East Dunbartonshire Council Kirkintilloch/ Lenzie – Bishopbriggs - Glasgow Corridor Study

Strategic Environmental Assessment - Environmental Report

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Table of Contents

East Dunbartonshire Council Kirkintilloch/ Lenzie-Bishopbriggs-Glasgow Corridor Study

SRATEGIC ENVIRONMENTAL ASSESSMENT – ENVIRONMENTAL REPORT

Non-Technical Summary

Introduction

East Dunbartonshire Council (EDC) in partnership with the Strathclyde Partnership for Transport (SPT) have proposed a number of transport interventions aimed at the alleviation of current and predicted pressures from forecast travel demands on the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow corridor within East Dunbartonshire. These interventions have been grouped in to various Options, which include:

- A803 Quality Bus Corridor Package;
- Bus Hub in Kirkintilloch;
- Bus Park & Ride Adjacent to/ in the Vicinity of Kirkintilloch Link Road (KLR) and Associated Bus Priority;
- Bus Park & Ride Adjacent to Bishopbriggs Relief Road (BRR) and Associated Bus Priority;
- Bus Service Improvements and New Services (including Kirkintilloch/ Lenzie Loop Bus);
- Increased Parking Provision at Lenzie Rail Station;
- Develop a New Rail Halt at Woodilee (with Park & Ride) & Promote Sustainable Access; and
- Develop a New Rail Halt at Westerhill (with Park & Ride) & Promote Sustainable Access;

In accordance with Environmental Assessment (Scotland) Act 2005 and The Environmental Assessment of Plans and Programmes Regulations 2004 an assessment of these potential interventions has been undertaken on their potential effects on the environment.

This Summary provides an overview of the approach and the results of Strategic Environmental Assessment of the proposed transport interventions for the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow corridor.

Outline of the Study

As the local planning authority and the Regional Transport Partnership for East Dunbartonshire, EDC and SPT are responsible for the planning and delivery of transport solutions within the Council's area. Within this role EDC and SPT have developed the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study ('the Study'), the purpose of the Study is to evaluate the current transport situation along the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow corridor with the aim of identifying options for improvement.

The Study sets out five strategic objectives that aim to alleviate the current and predicted pressures on the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow corridor. The Study considers all transport modes, and various means of intervention in order to establish a preferred Option(s), which will be recommended to best deliver the objectives of the Study.

Method of Assessment

The assessment was undertaken in three stages: the assessment of alternatives; the assessment of each Option identified in the Study; and the assessment of the cumulative effects of the Study. The assessment of alternatives considers the effects on the environment should the Study not be implemented as an alternative to the Study, this is described as the 'Do-Minimum' Option within the Environmental Report (ER). The Do-Minimum Option includes the current transportation baseline as well as any schemes or developments which have already been committed to but not necessarily developed.

The assessment of each Option proposed within the Study aims to identify potentially significant effects of the Options on the SEA topics (air quality, biodiversity, cultural heritage etc). Effects can be either positive or negative. When defining significance, this is dependent on the sensitivity of the receptor, and the magnitude of the effect. The

assessment of cumulative effects considers all Options proposed within the Study and what effects they may have on the SEA topics.

Summary of Results

Do Minimum – Given that the multiple components of the Do-Minimum Option are considered to be under development or planned to be progressed, it is assumed that the majority of project level effects have been mitigated to avoid or reduce any potentially significant impacts. Where adverse effects on the environment are anticipated are where new transport infrastructure is required, such as BRR, Kirkintilloch Town Centre regeneration and EGIP, this will likely effect the biodiversity, soils, and visual amenity. However the adoption of these schemes will also likely result in greater safety of Kirkintilloch town centre and improved local air quality should more individuals choose a more sustainable means of transport.

A803 Quality Bus Corridor Package – Should the adoption of this Option result in a modal shift to bus usage along the A803 (as a means of more sustainable transport), it is likely that there will be improved local air quality. As a result of this there may also be beneficial secondary effects on local biodiversity, the health of the local population, and aid in the reduction of greenhouse gas emissions from transport within the study area.

Bus Hub in Kirkintilloch – Predicted impacts from the adoption of this Option differ with the scale of intervention adoption. Greater magnitude of effects are expected to result from the development of as a singular, centralised bus hub which would likely impact on cultural heritage sites, townscape and visual amenity, and the local population as a result of noise disturbance. Some beneficial effects may also result from reduced transport emissions and improved air quality.

Bus Park & Ride Adjacent to / in the Vicinity of the B757 / Kirkintilloch Link Road and Associated Bus Priority – The development of a new P&R scheme will require the development of new transport infrastructure and is likely to result in adverse effects on biodiversity, soil and agricultural land, potential setting impacts on cultural heritage sites, and visual amenity/ landscape impacts. The significance of these impacts is dependent on the final location and design of the P&R. Conversely, beneficial effects may also occur from the promotion and use of more sustainable means of transport. This will likely improve air quality and greenhouse gases within the study area, with secondary beneficial impacts on the health of the local population.

Bus Park & Ride Adjacent to Bishopbriggs Relief Road and Associated Bus Priority – The development of a new P&R scheme will require the development of new transport infrastructure and is likely to result in adverse effects on biodiversity, soil and agricultural land, and visual amenity/ landscape impacts. The significance of these impacts is dependent on the final location and design of the P&R. Conversely, beneficial effects may also occur from the promotion and use of more sustainable means of transport. This will likely improve air quality and greenhouse gases within the study area, with secondary beneficial impacts on the health of the local population.

Bus Service Improvements & New Services (including Kirkintilloch / Lenzie Loop Bus) – The improvement of existing bus services and introduction of a new loop bus service around Kirkintilloch is unlikely to result in any significant impacts on the environment. Should the new loop service and greater accessibility of bus services result in a greater use of these services there may be some beneficial impacts on air quality and human health – however these impacts are dependent on this not detracting from other means of sustainable transport (such as walking and cycling).

Increased Parking at Lenzie Rail Station – A number of sensitive receptors are located within the immediate vicinity of the rail station. These include a local nature reserve, areas and buildings of cultural sensitivity, and residential properties. These will likely be impacted by the introduction of a potential new structure, increased noise disruption, land take and light disruption. These impacts are dependent upon the final design of the Option. However this Option may also improve the safety of the surrounding streets currently used by rail passengers for parking, and improve air quality should there be an increase in rail patrons (from previous road users).

Develop a New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access – A rail halt, park & ride and associated access infrastructure will require additional land take resulting in the potential loss of habitat and biodiversity, soils and agricultural land. New structures may also impact on the setting on cultural heritage sites within the surrounding area and visual amenity/ protrude in to the landscape, which may be prominent given the residential surroundings. However this Option would also increase the use of sustainable transport and should this result in a modal shift away from the use of private vehicles, reducing emissions from transport, reducing greenhouse gas emissions, and improving local air quality, which will also improve the health of the local population. This will also improved the connectivity of the area to larger economies such as Glasgow City.

Develop a New Rail Halt at Westerhill (with P&R) & Promote Sustainable Access – A rail halt, park & ride and associated access infrastructure will require additional land take resulting in the potential loss of habitat and biodiversity, soils and agricultural land. New structures may also impact on the setting on cultural heritage sites within the surrounding area and visual amenity/ protrude in to the landscape, although it is unlikely that these impacts would be significant. However this Option would also increase the use of sustainable transport and should this result in a modal shift away from the use of private vehicles, reducing emissions from transport, reducing greenhouse gas emissions, and improving local air quality, which will also improve the health of the local population. This will also improved the connectivity of the area to larger economies such as Glasgow City.

Summary of Predicted Environmental Effects*									
Option	**SEA Topics****								
	Bio	**Water**	**Soil**	**Culture**	**L&V**	**Health**	**Air**	**Climate**	**Material**
Do Minimum	×	O	<> (×)	O	<> - ×	O	×	O	<> (✓)
A803 Bus Corridor	<> (✓)	O	O	O - <> (×)	O	<> (✓)	✓	✓	O
Bus Hub in Kirkintilloch	O	O	O	<> - ××	××	O	✓	<> - O	O
B757/KLR Bus P&R	<> - ×	O	×	×	××	O	<> - ✓	O	O
BRR Bus P&R	<> - ×	O	×	<> - ×	<> - ×	O	<> - ✓	O	O
Bus Service Improvements & New Services	O	O	O	O - <> (×)	O	<> (✓)	<> (✓)	O	O
Increased Parking at Lenzie Rail Station	××	O	O	××	××	<> (×)	<> (✓)	<> (✓)	O
Woodilee Rail Halt and P&R	×	<>	×	×	×	<> (×)	<> (✓)	O	<> (✓)
Westerhill Rail Halt and P&R	×	O	×	<> (×)	<> (×)	✓	<> (✓)	O	<> (✓)

* Key: ×× = potentially significant negative effect; × = potential negative effect; <> (×) = negligible negative effect; O = neutral or no effect; <> (✓) = negligible beneficial effect; ✓ = potential beneficial effect; ✓✓ = potentially significant beneficial effect; ? = unknown.

** Bio = Biodiversity; Water = Water Quality; Soil = Soil; Culture = Cultural Heritage; L&V = Landscape and Visual Amenity; Health. = Population & Human Health; Air = Air Quality; Climate = Climatic Factors; Material = Material Assets.

1 Introduction

1.1 Introduction

This Environmental Report (ER) presents the results of the Strategic Environmental Assessment (SEA) of the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study which has been prepared on behalf of East Dunbartonshire Council (EDC) and Strathclyde Partnership for Transport (SPT).

In accordance with European Directive 2001/42/EC 'the assessment of certain plans and programmes on the environment', the ER presents the results of the SEA of the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study ('the Study). The Study promotes the enhancement of the transport corridor through more sustainable and more accessible means of travel, and to provide greater linkage between this area and key economic centres in the surrounding area including Glasgow and Edinburgh.

1.2 Background to the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study

A Part 1 appraisal was completed in accordance with Scottish Transport Appraisal Guidance (STAG) in spring 2014. As part of the development of the STAG Part 1 Study, a number of Options were recommended for further consideration as part of a more detailed STAG Part 2 appraisal. EDC requested that an SEA is taken forward alongside the development of the Part 2 Study. This will build on the environmental appraisal undertaken at the STAG Part 1 stage.

The assessment of Options has been undertaken in accordance with Environmental Assessment (Scotland) Act 2005 and The Environmental Assessment of Plans and Programmes Regulations 2004.

1.3 Strategic Environmental Assessment

SEA is the systematic process for considering and assessing the significant environmental impacts arising from strategic actions produced by public bodies. The SEA process applies to policies, plans, programmes and strategies; including updates and alterations to existing actions. This ER has been prepared for the EDC Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study ('the Study') in accordance with the SEA Directive 2001/42/EC and Environmental Assessment (Scotland) Act 2005 and The Environmental Assessment of Plans and Programmes Regulations 2004.

The objectives of the SEA Directive, as set out in Article 1, are "*to provide a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development"*.

1.4 Content of the Environmental Report

The remainder of this ER is structured as follows:

Chapter 2 summarises the **Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study** including a description of the Study Area and the objectives of the Study. This Chapter also outlines the proposed interventions proposed as part of the Study as well as the projected scenario, should the Study not progress.

Chapter 3 and Appendix A provide a **summary of relevant plans, programmes and strategies** that are likely to influence the Study.

Chapter 4 sets out the **methods** for assessing effects including the consideration of alternatives.

Chapter 5 provides a summary of **baseline** conditions in the SEA study area.

Chapter 6 provides **assessments** of the proposed interventions considered within the Study, including the consideration of **alternatives**.

Chapter 7 contains the outcomes from **cumulative** assessment.

Chapter 8 sets out the Study and Project level **mitigation** measures.

Chapter 9 outlines an environmental **monitoring** framework for the Study.

2 Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study

2.1 Purpose of the Study

The purpose of the Study is to evaluate the current and prospective transport situation within Kirkintilloch – Bishopbriggs - Glasgow with the ultimate aim of providing recommendations and options for improvement. The Study includes:

- An evaluation of the existing situation in the study area, including factors such as, transport, economic, demographics and development;
- An evaluation of the problems associated with transport within the study area;
- Identifying transport planning objectives; and
- An optioneering and sifting process to determine appropriate interventions, which are assessed against Scottish Transport Appraisal Guidance factors, which includes environment, safety and integration.

For the purposes of this Study, the area of interest is located in the vicinity of the A803 and A806 corridors within the EDC authority district as identified within Figure 2.1. This area will be referred to as the 'study area'.

2.2 Content of the Draft Kirkintilloch/Lenzie – Bishopbriggs – Glasgow Transport Study

2.2.1 Objectives

The proposed Transport Objectives (TPO's) (below) have been generated from the EDC Local Transport Strategy (LTS) strategic objectives and the problems identified through the interrogation of the LTS consultation data, local socio-economic data and local transport data and trends. The objectives of the Study are:

- Promote modal shift to sustainable transport modes for trips to key attractors outside of the study area, particularly commuting journeys.
- Improve public transport journey times and journey time reliability through the study area.
- Improve accessibility by sustainable transport modes to key trip attractors within the study area.
- Deliver a transport network that supports improvements to human health and air quality, while minimising the impact on the environment.
- Provide a sustainable transport network that supports local development, regeneration and contributes to the sustainable economic growth of the study area.

The Study considers all transport modes, and various means of intervention in order to establish a preferred option(s), which will be recommended to best deliver the objectives of the Study.

The Study has:

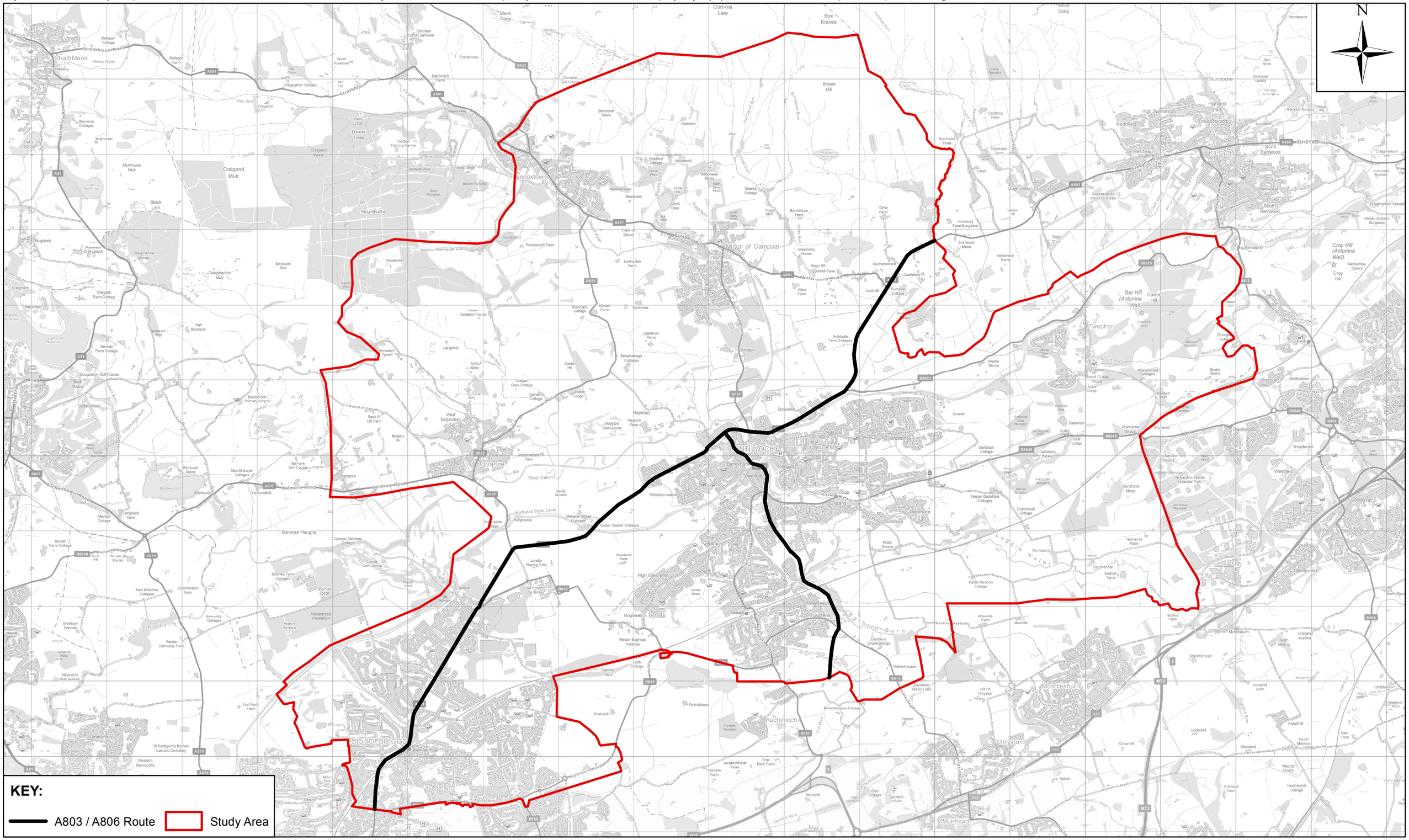
- Researched and identified the problems and constraints for transport and travel in identified geographical areas;
- Set objectives for transport and travel relating to the Study, LTS and geographical areas identified; and
- Generated, sifted and developed transport intervention options.

2.2.2 Proposed Structure

The Study is structured around eight main Options of varying interventions identified to be delivered to meet the objectives of the Study. These are noted in Table 2.1 below.

Table 2.1 Proposed Transport Interventions	
Option	**Option Description**
1. A803 Quality Bus Corridor Package	Quality bus corridor (QBC) in partnership with operators and EDC/SPT on the A803 between Torrance Roundabout and Colston Road, to provide measures to improve bus journey times and journey time reliability for all bus movements on this corridor. Traffic Engineering measures could include: • Congestion by-pass lanes; • Discontinuous bus lanes; • Parking restrictions at peak periods; • Infill bus stop lay-bys; • Alteration to traffic turning movements and lane priority; and • Priority through SCOOT controlled signalised junctions. Other options to enhance bus transportation could include: • Implementation of real-time bus information; The development of a QBC along the A803 could act as a precursor to a Bus Rapid Transit (as per *Fastlink*) subject to demand on this corridor.
2. Bus Hub in Kirkintilloch	Bus hub in Kirkintilloch and associated measures. Bring bus stops closer together into an interchange area in the town centre, supplemented by lower cost measures such as pedestrian and cycling access improvements, more public transport information, ticket purchasing equipment and improved shelters. It includes the Pre-Appraisal option of repositioning bus stops in Kirkintilloch.
3. Bus Park & Ride Adjacent to/ in the vicinity of the B757 / Kirkintilloch Link Road (KLR) and Associated Bus Priority	Bus Park and Ride in vicinity of the B757 or KLR (location to be defined). It is anticipated that the facility would accommodate existing express services which link Kirkintilloch and Lenzie with Glasgow via the M80 and M8. The frequency of bus services would be dictated by commercial viability. For the purposes of the appraisal it is assumed that the facility would be served by existing buses and no new buses would be required (although locating the Park and Ride facility adjacent to the KLR would require the diverting of some services that use the B757): an approximate 15-minute service is assumed during the peak period.
4. Bus Park & Ride Adjacent to/ in the vicinity of the Bishopbriggs Relief Road (BRR) and Associated Bus Priority	Bus Park and Ride in vicinity of the BRR (location to be defined). The frequency of bus services would be dictated by commercial viability. For the purposes of the appraisal it is assumed that the facility would be served by new buses, in addition to the possibility of diverting the existing express X81 service, in discussion with First Glasgow. The appraisal assumes a service frequency of 15 minutes in the peak period and 30 minutes in the off-peak period. This facility may need to be subject to parking management otherwise it could be used as an effective overspill car park for workers at the Westerhill Business Park. Without restriction it may increase car travel rather than reduce, and limit spaces for commuters to Glasgow.

Table 2.1 Proposed Transport Interventions	
Option	**Option Description**
5. Bus Service Improvements and New Services (including Kirkintilloch/ Lenzie Loop Bus)	A potential new loop bus service linking key locations such as Lenzie Railway Station, Kirkintilloch Town Centre, Woodilee, residential areas and the Council main offices. The frequency of bus services would be dictated by commercial viability, however for the purposes of the appraisal it is assumed that the service would operate every 15 minutes in each direction during the peak period and every 30 minutes in each direction during the off-peak period.
6. Increase Parking Provision at Lenzie Rail Station	Two Sub Options: a) Surface access: potential to extend northern car park to create 100 additional spaces. Potential to combine with any works to make station more accessible (current footbridge with stairs only). b) Creating a car park on a deck over Lenzie Rail station: surface access car parking deck over one, or both, of the existing car parks, and possibly over the track. Up to 200 new parking spaces. Potential to combine with any works to make station more accessible (current footbridge with stairs only).
7. Develop a New Rail Halt at Woodilee (with Park & Ride) & Promote Sustainable Access	A new rail station to improve sustainable access to Woodilee. Possible location for a rail station is between the A806 Initiative Road and Calfmuir Road in the existing railway cutting. Depending on the size of rail station required, a station building and car park may be best located on land to the south of the track, since there is more land adjacent to the tracks available there, without the constraints of the recent residential developments that have taken place on the northern side. A car park with 50 spaces is assumed. Trains to and from Stirling would provide a 30 minute frequency.
8. Develop a New Rail Halt at Westerhill (with Park & Ride) & Promote Sustainable Access	A new rail station to improve sustainable access to Westerhill. Potential locations would be to the east or west of Westerhill Road Bridge (EGM1/109) and phase 4 of the BRR. The rail station would be located adjacent to the BRR which would better enable car users to access the rail network. This could also act as a Park and Ride facility for strategic traffic. A car park with 300 spaces is assumed. Trains to and from Stirling would provide a 30 minute frequency. The Park and Ride element of this facility may need to be subject to parking management as it could be used as an effective overspill car park for workers at the Westerhill Business Park. Without restriction it may increase car travel rather than reduce, and limit spaces for commuters to Glasgow.



KEY:

A803 / A806 Route

Study Area

Client: EAST DUNBARTONSHIRE COUNCIL/ STRATHCLYDE PARTNERSHIP FOR TRANSPORT	Title: STUDY AREA	AECOM 1 Tanfield, Edinburgh, EH3 5DA Tel: +44 (0) 131 301 8600 Fax: +44 (0) 131 301 8699 www.aecom.com	Design: SM / Drawn: SM
Project: A803 CORRIDOR STUDY			Chk'd: TC / App'd: CC
			Date: 03/02/2015 / Scale at A3: 1:45,000
			Drawing Number: FIGURE 2.1 / Rev: 00

3 Policy Context

3.1 Introduction

This Chapter provides a summary of other relevant plans, programmes or strategies that are likely to influence the Study. Only the most relevant plans that directly impact on the Study are included. A tabular summary of relevant legislation, plans programmes and strategies can be found in Appendix A at the end of this ER. The tabular summary includes a comment on the relevance of each document. A summary of the main transport planning policy documents is provided below. An overview of the relationship of the Study with other key policies, plans and strategies is also shown in Diagram 1.

3.2 Transport Planning Policy Context

There are a number of national, regional and local strategies and plans that will influence the Study, however only the most relevant plans that directly impact on the Study are included, these are listed below.

3.2.1 National Transport Strategies

- **National Transport Strategy (2006) –** Sets the context for transport policy making until 2026.
- **Strategic Transport Projects Review (STPR) (2008) –** Sets out the Scottish Government's 29 transport investment priorities over the period to 2032.
- **Rail Utilisation Strategy, Network Rail –** Sets out the long term vision for improvements across the rail network through a series of Route Utilisation Strategies (RUS) across the country.
- **The Scottish Sustainable Development Strategy: Choosing our Future (2005) –** Sets out actions to be taken in Scotland to turn the shared priorities set out in the UK Framework for sustainable development into action.
- **National Planning Framework 3 (2014) –** sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole.
- **Scottish Planning Policy (2014) –** Sets out national planning policies which reflect Scottish Ministers' priorities for operation of the planning system and for the development and use of land.
- **Designing Streets (2010) –** Sets out the guidance for design-led street design to result in streets with a good sense of place and to emphasise policy requirements to raise the quality of design in urban and rural development.
- **Scottish Government Economic Strategy (2007) –** Sets out how to support businesses and individuals and to focus the Government and public services on creating a more successful country through increasing sustainable economic growth.

