

Appendix E

Detailed Environmental Report

SESTRANS

CFE Transport Study STAG 2 Based Assessment

Revision Schedule**SESTRANS – Clackmannanshire-Fife-Edinburgh (CFE) Transport Study STAG Based Detailed Assessment**

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1 Introduction

1.1 Background

1.1.1 This report is a STAG Part 2 Detailed Appraisal of the potential environmental impacts of the route options for the Clackmannanshire-Fife-Edinburgh (CFE) Transport Study scheme within the overall Study Area as shown in Figure 1.1. It forms part of the overall STAG appraisal process which is outlined below.

1.2 The STAG Process

1.2.1 The Scottish Transport Appraisal Guidance (STAG) is a comprehensive method of assessment which is required for any transport proposals that seek Scottish Government funding. The process is set out in Scottish Transport Appraisal Guidance Technical Database (Transport Scotland – 27th May 2008)¹. The overall purpose of STAG is to support the Scottish Government's Purpose '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 Government's particular transport purpose is to focus investment in making connections across and within Scotland better, improving reliability and journey times, and seeking to maximise the opportunities for employment, business, leisure and tourism. Additionally to provide sustainable, integrated and cost effective public transport alternatives to the private car, connecting people, places and work, across Scotland. STAG supports the Government's purpose by assessing what contribution can be made by potential transport interventions. The appraisal uses a two-part appraisal process with the results set out in Appraisal Summary Tables (AST's). Part 1 is an Initial Appraisal and broad assessment of impacts designed to be used for approval in principle and to decide whether a proposal proceeds to Part 2 which is a Detailed Appraisal against the STAG objectives.

1.3 Background to the STAG appraisal of the CFE Transport Study

1.3.1 The current project comprises of the four preferred route options recommended by Part 1 of the Initial Appraisal process. Twelve alternative transport option packages were initially identified at STAG 1 Initial Appraisal level and were appraised to establish a shortlist of preferred option packages for the CFE Transport Study. The shortlist of options is now:

- Option A: Old Railway line Alloa to Rosyth (passenger) with Charleston Chord;
- Option B: Old Railway line Alloa to Rosyth (passenger) without Charleston Chord;

¹ Transport Scotland, 2008, STAG Technical Database: <http://www.transportscotland.gov.uk/stag/td>

- Option C: Rail Freight as Option A and Express Bus Service A985 (with stops at Clackmannan, Kincardine, Cairneyhill, and Crossford); and
- Option D: Rail Freight as Option A and Express Bus Service A907 (with stops at Clackmannan, Oakley, and Crossford);

1.3.2 These options are shown in Figure 1.2.

1.4 The Environment Objective

1.4.1 For the purposes of the STAG appraisal process the environment objective is split into a number of sub objectives as follows:

- Noise and Vibration;
- Global air quality – carbon dioxide (CO²);
- Local air quality – particulate matter (PM¹⁰) and nitrogen dioxide (NO²);
- Water quality, drainage and flood defence;
- Geology;
- Biodiversity and Habitats;
- Landscape;
- Visual Amenity;
- Agriculture and Soils; and
- Cultural Heritage

1.4.2 This chapter is divided into the above sub-objective headings and an appraisal is carried out for each one. Geology, Agriculture and Soils have been combined into one sub-section, as have Global and Local air quality. The Scottish Government requires that the environmental appraisal of a proposal for which it is to provide funding, is well documented and auditable, and will comply with all statutory requirements.

1.4.3 The study is based on a desktop review of available technical reports, consultation responses and initial site survey information and therefore is a preliminary study. Further supporting information should be provided when or if the preferred option is developed through the Environmental Impact Assessment (EIA) process. The Study Area lies within the Clackmannanshire Council and Fife Council administrative areas. The proposed route options considered by this report will largely be located on existing transport routes.

1.4.4 The Appraisal Summary Table (AST) that has resulted from this STAG assessment is shown in the STAG Detailed Appraisal Report.

1.4.5 Figure 1.3 identifies the various environmental constraints found within the Study Area.

1.5 Methodology

- 1.5.1 The STAG guidance should be used for all transport projects for which Scottish Government support or approval is required. STAG is also complementary to and not mutually exclusive from other guidance available to transport policy and investment. Each sub-objective section in this report follows the same format and assessment hierarchy based on the STAG guidance, which consists of five stages as follows:
- Scoping – defining potential impacts and assessment methods. Within each sub-objective this includes specific methodologies and a definition of the Study Area.
 - Baseline – information about the environment in the year of project commencement and foreseeable developments.
 - Assessment – identifying the likely environmental impacts and magnitude of these impacts. All types of impacts are assessed which may be positive or negative, permanent or temporary, direct, indirect, short, medium or long term, secondary, cumulative and synergistic. For the purpose of this study the base year has been taken as 2012 and the assessment of effects is at construction, at year 1 and at year 15 unless other timescales are used for specific sub-objectives.
 - Appraisal – determining the significance of the impacts. The STAG guidelines state that a seven-point scale should be used to determine the magnitude of effect as follows:
 - negative major,
 - negative moderate,
 - negative minor,
 - neutral,
 - positive minor,
 - positive moderate, and
 - positive major.
- 1.5.2 The recommended thresholds for significance of effect (a judgement of magnitude against sensitivity) are as follows:
- major negative impact,
 - moderate negative impact,
 - minor negative impact,
 - no impact,
 - minor positive impact,
 - moderate positive impact, and
 - major positive impact.

- 1.5.3 Reporting – The information is presented in the form of the AST with supporting information in order to highlight significant beneficial and adverse impacts, which should be considered in decision-making. Suggested mitigation measures (to avoid, minimise or offset adverse impacts) and residual impacts (those likely to remain after mitigation) are reported.

1.6 Consultations

- 1.6.1 The statutory consultees recommended by the STAG guidelines were consulted during the STAG 1 stage process. In addition a number of non-statutory bodies were also consulted. A summary of the responses is given in Table ENV1 below.

