour Change, Public Transport & Shared Mobility, Parking, and Digital Technology themes work to promote modal shift away from private car use and towards cleaner modes, such as active travel (like walking, wheeling and cycling) or public transport. This is anticipated to lead to positive effects for this SEA topic, through a reduction in vehicle emissions and noise pollution, which will support air and noise quality in Renfrewshire. However, Policies under these themes which require the development of new infrastructure (such as Active Travel – Policy 1, and Public Transport and Shared Mobility – Policy 2) are likely to result in minor temporary adverse effects on local air quality and noise levels from construction activities. Standard mitigation in a Construction Environment Management Plan (CEMP) would help reduce these temporary adverse effects.

Policies that focus on the decarbonisation of vehicles in Renfrewshire (such as Road Network and Freight – Policy 2 and Environment – Policy 1 / Action ENV1) will also help reduce air pollution in the council area, and lead to beneficial effects.

Policies designed to make the existing road network more efficient (such as Road Network and Freight – Policies 1 and 2) and safer (Road Safety – Policies 1 and 2) may also lead to improvements to local air quality and noise levels through a reduction in idling traffic and speeding.

Finally, through Environment - Policy 1 (and Action ENV1), the LTS acknowledges the importance of continued air quality monitoring in the council area, directly addressing air quality issues. It is noted that the Scottish Government and SEPA, on the basis of monitoring data from 2023 confirming there continue to be no air quality exceedances in Renfrewshire, approved a report in November 2024 to revoke all three of Renfrewshire's Air Quality Management Areas in Paisley town centre, Johnstone High Street and Renfrew town centre. A Revocation Report and associated AQMA Revocation Orders were presented

to and approved by Renfrewshire Council's Infrastructure, Land and Environment Policy Board in March 2025. As such, there are no longer any AQMAs within Renfrewshire Council, with the council meeting all air quality objectives.

The Scottish Government recommends that where AQMAs are no longer required that local authorities prepare an Air Quality Strategy to replace the Air Quality Action Plan (which has served its purpose), with some of the measures from the action plan being carried forward into the strategy. The Council are currently developing this Air Quality Strategy which will be approved by the Policy Board prior to publication.

Overall, **positive significant effects** are considered likely under this SEA topic.

5.4.2. Biodiversity, Flora and Fauna and Geodiversity

Several policies under a range of themes (including Active Travel, Behaviour Change, Public Transport & Shared Mobility, Parking, and Digital Technology) work to either promote active travel or the use of public transport. This will help limit the number of vehicles on the road, which would reduce disturbance from vehicles on Renfrewshire's fauna and flora (such as road kills, noise disturbance, and air quality improvements). Other Policies which support the transition from petrol/diesel vehicles to electric vehicles (such as Environment – Policy 2, Action ENV2) are considered to also lead to similar beneficial effects.

Policies that propose the construction of new infrastructure (such as Road Network and Freight - Policy 1, Parking – Policy 2, and Active Travel - Policy 1) are anticipated to have mixed direct effects on biodiversity. The construction of new infrastructure has the potential to result in permanent damage to habitats or geological sites through, for example, habitat loss, severance or disturbance, depending on its location. However, with the appropriate implementation of LTS actions designed to deliver positive effects for biodiversity, these policies have the potential to enhance biodiversity habitats through their design. These policies are also likely to result in minor temporary adverse effects on local biodiversity through disturbance from construction activities (such as movement, noise, and lighting). However, standard mitigation in a Construction Environment Management Plan (CEMP) would help to reduce these temporary adverse effects.

Overall, the LTS is anticipated to have **mixed effects** on biodiversity, fauna and flora, and geodiversity.

5.4.3. Climatic Factors

Several policies under a range of themes (including Active Travel, Behaviour Change, Public Transport & Shared Mobility, and Parking) work to either promote active travel modes or the use of public transport. This is expected to lead to a reduction in the number of private vehicles on the road. These, alongside other policies which support the transition from petrol/diesel vehicles to electric vehicles (such as Environment – Policy 2, Action ENV2), and a more efficient road network (such as Digital Technology – Policy 1) will result in beneficial effects with regard to climate change mitigation, by reducing Renfrewshire’s transport-related carbon footprint.

However, potential adverse effects may arise from Policies that involve the construction of new infrastructure (such as Road Network and Freight - Policy 1, Parking – Policy 2, and Active Travel - Policy 1). For example, a release of emissions from construction activities will lead to a short-term increase in greenhouse gas emissions. Infrastructure projects are also likely to result in an increase in impermeable surfaces, which can increase local flood risk. Therefore, these infrastructure projects should be designed appropriately (for example, by avoiding areas at high risk of flooding and/or including sustainable drainage systems in their design) to avoid /mitigate these risks. This would align with Environment - Policy 2 and Action ENV3, which aims to improve climate change adaptation and resilience measures in Renfrewshire.

Additional adverse effects on climate mitigation may arise from Road Network and Freight - Policy 1, which focuses on improving the existing road network (and potentially expanding it). The Policy may stimulate induced demand for car use through making private vehicle use more convenient, which would lead to an increase in transport-related emissions. This adverse effect, however, may be offset by the Policies which promote active travel and public transport.

Overall, the LTS is anticipated to have **minor beneficial** effects on climatic factors.

5.4.4. Cultural Heritage

Several policies under a range of themes (including Active Travel, Behaviour Change, Public Transport & Shared Mobility, and Parking) work to either promote active travel modes or the use of public transport. These can all enhance access to cultural heritage sites by making them more accessible to the public. In addition, a shift from private vehicles to active travel / public transport would have beneficial effects on the fabric and

setting of heritage assets, by reducing noise, visual, and air pollution, and the direct effects from transport such as vibration.

However, there is also a potential risk that construction activities through the development of new infrastructure associated several policies (such as Road Network and Freight - Policy 1, Parking – Policy 2, and Active Travel - Policy 1), could lead to the destruction or alteration of historic sites and their setting. Careful planning and consultation with heritage bodies are necessary to mitigate these risks.

Overall, the LTS is anticipated to have **minor beneficial effects** on cultural heritage.

5.4.5. Soil and Water Resources

There is potential for adverse effects from construction activities on local soil and water resources associated with several policies that include the development of infrastructure (such as Road Network and Freight - Policy 1, Parking – Policy 2, and Active Travel - Policy 1). Depending on its location, new infrastructure could lead to the permanent loss of agricultural land. Additionally, construction activities could lead to soil compaction, erosion, and increased runoff, and potential water contamination. Mitigation measures, such as using permeable surfaces, considerate construction practices, and incorporating green infrastructure, will be important to minimise these impacts.

Positive effects are anticipated from the Policies under the Environment theme.

Environment - Policy 1 supports measures to create a healthier and greener environment, which includes LTS actions which will support the conservation of soil and water resources (although no explicit reference to soil and water resources is included). Additionally, Environment - Policy 2 involves implementing climate change adaptation and resilience measures, which can protect soil and water resources from extreme weather events and associated erosion and flooding.

Overall, the LTS is anticipated to have **mixed effects** on soil and water resources.

5.4.6. Landscape

All Policies under the Active Travel theme are anticipated to have positive effects on local landscape and townscape character. This includes through the promotion of walking and cycling, which can help to limit the number of cars on the road, and their associated noise and visual pollution. Additionally, actions such as extending the cycle path network

(Action AT1) have the potential to enhance the visual appeal of urban and rural areas by providing opportunities to create green corridors that integrate with the natural landscape.

Environment - Policy 1 is also anticipated to have positive effects on the landscape, by supporting measures to create a healthier and greener environment, which would enhance the visual quality of the landscape (although this is not explicitly mentioned in the Policy or any Actions).

There is, however, potential for adverse effects on landscape character from construction activities associated with several policies (such as Parking – Policy 2 and Active Travel - Policy 1), which could lead to temporary visual and noise pollution. Significant adverse effects may also arise from the design and location of any new infrastructure, which may not be in keeping with local or townscape landscape character. This is especially likely for larger infrastructure projects, such as new road links (such as Road Network and Freight - Policy 1).

Overall, the LTS has potential for **adverse effects** on landscape and townscape character depending on the location and design of infrastructure schemes, with **uncertain effects** concluded in terms of their scope and significance at this stage.

5.4.7. Material Assets

The Active Travel Policies, Public Transport and Shared Mobility Policies, Road Network and Freight Policies, and Parking Policies all have the potential for adverse effects on material assets. The construction and maintenance of new infrastructure, such as cycle paths (Action AT1), transport hubs (Action PS1), new road links (Action RNF2), and expanded Park and ride/ mobility hub sites (Action P1), will likely require significant amounts of non-renewable materials like concrete and asphalt.

Minor positive effects are anticipated from the Active Travel, Parking, and Public Transport and Shared Mobility Policies, which aim to reduce the number of cars on the road, thereby decreasing the wear and tear on existing road infrastructure and reducing the frequency of their maintenance and associated material use.

Overall, the LTS is anticipated to have **moderate adverse effects** on material assets.

5.4.8. Population and Human Health

All the Active Travel and Behaviour Change Policies are anticipated to have positive effects on human health by promoting walking and cycling in the council area. For example, extending the cycle path network (Action AT1) and prioritising pedestrian safety (Action AT4) can make active travel more accessible and safer, which can encourage physical activity and improve overall physical and mental health and wellbeing.

Policies under the Public Transport and Shared Mobility, Digital Technology, and Parking themes, will lead to an improvement in the reliability and accessibility of public transport services across Renfrewshire. Actions such as enhancing facilities at transport hubs (Action PS1), examining the need for expansion of Park and ride/ mobility hub facilities (Action P1) and improving accessibility at rail stations (Action PS5) can make public transport a more viable option for many people, reducing reliance on private cars. This will lead to an overall improved experience using public transport for existing users, supporting accessibility to services, facilities and amenities.

Additionally, with public or active transport becoming a more accessible choice for travellers as a result of Policies in the LTS, there may be beneficial effects to locals' financial wellbeing, through savings on fuel, maintenance, and parking associated with private vehicle use.

Beneficial effects are also anticipated from the creation of jobs in the construction sector due to the development of new infrastructure such as cycle paths (Action AT1), transport hubs (Action PS1), and new road links (Action RNF2). However, it is important to acknowledge that construction activities may also lead to temporary adverse effects, including noise, disruption to services, and general inconvenience for residents.

Overall, the LTS is anticipated to have **significant positive effects** on population and human health.

5.5. Cumulative Effects with Other Plans and Strategies

Adverse cumulative effects may arise from construction activities associated with new infrastructure proposed in other plans and strategies, which could strain local resources and infrastructure, and lead to increased traffic congestion and a temporary reduction in the quality of life for residents.

Additionally, the cumulative effect of multiple infrastructure projects could exacerbate local environmental degradation. For example, increased impermeable surfaces from new roads, parking facilities, and buildings could lead to higher runoff and potential water contamination. The loss of green spaces and habitats from projects delivered through other plans/strategies alongside the LTS could also negatively impact local biodiversity and ecosystem services.

To mitigate these adverse cumulative effects, it will be important to coordinate the implementation of the LTS with other local plans/ strategies, and to engage with locals through consultation events. Additionally, promoting sustainable practices, such as using renewable materials, coupling infrastructure development with the delivery of green infrastructure, and encouraging low-emission transport options, can help reduce the overall impact on the environment and communities. With these in place, **no significant adverse cumulative effects** are anticipated from the LTS.

Positive cumulative effects across the SEA topics are anticipated as a result of the cumulative effects of the LTS and other plans and strategies. In this respect, many of the Policies complement and reinforce the objectives and actions of Scotland's NTS2, 2020 Environment Strategy for Scotland, Climate Change Plan, National Strategy for Economic Transformation, NPF4 and other key plans and strategies nationally.

5.6. Recommendations for Implementation of the LTS

A number of recommendations can be made at this stage in relation to each of the SEA topics. The following table therefore highlights a number of recommendations which should be considered during the development and implementation of schemes and LTS actions proposed for delivery through the LTS.

Table 5-1 : Recommendations for Consideration During the Implementation of the LTS

SEA Topic	Mitigation and Enhancement Measures for Consideration During the Implementation of the LTS
Air Quality and Noise Pollution	• Green infrastructure enhancements should be delivered alongside new infrastructure and designed to support air quality improvements, with a view to reducing exposures of key pollutants. • Comprehensive monitoring of emissions from transport should be undertaken where significant changes to the transport network dictate. • Any significant road infrastructure changes should be assessed, if merited, by means of an air quality assessment modelling the impact of the proposal on air quality and nearby receptors prior to progression with the measures. The Institute of Air Quality Management's publication titled 'Guidance on land-use planning and development control: Planning for air quality 2017 v1.2', should be referred to. This provides useful information on whether an air quality assessment is merited, depending on the scale of the development and its potential impact on relevant receptors. The Renfrewshire Council Environmental Improvements team should be consulted on proposed infrastructure measures and can provide advice as to whether an AQA is required.
Biodiversity, Flora and Fauna, and Geodiversity	• Potential impacts on biodiversity and habitats (including ancient woodland) should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for maximising for positive effects on biodiversity. • Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should be sought, supporting positive effects for biodiversity and delivering multifunctional benefits. • Nature-based solutions should be incorporated into works associated with LTS actions wherever possible. • New and improved lighting and signage should be designed to minimise impacts on nocturnal species.

SEA Topic	Mitigation and Enhancement Measures for Consideration During the Implementation of the LTS
	• Development of a programme of works to help ensure that designated sites for biodiversity conservation, affected by significant changes to the transport network, are brought into favourable condition.
Climatic Factors	• Comprehensive monitoring of emissions from transport should be undertaken where significant changes to the transport network dictate. • The use of permeable surfacing and integration of renewable energy sources (such as solar panels) should be prioritised in scheme design. • Transport proposals should seek to incorporate green infrastructure into scheme design. This would lead to beneficial effects, acting as sinks for CO₂ (climate change mitigation) and can play a role in reducing the urban heat island effects (climate change adaptation).
Cultural Heritage	• Potential impacts on the historic environment should be appropriately considered at scheme design. • The significance of both designated and undesignated heritage assets should be a key consideration in scheme development. • New transport infrastructure should be designed to facilitate enhancements to the fabric and setting of the historic environment. • Opportunities for enhancing access to and promoting understanding of the historic environment should be sought. • Maintenance regimes should seek to facilitate enhancements to the fabric and setting of designated and undesignated features and areas of historic environment interest. • Renfrewshire's archaeological resource should be a key consideration in the development of transport schemes.
Soil and Water Resources	• New infrastructure should be supported by permeable surfaces and appropriate drainage systems where necessary, to reduce surface water run-off and maintain or improve attenuation rates.

SEA Topic	Mitigation and Enhancement Measures for Consideration During the Implementation of the LTS
	• Provision of sustainable drainage systems, including through green and blue infrastructure provision should be sought where possible alongside new transport infrastructure. • Implementing erosion control measures during construction can also help to protect soil and water resources.
Landscape	• New infrastructure should be designed to facilitate enhancements to the quality of the public realm and landscape, townscape and villagescape character. • Transport infrastructure delivery should avoid the loss of existing trees and landscape features where possible. • Green infrastructure enhancements should be sought alongside new and enhanced transport infrastructure provision. • Maintenance regimes should seek to facilitate enhancements to local character. • Low noise surfacing should be integrated in new transport provision and maintenance regimes.
Material Assets	• Schemes associated with proposals should seek to limit waste arisings during construction. • Schemes should seek to incorporate the use of reused and recycled materials. • Scheme design should seek to extend project life and reduce future maintenance requirements through the use of longer-life materials.
Population and Human Health	• Incorporate road safety schemes within scheme development for vulnerable road users. • Encourage design which supports the needs of mobility-impaired and vulnerable groups. • Opportunities to encourage inward investment and growth in areas of improved sustainable transport access should be sought. • Coupling new active travel infrastructure with new green infrastructure, such as parks and green corridors, can provide additional mental health benefits by creating pleasant and stress-relieving environments for physical activity.

6. Proposed Monitoring Programme

6.1. Monitoring in SEA

Monitoring in SEA is a means of evaluating the environmental performance of the plan or strategy and monitoring compliance through its implementation. It is also a way to check whether the effects predicted in the SEA arise as envisaged, or whether unforeseen issues arise.

Monitoring can help to evaluate whether a plan or strategy is fulfilling its core objective of delivering sustainable development and providing for a high level of environmental protection. The gathered information provides a basis to inform the review and preparation of subsequent iterations of plans, strategies and projects that sit within them, thus better informing future decisions.

Measuring indicators over time can identify long-term positive or negative changes in the environment and can build knowledge on how these trends will affect (or will be affected by) the implementation of the plan or strategy itself. In this respect monitoring environmental changes occurring during the LTS' implementation phase can help to identify the need for additional mitigation measures or for appropriate remedial action to be undertaken where issues are identified, as well as to inform project-level assessments.

6.2. Proposed SEA Monitoring Programme for the LTS

Schedule 2 of the 2005 Act highlights that the Environmental Report should include “*a description of the measures envisaged concerning monitoring.*” In response to this, this Environmental Report presents a proposed draft monitoring programme for measuring the LTS actions' implementation. It draws on the identified potential significant effects identified through the assessment of the various components of the LTS actions and suggests where monitoring is required to help ensure that the potential benefits of the actions are effectively achieved through implementation. This will enable appropriate interventions to be undertaken if monitoring highlights negative or underperforming trends relating to the actions' implementation.

The proposed indicators are designed to be integrated within Renfrewshire Council's own monitoring programme for the LTS.

Table 6-1 therefore outlines monitoring proposals for measuring the implementation of the LTS from the SEA perspective. It pays particular attention to the areas where the SEA has identified potential significant effects and also suggests where monitoring is required to help ensure that the positive effects of the LTS actions are achieved through implementation. It includes:

- The significant effect or environmental change to be monitored.
- The SEA topic(s) to which the monitoring proposal relates.
- The indicator to be monitored.
- The source of information and frequency of monitoring; and
- The trigger for where intervention should take place if monitoring suggests it is required.

The proposed indicators are designed to be integrated within Renfrewshire Council's own monitoring programme for the LTS.

Intervention may be triggered if monitoring indicates that mitigation measures embedded within the plan (or in subsequent transport-related projects) are not functioning as expected. This allows for adjustments to help prevent significant deterioration.

Table 6-1: Proposed SEA monitoring

Significant Effect/ Environmental Change to be Monitored	SEA Topic(s)	Indicator	Data Source	Frequency	Trigger for Intervention
Impact of LTS actions on designated habitats close to the transport network	Biodiversity, Fauna and Flora, and Geodiversity	Condition of designated site assessment findings	Renfrewshire Council	Annual	When designated sites near to new infrastructure show a deterioration in quality
Impact of LTS actions on water quality	Soil and Water Resources	Waterbody assessment findings	Renfrewshire Council	Annual	When an increase in pollutants from construction activities, and pollutants from vehicles are present in waterbodies
Impacts on landscape character	Landscape	Landscape character assessment findings	Renfrewshire Council	Ongoing	Where landscape character assessment suggests significant change has taken place
Impacts on carbon emissions	Climatic Factors	Greenhouse gas emission statistics	Renfrewshire Council	Annual	Where annual transport emissions rise
Impacts on local air quality	Air Quality and Noise Pollution	Monitoring at air quality stations in the council area	Renfrewshire Council	Annual	When there is an increase in pollutants related to air quality

7. Next Steps

This Environmental Report was consulted on alongside the draft version of the LTS.