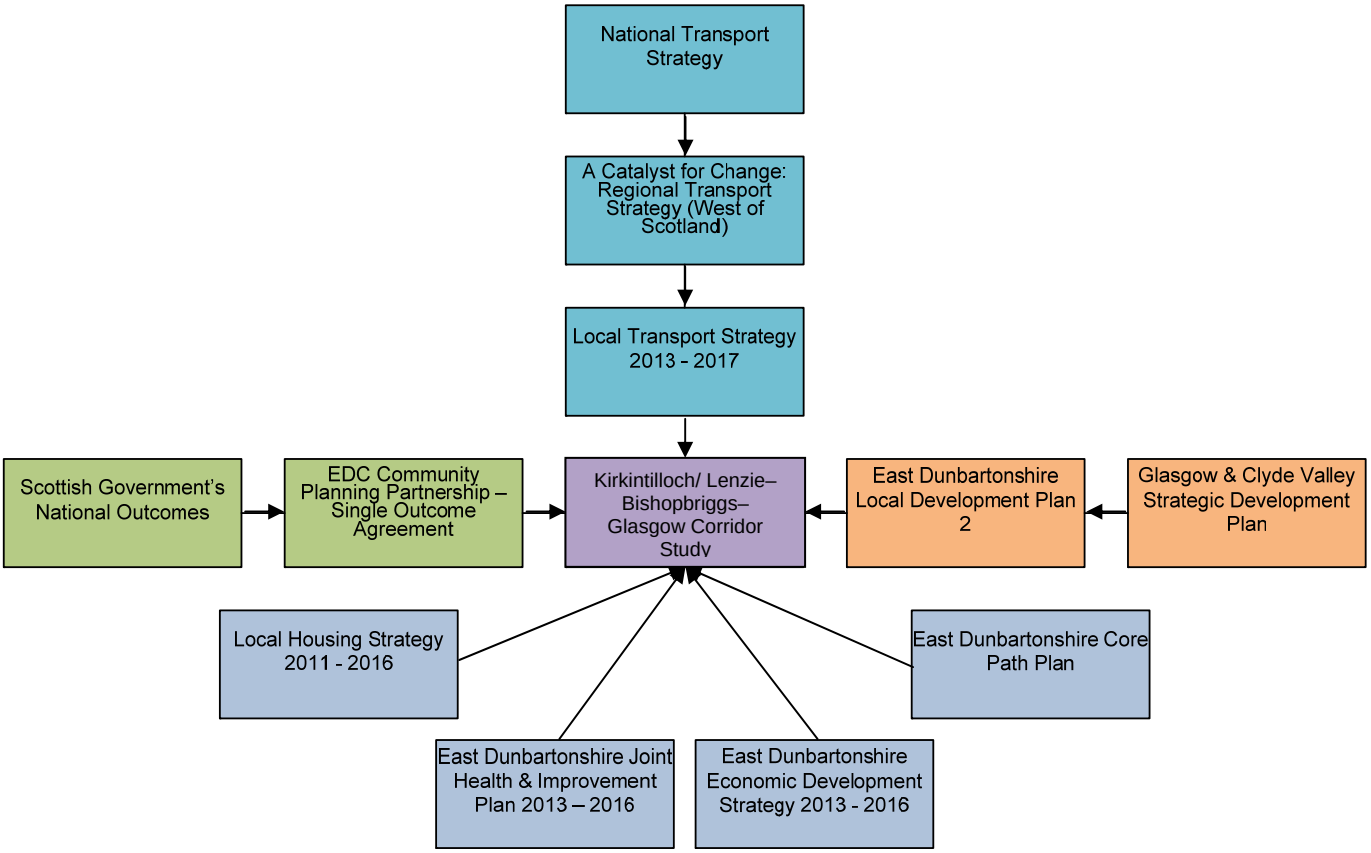
3.2.2 Regional Transport Planning

- **A Catalyst For Change: The Regional Transport Strategy for the West of Scotland (2008-21) –** Sets out Strathclyde Partnership for Transport's (SPT) vision for transport, shared goals with partner organisations, transport objectives, strategic priorities for transport and the indicators to be used to measure delivery for the first 5 years of the Strategy's implementation.
- **Glasgow and Clyde Valley Strategic Development Plan (Adopted May 2012) –** Sets out a development strategy over the next 20 years of where new development should be located and a policy framework to help deliver sustainable economic growth, shape good quality places and enhance the quality of life in the Glasgow and the Clyde Valley city region.

3.2.3 Local Strategies

- **East Dunbartonshire Single Outcome Agreement (2013-2016) –** Sets out the outcomes which will be delivered for people and communities by the Council and partners. Community Planning Partnerships will mobilise public sector assets, activities and resources, together with those of the voluntary and private sectors and local communities to deliver a shared 'plan for place'.
- **East Dunbartonshire Local Plan 2 (Adopted 2011) & Emerging Local Development Plan, Main Issues Report –** Sets out detailed planning policies and specific development proposals for land in East Dunbartonshire and identified the policies and proposals which affect any given piece of land.
- **East Dunbartonshire Local Transport Strategy (2013 – 2017) –** sets out the objectives, strategy and transport action plans for East Dunbartonshire Council from 2013 to 2017. There is a vision which looks beyond 2017, however the Local Transport Strategy sets out principle objectives which are concerned with achievable local improvements.
- **Local Housing Strategy (2011 – 2016) –** Sets out five key outcomes which direct housing investment and developing housing services across the locality over the next five years.
- **East Dunbartonshire Joint Health and Improvement Plan (2013-2016) –** Sets out the commitment of East Dunbartonshire Council, East Dunbartonshire Community Health Partnership and partners to work together to improve the health and wellbeing of people living in East Dunbartonshire and to reduce health inequalities throughout the area.
- **East Dunbartonshire Community Care Plan (2012-2015) –** Sets out the basis for community care planning in terms of the vision, principles, high level outcomes and strategic priorities that need to be at the heart of planning and service delivery across health, social care and partner services.
- **East Dunbartonshire Sustainable Development Strategy (2004) –** Sets out the Council's strategic commitment to sustainable development. Sustainable Development Action Plans are produced annually which show how the Strategy will be implemented.
- **East Dunbartonshire Open Space Strategy (Final Draft 2014 – 2019) –** Provides a framework for current and future open space provision in their respective areas. It helps the Planning system encourage and promote the best ways to manage and use open spaces and identify current and future needs of sites.
- **Bishopbriggs Air Quality Management Area Action Plan, (2009, updated 2012) –** Sets out actions and policies which the Council can implement such that the air quality objectives are met. A further review of the AQMA Action Plan is currently underway.
- **East Dunbartonshire Economic Development Strategy (Draft 2013 – 2016) –** The overarching purpose of this document is the creation of more, high quality jobs for the area by focussing on business creation and growth and the retention of balanced communities with enhanced infrastructure and services.
- **Parking Management Options Study - East Dunbartonshire Council (2007) –** Looks at parking management options within the East Dunbartonshire area.
- **Core Path Plan –** Sets out the Core Paths within East Dunbartonshire and criteria on which they were selected.

Diagram 1: The hierarchical relationship between the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study and other National, Regional and Local Plans, Policies and Strategies



4 SEA Assessment

4.1 Introduction

This Chapter outlines the methods which used to assess the environmental effects of the Study.

4.2 Scope of Assessment

In accordance with Schedule 2 of the Environmental Assessment (Scotland) Act 2005 East Dunbartonshire has considered whether the environmental effects (positive and negative) of the Study are likely to be significant.

There is no statutory definition of 'significance' in the context of SEA, however the Council considered the following issues in determining the significance of impacts (both positive and negative) on the environmental topic areas:

- Scale of impact (geographic);
- Duration of impact (short, medium or long term);
- Reversibility of impact;
- Sensitivity of environment; and
- Potential for significant cumulative effect.

4.3 Scoping

Scoping was undertaken in November 2014 which culminated in the publication of a scoping report which was submitted to consultation authorities to form a view on the consultation periods and scope/ level of detail that will be appropriate for the ER. A summary of the scoping responses is provided in Table 4.1 below.

Table 4.1 Scoping Responses

Consultee	Summary of Response
Scottish Natural Heritage (SNH)	▪ To aid understanding of the Study, it would useful if a diagram was provided to show how the appraisal fits with other key plans and strategies. ▪ SEA objectives should be SMART in order to better gauge impacts and progress. ▪ When assessing alternative proposals, the Environmental Report should consider an alternative to the Study, as opposed to options within the Study. ▪ Note that within the Options there are few that actively encourage active travel. ▪ The Options listed within the Study should be stated in factual terms, as opposed to value terms. ▪ SNH were content with the 35 days proposed for consultation on the Environmental Report
Scottish Environment Protection Agency (SEPA)	▪ SEPA note that they are generally content with the scope and level of detail within proposed for the ER. ▪ Noted that it is unclear as to what criteria will be used when assessing the significance of an effect.

Table 4.1 Scoping Responses	
Consultee	**Summary of Response**
SEPA (continued)	▪ Mitigation is a crucial part of SEA and should follow the mitigation hierarchy – avoid, reduce, remedy or compensate. ▪ Wherever possible and appropriate, existing monitoring frameworks and indicators can be used effectively to meet the SEA monitoring requirements. ▪ SEPA are satisfied with the proposal of an 8 week consultation period for the ER.
Historic Scotland	▪ Notes regionally or locally undesignated heritage assets have not been included within the baseline information. These sites should therefore also be considered when assessing potential effects. ▪ The methods of assessment refer to a focus on significant adverse effects, however positive effects/ the opportunity for enhancement is also an integral part of the SEA process. ▪ Suggest that mitigation measures are included within the assessment tables to allow greater transparency of potential impacts and associated mitigation, and will help show how mitigation can be carried forward in the delivery of the Study. ▪ Mitigation measures should follow the mitigation hierarchy – avoid, reduce, remedy or compensate. ▪ Indicators chosen for monitoring the historic environment should reflect actions to be delivered by the Study and the potential effects identified within the SEA. ▪ Historic Scotland are content with the proposed 35 day (8 week) consultation period for the Environmental Report.

4.4 Assessment Methods

The assessment will be undertaken in three stages:

- Assessment of alternatives;
- Assessment of each intervention identified in the Study; and
- Assessment of the cumulative effects of the Study.

4.4.1 Alternatives

As required by SEA Directive and the relevant National SEA Regulations there is a need to consider 'reasonable alternatives' to the Study. As explained in Section 2.2, a number of options will be developed across all modes of transport have been identified and assessed, in order for the SEA consider alternative ways of achieving the Study's vision and objectives. As well as the various Options proposed within the Study, there has also been an assessment of potential effects on the environment should the Study not be implemented, this is referred to as the 'Do-Minimum' Option. The Do-Minimum Option is described and assessed within Section 6.

The option appraisal process follows Scottish Transport Appraisal Guidance (STAG) methods to provide an integrated appraisal of each option against STAG criteria, including the environment, safety, the economy, integration, and accessibility and social inclusion. The results of the options appraisal have been summarised in the ER with an explanation of how environmental considerations informed the selection of the preferred measures included in the Study.

4.4.2 Assessment of each Option Identified in the Study

As described in Section 2, the Study includes a package of transport interventions. The environmental effects of each individual Option have been assessed using the methods outline below.

4.4.3 Cumulative Effects

The cumulative of all interventions promoted by the Study have been assessed in their entirety for each of the SEA topics (i.e. the effect of all interventions in the Study on air, ecology etc).

4.5 Methods for Assessing Measures Promoted by the Study

4.5.1 Assessment Criteria

The general approach to SEA is to identify potentially significant effects (positive and adverse). Significance is a measure of the magnitude of a potential effect compared to/in relation to the sensitivity or importance of the receptor. It is proposed that the criteria will not attempt to qualify the assessment of significance in any great detail. This includes differentiation between Major, Moderate or Minor significance as there may not be sufficient information available to accurately determine any variation between these given the high spatial level of the Study. The assessment will therefore be based on the following criteria set out in Table 4.2.

Table 4.2 Assessment Criteria

SEA Topic	Likely Effects
Potential to result in a Significant Effect	The precise measure for a significant effect will vary across the different SEA topics, however, in general a significant effect is likely when: ▪ The Study will result in a permanent, long term or irreversible change in baseline conditions; or ▪ Direct long term or permanent enhancement or disruption to a receptor (e.g. biodiversity).
Potential to result in an effect	As above, the measure of effect will vary across the different SEA topics, however, in general, a potential effect is likely when: ▪ The Study will result in temporary short term or reversible change in baseline conditions; or ▪ Indirect, temporary or short them enhancement or disruption to a receptor (e.g. biodiversity).
Negligible	Negligible effects will be identified where there is likely to be change in baseline, or effect on a baseline feature (receptor), but the level of change/effect will be indiscernible/very slight.
Neutral / No Effect	There will be no change in baseline environment/features as a result of the Study.

Table 4.2 Assessment Criteria	
SEA Topic	**Likely Effects**
Unknown	Unknown effects will be recorded where there is insufficient information available to accurately determine the level and type of potential effect. This could be due to: ▪ A lack of baseline data. ▪ Limited knowledge on how the Study would interact with particular baseline features/ characteristics, for example, where there is limited scientific knowledge of how a certain species would respond to marine noise. ▪ A lack of knowledge as to whether certain baseline features (receptors) are sensitive to development interactions in the marine, coastal or intertidal area.

Likely effects can be both adverse and beneficial.

It is proposed that the following system of coding will be used in the presentation of results from the assessment.

Potential effect	Symbol
Potential to result in a Significant Effect	×× (adverse) ✓✓(beneficial)
Potential to result in an effect	× (adverse) ✓ (beneficial)
Negligible	<> (×) adverse; or <> (✓) beneficial
Neutral / No Effect	o
Unknown	?

4.5.2 Mitigation and Monitoring

Where it is identified that the Study may have environmental impacts these may be mitigated. For example new transport infrastructure may be allocated within an environmentally sensitive area. As per the mitigation hierarchy (avoid, reduce, remedy, compensate) where possible the Council will seek to firstly avoid significant negative environmental impacts. If this is not possible, mitigation measures will be proposed which will aim to reduce the overall impact to an acceptable level.

The Study will be subject to ongoing monitoring. It is intended to create a set of indicators to measure the impacts that the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow corridor improvements may have on the environment during its lifespan. The indicators will be based on the baseline information and the existing environmental issues and problems in the area. These indicators will be developed during the preparation of the Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Options.

5 Environmental Baseline

5.1 Introduction

This section of the ER provides an outline of the environmental characteristics of the study area focussed on the main data sources and key issues related to each environmental topic within the scope of the SEA. Key constraints or areas of environmental importance are identified by SEA topic area in Figures 5.1 to 5.4. Data sources used for the collation of baseline information are noted in Appendix B.

5.2 Environmental Baseline

5.2.1 Biodiversity Flora and Fauna

There are no statutorily designated sites within the study area, however there are a number within the wider area. The closest designation is Cadder Wilderness Site of Special Scientific Interest (SSSI) approximately 1.5km north west of the A803. This site is designated for its woodland habitats and invertebrate assemblages. Possil Marsh SSSI is located approximately 2km west of the A803 and its notifying features being its meostrophic loch. South Braes SSSI is located approximately 4.5km north west of Kirkintilloch and is designated for its lowland acid grassland and fen meadow.

There are two Local Nature Reserves (LNRs) within close proximity to the A803: Merklands LNR, and Lenzie Moss. Merklands LNR is located on the eastern outskirts of Kirkintilloch approximately 700m south of the A803, just north of the B8048. This site is a former colliery with a mosaic habitat - woodland, grassland and wetland. The site supports a range of fauna and flora including Reed bunting, protected species[1] Water vole, Roe deer and Lesser spearwort.

Lenzie Moss LNR is located to the south west of Kirkintilloch, approximately 1.4km south of the A803 just north of the B819 and west of the B757. This site is currently used for informal recreation and was historically used for commercial peat extraction. The habitats have now mostly recolonized with typical peatland plants and birch woodland, however a small area at the south-western edge maintains its original surface. The site supports nationally rare plant species Bog Rosemary *Andromeda polifolia*.

There are additional LNRs located within the wider study area including Dumbreck Marsh Local Nature Reserve (LNR) and Mosswater LNR.

There are four main areas of ancient semi natural woodland and ancient woodland that are located in close proximity to the A803; three of which are within Bishopbriggs and one at Inchwood.

There are a number of Local Nature Conservation Sites in close proximity to the A803, with Important Wildlife Corridors dissecting the road, and along the road at a number of locations. Wildlife Corridors are an important habitat feature which ensures mobility of species, reducing isolation and encouraging species diversity within urban areas.

From a review of aerial photography the study area appears to include a number of UKBAP & LBAP habitats for which action plans exist, including:

- LBAP habitats with Action Plans: Urban, including Greenspace, Businesses & Golf Courses; Rural, including Lowland Farming & Hedgerows; Woodland, including Woodland and Hedgerows; and Wetland, including Rivers and Streams, Lochs, Ponds and Reservoirs and the Forth & Clyde Canal.
- UKBAP Broad habitats includes: Rivers and Streams, including UKBAP priority habitats Rivers; Standing Open Waters and Canals, including UKBAP priority habitats Ponds and Mesotrophic Lakes; Arable and Horticultural, including UKBAP priority habitats Arable Field Margins; Boundary and Linear Features, including UKBAP priority

[1] Schedule 5 of the Wildlife and Countryside Act 1981, as amended

habitats Hedgerows; and Broadleaved, Mixed & Yew Woodlands, including UKBAP priority habitats Wood-Pasture and Parkland, and Lowland Mixed Deciduous Woodland.

A review of aerial photography shows that the A803 runs through and close to a variety of habitats that could support a number of protected species, including European Protected Species otter, water vole and bats. Other protected species, such as breeding birds, badger, in addition to LBAP & UKBAP Priority Species may also be present.

Refer to Figure 5.1 for the map illustrating the spatial extent of ecological constraints within the Study Area.

5.2.2 Water

There are three groundwater bodies that underlie the study area. The Clydebank and Kirkintilloch bedrock and localised sand and gravel aquifers, the Kelvin Valley Sand and Gravel groundwater body and the Campsie bedrock and localised sand and gravel aquifers. The Clydebank and Kirkintilloch groundwater is determined to be of poor quality and the other two are determined to be of good quality. All three waterbodies are designated under the Drinking Water Directive for Groundwater bodies.

Numerous surface water bodies are also located within the surrounding area of the A803 corridor. These are all part of the wider catchment area of River Kelvin which extends from its source at Kilsyth in North Lanarkshire, to its confluence with the Clyde to the southwest. The River Kelvin is designated by the Freshwater Fish Directive for Salmonid Waters, as well as being regarded as an Urban Waste Water Treatment Directive Sensitive Area.

The Forth and Clyde Canal also passes through the study area, following the approximate route of the A803 corridor, from the northeast to the southwest. The Forth and Clyde Canal is designated by SEPA under the Fresh Water Fish Directive for Cyprinid Waters.

Numerous tributaries of the River Kelvin are also located within the study area, all of which vary in their quality classification as determined by SEPA, ranging from ‘good’ to ‘poor ecological potential’ and ‘poor’. Each of these tributaries are also designated under the Fresh Water Fish Directive for Salmonid waters given their linkages to the River Kelvin.

Other protected areas that are linked to the hydrological conditions of the surrounding area include:

- South Braes Site of Special Scientific Interest (SSSI);
- Dumbreck Marsh Local Nature Reserve (LNR);
- Mosswater LNR; and
- Lenzi Moss LNR.

The ecological importance of each of these sites is noted within the biodiversity section above.

5.2.3 Soil

Despite three quarters of the land in East Dunbartonshire being utilised for agricultural processes, the district has a small percentage (5%) of prime agricultural soil. However the land within the study area is predominantly Class 3.2 (land able to support mixed agriculture), or Class 3.1 (able to support arable agriculture). There are also areas of less fertile land, typically in the areas of higher elevation at the north of the study area.

Currently East Dunbartonshire has no areas of land designated as contaminated land (as defined in the Environmental Protection Act 1990). However, a list of potential contaminated sites has been created based on previous land use. On this list 626 potentially contaminated sites (to varying degrees of contamination) have been identified.

There are currently 25 sites of Vacant and Derelict Land within East Dunbartonshire with a total area of approximately 62 hectares. These and other Brownfield land locations within East Dunbartonshire may have potentially contaminated land, depending on their historic uses.

5.2.4 Cultural Heritage

A review of available data from PASTMAP – Scottish National and Regional Archaeological and Architectural Datasets, Historic Scotland and the East Dunbartonshire Local Plan have highlighted a number of listed buildings, Scheduled Ancient Monuments(SAM) and Conservation Areas within the study area that could be impacted by the Study.

The Antonine Wall World Heritage Site is located to the north of Bishopbriggs and continues in a north easterly direction through the north of Kirkintilloch. The buffer zone extends to include surrounding farmland. This monument is of national importance as part of a major Roman frontier system, it is also the most substantial and important Roman monument in Scotland. The Antonine Wall runs across central Scotland, from Old Kilpatrick in the West to Bo'Ness in the East.

The Forth and Clyde Canal SAM runs north east to south west from Kirkintilloch along the north west edge of Bishopbriggs before heading west to Clydebank. This monument is of national importance because, as an integral part of the Forth and Clyde Canal, it is a superlative example of Georgian civil engineering. It was the first of Scotland great inland waterways to be constructed and was built between 1768 and 1790.

There are numerous Conservation Areas within the study area, with the closest to the A803, including: Coltpark Avenue/Stuart Drive in Bishopbriggs; Balmuildy/Kirkintilloch Road in north Bishopbriggs; Cadder to the north west of Bishopbriggs; Central Kirkintilloch which is located just south of the A803, west of the A806; Lenzie and South Lenzie north and south of the Glasgow-Edinburgh railway line respectively.

There are several listed buildings located within Bishopbriggs and Kirkintilloch, or within a short distance from the A803 corridor (from PASTMAP – Scottish National and Regional Archaeological and Architectural Datasets). The most important of these are Category A (of national importance), and includes:

- The old parish church of St Mary, which is now a museum. Located in Kirkintilloch;
- Luggie Water aqueduct and bridge in Kirkintilloch;
- Auld Isle Cemetery at Old Isle Road in Kirkintilloch;
- No 27 Victoria Road, Lenzie;
- Lenzie Warwick Croft, Heriot Road and no 43 Alexandra Road, Lenzie; and
- Kincaid House Hotel at Milton of Campsie.

A large number of Category B listed (of regional importance) buildings are also present within the study area. The closest of which to the A803 are typically clustered around West High Street/Peel Park, Eastside, in Kirkintilloch and south of South Crosshill Road in Bishopbriggs.

There are also a large number of Category C (of local importance) within the study area, these are typically within the same locations as the Category A and B mentioned above.

Refer to Figure 5.2 for the map illustrating the spatial extent of all archaeological and cultural heritage constraints within the Study Area.

5.2.5 Landscape

East Dunbartonshire's landscape is diverse in terms of character and land uses. The district is characterised by five main types of landscape character: Drumlin Foothills; Rolling Farmland; Broad Valley Lowland; Rugged Moorland Hills; and urban areas.

The topography of East Dunbartonshire is generally low lying, undulating land with the exception of the two Regional Scenic Areas, the Campsie Fells and the Kilpatrick Hills to the North and West of the district respectively.

East Dunbartonshire's Planning Guidance Note on 'Special Landscape Area Designation' recognises several 'exemplars' of Landscape Character Areas which they have put forward to become Special Landscape Areas. Of these areas, the Bardowie, Balderknock Drumlin Foothills lies immediately north of Kirkintilloch. Broad Valley Lowlands are immediately north of this at Glazert Valley, from the East Dunbartonshire/Stirling Boundary, through to Milton of Campsie. Rolling farmlands are located south east in the localities of Badeneath and Gartshore.

There are four Townscape Protection Areas located within close proximity to the A803: Kirkintilloch, Bishopbriggs, Lenzie and Baldernock & Bardowie. As noted in Section 4.2.4 above, the study area includes several conservation areas including: "Coltpark Avenue/Stuart Drive", "Balmuildy/Kirkintilloch Road", "Cadder", "Central Kirkintilloch", "Lenzie" and "South Lenzie". Conservation Areas are areas of distinctive character which have been considered to have a special merit because of their architectural, townscape and landscape qualities.

East Dunbartonshire has a total of 1,082.46 hectares of green space, 54% of which is semi-natural.

The green belt is a Development Plan policy which covers the East Dunbartonshire area, with the exception of the upland areas, its objectives include maintaining the character and distinctiveness of the areas settlements.

East Dunbartonshire also has many Tree Preservation Order (TPO) areas. A number of these TPO areas can be found within Kirkintilloch, Lenzie and Bishopbriggs.

The A803 corridor within our study is predominately urban in nature at the south and north with the towns of Bishopbriggs and Kirkintilloch respectively. Between the two towns the landscape is more rural in nature with agricultural fields, several golf courses are also present as is the Forth and Clyde Canal.

5.2.6 Population and Human Health

East Dunbartonshire has a total population of 105,860 (2013) and is a currently declining population. This population decline is anticipated to continue, with a projected population of 98,696 in 2037. This represents a 6.8% reduction in population size from 2012 figures. Conversely, Scotland's population is predicted to increase by 8.8% over the same period.

East Dunbartonshire has a decreasing and ageing population. This is highlighted through the population projections 2012 that by 2037 East Dunbartonshire's population will be 98,696 with a large increase in the 75+ age group and a projected decline of 13.4% of the under 16 age group in comparison to the 2012 population statistics. The number of people aged over 65 years old is forecast to increase by 11,573 people between 2012 and 2037.

From the 2011 census data, the percentage of economically active people living in East Dunbartonshire is the same as the Scottish average (69%).

Areas of Hillhead and Lennoxtown are within the top 15% most deprived SIMD (Scottish Index of Multiple Deprivation) data zones in Scotland. There is a considerable difference in the average weekly wage between people that live in East Dunbartonshire and people who work in the area earn.

Generally the health of the residents of East Dunbartonshire is similar to that of the national average statistics, with 85% of the residents being determined as being of 'good' health or better, in comparison to that of Scotland (82%) (2011

census). The level of residents found to be in general health status of 'bad' or 'very bad' within East Dunbartonshire and Scotland was 4% and 5% respectively.