Table ENV 1: Summary of Consultation Responses

Consultee	Comments
Fife Council Environmental Services	<p>General comments regarding status of development plans and transport schemes. Can see benefit in rail and water options taking freight off road network. Provided copy of Fife State of the Environment Report.</p> <p>Provided details and information on current noise complaint applicable to Stirling - Alloa - Kincardine railway (SAK).</p> <p>Provided species records and biological information.</p>
Scottish Natural Heritage (SNH)	Provided links to sources of information on designated sites and biodiversity
City of Edinburgh Planning	<p>Identify the following projects to have an impact on South Fife: Granton Harbour and Waterfront Redevelopments; Leith Docks Western Harbour Redevelopment; Waterfront Promenade Redevelopment; Kincardine Bridge, Forth Replacement Crossing and links; Burntisland to Granton Catamaran Crossing; Kirkcaldy to Leith Docks Hovercraft; and West Edinburgh Proposals.</p> <p>Key concern is cross boundary impacts on West Edinburgh and cross Forth travel. West Edinburgh identified in NPF2 as nationally important strategic area esp with new Forth Crossing and Airport. Makes reference to the evolution of West Edinburgh Planning Framework and Rural West Edinburgh Local Plan. Make reference to STAG study in the West Edinburgh area.</p>
Clackmannanshire Council Planning	Provided information on transport modeling. Indicated that there would be no immediate strategic transport improvements in Clackmannanshire due to SAK railway and new Kincardine crossing.
Clackmannanshire Council Economic Development Manager	Application made to Scottish Govt. for £60 million Town Centre Regeneration Fund for Alloa – confident that they will receive an allocation. Have two Business Improvement Districts in partnership with local businesses – Ten Business Parks and Town Centre. Would welcome any developments which would improve connections to/from Alloa in particular rail option to Dunfermline.
First Scotland	Principal bus operator in Clackmannanshire and serves

East	Kincardine. Have operated Kincardine to Edinburgh services in the past. Would like to find out more about the options in order to provide further details and welcome opportunity to discuss them – Suggested a meeting.
Health and Safety Executive (HSE)	No useful information to provide.
Network Rail	<p>Capacity of Forth Rail Bridge presents operational constraints. Freight services destined for Longannet only operate one day a week on Sunday afternoons after complaints from residents in Culross regarding noise. Mentioned proposed new station for Dunfermline but questions the need for a third station for the town. Other constraints such as the single line between Charlestown Jn and Alloa and the current linespeed of 35mph would require some investment to increase it.</p> <p>Other capacity constraints to be considered are those proposed between Dalmeny Jn and Saughton Jn through the provision of a chord which would enable additional services to run between Edinburgh and Glasgow.</p>
Historic Scotland	Cannot provide detailed comments due to the extensive study area – provided links to Historic Scotland information sources (Pastmap and GIS) and recommend contacting local authority archaeologists. Look forward to receiving more detailed information.
Transport Scotland	Require further details – Requested a meeting.
Scottish Government Climate Change Division	<p>Should ensure no significant impacts on surface and groundwater. SEPA should be involved in such discussions. Refer to Water Environment (Controlled Activities) Regulations 2005, and SEPA's Pollution Prevention Guidance (PPG) series, in particular PPG 5. SUDs should be implemented where possible. Measures should be adopted that ensure the safe and appropriate storage and handling of substances harmful to the water environment, such as fuel or oil within 110% containment bunds. Both private water supplies and watercourses require identification and protection.</p> <p>Provide link to Scottish Govt. Noise Mapping website.</p>
Road Haulage Association (RHA)	Development of corridor very important in terms of freight. In particular would wish to upgrade road links to Rosyth ferry port and along the length of A985.
DB Schenker	<p>Deliver coal to Longannet power station on 24 hour, six day a week basis. The reopening of the SAK railway has allowed freight delivers to Longannet to free up capacity for Forth Rail Bridge Crossing – although would still like to use Forth Rail Crossing if SAK link be unavailable.</p> <p>Freight services to Diageo facilities in East Fife should be built into strategic plans. Advise that Crombie MoD no longer has a operational rail connection, however recommend preserving the existing rail solum should a rail link prove feasible in the future – this would also seem prudent given the resumption of Rosyth passenger services and operations at Rosyth.</p>

2 Noise and Vibration

2.1 Scoping

- 2.1.1 Assessments of the likely noise and vibration impacts for the route option were carried out based on an understanding of the traffic flow changes brought about by investment in providing rail passenger and freight services between Alloa and Dunfermline/Rosyth, and express bus services between Alloa and Dunfermline/Rosyth.
- 2.1.2 The following section summarises the results of the assessment.

2.2 Baseline

- 2.2.1 For the construction impacts, as a detailed design is not available and therefore the operations, plant etc. likely to be used cannot definitely be stated at this time, a generic assessment was carried out. The vast majority of infrastructure is already in place for the road and rail options.
- 2.2.2 Investigations of the Scottish Noise Mapping website² revealed that there is no available noise mapping data for the Study Area. The main generator of noise within the Study Area is vehicular traffic on the A907 and A985.
- 2.2.3 In terms of current rail movements, there is currently one freight train per week running on a Sunday afternoon from Dunfermline to Longannet Power Station. Longannet Power Station is now also served by freight trains from the west coast of Scotland using the recently reopened Stirling – Alloa - Kincardine railway on a 24 hour, six day a week basis.
- 2.2.4 Options A and B would involve construction of railway stations with park and ride facilities at Clackmannan, Kincardine, and Cairneyhill. Construction of bus stops could take place in locations along the A985 (Kincardine, Cairneyhill) and A907 (Clackmannan, Oakley) as well as the A944 (Crossford) close to residential and commercial areas.

2.3 Assessment and Appraisal

- 2.3.1 The assessment of noise impacts is estimated based on a proxy of the forecast changes in vehicle kilometres on the network. This is balanced against the anticipated increase in rail services, likely to affect the properties in the vicinity of the railway line.
- 2.3.2 The construction of railway stations is likely to lead to moderate negative impacts in terms of significance and negative moderate impacts in terms of magnitude although impacts could vary from minor to major depending on the design and location of the railway stations.