Following the completion of the consultation period in Summer 2025, comments were reviewed and analysed.

Part 3 of the Environmental Assessment (Scotland) Act 2005 requires that a 'statement' be made available to accompany the LTS, as soon as possible after their adoption. The purpose of the SEA Adoption Statement is to outline how the SEA process has influenced and informed the LTS' development process and demonstrate how consultation on the SEA has been taken into account.

To meet these requirements, an SEA Adoption Statement will be published to sit alongside the adopted LTS actions. The SEA Adoption Statement will set out:

- the reasons for choosing the preferred LTS actions in light of other reasonable alternatives;
- how environmental considerations were integrated into the LTS actions' development process;
- how consultation responses were taken into account; and
- the measures decided for monitoring the significant effects of the LTS actions.

Appendix A: Scoping Report



Renfrewshire Local Transport Strategy Strategic Environmental Assessment (SEA)

Scoping Report

www.renfrewshire.gov.uk



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1. Introduction

1.1. Purpose of this Report

AECOM has been commissioned to undertake a Strategic Environmental Assessment (SEA) in support of the emerging Renfrewshire Local Transport Strategy (hereafter referred to as “the LTS”) on behalf of Renfrewshire Council. This Scoping Report presents the scoping information for the SEA process.

1.2. The Renfrewshire Local Transport Strategy

Renfrewshire’s LTS was published in 2007 and presented a 10-to-20-year vision for transport in the local authority area (shown in

Figure 1-1 below). After ten years had passed, an LTS Refresh was published, which provided an update on Renfrewshire Council's achievements against the actions set out 2007 LTS and set out a broad direction of travel for Renfrewshire for the next ten years.

As the adopted LTS is coming towards the end of its 10-to-20-year timeframe, the Council are now in the process of developing a new strategy that will cover the period 2025-2035.

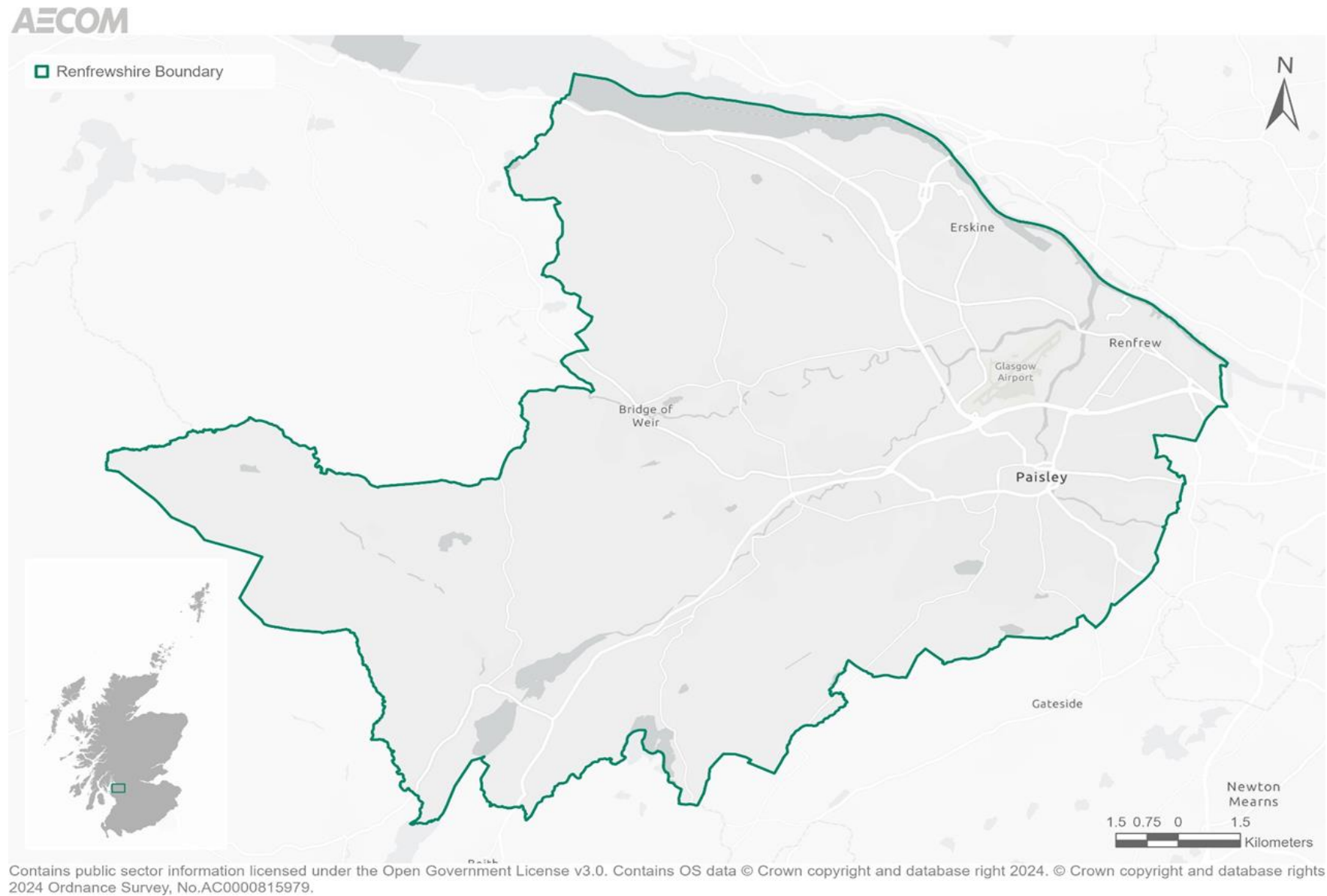
The emerging LTS for Renfrewshire will set the future direction for the Council's approach to the development and upkeep of the transport infrastructure and policy within the council area. The emerging LTS will also set out how the Council will contribute to the delivery of the obligations set out in the National and Regional Transport Strategies and other key policy drivers. To achieve this, transport policies and actions will be developed, and indicators identified to monitor the progress made on these actions.

A number of key tasks have been completed or are in the process of being completed (as of spring 2024):

- Analysis of data, undertaking a Policy Review and consultation.
- Identification of a Vision Statement, objectives and indicators.
- Generation of options and development of an Action Plan.
- Developing alternative approaches.
- Undertaking a full Strategic Environmental Assessment (SEA) and Integrated Impact Assessment.

The final LTS is programmed to be completed and launched in 2025.

Figure 1-1: Renfrewshire



2. SEA Explained

2.1. Introduction

This report has been prepared in accordance with the European Directive 2001/42/EC and section 15 of the Environmental Assessment (Scotland) Act 2005 (hereafter referred to as the “2005 Act”).

The 2005 Act requires all qualifying plans, programmes, and strategies (PPS) to undergo SEA. This provides a systematic process for identifying, reporting, and mitigating the environmental impacts of an emerging PPS.

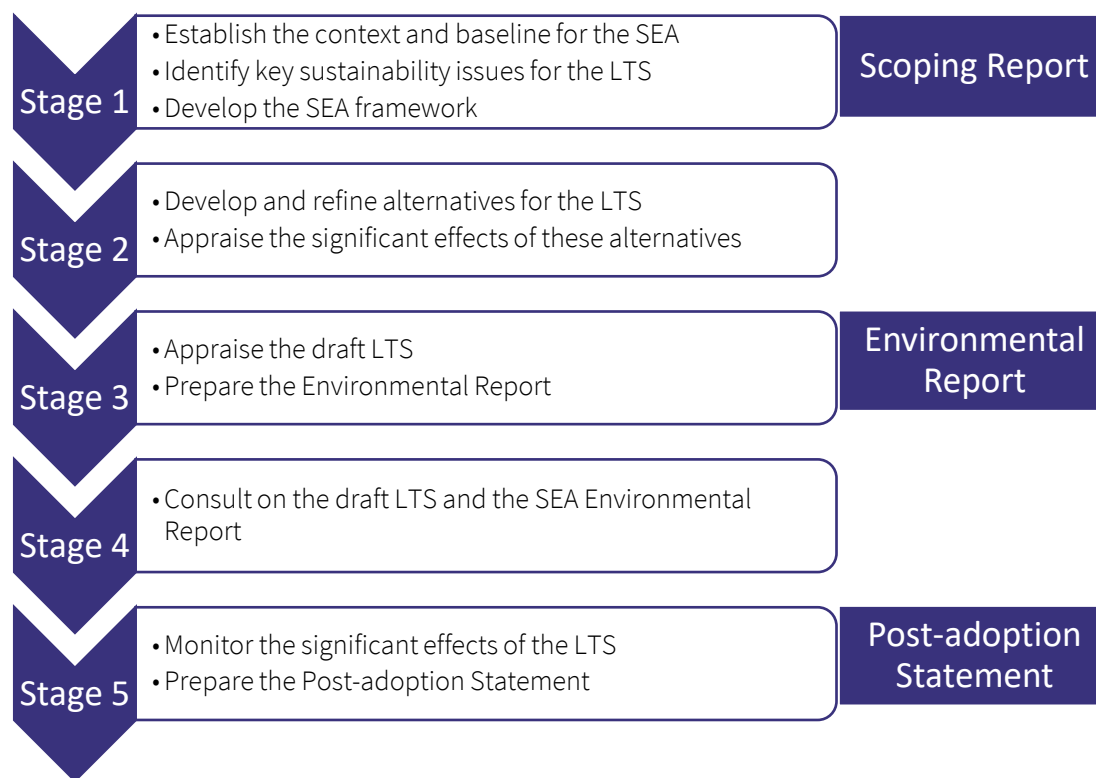
The LTS is a qualifying plan in accordance with Section 5(3) of the 2005 Act, and an SEA is therefore required.

2.2. Key Stages of the SEA Process

This SEA follows the process required by the SEA Regulations. There is guidance published by government on undertaking SEA, specifically ‘A Practical Guide to the Strategic Environmental Assessment Directive’; the ‘Practical Guide’. This sets out a five-stage process for undertaking SEA. This process, in conjunction with the SEA Regulations, guides this assessment.

The stages and outputs for the SEA are set out in **Figure 2-1** below. Scoping (the current stage) comprises Stage 1 below.

Figure 2-1: Key stages of the SEA for the LTS, and corresponding SEA outputs



2.3. Purpose of the Scoping Report

This Scoping Report has been prepared to seek the views of the Consultation Authorities (CAs). The CAs, as defined by the SEA Act, are: Historic Environment Scotland (HES), Scottish Environment Protection Agency (SEPA), and NatureScot.

The scoping process requires the Council (as the Responsible Authority) to consider in conjunction with the CAs, the scope and level of detail of the environmental assessment and an appropriate consultation period. The purpose of this report is to set out sufficient information on the LTS and its potential environmental effects to enables the CAs to form a view.

2.4. Structure of the Scoping Report

The information in this Scoping Report has been presented through eight SEA topics, which have been informed by the Environmental Assessment (Scotland) Act 2005. These are:

- Biodiversity, flora and fauna, and geodiversity.
- Climatic factors.
- Air quality and noise pollution.
- Soil and water resources.
- Cultural heritage.
- Landscape.
- Material assets; and
- Population and human health.

2.5. Scoping Report Chapters

This Scoping Report is presented through the following chapters:

- **Chapter 3: Links with other plans, programmes, and strategies** – a summary of other relevant plans, programmes and strategies that are likely to influence the LTS.
- **Chapters 4 – 11: Baseline and key sustainability issues** – an outline of the environmental, economic, and societal characteristics of Renfrewshire and key sustainability issues by SEA topic.
- **Chapter 12: SEA Framework** – sets out the objectives for each SEA topic which will inform the assessment of the draft LTS and reasonable alternatives.
- **Chapter 13: Next steps** – presents the next steps for the SEA process.

3. Links with other Plans, Programmes and Strategies

3.1. Introduction

This SEA must consider the relationships between the LTS and other relevant PPS and environmental objectives. In this context, the contents of the LTS will be partially influenced by, and will also have some influence over, objectives presented within other international, national, regional and local PPS of relevance for Renfrewshire (and Scotland as a whole).

This chapter therefore provides an overview of other relevant PPS that are likely to inform the development of the LTS.

3.2. International

- Ambient Air Quality and Cleaner Air for Europe Directive [2008/50/EC].
- Biodiversity Strategy for 2030.
- Birds Directive [2009/147/EC].
- Bonn Convention.
- Convention of Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention).
- European Convention on the Protection of the Archaeological Heritage (1992).
- European Landscape Convention.
- Habitats Directive [92/43/EEC].
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2012).
- Kyoto Protocol UNFCCC (1997).
- Rio Declaration on Environment and Development (1992).
- SEA Directive [2001/42/EC].
- The Paris Agreement UNFCCC (2015).
- Waste Framework Directive.
- Water Framework Directive.
- World Heritage Convention.

3.3. National

- A Fairer, Greener Scotland: Programme for Government 2021-2022.
- Ancient Monuments and Archaeological Areas Act (1979).
- Cleaner Air for Scotland 2: Towards a Better Place for Everyone (2021).
- Climate Change (Emissions Reduction Targets) (Scotland) Act (2019).
- Climate Change Plan Update (2020).
- Climate Change Route Map (2022).
- Climate Change (Scotland) Act (2009).
- Community Empowerment (Scotland) Act (2015).
- Cycling Framework and Delivery Plan (2022-2030).
- Environment Act (2021).
- Environmental Noise (Scotland) Regulations (2006).
- Environment Strategy for Scotland 2020: Visions and Outcomes.
- Flood Risk Management (Scotland) Act (2009).
- Guiding principles on the environment: draft statutory guidance (2021).
- Habitats Directive and Habitats Regulations.
- Historic Environment Policy for Scotland 2019 (HEPS)
- Historic Environment Scotland Regulations.
- Land Reform (Scotland) Act (2016).
- Land Use Strategy for Scotland 2021-2026.
- Levelling Up and Regeneration Bill (2022).
- Marine (Scotland) Act (2010).
- National Parks Advice to Ministers (2023).
- National Parks (Scotland) Act (2000).
- National Performance Framework (2022)
- National Planning Framework 4 (NPF4).
- National Transport Strategy 2 (2020).
- Nature Conservation (Scotland) Act (2004).
- NatureScot Guidance (various).
- Net Zero Strategy (2021).
- Offshore Marine Regulations (2017).
- Our Past, Our Future: Strategy for Scotland's Historic Environment (2023).
- Our Place in Time: The Historic Environment Strategy for Scotland (2014).
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act (1997).
- Planning (Scotland) Act (2019).

- River Basin Management Plan for Scotland 2021-2027.
- Scotland's Climate Change Adaptation Programme.
- Scotland's Forestry Strategy 2019-2029.
- Scotland's National Peatland Plan (2015).
- Scotland's Zero Waste Plan (2010).
- Scottish Biodiversity Strategy to 2045.
- Scottish Environment Protection Agency (SEPA) Regulations.
- Scottish National Marine Plan (2015).
- Scottish Soil Framework (2009).
- State of Nature Scotland Report (2019).
- The Birds Directive and Wildlife and Countryside Act (1981).
- The Scottish Government's Vision for Agriculture (2022).
- The Water Environment (Controlled Activities) (Scotland) Regulations (2011).
- UK Climate Change Risk Assessment (2022).
- Updating the Climate Change Plan 2018-2032.
- Water Environment and Water Services (Scotland) Act (2003).

3.4. Regional

- Central Scotland Green Network.
- Clydeplan Forestry and Woodland Strategy.
- Clydeplan Strategic Development Plan.
- Glasgow and Clyde Valley Green Network.
- Glasgow City Region's Climate Adaptation Strategy and Action Plan (2020-2030).
- SNH's Landscape assessment for Glasgow and the Clyde Valley
- Regional Transport Strategy for Strathclyde (2023).

3.5. Local

- Renfrewshire Local Development Plan (2021).
- Renfrewshire Contaminated Land Strategy (2022).
- Outdoors for You: Renfrewshire Outdoor Access Strategy 2016-2026.
- Renfrewshire's Plan for Net Zero.
- Renfrewshire Local Transport Strategy (2007 and 2017).

- Outdoors for You: Renfrewshire Outdoor Access Strategy (2016-2026).
- Renfrewshire's Economic Strategy 2020-2030.
- Renfrewshire Council Air Quality Action Plan (2019).
- Renfrewshire Education Improvement Plan.
- Renfrewshire Cycling Strategy 2016-2025.
- Renfrewshire Community Plan 2017 to 2027.
- Renfrewshire LDP Landscape Assessments (2011).
- Renfrewshire Environment, Housing & Infrastructure Services Service Improvement Plan (2023 – 26).
- Renfrewshire Biodiversity Action Plan (2024).
- Renfrewshire State of the Environment Report (2011) (SER).

4. Biodiversity, Flora and Fauna, and Geodiversity

4.1. Focus of the SEA Topic

- Biodiversity designations.
- Key habitats and species.
- Ecological networks.
- Geological resources.

4.2. Summary of Current Baseline

4.2.1. Designated Sites

The Convention on Wetlands of International Importance (the Ramsar Convention) is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. The convention was adopted in 1971 and came into force in 1975. In the UK, the initial emphasis was on selecting sites of importance to water birds, and consequently, many Ramsar Sites were also designated as Special Protection Areas (SPAs).

SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and regularly occurring migratory birds within the European Union. SPAs are classified under the EC Birds Directive, and together with Special Areas of Conservation (SACs), form the Natura 2000 network. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and marine areas out to 12 nautical miles are afforded protection through the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

Prior to the UK's exit from the European Union (EU), Scotland's SAC and SPA were part of a wider network of such sites known as the 'Natura 2000' network. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network but form part of a UK-wide network of designated sites referred to as the 'UK site network'. However, it is current Scottish Government policy to retain the term 'European sites' to refer collectively to SAC and SPA

(including any which are designated following the UK's exit from the EU) (Scottish Government, 2020).

A summary of the European and nationally designated sites located within Renfrewshire is provided below and shown in **Figure 4-1** at the end of this chapter. It is important to note that in some cases, sites might share overlapping boundaries if they have multiple designations. Locally important sites are shown in **Figure 4-2**.

4.2.2. Ramsar Sites

There is one Ramsar site within Renfrewshire: Inner Clyde Estuary (found in the northern region of the council area). It is a long, narrow, and heavily industrialised estuary on the west coast of Scotland – stretching 20km from Newshot Island to Ardmore Bay on the northern edge, and to Neward Castle on the southern edge. It is formed of tidal mudflats, semi-natural and unmanaged coastal vegetation, and saltmarsh. These habitats support a number of invertebrate species – the composition of which has been changing due to recent improvements in the water quality of the estuary. Notable species present within the designated area include Great cormorants, Common eiders, Slavonian grebe, Common goldeneye, Eurasian oystercatcher, and Common greenshank. It is also an important site for Common redshank populations ([Information Sheet on Ramsar Wetlands](#)).