The minor, serious and fatal road accidents in the area are recorded by the police. Road accidents and road casualty rates in the Glasgow and Clyde Valley region, and in Scotland, have fallen considerably over the last 20 years, despite a 20% increase in traffic volume. There is no sign of an overall reduction in adult pedestrian casualties admitted to hospital in the area. Rates remain three times higher in the most deprived areas.

Refer to Figure 5.3 for the map illustrating the spatial extent of constraints pertaining to population and human health within the Study Area.

5.2.7 Air Quality

The main concern for air quality in East Dunbartonshire is transport which is the main contributor of air pollutants such as NO2 (nitrogen dioxide) and PM10 (particulates).

The busiest routes that are of concern in relation to air quality within the study area are the A803 and B812 in Bishopbriggs. The A803 from the East Dunbartonshire boundary in the south to the roundabout with the B819 to the north is an Air Quality Management Areas (AQMA). This area has been declared an AQMA after several years of exceeding National NO2 and PM10 objective levels.

5.2.8 Climatic Factors

Vehicular transport is a significant source of carbon dioxide in East Dunbartonshire, which contributes towards climate change.

The level of bus coverage varies across the area. As such there are areas that do not have services that are frequent or operate outwith peak travel periods and daytime hours. The number of bus passenger journeys in Strathclyde and South West Scotland has decreased from a peak in 2008/09 to 2011/12, which equates to a decrease of 20%.

East Dunbartonshire has a higher number of cars per household than the Scottish national average, however traffic levels have decreased during recent years from the particularly high volumes experienced during the mid 2000s.

During 2013, 76.5% of East Dunbartonshire's working population travelled to their place of employment by car.

Glasgow is a key attraction for both employment and higher education opportunities for the population of East Dunbartonshire.

Flooding has been an issue in the Kelvin Valley for many years with the most recent flood events occurring in 1994 and 2005. The main area of concern for potential flooding within the study area is the River Kelvin north of the A803 at Kirkintilloch and Bishopbriggs.

East Dunbartonshire only has one operating landfill (Inchbelle Quarry, Kirkintilloch) but is only used for the disposal of inert materials, mainly construction materials. All household and commercial municipal waste is transferred to landfills in North Lanarkshire. Therefore, there is minimal methane from landfill within East Dunbartonshire to impact on climate change.

5.2.9 Material Assets

East Dunbartonshire is supplied by various levels of transport infrastructure, through well serviced rail networks, bus routes encompassing the whole district and the various road networks that link settlements within East Dunbartonshire together with providing routes out with the district.

There are 54km of A class roads, 47 km of B class roads and 34km of C class roads. This amounts to 27% of the road network. There are 369 km of unclassified roads.

East Dunbartonshire has a network of Core Paths and public open spaces which provide opportunities for recreation. There are numerous Core Paths within close proximity to and that cross the A803, namely the Path and Right of Way that follows the Forth and Clyde Canal and its tributary Park Burn.

Housing needs studies have indicated that East Dunbartonshire has one of the highest net needs for affordable housing, compared to other Scottish Local Authorities. The East Dunbartonshire Local Plan 2 identifies the location of new development proposals including transport development proposals (policy TRANS 3), including the A803 corridor through Bishopbriggs and Kirkintilloch.

5.3 Key Environmental Issues for the Study

There are numerous sensitive environmental receptors within the area surrounding the A803 corridor within East Dunbartonshire. The most notable of these that are designated either for their international, national or regional importance.

The Antonine Wall World Heritage Site runs perpendicular to the A803 corridor and includes a buffer zone (as identified in Local Plan 2), to avoid adverse effects from prospective developments. There is also the Forth and Clyde Canal Scheduled Ancient Monument, which is also designated by SEPA under the Fresh Water Fish Directive for Cyprinid Waters and has a national cycle route which lies adjacent to it. This runs parallel to much of the A803 between Kirkintilloch and Bishopbriggs. Further to this there are a number of listed buildings (Category A, B and C) located within Kirkintilloch that lie adjacent to the existing A803 corridor.

Other protected areas include the locally protected Merklands and Lenzie Moss Local Nature Reserves (LNR) which lie within close proximity.

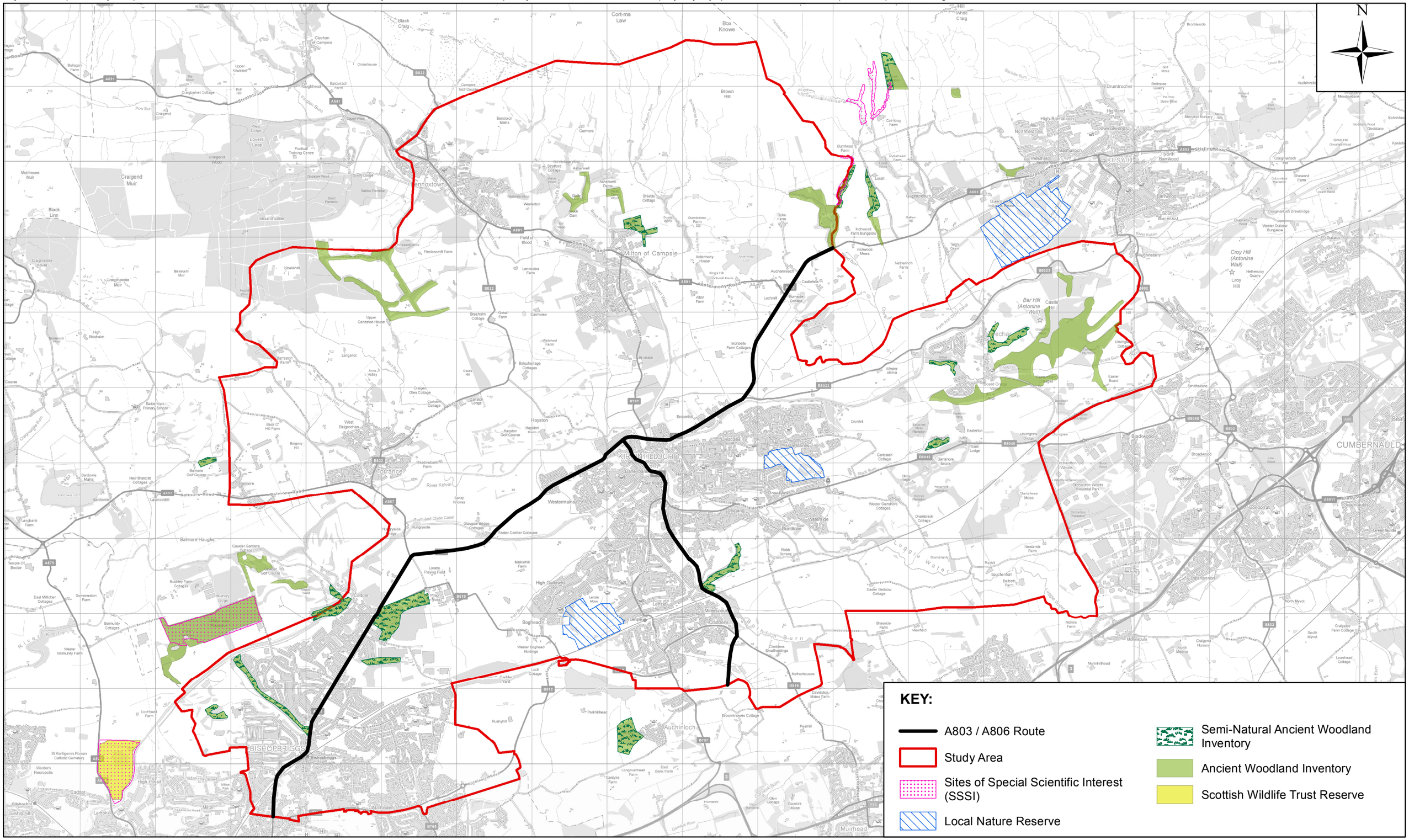
Other environmental sensitivities include the proposed Special Landscape Area of the Drumlin Foothills covering Bardowie, Baldernock and Torrance, the Air Quality Monitoring Area (AQMA) at the A803 and B812 in Bishopbriggs, at the southwest of the study area and the River Kelvin which is designated by the Freshwater Fish Directive for Salmonid Waters, as well as being regarded as an Urban Waste Water Treatment Directive Sensitive Area.

5.4 Evolution of the Baseline without the Study

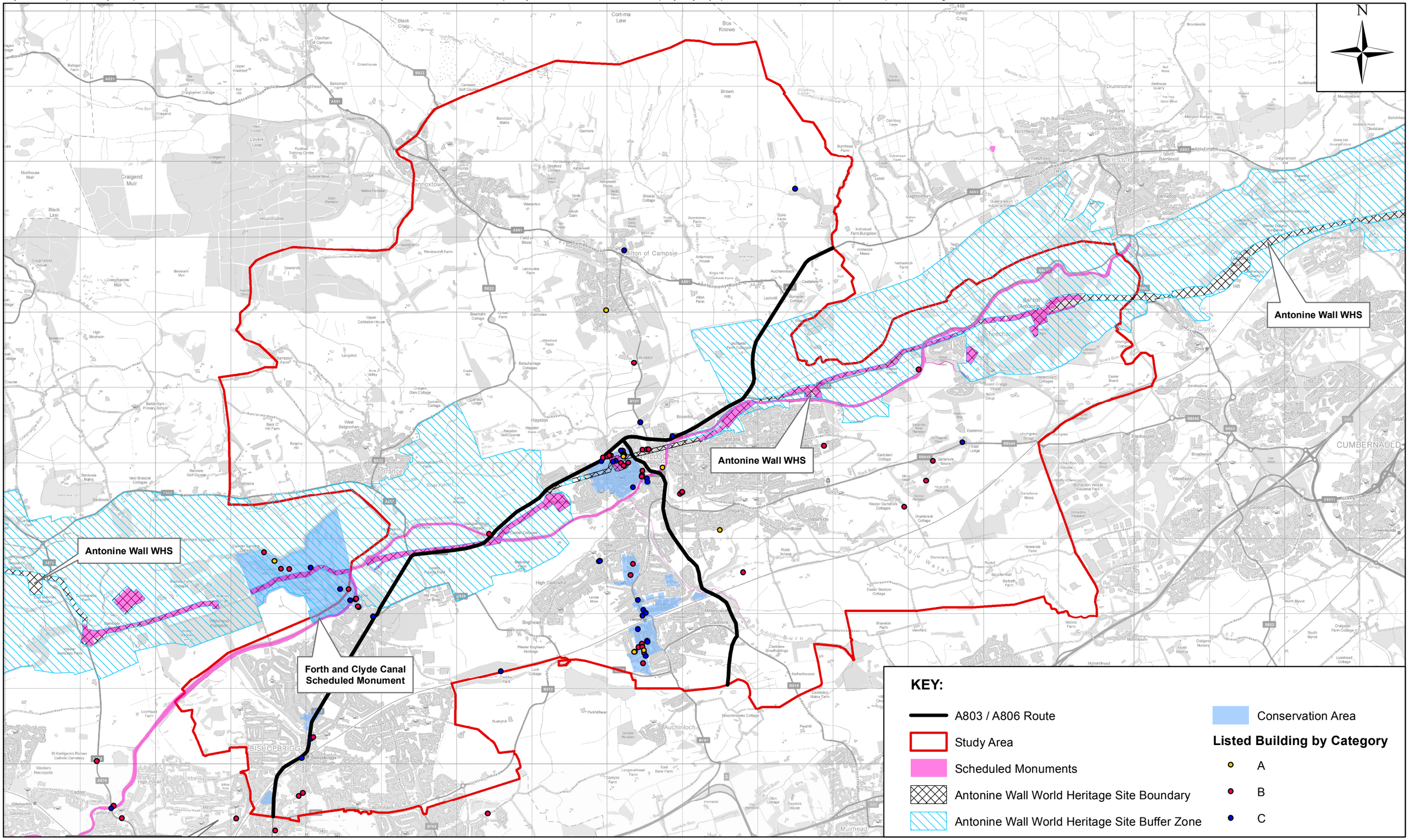
Without the exploration of route improvements/ traffic alleviation measures on the Kirkintilloch/ Lenzie – Bishopbriggs - Glasgow corridor, current issues experienced would continue and most likely worsen. With the identification of numerous housing, mixed use development and economic development opportunity plots within the Bishopbriggs and Kirkintilloch areas in the EDC Local Plan 2, transport pressures on this main transport artery are likely to increase.

These continued pressures will result in secondary effects on the surrounding environment and the local community. Namely, the increased number of private cars resulting in greater emissions, contributing to reduced air quality, negative impacts on human health and a greater contribution to Scotland's impact on climate change. Similarly, continued congestion on the A803 corridor may increase traffic incidents due to driver frustration, and discourage some people from travelling via more sustainable methods such as bicycle given the increased volumes of traffic.

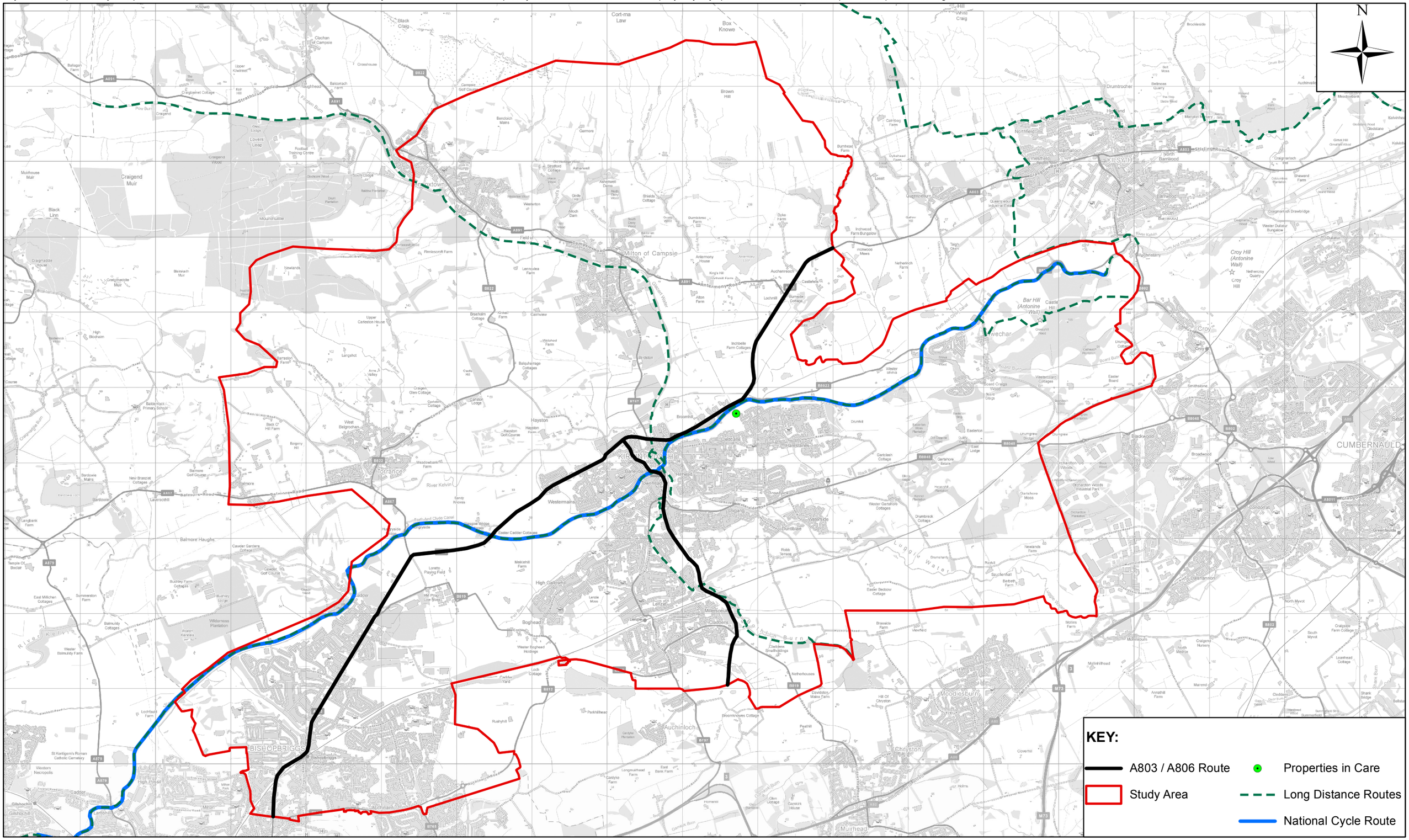
Other than these issues it is predicted that the environmental baseline will remain the same without the Study.



Client: EAST DUNBARTONSHIRE COUNCIL/ STRATHCLYDE PARTNERSHIP FOR TRANSPORT	Title: ECOLOGICAL CONSTRAINTS	AECOM 1 Tanfield, Edinburgh, EH3 5DA Tel: +44 (0) 131 301 8600 Fax: +44 (0) 131 301 8699 www.aecom.com	Design: SM / Drawn: TC / Chk'd: SM / App'd: CC / Date: 03/02/2015 / Scale at A3: 1:45,000 / Drawing Number: FIGURE 5.1 / Rev: 00
Project: A803 CORRIDOR STUDY			



Client: EAST DUNBARTONSHIRE COUNCIL/ STRATHCLYDE PARTNERSHIP FOR TRANSPORT	Title: ARCHAEOLOGICAL AND CULTURAL HERITAGE CONSTRAINTS	AECOM 1 Tanfield, Edinburgh, EH3 5DA Tel: +44 (0) 131 301 8600 Fax: +44 (0) 131 301 8699 www.aecom.com	Design: SM / Drawn: TC / Chk'd: SM / App'd: CC / Date: 03/02/2015 / Scale at A3: 1:45,000 / Drawing Number: FIGURE 5.2 / Rev: 00
Project: A803 CORRIDOR STUDY			



Client:
EAST DUNBARTONSHIRE COUNCIL/
STRATHCLYDE PARTNERSHIP FOR TRANSPORT

Project:
A803 CORRIDOR STUDY

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6 Assessment

6.1 Introduction

6.1.1 Introduction

The interventions set out within the Study have been assessed in two stages. Whilst it is important to highlight where temporary effects could occur from construction, with good practice and appropriate construction mitigation, these could be avoided or reduced to an acceptable level. However it was felt that the presentation of these effects within the assessment matrixes presented in Appendix B could mask the key issues. This chapter has therefore been split into temporary, short term effects that could occur as a result of construction and potential permanent and operational effects.

6.1.2 Limitations

The interventions proposed within the Study are high level and specific locations are not known. Consequently the lack of spatial reference associated with the interventions limits the accuracy by which their effect on the environment can be predicted and evaluated. Without knowledge of the exact area that will be affected by the intervention it is also difficult to accurately identify receptors that will be affected, their relative importance and how the baseline will change (i.e. the magnitude of the effect).

As a consequence some of the findings of the SEA are not based upon specific baseline data but in a detailed understanding of the characteristics of the study area, and an understanding of how the policies and options are likely to interact with the surrounding environment.

6.1.3 Construction Impacts

Construction activities generally include the following temporary effects:

- Vegetation removal;
- Ground /earth removal;
- Movements of materials (import of construction materials and removal of waste);
- Traffic movements to a from site;
- Noise generated by construction machinery / activities;
- Construction of contractor compounds;
- Changes to water drainage patterns (below ground and surface);
- Potential pollution/ contamination of water resources from plant and vehicles on broken ground; and
- Generation of dust resulting from earth movements and construction activities.

Table 6.1 sets out the Options identified within the Study which could result in construction effects.

Table 6.1 Options That May Result in Construction Activities

Option	Actions Which May Involve Construction
A803 Quality Bus Corridor Package	▪ Development of congestion by-pass lanes. ▪ Development of bus lanes. ▪ Potential installation of variable message signs.

Table 6.1 Options That May Result in Construction Activities	
Option	**Actions Which May Involve Construction**
Bus Hub in Kirkintilloch	▪ Development of an interchange area within the town centre. ▪ Bus prioritisation within the town centre. ▪ Pedestrian and cycling access improvements. ▪ Improved shelters.
Bus Park & Ride Adjacent to/ in the Vicinity of the B757 / KLR and Associated Bus Priority	▪ Development of the parking facilities and associated access roads and links required to facilitate the scheme.
Bus Park & Ride Adjacent to/ in the Vicinity of the BRR and Associated Bus Priority	▪ Development of the parking facilities and associated access roads and links required to facilitate the scheme.
Bus Service Improvements and New Services (Including Kirkintilloch/ Lenzie Loop Bus)	▪ Construction of bus stops.
Increase Parking Provision at Lenzie Rail Station	▪ Increased surface car parking space (additional 100 spaces). ▪ Development of additional car parking space above existing car parking space (maximum of 200 additional spaces).
Develop a New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access	▪ Development of the rail halt and parking facilities, as well as associated access roads.
Develop a New Rail Halt at Westerhill (with P&R) & Promote Sustainable Access	▪ Development of the rail halt and parking facilities, as well as associated access roads.

Table 6.2 provides details on the short term and temporary effects in relation to each of the environmental topic areas that may arise during construction activities associated with the Options set out in Table 6.1. The extent of construction required for each is not known at this stage therefore potential negative effects shown in Table 6.2 may not occur as a consequence of the construction activities of all that are listed. It details the general potential effects that could arise from construction activities.

Table 6.2 also sets out potential mitigation measures to minimise construction effects, however specific measures will need to be developed and implemented in line with the development of detailed design of the relevant intervention(s).

Table 6.2 Potential Construction Effects and Mitigation		
Environmental Topic	**Potential Effects**	**Potential Mitigation Measures**
Biodiversity Flora and Fauna	▪ Vegetation removal ▪ Loss and fragmentation of habitat ▪ Hedgerow removal ▪ Impacts on breeding / wintering birds	▪ Minimise tree / vegetation / topsoil removal ▪ Habitat reinstatement ▪ Protected species surveys/ licences/ mitigation

Table 6.2 Potential Construction Effects and Mitigation		
Environmental Topic	**Potential Effects**	**Potential Mitigation Measures**
	(disturbance) ▪ Impacts on fish ▪ Discharge of silt laden runoff	▪ Timing of construction ▪ Site clearance outwith the breeding bird season ▪ Control and treatment of surface runoff
Water	▪ Temporary discharges / risk of pollution ▪ Discharge of silt laden runoff ▪ Pollution incidents	▪ Use of construction SUDS and adoption of best practices to avoid pollution of watercourses ▪ Consultation with SEPA and obtaining the necessary temporary discharge consents ▪ Adoption of best practices to avoid pollution of watercourses ▪ Monitoring Private Water Supplies where required ▪ Appropriate storage of fuels and solvents
Soil	▪ Erosion or damage to soil ▪ Land contamination ▪ Soil compaction from heavy machinery	▪ Implement soil erosion prevention measures outlined in good practice guidance ▪ Pre construction surveys and application of Good Practice
Cultural Heritage	▪ Temporary effect on the setting of World Heritage Sites, Scheduled Monument, listed building or site of archaeological importance	▪ Archaeological watching briefs - Minimise and monitor ground disturbance
Landscape	▪ Visual impacts of construction activities	▪ Temporary screens and hoarding
Population and Human Health	▪ Nuisance (noise, odour, dust, vibration, light) ▪ Footpath and cycleway closures and diversions ▪ Temporary changes / alterations to public transport timetables ▪ Construction traffic ▪ Potential for accidents	▪ Good Practice Guidelines (e.g. construction dust management, use of low noise machinery) ▪ Restriction on working hours ▪ Erection of temporary noise screens ▪ Use of directional lighting ▪ Implementation of construction management plans ▪ Consultation with the Environmental Health Officer ▪ Consultation with local residents and users of footpaths and cycleways ▪ Provision of alternative routes (diversions) during construction ▪ Appropriate controls and security of construction sites

Table 6.2 Potential Construction Effects and Mitigation		
Environmental Topic	**Potential Effects**	**Potential Mitigation Measures**
Air Quality	▪ Creation of dust and particulates	▪ Follow appropriate guidelines for construction dust management ▪ Implementation of construction management plans
Climatic Factors	▪ Increased emissions from construction vehicles ▪ Waste generation (from aggregates (rubble, concrete)) ▪ Development within a flood plain.	▪ Preparation of a waste management plan demonstrating how targets for recycling and reuse of aggregates and other waste will be met ▪ Management of waste in line with Developers Duty of Care
Material Assets	▪ Waste generation (from aggregates (rubble, concrete))	▪ Reuse of materials where appropriate

Most of the potential effects that could occur as a result of construction can be reduced or avoided through the implementation of appropriate mitigation measures. Any construction works will need to be timed appropriately where required so to avoid significant effects on the qualifying features of any designated sites and protected species. Providing appropriate controls are put in place to avoid or minimise the effects of construction it is unlikely that the Study (when implemented) will result in significant adverse effects on the environment. However, in order to ensure that the options taken forward under the Study do not result in a significant effect during construction, all Options which are taken forward for development will be subject to further assessment (relevant to the scale of the Option) which will identify project level mitigation accordingly.