² Scottish Government and Hamilton & McGregor, Scottish Noise Mapping Website:
<http://www.scottishnoisemapping.org/>

- 2.3.3 The assessment of the effect of the use of the rail services on the local area showed properties fronting on or in close proximity to the route option, particularly in the vicinity of Kincardine, Culross, Low Valleyfield, Torry and Cairneyhill will experience some moderate adverse impacts as a result of frequency of train movements for both passenger and freight services. However this is shown to be balanced by corresponding moderate beneficial impacts across the existing road network including the A985 and A907.
- 2.3.4 The results of the traffic modelling shown in Table AQ3 in the Air Quality Section show there will be an increase in modal shift from private vehicles (cars) to public transport (Bus and Rail) and reduction in HGV km which would translate to minor positive impacts to receptors adjacent to A907 and A985 if the scheme were to implemented.
- 2.3.5 The appraisal suggests that given the likely nature of the operations and the statutory and contractual controls which will require to be met then the impacts on adjacent areas will be kept to the absolute minimum that is reasonably practicable, whilst allowing the works to proceed.
- 2.3.6 The predicted impacts on Noise and Vibration as a result of proposed options are shown in Table NV1 below.

Table NV1: Predicted Noise and Vibration Impacts

Option	Construction	Operation
Option A: Old Railway line Alloa to Rosyth (passenger) with Charleston Chord	XX	XX/✓
Option B: Old Railway line Alloa to Rosyth (passenger) without Charleston Chord	XX	XX/✓
Option C: Rail Freight as Option A and Express Bus Service A985 (with stops at Clackmannan, Kincardine, Cairneyhill and Crossford)	X	XX/✓
Option D: Rail Freight as Option A and Express Bus Service A907 (with stops at Clackmannan, Oakley and Crossford)	X	XX/✓

2.4 Summary

- 2.4.1 While there are anticipated to be noise/vibration impacts during the construction period, the operations period will produce a positive impact due to reduced veh-kms on the road network, although residential receptors adjacent to the railway line would experience moderate negative impacts.

3 Air Quality

3.1 Scoping

- 3.1.1 As with the noise and vibration assessments, the likely air quality effects for the route option were carried out based on an understanding of the traffic flow changes brought about by the route options. The sub objectives of Global and Local air quality have been combined in this section.
- 3.1.2 The following section summarises the results of the assessment.

3.2 Baseline

- 3.2.1 The main source affecting air quality in the Study Area is emissions from vehicles on the A985 and A907. Longannet Coal Power Station is the biggest source of pollution within the Study Area releasing 6,782,114,000kg of CO² and 14,876,200 of NO₂ in 2007³. There are poultry farms in the Study Area near Clackmannan and Crossford which have been recorded as emitted PM₁₀.
- 3.2.2 For the construction impacts, as a detailed design is not available and therefore the operations, plant etc. likely to be used cannot definitely be stated at this time, a generic assessment was carried out. Construction of bus stops could take place in locations along the A985 (Kincardine, Cairneyhill) and A907 (Clackmannan, Oakley) as well as the A944 (Crossford) close to residential and commercial areas. The vast majority of infrastructure is already in place for the road and rail options.
- 3.2.3 Options A and B would involve construction of railway stations with park and ride facilities at Clackmannan, Kincardine, and Cairneyhill.
- 3.2.4 The Air Quality in Scotland website⁴ identifies air monitoring sites in Rosyth (Admiralty Road, A985) and Dunfermline (Appin Crescent, A907). Unfortunately there is no complete data for the Rosyth air monitoring site prior to 2008 therefore it is not yet possible to make a year on year comparison, but data from the Dunfermline air monitoring site shows that max daily mean recorded levels of NO₂ was 70 µgm⁻³ in 2007 and that this had risen to 79 µgm⁻³ in 2008, indicating a rise in localised traffic levels.
- 3.2.5 The 2009 Air Quality updating and Screening Assessment for Clackmannanshire Council report revealed the following data in Table AQ1 below for NO₂ monitoring on Clackmannan Road (A907) eastern Alloa:

Table AQ1: Recorded NO² Levels Clackmannan Road (A907), Alloa

Location	Annual concentrations adjusted for bias	mean (µg/m3)
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³ Scottish Environment Protection Agency, Scottish Pollution Inventory Website:
http://www.sepa.org.uk/air/process_industry_regulation/pollutant_release_inventory.aspx

⁴ Air Quality in Scotland: <http://www.scottishairquality.co.uk/index.php>

	2006	2007	2008
Clackmannan Road, Alloa (A907)	23	38.2	30.1

- 3.2.6 The above table shows that whilst there has been no exceedance of NO₂ levels (40 µg/m³), there was a large rise in NO₂ levels at Clackmannan Road between 2006 and 2007.
- 3.2.7 Scottish Transport Statistics⁵ produced by the Scottish Government indicate a rise in average daily traffic flow levels for the A977 at Kincardine (located within the Study Area) from 14,160 in 1999, to 15,870 in 2006.

3.3 Assessment and Appraisal

- 3.3.1 The appraisal suggests that in these areas, although exhaust emissions from vehicles and plant on and accessing the site were expected to have no significant effect on local air quality, dust generation could have a significant impact on adjacent property. However statutory and contractual controls, which will be required to be met, will ensure dust impacts are kept to the absolute minimum that is reasonably practicable, whilst allowing the works to proceed.
- 3.3.2 Both the road and rail options would contribute to the Scottish Governments target of reducing emissions (including CO₂) to 80% of 2007 levels by 2050.
- 3.3.3 It is reasonable to assume that given the predicted decreases in vehicle kilometres on the road network, there is likely to be minor - moderate beneficial impacts on properties fronting and in close proximity to the existing road network, including the A907 and A985.
- 3.3.4 The assessment is also likely to be the same for exposure to PM₁₀ and NO₂ across the road network.
- 3.3.5 The predicted impacts on Air Quality as a result of proposed options are shown in Table AQ2 below.