4.2.3. Special Protection Areas

There are three SPAs within Renfrewshire.

- **Black Cart SPA** – this site totals 55.5 hectares and is located inland in the north-eastern region of Renfrewshire, north of Glasgow airport. It is an important site for Whooper swans, comprised of inland water bodies (standing water and running water) (37.2% of the area), and improved grassland (62.8% of the area). There are a number of threats to the site, including hunting and the collection of wild animals (this includes damage caused by game as well as accidental capture and the removal of species for collections), renewable abiotic energy use, the installation of utility and service lines, changes in biotic conditions, and non-specified pollution ([Standard Data Form for Black Cart \(UK9003221\)](#)).
- **Inner Clyde Estuary SPA** – partially within Renfrewshire, this site shares the same designated area as the Inner Clyde Estuary Ramsar and is located in the northern

region of Renfrewshire. Totalling 1813.72 hectares, the SPA is an important site for Common redshanks. It is comprised of: tidal rivers, estuaries, mud flats, sand flats and lagoons (including saltwork basins) environments (96.4% of the area); and salt marshes, salt pastures, and salt steppes environments (3.6% of the area). Changes to abiotic conditions within and in proximity to the SPA is a threat to the condition and quality of the designation ([Standard Data Form for Inner Clyde Estuary \(UK9003061\)](#)).

- **Renfrewshire Heights** – partially overlapping Renfrewshire in the western extent, this designation totals 8940.8 hectares, and is an important site for Hen harriers. Habitats include: alpine and sub-alpine grassland (9.3% of the area); inland rocks, screes, sands, permanent snow and ice (0.1% of the area); bogs, marshes, water fringed vegetation and fens (84.9% of the area); urban / developed areas (0.1% of the area); improved grassland (0.2% of the area); and heath, scrub, maquis and garrigue, and phygrana (5.4% of the area). Negative impacts to the SPA include grazing, ecosystem modifications, hunting and the collection of wild animals (this includes damage caused by game as well as accidental capture and the removal of species for collections), and interspecific faunal relations ([Standard Data Form for Renfrewshire Heights \(UK9020295\)](#)).

4.2.4. Special Areas of Conversation

There are no SACs within Renfrewshire. However, there are three SACs within 8km south of the council area boundary – Bankhead Moss, Beith; Cockinhead Moss; and Dykeneuk Moss.

4.2.5. Sites of Special Scientific Interest

There are eleven Sites of Special Scientific Interest (SSSIs) either wholly or partially within Renfrewshire. These are presented on [Renfrewshire Council's website](#).

- **Barmufflock Dam** - a basin mire with a range of habitats, including open mire, swamp and wet woodland.
- **Black Cart** - roost site and foraging area for wintering Icelandic whooper swans.
- **Castle Semple and Barr Lochs** - lowland wetland and fringing woodland which provide nesting and wintering habitat for a wide range of bird species.
- **Clochodrick Stone** – a large glacial erratic boulder.
- **Dargavel Burn** - active area of valley mire.
- **Formakin** - a dry herb-rich grassland.

- **Glen Moss** - a mixed basin and valley mire with important peatland habitat.
- **Inner Clyde** - intertidal mudflats and saltmarsh used as feeding grounds by waterfowl.
- **Shovelboard** - a small basin mire with a drier central area.
- **Renfrewshire Heights** - a breeding area for hen harriers.
- **Whinnerston** – comprised of two areas of unimpaired natural grassland. The grassland's one of the largest and best examples of this type of habitat in West Central Scotland.

4.2.6. National Nature Reserves

There are no National Nature Reserves within Renfrewshire.

4.2.7. Local Nature Reserves

[Local Nature Reserves](#) (LNRs) are areas of natural heritage that are at least locally important. There are 75 LNRs in Scotland, usually close to towns and cities. Local authorities select and designate LNRs under Section 21 of the [National Parks and Access to the Countryside Act 1949](#) (as amended). There are three LNRs within Renfrewshire:

- **Paisley Moss** – first designated in 1993, the site comprises 4.75 hectares of wetland, scrub and grassland habitats which provide homes for several scarce plants and vulnerable amphibian populations, as well as aquatic and terrestrial vertebrates. It is located between Glasgow airport and the M8 motorway.
- **Jenny's Well** – first designated in 1995, it is a former quarry and landfill site spanning 10.7 hectares. It is now a mosaic of grassland, scrub and woodland habitats along White Cart Water – supporting a range of birds, wildflowers and uncommon species like kingfishers and otters.
- **Durrockstock Park** - designated in 2007, the site is 6.6 hectares in size and focuses on a former reservoir which now provides habitat for waterfowl, toads and wide variety of wetland plants. The site also contains a variety of woodland and grassland habitats.

4.2.8. Geological Conservation Review Sites

[Geological Conservation Review](#) (GCR) sites contain geological and geomorphological features of national and international importance. They are selected through a process known as the Geological Conservation Review. There are nearly 900 GCR sites in Scotland.

Most of the GCR sites have statutory protection through designation as geological features in SSSIs; however, more than 200 GCR sites, (known as ‘unnotified GCR sites’) have no protective SSSI designation status. Significant areas of almost 30 further GCR sites also have no protective SSSI designation status. National Park authorities and some local authorities, therefore, treat unnotified GCR sites as ‘candidate SSSIs’ and afford them the same protection as SSSIs. Some unnotified GCR sites are also Local Nature Conservation Sites. As such, they are at least given the same protection as locally important sites – though they are actually nationally or internationally important. All other unnotified GCR sites have no statutory protection.

There is one GCR within Renfrewshire – the Bridge of Weir, located between Bridge of Weir, Crosslee and Craigends.

4.2.9. Country Parks

[Country parks](#) have been established in many parts of Scotland. Local authorities may designate country parks where they see a need, using powers under Section 48 of the Countryside (Scotland) Act 1967. Local authorities provide and manage most of Scotland’s 40 country parks. There are three country parks partially or wholly within Renfrewshire, which are:

- Muirshiel – located north of Cample Burn in the western extent of Renfrewshire.
- Castle Semple – located adjacent to Lochwinnoch.
- Gleniffer Braes – located south-east of Johnstone.

4.2.10. Habitats, Species and Green Networks

[Habitat networks](#) can help to make habitats more resilient and assist species’ survival in a fragmented landscape and changing climate. A habitat network is one that is focused on the connectivity of a single habitat or species. Meanwhile, a green network focuses on

delivering social and economic benefits as well as environmental improvements. An integrated habitat network combines the needs of several habitats and species.

Renfrewshire's habitats and opportunity areas are shown in

Figure 4-3 at the end of this chapter.

[The Central Scotland Green Network](#) (CSGN) habitat connectivity map shows that the bog and heath networks are prevalent on the council area's western and south-eastern boundary, which is also linked to the wetlands network. Grasslands and woodlands are dispersed across the entire council area.

[The NBN Atlas Scotland](#) combines information about habitats (including ancient woodland) and species from multiple sources in a single location, including data from the Glasgow Museums Biological Records Centre, which is Renfrewshire's Local Environment Record Centre. It allows users to interrogate species records, habitat, climate and soil information, and geographical boundaries using mapping tools. The tool produces a number of results for Renfrewshire, which will be explored in more detail during the next stage of the SEA process (the Environmental Report).

Ecological features of interest, such as habitats, which might have the potential to be impacted by transport infrastructure include road verges, trees, and hedgerows. As these features play an important role in providing connectivity corridors and refuges for migrating and foraging species within Renfrewshire, it will be important for the LTS to consider the potential implications on such features within the plan making process.

Habitat fragmentation occurs when larger areas of habitat are split into separate, smaller areas. This splitting of larger areas of habitat into separate, smaller ones adversely affects wildlife in a number of ways. How easily a species can spread to new areas will affect how sensitive it is to habitat fragmentation. The overall ability of a species to disperse depends on a range of factors such as its mobility and reproductive ability. Habitat fragmentation is likely to have more of an effect on species with low dispersal ability.

Invasive non-native species (INNS) are a significant driver of biodiversity decline in Renfrewshire by outcompeting native flora and fauna, disrupting ecosystems, and altering habitats. These ecological disruptions weaken natural habitats, making them less resilient to other pressures such as climate change and pollution. Without effective management and control, INNS will continue to drive biodiversity loss in Renfrewshire's ecosystems.

4.2.11. Ecosystem Services

Healthy ecosystems, made up of native plants and animals, provide important benefits that support human well-being and the integrity of the environment. These benefits include provisioning services, such as clean air, fresh water, and food; regulating services, like climate regulation, flood mitigation, and disease control; supporting services, such as soil formation, nutrient cycling, and pollination, which sustain agricultural productivity; and cultural services, including recreation, spiritual enrichment, and a sense of place. Beyond these functional benefits, biodiversity holds intrinsic value, independent of its usefulness to humans.

Therefore, in Renfrewshire, safeguarding biodiversity helps maintain vibrant, resilient natural landscapes that support both wildlife and local communities.

4.3. Summary of Future Baseline

Ecological and geological resources will potentially face increasing pressures from future transport development in Renfrewshire. This may include (but is not limited to) the loss of habitats and impacts on biodiversity networks, and potential impacts on geological resources linked to erosion and disturbances. The potential impacts on biodiversity from climate change are likely to include changes in habitat, changes in species distribution, changes in hydrology, and changes in ecosystem functioning.

European and nationally designated sites are particularly sensitive to air quality issues. In this respect, exceeding critical values for air pollutants may result in changes to the chemical status of habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats. Additionally, the nature, scale, timing, and duration of some human activities can result in the disturbance of species at a level that may substantially affect their behaviour, and consequently affect the long-term viability of their populations.

To maintain and improve the condition of biodiversity in the future, it will be important to not only protect and enhance important habitats but the connections between them. This should work alongside delivering positive effects for biodiversity. It will be crucial to effectively coordinate the delivery of new transport infrastructure to ensure that opportunities to improve green infrastructure and ecological corridors are maximised within Renfrewshire.

Scotland will not be subject to the mandatory requirements for Biodiversity Net Gain (BNG) as required in England under the Environment Act (2021), but under policy 3b of National Policy Framework 4 (NPF4), Environmental Impact Assessment schemes will need to achieve significant biodiversity enhancements. Transport infrastructure projects offer a unique opportunity to create new/expand upon existing green and blue infrastructure networks, which can utilise roadside verges or be formed alongside active travel routes.

Tree cover in neighbouring areas is also expected to increase through the Clyde Climate Forest, which will see 18 million trees planted in both urban and rural parts of Glasgow City Region over the next decade.

Biodiversity enhancements are also anticipated to be delivered in Renfrewshire through funded projects such as Biodiversity Areas in Renfrewshire project sites and Restoring Renfrewshire's Rivers project watercourses.

4.4. Key Sustainability Issues

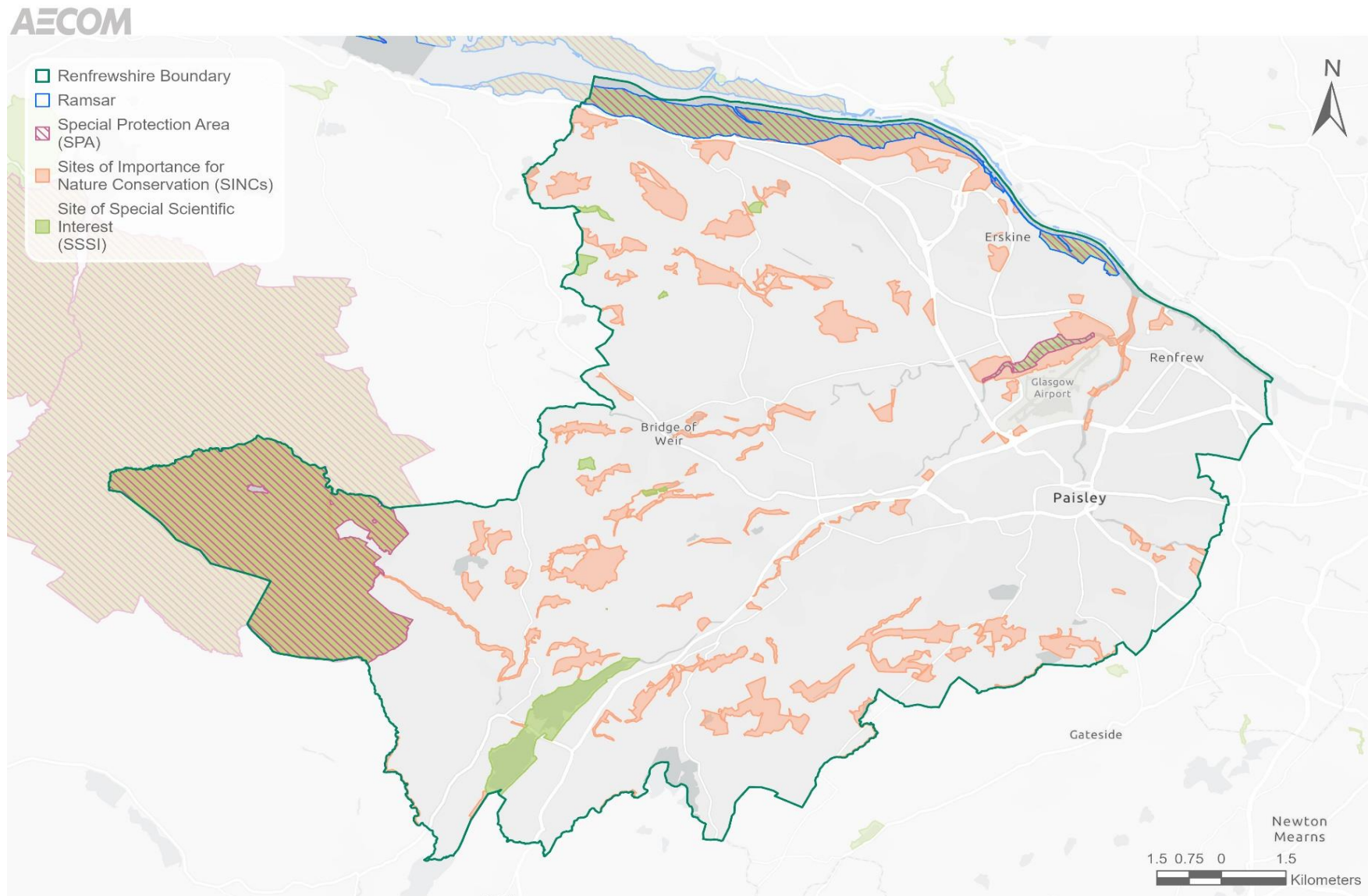
The following key issues have been identified through the baseline review for this topic:

- The nature, scale, timing, and duration of some transport activities can result in the disturbance of species at a level that may substantially affect their behaviour, and consequently affect the long-term viability of their populations. This can include effects of poor air quality on designated sites, severance of ecological networks from transport corridors, and road kills.
- Road verges are subject to a range of stresses imposed by passing traffic, including salt spray, oil, lead, and air pollutants. Parking and over running on verges can result in the complete loss of vegetation.
- There is one Ramsar site within Renfrewshire, as well as three SPAs. Whilst there are no SACs within the area, there are three within 8km of Renfrewshire. All of these designations contribute to the local and national site network, providing important biodiversity connections to allow the safe movement of species.
- Other protected areas within Renfrewshire include eleven SSSIs and three LNRs.
- There is one GCR site within Renfrewshire – its geological and geomorphological features are likely to be threatened by erosion and disturbance.
- Habitats within Renfrewshire comprise of bog and heath networks which interlink to wetlands. Grasslands and woodlands are dispersed throughout the entire council area.

- Fragmentation of wildlife habitats into smaller, isolated areas caused by new and existing development, as well as increasing traffic, reduces the scope for wildlife to move and adapt to new conditions. Habitat creation in existing and new transport corridors, as well as the delivery of positive effects for biodiversity, can help mitigate the impact of transport on biodiversity.
- The LTS presents an opportunity to provide benefits for biodiversity by including consideration of important habitats, species, undesignated sites, and connections between designated sites and undesignated sites at a localised scale. This could be achieved at an early stage of planning for future enhancements to transport infrastructure. This includes the potential to contribute to positive effects towards native tree cover within the council area, which would also complement neighbouring afforestation efforts like the Clyde Climate Forest.
- Measures to avoid the spread of invasive non-native species (INNS) are essential to avoid contributing to biodiversity declines. Management and eradication of existing INNS on sites affected by LTS actions could positively impact native biodiversity.
- Planting schemes associated with LTS actions should ensure a balance of native species (of local genetic stock wherever possible) and non-native species (climate change adaptation).
- Ecosystems are important for maintaining the health of the local environment and communities, helping to manage flood risks, improve air and water quality, and support local agriculture and green spaces, which are important for recreation and mental well-being. Therefore, nature-based solutions should be incorporated into works associated with LTS actions wherever possible.

Chapter 12 presents the SEA Framework for this topic.