6.1.4 Do Minimum

Each of the Options generated will be assessed against the current baseline. The baseline conditions must also consider the developments, schemes, plans and programmes which have already been committed to within the study area by Transport Scotland and East Dunbartonshire Council. This is regarded as the 'Do Minimum' scenario. The transport interventions that are included within the baseline or 'do minimum' scenario include:

- Bishopbriggs Relief Road (up to and including phase 5);
- The implementation of SCOOT (Split Cycle Offset Optimisation Technique) within the study area. SCOOT is an adaptive traffic control system that uses traffic sensors to alter the signal delays at crossings according to the conditions of the road (i.e. the number of vehicles using the route);
- The regeneration of the Kirkintilloch Town Centre;
- Implementation of the Parking Strategy and decriminalised parking enforcement;
- Edinburgh-Glasgow Improvement Programme (EGIP) Phase 1; and
- Glasgow City Council City Centre Strategy.

6.2 Do Minimum

6.2.1 Biodiversity

Given that the multiple components of the Do-Minimum Option have been consented any effects on ecological receptors or habitat areas are not likely to be significant, or will been mitigated at project level to avoid or reduce any potential impacts. Of the interventions within this Option, it is presumed that ecological impacts would result from the development of the BRR, which requires land take to accommodate the new road infrastructure and the associated loss of potential habitat of European protected species. The BRR route that also passes within close proximity to a pocket of woodland listed within the AWI which may be directly impacted as a result of the new transport infrastructure or operational requirements. Impacts on biodiversity and habitats as a result of the Do-Minimum Option are likely to be adverse but not significant.

6.2.2 Water Quality

The Do-Minimum Option is not likely to result in any impacts on the water environment. Although there is some new infrastructure development (e.g. the BRR) and development within close proximity to water resources (e.g. Kirkintilloch town centre regeneration – Forth and Clyde Canal), as the various components of the Option have been approved, any potential impacts are assumed to have been mitigated to an acceptable level.

6.2.3 Soil

Impacts on soils from the Do-Minimum Option are likely to relate to the development of the BRR. However given this has been commissioned the impacts from this are not likely to be significant. No other intervention within this Option requires additional land take within the study area.

6.2.4 Cultural Heritage

The Do-Minimum Option is not likely to result in any significant impacts on cultural heritage.

6.2.5 Landscape

There are not likely to be any significant impacts on the landscape or visual amenity from the Do-Minimum scenario. Any projects developed within this Option likely to result in any adverse landscape or visual effects are presumed to incorporate adequate mitigation to avoid or reduce these effects. Interventions that include additional transport infrastructure which may impact the landscape/ townscape and visual amenity include the BRR, Kirkintilloch Town Centre regeneration and EGIP.

6.2.6 Population & Human Health

The Do-Minimum Option is unlikely to result in significant effects on the population and human health. The implementation of the BRR may relieve traffic pressure along the A803 within Bishopbriggs reducing emissions along this route and improving air quality. These beneficial effects are likely to be counteracted as a consequence of the Woodilee, Bishopbriggs East and Westerhill Business Park development areas, which are likely to increase the number and use of private vehicles within the study area.

The regeneration and parking enforcement changes within Kirkintilloch town centre may also increase the safety of the population within the town centre through greater pedestrianisation of the area and discouraging cars to the area.

6.2.7 Air Quality

Implementation of the Do-Minimum Option may result in a negative impact on air quality from the attraction of vehicle users to the area from reduced journey times from the completion of the BRR. Should traffic be diverted away from the A803 route and signalling improvements ease congestion, there may be some beneficial impacts on the existing Air Quality Management Area (AQMA) located in Bishopbriggs on the A803 between Colston Road and Hayston. These benefits are likely to be counteracted as a consequence of the Woodilee, Bishopbriggs East and Westerhill Business Park development areas, which are likely to increase the number and use of private vehicles within the study area. Impacts on air quality are likely to be neutral to minor adverse.

6.2.8 Climatic Factors

It is unlikely that there will be any impacts on the climate as a result of the Do-Minimum Option.

6.2.9 Material Assets

The Do-Minimum Option will upgrade the existing rail link between Edinburgh and Glasgow, and also increase the capacity of this link. The improvement of town centre areas such as Kirkintilloch and Glasgow provides a greater attraction to these areas and the services provided at these centres. The benefits to material assets within the study area are not likely to be significant.

6.3 Option 1 A803 Quality Bus Corridor Package

6.3.1 Biodiversity

Should the adoption of this Option result in a modal shift to bus usage along the A803 (as a means of more sustainable transport), it is likely that there will be improved local air quality. As a result of this there may be improved biodiversity within local habitats surrounding the A803 corridor. It is unlikely that these beneficial effects will be significant.

6.3.2 Water Quality

Improving bus journey times and reliability is not likely to impact on water quality or drainage within the study area.

6.3.3 Soil

As there is no land take associated with this Option, it is not likely that there will be any impact on soils.

6.3.4 Cultural Heritage

The creation of a bus priority corridor on this route is not likely to result in any significant impacts on cultural heritage sites. Along the route of the A803 bus corridor there are three listed buildings along the route – the Coltpark Avenue/Stuart Drive and Balmuildy/Kirkintilloch Road Conservation Areas within Bishopbriggs. The northern section of the route is also located within the Antonine Wall WHS buffer zone. Careful consideration of each of these sites is required when designing the scheme.

6.3.5 Landscape

The adoption of this Option is not likely to significantly impact on the surrounding landscape/ townscape or visual amenity. There may be potential impacts on townscape as a result of the inclusion of additional shelters and other street furniture.

6.3.6 Population & Human Health

Should the adoption of this Option result in a modal shift from private vehicle usage there are likely to be less vehicles on the road and improve air quality, with beneficial effects on human health. It is unlikely that these impacts will be significant.

6.3.7 Air Quality

Negative impacts on local air quality may be experienced on the A803 should bus priority measures be put in place, particularly at the already sensitive Bishopbriggs AQMA as a result of greater congestion of private vehicles along the route. Assuming the BRR is completed these effects should be largely mitigated by diverting through traffic from this area. Furthermore, should a modal shift from private vehicles to quicker, more reliable buses be attained along the A803 corridor localized air quality benefits may be realized across the wider study area.

6.3.8 Climatic Factors

Should a modal shift from private vehicles be achieved as a result of implementing this Option, emissions from transport within the study area will be cut. Emission levels will be further improved should low-emission vehicles be introduced to the route. This may positively impact climatic factors in assisting the Scottish Government in their target to cut greenhouse gas emissions by 42% by 2020.

6.3.9 Material Assets

The development of a quality bus corridor along this route is unlikely to result in any impact on material assets within the study area.

6.4 Option 2 Bus Hub in Kirkintilloch

6.4.1 Biodiversity

The impacts from the adoption of this Option are dependent upon the location and intervention(s) adopted as part of this Option. Biodiversity and habitats of relevance within Kirkintilloch town centre are limited to parks and fragmented habitats. Should there be a proposed new bus hub, there may be scope to include habitat creation within the design to enhance the towns' biodiversity. Impacts on biodiversity from the adoption of this Option are not likely to be significant.

6.4.2 Water Quality

There are not likely to be any impacts on the water environment as a result of the adoption of this Option.

6.4.3 Soil

The adoption of this Option will be within an urban area. Any land required to accommodate the development of this will not impact on soils or agricultural land.

6.4.4 Cultural Heritage

Impacts on cultural heritage sites as a result of the adoption of this Option are dependent on the scale of intervention adopted. Kirkintilloch town centre is a culturally sensitive area, bounded to the north by the Antonine Wall WHS and to the south by the Forth and Clyde Canal SAM. The centre itself is a Conservation Area and Townscape Protection Area with a high density of listed buildings including the Category A listed St Mary old parish church. The development of a bus hub or re-development of existing bus stops may impact the setting of these heritage sites or result in physical damage from increased vibration effects from a greater frequency of buses in the close vicinity. Impacts are likely to range from negligible to moderate adverse.

6.4.5 Landscape

Impacts on townscape and visual amenity are dependent on the scale of intervention adopted within this Option. Given the cultural heritage of the area the development of a new bus hub may result in a significant alteration of the townscape and result in a significant adverse effect.

6.4.6 Population & Human Health

Should the Option propose to develop a single centralized bus hub, it is likely that there will be noise and vibration disturbance to receptors (residential and commercial) within the near vicinity of its location. Beneficial effects on air quality which could improve human health in the study area may occur should individuals choose to access the town centre via bus as opposed to private vehicles. It is likely that effects on the population and human health will be neutral.

Other softer interventions proposed within the Option, such as access improvements, improved shelters, and greater public transport information are unlikely to result in any impacts on the population and human health.

6.4.7 Air Quality

The impact on air quality from the adoption of this Option is dependent upon the level of intervention implemented. Should there be a singular bus hub developed within the town centre, there may be a long-term increase in pollutants due to private vehicle congestion should there be bus priority. However should there be a modal shift to bus usage within the town centre and traffic levels reduce air quality may improve. Impacts on air quality are likely to be positive, but not significant.

The softer interventions associated with this Option, such as increasing accessibility by walking and cycling and improving bus shelters are unlikely to impact air quality – unless they contribute to reducing traffic volumes within the town centre.

6.4.8 Climatic Factors

It is unlikely that climatic factors will be significantly impacted as a result of the adoption of this Option. Some beneficial effects may be experienced should the development of a bus hub or improving bus facilities and town centre access result in a greater use of more sustainable transport than private vehicles.

6.4.9 Material Assets

It is unlikely that material assets within the study area will be impacted upon as a result of the adoption of this Option.

6.5 Option 3 Bus Park & Ride Adjacent to / in the Vicinity of the B757 / Kirkintilloch Link Road and Associated Bus Priority

6.5.1 Biodiversity

The development of a P&R scheme is likely to result in the permanent land take from areas of potential habitat value to European protected species and probable tree removal to accommodate new transport infrastructure, resulting in adverse effects on the biodiversity of the area. Should the adoption of a P&R encourage the use of more sustainable means of transport, improved air quality within the wider study area may result in improved biodiversity. Impacts on biodiversity are likely to be negligible to minor adverse.

6.5.2 Water Quality

It is unlikely that the adoption of this Option will result in any significant adverse effects on the water environment.

6.5.3 Soil

The requirement of land take to accommodate the footprint of the parking facilities and associated access roads may result in the loss of agricultural land. The extent of this area is dependent upon the location and the scale of the P&R scheme. The agricultural land surrounding this area is regarding as being of Class 3.2 – capable of supporting 'mixed agriculture'.

6.5.4 Cultural Heritage

Depending upon the scale and location of the P&R scheme there may be adverse effects on the setting of several cultural heritage sites including the Lenzie and South Lenzie Conservation Areas.

6.5.5 Landscape

The introduction of a new structure within the landscape has the potential to result in adverse effects on the landscape/ townscape and visual amenity of the area. Effects are dependent upon the scale, design and final location of a P&R in area surrounding the proposed location of the P&R, however there remains the possibility that there may be significant adverse effects on visual amenity.

6.5.6 Population & Human Health

Should the development of a bus P&R scheme result in a modal shift to a more sustainable mean of transport, there may be an improvement of air quality. This will result in improved human health within the study area. Depending upon the final scale and location of the P&R scheme, it may result in a significant increase of vehicle numbers to a particular area, increasing noise and vibration disturbance to any surrounding sensitive receptors and reduce air quality within the immediate surroundings of the P&R scheme. It is unlikely that these impacts will be significant.

6.5.7 Air Quality

The adoption of this Option will likely result in a minor improvement in local air quality through the promotion and use of more sustainable modes of transport and easing congestion within the study area. However this is provided that the P&R does not abstract from users of other sustainable means of transport, such as rail or other bus services, which potentially it may.

6.5.8 Climatic Factors

Increasing the hardstanding area south of Kirkintilloch may result in increased runoff rates/ reduced flood storage capacity within the environment during flood events. This may result in increasing the areas currently at risk to flooding from the Bothlin Burn. Given the likely scale of the development and the associated infrastructure it is unlikely that these effects will be significant. Should the adoption of this Option result in a modal shift and reduce transport emissions within the study area, there may be beneficial effects as a result of reduced greenhouse gas emissions.

6.5.9 Material Assets

It is unlikely that the adoption of this Option will impact upon the material assets within the study area.

6.6 Option 4 Bus Park & Ride Adjacent to Bishopbriggs Relief Road and Associated Bus Priority

6.6.1 Biodiversity

Land take will be required in order accommodate the footprint of the development, with the potential removal/ disturbance of habitat of potential value to European protected species. The railway line which lies adjacent to the proposed Option, is identified as an important ecological corridor by East Dunbartonshire Council. Biodiversity will likely be adversely affected as a result of the loss of habitat as well as potential noise, activity and lighting disturbance during the operation of the P&R intervention.

Should the adoption of this Option result in a modal shift away from the use of private vehicles, air quality may be improved within the wider study area, resulting in a potential benefit to biodiversity. It is unlikely that this beneficial effect will be significant.

6.6.2 Water Quality

It is unlikely that there will be any impact on water quality from the adoption of this Option.

6.6.3 Soil

The development of new infrastructure will require loss of land and therefore the extraction and potential removal of soil from the proposed site location. Within the surrounding area of the proposed location land is utilized for agricultural purposes. The loss and/ or severance of agricultural land may occur in the development of the P&R and its associated infrastructure. The extent of this area and therefore the magnitude of impact is dependent upon the final location and the scale of the P&R scheme however this is likely to result in an adverse effect on soil resources.

6.6.4 Cultural Heritage

The development of any new structures within the environment may adversely impact on the setting of surrounding cultural heritage sites. This is dependent upon the final scale and design of the P&R scheme and any natural screening

within the surrounding environment. Although adverse effects are likely, there are very few cultural heritage sites within the near vicinity of the proposed location of the Option.

6.6.5 Landscape

The introduction of a new structure within the landscape/ townscape may result in adverse landscape and visual amenity impacts. Impacts on visual receptors are dependent on whether natural screening or boundaries (such as tree lines) are removed from the landscape and the final scale and design of the development.

6.6.6 Population & Human Health

Should the adoption of this Option result in a modal shift away from private vehicles, benefits to air quality may be experienced within the wider study area, improving human health. Depending upon the final scale and location of the P&R scheme, it may result in a significant increase of vehicle numbers to a particular area, increasing noise and vibration disturbance to any surrounding sensitive receptors and decreasing air quality within the immediate vicinity of the P&R scheme. It is unlikely that these impacts will be significant.

6.6.7 Air Quality

The adoption of this Option will likely result in a minor improvement in local air quality through the promotion and use of more sustainable modes of transport and easing congestion within the study area. However this is provided that the P&R does not abstract from users of other sustainable means of transport, such as rail or other bus services, which potentially it may.

6.6.8 Climatic Factors

Locations within the surrounding area are regarded as being at risk to surface water flooding. The development of hardstanding areas within the near vicinity may either displace or contribute to these areas of floor risk. It is unlikely that this impact will be significant. Should the adoption of this Option result in a modal shift and reduce transport emissions within the study area, there may be beneficial effects as a result of reduced greenhouse gas emissions.

6.6.9 Material Assets

It is unlikely that material assets will be significantly impacted as a result of the adoption of this Option.

6.7 Option 5 Bus Service Improvements and New Services (including Kirkintilloch / Lenzie Loop Bus)

6.7.1 Biodiversity

Changes to service patterns on existing routes are not likely to result in significant impacts on biodiversity and habitats within the study area.

6.7.2 Water Quality

Changes to service patterns on existing routes are unlikely to have significant impacts on the water environment.

6.7.3 Soil

Changes to service patterns on existing routes will not impact agriculture or soils.

6.7.4 Cultural Heritage

Should the adoption of this Option result in significant increases in the number of large vehicles past sensitive cultural heritage sites, there may be some physical damage from vibration effects. It is unlikely that these effects would be significant.

6.7.5 Landscape

Changes to service patterns on existing routes are unlikely to have any significant impacts on the landscape or visual amenity.

6.7.6 Population & Human Health

Increasing the accessibility of sustainable transport to new development areas and increasing the linkage of important areas around Kirkintilloch will potentially result in the greater use of sustainable transport as opposed to private vehicles. This will likely result in reduced transport emissions and therefore improved air quality. It is unlikely that this beneficial impact would be significant.

6.7.7 Air Quality

The adoption of this Option may improve the air quality within the wider study area should there be a modal shift towards more sustainable means of transport than private vehicles. However it is unlikely that this impact will be significant.

6.7.8 Climatic Factors

It is unlikely that the adoption of this Option will result in significant impacts on climatic factors.

6.7.9 Material Assets

It is unlikely that the adoption of this Option will result in significant impacts on material assets.

6.8 Option 6 Increase Parking Provision at Lenzie Rail Station

6.8.1 Biodiversity

To the immediate west of the current rail station to the north of the track is the Lenzie Moss Local Nature Reserve (LNR). Depending on the final design of the Option, land take from this area may result in the loss of potential European protected species habitat to accommodate additional car parking. Increasing the number of vehicles to the immediate surroundings of the LNR mat also reduce air quality and result in decreased biodiversity of the site. These adverse effects may result in significant adverse effects on biodiversity.

6.8.2 Water Quality

It is unlikely that the adoption of this Option will result in any significant impacts on water quality.

6.8.3 Soil

The existing rail station is located within an urban area and impacts on soil are not likely to result from the adoption of this Option.

6.8.4 Cultural Heritage

The rail station is a listed building, and lies within the Lenzie and South Lenzi Conservation Areas. There are also a number of other listed buildings located within the Conservation Areas. Impacts on these cultural heritage sites are dependent on the type of proposal chosen to increase the parking at the station, and also its final design. This Option may result in significant adverse effects on the setting of cultural heritage sites within the surrounding area. These impacts may potentially be significant.

6.8.5 Landscape

There are a number of sensitive visual receptors within the surround area of the existing rail station, including the South Lenzi Conservation Area and Townscape Area, residential properties and the Lenzie Moss Local Nature Reserve and Core Path. Depending on the scale, location and design of parking facilities there may be significant adverse effects on visual amenity and the surrounding townscape.

6.8.6 Population & Human Health

Should the adoption of this Option result in a greater use of public transport as opposed to private vehicles, there may be beneficial impacts on account of improved air quality. Increased car parking provision will also divert rail patrons from using the surrounding residential streets for parking and reduce traffic on these streets, improving safety. However there may also be adverse effects from noise and vibration disturbance either from noise sources at higher elevations or from the sources being closer to sensitive receptors, such as residential properties. Impacts population and human health are likely to be negligible.

6.8.7 Air Quality

Air quality within the immediate surroundings of the rail station may be adversely affected should a greater number of private vehicles be attracted to the station. However these effects would likely be offset should the adoption of this Option result in an increased number of rail users as opposed to the use private vehicles, it is likely that the air quality within the wider study area would improve. It is unlikely that this impact would be significant given the scale of parking provisions.

6.8.8 Climatic Factors

Should there be a reduction in private vehicle usage as a result of greater train use, there is likely to a reduction in greenhouse gas emissions from transportation within the study area. This will positively contribute to Scotland's targets to cut emissions, however it is unlikely that the adoption of this Option will result in significant impacts on climatic factors.

6.8.9 Material Assets

It is unlikely that the adoption of this Option will result in significant impacts on material assets.

6.9 Option 7 Develop a New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access

6.9.1 Biodiversity

The adoption of this Option would likely require the removal of mature trees and other areas of potential habitat value to European protected species and introduce various disturbances (i.e. light and noise) to the proposed site location. As a result protected species may be impacted, as well as the potential fragmentation of habitats. There are also areas of Ancient woodland listed within the AWI within the surrounding area of the proposed location of the rail halt and P&R, which may be directly or indirectly impacted as a result of the rail halt and its associated infrastructure.

6.9.2 Water Quality

Given the proximity of the proposed location of the Option to Bothlin Burn, potential adverse impacts on water quality may result from oils and fuels leaking from parked vehicles in use of the P&R scheme. However it is anticipated that these impacts can be easily mitigated for within the design of the scheme by the inclusion of SUDS. It is unlikely that these impacts will be significant.

6.9.3 Soil

The development of new infrastructure will require the loss of land and therefore the extraction and potential removal of soil from the proposed site location. Within the surrounding area of the proposed location land is utilized for agricultural purposes. The loss and/ or severance of agricultural land may occur as a result of the development of the rail halt and its associated infrastructure. The extent of this area and therefore the magnitude of impact is dependent upon the final location and the scale of infrastructure required however this is likely to result in an adverse effect on soil resources.

6.9.4 Cultural Heritage

There are a number of sensitive cultural heritage sites within close proximity to the proposed location of the Option. Most notably the site is adjacent to the Lenzi and South Lenzie Conservation Areas. The setting of sensitive cultural heritage sites may be adversely impacted upon depending upon the location and scale of the rail halt and P&R scheme.

6.9.5 Landscape

There are a number of residential areas around the proposed location for the development of this Option. To accommodate the rail halt there will likely be the requirement to remove some trees currently screening the railway track, resulting in wider impacts on visual amenity depending on the final scale of the scheme. There are potential visual impacts as a result of a rail halt within this area and the number of receptors in the surrounding area.

6.9.6 Population & Human Health

Provided the adoption of this Option results in the modal shift away from the use of private vehicles, local air quality may be improved resulting in improved human health. However given the proximity of the proposed location of the rail halt to the Woodilee residential area may increase noise disturbance to these residents. It is likely that the impact of this Option would be negligible.

6.9.7 Air Quality

Provided the adoption of this Option results in a reduction of private vehicle use in favour of a more sustainable alternative, there are likely to be beneficial effects on air quality within the study area. The magnitude of the resultant decrease in emissions is dependent on the success of this modal shift, but is likely to be negligible.

6.9.8 Climatic Factors

The wider area surrounding the proposed location for this Option is subject to flood risk from surface water flooding, and flooding from the Bothlin Burn. Increasing hardstanding areas within the vicinity of these areas may result in these flood risk extents increasing or being displaced elsewhere causing a more significant impact than present.

Should the adoption of the Option result in a modal shift to more sustainable means of transport beneficial effects on climatic factors may result from reduced emissions within the study area. It is unlikely that these beneficial effects would be significant.

6.9.9 Material Assets

The adoption of this Option will result in greater connectivity of new residential areas with the surrounding towns and larger economic centres, namely Glasgow and Edinburgh. It is unlikely that these impacts will be significant.

6.10 Option 8 Develop a New Rail Halt at Westerhill (with P&R) & Promote Sustainable Access

6.10.1 Biodiversity

The adoption of this Option would likely require the removal of mature trees and other areas of potential habitat value and introduce various disturbances (i.e. light and noise) to the sites location. Furthermore, the railway line is identified as an important ecological corridor by East Dunbartonshire Council. As a result European protected species may be impacted, as well as the potential loss and/ or fragmentation of habitats.

Should the adoption of this Option result in a modal shift away from private vehicle use, air quality improvements may result from reduced emissions, potentially improving biodiversity. It is unlikely that these beneficial impacts will be significant. The adoption of this Option will likely result in adverse impacts on biodiversity.

6.10.2 Water Quality

Given the limited water receptors within the surrounding area of the proposed location of the rail halt, it is unlikely that the adoption of this Option will result in any impacts on water quality.

6.10.3 Soil

The development of new infrastructure will require the loss of land and therefore the extraction and potential removal of soil from the proposed site location. Within the surrounding area of the proposed location land is utilized for agricultural purposes. The loss and/ or severance of agricultural land may occur as a result of the development of the rail halt and its associated infrastructure. The extent of this area and therefore the magnitude of impact is dependent upon the final location and the scale of infrastructure required however this is likely to result in an adverse effect on soil resources.

6.10.4 Cultural Heritage

The development of any new structures within the environment may adversely impact on the setting of surrounding cultural heritage sites. This is dependent upon the final design and any natural screening within the surrounding environment. As there are few sensitive cultural heritage sites within the surrounding area of the indicative Option location, impacts are likely to be negligible.

6.10.5 Landscape

The introduction of a new structure within the landscape/ townscape may result in adverse landscape and visual amenity impacts. Impacts on visual receptors are dependent on whether natural screening or boundaries (such as tree lines) are removed from the landscape and the final scale and design of the development. Impacts on landscape/ townscape and visual amenity are likely to be negligible.

6.10.6 Population & Human Health

Should the adoption of this Option result in a modal shift away from private vehicles, benefits to air quality may be experienced within the wider study area, improving human health. However it is unlikely that these benefits would be significant.

6.10.7 Air Quality

Provided the adoption of this Option results in a reduction of private vehicle use in favour of a more sustainable alternative, there are likely to be beneficial effects on air quality within the study area. The magnitude of the resultant decrease in emissions is dependent on the success of this modal shift.

6.10.8 Climatic Factors

Areas surrounding the proposed location of the rail halt are regarded as being at risk to surface water flooding. The development of hardstanding area within the near vicinity of these flood risk areas may either displace or further contribute to floor risk.

Conversely, should the adoption of this Option result in a modal shift to more sustainable means of transport beneficial effects on climatic factors may result from reduced emissions within the study area. It is unlikely that these beneficial effects would be significant.

6.10.9 Material Assets

The adoption of this Option will result in greater connectivity of new residential areas with the surrounding towns and larger economic centres, namely Glasgow and Edinburgh. It is unlikely that these impacts will be significant.