⁵ Scottish Government, Scottish Transport Statistics: <http://www.scotland.gov.uk/Topics/Statistics/Browse/Transport-Travel/TablesPublications/ScottishTransportStats>

Table AQ2: Predicted Air Quality Impacts

Option	Construction	Operation
Option A: Old Railway line Alloa to Rosyth (passenger) with Charleston Chord	XX	✓
Option B: Old Railway line Alloa to Rosyth (passenger) without Charleston Chord	XX	✓
Option C: Rail Freight as Option A and Express Bus Service A985 (with stops at Clackmannan, Kincardine, Cairneyhill and Crossford)	X	✓
Option D: Rail Freight as Option A and Express Bus Service A907 (with stops at Clackmannan, Oakley, and Crossford)	X	✓

- 3.3.6 Table AQ3 below shows the reduction in vehicle kilometres for both private vehicles and heavy goods vehicles (HGVs) for 2012:

Table AQ3: Predicted Car and HGV Reduction 2012

	Option A	Option B	Option C	Option D
Total Passengers	596,360	453,557	93,172	68,413
Abstraction – (Percentage breakdown of modes of transport used by scheme passengers prior to Scheme)				
Bus	19%	19%	46%	31%
Rail	68%	68%	34%	41%
Car	13%	13%	20%	28%
Car Reduction – vehicle journeys per year	77,527	58,926	18,634	19,156
Car-Km reduction	2,310,512	1,757,242	555,356	570,890
HGV Reduction – vehicles per year	18,415	15,832	18,415	18,415
HGV-Km reduction	2,746,312	2,677,083	2,746,312	2,746,312

- 3.3.7 Table AQ3 above demonstrates that the implementation of Option A would have the biggest shift in proportional terms of modal switch (77,526 journeys) from

private vehicles (cars) to public transport (rail). Options C and D would also result a reduction of car-km, albeit not at the same levels as Options A and B.

- 3.3.8 In terms of HGVs movements in the Study Area, Options C and D would lead to the biggest reduction of HGV-km - 2,746,312 km or 18,415 HGV vehicles per year. In overall terms, all the four options would result in minor positive impacts on Air Quality in terms of significance, resulting from the modal switch from private vehicles to public transport, and the reduction of car and HGV kilometres within the Study Area.

3.4 Summary

- 3.4.1 While there are anticipated to be air quality impacts during the construction period, the operations period will produce a positive impact due to reduced veh-kms on the road network resulting from the modal shift from private vehicles to public transport. Both the road and rail options would contribute to the Scottish Governments target of reducing emissions (including CO₂) by 80% in 2050 from 2007 levels.

4 Water Quality, Drainage and Flood Defence

4.1 Scoping

- 4.1.1 This section investigates the potential for the proposed options to impact upon water quality, drainage, and flooding. The Baseline Data sub section identifies and describes the significant water resource features in proximity to the study options corridor. The baseline conditions were evaluated from a brief desktop investigation, OS maps, flow and water quality data from the Scottish Environmental Protection Agency (SEPA) website, and ground water data from British Geological Survey maps. Identification of the range and location of potential impacts was based on a review of similar projects and the professional experience of the assessment team. Impacts on surface water resources were considered over a range of some 200m either side of the route options (and further downstream where required), whilst groundwater features and impacts were considered using regional information and an overview of current land use in the study area.
- 4.1.2 In terms of the magnitude of an impact, a “Negative Major” would, for example, be the degrading of water quality classification, and a “Negative Minor” could be measurable changes in some water quality parameters but no effect on overall classification. In regard to sensitivity of a receptor, it is proposed that a further subsequent assessment of the present water quality classification, the flow rates, and the amenity value of the water resource be made to derive an impression of the resilience of the water resource to cope with changes resulting from an impact. The assessment of potential impacts has assumed that standard mitigation measures have been “built in”.

4.2 Baseline

- 4.2.1 The water resources baseline data is given in Table W1.

Table W1: Baseline Data

Receptor	Water Quality Classification	Flow Rate (m ³ /s)	Amenity Use	Overall Sensitivity
Firth of Forth	Upper Forth (Alloa to Kincardine) – Poor ² Middle and Lower Forth - Moderate	N/A	Fishing, Recreational, Boating, Shipping channel	Major
River Black Devon	Moderate ¹	0.92 m ³ s ⁻¹ ³	Fishing Trout -	Moderate
Bluther Burn	Good	N/A	N/A	Moderate
Comrie/Grange	Moderate	N/A	N/A	Moderate

Burn				
Torry Burn	N/A	N/A	N/A	Moderate
Lyne Burn	N/A	N/A	N/A	Moderate
Ground Water	<p>The Hydrogeological Map of Scotland and the Groundwater Vulnerability Map of Scotland show no significant ground water resources within either of the site study areas. Groundwater Vulnerability is classified as moderately permeable⁶. Brief investigations for this study have not revealed any significant discharges to or abstractions from groundwater in these areas. No groundwater pollution incidents or areas of groundwater quality degradation have been noted by SEPA. There are a number of built up areas along the banks of the Black Devon, Comrie/Grange Burn and the Firth of Forth Shoreline; a detailed investigation into any existing local groundwater pollution would be required as part of further preliminary design and environmental assessment of the preferred option during the EIA process if required.</p> <p>The Draft River Basin Management Plan⁷ data produced by SEPA indicates the following two groundwater areas – Alloa bedrock and localised sand and gravel aquifers and South Fife bedrock and localised sand and gravel aquifers. Both areas have been classified as good in terms of quantitative, and poor in terms of qualitative. Diffuse Point Source pollution as a result of mining has been identified as the main pressure on groundwater in the Alloa area, and abstraction as a result of farming has been identified as the main pressure on groundwater in South Fife.</p>			

The following notes relate to the table above; ¹ Quality Classification is the River Classification; ² Estuarine classification; ³ UK Gauging Stations the in the SEPA east area.