Figure 4-1: European and nationally important sites for biodiversity or geodiversity conservation in Renfrewshire



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Figure 4-2: Locally important sites for biodiversity or geodiversity conservation in Renfrewshire

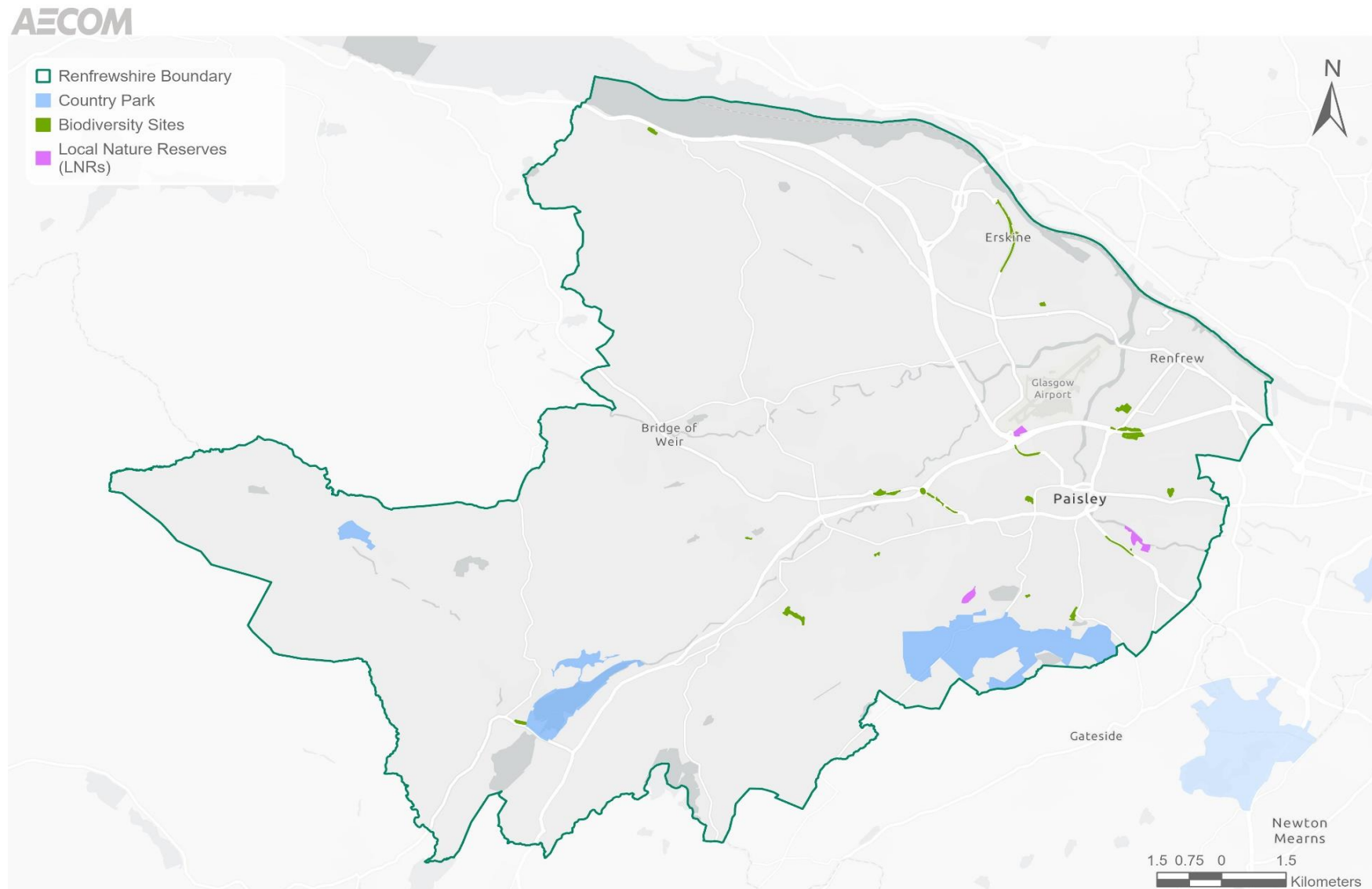
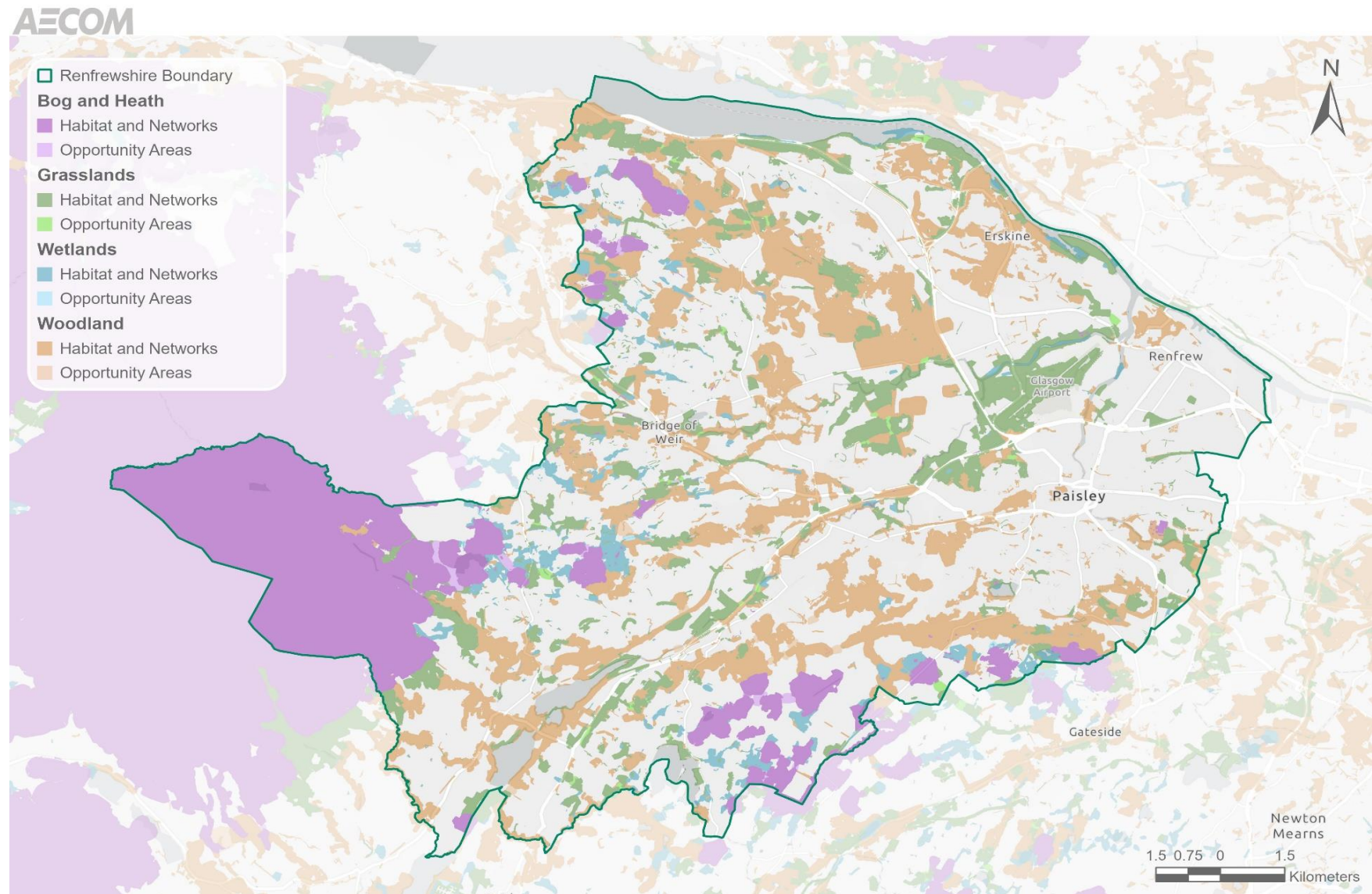


Figure 4-3: Habitats in Renfrewshire



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5. Climatic Factors

5.1. Focus of SEA Topic

- Greenhouse gas emissions.
- Potential effects of climate change.
- Flood risk.
- Climate change resilience.

5.2. Summary of Current Baseline

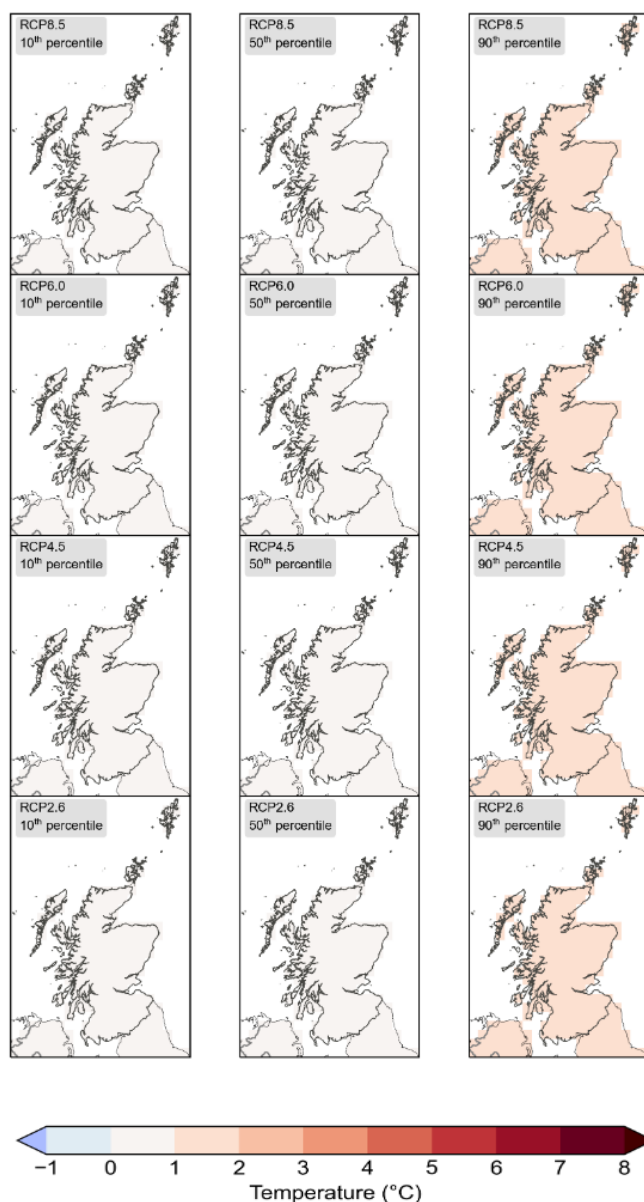
5.2.1. Climate Change and Transport

Scotland generally has cool summers, mild winters, and rainfall throughout the year ([Scotland's Environment, Climate change](#)). However, over the last few decades, Scotland has experienced a warming trend and shifting rainfall patterns. **Figure 5-1** and **Figure 5-2** overleaf illustrate the climate projections for annual mean temperature and annual rainfall for Scotland. In the future, there is expected to be warmer, wetter winters and hotter, drier summers with more extreme events ([Met Office, Climate change projections over land](#)). These changes will have major implications for the country.

Emissions from transport are a significant contributor to climate change. As such, there are two linkages between transportation and climate change that are important: 1) transportation is responsible for a significant portion of climate change through the emission of vehicular greenhouse gas (GHG) emissions, and 2) a changing climate could have serious consequences on the resiliency and performance of transportation systems in response to environmental conditions.

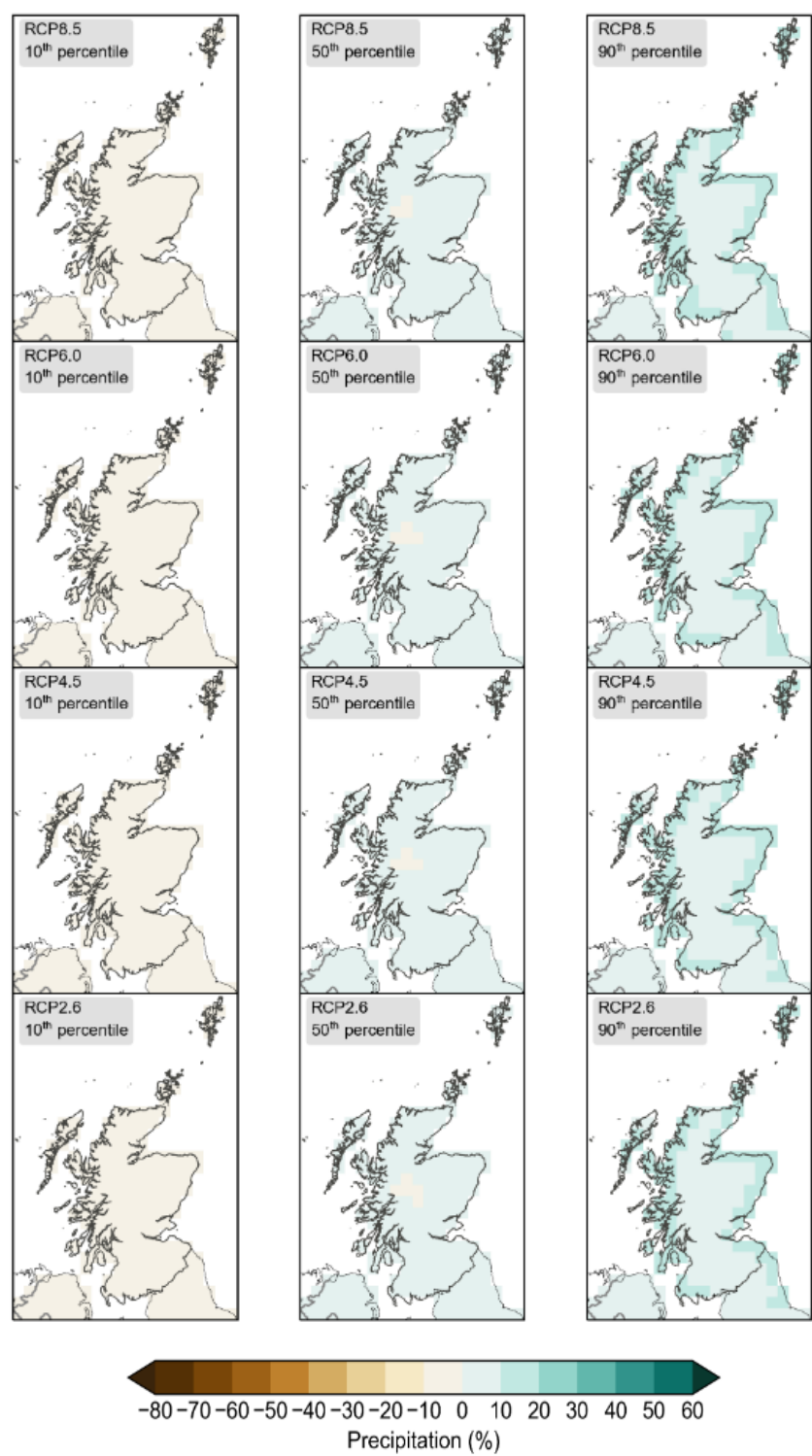
The hazards of a changing climate (such as a warmer climate, changes in precipitation patterns, higher severity storms, increasing risk of flooding and larger storm surge) could have serious implications on a wide variety of natural and human systems, including transportation. In this respect, climate change is likely to damage transportation infrastructure, affecting the reliability and capacity of transportation systems. Climate change impacts will also likely increase the cost of Scotland's transportation systems.

Figure 5-1: UKCP18 annual mean temperature anomaly in Scotland



In relation to the above figure, probabilistic projections that combine climate model data, observations and advanced statistical methods to simulate a wide range of climate outcomes for four emissions scenarios (RCP2.6, RCP4.5, RCP6.0, RCP8.5). A Representative Concentration Pathway (RCP) is a greenhouse gas concentration trajectory adopted by the IPCC. Four pathways have been selected for climate modelling and research, which describe different climate futures, all of which are considered possible depending on how much greenhouse gases are emitted in the years to come. The four RCPs, namely RCP2.6, RCP4.5, RCP6, and RCP8.5, are labelled after a possible range of radiative forcing values in the year 2100 relative to pre-industrial values.

Figure 5-2: UKCP18 annual precipitation anomaly in Scotland



Mean annual maximum and minimum temperatures have been rising since the end of the 19th Century. There is some evidence of an upward trend in mean annual rainfall, with less rain falling in summer months.

Scotland is already seeing a number of changes as a result of climate change, including changes in the growing, breeding and migration seasons, shifts in species abundance and diversity, and changing weather patterns with the potential for more floods and droughts. Continued reliance on fossil fuels, combined with demand for energy for transport and housing, has the potential to escalate emissions of carbon dioxide to increasingly dangerous and potentially irreversible levels.

The third UK Climate Change Risk Assessment was published in 2022. The key findings for Scotland were:

- Milder winters are projected to reduce fuel poverty and overall financial pressures on households from the reduction in winter energy demand.
- Hotter summers, however, may lead to a rise in heat-related deaths and hospital admissions and increased demand for air conditioning.
- Less summer rainfall may lead to a reduction in river flows, affecting public water supplies and increasing the risk of pollution, and a reduction in soil moisture, potentially damaging natural ecosystems.
- Flooding may pose an increasing threat to people, property, critical infrastructure, agriculture and important natural habitats.
- Some native animal and plant species may decline in the face of threats presented by pests, diseases and non-native invasive species.
- Agricultural output may be adversely affected from droughts, pests and disease, exacerbated by higher temperatures.

[The Scottish Greenhouse Gas Statistics 2021](#) outlines that in 2021, Scottish source emissions of the basket of seven GHGs were estimated to be 41.6 million tonnes carbon dioxide equivalent (MtCO₂e). This is 2.4% higher than the 2020 figure of 40.6 MtCO₂e; a 1.0 MtCO₂e increase.

The main contributors to this increase between 2020 and 2021 were increased emissions in domestic transport (+1.1 MtCO₂e) following the impact of the Covid-19 lockdown in 2020, and residential (+0.4 MtCO₂e) sectors. Meanwhile, emissions reductions were seen across the energy (-0.5 MtCO₂e), business (-0.2 MtCO₂e) and international aviation and shipping (-0.1 MtCO₂e) sectors. All remaining sectors showed relatively modest increases in the latest year.

Between 1990 and 2021, there was a 49.2% reduction in estimated emissions (40.3 MtCO₂e decrease). The most significant contributors to this reduction were:

- A reduction in energy supply emissions (-16.8 MtCO₂e; a 77.6% reduction).
- Land use, land-use change and forestry (LULUCF) reducing its net emissions (-5.7 MtCO₂e).
- A reduction in waste management emissions (such as landfill) (-5.0 MtCO₂e; a 76.2% reduction).
- A reduction in business emissions (-4.2 MtCO₂e; a 35.3% reduction).
- A reduction in domestic transport emissions (-2.6 MtCO₂e; a 19.3% reduction).

GHG data is not available at the local level. However, in 2021, per capita CO₂ emissions in Renfrewshire stood at 5 t CO₂ – the average for the whole of Scotland was 7.4 t CO₂. This demonstrates greenhouse gas emissions are lower in Renfrewshire in comparison. In terms of overall CO₂ emissions, this stood at 903.1 kt CO₂ in Renfrewshire in 2021. The largest contributing sector was the transport sector (300.9 kt CO₂), followed by the domestic sector (267.4 kt CO₂), and the industrial sector (120.5 kt CO₂) ([UK local authority and regional greenhouse gas emissions national statistics](#)).

[Flood risk maps provided by SEPA](#) identify that there are areas of high (10% chance or more per annum) likelihood of fluvial/coastal flooding. The high-risk areas within Renfrewshire are mostly associated with the River Clyde, Black Cart Water and White Cart water, affecting areas such as Paisley, Johnstone, and north of Glasgow Airport. Other high-risk hotspots within the council area can be found in the south-west, associated with Barr Loch, Castle Semple Loch, and Barcraigs Reservoir. A map of Renfrewshire's fluvial / coastal flood risk is provided in

Figure 5-3 at the end of the chapter.

With regard to surface water flooding, the flood risk maps provided by SEPA also shows that areas of high risk (10% chance or more per annum) can be found throughout the council area. Hotspots include north-east of Johnstone, north-east of Craigends, and south of Paisley. A map of Renfrewshire's fluvial / coastal flood risk is provided in

Figure 5-4 at the end of the chapter.

5.3. Summary of Future Baseline

Climate change has the potential to increase the occurrence of extreme weather events in Scotland, with increases in mean summer and winter temperatures, increases in mean precipitation in winter, and decreases in mean precipitation in summer. This is likely to increase the risks associated with climate change, including surface water and fluvial flood risk, as well as flooding by sea. This will result in an increased need for resilience and adaptation for transport infrastructure.

In terms of climate change mitigation, per capita emissions are likely to continue to decrease as energy efficiency measures, renewable energy production, and new technologies become more widely adopted. In particular, an ongoing increase in the use of electric vehicles (EVs) has the potential to reduce emissions from transport. In this respect, the UK Government has stated that it will disallow the sale of petrol and diesel cars and vans after 2030, and hybrids after 2035. More stringent emission standards on manufacturers will also help accelerate the trend to alternatively powered vehicles.