7 Cumulative Effects Assessment

7.1 Introduction

This chapter of the ER sets out any cumulative effects of implementing the interventions. The cumulative effect of multiple options of the interventions identified as well as the cumulative effect between interventions has been considered. The significance of the cumulative effects is again, based on the same point scale as used for the individual assessments (described in section 4.5.1 above).

For the purpose of the cumulative assessment the interventions proposed within the Study have been split between various categories. These categories have been developed around the purpose of the intervention and therefore their likely similarity in long-term effects. Table 7.1 identifies the cumulative assessment categories and the interventions assigned within each category.

Table 7.1 Cumulative Assessment Intervention Categories

Option Categories	Options
Improvements to Existing Services	▪ A803 Quality Bus Corridor Package; ▪ Bus Hub in Kirkintilloch; ▪ Bus Service Improvements & New Services (inc. Kirkintilloch / Lenzie Loop Bus); and ▪ Increased Parking Provisions at Lenzie Rail Station
Increased Accessibility & Provision of Sustainable Transport	▪ Bus P&R Adjacent to / in the Vicinity of KLR and Associated Bus Priority; ▪ Bus P&R Adjacent to BRR and Associated Bus Priority; ▪ New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access; and ▪ New Rail Halt at Westerhill (with P&R) & Promote Sustainable Access.

7.2 Cumulative Effects

7.2.1 Temporary Effects

Negative cumulative effects could occur where construction activities occur at the same time and in the same general area. In addition negative cumulative effects could also result in effects on protected sites that are hydrologically linked to construction sites or areas that are linked by other causal pathways.

Where construction is undertaken on current congested routes it is likely to result in a temporary increase in congestion resulting in adverse effects on local air quality, noise and accessibility. Furthermore, if construction works are also to be undertaken at the same time in close proximity or the same general area or on a known alternative route these effects could be exacerbated. The potential for temporary cumulative effects will not be known until the implementation of intervention at which point other construction projects in the area and their implementation will be timed accordingly.

7.2.2 Permanent Operational Effects

The main aim of all strategic options is to reduce congestion and facilitate a modal shift to more sustainable alternatives than private vehicles. As discussed in Chapter 6 it is unlikely that a number of the policies and actions, if implemented alone, will result in any significant decrease in emissions or modal shift thus significant environmental benefits are unlikely to be realised. However, where a number of interventions are implemented together, for example increased

modal interchanges with measures to improve safety cumulatively beneficial effects on the environment are likely to be greater. The sub-sections below present a summary of the cumulative effects of the Study, as split between each of the Option categories as described in section 7.1 above and overall between all Options proposed within the Study. Although each of the Options has been grouped within various categories, cumulative effects are assessed based on interventions within the Options as the means of delivering the objectives.

7.2.3 Improvements to Existing Services

Several of the Options identified within the Study relate to the improvement of existing services and public transport networks within the study area. These improvements typically relate to increasing the favourability of sustainable transport to alternative private vehicle use, such as the implementation of bus priority measures, expanding current services to other key locations within the study area, or updating infrastructure to meet current needs and demands. It is anticipated that the adoption of these Options will result in a greater attraction to these services, most prominently for local access to town centres within the study area. Due to the similarity in expected outcome as a result of implementing these interventions, potential effects are also likely to be similar.

Cumulative effects are predominantly likely to be minor positive. Improving existing services, increasing the frequency of existing services, and adding new services will encourage the use of sustainable transport and support the modal shift away from private vehicle use.

Cumulatively, the development of these Options would result in a greater integration of public transport within the study area, particularly Kirkintilloch, as well as making it a more attractive means of transport along the A803 through Bishopbriggs. The extent of effects as a result of the cumulative adoption of these Options would predominantly be at a local level, predominantly to those working and living around Kirkintilloch.

A positive shift away from private vehicle use would likely result in an improvement in air quality from reducing transport emissions, as well as secondary effects from improving air quality such as improved health and wellbeing of those within the study area, and increased biodiversity. It should be noted that there are a number of potential cumulative negative effects also, namely the impact of new transport infrastructure either directly or indirectly on cultural heritage sites within the study area.

7.2.4 *Increased Accessibility & Provision of Sustainable Transport*

There are a number of Options identified within the Study that propose the development of new sustainable transport initiatives encouraging either bus or rail travel for longer journeys or more popular journeys, namely to Glasgow. It is anticipated that the adoption of these Options will result in a greater use of sustainable transport as opposed to private vehicle usage. Due to the similarity in expected outcome as a result of implementing these interventions, potential effects are also likely to be similar.

Cumulative effects are predominantly likely to be minor to moderate positive. Although it is anticipated that the adoption of these Options would result in negative environmental impacts due to the requirement to build significant new transport infrastructure to develop the Options as well as link these to the existing network. These effects will typically relate to land take, potential loss of habitat, noise and contamination of water resources, however these will be temporary and it is anticipated that the majority of these can be mitigated for to ensure no significant adverse impacts on the environment.

Cumulatively, the development of these Options would provide greater accessibility to means of sustainable transport particularly for journeys in to Glasgow, resulting in reduced private vehicle usage within the study area for longer journeys. This will aid areas of current congestion on the A803 and A806 corridors, as well as reducing traffic volumes on the network beyond the study area.

A positive shift away from private vehicle use would likely result in an improvement in air quality from reducing transport emissions, as well as secondary effects from improving air quality such as improved health and wellbeing of those within the study area, and increased biodiversity. It should be noted that there are a number of potential cumulative negative effects also, namely the impact of new transport infrastructure either directly or indirectly on cultural heritage sites within the study area and visual impacts from introducing transport infrastructure.

Table 7.2 Summary of Cumulative Effects*

Assessed Categories	SEA Topics**								
	Bio	Water	Soil	Culture	L&V	Health	Air	Clim.	Mat.
Improvements to Existing Services	✗	O	O	✗	✗	<> - ✓	✓	<>	O
Increased Accessibility & Provision of Sustainable Transport	✗	O	✗	✗	✗	<>	✓	O	<>

* Key: ✗ = negative cumulative effect; <> = negligible cumulative effect; O = no/ neutral cumulative effect; ✓ = positive cumulative effect.

** Bio = Biodiversity; Water = Water Quality; Soil = Soil; Culture = Cultural Heritage; L&V = Landscape and Visual Amenity; Health = Population & Human Health; Air = Air Quality; Clim = Climatic Factors; Mat. = Material Assets.

8 Study & Project Level Mitigation

8.1 Introduction

This chapter identifies the mitigation measures required where effects cannot be avoided. It also presents opportunities for enhancements and recommendations that have been suggested to increase the overall sustainability of the Study.

8.2 Mitigation Measures

Part of the SEA assessment process requires the identification of measures to prevent, reduce or offset any significant adverse effects likely to occur as a result of the implementing the Study and to maximise its performance in terms of sustainability. These are commonly referred to as mitigation measures, and include both proactive and avoidance of adverse effects as well as the identification of actions to be taken once effects are indentified. Mitigation measures typically follow the mitigation hierarchy: avoid, reduce, remedy, compensate. Measures also often include recommendations for improving beneficial effects.

Whist in general the Study seeks to minimise environmental effects and the actions set out are aimed at the development of more sustainable and efficient transport network a number of negative effects have been identified. The majority of these relate to the development of new transport infrastructure that will be implemented through the Study. It is likely that where construction activities are required there are several environmental topics/ receptors which may be impacted. However these are likely to be short term and localised, and with good practice and appropriate construction mitigation, it is likely that these could be avoided or reduced to an acceptable level. Construction effects and mitigation are discussed in Chapter 6.

Interventions that require new infrastructure are also likely to result in operational effects associated with land take and the potential introduction of nuisance effects such as noise to an area. Significant effects can be avoided through sensitive siting and design and where required additional mitigation such as landscape screening. The mitigation measures set out for the Study are based upon:

- Level of detail provided in the actions;
- Scale of the potential effect;
- Level of detail in the baseline information; and
- Understanding of the environmental and sustainability issues affecting the area.

As noted within the Assessment (Chapter 6), due to the high level of the interventions identified and that the spatial locations for these are not known, the potential effects identified may not be entirely accurate. This consequently limits the details of the potential mitigation measures that may be adopted should there be any effects that cannot be avoided. However the mitigation and recommendations set out within the SEA should be adopted by the Study and used as a platform for any developments which result from the adoption of the Study.

Committed mitigation measures are set out in Table 8.1 for each of the identified environmental topic areas.

Table 8.1 Mitigation Measures	
Intervention/ Type of Intervention	**Proposed Mitigation**
Biodiversity Flora and Fauna	*Additional Information/ Surveying* Where land take is required the following should be undertaken where required: ▪ Extended Phase 1 Habitat Survey ▪ Invertebrate survey ▪ Reptile Surveys ▪ Bat Habitat Suitability Surveys followed by dawn dusk surveys where required. Should a bat roost be determined to be present on site a licence should be obtained prior to any works commencing and appropriate exclusion mitigation measures may be required ▪ Badger surveys and a licence obtained where required ▪ Any watercourses, including drains and ditches, within the study area which will be crossed or are adjacent to any proposed works should be surveyed for their potential to support otter and water vole. Any watercourse assessed as having potential to support these species should be subject to further more detailed surveys. ▪ Any ponds and ditches within 500 m of the proposed works should be assessed by an ecologist for their potential to support the Great Crested Newt (GNC). This assessment can be assisted by the GCN Habitat Suitability Index (HSI). ▪ Fish surveys may be required should the works involve construction within a watercourse, such as the River. It may be possible to request up-to-date species records from organisations, such as the SEPA. If not, fish surveys may be required prior to construction. Any surveys and subsequent construction within the river should not take place in the spring or in late autumn/early winter, so as not to interfere with fish migration patterns. *Lighting* Any new lighting along railways, woodland, hedgerow and river corridors should be avoided. Where lighting is required for safety reasons it should be mitigated to reduce light spill to a minimum, with street lighting switched off after peak hours. In all areas lighting design should follow best practice guidance by the Bat Conservation Trust Bats and Lighting in the UK. These included: ▪ Using low or high pressure sodium lights instead of mercury or metal halide lamps ▪ Direct lighting to where needed and avoid spillage, e.g. direct lighting towards buildings front and design luminaries appropriately, included the use of hoods, cowls, shields etc to avoid spillage onto river corridor and tree lines ▪ Using lighting modelling programs to indicate where light spill will occur ▪ Only light areas which need to be lit, and use the minimal level of lighting required ▪ Use movement sensors or timers on security lighting ▪ Do not use a lamp greater than 150W for security lighting

Table 8.1 Mitigation Measures	
Intervention/ Type of Intervention	**Proposed Mitigation**
Biodiversity Flora and Fauna (continued)	*Disturbance* To avoid disturbance to breeding birds, it is recommended that any vegetation clearance is undertaken during October to February inclusive (outside of the breeding bird season). If works are undertaken from March to September inclusive, the area should first be inspected by an ecologist, at most 48 hours before work begins in an area. If any nests are found they will have to be left undisturbed, along with a surrounding buffer area until the chicks have fledged. This could take up to six weeks depending on species. More protection is afforded to Schedule 1 species. In some areas of the study area, wintering and migration surveys may also be required, in particular where sited close to the SPAs. Options involving creation of new bridges for example would require particular consideration. Consultation with SNH should be considered at the earliest possible stage for options with the potential to impact upon European protected sites (SPA, Ramsar and SAC). Any construction activity should aim to avoid periods where passage, breeding and overwintering birds for which the Natura 2000 sites are designated for are using the site in significant numbers. *Aquatic Environment* Any proposed bridge structures should be open span and set back from the river banks. Working within the river should be avoided to prevent any potential species disturbance. Run-off from the study area during both construction and operation should be managed in accordance with current SEPA regulations and should reduce the potential for transmission of particulates and pollutants into the water course. *Grassland* Dependant on the options chosen, protected and notable flora species surveys may be required, within areas of potential conservation interest. Plant species lists may be compiled during Extended Phase 1 Habitat Surveys (discussed above). Such information can be used to carry out National Vegetation Classification Surveys (NVC); a system of classifying natural habitat types in Great Britain according to the vegetation they contain. Should plant species of conservation concern be identified, further mitigation may be required. Mitigation could include protecting plants in situ, permanent or temporary translocation. *Invasive Species* Each area where works are proposed should be subject to a controlled species survey, prior to construction. This type of survey can be incorporated into an extended phase 1 habitat survey (discussed above). As it is illegal to assist the spread of controlled plant species, such as Japanese Knotweed, Giant Hogweed and Himalayan Balsam, a suitable method statement must be put in place prior to any works in areas where such species are found, to avoid their spread during construction. Vegetation and soil removal and disposal from contaminated areas should follow current controlled waste regulations. *Retention and Enhancement* Any development should aim to retain features of ecological value within the design of the intervention. The highest priorities for protection are ponds, riparian habitats, wetland areas, woodland areas (particularly ancient woodland), important hedgerows, railway, and veteran trees. However, consideration should also be given to the scrub, mature trees, hedgerows, stone walls and grass verges.

Table 8.1 Mitigation Measures	
Intervention/ Type of Intervention	**Proposed Mitigation**
Biodiversity Flora and Fauna (continued)	Scrub and hedgerows should be retained where possible. Hedgerow surveys may be required, dependant on the options chosen. In areas where vegetation must be removed it should be replaced by compensatory planting of local, native species. Appropriate timing of works combined with ecological supervision of scrub and hedgerow removal is recommended to reduce the risk to a number of protected species.
	Mature trees should be retained. The Root Protection Areas should be calculated and any development, including installation of signs and lighting, should be planned to avoid damaging tree roots. Any removed trees should be replaced by compensatory planting of locally native tree species.
Water	Ensure that all new transport interventions and transport improvement works involving construction activities adhere to appropriate environmental protection standards, good codes of practice, construction principles and design guides to ensure that the correct measures are implemented to prevent the pollution of surface water and groundwater. Ensure all new transport interventions and transport improvement works will implement appropriate measures to minimise pollution from surface water runoff e.g. oil separators and silt traps. In areas where there are high water tables surveys will be required prior to the implementation of interventions involving construction activities to ensure that the there are no breaches of the groundwater and there are not future risks of groundwater pollution from road drainage interventions. Where an intervention may effects sensitive wetlands (SPAs, Ramsar Sites, SSSIs) a test of significance will be required to ensure that any changes to water quality or drainage patterns do not have adverse effects on the integrity of the site. All new interventions within flood risk zones 2 or 3' should be screened for the requirements of a Flood Risk Assessments. Promote the implementation of Sustainable Urban Drainage Schemes (SUDS) in all new transport developments.
Soil	Investigate the implementation of interventions that will encourage and support future economic growth and the reuse of previously developed land. Where new transport interventions and transport improvement works are likely to cause disturbance to contaminated land, advice will be sought from the Council' Environmental Health Service and where necessary permits must be obtained from SEPA. Develop partnership working to ensure that new transport interventions minimise the use of Greenfield land and the severance of agricultural land holdings.
Cultural Heritage	Surveys will be undertaken prior to the implementation of an intervention to determine whether it will affect sites or areas of archaeological importance. New transport interventions that are likely to generate an increase in traffic will be assessed prior to installation to determine whether the vibrations that would be generated from the traffic would cause damage to listed buildings. Where the levels of vibration would have adverse effects on a listed building the intervention may require modification or removal.

Table 8.1 Mitigation Measures	
Intervention/ Type of Intervention	**Proposed Mitigation**
Cultural Heritage (continued)	Adverse effects on the character and quality of conservation areas will be avoided or reduced by improving the quality, design and appropriateness of street furniture, lighting, road signs, safety features, public transport facilities (bus stops) and by reducing street clutter. Improvements to the quality and design of new and existing highways, footpaths and cycleways will also have positive effects on the character and quality of conservation areas.
Landscape	There are a number of mitigation measures that could be proposed to avoid and/or reduce potential landscape/townscape and visual effects identified. The type of mitigation measures proposed would vary in accordance with the scale of individual proposals and sensitivity of the specific landscape setting, on an intervention by intervention basis. At a broad scale, the following measures could be considered for mitigation of all interventions where potential adverse effects have been identified. Where new development or extensions to existing infrastructure are proposed i.e. new highways, park and ride sites, large scale junction improvements and highway widening, they should be carefully routed/located to avoid direct impacts on areas of designated landscape/townscape such as Special Landscape Areas, Listed Buildings, Conservations Areas and Parks. Where possible, the routing/siting of proposed development should be undertaken to avoid direct impacts upon other existing features that contribute to the character of the landscape/townscape. Where effects cannot be fully mitigated through routing and siting design, specific landscape mitigation proposals could be developed alongside overall intervention design, to reduce effects upon landscape/townscape character and key visual receptors. Mitigation measures could include: ▪ Mass native tree and shrub planting to replace significant vegetation removed including that located within existing road corridors or that with a screening function in proximity to key visual receptors; ▪ A combination of ground modelling and mass native tree and shrub planting to help integrate development within rural areas or to provide screening where located in proximity to sensitive visual receptors in both rural and urban areas; ▪ Use of appropriate or vernacular materials in design of new development, particularly in areas of designated landscape or townscape quality/value to complement/enhance the setting, e.g. use of local stone where development is situated within or in close proximity to Conservation Areas or within setting of Listed Buildings; ▪ Considered micro-siting of new development to avoid the requirement for new, urbanizing structures within rural areas e.g. designing out the need for retaining structures as part of road widening or installation street furniture. ▪ Landscape enhancement and/or restoration measures to compensate for the loss of important landscape features e.g. historic hedgerow restoration to mitigate loss of existing hedgerows; ▪ Proposed planting and use of appropriate materials where development is in close proximity to designated areas e.g. Road widening or installations within highway in close proximity to Listed Buildings or Special Landscape Areas.
Population and Human Health	No specific mitigation measures indentified

Table 8.1 Mitigation Measures	
Intervention/ Type of Intervention	**Proposed Mitigation**
Air Quality (including Noise)	All new transport options which are implemented should be designed with due regard to areas of poor air quality e.g. AQMAs. The locations of park and ride / interchange interventions should be carefully chosen to minimise any localised air quality impacts which may result. Should changes in road alignment be proposed, it is important to ensure, where practicable, that the distance between road traffic and sensitive receptors is not significantly reduced. Where the opportunity presents itself, the distance between road traffic and sensitive receptors with poor air quality should be increased in order to improve local air quality at these receptors. Noise For all new interventions a noise impact assessment should be carried out and appropriate noise attenuation measures implemented where there is potential for interventions or initiatives to have an adverse effect on noise levels.
Climatic Factors	The benefits associated with reducing car usage by encouraging public transport use should be maximised by utilising buses with the highest emissions standard possible.
Material Assets	No specific mitigation measures indentified

8.3 Residual Effects, Enhancement Opportunities and Recommendations

It is unlikely that the individual interventions within the strategic Options will result in measurable beneficial effects on the environment alone. However, when implemented together the resulting effect could be a modal shift from reliance on the private car and reduced congestion. This would have beneficial effects on the environment, the economy, improve safety and improve human health and wellbeing. The SEA has identified recommendations to further enhance a number of the interventions, these are listed below.

8.3.1 General Opportunities

Where new transport infrastructure is required in the implementation of proposed interventions, due to the sensitive cultural heritage sites within the study area, these interventions should be designed, and where appropriate, located with greatest respect of the setting of these sites and perhaps alternatives considered should there be any impacts on these sites. Each of the Options may require the development of new transport infrastructure, or constructed amendments to existing infrastructure and therefore all present this risk.

Where interventions may disturb or disrupt important wildlife sites or corridors such as the railway line or Lenzie Moss LNR the incorporation of measures to improve these habitats and wider corridors should be sought. This is not only to mitigate potential adverse effects but as a means of improving the local environment. Measures to improve the biodiversity within the study area, particularly where new transport infrastructure construction is required should always be sought where appropriate.

9 Monitoring Framework

9.1 Introduction

This chapter presents a proposed monitoring framework for the implementation of the Study.

9.2 Monitoring

Monitoring is an ongoing process that is undertaken continuously for the duration of the implementation of the Study. Monitoring is a means of checking whether the Study is performing as predicted by measuring how the baseline situation changes following implementation of the Study.

9.3 Importance of Monitoring

Monitoring allows the actual significant effects of implementation of the Study to be tested against those predicted in the SEA. In the event that adverse effects are identified then these need to be addressed. East Dunbartonshire Council should be able to produce contingency measures to address any adverse effects through implementation of the mitigation measures suggested in Chapter 8 of this ER.

Monitoring helps to ensure that problems which arise during implementation can be identified and future predictions made more accurately. It can also be used to collect baseline information for future plans, policies or strategies.

9.4 The Monitoring Framework

Monitoring usually involves the use of indicators or targets. An 'indicator' is a measure of how the baseline has changed and are used to monitor whether the Study is performing as predicted. However there are a number of potential limitations associated with the reliance of certain indicators for the purpose of monitoring these are mainly in relation to:

- Indicators that are not based on information / data / environments that will be directly affected by the implementation of the Study.
- Data available is not always kept up to date and therefore will not identify any significant changes.
- Collection of specific data is often the responsibility of a range of different organisations consequently this can lead to:
  - Data being collected for different areas over different timescales;
  - Data collection methods and techniques changing to reflect different requirements for data or availability of funding for data collection; and
  - Data sets not being updated.
- Some indicators are only relevant where specific receptors are present.

The monitoring framework presented in Table 9.1 includes a number of possible indicators that could be used to monitor the implementation of the Study. However, taking into account the limitations associated with this approach it is suggested that monitoring is tied into the future reviews of the Study and is related to monitoring the number and type of Options that have been implemented during the year. This would include a review of the environmental works / studies

and assessments undertaken to support these interventions as suggested as part of the mitigation in Chapter 8. The monitoring framework set out in Table 9.1 below is preliminary and will be confirmed at the time of the adoption of the Study. During public consultation additional data sources may be indentified which should be incorporated into the monitoring framework.

Table 9.1 Monitoring Framework			
Environmental Topic	**Indicator**	**Responsibility/ Source**	**Suggested Timescale**
Population/ Human Health	Bus patronage levels	Local Authority	Annual
	Rail patronage	Local Authority	Annual
	% of schools with travel plans	Local Authority	Annual
	% of businesses with travel plans	Local Authority	Annual
	Number of exceedences of key air quality indicators (NO2 and PM10)	Local Authority	Annual
	% of residents feeling 'safe' or 'fairly safe' outside in the area after dark	Local Authority	Annual
	% of SIMD in lowest IMD health Domain	SIMD	Annual
Biodiversity	Reported damage to protected sites (International, National, Regional and Local) caused by transport related activities.	SNH	Annual
	Changes in condition of Lenzi Moss LNR	Local Authority	Annual
	Change in area (ha) of designated biodiversity sites	Local Authority	Annual
	Change in area (ha) of BAP habitat	Local Authority	Annual
Soil	% of contaminated land remediated as a result of the implementation of transport interventions	Local Authority	Annual
Water	Number of new transport infrastructure developments located within areas of flood risk	SEPA/ Local Authority	Annual
	% of new transport infrastructure developments incorporating SUDS	Local Authority	Annual
	Number of transport related water pollution incidents	SEPA	Annual
Air (including Noise & Light)	Emissions levels within existing Bearsden Cross AQMA	Local Authority	Annual
	Number of exceedences of key air quality indicators (NO2 and PM10)	Local Authority	Annual
	Public transport patronage within East Dunbartonshire	Local Authority	Annual
	Levels of noise pollution	Local Authority	Annual
	Number of complaints received with regards to noise	Local Authority	Annual
Material Assets	Waste arising from transport related projects, including demolition	Local Authority	Annual
	% of transport interventions developed on brownfield land	Local Authority	Annual
Cultural Heritage	Number of applications for listed building consent and scheduled monument consent associated with transport interventions	Historic Scotland/ Local Authority	Annual
	Number of transport interventions affecting Gardens and designated landscapes	Historic Scotland/ Local Authority	Annual

	Number of transport interventions within or affecting conservation areas	Local Authority	Annual
	% of transport related application refused or withdrawn due to significant impacts on the historic environment	Local Authority	Annual
	Number of transport related applications approved where significant effects on the historic environment were predicted	Local Authority	Annual
Landscape	Change in area (ha) of designated landscapes	Local Authority	Annual
	Number of transport interventions resulting in an effect on a designed landscape quality amenity value	Local Authority	Annual
	Number of interventions promoting landscape enhancement	Local Authority	Annual
Climate Factors	Proportion of materials used in transport developments that are from secondary recycled sources	Local Authority	Annual
	Proportion of construction and demolition waste that is reused and recycled on transport related developments	Local Authority	Annual
	% of transport related CO2 emissions within East Dunbartonshire	Local Authority/ Census Data	Annual
	% of persons travelling to work by car	Local Authority/ Census Data	Annual
	% or persons walking / cycling to work	Local Authority/ Census Data	Annual
	% or children travelling to school by car	Local Authority/ Census Data	Annual

10 Conclusions

This Environment Report was prepared as part of the SEA of Kirkintilloch/Lenzie-Bishopbriggs-Glasgow Corridor Study ('the Study') which has been prepared on behalf of East Dunbartonshire Council (EDC) and Strathclyde Partnership for Transport (SPT). The Study identifies five objectives in which to address issues related to the A803 and A806 corridors. In order to address these objectives the Study identifies eight Options of varying transport interventions. These Options are:

- **A803 Quality Bus Corridor Package**
- **Bus Hub in Kirkintilloch**
- **Bus P&R Adjacent to / in the Vicinity of the B757 / Kirkintilloch Link Road and Associated Bus Priority**
- **Bus P&R Adjacent to Bishopbriggs Relief Road and Associated Bus Priority**
- **Bus Service Improvements and New Services (inc. Kirkintilloch / Lenzie Loop Bus)**
- **Increase Parking Provision at Lenzie Rail Station**
- **New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access**
- **New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access**

An SEA of these actions has been undertaken in order to identify likely significant construction, operation and cumulative effects on the environment.