⁶ British Geological Survey (1995) Groundwater Vulnerability Map of Scotland, Scale 1:625,000

⁷ Scottish Environment Protection Agency, Draft River Basin Management Plan:

<http://gis.sepa.org.uk/rbmp/MapViewer.aspx>

- 4.2.2 Based on the requirements of the Water Framework Directive, which are broadly to prevent deterioration in the status of water bodies and to restore water bodies to good ecological status by 2015, any deterioration of water quality in the watercourses in question as a result of the preferred option is unlikely to be acceptable.
- 4.2.3 The Scottish Environment Protection Agency (SEPA) has been formally consulted as part of this study, although no response has yet been received.
- 4.2.4 Authorisation from SEPA is likely to be required under the Water Environment (Controlled Activities)(Scotland) Regulations 2005 (CAR) for any engineering works adjacent to the rivers such as bank reinforcement, bridges and sediment management. Reference should be made to Pollution Prevention Guidance note PPG5, which is applicable to all works in or adjacent to watercourses.
- 4.2.5 In addition to the watercourses listed in Table W1 above there are also other minor watercourses and manmade drainage channels throughout the Study Area.
- 4.2.6 The SEPA Flood Map⁸ shows the extent of flooding from rivers and sea with an annual probability of 0.5%.
- 4.2.7 Investigations of SEPA Flood Map have also revealed the presence of flood defences in the Study Area at Sauchie (Alloa), Kincardine, Cairneyhill and Dunfermline.

4.3 Assessment

- 4.3.1 The vast majority of the existing infrastructure is already in place for both the rail and bus options. With the exception of the construction of railway stations with park and ride facilities at Clackmannan, Kincardine and Cairneyhill for Options A and B, and a new railway chord for Option A, C and D, no major construction works are anticipated for the remainder of the route options. However, for the purposes of this study it is reasonable to assume that some minor, remedial and refurbishment work may be required for some of the options – i.e. replacement and reinforcement of railway drainage culverts.
- 4.3.2 Depending on the design and location of the railway stations and park and ride facilities there could be negative moderate to major impacts in terms of magnitude and moderate impacts in terms of significance. The Clackmannan Railway Station could potentially impact on the Black Devon, The Kincardine Station is likely to be in close proximity to the Firth of Forth, and the Cairneyhill Railway Station could be located near to the Torry Burn. Neutral or minor impacts are likely to occur during operation.
- 4.3.3 An assessment has not been carried out for each of the four individual options, as the impacts on water quality, drainage and flood defence are similar for each option. Only a more detailed analysis of specific option designs would allow any differentiation of impacts.
- 4.3.4 Any impacts occurring during the construction phase of the options are likely to be confined to the Firth of Forth and watercourses mentioned in Table W1 above. These impacts are likely to

⁸ SEPA Indicative River and Coastal Flood Map; http://www.sepa.org.uk/flooding/flood_map.aspx

be short term, fairly localised, and temporary in nature e.g. for the duration of construction. It is noted that given the history of flooding of the noted watercourses especially the Firth of Forth, Black Devon, Bluther Burn, and Lyne Burn it is essential that the hydraulic capacity of the watercourse is not reduced during any phase of the construction works.

- 4.3.5 Further assessment would be required to identify the presence of any culverted watercourses.

4.4 Appraisal

- 4.4.1 An appraisal has not been carried out for each of the four individual options, as the impacts on water quality, drainage and flood defence are similar for each option. Only a more detailed analysis of specific option designs would allow any differentiation of impacts.
- 4.4.2 Overall it is expected that the magnitude of impacts will vary from neutral to negative minor and significant of impacts will vary from no impacts to minor negative impacts.

4.5 Summary

- 4.5.1 The impacts of construction and operation on the hydrological resource are likely to be low providing that the necessary mitigation measures are put in place to avoid pollution of watercourses.
- 4.5.2 The hydraulic capacity of the identified watercourses must be maintained, to minimise any impacts on upstream flooding. In particular, the design of any additional infrastructure required for the preferred option must preserve the hydraulic capacity of the watercourses and the floodplains.
- 4.5.3 A number of the watercourses are shown to be at risk from flooding events. Further assessment would be required to examine this issue further.

5 Geology, Agriculture and Soils

5.1 Scoping

5.1.1 The sub objectives of Geology, and Agriculture and Soils have been combined in this section.

Agriculture

5.1.2 The Study Area lies within a rural area and some agricultural land may be affected therefore agriculture has been included in the scope of this assessment.

Geology and Soils

5.1.3 The soils and underlying geology are important factors in determining many of the physical attributes of an area, such as the physical appearance of the environment, water quality and land use. Soils and the underlying bedrocks can contain valuable resources, including economically valuable mineral and water reserves. Consideration should be given to whether a planned development reduces or affects the resource base or inhibits future use of such resources. Proposed infrastructure works can impact on geological or geomorphological features, which are considered valuable in their own right (e.g. for academic or research purposes) or designated sites.

Methodology

5.1.4 At this stage no detailed investigation of geology or soils has been carried out. A desktop study was undertaken by Scott Wilson. The study drew upon geological mapping from the British Geological Survey, Soils mapping produced by the MacAuley Institute and Local Plans.

5.1.5 This report will serve to highlight any important issues, which may need further investigation. The level of confidence by which the predicted impact has been assessed is low i.e. the predicted impact and its level are best estimates. More information is likely to be required to improve the level of confidence.

5.2 Baseline

Geological Features

5.2.1 Searches of SNH data have revealed that the Firth of Forth SSSI may contain geological features that are of statutory designated importance in the Study Area – although this is difficult to quantify due to the large extent and fragmented extent of the Firth of Forth SSSI designation. There are no Regional Sites of Geological Significance (RIGS) identified in the Local Plans. Further consultation should be considered during the next stages of the project to identify whether the route will affect any other non-designated sites of value as geological features and mineral reserves. The area is known for its history of coal mining.

Solid Geology Underlying Geology and Superficial Deposits

- 5.2.2 The bedrock in the Study Area consists mainly of predominately Carboniferous rocks (Upper Carboniferous Sedimentary), Millstone Grit, Carboniferous Limestone and Intrusive Igneous Rock. Superficial deposits consist mainly of Sub Alluvial, Raised Beach Deposits, Blown Sand and Lake Deposits.