Alongside an uptake of cleaner vehicles, a modal shift to more sustainable modes of transportation, as well as improving the active travel network and reducing the need to travel through encouraging home working, would be beneficial to reducing transport emissions in Scotland.

5.4. Key Sustainability Issues

The following key issues have been identified through the baseline review for this topic:

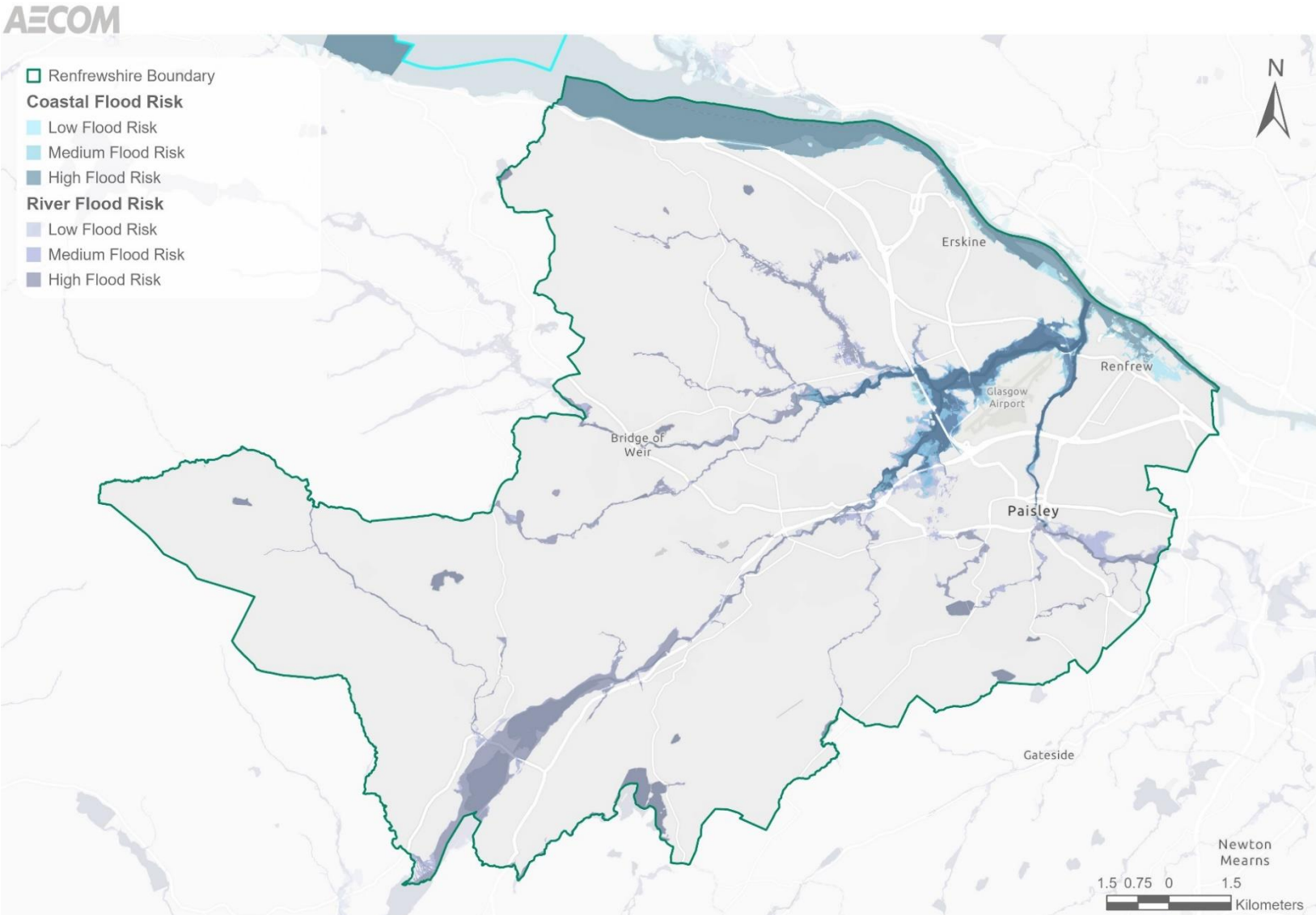
- Road transportation is a major contributor of CO₂ emissions (which is one of the main components of GHGs) in Scotland, and therefore a major factor in exacerbating climate change impacts. However, the ongoing transition towards electric and

hybrid vehicles, combined with an increase in home working and active travel uptake, has the potential to help reduce emissions from transport in the long-term.

- A range of flood risk issues exist across Renfrewshire. This includes flooding linked to fluvial, surface water, and groundwater flooding and inundation from the sea.
- The transport network of Renfrewshire has the potential to become increasingly vulnerable to the potential effects of climate change in forthcoming years. As such the resilience of the transport network to the likely impacts of climate change will be a key factor in its effective functioning.

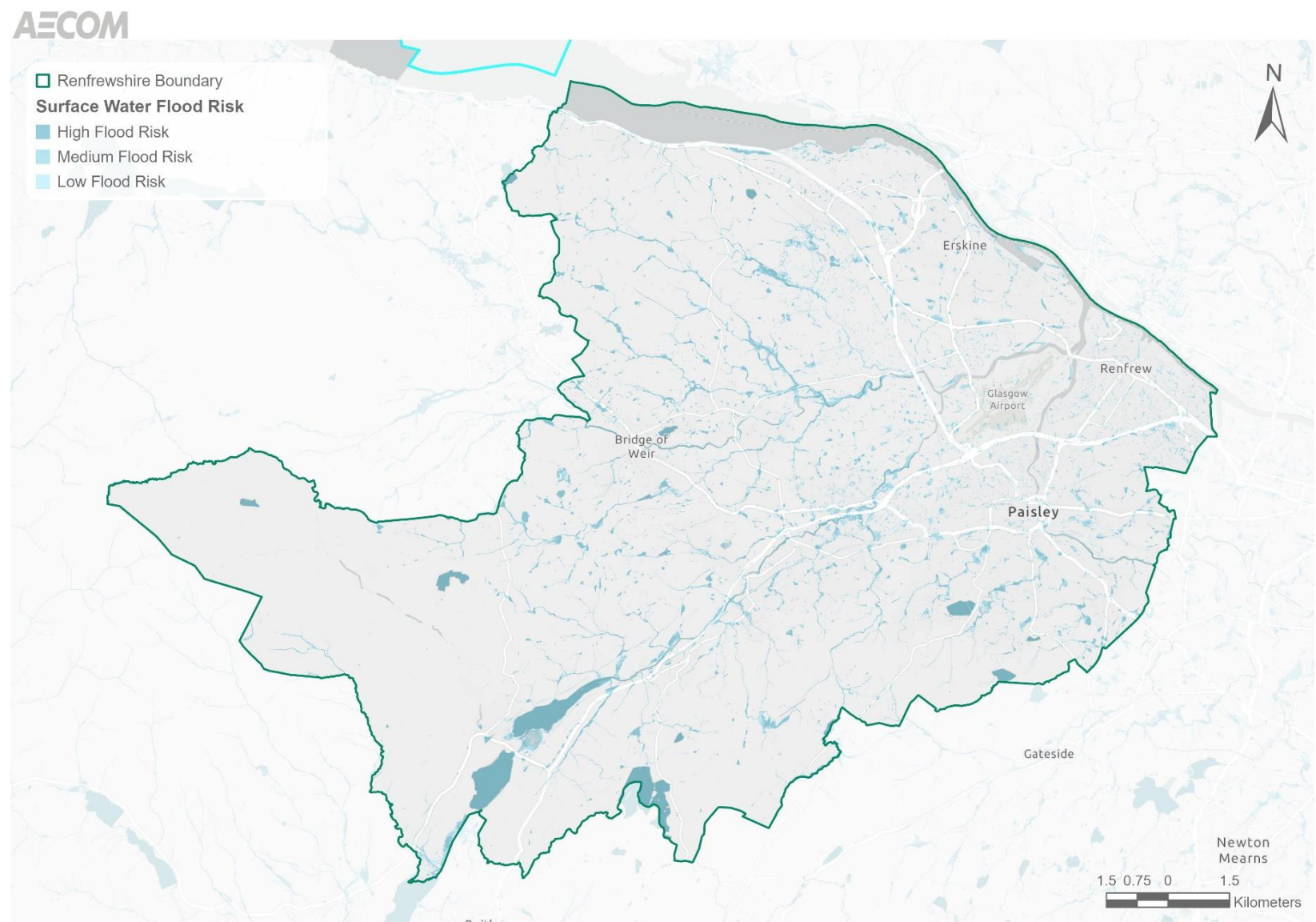
Chapter 12 presents the SEA Framework for this topic.

Figure 5-3: Fluvial / Coastal Flood Risk in Renfrewshire



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Figure 5-4: Surface Water Flood Risk in Renfrewshire



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6. Air Quality and Noise Pollution

6.1. Focus of SEA Theme

- Air pollution sources.
- Air quality hotspots.
- Air quality management.
- Noise pollution.

6.2. Summary of Current Baseline

6.2.1. Air Quality Management Areas

Local Authorities have a duty to designate any relevant areas where the air quality objectives are not (or are unlikely to be) being met as Air Quality Management Areas (AQMA) ([Air Quality Management Area – Scotland](#)). AQMAs must be designated officially by means of an 'order'. The extent of the AQMA may be limited to the area of exceedance or encompass a larger area. Following the declaration of an AQMA, the local authority is required to develop and implement a plan (Air Quality Action Plan) to improve air quality in that area. AQMAs can be for a combination of nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and particulate matter (PM₁₀).

There are three AQMAs in Renfrewshire, which have all been declared due to exceedances in the air quality objective for NO₂.

- Paisley Town Centre (PTC) – first declared in 2006, this AQMA has also been designated for exceedances in the air quality objective for PM₁₀. The designated area covers central Paisley and extends along some radial roads.
- Johnstone High Street (JHS) – first declared in 2016, covering the main road that runs through Johnstone town centre.
- Renfrew Town Centre (RTC) – first declared in 2016, covering the main roads through Renfrew town centre.

Renfrewshire Council has prepared an [Air Quality Action Plan](#) (2019) in line with its statutory obligations. It is designed to address the air quality problems identified within

the council's three AQMAs. An update to the Plan was published in 2024. The update outlines that there has been a steady improvement of air quality across Renfrewshire Council and, as such, no exceedances of any air quality objectives have occurred since 2019. It also outlines new measures which Renfrewshire Council should deliver between 2024-2029 to continue to reduce concentrations of air pollutants within the council area.

The most recent [Annual Progress Report](#) (APR) for Renfrewshire was published in 2024 and reviewed monitoring data from 2023. This report confirmed there continues to be no exceedances and that monitored concentrations of both nitrogen dioxide (NO₂) and particulate matter (PM) continue to show a downward trend across Renfrewshire. As such, it is now the council's intention to revoke all three AQMAs.

A Revocation Report, which provides evidence in favour of the revocations, was prepared and submitted to the Scottish Government and the Scottish Environment Protection Agency (SEPA) in November 2024. Both statutory consultees have approved the report in support of the revocations. The report is due to be presented to the Council's Environment Policy Board in March 2025 for consideration and final approval with the AQMAs thereafter being revoked.

6.2.2. Noise Pollution

The Environmental Noise Directive requires, on a five yearly cycle, the Scottish Government to produce strategic noise maps ([Overview of Scotland's noise, Scotland's noise](#)). Noise action plans will be prepared based on the results of the noise mapping, with a public consultation on the draft action plans. The Scottish Government has commissioned work on the collaborative development of modelling and mapping to describe the noise exposure in Scotland for 2021. The work will be completed in early 2024 as part of the fourth round of noise mapping for Scotland, under the Environmental Noise (Scotland) Regulations 2006.

The noise modelling work will develop a geospatial model of the country and the updated mapping system will be capable of appraising national strategy, local policy, and individual interventions. This work will include new road and rail noise source data, and a new calculation methodology to significantly improve the evidence base. The noise maps will support the delivery of new noise actions plans to prioritise the management of noise in Noise Management Areas (NMAs), as specified by the Environment Noise (Scotland) Regulations 2006.

The current round three noise map demonstrates noise pollution in Renfrewshire is largely linked to Glasgow airport and the strategic road network (predominantly the A737 and the M8).

6.3. Summary of Future Baseline

There is likely to be a continued reliance on private vehicles in Renfrewshire, with potential for some modal shift to active/public transport. In addition, future transport infrastructure provision has the potential to increase the amount of traffic on key routes through Renfrewshire. This is especially true for the A737, the M8, and through town centres. This has the potential to increase pollutants and impacts on the AQMAs within Renfrewshire.

However, it is noted that cleaner vehicles, including the update of EVs and their associated infrastructure, have the potential to lead to improvements in air quality over the longer term. The provision and management of EV charging points across Renfrewshire has the potential to lead to positive effects in terms of addressing EV challenges, including through increasing public confidence in charging infrastructure.

6.4. Key Sustainability Issues

The following key issues have been identified through the baseline review for this topic:

- There are three active AQMAs in Renfrewshire, which cover the town centre environments of Paisley, Renfrew, and Johnstone. An Air Quality Action Plan is in place to address poor air quality in these areas.
- Outside key towns, areas of noise concern across Renfrewshire broadly link to and follow the routes of the road network, particular the M8 and A737. Another key contributor to noise pollution in Renfrewshire is Glasgow airport.
- Future transport infrastructure provision has the potential to increase the amount of traffic on key routes through Renfrewshire, with the potential for increasing pollutants.
- Modal shift away from journeys made by private vehicles and towards public transport or methods of active travel has the potential to reduce congestion and transport emissions within the council area, which would lead to better air quality in the council area.

Chapter 12 presents the SEA Framework for this topic.

7. Soil and Water Resources

7.1. Focus of SEA Theme

- Soil resources.
- Water resources and quality.

7.2. Summary of Current Baseline

7.2.1. Soil Resources

Land is a limited resource with competition for agriculture, forestry, and other uses. The value and use of land will generally depend on its quality, location and any restrictions placed on it. **Figure 7-1** at the end of this chapter shows the location of prime agricultural land across the local authority area.

Scotland's national scale land capability for agriculture map provides information on the types of crops that may be grown in different areas dependent on environmental and soil characteristics ([National scale land capability for agriculture](#)). The land capability for agriculture (partial cover) was published later at a greater resolution and, where coverage exists, is seen as the definitive mapped assessment. Soil classes range from Class 1 (land capable of producing a wide range of crops) to Class 7 (land of very little agricultural value). Land within Class 3 is subdivided to provide further information on potential yields; Classes 4 and 5 are further divided to provide information on grasslands; Class 6 is divided on the quality of the natural vegetation for grazing.

The majority of undeveloped land in Renfrewshire underlain by classes 4.1 and 4.2 – which is land capable of producing a narrow range of crops. The western extent of Renfrewshire has areas of class 5.1 and 5.3 – which is capable of being used as improved grassland. The western extent also has class 6.2, which is land capable of being used as rough grazings. There are further areas of class 5.1 to the south of Langbank, to the west of Bridge of Weir, and to the east of Lochwinnoch. The majority of the eastern and north-eastern part of Renfrewshire is in urban use, associated with Renfrew, Johnstone, and Paisley. There is an area of land in class 2 that extends from Craighends towards Inchinnan and Erskine and towards the River Clyde that would be capable of producing a wide range of crops.

[Scotland's Soils](#) provides data and information on the country's soils. This includes a national soil map of Scotland, which shows that soil types across Renfrewshire are varied. The northern region of Renfrewshire is primarily underlain by brown soils, mineral gleys, and alluvial soils; the western extent is mostly peat with peaty podzols and mineral podzols.

Other data and information provided by Scotland's Soils includes a soil risk map, which shows areas of soil at risk of erosion, runoff, leaching and compaction, and a carbon and peatland map, which shows the distribution of carbon and peatland classes across the whole of Scotland. These maps will be explored in more detail during the next stage of the SEA process (the Environmental Report).

7.2.2. Water Resources and Quality

Renfrewshire's waterbodies

The water resources located within Renfrewshire include a network of main rivers, lochs, lakes, streams, dams, and drainage ditches.

The Scottish Environment Protection Agency (SEPA) produces an annual Water Framework Directive (WFD) classification for all the waterbodies in Scotland. Most of Scotland's water environment is already in a good condition and subject to fewer pressures than most other European waters. However, there are significant environmental problems caused by a number of pressures, including diffuse and point source pollution, alterations to beds, banks and shores, alterations to water levels and flows and the presence of invasive non-native species.

According to Renfrewshire's [State of the Environment Report](#) (SER, 2011), the main concerns for the water environment within Renfrewshire are associated with diffuse pollution from sources such as fertilisers used in agriculture and forestry, contaminants from roads and pavements and atmospheric deposits of contaminants arising from industry.

In order to measure pressures on water quality in Scotland, SEPA uses an aquatic classification system which covers rivers, lochs, estuaries, coastal and groundwater bodies. These are split into management units called waterbodies, with a classification produced for each body (the number of water bodies between years varies slightly, as some water body boundaries are reviewed to ensure that they can be managed appropriately).

The WFD requires the creation of River Basin Management Plans (RBMP) ([Water Framework Directive, NatureScot](#)). In these, surface waterbodies are classified using a system of five quality classes: high, good, moderate, poor, and bad. Meanwhile, ground waterbodies are classified as good or poor. In general, the classification of waterbodies is defined by how much their condition or status differs from near natural conditions. Whilst most waterbodies in Scotland have a good or moderate status, [online mapping for the latest RBMP](#) (2015-2027) identifies several surface waterbodies within Renfrewshire that are classed as Bad or Poor condition in 2014. These are:

- Candren Burn: Bad.
- Dargavel Burn: Bad.
- White Cart Water (Kittoch Water to A726 road bridge): Poor.
- River Gryfe (d/s Barochan Burn): Poor.
- Black Cart Water: Poor.
- Castle Semple Loch: Poor.
- Dubbs Water: Poor.

The mapping also identified the following groundwaters in Renfrewshire in Poor condition:

- Govan Sand and Gravel: Poor.
- Paisley and Pollock: Poor.
- Linwood: Poor.
- Dalry: Poor.

NatureScot works with SEPA and other bodies to implement RBMPs. This includes action to improve the condition of SACs and SPAs where impacts on the water environment are leading to unfavourable condition. The key pressures on waterbodies that have been identified in the RBMP for Scotland are:

- Pollution – rural diffuse pollution (mainly from agriculture); wastewater discharges.
- Barriers to fish migration.
- Physical modification of waterbodies.
- Invasive non-native species.
- Pressures on flows and levels, for example abstraction.

7.3. Summary of Future Baseline

Population growth, development, and climate change is likely to increase pressure on water resources and associated WFD objectives. Climate change could also increase flooding, which could lead to adverse effects on water quality from overflowing of storm water drains and leaching of contaminated soils into surface waters. Soil erosion is likely to continue due to surface water flash flooding and other causes.