A number of the Study Options were predicted to have potential negative effects on the environment as a result of construction activities; however, the majority of these effects are temporary in nature and can be avoided or reduced through mitigation.

A number of operational negative effects (cultural heritage, biodiversity and townscape) have been identified as a result of the assessment of the Study. The majority of these relate to proposed new transport infrastructure developments.

The assessment concluded that provided that the recommended mitigation measures are implemented and additional assessments are undertaken where required, there should be no significant adverse residual effects on the environment.

Overall, the residual beneficial effects of the Study outweigh the negative residual effects. Many of the actions will contribute to encouraging a modal shift to more sustainable modes of transport. The majority of beneficial effects are associated with a modal shift to more sustainable forms of transport than the use of private vehicles. A modal shift will have a beneficial effect on air quality, biodiversity, human health and climatic factors due to reduction congestions and emissions from fewer vehicles on the road. Benefits to population include improved public transport, upgraded transport infrastructure, better accessibility, and increased flexibility.

Further beneficial effects are possible if some interventions are combined with others to aid a modal shift from reliance on the private vehicles to more sustainable and accessible forms of transport.

Appendix A – Summary of Relevant Plans, Programmes & Strategies

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
International		
Kyoto Protocol (1997)	The UK has committed itself to a 12.5% reduction in greenhouse gas emissions from 1990 levels by 2008-2012. It has also set its own domestic target of a 20% reduction in carbon dioxide by 2010.	See European Climate Change Programme.
Rio Declaration (1992)	The Declaration sets out 27 principles to enable the global community to work towards international agreements that respect the interests of all and protect the integrity of the global environmental and developmental system. It recognises the integral and interdependent nature of the Earth.	The Study contributes to sustainable development.
Johannesburg Declaration (2002)	The Johannesburg Declaration on Sustainable Development. The 2002 Declaration built upon the principles established through the Rio Declaration and further developed principles of sustainable development and sought international commitment to these Sustainable Development Principles.	The Study contributes to sustainable development.
European		
EU Environmental Noise Directive (2002)	This Directive concerns noise from road, rail and air traffic and from industry. It focuses on the impact of such noise on individuals, complementing existing EU legislation which sets standards for noise emissions from specific sources.	The Study has a duty to adhere to the requirement of the Noise Directive.
EU Water Framework Directive (2000)	The purpose of the Directive is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater. It will ensure all aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands meet 'good status' by 2015. Directive Objectives ▪ Prevent deterioration of the status of all surface water and groundwater bodies;	See Water Environment Water Services (Scotland) Act 2003

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	▪ Protect, enhance and restore all bodies of surface water and groundwater with the aim of achieving good surface water and groundwater status by 2015; and ▪ To produce River Basin management Plans (RBMP) for each river basin district identified, with environmental objectives for each water body to protect and improve the water environment and a programme of measures to progress towards achieving these objectives.	
EU Floods Directive (2007)	The Floods Directive requires Member States to engage their government departments, agencies and other bodies to draw up a Preliminary Flood Risk Assessment. Flood Risk Management Plans can then be produced to indicate to policy makers, developers, and the public the nature of the risk and the measures proposed to manage these risks.	See Flood Risk Management (Scotland) Act 2009.
EU Birds Directive (1979)	The Birds Directive protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPA) to protect birds which are rare or vulnerable in Europe as well as all migratory birds which are regular visitors. (Source: SNH website) There are currently no designated sites within EDC; however the Birds Directive also makes certain provisions for protection of wild birds in the wider countryside outwith protected areas.	There are currently no designated sites within EDC; however the Birds Directive also makes certain provisions for the protection of wild birds in the wider countryside outwith protected areas. The Study has a duty to adhere to the requirements of the Birds Directive within East Dunbartonshire and ensure there are no cross-boundary impacts from transport proposals on SPA designated sites within adjacent authorities.
EU Habitats Directive (1992)	The Habitats Directive builds on the Birds Directive by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000. This network includes SPA classified under the Birds Directive and a new set of international nature conservation areas introduced by the Habitats Directive, Special Areas of Conservation (SAC). (Source: SNH website) There are currently no designated sites within EDC.	There are currently no designated sites within EDC; however the Habitats Directive also makes certain provisions for the protection of species and habitats in the wider countryside outwith protected areas. The Study has a duty to adhere to the requirements of the Habitats Directive within East Dunbartonshire and ensure the proposals have no cross-boundary impacts on SAC designated sites within adjacent authorities.
EU Landfill Directive	The Directive sets a reduction target of 75% of the 1995 levels and 35% of the 1995 levels of waste sent to landfill by 2013 and 2020 respectively.	The Study should contribute to the targets set by the Directive by encouraging site waste management plans to reduce the amount of waste generated. It should also

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
		encourage the reuse of waste materials from transport works, particularly on site.
European Climate Change Programme	The programme aims to deliver the Kyoto Protocol commitments to reduce greenhouse gas emissions to 8% below 1990 levels by 2012.	The Study has a role in contributing to these objectives with particular consideration to the reduction of carbon emissions by managing the use of private vehicles, encouraging public transport and the integration and promotion of sustainable transport networks.
National		
Scottish Government Strategic Objectives and National Outcomes (2007)	The Strategic Objectives are: Wealthier & fairer Enable businesses and people to increase their wealth and more people to share fairly in that wealth. Safer and stronger Help local communities to flourish, becoming stronger, safer place to live, offering improved opportunities and a better quality of life. Smarter Expand opportunities for Scots to succeed from nurture through to lifelong learning ensuring higher and more widely shared achievements. Greener Improve Scotland's natural and built environment and the sustainable use and enjoyment of it. Healthier Help people to sustain and improve their health, especially in disadvantaged communities, ensuring better, local and faster access to health care. Fifteen National Outcomes describe what the Scottish Government wants to achieve between 2007-2017. ▪ We live in a Scotland that is the most attractive place for doing business in Europe. ▪ We realise our full economic potential with more and better	The Study will meet the Scottish Government's Strategic Objectives as follows: wealthier & fairer by supporting economic development, improving accessibility to services and businesses; Safer and stronger by encouraging safe transport networks and efficient public transport; Greener & healthier by its objective of encouraging a range of alternative transport modes to the car, including walking & cycling, to reduce carbon emissions. The Study should contribute towards each of the 15 National Outcomes, particularly by encouraging transport which: supports sustainable economic growth; encourages walking and cycling for healthy living; access to services and employment which benefits social inclusion; modal shift which reduces carbon emissions and improves road safety.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	employment opportunities for our people. ▪ We are better educated, more skilled and more successful, renowned for our research and innovation. ▪ Our young people are successful learners, confident individuals, effective contributors and responsible citizens. ▪ Our children have the best start in life and are ready to succeed. ▪ We live longer, healthier lives. ▪ We have tackled the significant inequalities in Scottish society. ▪ We have improved the life chances for children, young people and families at risk. ▪ We live our lives safe from crime, disorder and danger. ▪ We live in well-designed, sustainable places where we are able to access the amenities and services we need. ▪ We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others. ▪ We value and enjoy our built and natural environment and protect it and enhance it for future generations. ▪ We take pride in a strong, fair and inclusive national identity. ▪ We reduce the local and global environmental impact of our consumption and production. ▪ Our public services are high quality, continually improving, efficient and responsive to local people's needs.	
National Planning Framework 3 (2014)	The preparation of the third NPF for Scotland provided an important vehicle for Scotland's development over the next 20 to 30 years, setting out strategic development priorities to support the Scottish Government's central purpose of sustainable economic growth. The main elements of the spatial strategy are: ▪ **A successful, sustainable place** – that we live in a low carbon, sustainable place, with opportunities distributed fairly to reduce spatial inequalities;	The Study should contribute to the delivery of the Development Strategy including encouraging transport which supports sustainable economic growth, social inclusion, healthier living and reduction in carbon emissions. It should also consider the delivery of those national developments which impact directly on East Dunbartonshire.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	▪ **A low carbon place** – that we have seized the opportunity to be a world leader in low carbon energy generation, and that we live in a built environment of greater energy efficiency; ▪ **A natural, resilient place** – we respect our natural and cultural assets, fostering them to be a sustainable economic, environmental, and social resource and aid us to become more resilient to the impacts of climate change; ▪ **A connected place** – to allow everyone access to high-speed fixed and mobile digital networks, and to make better use of existing infrastructure to enable our ambition to grow and foster better national and international relations.	
Planning Etc (Scotland) Act 2006	Introduces a new development plan hierarchy: National Planning Framework; Strategic Development Plans; Local Development Plans.	The Study must adhere to the requirements of the Act by taking into consideration any relevant policies and proposals in the Strategic Development Plan or East Dunbartonshire Local Development Plan 2.
Town & Country Planning (Scotland) Act 1997	The law covering most aspects of planning in Scotland until the 2006 Act is in force.	See Planning Etc (Scotland) Act 2006
Scottish Planning Policy (SPP) (2014)	The consolidated SPP provides a shorter, clearer and more focused statement of national planning policy. The SPP sets out: ▪ the Scottish Government's view of the purpose of planning, ▪ the core principles for the operation of the system and the objectives for key parts of the system, ▪ statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006, ▪ concise subject planning policies, including the implications for development planning and development management, and ▪ the Scottish Government's expectations of the intended outcomes of the planning system. It includes policy for land use change and development, covering: sustainable development, climate change and sustainable economic growth. The key transport aims of SPP include: ▪ reducing emissions from all transport modes in order for the Scottish Government to meet its greenhouse gas emission	The Study objectives and proposals reflect SPP, in particular contributing to sustainable economic growth and sustainable development. The Study will seek to encourage transport development that improves accessibility to services and businesses, develops the transport network and provide opportunities for modal shift to public transport and active travel. In relation to the strategic transport network within East Dunbartonshire, SPP outlines that existing rail services and stations must be utilised effectively before new services or stations are considered. The case for a new station will be considered where the needs of local communities, workers or visitors are sufficient to generate a high level of demand, and it will be served by feeder rather than exiting inter-urban services. Parking policies are highlighted within the SPP and these aim to promote the availability of high quality public transport services and town centre viability.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	targets through achieving modal shift from private car towards sustainable transport; ▪ tackling congestion to support economic growth and reduce emissions; ▪ supporting development that reduces the need to travel, facilitates travel by public transport and freight movement by rail or water, and provides safe and convenient opportunities for walking and cycling; and ▪ supporting improvements in vehicle technology and infrastructure to encourage new technologies such as charging points for electric vehicles.	
Designing Places	Creating successful and sustainable places will depend on a shift in attitudes, expectations and practices about the design of cities, towns, villages and the countryside. The policy's objectives include: ▪ Decision makers who understand the role of design in delivering sustainable development (page 9). ▪ Developers, landowners, investors and public bodies who recognise the commercial and economic value of good design (page 18). ▪ A high level of awareness and urban design skills in local authorities, including planners and councillors who are committed to raising design standards and understand the impact of their decisions (page 47). ▪ Greater commitment to higher standards of design among public bodies (page 49). The policy defines the qualities of the most successful places, the ones that flourish socially and economically. They tend to have certain qualities in common. First, they have a distinct identity. Second, their spaces are safe and pleasant. Third, they are easy to move around, especially on foot. Fourth, visitors feel a sense of welcome. Places that have been successful for a long time, or that are likely to continue to be successful, may well have another quality, which may not be immediately apparent – they adapt easily	The Study objectives include encouraging road safety, walking and cycling through good design and mitigating impacts on the environment. The inclusion of policy and proposals which reflect this through the design of development will help achieve this. It could promote the development of safe sustainable and welcoming spaces which are easy to move around.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	to changing circumstances. Finally, places that are successful in the long term, and which contribute to the wider quality of life, will prove to make good use of scarce resources. They are sustainable.	
Designing Streets	The policy's objectives include: ▪ Street design must consider place before movement. ▪ Street design guidance, as set out in this document, can be a material consideration in determining planning applications and appeals. ▪ Street design should meet the six qualities of successful places, as set out in Designing Places. ▪ Street design should be based on balanced decision-making and must adopt a multidisciplinary collaborative approach.	The Study objectives include encouraging road safety, walking and cycling through good design and mitigating impacts on the environment. See the section on Designing Places above for the qualities of successful places. The delivery of this depends on how the principles in Designing Streets are applied to policies for road safety, transport network improvements and new projects, particularly by considering place before movement.
National Transport Strategy 2006	The NTS introduced three Key Strategic outcomes, which are to: ▪ Improve journey times and congestion between our cities and towns and our global markets to tackle congestion and provide access to key markets. ▪ Reduce emissions to tackle climate change. ▪ Improve quality, accessibility and affordability of transport, to give people the choice of public transport and real alternatives to the car.	East Dunbartonshire can help meet the first outcome by its objective of developing a transport network which supports the wider region through delivering sustainable economic growth, particularly main line rail improvements. Most of the objectives of the Study will help meet the last two outcomes.
Transport Projects Review, Transport Scotland	The Strategic Transport Projects Review (STPR) outlines the transport infrastructure investments that Transport Scotland aim to deliver during the period 2012 – 2022. It contributes increasing sustainable economic growth. The outcomes of the STPR are structured on a tiered approach to investment, based around the priorities of: ▪ maintaining and safely operating existing assets ▪ promoting a range of measures, including innovative solutions, that make better use of existing capacity; and ▪ promoting targeted infrastructure improvements where these are necessary, affordable and practicable. In relation to the strategic transport network in East Dunbartonshire,	To help meet the objective of developing a transport network which supports local and wider region through delivering sustainable economic growth the schemes included in the STPR interventions list will be identified. These will improve the transport network and travel in relation to East Dunbartonshire: ▪ Maintaining and Safely Operating Scotland's Rail Network; ▪ Further Electrification of the Strategic Rail Network; ▪ Enhancing Rail System Capacity through Targeted Improvements;

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	it highlights that overcrowding on train services between Glasgow and Lenzie is an issue and is likely to constrain growth in terms of rail patronage.	▪ Integrated Ticketing; ▪ Reconfiguration of the National Rail Timetable; ▪ (Strategic) Park-&-Ride/Park-&-Choose Strategy; ▪ Rail Enhancements between Aberdeen and the Central Belt; and ▪ Edinburgh to Glasgow (Rail) Improvements Programme.
Scotland Route Utilisation Strategy, Generation Two – Network Rail	The strategy looks in detail to 2024 and sets out the vision for the route in the longer term. All passenger and freight services that use the Scottish routes are considered. It identifies current capacity, demand & delivery; committed interventions; future demand; gaps & options.	The Study objective of efficient public transport services and developing a transport network which supports local and wider regeneration to deliver sustainable growth recognises the value of rail transport services. The service options available could be reflected in the Study actions.
SG, "Scotland's Transport Future: Regional Transport Partnerships 2005	1. This guidance is intended for statutory regional transport partnerships (RTP), local authorities, the existing voluntary RTP, potential members of statutory RTP, potential advisers on RTP, and other stakeholders. 2. The purpose of the guidance is to assist in the selection and appointment of other (non-councillor) members and advisers to RTP, and to assist all members, or potential members: statutory requirements for membership, roles, timetable for appointments.	See objectives set by the Regional Transport Strategy, below.
The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997	Primary legislation which sets out the legal requirements for the control of development and alterations that affect buildings that are listed or in conservation areas, and the framework by which control is maintained.	See Scottish Historic Environment Policy (SHEP) below.
Scottish Historic Environment Policy (SHEP)	The Scottish Historic Environment Policy sets out Scottish Ministers' policies, providing direction for Historic Scotland and a policy framework that informs the work of a wide range of public sector organisations. The SHEP was originally developed as a series of free-standing publications (SHEP 1 to 5, published between 2006 and 2008). Now that the series is nearing completion Ministers have decided to publish it as a single document, reducing the amount of detail and duplication between the original publications. There have been no substantive changes to previously published policy on Scheduling,	The Study objectives include encouraging walking and cycling through good design and mitigating impacts on the environment. The conservation and enhancement of listed buildings and Conservation Areas will help do this, particularly attractive transport features such as canals, bridges and street furniture such as walls and railings.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	Scheduled Monument Consent, Gardens & designed Landscapes and Properties in the Care of Scottish Ministers). The consolidated SHEP also sees the publication of the final Ministerial policy on Listing and Listed Building Consent, which were consulted upon in 2007.	
Nature Conservation (Scotland) Act 2004	The Act places duties on public bodies in relation to the conservation of biodiversity, increases protection for Sites of Special Scientific Interest (SSSI), amends legislation on Nature Conservation Orders, provides for Land Management Orders for Sissy's and associated land, strengthens wildlife enforcement legislation, and requires the preparation of a Scottish Fossil Code.	See comments on Local Biodiversity Strategy, below.
Scottish Forestry Strategy (2006)	▪ Using forestry, and adapting forestry practices, to help reduce the impact of climate change and help Scotland adapt to its changing climate ▪ Getting the most from Scotland's increasing and sustainable timber resource ▪ Strengthening forestry through business development to underpin sustainable forest management and support economic growth and employment across Scotland ▪ Improving the quality of life and wellbeing of people by supporting community development across Scotland ▪ Making access to, and enjoyment of, woodlands easier for everyone – to help improve physical and mental health ▪ Protecting the environmental quality of our natural resources (water, soil, air) contributing to and improving our scenery, and helping to make the most of our unique historic environment ▪ Helping to restore, maintain and enhance Scotland's biodiversity, and increasing awareness and enjoyment of it.	The Study will consider the impact of forestry traffic on road safety and maintenance.
2020 Challenge for Scotland's Biodiversity (2013)	To conserve biodiversity for the health, enjoyment and wellbeing of the people of Scotland now and in the future ▪ To protect and restore biodiversity on land and in our seas, and to support healthier ecosystems; ▪ To connect people with the natural world, for their health and	See East Dunbartonshire Biodiversity Action Plan below.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	wellbeing and to involved them more in decisions about their environment; and ▪ To maximise the benefits for Scotland of a diverse natural environment and the services it provides, contributing to sustainable economic growth.	
The Environmental Noise (Scotland) Regulations (2006)	Avoiding, preventing or reducing on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. This will involve: ▪ Informing the public about environmental noise maps for large urban areas (referred to as 'agglomerations' in the END and in these regulations), major roads, major railways and major airports as defined in the END and ▪ Preparing action plans based on the results of the noise where necessary, and protect environmental noise quality where it is good.	The objectives of encouraging roads maintenance, walking and cycling and efficient public transport will help implement the reduction of noise from car traffic and old buses combined with uneven surfaces.
Changing Our Ways, Scotland's Climate Change Programme (2006)	Scotland's Climate Change Programme demonstrates how Scotland will deliver carbon savings from devolved policy measures and reduce its vulnerability to the changing climate. Transport objectives include: ▪ Consulting on climate change targets for the transport sector as part of the National Transport Strategy. ▪ Consulting on and deciding on the continuation of the existing traffic stabilization target as part of the development of the National Transport Strategy. ▪ Continuing to support UK development work on the implementation of a Renewable Transport Obligation (RTFO) to ensure that 5% of all UK fuels sold on UK forecourts are bio fuels by 2010. ▪ Continuing to support developments at UK and international level to promote new and cleaner vehicle technologies and fuels. ▪ Awarding Regional Transport Partnerships £500,000 per year for 2006-08 for the appointment of travel plan officers for the	See East Dunbartonshire Sustainable Development Strategy.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	promotion and development of sustainable travel. ▪ Continuing to promote travel behaviour change and modal shift to more sustainable travel modes.	
National Air Quality Strategy (Revised 2000)	▪ To improve and protect ambient air quality in the UK in the medium-term ▪ To protect people's health and the environment without imposing unacceptable economic or social costs ▪ The Strategy sets objectives for eight main air pollutants to protect health ▪ Local authorities work towards achieving the objectives prescribed by regulation for seven of the pollutants: benzene; 1, 3-butadiene; carbon monoxide; lead; nitrogen dioxide; particles (PM10); and sulphur dioxide.	See Bishopbriggs Management Action Plan area, below.
Scotland's Sustainable Development Strategy (2005)	▪ To make economic growth sustainable, breaking the link with the environmental damage ▪ To secure a better quality of life for current generations, without compromising the right of others in the world and future generations to do the same ▪ To support thriving communities ▪ To ensure that natural resources needed for life are managed responsibly for our own and future generations ▪ To reduce the size of Scotland's resource use footprint ▪ To ensure that people have the necessary knowledge, awareness, understanding and skills to play their part in reducing climate change	See East Dunbartonshire Sustainable Development Strategy.
Environmental Protection Act 1990 Part II a Contaminated Land **Contaminated Land (Scotland) Regulations 2000. (SI 2000/178)**	▪ The Act provides a Regulatory regime for the identification and remediation of contaminated land and is subject to the 2000 Regulations and Statutory Guidance.	Any transportation proposal which involves the redevelopment of potentially contaminated land should consider the potential to remediate this land or associate controlled waters.
Water Environment Water Services (Scotland) Act 2003	The Act sets out the arrangements for the protection of the water environment. The aim of the Act is to protect and improve the ecological status of the water environment whilst also protecting the	Any transportation proposal should consider the need improve water quality, including the provision of Sustainable Urban Drainage Systems and remediation of

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	social and economic interests of those who depend on the water environment. The Act aims to: ▪ Promote sustainable water use. ▪ Ensure the water environment achieves good ecological status. ▪ Promote sustainable flood management.	any potentially contaminated land which impacts on controlled waters. This also includes any proposals for recreational boat transport on the canal. See also Flood Risk Management Act below.
Flood Risk Management (Scotland) Act 2009	The Act provides a more sustainable and modern approach to flood risk management, suited to the needs of the 21st century and to the impact of climate change. The Act will also create a more joined up and coordinated process to manage flood risk at a national and local level. Specific measures within the Flood Risk Management (Scotland) Act 2009 include: ▪ A framework for coordination and cooperation between all organisations involved in flood risk management; ▪ Assessment of flood risk and preparation of flood risk management plans; ▪ New responsibilities for SEPA, Scottish Water and Local Authorities in relation to flood risk management; ▪ A revised, streamlined process for flood protection interventions; ▪ New methods to enable stakeholders and the public to contribute to managing flood risk, and; ▪ A single enforcement authority for the safe operation of Scotland's reservoirs.	The Study objective of reducing the environmental impact of transportation will consider this. Therefore any transportation proposal should consider the need to improve water quality, including the provision of Sustainable Urban Drainage Systems.
Zero Waste Plan (2010)	It aims to drive change and inspire households, businesses, community groups, local authorities and the wider public sector to change the way they view and deal with waste. It contains a broader approach to tackle all waste, not just waste collected by councils. ▪ The plan proposes a new way of looking at the materials Scotland produces - recognising everything designed, produced and used is a resource which has a value. It will introduce 'radical' new measures, including: ▪ Landfill bans for specific waste types, aiming to reduce	The Study proposals should consider the management of construction waste on site where possible and use of recycled waste construction materials.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	greenhouse gas emissions and capturing their value ▪ Separate collections of specific waste types, including food (to avoid contaminating other materials), to increase reuse and recycling opportunities and contributing to the Scottish Government's renewable energy targets ▪ Two new targets that will apply to all waste: 70 per cent target recycled, and maximum five per cent sent to landfill, both by 2025 ▪ Restrictions on the input to all energy from waste facilities, in the past only applicable to municipal waste ▪ Encouraging local authorities and the resource management sector to establish good practice commitments and work together to create consistent waste management services, benefitting businesses and the public.	
Scottish Government Economic Strategy (2011)	The overarching aim of the strategy is to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth. The priorities include: ▪ Transition to a Low Carbon Economy; ▪ Infrastructure Development and Place; ▪ Equity.	Transport supports and develops the economy. A strategy objective recognises that an efficient transport system helps enhance productivity and deliver sustainable growth. Another objective recognises that infrastructure investment is central to the ambition for a low carbon economy. Enhancing transport networks and services can open up new markets, increase accessibility to employment and help build a critical mass of businesses that drive competitiveness and deliver growth.
Regional		
Glasgow & Clyde Valley Strategic Development Plan (SDP)	The Scottish Ministers approved, with modifications, the Glasgow and the Clyde Valley Strategic Development Plan on 29.5.12. The SDP together with the LDP forms the Development Plan in city region areas. The key aim of the SDP is to set out a long term Spatial Vision and related spatial development strategy. This will determine the future geography of development in the city region to 2035, which will support economic competitiveness & social cohesion, set within a sustainable environmental approach. It is about creating quality of place by focusing on the continued regeneration and transformation of the city region's communities whilst securing positive action on its key asset, its natural	The Study objectives of safe transport network, improving accessibility to services, facilities and businesses and improving health and wellbeing can be delivered by strategic scale development. The Study helps support the SDP Strategy by promoting an efficient public transport service, accessibility to services and employment and active travel.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	environment. It seeks to minimise the development and carbon footprints of the city region, meet climate change emissions targets and above all, support a drive towards a sustainable low carbon economy. Transport cuts across the SDP spatial vision, including the economy, infrastructure and the environment and key elements include: ▪ Key locations in the city-region with Glasgow city centre as the central core, and all accessed by a network of sustainable transport, will drive a regional low carbon economy; ▪ A system of sustainable transport networks will integrate the rest if the city-region with central Glasgow rail stations; and ▪ Public transport, integrated mass transit system e.g. trains, trams, buses will be key sustainable transport modes, along with the promotion of active travel. This provides the alternative to the private car with development prioritised to locations accessible by such sustainable transport. The growth of existing communities will be based on this location policy, as evidenced by the continued focus on the Community Growth Areas. The SDP Spatial Development Strategy promotes a network of centres, which includes Kirkintilloch town centre, for a mix of services and facilities and public transport. It also promotes the Green Network, which extends into in East Dunbartonshire, which encourages active travel.	
A Catalyst For Change: The Regional Transport Strategy (RTS) for the West of Scotland 2008-21	Strategy vision: “A world class sustainable transport system that acts as a catalyst for an improved quality of life for all.” The Shared Goals: ▪ Develop the Economy – Through improving connectivity for business and freight, making transport more effective and efficient, providing access to employment, education, shopping and leisure, by improving transport integration. ▪ Promote Social Inclusion and Equality – By providing a transport system that is safe, accessible, and affordable to all sections of the community.	The Study objectives follow all of these goals and help implement them in East Dunbartonshire.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	▪ Improve Health and Protect the Environment – By minimising emissions and consumption of resources and energy, by promoting active travel, quality public transport and modal shift. **Strategic objectives** 1. Safety and Security To improve security and personal safety on the transport system. 2. Modal Shift To increase the proportion of trips undertaken by walking, cycling and public transport. 3. Excellent Transport System To enhance the attractiveness, reliability and integration of the transport network. 4. Effectiveness and Efficiency To ensure the provision of an effective and efficient transport infrastructure and services to improve connectivity for people and freight. 5. Access for All To promote and facilitate access that recognises the transport requirements for all. 6. Environment and Health To improve health and protect the environment by minimising emissions and consumption of resources and energy by the transport system. 7. Economy, Transport and Land-use Planning To support land-use planning strategies, regeneration and development by integrating transport provision. 8. Corporate Management To provide effective and efficient management of the Partnership's people and resources. 9. Pursuit of Excellence	