Drift Geology

- 5.2.3 The Study Area consists of drifts derived mainly from Boulder Clay, but also from Raised Beach Deposits, Alluvium, and Bedrock at or near surface.

Made Ground

- 5.2.4 Part of the Study Area is located over ground that has been subject to previous development. The roads and former railways account for most of the made ground deposits. The route options would use a combination of the existing roads and railway line.

Geomorphology

- 5.2.5 The Study Area is located within a variety of landscape types as highlighted below:

Clackmannanshire Landscape Character Assessment⁹

- River Valley – Carse of Forth
- Valley Fringes – Devon/Forth

Fife Landscape Character Assessment¹⁰

- Lowland Hills and Valleys
- Coastal Flats
- Coastal Hills
- Urban

Contaminated Land

- 5.2.6 It is expected that contaminated land may be present in the Study Area where there is made ground present. Former industries present at either site may have produced, used and stored substances that are harmful to human health. However, further investigation will be required.

Agricultural Land Classification

- 5.2.7 The majority of land use adjacent to, and to be occupied by the Scheme is agricultural land mainly used for arable purposes. Land quality is generally 3(1) and 3(2) with some areas to the South East of Dunfermline graded as Class 2¹¹. Agricultural land designated as Class 3(1) and

⁹ Scottish Natural Heritage and ASH Consulting Group (1998) Clackmannanshire Landscape Character Assessment

¹⁰ Scottish Natural Heritage and David Tyldesley and Associates (1999) Fife Landscape Character Assessment

¹¹ The Macaulay Institute for Soil Research, 1986, Falkirk and West Lothian Sheet 65 & Perth and Kinross Sheet 68, Soil Survey of Scotland Land Capability for Agricultural, 1:50,000

3(2) is defined as 'Land capable of producing a moderate range of crops'. Land designated as Class 1, 2 and 3(1) is considered to be prime agricultural land.

- 5.2.8 The Clackmannanshire Local Plan Proposals map indicates a large area of prime agricultural land around Clackmannan. The Clackmannanshire LCA shows that the land cover in the Clackmannanshire part of the Study Area is arable.

5.3 Assessment

Construction

- 5.3.1 Options A and B would involve the construction of railway stations with park and ride facilities at Clackmannan, Kincardine and Cairneyhill. This could involve landtake from town centre, out of town, greenfield or brownfield locations. In any case the magnitude of the impacts is likely to be negative major and the significance is likely to major negative given the proposed footprint of the land take required to accommodate the railway stations and the associated park and ride facilities for approximately 200 parking spaces. In addition, there could be potential demolition of properties. The construction of railway stations in out of town and greenfield locations is likely to involve land take of agricultural land.
- 5.3.2 Options A, C and D involve the construction of a railway chord at Charleston junction. This would involve some land take of existing agricultural land.
- 5.3.3 Depending on the exact design and alignment of the proposed railway chord at Charleston, there could be potential impacts on nearby properties (Hill Cottages, Grangemouth, Grange) either in terms of impacts on setting or even potential demolition of properties.
- 5.3.4 Any available topsoil (upper 0.5 m approximately) should be excavated, stored and reused for covering verges, earthworks slopes and landscaping wherever possible. Any excess topsoil arising from excavation should be transferred offsite, for re-use if of a suitable quality.
- 5.3.5 Any excavation material could be reused for fill in earthworks and landscaping and surplus removed from the site. Any contaminated material that is discovered during construction will require to be analysed to determine the hazard, suitability of re-use and whether unusable deposits should be disposed of at a licensed site.

Effects on Underlying Geology

- 5.3.6 Construction of Options A, C and D is expected to involve cuttings for the construction of a new railway chord at Charleston. It is not known at this stage the depth and extent of the works. The cuttings are expected to be made in drift deposits and are not expected to affect the underlying Bedrock. At present there is expected to be a neutral effect on the underlying geology and on water reserves.

Operation

- 5.3.7 Once the preferred option is operational it is expected that there will be no discernable effects associated with the geology along the route.

5.4 Appraisal

- 5.4.1 Options A and B would have a major impact on the Geology, Agriculture and Soils as a result of the land take required to construct the three railway stations each with approximately 200 parking spaces. There may be some additional works required in which case impacts are expected to be minor negative depending on the design and location. Options A, C and D would require the construction of a new railway chord at Charleston which could have moderate to major negative impacts during construction associated with groundbreaking work, and the potential removal of spoil. This issue would be temporary.
- 5.4.2 The construction of bus stops for Options C (Kincardine, Cairneyhill, and Crossford) and D (Clackmannan, Oakley, and Crossford) is likely to lead to neutral impacts to minor negative impacts depending on the design and location.
- 5.4.3 The predicted impacts are expected to be local but are dependent on the final design of the preferred option and the materials chosen for construction. If mitigation measures in the form of best practice construction methods are utilised, the significance of any potential impact will vary from neutral to minor negative. No residual impacts are expected.
- 5.4.4 Overall it is expected that the magnitude of impacts will vary from neutral to negative minor and significant of impacts will vary from no impacts to minor negative impacts. However, the construction of a railway chord for Option A, C and D is likely to result in negative moderate impacts in terms of magnitude and moderate negative in terms of significance.

5.5 Summary

- 5.5.1 No designated sites have been identified at this stage. Overall the predicted effects are likely to be moderate/major impacts and local for Options A and B, although there could be potential major impacts to properties under Option A, C and D - further investigation will be required at the detailed design stage.