Compaction and sealing is also likely to continue from an increase in developed areas and impermeable surfaces (including new road infrastructure).

Pressure for development and new transport infrastructure within undeveloped areas of Renfrewshire has the potential to lead to the loss of areas of productive agricultural land.

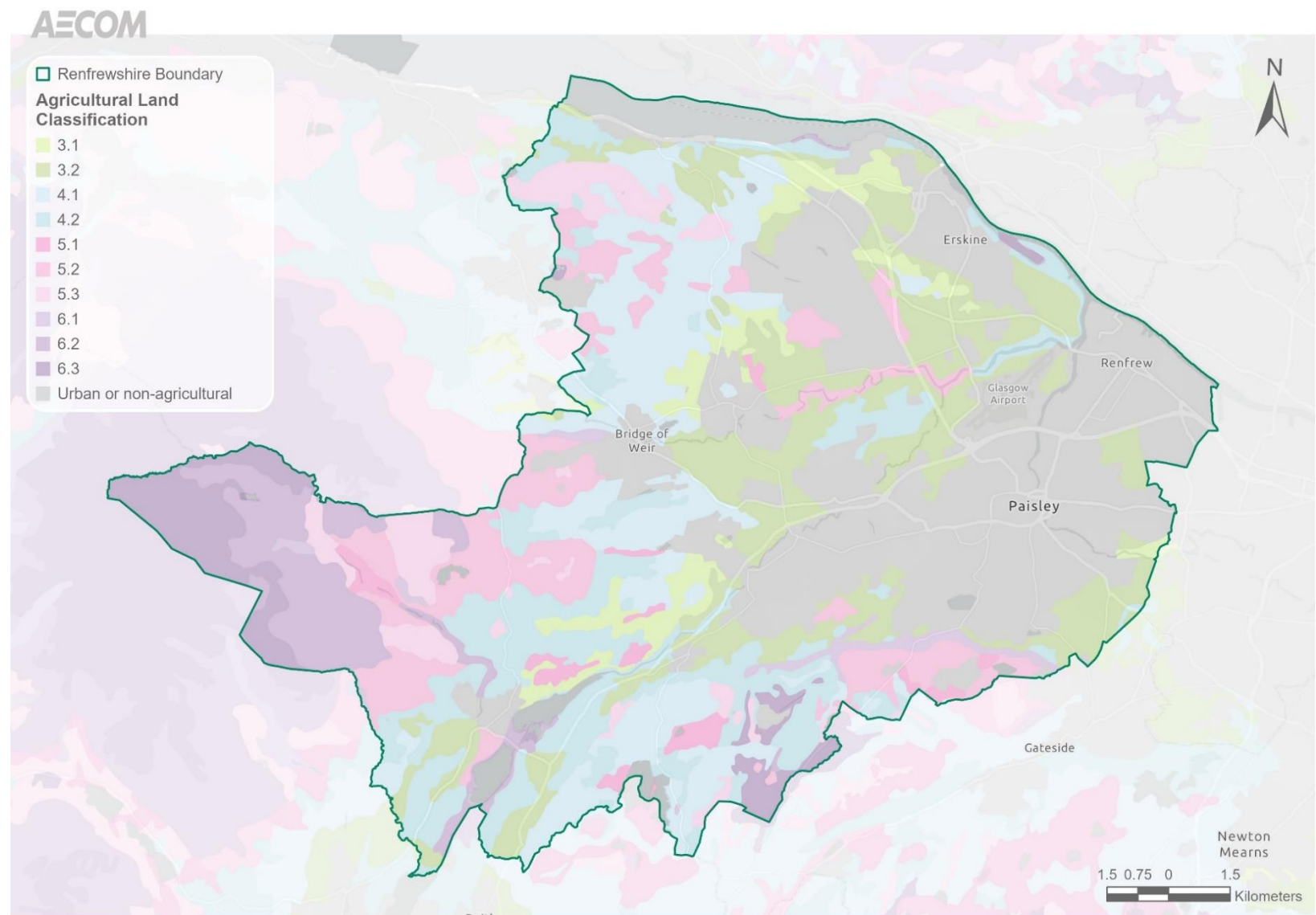
7.4. Key Sustainability Issues

The following key issues have been identified through the baseline review for this topic:

- Areas of higher quality agricultural land is present within Renfrewshire. This includes class 2 agricultural land that extends from Craigends towards Inchinnan and Erskine and towards the River Clyde. Therefore, this land should be protected from new transport infrastructure where possible.
- Increased soil erosion and compaction could be an issue for new transport infrastructure schemes, with impermeable materials reducing the drainage capacity and increasing the potential for surface water run-off issues.
- The key pressures on waterbodies in Scotland are pollution, barriers to fish migration, physical modification of waterbodies, invasive non-native species, and pressures on flows and levels. Renfrewshire's SER specifically highlights that diffuse pollution from roads and pavements is a particular concern for the council area.

Chapter 12 presents the SEA Framework for this topic.

Figure 7-1: Prime Agricultural Land



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8. Cultural Heritage

8.1. Focus of SEA Topic

- Designated and non-designated heritage assets.
- Setting, special qualities, and significance of heritage assets.
- Locally important heritage assets.
- Archaeological resources.

8.2. Summary of Current Baseline

8.2.1. Introduction

Built heritage includes ancient monuments, archaeological sites and landscapes, historic buildings, townscapes, parks, gardens and designed landscapes and other features, and comprises both statutory and non-statutory designations. The historic built environment provides a sense of identity and continuity for communities – as such, it is highly valued.

Additionally, across Scotland there are a significant number of assets of historical and archaeological importance that do not meet the criteria for designation and are classed as ‘record only’.

Compiled and managed by Historic Environment Scotland (HES), [Canmore](#) contains more than 320,000 records and 1.3 million catalogue entries for archaeological sites, buildings, industry and maritime heritage across Scotland.

[HES’s search tool](#) produces 603 results for Renfrewshire and will be an essential source of evidence during the next stages of the SEA.

A map of Renfrewshire’s designated heritage assets (excluding listed buildings) is found in

Figure 8-1, whilst a map of Renfrewshire's listed buildings is found in

Figure 8-2. Both figures are found at the end of the chapter.

8.2.2. World Heritage Sites

There are no World Heritage Sites (WHS); however, adjacent to the council area's north-eastern boundary lies the western Antonine Wall WHS, a 60km long fortification that spans the width of central Scotland.

8.2.3. Listed Buildings

[HES](#) holds a record of listed buildings of special architectural or historic interest. These assets have been listed under the [Planning \(Listed Buildings and Conservation Areas\) \(Scotland\) Act 1997](#).

Listed buildings are placed into one of three categories according to their relative importance. These are as follows:

- **Category A** – Buildings of special architectural or historical interest which are outstanding examples of a particular period, style or building type.
- **Category B** – Buildings of special architectural or historic interest which are major examples of a particular period, style or building type.
- **Category C** – Buildings of special architectural or historic interest which are representative examples of a period, style or building type.

HES's search tool produces 568 results for listed buildings in Renfrewshire – of which 38 are Category A, 335 are Category B, and the remaining 195 are Category C.

8.2.4. Scheduled Monuments

[HES](#) maintains a schedule (a list) of monuments of national importance, listed under the Ancient Monuments and Archaeological Areas Act 1979. The aim of scheduling is to preserve Scotland's most significant sites and monuments of architectural value as far as possible in the form in which they exist today.

HES's search tool produces 34 results for scheduled monuments in Renfrewshire.

8.2.5. Gardens and Designed Landscapes

Gardens and designed landscapes – grounds consciously laid out for artistic effect – are an important element of Scotland’s historic environment and landscape. Such spaces play a big role in Scotland’s heritage. HES select nationally important sites for the Inventory under the terms of the Ancient Monuments and Archaeological Areas Act 1979.

There is one garden and designed landscape within Renfrewshire. [Formakin \(Historic Environment Scotland\)](#), located in Erskine parish, is an early 20th century landscape designed by Sir Robert Lorimer, and contains a number of notable architectural features, woodland, parkland, gardens and important wildlife areas.

It is noted that the [Renfrewshire Council website](#) also indicates there is a further garden and designed landscape within the area – a portion of Finlaystone Estate.

8.2.6. Conservation Areas

[Renfrewshire Council’s website](#) also notes that there are eight conservation areas within Renfrewshire:

- Castlehead, Paisley.
- Greenlaw, Paisley.
- Houston.
- Kilbarchan.
- Lochwinnoch.
- Ranfurly, Bridge of Weir.
- Paisley Town Centre.
- Thornly Park, Paisley.

Associated conservation guides, appraisals, and management plans for these conservation areas in Renfrewshire have not been published. This represents a potential gap in the baseline, given these documents provide additional information and detail around the designations – for example, their special character and important features. However, it is noted Renfrewshire Council have produced a guide on development coming forward within conservation areas – this will be an important piece of evidence and referred to in the later stages of the SEA (the Environmental Report).

8.2.7. Buildings at Risk

The [Buildings at Risk Register](#), which is maintained by HES, brings together potential restorers and redevelopers with buildings and sites that are considered at risk or under threat. The historic places on the Register are all of architectural or historic importance. They are usually [listed buildings](#) or an unlisted building within a [conservation area](#). A building at risk may be:

- Long-term vacant.
- Neglected and / or poorly maintained.
- Structurally unsound.
- Damaged by fire.
- Unsecured and open to the elements.
- Threatened with demolition.

There are 28 Buildings at Risk in Renfrewshire. Whilst these are located across the whole area, a notable cluster can be found in and around Paisley. These will be explored in more detail during the next stage of the SEA process (the Environment Report).

8.2.8. Additional Heritage Features and Areas of Interest

It should be noted that not all historic environment features are subject to statutory designations. Consequently, there remain many non-designated features of historic interest and are an important part of local communities. For example, open spaces and key distinctive buildings are likely to have a local historic value.

8.3. Summary of Future Baseline

New transport infrastructure provision within Renfrewshire has the potential to impact on the fabric and setting of heritage assets, for example, through ground disturbance and inappropriate design and layout. It should be noted, however, that existing historic environment designations offer a degree of protection to heritage assets and their settings, and there are a range of existing initiatives to enhance historic environment assets across Scotland.

Increasing traffic levels associated with an increase in population has the potential to negatively impact heritage assets. In urban areas, this can be from vibration affecting the

structural integrity of vulnerable buildings, emissions, and from the provision of street furniture affecting the setting of assets.

Increases in visitor numbers may increase demand for recreational activities associated with key heritage assets in Renfrewshire.

An improvement in connectivity or alterations to public transport services throughout Renfrewshire could enhance access to the council area's historic sites. Consequently, this could lead to a greater number of individuals being able to enjoy the area's heritage.

8.4. Key Sustainability Issues

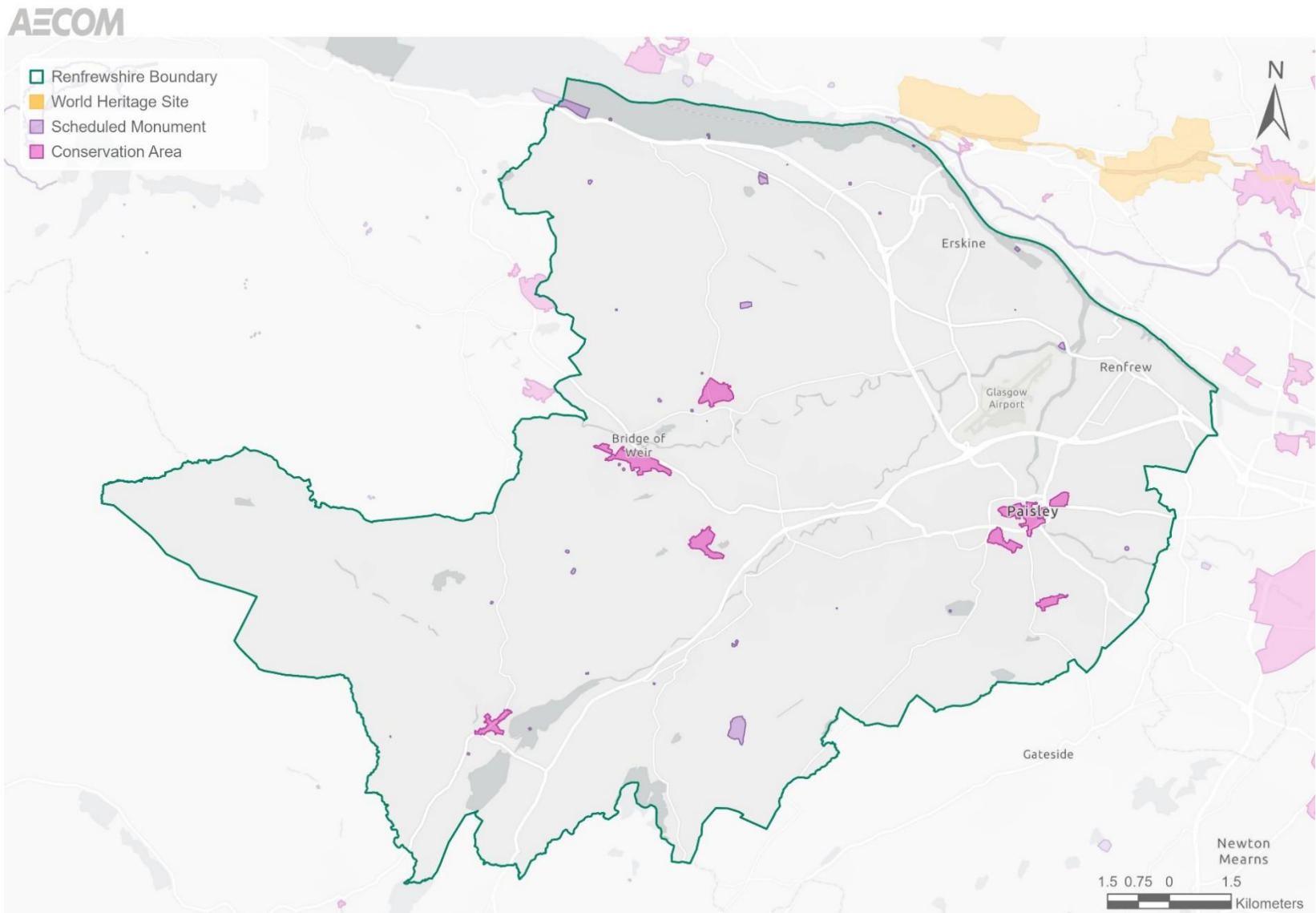
The following key issues have been identified through the baseline review for this topic:

- There are many features and areas of historic environment interest present within Renfrewshire. This includes a large number of listed buildings, scheduled monuments, and gardens and designed landscapes. There are also several structures on the Buildings at Risk Register.
- There are eight conservation areas within Renfrewshire; however, there are no associated management plans for these designations. As this time, it is not possible to determine what effect, if any, transport infrastructure has on these designated areas, their settings, and specific features.
- New transport infrastructure provision has the potential to impact on the fabric and setting of historic environment assets, through ground disturbance, inappropriate design, and layout.
- There is a need for transport infrastructure development to avoid loss of or damage to heritage features and their setting, and where possible, recognise and better reveal the significance of heritage assets into transport infrastructure, providing opportunities for enhancing their fabric and setting.
- Accessibility to the council area's most important historic sites could be improved through the LTS, which would enable more people to appreciate the area's heritage.
- It is also recognised that the LTS has the potential to establish cross-cutting provisions relating to development. This could include the creation and enhancement of functional environmental infrastructure, ecosystem services and biodiversity, providing appropriate buffers to natural spaces and restoring and enhancing connectivity. In this context, improving the resilience of such networks is likely to protect the historic environment, important views, and/or the setting of

designated and non-designated assets, in addition to the wider character of key historic settlements across Renfrewshire.

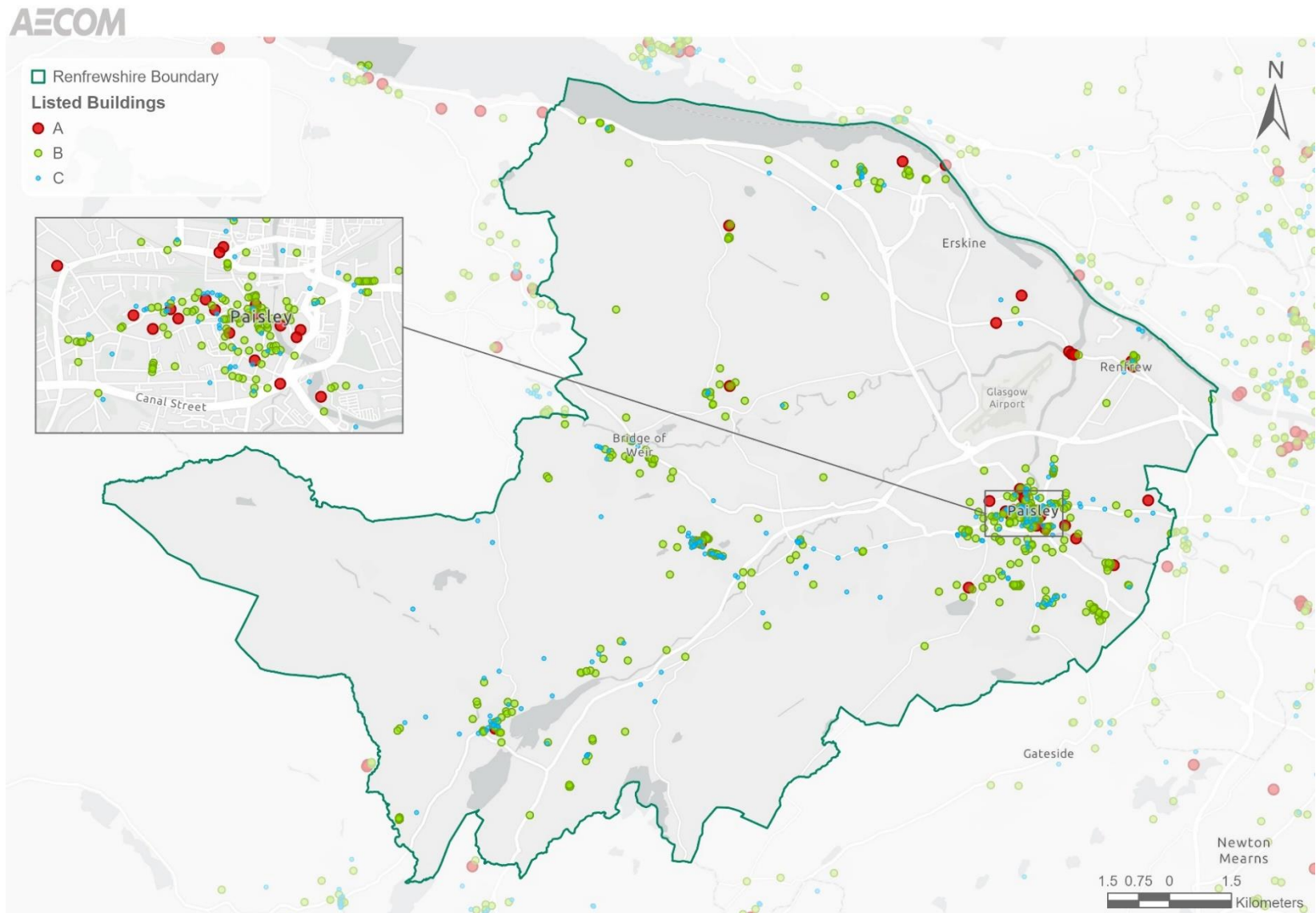
Chapter 12 presents the SEA Framework for this topic.