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	To provide a high level of service based on the needs and expectations of customers.	
Neighbouring Authority Strategic Actions	The neighbouring authorities in which this would relate include: ▪ West Dunbartonshire Council ▪ Stirling Council ▪ North Lanarkshire Council and ▪ Glasgow City Council This will include documents that could potentially impact on East Dunbartonshire, for example: ▪ Local Plan (Local Development Plans) ▪ Local Housing Strategies ▪ Local Transport Strategies	Consultation has been undertaken with neighbouring authorities regarding potential interventions that could have cross-boundary impacts.
Antonine Wall Management Plan 2013 – 2018 (Consultation draft)	The Management Plan sets out the significance of the Antonine Wall World Heritage Site, and provides a vision and a framework for an integrated and consensual approach to the management of the Site while ensuring outstanding universal values are conserved. The Plan's aims are: ▪ Safeguard and enhance the Outstanding Universal Value of the World Heritage Site by management, conservation and protection; ▪ Promote awareness and understanding at local, regional, national and global levels; ▪ Realise the WHS's full potential as an educational and learning resource; ▪ Build strong partnerships with local, national and international organisations; strengthen engagement with local communities; and contribute to sustainable economic growth; ▪ Balance wider environmental concerns in the sustainable management of the WHS; and ▪ Increase research opportunities nationally and internationally	The Study objectives of encouraging active travel, reducing and mitigating environmental impacts will help meet the Management Plan aims of an integrated approach to activities on the wall, particularly in relation to access to and around the wall.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	and use this research to underpin work to protect the WHS.	
Scottish Canals Waterspace Strategy, Draft	The objective of the waterspace strategy is to increase animation on the Scottish canals in a way which ensures harmony between all waterway users and creates an increasingly attractive community space and destination for boaters and tourists.	The objective of improving health and wellbeing through sustainable travel and good design could help encourage recreational boating.
Scottish Canals Heritage Strategy, 2013 - 38 & five year plan	Vision Statement: Through our good stewardship the heritage of our canals will be valued, celebrated and conserved for Scotland. In the course of one generation, we can bring about real benefits for Scotland's canal heritage and people's lives. We aim to ensure that our heritage will be well understood and managed and that people will feel that they have a stake in securing its future. One Strategy Objective is to: Improve understanding and appreciation of canal heritage through physical access and interpretation.	The Study objectives of encouraging active travel, reducing and mitigating environmental impacts will help meet the Strategy objective of improving appreciation of the canal through access.
Local		
EDC Community Planning Partnership - Single Outcome Agreement (2014-2017)	EDC Vision ▪ Working together to achieve the best with the people of East Dunbartonshire Local Outcomes ▪ East Dunbartonshire has an expanding economy with a competitive and diverse business and retail base; ▪ Our people are equipped with knowledge, skills and training to enable them to progress to employment; ▪ Our children and young people are safe, healthy and ready to learn; ▪ East Dunbartonshire is a safe environment in which to live, work and visit; ▪ Our people and communities enjoy physical and mental wellbeing and health inequalities are reduced; ▪ Our older population are supported to enjoy a high quality of life and our more vulnerable citizens, their families and carers benefit from effective care and support services.	The Study objectives of safe transport network, improving accessibility to services, facilities and businesses and improving health and wellbeing will help meet the Local Outcomes of accessible built environment for residents, safe young people, good quality of life for older population, healthier communities, and safe environment to live and work in and visit.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
Local Plan 2 2011-2016	The Local Plan 2 is primarily concerned with the use and development of land in East Dunbartonshire. It provides clear guidance on what will or will not be permitted and where and also contributes towards sustainable development. It has the following purpose: ▪ Set out detailed policies and specific proposals for the development and use of land to guide decisions on planning applications and investments. ▪ Highlight development opportunities and promote economic development. ▪ Maintain and enhance the quality of the historic and natural environment. It contains policies on how development should promote accessibility, encourage road design and parking, address rail and park and rides and active travel.	The Study objectives promote the issues that can be delivered by development. They include safe transport network, improving accessibility to services, facilities and businesses and improving health and wellbeing through active travel. This complements the policy for what transportation impacts development should consider.
Antonine Wall World Heritage Site and Buffer Zone Supplementary Planning Guidance (SPG) 2011 – 2016	The area that is covered by the SPG includes Falkirk, North Lanarkshire, Glasgow City, West Dunbartonshire and East Dunbartonshire. The purpose of the SPG is to help ensure that development along the Wall retains, protects, preserves and enhances the outstanding universal value of the monument and its setting.	This will help meet the Study objective of reducing and mitigating environmental impacts. It sets out what development, including transport development
East Dunbartonshire Council: Planning Guidance Notes 2011	The Planning Guidance Notes set out a series of detailed Technical Notes which amplify Local Plan policies and proposals into a clear and concise format. Notes of particular interest to transport include: Developer Contributions, Green Network, Residential layout and redevelopment, road layout and design and parking standards sustainable construction and design, transport assessments and travel plans and urban design.	The Study objectives promote the issues that can be delivered by development. They include safe transport network, improving accessibility to services, facilities and businesses and improving health and wellbeing. This complements the notes which help guide development to consider the transportation impacts of development, potential infrastructure work and mitigation measures to help meet these objectives.
Town Centre Review Summary Paper & Action Plan, 2007	The paper summarises the assessment of the performance and management of East Dunbartonshire's 4 key town centres, and sets out recommendations for the strategic approach to town centre improvements. It aims to: ▪ create an up to date base line profile of the town centres which	The Study actions will review some of those transport actions identified in the Town Centre Action Plan but not yet actioned, to identify if they are still relevant.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	highlight common and area specific issues ▪ establishes action required to address the issues identified by the review and form a strategic approach to improvement. Its conclusions cover parking and access, environment (covering streetscape & design) and town centre management and it sets a series of actions to help achieve this.	
Dunbartonshire Biodiversity Action Plan (2010)	▪ To conserve species and habitats in Dunbartonshire that are considered vulnerable or threatened on a local or national basis, and in turn to contribute to conservation of our global biodiversity ▪ To promote awareness of our local natural resources ▪ To promote community engagement in, and ownership of, the practical conservation of our natural resources ▪ To promote sustainable and wise use of our natural resources	The objective of reducing the impact of transport policy and proposals on biodiversity can be met through the Study. This can be at an international level by mitigating climate change by encouraging walking, cycling and public transport and at a local level by mitigating the impact of individual transport proposals on specific habitats and species.
Open Space Strategy (2014 – 2019)	▪ Improve the management of structures and practices; ▪ Help ensure that the Council has a clear strategic direction to its open space investment and asset management; ▪ Establish requirement for new open space from development proposals together with the scale and nature of any planning obligations; and ▪ Contribute to meeting the objectives of the Single Outcome Agreement.	The Study objectives will support the delivery of East Dunbartonshire's emerging green space strategy, which will develop the green network. In particular any active travel proposals which will result in improvements to the accessibility of existing and new open spaces will be in line with this Strategy. This could come from encouraging a modal shift of transport to sustainable, healthy walking and cycling, increasing accessibility, reducing the environmental impact of transportation, which could see environmental enhancement.
Contaminated Land Inspection Strategy (2001)	▪ To use the Environmental Protection Act 1990: Part IIa as one of the mechanisms that will help to protect and enhance the quality of life and the environment ▪ The redevelopment of derelict, brown field and potentially contaminated land, either through the planning system as detailed in PAN 33 or Part IIa ▪ To ensure compliance with and enforcement of Part IIA of the Environmental Protection Act 1990.	See Environmental Protection Act 1990, above.
Local Housing Strategy	▪ The LHS gives an overview of the Local Housing System in the	The Study objective of improving access to services,

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	East Dunbartonshire area and highlights the strategic challenges and priorities that have been identified along with our partners and key stakeholders. ▪ The Strategy aims to respond to these challenges by setting realistic priorities for action to ensure that East Dunbartonshire is a location which has good quality housing set in an attractive and safe environment. Our priorities are achievable as long as we plan our resources effectively so that real improvements for local people are delivered. The LHS vision is: "To deliver a sufficient and suitable supply of housing so that every household in East Dunbartonshire has access to a warm affordable home, in good condition and in the community they want to live in, both now and in the future." The Local Housing Strategy Outcomes reflect the key housing issues that require to be addressed to improve the operation of the housing system in East Dunbartonshire, they are: ▪ people successfully access suitable and affordable housing in their community and tenure of choice ▪ more people enjoy the benefits of living in diverse communities and sustainable places ▪ less people will become or be badly affected by homelessness ▪ more people with particular needs access suitable housing options which promote independent living ▪ more people live in well repaired and maintained homes	facilities and businesses links with the LHS outcomes of providing suitable homes and that people enjoy the benefits of living in sustainable places and housing which promotes independent living.
Strategic Housing Investment Plan	The Strategic Housing Investment Plan establishes the key investment priorities for affordable housing to achieve the outcomes set out in the Local Housing Strategy. The Plan details where public subsidy is needed over the next five years and prioritises development to sub-area level.	The objective of access to services, facilities and businesses can be met by the location of housing development in this plan.
Sustainable Development Strategy	▪ To promote a strong local economy ▪ To ensure the social wellbeing of everyone in the community	Many of the Study proposals will help reduce green house gas emissions from vehicle traffic by encouraging walking, cycling and public transport. These include improving accessibility to services and businesses, efficient public

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	▪ To protect the natural environment	transport services, developing the transport network and opportunities for modal shift and aiming to reduce the impact of transport on the environment.
Bishopbriggs Air Quality Management Area Action Plan (2012 update)	The principal aim of the Action Plan is to identify measures that either the Council or other organisations can implement which will reduce atmospheric concentrations of nitrogen dioxide and particulate matter within the AQMA such that air quality objectives will be met. This includes: ▪ Measures to reduce emissions from local emission sources e.g. road traffic ▪ Measures to reduce emissions from regional emission sources ▪ Measures to reduce receptor exposure to poor air quality ▪ Measures to prevent new emissions sources or minimize growth of emissions in the future.	Many of the Study policy objectives and proposals will help reduce emissions from vehicle traffic that is detrimental to human health. This is by encouraging walking, cycling and public transport which have fewer harmful emissions by improving accessibility to services and businesses, efficient public transport services, developing the transport network and opportunities for modal shift and aiming to reduce the impact of transport on the environment. In particular the proposal for the A803 route corridor.
Economic Development Strategy (2013 – 2016) (Dunbartonshire Economic Forum)	The overarching purpose for this EDS is to create more high quality jobs for the area by focusing on business creation and growth and the delivery of balanced communities with enhanced infrastructure and services. The EDS operates on three strategic priorities: ▪ Support the growth of East Dunbartonshire's competitive and diverse business base; ▪ Support the development, diversification and growth of the town and village centres within East Dunbartonshire and capitalise on the area's tourist, leisure and natural assets; ▪ Ensure that the key enablers of the economy are in place to support business to aid economic recovery and growth providing access to employment opportunities for East Dunbartonshire's workforce.	The Study objectives of improving accessibility to businesses and developing a transport network which supports the local and wider region will help make the area more attractive for business and support existing businesses. The encouragement of efficient public transport services will particularly benefit trade in shops and businesses dealing with the visiting public in town centres.
Economic Development Framework (2007)	▪ Support / promote locations for appropriate development, maximising inward investment and securing economic development related planning gain. ▪ Retain existing economic development; identify new development opportunities which meet the changing needs of the economy; assist with redevelopment of brown field sites;	See Economic Development Strategy, above.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	ensure provision of a range of commercial and industrial properties; reduce demand for out-commuting.	
Tourism Strategy & Action Plan	▪ To maximise the tourism potential in East Dunbartonshire, particularly through capitalising on the opportunities presented by the short stay and day trip markets, and building on the relatively strong visiting family and friends market ▪ To develop programmes of proactive leisure marketing ▪ To improve the range and quality of tourism product ▪ To strengthen communication between private and public sector ▪ To encourage local pride and improve the status of the industry	The Study objectives of encouraging walking and cycling modes of transport, improving accessibility to services, particularly through the development of the green network, and improving the environment through design will help make the area attractive to visitors.
Campsie Fells Strategic Review & Action Plan	The Strategic Review and Action Plan identify a range of project options which will contribute towards the strategic outcome of sustainable economic, social and ecological development in the Campsie Fells Region. The contents of the documents are recommendations only.	As for Tourism Strategy & Action Plan, see above.
East Dunbartonshire Strategy for Carers 2012- 2015	The Plan makes clear statements about the commitments to improve services for people who have community care needs and their families, and identifies what the priorities are. There is an action plan to deliver these priorities, as well as a statement on how to monitor and report on progress. The Plan was jointly written by East Dunbartonshire Council and East Dunbartonshire Community Health Partnership, in consultation with Carers Link East Dunbartonshire. **The Community Care Context - Overarching Themes:** ▪ Best value - effective and efficient working jointly ▪ Participation, representation and capacity building ▪ Equality, Diversity and Inclusions: ▪ Supporting More People at Home ▪ Assisting People to Lead Independent Lives ▪ Ensuring People Receive a High Standard of Care ▪ Better Involvement of and Support for Carers and Other	As for Joint Health Improvement Plan below. Encouraging walking, cycling and efficient public transport particularly helps meet the objective of supporting people at home and assisting them to lead independent lives.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	Stakeholders ▪ Effective Workforce Planning and Development	
Joint Health Improvement Plan 2013 – 2016	This Plan sets out the commitment of East Dunbartonshire Council, East Dunbartonshire Community Health Partnership and partners to work together to improve the health and wellbeing of people living in East Dunbartonshire and to reduce health inequalities throughout the area.	The Study objectives of safe transport network and improving accessibility to services, facilities and businesses, thereby promoting social inclusion, and encouraging efficient public transport services and promoting sustainable, healthy modes such as walking and cycling will help meet the objectives of promoting health and wellbeing and reducing inequalities.
Children & Young People's Partnership Action Plan 2011-14	The Plan is an update to the second partnership plan to change our services, our culture and our working practices, with the single aim of improving outcomes for children, young people and their families. The Delivering for Children and Young People Partnership has a critical role in bringing all agencies together The vision is that East Dunbartonshire's children and young people, whatever their needs, grow up in safe, healthy, nurturing communities and develop the necessary skills for learning, life and work, in order to achieve their potential Aims: We will deliver our vision and local outcomes by: ▪ Supporting families ▪ Improving children and young people's health ▪ Keeping our children and young people safe ▪ Improving children and young people's learning and achievement ▪ Engaging and empowering young people ▪ Training and supporting a confident and capable workforce	The Study objectives of safe transport network, improving access to services, while promoting inclusion and improving health and wellbeing through active travel and good street design help meet the aims of improving young people and children's health and keeping them safe.
East Dunbartonshire Community Safety Partnership vision.	The East Dunbartonshire Community Safety Partnership comprises East Dunbartonshire Council, British Transport Police, British Waterways Scotland, East Dunbartonshire Council for Voluntary Organisations, Strathclyde Fire and Rescue and Strathclyde Police. The partnership also works closely with services such as Criminal Justice, Education, Environmental Health, the Integrated Children's Services Core Group, Roads Services, Social Work and Trading	The Study objectives of safe transport network and improving accessibility to services, facilities and businesses while promoting social inclusion will address and follow the community partnership's vision.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	Standards in both planning and actions. It is a Partnership with related aims and objectives. It faces common problems, which impact on all of us, as well as our communities, albeit in different ways and at different times. It has recognised that no one organisation has the sole capacity or resources to solve many of the complex problems that exist today. Its Vision is that East Dunbartonshire, 2010, includes: An area for achievement, offering a wide range of opportunities and a safe, attractive and healthy environment We will build on the positive attributes of a safe and healthy environment to support the development of our communities and help sustain their individuality An area which is confident and ambitious, able to make and take advantage of opportunities for investment in jobs, enterprise and learning We will encourage innovation and forward thinking to create a thriving learning and business sector with flourishing towns and villages An area where opportunities are accessible by everyone and which builds on the cultural diversity of our communities We will strive to ensure equality of access to services, information and opportunities for all local citizens and support their involvement in our activities An area which looks to the future, through supporting the potential of our young people and sustaining our environment We will ensure our young people are provided with cohesive support throughout their early years and that our communities prosper in a balanced and environmentally sustained way An area that plays a significant role in Scottish life, building effective relationships with surrounding areas and continually seeking to improve We will work with a wide range of organisations to plan and deliver effective and responsive	
Local Transport Strategy 13 – 17	The Local Transport Strategy sets out the objectives, strategy and transport action plans for East Dunbartonshire Council from 2013 to	The Study will seek to meet the objectives set within the LTS, through ensuring sustainable, more accessible and

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	2017. We have a vision which looks beyond this, but this Local Transport Strategy is concerned with achievable local improvements. There are seven principal objectives: ▪ Develop a safe travel network across all modes; ▪ Improve the health and wellbeing of the community through promoting sustainable travel, attractive well designed streets and active travel routes throughout East Dunbartonshire; ▪ Enhancing the accessibility of services, facilities and businesses in East Dunbartonshire, which promotes social inclusion; ▪ Delivering reliable and efficient public transport services through close working with key transport partners and providers in order to achieve modal shift ▪ Ensuring that existing roads and footways are maintained incorporating high environmental and design standards; ▪ Developing a transport network that supports both the local and wider region through delivering sustainable economic growth and travel, while conserving and enhancing the natural and historic environment where possible; ▪ Ensuring that the impacts from transportation on the environment and air quality are mitigated in order to work towards the targets set out in the Climate Change Act 2008.	alternative means of transport are available to the community.
Equality & Human Rights Policy 2011-14	The Equality and Human Rights Policy was launched in July 2011. This is an overarching document, setting out the Council's commitment to equality and human rights issues and provides information on work being undertaken across the Council. This policy aims to identify the range of work being undertaken across the organisation on equality and human rights and provide clear information on how the Council's approach to mainstreaming equalities is implemented. As such, the main objectives of the policy are as follows: ▪ To provide a 'statement of intent' with regard to Equality and Human Rights;	The Study objectives will be subject to an Equality Impact Assessment to ensure they do not result in indirect or direct discrimination on the grounds of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief, sex and sexual orientation. It is to be noted that an Equality Impact Assessment was prepared as part of the STAG Part 1 process.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	▪ To provide information on the legislative framework with regard to Equality and Human Rights; ▪ To provide information on the range of work undertaken across the council with regard to equality and human rights, including consultation and engagement activity; ▪ To set out information on the key groups and those who share protected characteristics within East Dunbartonshire as an area; ▪ To set out the responsibility and accountability for equality and human rights in East Dunbartonshire Council; and ▪ To provide information on how our work on equality and human rights is implemented and reviewed.	
Consultation & Engagement Strategy 2008 – 11	This Strategy sets out a revised approach to consultation and engagement across East Dunbartonshire Council. The purpose of the Strategy is to set out details of how the Council will consult and engage with our key stakeholders and the methods of consultation we will use. It also sets out how the information from consultation and engagement will inform the development of our services and how and when results and information will be made available to our citizens and other key stakeholders.	The Study objectives are subject to public consultation. This Strategy sets out the process for consulting & responding to comments which the Study will follow.
Parking Management Options Study, 2007	The study is a review of the existing car parking situation across the authority area and developing future parking options. It addresses the rising levels of car ownership in East Dunbartonshire and an understanding that there are increasing problems with car parking at certain locations within the area. It also examines the quality of parking available in town centres, train stations, schools and residential areas. It produced a range of potential options to improve car parking within East Dunbartonshire.	The Study objectives of improving access to services, while promoting inclusion and maintenance of roads and footways cover parking. Issues and Improvements identified in this study will be reviewed, considered &/or developed in the Interventions & Action Plan section.
Core Path Plan	The Land Reform (Scotland) Act 2003 requires the preparation of a Core Path Plan. It will provide a basic framework of paths sufficient for the purpose of giving the public reasonable access throughout the area and it will link into and support a wider network of paths and all other areas of land and inland water over which access rights are applicable. Core paths may includes rights of way (note that not all rights of	The Study objective of improving health and wellbeing through encouraging active travel will utilise Core Paths which link residential areas with businesses and services. The health benefits of walking are encouraged by both plans.

Table A1		
Legislation / Plan / Strategy	**Summary / Objectives**	**Implications for the SEA / Plan**
	way are core paths), other existing routes such as paths, footways, cycle routes, paths established through public path agreements and orders and waterways over which access rights are applicable. The core path network provides opportunities to link communities and to help the people of East Dunbartonshire to lead healthier lifestyles by taking regular exercise.	