6 Biodiversity and Habitats

6.1 Scoping

- 6.1.1 This section deals with the potential ecological impacts associated with the route options for the Clackmannanshire-Fife-Edinburgh (CFE) Sustainable Transport Study scheme. The key ecological features of this area are the Firth of Forth Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) and Ramsar site, Lockshaw Mosses SSSI, Ferry Hill SSSI, St Margaret's Marsh SSSI, ancient woodland sites and watercourses.
- 6.1.2 This ecological appraisal is based on the Scottish Transport Appraisal Guidance (STAG) for conducting Stage 2 environmental assessments. It must be noted that this appraisal is solely based on a thorough desk-based study and consultation with relevant nature conservation groups. Information regarding species status and key environmental schemes and designations of relevance to the site was gained through consulting the Fife Local Biodiversity Action Plan (LBAP)¹², Clackmannanshire LBAP¹³, the UK BAP¹⁴, the Scottish Natural Heritage (SNH) Sitelink website¹⁵ and the Forestry Commission Land Information Search website¹⁶. Sites deemed of relevance were those within 2km of the site boundaries for statutory designated sites, and within 1km for non-statutory sites and features. The National Biodiversity Network (NBN) Gateway website¹⁷ was consulted to provide baseline information on protected species records close to the site areas.
- 6.1.3 It must be noted that no site visits or specialist surveys by ecologists were undertaken as part of the site assessment procedure and the information contained within this report was gathered by a desk-based study. If the development moves to a further stage of assessment, survey of the chosen route by an ecologist will be necessary to verify the presence of species of nature conservation importance such as protected species or invasive species prior to development. Potential impacts on protected species can then be evaluated in more detail.

6.2 Baseline

- 6.2.1 The baseline conditions within the area comprising the four route options for the CFE Sustainable Transport Study scheme are presented below.
- 6.2.2 There are six statutory designated sites within 2km of the route option study corridors. The Firth of Forth is designated as an SPA, SSSI and a Ramsar site and there are three further SSSI within close proximity to the route options. Options A, B and C will involve works within close proximity of the Firth of Forth. Both options A and B will involve works within 10 metres of the

¹² Fife Biodiversity Partnership, Local Biodiversity Action Plan:

<http://fifedirect.org.uk/orgs/index.cfm?fuseaction=display&orgid=8F2957BE-6AE9-482B-84893A032F850A18>

¹³ Clackmannanshire Biodiversity Partnership, Biodiversity Action Plan: <http://www.clacksweb.org.uk/biodiversity/>

¹⁴ UKBAP: <http://www.ukbap.org.uk/>

¹⁵ Scottish Natural Heritage Sitelink:

http://gateway.snh.gov.uk/portal/page?_pageid=53,910284,53_920284&_dad=portal&_schema=PORTAL

¹⁶ Forestry Commission Land Information Search:

<http://fortingall.forestry.gov.uk/glade/ccheck/ConstraintsChecker.htm?map=scotland&l=e&c=e&controls=labels%3attrue>

¹⁷ National Biodiversity Network Gateway: <http://data.nbn.org.uk/>

Firth of Forth designated area at Culross, Valleyfield and Rosyth. Option C will involve works within 700 metres of the Firth of Forth designated area at Valleyfield and Torryburn.

- 6.2.3 The Firth of Forth is designated as an SPA, SSSI and Ramsar site for its estuarine and coastal habitats comprising extensive areas of intertidal mudflats and rocky shores, areas of saltmarsh, lagoons and sand dunes. Qualifying features for its SPA status include overwintering populations of European importance of red-throated diver (*Gavia stellata*), Slavonian grebe (*Podiceps auritus*), golden plover (*Pluvialis apricaria*) and bar-tailed godwit (*Limosa lapponica*). Qualifying features for its Ramsar status include (in addition to those SPA features) internationally important overwintering populations of pink-footed goose (*Anser brachyrhynchus*), shelduck (*Tadorna tadorna*), goldeneye (*Bucephala clangula*), knot (*Calidris canutus*), redshank (*Tringa totanus*) and turnstone (*Arenaria interpres*). An internationally important post-breeding concentration of Sandwich tern (*Sterna sandvicensis*) supported on the Firth also qualifies the site for both SPA and Ramsar status. Notified features of the SSSI include those mentioned above, plus features of particular interest for geology and geomorphology. There are three further SSSI within 1km of the proposed route options.
- 6.2.4 Located 10 km west of Dunfermline, near Blairhall, is Lockshaw Mosses SSSI, which lies north of Option D, which is comprised of lowland raised bogs which together form the largest and least disturbed area of this habitat in Fife (SNH). The bogs support a variety of peatland vegetation communities including Sphagnum bog, wet heath, marsh, marshy grassland, birch woodland and open water, with good populations of several locally rare or scarce plants.
- 6.2.5 Ferry Hills SSSI is located immediately north of North Queensferry. The site supports areas of species-rich, unimproved calcicolous grassland on thin soils overlying moderately base-rich igneous basalt rocks. This habitat is scarce and declining in Fife (SNH). Herb rich calcicolous grassland occupies the thinner soils on this site.
- 6.2.6 St Margaret's Marsh is a SSSI located on the north bank of the Forth Estuary, east of Rosyth and directly to the north west of the Forth Road Bridge. This SSSI lies within close proximity to all four options. The marsh supports extensive area of coastal reedbeds and saltmarsh. There are two main areas of reedbeds separated by a grassy bund which together comprise one of the largest expanses of reedbeds in Fife. It is the largest expanse in the Firth of Forth and represents around 3% of the Scottish coastal reedbeds resource. The reedbeds comprise almost pure stands of common reed *Phragmites australis* with only occasional nettle *Urtica dioica*, great willowherb *Epilobium hirsutum* and cleavers *Galium aparine* around the outer margins (SNH). Although not notified features the site supports a good breeding and wintering bird community including species from the Scottish Biodiversity list such as Linnet and Reed Bunting.
- 6.2.7 In terms of non-statutory sites of importance, there are woodland areas within the Inventory of Ancient, Long-Established and Semi-Natural Woodland in the wider area, and will be in proximity to the scheme options. Options A and B run close to ancient woodland at Blairburn and Dunimarle Castle, Kirkbrae Wood and Black Burns Plantation. Option C runs close to ancient woodland at Blairhall, Outfield Plantation, Castle Hill, Peathill Wood, Devilla Forest and Back Wood. Option D will run through Black Wood, woodland at Tulliallan, Shawmill Plantation and Devilla Forest.