Figure 8-1: World Heritage Sites, Scheduled Monuments, and Conservation Areas in Renfrewshire



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Figure 8-2: Listed Buildings in Renfrewshire



9. Landscape

9.1. Focus of SEA Topic

- Designated and non-designated sites and areas.
- Landscape character and quality.
- Visual amenity.

9.2. Summary of Current Baseline

9.2.1. National Scenic Areas

Scotland's 40 [National Scenic Areas](#) (NSAs) cover 13% of the country's land. The designation's purpose is both to identify Scotland's finest scenery and to ensure its protection from inappropriate development in the planning system. NSAs are broadly equivalent to the National Landscapes (previously Areas of Outstanding Natural Beauty, or AONBs) found in England, Wales and Northern Ireland.

There are no NSAs in or near to Renfrewshire – the nearest is Loch Lomond, approximately 10km to the north of the council area.

9.2.2. Landscape Character and Quality

The [Renfrewshire LDP Landscape Assessment](#) (2011) outlines that Renfrewshire sits at a boundary where the urban sprawl of Greater Glasgow transitions into a more open rural landscape towards the west. Its terrain varies, featuring flat to gently undulating land in the north-east, extending towards settlements like Houston and Brookfield. Paisley, Linwood, and Johnstone lie within this relatively level landscape, while further south and west, the terrain becomes more rolling. Villages such as Bridge of Weir, Houston, Kilmacolm, and Howwood are nestled amid these undulations. Moving south-west towards Lochwinnoch, the landscape takes on a more rugged character.

Drainage is predominantly towards the south-west, with the Black Cart Water flowing from Castle Semple Loch and the River Gryffe draining the western part of the council area. In

the east, the White Cart Water meanders through south Glasgow, passing Paisley before merging with the Black Cart Water north of the city, ultimately joining the River Clyde.

The primary urban centre in Renfrewshire is Paisley, which connects with Renfrew to the north-east and Johnstone to the west. Smaller communities such as Bridge of Weir and Linwood are dispersed westward from Paisley. Along the banks of the River Clyde, there is a grouping of medium to smaller settlements including Langbank and Erskine.

Key transportation arteries, which affect landscape character, include the M8, running east to west north of Paisley, and the A737, which heads south-west from Paisley along the Black Cart Water Valley. The M8 transitions into the A8 between Bishopton and Langbank, continuing westward along the coast to Greenock. Similarly, the A737 crosses the county south-westward from north-west Paisley, passing through Linwood, Johnstone, Kilbarchan, and Howwood. Glasgow Airport, serving the western part of Scotland, lies north-west of Paisley near the junction of the M8 and A737.

9.2.3. Landscape Character Areas

The Glasgow and Clyde Valley Landscape Character Area (LCA) covers the administrative areas of East Dunbartonshire, West Dunbartonshire, Glasgow City, Inverclyde, Renfrewshire, East Renfrewshire, North Lanarkshire and Renfrewshire. The LCA contains a diverse range of environments, ranging from extensive urban areas to remote rural areas.

[NatureScot's 2019 assessment of the Glasgow and Clyde Valley LCA](#) offers a description of the LCA's key characteristics. It begins with the Glasgow city region, which is surrounded by plateau moorlands, hills, and coastal waters, and has been significantly shaped by human activity. The River Clyde (and its tributaries) lies at the heart of the LCA, and has historically served as a hub for settlement, transportation, and industry. The LCA contains fertile soils and is home to a third of Scotland's population; therefore, the LCA experiences ongoing housing development, inner-city renewal, and an ageing population. While traditionally reliant on heavy industry, the LCA now embraces modern sectors like engineering and technology. Green spaces, including parks and woodlands, are integral to the region's landscape, facilitating movement for both people and wildlife. Approximately 17% of the area is covered by woodland, which is similar to the Scottish average.

9.2.4. Regional Landscape Character Types

The [Renfrewshire Local Development Plan Landscape Assessments Main Issues Report](#) (2011) identifies that Renfrewshire contains seven Regional Landscape Character Types (RLCT):

- **Raised Beach (SNH Ref.1)** – found to the north of Renfrewshire along the southern shore of the Firth of Clyde.
- **Alluvial Plain (SNH Ref.2)** - large flat landscape to the north-west of Paisley, the settlements of Linwood, Houston, Bishopton and Erskine are on the peripheries of this landscape type.
- **Urban Greenspace (SNH Ref.3)** – found to the east of Paisley, this area prevents the physical and visual coalescence of Paisley with west Glasgow.
- **Rugged Upland Farmland (SNH Ref.6)** – found to the south of the Raised Beach, characterised by undulating open grazing fields with some arable farming. The settlements of Bridge of Weir, Bishopton and Erskine are within this landscape character type.
- **Green Corridors (SNH Ref.9)** – found by the northern border of Renfrewshire, overlapping with the River Clyde, White Cart Water and Black Cart Water.
- **Broad Valley Lowland (SNH Ref.10)** – found to the south of Rugged Upland Farmland, this character type is the broad valley of the Black Cart Water, including Castle Semple Loch.
- **Rugged Moorland Hills (SNH Ref.20)** – found to the south of Johnstone and the Broad Valley Lowlands.

Each RLCT has distinctive features and qualities which contribute to their character (i.e., geology, landform, cultural and ecological features etc). The Report contains guidance for the management of RLCTs in response to new development, including transport infrastructure, which may adversely impact upon the distinctive qualities of each RLCT in the absence of sensitive design.

9.2.5. Local Landscape Areas

In many places in Scotland, the scenery is highly valued locally, and local authorities often give these landscapes a local designation ([Local Landscape Areas, NatureScot](#)). These are defined as Local Landscape Areas (LLAs), following Scottish Government policy. It is noted that previous names include Special Landscape Areas (SLAs) and Areas of Great Landscape

Value (AGLVs). LLAs are present across Scotland, as defined and mapped through Local development plans. NatureScot does not maintain a national record of local landscape designations, but it does provide a nation-wide map which shows their coverage based on data from August 2016. According to the mapping, there are no LLAs in Renfrewshire, although there are several adjacent to the council area's boundary, including: Mainland (to the south-west), Bullwood / Hurllehill (to the east); and Leverndale (to the east).

9.2.6. Wild Land Areas

Wild Land Areas (WLAs) are the most extensive areas of high wildness. They are identified as nationally important in Scottish Planning Policy but are not a statutory designation. [NatureScot](#) identified 42 wild land areas following a detailed analysis in 2014. Fieldwork for the wild land descriptions was undertaken between 2013 and 2015, and the final document was published in 2017. There is one WLA in Renfrewshire: Waterhead Moor, which partially falls within the council area by its western border.

9.2.7. Visual Amenity

The views across Renfrewshire are also an important consideration in the transport planning process as the location, design, layout and use of materials in transport infrastructure can impact important views if they are not considered and assessed. Changes due to both development and landscape manipulation can see these views degraded over time.

In addition, views experienced from the road, rail and active travel network can often be far-reaching and dramatic, particularly within the more rural areas of Renfrewshire and on the approach into key towns.

9.3. Summary of Future Baseline

New transport infrastructure provision across Renfrewshire has the potential to lead to incremental but small changes in landscape character and quality. This includes from the loss of landscape features and areas with an important visual amenity value.

Increasing traffic levels associated with an increase in population also have the potential to negatively impact landscape character and tranquillity.

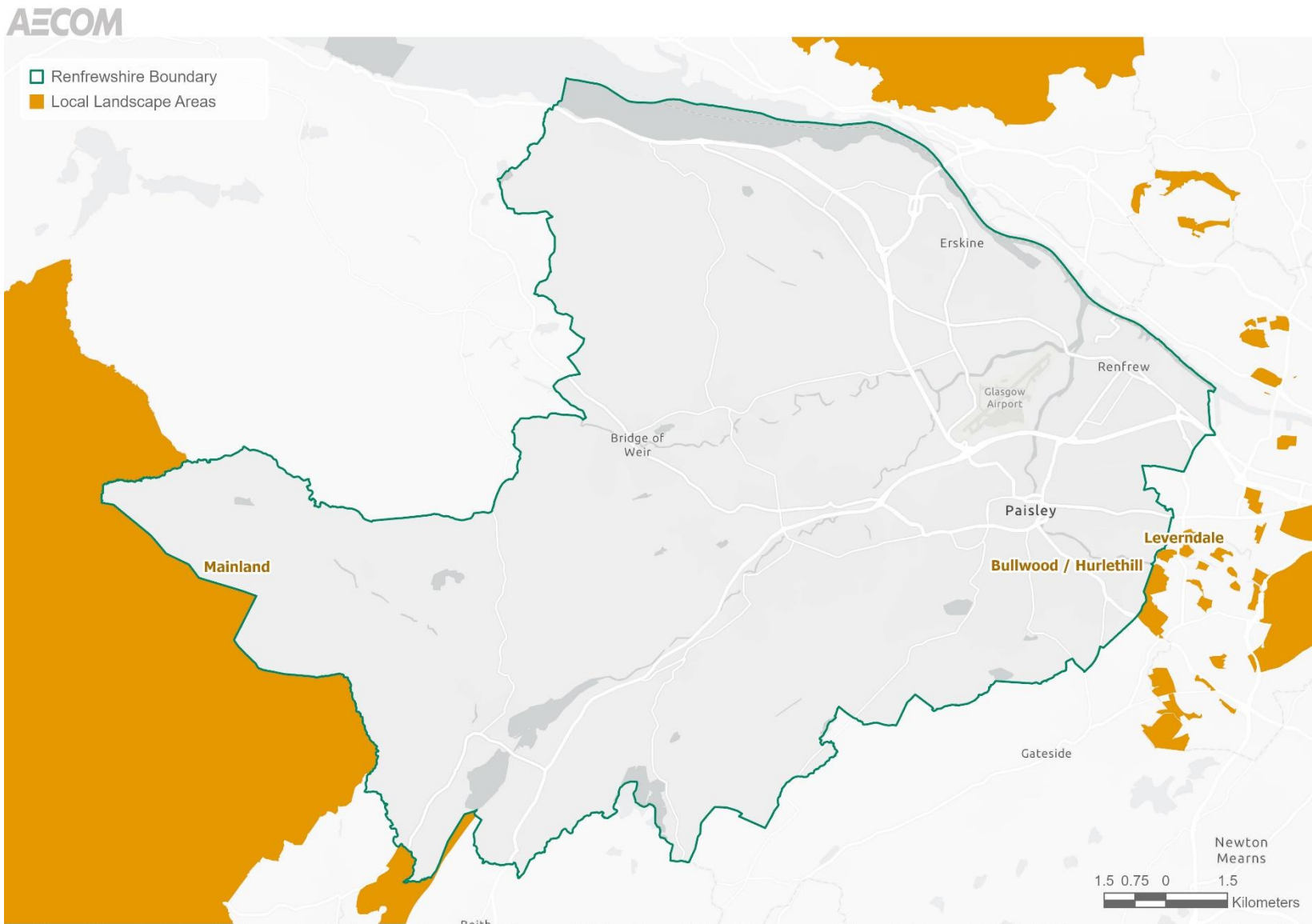
9.4. Key Sustainability Issues

The following key issues have been identified through the baseline review for this topic:

- Renfrewshire lies within one LCA and seven RLCTs. The associated assessments provide a summary of the character, sensitivities, and forces of change for each area. Transport infrastructure has an influence on many aspects of these character areas.
- Views are an important consideration in the transport planning process as the scale, height, and mass of development can ultimately impact important views if they are not appropriately considered through design and layout of new transport infrastructure.
- Transportation infrastructure such as roads, highways, and railways can lead to the loss of important landscape features (such as trees), and fragment natural habitats, leading to the loss of biodiversity and disruption of ecosystems.

Chapter 12 presents the SEA Framework for this topic.

Figure 9-1: Local Landscape Areas in Renfrewshire



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10. Material Assets

10.1. Focus of SEA Topic

- Mineral resources.
- Waste.
- Sustainable design.

10.2. Summary of Current Baseline

10.2.1. Geology

Renfrewshire's geology ([GEN UKI, Renfrewshire Brief Description](#)) is notable for its extensive volcanic rock formations from the Lower Carboniferous period and significant coalfields north of the volcanic area, extending from Houston to the eastern border near Rutherglen. The Carboniferous system is well represented in the council area, starting with red sandstones along the coast near Innerkip, which extend inland to Loch Thom. These are succeeded by the Cement-stone series, largely replaced by volcanic rocks like basalts and porphyrites, forming a hilly belt across the county. These volcanic rocks often contain agates and zeolites, with numerous vents indicating past volcanic activity. The transition from volcanic rocks to the overlying Carboniferous Limestone series is usually faulted, but where visible, it comprises ashy sandstones, grits, and conglomerates, occasionally with bands of tuff.

The Carboniferous Limestone series dominates north of the volcanic rocks, with coal seams and ironstones extensively faulted but present, especially around Johnstone and Linwood. Intrusive basalt sheets occur near Quarrelton and Howwood, creating geological features like anticlinal arches. Further east, towards Shawlands and Crossmyloof, there is a development of the middle coal-bearing and upper limestone groups. Glacial evidence, including striations, suggests ice movement from the Highland mountains to the south-east, then south-west across Renfrewshire towards the Firth of Clyde.

10.2.2. Mineral Resources

Mineral resources are defined as natural concentrations of minerals or, in the case of aggregates, bodies of rock that are, or may become, of potential economic interest due to their inherent properties. Since minerals are a non-renewable resource, minerals safeguarding is the process of ensuring that non-minerals development does not needlessly prevent the future extraction of mineral resources, of local and national importance.

The [Renfrewshire Local Development Plan Background Paper – Minerals](#) (2013) identifies that Renfrewshire has a long history of minerals extraction, with 346 known sites where mineral workings have been carried out throughout the past 300 years. However, there is now a low level of interest in developing new operations due to these sites being exhausted or no longer economically viable. At the time of the Paper's writing, there were only two operational mineral workings within Renfrewshire (Highcraigs in Johnstone and Reilly Quarry at Bishopton), both of which are quarries working igneous rocks used for crushed rock aggregates.

The Paper continues, saying that although there is insufficient demand to justify minerals operations within Renfrewshire, new development proposals will be required to give consideration to prior extraction of mineral resources where appropriate. This would prevent further sterilisation of resources which would be otherwise inaccessible.

10.2.3. Waste

The production and disposal of waste is becoming an increasingly important issue. Waste is produced by households, by industrial processes, by the construction and demolition industry, through commercial activities and agricultural practices and by public services and utilities. Waste can affect the environment through its visual impact, emissions to the air, leachate to groundwater, runoff to surface water as well as the contamination of land. Renfrewshire's SER highlights that the level of waste generated per household in Renfrewshire had been steadily reducing, whilst recycling rates in the council area were increasing. Renfrewshire Council achieved the Scottish Government's targets for household waste of 30% in 2008 and 40% in 2010; however, it is unknown as to whether the subsequent goals of 50% by 2013, 60% by 2020 were achieved in the council area as latest report is over ten years old.

10.2.4. Transport and Material Assets

The construction and maintenance of transport infrastructure in Renfrewshire requires the use of material assets, particularly roads. Asphalt is the most common material used to construct roads; it is a mixture of aggregates, binder and filler. Aggregates are processed mineral materials such as crushed rock, sand, gravel, and various other materials. Binder is used to unite the aggregates together to form a cohesive mixture.

Notably, asphalt can be made using recycled materials or non-petroleum based renewable resources (bio-asphalt). The use of such materials will ensure that non-renewable resources are not depleted.

10.3. Summary of Future Baseline

The consumption of natural resources to maintain Renfrewshire’s transport network has a negative environmental effect. However, if maintenance is not undertaken, the integrity and quality of the transport network would deteriorate to the detriment of accessibility and economic growth. Additionally, there would be impacts on the environment, for example increased GHG emissions from longer travel times.

New infrastructure projects (including transport infrastructure) inherently use material assets and produce waste. It is anticipated that this trend will continue over the coming years.

10.4. Key Sustainability Issues

The following key issues have been identified through the baseline review for this topic:

- There is a need for the construction, maintenance and operation of transport infrastructure to reduce the quantity of primary materials required, make use of surplus materials, and minimise the disposal of waste via landfill.
- Transport infrastructure projects (akin to most development projects) inherently use material assets and produce waste. If not appropriately mitigated, waste can affect the environment through its visual impact or by emissions to the air, leachate to groundwater, and runoff to surface water as well as the contamination of land.

Chapter 12 presents the SEA Framework for this topic.

11. Population and Human Health

11.1. Focus of SEA Topic

- Population.
- Health and wellbeing.
- Crime and community safety.
- Road safety.

11.2. Summary of Current Baseline

11.2.1. Population Estimates and Change

At the time of the 2022 Census, the population of Renfrewshire stood at 183,800. National Records of Scotland's (NRS) mid-2017 population estimates put the population of Renfrewshire at 176,830 in 2017. Hence, between 2017 and 2022 the population increased by 4%. For comparison, the population of neighbouring Glasgow City recorded a very small decrease (0.05%), whilst the overall population of Scotland increased by 0.2%, during the same time period.

Over a longer period, between 2001 and 2021, the population of Renfrewshire has increased by 4.1%. Meanwhile, the population nationally has increased by 8.2%.

In terms of population age, the 45-64 age group was the largest in Renfrewshire in 2021, with a population of 50,823 (28.2%). In contrast, the 75+ age group was the smallest, with a population of 15,538. Between 2001 and 2021, the 0-15 age group saw the largest percentage decrease (-11.1%), whilst the 75+ age group saw the largest percentage increase (+36.7%).

11.2.2. Scottish Index of Multiple Deprivation

The [Scottish Index of Multiple Deprivation](#) (SIMD) is a relative measure of deprivation across 6,976 small areas (called data zones). If an area is identified as 'deprived', this can relate to people having a low income but it can also mean fewer resources or opportunities. SIMD looks at the extent to which an area (known as a 'data zone') is

deprived across seven domains (income, employment, education, health, access to services, crime and housing). The SIMD provides each data zone with a ranking, from most deprived (ranked 1) to least deprived (ranked 6,976).

It is worth noting that SIMD is an area-based measure of relative deprivation: not every person in a highly deprived area will be experiencing high levels of deprivation. Data zones in rural areas tend to cover a large land area and reflect a more mixed picture of people experiencing different levels of deprivation. This means that SIMD is less helpful at identifying the smaller pockets of deprivation found in more rural areas, compared to the larger pockets found in urban areas.