Appendix B – Baseline Data Sources

Table B1	
SEA Topic	**Baseline Data Sources**
Biodiversity Flora & Fauna	▪ Dunbartonshire Biodiversity Action Plan ▪ Scottish Natural Heritage ▪ East Dunbartonshire Council
Water Quality	▪ SEPA – RBMP Data ▪ East Dunbartonshire Council ▪ Dunbartonshire Biodiversity Action Plan
Soil	▪ East Dunbartonshire Council ▪ EDC Local Plan 2 ▪ Scotland Vacant & Derelict Land Survey 2013 ▪ The Macaulay Institute ▪ Scottish Natural Heritage
Cultural Heritage	▪ Historic Scotland ▪ Sites and Monuments Record (SMR) ▪ East Dunbartonshire Council ▪ United Nations Educational, Scientific and Cultural Organisation – World Heritage Site Designation ▪ Scottish Natural Heritage ▪ Scottish Canals (Heritage Strategy, 2013 - 38)
Landscape	▪ EDC Local Plan 2 ▪ British Geological Survey ▪ UKRIGS (Regionally Important Geological or Geomorphological Site) ▪ Glasgow & Clyde Valley Landscape Character Assessment, 1999
Population & Human Health	▪ General Register Office for Scotland ▪ Census 2001 – for health data ▪ Census 2011 data (2013 review) ▪ Scottish Government (mid year population estimates, 2011 revised estimates to take account of census due July 2013. ▪ Scottish Government SIMD data) ▪ East Dunbartonshire Council ▪ Scottish Neighbourhood Statistics

Table B1	
SEA Topic	**Baseline Data Sources**
	▪ NOMIS (Economically active population & Average weekly wage) ▪ Scottish Household Statistics (walking/ cycling to work) 2009/10 ▪ Glasgow Centre for Population Health 2011. (Briefing Paper 28)
Air Quality	▪ East Dunbartonshire Council ▪ National Air Emissions Inventory ▪ Scottish Government ▪ DEFRA ▪ Transport Direct, July 2012 (bus service frequencies) ▪ Bus & Coach Statistics 2010/11
Climatic Factors	▪ Scottish Government ▪ SEPA ▪ East Dunbartonshire Council (for traffic information) ▪ UK Climate Impacts Programme ▪ Online Handbook of Climate Trends across Scotland 2006 (SNIFFER Guidance) ▪ Scottish Household Survey 2009/10 (cars per household & mode of travel). ▪ Office of Rail Regulation (rail patronage) ▪ Transport Direct, July 2012 (bus service frequencies) ▪ Bus & Coach Statistics 2011/12 ▪ SEPA Flood map
Material Assets	▪ Scottish Government ▪ East Dunbartonshire Council ▪ Transport Scotland ▪ SPT

Appendix C – Assessment Summary Tables

Table C1 Do Minimum		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	Given that the multiple components of the Do-Minimum Option have been consented any effects on ecological receptors or habitat areas are not likely to be significant, or will been mitigated at project level to avoid or reduce any potential impacts. Of the interventions within this Option, it is presumed that ecological impacts would result from the development of the BRR, which requires land take to accommodate the new road infrastructure and the associated loss of potential habitat of European protected species. The BRR route that also passes within close proximity to a pocket of woodland listed within the AWI which may be directly impacted as a result of the new transport infrastructure or operational requirements. Impacts on biodiversity and habitats as a result of the Do-Minimum Option are likely to be adverse but not significant.	✖
Water Quality	The Do-Minimum Option is not likely to result in any impacts on the water environment. Although there is some new infrastructure development (e.g. the BRR) and development within close proximity to water resources (e.g. Kirkintilloch town centre regeneration – Forth and Clyde Canal), as the various components of the Option have been approved, any potential impacts are assumed to have been mitigated to an acceptable level.	O
Soil	Impacts on soils from the Do-Minimum Option are likely to relate to the development of the BRR. However given this has been commissioned the impacts from this are not likely to be significant. No other intervention within this Option requires additional land take within the study area.	<> (✖)
Cultural Heritage	The Do-Minimum Option is not likely to result in any significant impacts on cultural heritage.	O
Landscape	There are not likely to be any significant impacts on the landscape or visual amenity from the Do-Minimum scenario. Any projects developed within this Option likely to result in any adverse landscape or visual effects are presumed to incorporate adequate mitigation to avoid or reduce these effects. Interventions that include additional transport infrastructure which may impact the landscape/ townscape and visual amenity include the BRR, Kirkintilloch Town Centre regeneration and EGIP.	<> - ✖
Population & Human Health	The Do-Minimum Option is unlikely to result in significant effects on the population and human health. The implementation of the BRR may improve congestion along the A803 within Bishopbriggs reducing emissions along this route and improving air quality. These beneficial effects are likely to be counteracted as a consequence of the Woodilee, Bishopbriggs East and Westerhill Business Park development areas, which are likely to increase the number and use of private vehicles within the study area. The regeneration and parking enforcement changes within Kirkintilloch town centre may also increase the safety of the population within the town centre through greater pedestrianisation of the area and discouraging cars to the area.	O
Air Quality	Implementation of the Do-Minimum Option may result in a negative impact on air quality from the attraction of vehicle users to the area from reduced journey times from the completion of the BRR. Should traffic be diverted away from the A803 route and signalling improvements ease congestion, there may be some beneficial impacts on the existing Air Quality Management Area (AQMA) located in	✖

Table C1 Do Minimum		
Environmental Topic Area	**Assessment**	**Potential Effect**
	Bishopbriggs on the A803 between Colston Road and Hayston. These benefits are likely to be counteracted as a consequence of the Woodilee, Bishopbriggs East and Westerhill Business Park development areas, which are likely to increase the number and use of private vehicles within the study area. Impacts on air quality are likely to be neutral to minor adverse.	
Climatic Factors	It is unlikely that there will be any impacts on the climate as a result of the Do-Minimum Option.	O
Material Assets	The Do-Minimum Option will upgrade the existing rail link between Edinburgh and Glasgow, and also increase the capacity of this link. The improvement of town centre areas such as Kirkintilloch and Glasgow provides a greater attraction to these areas and the services provided at these centres. The benefits to material assets within the study area are not likely to be significant.	<> (✓)

Table C2 Option 1 – A803 Quality Bus Corridor Package		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	Should the adoption of this Option result in a modal shift to bus usage along the A803 (as a means of more sustainable transport), it is likely that there will be improved local air quality. As a result of this there may be improved biodiversity within local habitats surrounding the A803 corridor. It is unlikely that these beneficial effects will be significant.	<> (✓)
Water Quality	Improving bus journey times and reliability is not likely to impact on water quality or drainage within the study area.	O
Soil	As there is no land take associated with this Option, it is not likely that there will be any impact on soils.	O
Cultural Heritage	The creation of a bus priority corridor on this route is not likely to result in any significant impacts on cultural heritage sites. Along the route of the A803 bus corridor there are three listed buildings along the route – the Coltpark Avenue/Stuart Drive and Balmuildy/Kirkintilloch Road Conservation Areas within Bishopbriggs. The northern section of the route is also located within the Antonine Wall WHS buffer zone. Careful consideration of each of these sites is required when designing the scheme.	O - <> (✖)
Landscape	The adoption of this Option is not likely to significantly impact on the surrounding landscape/ townscape or visual amenity. There may be potential impacts on townscape as a result of the inclusion of additional shelters and other street furniture.	O
Population & Human Health	Should the adoption of this Option result in a modal shift from private vehicle usage there are likely to be less vehicles on the road and improve air quality, with beneficial effects on human health. It is unlikely that these impacts will be significant.	<> (✓)
Air Quality	Negative impacts on local air quality may be experienced on the A803 should bus priority measures be put in place, particularly at the already sensitive Bishopbriggs AQMA as a result of greater congestion of private vehicles along the route. Assuming the BRR is completed these effects should be largely mitigated by diverting through traffic from this area. Furthermore, should a modal shift from private vehicles to quicker, more reliable buses be attained along the A803 corridor localized air quality benefits may be realized across the wider study area.	✓
Climatic Factors	Should a modal shift from private vehicles be achieved as a result of implementing this Option, emissions from transport within the study area will be cut. Emission levels will be further improved should low-emission vehicles be introduced to the route. This may	✓

Table C2 Option 1 – A803 Quality Bus Corridor Package		
Environmental Topic Area	**Assessment**	**Potential Effect**
	positively impact climatic factors in assisting the Scottish Government in their target to cut greenhouse gas emissions by 42% by 2020.	
Material Assets	The development of a quality bus corridor along this route is unlikely to result in any impact on material assets within the study area.	O

Table C3 Option 2 – Bus Hub in Kirkintilloch		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	The impacts from the adoption of this Option are dependent upon the location and intervention(s) adopted as part of this Option. Biodiversity and habitats of relevance within Kirkintilloch town centre are limited to parks and fragmented habitats. Should there be a proposed new bus hub, there may be scope to include habitat creation within the design to enhance the towns' biodiversity. Impacts on biodiversity from the adoption of this Option are not likely to be significant.	O
Water Quality	There are not likely to be any impacts on the water environment as a result of the adoption of this Option.	O
Soil	The adoption of this Option will be within an urban area. Any land required to accommodate the development of this will not impact on soils or agricultural land.	O
Cultural Heritage	Impacts on cultural heritage sites as a result of the adoption of this Option are dependent on the scale of intervention adopted. Kirkintilloch town centre is a culturally sensitive area, bounded to the north by the Antonine Wall WHS and to the south by the Forth and Clyde Canal SAM. The centre itself is a Conservation Area and Townscape Protection Area with a high density of listed buildings including the Category A listed St Mary old parish church. The development of a bus hub or re-development of existing bus stops may impact the setting of these heritage sites or result in physical damage from increased vibration effects from a greater frequency of buses in the close vicinity. Impacts are likely to range from negligible to moderate adverse.	<> - ✖✖
Landscape	Impacts on townscape and visual amenity are dependent on the scale of intervention adopted within this Option. Given the cultural heritage of the area the development of a new bus hub may result in a significant alteration of the townscape and result in a significant adverse effect.	✖✖
Population & Human Health	Should the Option propose to develop a single centralized bus hub, it is likely that there will be noise and vibration disturbance to receptors (residential and commercial) within the near vicinity of its location. Beneficial effects on air quality which could improve human health in the study area may occur should individuals choose to access the town centre via bus as opposed to private vehicles. It is likely that effects on the population and human health will be neutral. Other softer interventions proposed within the Option, such as access improvements, improved shelters, and greater public transport information are unlikely to result in any impacts on the population and human health.	O
Air Quality	The impact on air quality from the adoption of this Option is dependent upon the level of intervention implemented. Should there be a singular bus hub developed within the town centre, there may be a long-term increase in pollutants due to private vehicle congestion should there be bus priority. However should there be a modal shift to bus usage within the town centre and traffic levels reduce air	✓

Table C3 Option 2 – Bus Hub in Kirkintilloch		
Environmental Topic Area	**Assessment**	**Potential Effect**
	quality may improve. Impacts on air quality are likely to be positive, but not significant. The softer interventions associated with this Option, such as increasing accessibility by walking and cycling and improving bus shelters are unlikely to impact air quality – unless they contribute to reducing traffic volumes within the town centre.	
Climatic Factors	It is unlikely that climatic factors will be significantly impacted as a result of the adoption of this Option. Some beneficial effects may be experienced should the development of a bus hub or improving bus facilities and town centre access result in a greater use of more sustainable transport than private vehicles.	<> - O
Material Assets	It is unlikely that material assets within the study area will be impacted upon as a result of the adoption of this Option.	O

Table C4 Option 3 – Bus Park & Ride Adjacent to / in the Vicinity of the B757 / Kirkintilloch and Associated Bus Priority		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	The development of a P&R scheme is likely to result in the permanent land take from areas of potential habitat value to European protected species and probable tree removal to accommodate new transport infrastructure, resulting in adverse effects on the biodiversity of the area. Should the adoption of a P&R encourage the use of more sustainable means of transport, improved air quality within the wider study area may result in improved biodiversity. Impacts on biodiversity are likely to be negligible to minor adverse.	<> - ✖
Water Quality	It is unlikely that the adoption of this Option will result in any significant adverse effects on the water environment.	O
Soil	The requirement of land take to accommodate the footprint of the parking facilities and associated access roads may result in the loss of agricultural land. The extent of this area is dependent upon the location and the scale of the P&R scheme. The agricultural land surrounding this area is regarding as being of Class 3.2 – capable of supporting 'mixed agriculture'.	✖
Cultural Heritage	Depending upon the scale and location of the P&R scheme there may be adverse effects on the setting of several cultural heritage sites including the Lenzie and South Lenzie Conservation Areas.	✖
Landscape	The introduction of a new structure within the landscape has the potential to result in adverse effects on the landscape/ townscape and visual amenity of the area. Effects are dependent upon the scale, design and final location of a P&R in area surrounding the proposed location of the P&R, however there remains the possibility that there may be significant adverse effects on visual amenity.	✖✖
Population & Human Health	Should the development of a bus P&R scheme result in a modal shift to a more sustainable means of transport, there may be an improvement of air quality. This will result in improved human health within the study area. Depending upon the final scale and location of the P&R scheme, it may result in a significant increase of vehicle numbers to a particular area, increasing noise and vibration disturbance to any surrounding sensitive receptors and reduce air quality within the immediate surroundings of the P&R scheme. It is unlikely that these impacts will be significant.	O
Air Quality	The adoption of this Option will likely result in a minor improvement in local air quality through the promotion and use of more sustainable modes of transport and easing congestion within the study area. However this is provided that the P&R does not abstract	<> - ✓

Table C4 Option 3 – Bus Park & Ride Adjacent to / in the Vicinity of the B757 / Kirkintilloch and Associated Bus Priority		
Environmental Topic Area	**Assessment**	**Potential Effect**
	from users of other sustainable means of transport, such as rail or other bus services, which potentially it may.	
Climatic Factors	Increasing the hardstanding area south of Kirkintilloch may result in increased runoff rates/ reduced flood storage capacity within the environment during flood events. This may result in increasing the areas currently at risk to flooding from the Bothlin Burn. Given the likely scale of the development and the associated infrastructure it is unlikely that these effects will be significant. Should the adoption of this Option result in a modal shift and reduce transport emissions within the study area, there may be beneficial effects as a result of reduced greenhouse gas emissions.	O
Material Assets	It is unlikely that the adoption of this Option will impact upon the material assets within the study area.	O

Table C5 Option 4 – Bus Park & Ride Adjacent to Bishopbriggs and Associated Bus Priority		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	Land take will be required in order accommodate the footprint of the development, with the potential removal/ disturbance of habitat of potential value to European protected species. The railway line which lies adjacent to the proposed Option, is identified as an important ecological corridor by East Dunbartonshire Council. Biodiversity will likely be adversely effected as a result of the loss of habitat as well as potential noise, activity and lighting disturbance during the operation of the P&R intervention. Should the adoption of this Option result in a modal shift away from the use of private vehicles, air quality may be improved within the wider study area, resulting in a potential benefit to biodiversity. It is unlikely that this beneficial effect will be significant.	<> to ✖
Water Quality	It is unlikely that there will be any impact on water quality from the adoption of this Option.	O
Soil	The development of new infrastructure will require loss of land and therefore the extraction and potential removal of soil from the proposed site location. Within the surrounding area of the proposed location land is utilized for agricultural purposes. The loss and/ or severance of agricultural land may occur in the development of the P&R and its associated infrastructure. The extent of this area and therefore the magnitude of impact is dependent upon the final location and the scale of the P&R scheme however this is likely to result in an adverse effect on soil resources.	✖
Cultural Heritage	The development of any new structures within the environment may adversely impact on the setting of surrounding cultural heritage sites. This is dependent upon the final scale and design of the P&R scheme and any natural screening within the surrounding environment. Although adverse effects are likely, there are very few cultural heritage sites within the near vicinity of the proposed location of the Option.	<> - ✖
Landscape	The introduction of a new structure within the landscape/ townscape may result in adverse landscape and visual amenity impacts. Impacts on visual receptors are dependent on whether natural screening or boundaries (such as tree lines) are removed from the landscape and the final scale and design of the development.	<> - ✖
Population &	Should the adoption of this Option result in a modal shift away from private vehicles, benefits to air quality may be experienced within the wider study area, improving human health. Depending upon the final scale and location of the P&R scheme, it may result in a	O

Table C5 Option 4 – Bus Park & Ride Adjacent to Bishopbriggs and Associated Bus Priority		
Environmental Topic Area	**Assessment**	**Potential Effect**
Human Health	significant increase of vehicle numbers to a particular area, increasing noise and vibration disturbance to any surrounding sensitive receptors and decreasing air quality within the immediate vicinity of the P&R scheme. It is unlikely that these impacts will be significant.	
Air Quality	The adoption of this Option will likely result in a minor improvement in local air quality through the promotion and use of more sustainable modes of transport and easing congestion within the study area. However this is provided that the P&R does not abstract from users of other sustainable means of transport, such as rail or other bus services, which potentially it may.	<> - ✓
Climatic Factors	Locations within the surrounding area are regarding as being at risk to surface water flooding. The development of hardstanding areas within the near vicinity may either displace or contribute to these areas of floor risk. It is unlikely that this impact will be significant. Should the adoption of this Option result in a modal shift and reduce transport emissions within the study area, there may be beneficial effects as a result of reduced greenhouse gas emissions.	O
Material Assets	It is unlikely that material assets will be significantly impacted as a result of the adoption of this Option.	O

Table C6 Option 5 – Bus Service Improvements & New Services (including Kirkintilloch / Lenzie Loop Bus)		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	Changes to service patterns on existing routes are not likely to result in significant impacts on biodiversity and habitats within the study area.	O
Water Quality	Changes to service patterns on existing routes are unlikely to have significant impacts on the water environment.	O
Soil	Changes to service patterns on existing routes will not impact agriculture or soils.	O
Cultural Heritage	Should the adoption of this Option result in significant increases in the number of large vehicles past sensitive cultural heritage sites, there may be some physical damage from vibration effects. It is unlikely that these effects would be significant.	O - <> (✖)
Landscape	Changes to service patterns on existing routes are unlikely to have any significant impacts on the landscape or visual amenity.	O
Population & Human Health	Increasing the accessibility of sustainable transport to new development areas and increasing the linkage of important areas around Kirkintilloch will potentially result in the greater use of sustainable transport as opposed to private vehicles. This will likely result in reduced transport emissions and therefore improved air quality. It is unlikely that this beneficial impact would be significant.	<> (✓)
Air Quality	The adoption of this Option may improve the air quality within the wider study area should there be a modal shift towards more sustainable means of transport than private vehicles. However it is unlikely that this impact will be significant.	<> (✓)
Climatic Factors	It is unlikely that the adoption of this Option will result in significant impacts on climatic factors.	O
Material Assets	It is unlikely that the adoption of this Option will result in significant impacts on material assets.	O

Table C7 Option 6 – Increased Parking Provision at Lenzie Rail Station		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	To the immediate west of the current rail station to the north of the track is the Lenzie Moss Local Nature Reserve (LNR). Depending on the final design of the Option, land take from this area may result in the loss of potential European protected species habitat to accommodate additional car parking. Increasing the number of vehicles to the immediate surroundings of the LNR mat also reduce air quality and result in decreased biodiversity of the site. These adverse effects may result in significant adverse effects on biodiversity.	✗✗
Water Quality	It is unlikely that the adoption of this Option will result in any significant impacts on water quality.	O
Soil	The existing rail station is located within an urban area and impacts on soil are not likely to result from the adoption of this Option.	O
Cultural Heritage	The rail station is a listed building, and lies within the Lenzie and South Lenzie Conservation Areas. There are also a number of other listed buildings located within the Conservation Areas. Impacts on these cultural heritage sites are dependent on the type of proposal chosen to increase the parking at the station, and also its final design. This Option may result in significant adverse effects on the setting of cultural heritage sites within the surrounding area. These impacts may potentially be significant.	✗✗
Landscape	There are a number of sensitive visual receptors within the surround area of the existing rail station, including the South Lenzi Conservation Area and Townscape Area, residential properties and the Lenzie Moss Local Nature Reserve and Core Path. Depending on the scale, location and design of parking facilities there may be significant adverse effects on visual amenity and the surrounding townscape.	✗✗
Population & Human Health	Should the adoption of this Option result in a greater use of public transport as opposed to private vehicles, there may be beneficial impacts on account of improved air quality. Increased car parking provision will also divert rail patrons from using the surrounding residential streets for parking and reduce traffic on these streets, improving safety. However there may also be adverse effects from noise and vibration disturbance either from noise sources at higher elevations or from the sources being closer to sensitive receptors, such as residential properties. Impacts population and human health are likely to be negligible.	<> (✗)
Air Quality	Air quality within the immediate surroundings of the rail station may be adversely affected should a greater number of private vehicles be attracted to the station. However these effects would likely be offset should the adoption of this Option result in an increased number of rail users as opposed to the use private vehicles, it is likely that the air quality within the wider study area would improve. It is unlikely that this impact would be significant given the scale of parking provisions.	<> (✓)
Climatic Factors	Should there be a reduction in private vehicle usage as a result of greater train use, there is likely to a reduction in greenhouse gas emissions from transportation within the study area. This will positively contribute to Scotland's targets to cut emissions, however it is unlikely that the adoption of this Option will result in significant impacts on climatic factors.	<> (✓)
Material Assets	It is unlikely that the adoption of this Option will result in significant impacts on material assets.	O

Table C8 Option 7 – Develop a New Rail Halt at Woodilee (with P&R) & Promote Sustainable Access		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	The adoption of this Option would likely require the removal of mature trees and other areas of potential habitat value to European protected species and introduce various disturbances (i.e. light and noise) to the proposed site location. As a result protected species may be impacted, as well as the potential fragmentation of habitats. There are also areas of Ancient woodland listed within the AWI within the surrounding area of the proposed location of the rail halt and P&R, which may be directly or indirectly impacted as a result of the rail halt and its associated infrastructure.	✖
Water Quality	Given the proximity of the proposed location of the Option to Bothlin Burn, potential adverse impacts on water quality may result from oils and fuels leaking from parked vehicles in use of the P&R scheme. However it is anticipated that these impacts can be easily mitigated for within the design of the scheme by the inclusion of SUDS. It is unlikely that these impacts will be significant.	<>
Soil	The development of new infrastructure will require the loss of land and therefore the extraction and potential removal of soil from the proposed site location. Within the surrounding area of the proposed location land is utilized for agricultural purposes. The loss and/ or severance of agricultural land may occur as a result of the development of the rail halt and its associated infrastructure. The extent of this area and therefore the magnitude of impact is dependent upon the final location and the scale of infrastructure required however this is likely to result in an adverse effect on soil resources.	✖
Cultural Heritage	There are a number of sensitive cultural heritage sites within close proximity to the proposed location of the Option. Most notably the site is adjacent to the Lenzie and South Lenzie Conservation Areas. The setting of sensitive cultural heritage sites may be adversely impacted upon depending upon the location and scale of the rail halt and P&R scheme.	✖
Landscape	There are a number of residential areas around the proposed location for the development of this Option. To accommodate the rail halt there will likely be the requirement to remove some trees currently screening the railway track, resulting in wider impacts on visual amenity depending on the final scale of the scheme. There are potential visual impacts as a result of a rail halt within this area and the number of receptors in the surrounding area.	✖
Population & Human Health	Provided the adoption of this Option results in the modal shift away from the use of private vehicles, local air quality may be improved resulting in improved human health. However given the proximity of the proposed location of the rail halt to the Woodilee residential area may increase noise disturbance to these residents. It is likely that the impact of this Option would be negligible.	<> (✖)
Air Quality	Provided the adoption of this Option results in a reduction of private vehicle use in favour of a more sustainable alternative, there are likely to be beneficial effects on air quality within the study area. The magnitude of the resultant decrease in emissions is dependent on the success of this modal shift, but is likely to be negligible.	<> (✓)
Climatic Factors	The wider area surrounding the proposed location for this Option is subject to flood risk from surface water flooding, and flooding from the Bothlin Burn. Increasing hardstanding areas within the vicinity of these areas may result in these flood risk extents increasing or being displaced elsewhere causing a more significant impact than present. Should the adoption of the Option result in a modal shift to more sustainable means of transport beneficial effects on climatic factors may result from reduced emissions within the study area. It is unlikely that these beneficial effects would be significant.	O
Material Assets	The adoption of this Option will result in greater connectivity of new residential areas with the surrounding towns and larger economic centres, namely Glasgow and Edinburgh. It is unlikely that these impacts will be significant.	<> (✓)

Table C9 Option 8 – Develop a New Rail Halt at Westerhill (with P&R) & Promote Sustainable Access		
Environmental Topic Area	**Assessment**	**Potential Effect**
Biodiversity	The adoption of this Option would likely require the removal of mature trees and other areas of potential habitat value and introduce various disturbances (i.e. light and noise) to the sites location. Furthermore, the railway line is identified as an important ecological corridor by East Dunbartonshire Council. As a result European protected species may be impacted, as well as the potential loss and/ or fragmentation of habitats. Should the adoption of this Option result in a modal shift away from private vehicle use, air quality improvements may result from reduced emissions, potentially improving biodiversity. It is unlikely that these beneficial impacts will be significant. The adoption of this Option will likely result in adverse impacts on biodiversity.	✖
Water Quality	Given the limited water receptors within the surrounding area of the proposed location of the rail halt, it is unlikely that the adoption of this Option will result in any impacts on water quality.	O
Soil	The development of new infrastructure will require the loss of land and therefore the extraction and potential removal of soil from the proposed site location. Within the surrounding area of the proposed location land is utilized for agricultural purposes. The loss and/ or severance of agricultural land may occur as a result of the development of the rail halt and its associated infrastructure. The extent of this area and therefore the magnitude of impact is dependent upon the final location and the scale of infrastructure required however this is likely to result in an adverse effect on soil resources.	✖
Cultural Heritage	The development of any new structures within the environment may adversely impact on the setting of surrounding cultural heritage sites. This is dependent upon the final design and any natural screening within the surrounding environment. As there are few sensitive cultural heritage sites within the surrounding area of the indicative Option location, impacts are likely to be negligible.	<> (✖)
Landscape	The introduction of a new structure within the landscape/ townscape may result in adverse landscape and visual amenity impacts. Impacts on visual receptors are dependent on whether natural screening or boundaries (such as tree lines) are removed from the landscape and the final scale and design of the development. Impacts on landscape/ townscape and visual amenity is likely to be negligible.	<> (✖)
Population & Human Health	Should the adoption of this Option result in a modal shift away from private vehicles, benefits to air quality may be experienced within the wider study area, improving human health. However it is unlikely that these benefits would be significant.	✓
Air Quality	Provided the adoption of this Option results in a reduction of private vehicle use in favour of a more sustainable alternative, there are likely to be beneficial effects on air quality within the study area. The magnitude of the resultant decrease in emissions is dependent on the success of this modal shift.	<> (✓)
Climatic Factors	Areas surrounding the proposed location of the rail halt are regarded as being at risk to surface water flooding. The development of hardstanding area within the near vicinity of these flood risk areas may either displace or further contribute to floor risk. Conversely, should the adoption of this Option result in a modal shift to more sustainable means of transport beneficial effects on climatic factors may result from reduced emissions within the study area. It is unlikely that these beneficial effects would be significant.	O
Material Assets	The adoption of this Option will result in greater connectivity of new residential areas with the surrounding towns and larger economic	<> (✓)

Table C9 Option 8 – Develop a New Rail Halt at Westerhill (with P&R) & Promote Sustainable Access		
Environmental Topic Area	**Assessment**	**Potential Effect**
	centres, namely Glasgow and Edinburgh. It is unlikely that these impacts will be significant.	