The [SIMD \(2020\) mapping tool](#) shows that there are areas in Renfrewshire that fall within the 10% most deprived data zones in Scotland. These can be found in parts of Johnstone, Linwood, Paisley, and west Renfrew.

Renfrewshire's SER outlines that there are pockets of deprivation dispersed through the Renfrewshire area and people in these communities may experience disadvantage, and encounter problems associated with low income, poor health, low educational attainment and lack of access to learning opportunities and employment.

In 2022 Renfrewshire Council launched its 10-year '[Housing-led Regeneration and Renewal Programme](#)'. The Programme will invest £100 million into the Council's housing stock in eight areas of Renfrewshire that fall within the 5% most deprived SIMD data zones. This investment will not only enhance the housing conditions in these areas but will also contribute to the improvement of their communities (which may have knock-on effects such as an increase in the use of green space and more active travel journeys).

11.2.3. Health and Wellbeing

According to Renfrewshire SER, the health of the council area's population is 'fair' but leaning towards 'poor', and below the national average for employment and alcohol related deaths indicators. This is particularly evident within communities identified as economically, socially and environmentally deprived. The Report also notes that Renfrewshire has a relatively high level of crime compared to other areas of Scotland.

There is well documented evidence that environmental deprivation is related to health and health behaviour. Access to good quality greenspace and the wider countryside are important in promoting healthy lifestyles. The provision of greenspace and access to the

core path is noted as ‘fair’ across Renfrewshire and is generally improving. The SER notes that the settlements of Johnstone, Linwood and Paisley would benefit most from actions to improve the quality of their green spaces.

Data from NRS outlines that Renfrewshire’s life expectancy at birth was higher for females (80.0 years) than for males (75.5 years) during the period 2019-2021. Life expectancy at birth for females and males in Renfrewshire is lower than the national level. Notably, male life expectancy at birth in Renfrewshire has increased more rapidly than female life expectancy at birth between 2001-2003 and 2019-2021.

Data from Scotland’s 2011 Census shows that 51.5% of the population of Renfrewshire during this time were in very good health, 29.2% were in good health, 13.0% were in fair health, 4.8% were in bad health, and 1.5% were in very bad health. In addition, 10.2% of the population provided varying levels of unpaid care during this time. Data from the 2011 Census has been used because topic data from the 2022 Census was not released at the time of writing. Therefore, whilst this data provides some insight into the health of the population, it is recognised that it is not up to date.

The [Scottish Household Survey](#) (SHS) is an annual survey conducted by the Scottish Government that covers a range of areas, including transport. This data is published at a local authority level. Although the sample sizes in this survey are smaller than in the Census they are more up to date and are more reflective of the current travel behaviours of residents. The SHS results for 2022 shows that the main mode of travel to work in Renfrewshire was car or van with 65% of respondents travelling to work this way, and a further 4.0% were passengers in a car or van. Of the remaining modes, 14.0% walked to work, 6.0% took bus and 7.0% travelled by train, with 3.0% using other modes. None of the respondents travelled by bicycle. It is noted that this survey had a small sample size, and therefore does not represent an entirely accurate picture.

11.2.4.Crime and Community Safety

According to [data provided by the Scottish Government](#), there were 9,146 recorded crimes in Renfrewshire during the period 2022/ 2023. This represents 3.2% of all recorded crimes in Scotland during this period, matching its share of the total Scottish population.

With regard to perceptions of crime in Renfrewshire, 78.1% of adults in Renfrewshire perceive the local crime rate as ‘the same or a little or a lot less’ (the equivalent figure for Scotland is 75.0%). This suggests that 19.4% of adults in Renfrewshire perceive the local

crime rate as deteriorating over the period of 2019-2021. This data is also available from the [Scottish Government website](#).

11.2.5. Road Safety

Results from the Reported Road Casualty Statistics (RRCS) (which uses data from Police Scotland for people killed or seriously injured on Scotland's roads) show that number of people seriously injured on roads in Renfrewshire decreased for the periods 2012-2016 to 2018-2022 (81 people down to 54 people) and that the number of people killed on roads in Renfrewshire decreased slightly in the same period from 2012-2016 to 2018-2022, from 5 people down to 3. It should be noted that this analysis uses a moving 5-year average which helps negate large year-to-year fluctuations in the data.

11.3. Summary of Future Baseline

Renfrewshire has an aging population, with a 36.7% increase in the 75+ age group between 2001 and 2021 (National Records of Scotland). This has associated transport and accessibility issues.

New housing and employment provision has the potential to increase traffic and cause congestion at key pinch points on Renfrewshire's transport network. This could lead to declining road safety for pedestrians.

Obesity is seen as an increasing issue by health professionals, and one that will contribute to significant health impacts on individuals, including increasing the risk of a range of diseases, including heart disease, diabetes and some forms of cancer. Transport planning will play a key role in encouraging active transport choices (for example, walking and cycling) as well as accessibility to sports and recreation facilities.

Changes in air quality and noise quality in the vicinity of certain routes in Renfrewshire are likely to take place with the implementation of ongoing transport improvements. This will likely impact upon the health of residents.

11.4. Key Sustainability Issues

The following key issues have been identified through the baseline review for this topic:

- Renfrewshire is experiencing an increase in population, which is likely to translate into a slightly higher demand for transport. The population is also ageing; this has implications for transport provision and accessibility.
- Areas in several settlements in the central-western region of Renfrewshire are amongst the ‘most deprived’ according to the overall SIMD.
- In 2011, 6.3% of the population of Renfrewshire were in bad or very bad health, whilst 10.2% of the population provided varying levels of unpaid care.
- The majority of people in Renfrewshire drive to work and only 14.0% of Renfrewshire’s population walk or cycle to work. This could imply that functioning active travel infrastructure provision across the council area, or access to this provision, is currently limited.
- The SER notes that the settlements of Johnstone, Linwood and Paisley would benefit most from actions to improve the quality of their green spaces.
- There were 9,146 recorded crimes in Renfrewshire during the period 2022 / 2023, representing 3.2% of all recorded crimes in Scotland.
- In terms of road safety, there was an average of 62 road casualties per annum in Renfrewshire for the period 2017-2021.

Chapter 12 presents the SEA Framework for this topic.

12. SEA Framework

12.1. Proposed SEA Framework

Given the breadth of potential impacts, no topics have been screened out of the SEA process. **Table 12-1** below sets out the proposed SEA Framework, providing SEA objectives against each topic.

It is important to note that the Framework is deliberately high-level to ensure flexibility to respond to the scope of the emerging LTS/ alternatives and the latest evidence. Equally, there is flexibility to make modest adjustments to the SEA Framework over the course of the plan-making/ SEA process.

Table 12-1: Proposed SEA Framework

SEA topic	SEA objectives
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Biodiversity, flora and fauna, and geodiversity	Conserve and enhance internationally, nationally, and locally designated sites for biodiversity and geodiversity in accordance with their significance and in line with established good practice. Take a strategic, landscape-scale approach, focused on habitat connectivity across the transport network and climate change resilience. Ensure accordance with the mitigation hierarchy (avoid, mitigate, compensate) in order to reduce negative effects of new transport infrastructure on ecological and geological resources.
Climatic factors	Support climate change mitigation through limiting the contribution of transport to GHG emissions. Support the resilience of the transport network to the potential effects of climate change, including flooding and extreme heat events. Linked to the biodiversity objective, support the restoration of natural processes, and avoid actions that further constrain the natural environment's ability to respond to climate change.
Air quality and noise pollution	Deliver improvements to air quality in Renfrewshire by supporting the use of more sustainable modes of travel, including active travel and public transport. Support the achievement of air quality objectives, including within air quality management areas (AQMA's). Reduce noise from transportation sources.
Soil and water resources	Promote the efficient use of land, with a focus on avoiding the loss of best and most versatile agricultural land as far as possible. Minimise the impact the transport network has on water quality and the physical state of water bodies.

Cultural heritage	Conserve and enhance Renfrewshire’s historic environment, including both designated and non-designated heritage assets. Protect archaeological assets from disturbance as a result of the construction of new transport infrastructure. Consider links to landscape and place-making and promote an understanding of the local heritage resource.
Landscape	Protect and enhance the character, quality and setting of Renfrewshire’s landscape, townscape and villagescape features. Integrate high quality green infrastructure into new transport infrastructure, linking it to the wider landscape. Recognise close links with other objectives, including biodiversity and heritage.
Material assets	Promote sustainable management and design solutions that encourage the reduction, re-use and recycling of waste and materials during the construction, maintenance, and operational phases of transportation projects and schemes.
Population and human health	Improve access to key services, facilities and amenities. Improve access to education, employment and economic opportunities. Improve access to high quality green infrastructure networks. Promote good health by encouraging active modes of travel (for example, walking and cycling). Improve road safety, including for vulnerable users.

13. Next Steps

13.1. Subsequent Stages for the SEA Process

Scoping is the current stage in the five-stage plan-making / SEA process. The next stage will involve appraising ‘reasonable alternatives’ for a range of LTS issues and feeding back initial findings so that they might be considered when preparing the draft LTS. Once the draft LTS has been prepared, it will be subjected to SEA, and an SEA Environmental Report prepared for consultation alongside it.

In accordance with [Schedule 3 of the Environmental Assessment \(Scotland\) Act 2005](#), the SEA Environmental Report must contain a range of specified information including:

- A summary of the likely significant effects on the environment as a result of the LTS policies.
- An appraisal of the draft LTS and reasonable alternatives.
- An outline of the reasons for selecting the alternatives dealt with; and
- Other information including a summary of the SEA scope and a description of measures envisaged for monitoring.

The purpose of providing this information in the SEA Environmental Report is to inform both:

- Those who might want to make representations on the draft LTS approach/ alternatives; and
- Those tasked with finalising the LTS.

Subsequent to consultation on the draft LTS / SEA Environmental Report, updates will be made to the LTS, and where appropriate, further SEA work will be undertaken.

At adoption, a Post-adoption Statement will be prepared. The purpose of the Post-adoption Statement is to: highlight the reasons for choosing the preferred Strategy in light of other reasonable alternatives; how environmental considerations have been integrated into the Strategy’s development process; how consultation responses have been considered; and to highlight what measures have been taken to monitor the significant environmental effects of the LTS.

13.2. Consultation on the Scoping Report

Public involvement through consultation is a key element of the SEA process. At the scoping stage, the SEA Regulations require consultation with the Consultation Authorities (CAs). This Scoping Report will be issued to HES, SEPA and NatureScot via the SEA Gateway.

CAs are invited to comment on the content of this Scoping Report, in particular the evidence base for the SEA, the identified key issues and the proposed SEA Framework.



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Appendix B: Consultee Responses

Consultation response	How the response was considered and addressed
NatureScot	
NatureScot is content with the scope and level of detail proposed for the environmental report.	Comment noted.
Comments on the scoping report are: • Page 11, 4.8 should read “Whinnerston – comprises two areas of unimproved natural grassland.” • Page 11, 4.10 “There are 96 LNRs in Scotland.” • Page 12, 4.12 mentions Local Nature Conservation Sites. • Page 12, there is no mention of Clyde Muirshiel Regional Park. • Page 13, 4.16 should read “Renfrewshire’s habitat networks and opportunity areas are shown in Figure 4-3 at the end of this chapter.” • Page 16 Figure 4-1 shows Sites of Importance for Nature Conservation which are not mentioned anywhere else in the report. SINCs are often referred to as Local Nature Conservation Sites now and would naturally appear in Figure 4.2 instead. • Page 17 Figure 4.2 does not show Clyde Muirshiel Regional Park. It maps Biodiversity Sites which are not mentioned anywhere else in the report. • Page 18 Figure 4-3 should be titled Habitat Networks and Opportunity Areas in Renfrewshire and, in the legend, Habitat Networks instead of Habitat and Networks. • Page 54 Population and human health, third bullet should read “Improve access to high quality green networks”.	Scoping Report updated to reflect comments.
NatureScot notes that no period is proposed for consultation on the Environmental Report. We would expect a minimum of 6 weeks.	Comment noted. The consultation period will be 6 weeks.

Scottish Environment Protection Agency

Relationship with other Plans, Policies and Strategies (PPS)

Comment noted.

Some of the PPS included have themselves been subject to SEA. Where this is the case, you may find it useful to prepare a summary of the key SEA findings that may be relevant to the Transport Strategy. This may assist you with data sources and environmental baseline information and also ensure the current SEA picks up environmental issues or mitigation actions which may have been identified elsewhere.

Baseline information

Comment noted. Environmental data and guidance will be used to inform the assessments in the Environmental Report.

SEPA holds significant amounts of environmental data which may be of interest to you in preparing the environmental baseline, identifying environmental problems, and summarising the likely changes to the environment in the absence of the PPS, all of which are required for the assessment. Many of these data are now readily available on SEPA's website.

Additional local information may also be available from our Access to Information unit (foi@sepa.org.uk).

Other sources of data for issues that fall within SEPA's remit are referenced in our SEA topic guidance notes for air, soil, water, material assets, climatic factors and human health.

Please note that reference should be made to the SEPA Future Flood Maps, which are effectively a spatial representation of the flood risk area, defined in NPF4 land or built form with an annual probability of being flooded of greater than 0.5% which must include an appropriate allowance for future climate change. We therefore recommend changing Figure 5-3.

We provided the council with a list of Evidence Report Sources for the preparation of the Local Development Plan (LDP). These can also be used for the SEA Baseline information. You can contact your LDP colleagues to discuss.

Environmental problems

Comment noted.

We consider that the environmental problems described generally highlight the main issues of relevance for the SEA topics within our remit.

Alternatives

Reasonable alternatives are assessed in the Environmental Report (see **Chapter 4**).

We note that alternatives are still being considered. Any reasonable alternatives identified during the preparation of the plan should be assessed as part of the SEA process and the findings of the assessment should inform the choice of the preferred option. This should be documented in the Environmental Report.

Scoping in / out of environmental topics

Comment noted.

We agree that in this instance all environmental topics should be scoped into the assessment.

Methodology for assessing environmental effects

Comment noted.

The proposed methodology for the assessment has not been defined yet. A common method is to use a matrix with a scoring system identifying effects which are significant positives (++), positive (+), neutral (0), unknown (?), negative (-) or significant negative (--), or a combination of them, as appropriate (e.g. +/-).

Including a commentary section within the matrices in order to state, where necessary, the reasons for the effects cited and the score given helps to fully explain the rationale behind the

assessment results. This allows the Responsible Authority to be transparent and also allows the reader to understand the rationale behind the scores given.

Where it is expected that other plans, programmes or strategies are better placed to undertake more detailed assessment of environmental effects this should be clearly set out in the Environmental Report.

We expect all aspects of the PPS which could have significant effects to be assessed.

6.5 We support the use of SEA objectives as assessment tools as they allow a systematic, rigorous and consistent framework with which to assess environmental effects.

When it comes to setting out the results of the assessment in the Environmental Report, please provide enough information to clearly justify the reasons for each of the assessments presented. It would also be helpful to set out assumptions that are made during the assessment and difficulties and limitations encountered.

It is helpful if the assessment matrix directly links the assessment result with proposed mitigation measures such as in the example provided.

We are content with the proposed SEA objectives to be used in the assessment.

Mitigation and enhancement

Comment noted.

We encourage you to use the assessment as a way to improve the environmental performance of individual aspects of the final option; hence we support proposals for enhancement of positive effects as well as mitigation of negative effects.

It is useful to show the link between potential effects and proposed mitigation / enhancement measures in the assessment framework.

We encourage you to be very clear in the Environmental Report about mitigation measures which are proposed as a result of the assessment. These should follow the mitigation hierarchy (avoid, reduce, remedy or compensate).

One of the most important ways to mitigate significant environmental effects identified through the assessment is to make changes to the plan itself so that significant effects are avoided. The Environmental Report should therefore identify any changes made to the plan as a result of the SEA.

Where the mitigation proposed does not relate to modification to the plan itself then it would be extremely helpful to set out the proposed mitigation measures in a way that clearly identifies: (1) the measures required, (2) when they would be required and (3) who will be required to implement them. The inclusion of a summary table in the Environmental Report such as that presented below will help to track progress on mitigation through the monitoring process.

Monitoring

Comment noted.

Although not specifically required at this stage, monitoring is a requirement of the Act and early consideration should be given to a monitoring approach particularly in the choice of indicators. It would be helpful if the Environmental Report included a description of the measures envisaged to monitor the significant environmental effects of the plan.

Consultation period

Comment noted. The consultation period will be 6 weeks.

It is not clear from the scoping report the specific time period proposed for consultation on the Environmental Report. This period should be agreed with the Consultation Authorities at the scoping stage. Accordingly, we would welcome further dialogue with you in order to agree an appropriate timeframe. Typical consultation periods range from 6-12 weeks depending on the

content and nature of the plan. The consultation period must offer the Consultation Authorities and the public an early and effective opportunity to express their views and opinions.

Outcomes of the Scoping exercise

We would find it helpful if the Environmental Report included a summary of the scoping outcomes and how comments from the Consultation Authorities were considered.

Comment noted. This table has been included to capture consultee comments.

We welcome proposals for the inclusion of a summary of how the comments provided by the Consultation Authorities at the Scoping stage have been taken into account in the preparation of the Environmental Report.

Historic Environment Scotland

We note that the historic environment has been scoped into the assessment, and we are content to agree with this. In terms of the approach to the assessment, on the basis of the information provided we are satisfied with the scope and level of detail proposed and have given our detailed comments below.

Comment noted.

We welcome the review of the relevant historic environment plans, programmes and strategies set out here. We would simply note that, while they are both included in this section, Our Place in Time has now been superseded by Our Past Our Future.

Reference to Our Place in Time removed from the Scoping Report.

We welcome the baseline provided for the historic environment and the early consideration of the potential interactions between these assets and the policies and actions associated with the strategy. The summary is focused on the avoidance of harm on historic environment assets and their setting, and this is to be welcomed. However, we would also note that often elements of our transport infrastructure are historic environment assets in themselves such as railway stations, bridges, former branch railway lines, bridges, core paths and historic ways and often contribute to our sense of place and active travel network. Investment and maintenance in such assets can also be considered a benefit to the historic environment.

Comment noted. These assets associated with transport infrastructure will be considered in the Environmental Report assessments.

In terms of other key issues noted in this section we welcome the recognition of the role that the transport strategy can play in supporting access to the historic environment.

Little detail is offered on the methodological approach for the assessment. However, we note that SEA objectives have been developed in order to test potential strategy content against. In considering the presented objectives for the historic environment we are satisfied that these will provide an appropriate framework for the assessment. Where the assessment points to potential significant effects mitigation, enhancement and monitoring proposals should be put forward where appropriate.

Comment noted.

We note that no specific timescale has been set out for consultation on the strategy and its associated environmental report. We would advise a minimum consultation period of 6 weeks.

Comment noted. The consultation period will be 6 weeks.

For our purposes the consultation period starts when the SEA Gateway receives the relevant documents.



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