- 6.2.8 Information searches of the SNH National Biodiversity Network (NBN) Gateway website have indicated the following potential ecological constraints:
- The proximity of the rail options (A and B) to the Firth of Forth and its associated Designated Sites;
 - Trees, scrub and hedgerows that border the proposed route of the Options A-D may provide breeding bird and bat habitat;
 - Buildings and structures e.g. rail bridges currently within the route may provide suitable habitat for breeding birds and roosting bats;
 - Records of otter (*Lutra lutra*), red squirrel (*Sciurus vulgaris*), badger (*Meles meles*), kingfisher (*Alcedo atthis*), barn owl (*Tyto alba*), pipistrelle bat (*Pipistrellus pipistrellus*) and Daubenton's bat (*Myotis daubentonii*) are present in the wider area (within 1km of the route corridors) all of which are on the Fife Local Biodiversity Action Plan (LBAP); and
 - Otter records are present for the Black Devon, Bluther Burn and Lyne Burn adjacent to the route Option corridors as they transit the area while foraging within their home range (which can be up to 35km for males and up to 20km for females), it is also possible that water vole (*Arvicola terrestris*), an LBAP species, may inhabit these watercourses.
 - No badger (*Meles meles*) records were present on the NBN, however, the proposed development area would provide suitable foraging and breeding habitat and therefore surveys are recommended for this protected species.
 - The only reptile record on the NBN was a sloe-worm record at Cairneyhill. Following a site visit by an experienced ecologist it will be possible to assess if the development area provides suitable reptile habitat and thorough surveys can be carried out in order to assess the presence/absence of reptile species.
 - No great crested newt records were available on the NBN for the study area. However, assessment of the study area for suitable habitat will be carried be carried out by an experienced ecologist once the route has been finalised.
 - No water vole records were available on NBN for the study area. However, assessment of the study area for suitable water vole habitat will be required once the route has been finalised.
- 6.2.9 An ecological walkover survey would be required to ascertain the potential use of the site by the above mentioned protected species and breeding birds. Investigation of all structures to be demolished, refurbished or affected will be necessary to check their use and potential use by roosting bats or breeding birds.
- 6.2.10 There is potential for impacts on the Black Devon, Bluther Burn, Lyne Burn and Firth of Forth estuary due to the proposals. The Black Devon will be crossed by all route options, and in the case of the bus options (D) the route will cross Bluther Burn and Comrie Burn. Rail options (A and B) will run adjacent to the Firth of Forth estuary. Potential impacts on aquatic life will require to be considered; these include contamination, noise, vibration and lighting. Attention during the next stage of the project should be given to salmonids e.g. Atlantic salmon (*Salmo salar*) and also to species such as the European eel (*Anguilla anguilla*) and lamprey species

(*Lampetra spp.*). It may be necessary to time works with consideration to spawning periods of these species.

- 6.2.11 No site visit has been carried out. It is unknown whether there are any invasive plant species. Under the Wildlife and Countryside Act 1981 section 14 (as amended by the Nature Conservation (Scotland) Act 2004) it is an offence to plant or otherwise cause species listed in Schedule 9 (Part II) to grow in the wild. Species listed within Schedule 9 (Part II) of the 1981 Act include Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*). Both of these plant species carry with them the ability to undermine built structures and health risks respectively and both grow on industrial, urban ground akin to the study area. An ecological walkover survey would confirm presence or absence of these species.

6.3 Assessment

- 6.3.1 The four route options for the CFE Sustainable Transport Study scheme are assessed separately. Without up-to-date survey information yielded from an ecological walkover survey by a trained ecologist, it is only possible to assess the options using the “precautionary principle”, i.e. assess the options as though the species would be affected, until proven otherwise. Scottish Natural Heritage will require surveys of protected species and development of mitigation measures as part of an Environmental Impact Assessment process if any are affected by the preferred route option.

Route Option A: Alloa to Rosyth Passenger Train (with Charleston Chord) and Route Option B: Alloa to Rosyth Passenger Train (without Charleston Chord)

- 6.3.2 Options A and B are assessed together as they follow the same route. Option A, however, will require the construction of a small off-line section which will connect existing railway via a chord. Option B will follow the route of existing railway line and will not involve an off-line section.
- 6.3.3 The impacts of this option are likely to be minimal due to the majority of the infrastructure required by this scheme being in place already. There will, however, be a requirement for the construction of three railway stations and park and ride facilities located at Clackmannanshire, Kincardine and Cairneyhill. The construction phase will require vehicles and machinery on site, and the operation of the railway will have its associated impacts as follows.
- 6.3.4 The removal of trees or scrub along the railway to allow its re-opening and to accommodate the construction of a railway station and park and ride facilities at Clackmannan, Kincardine and Cairneyhill will result in the loss of breeding bird habitat during the construction phase. To date the nature of the vegetation cover of the existing disused rail-line is unknown. An ecological survey of the rail-line and the proposed site for each railway station will be required before potential impacts upon breeding birds can be reliably quantified.
- 6.3.5 From desk-based analysis it is assessed that any impact will be temporary and minor negative as a result of the construction of the Charleston Chord. However, an ecological walk-over by an experienced ecologist will be able to confirm this if this route is selected.

- 6.3.6 The impacts of this option are potentially significant as the route runs directly adjacent to the Firth of Forth estuary which is designated SPA, SSSI and Ramsar site. However, if appropriate mitigation measures are put in place to minimise potential negative impacts then the likely impacts will be at worst temporary, indirect negative effect on the Firth of Forth SPA, SSSI and Ramsar Site. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features (such as the geological integrity of the Firth, the important colonies of overwintering birds, and post-breeding Sandwich Tern colonies) occurring. The rail-line will run adjacent to the designated site at Culross and Torryburn. There may be potential for risk of disturbance to overwintering birds during construction and operation phases. However, at these points there are existing sources of potential noise disturbance and so it is likely that birds will be habituated to further noise disturbance.
- 6.3.7 A site visit and walkover of these sites would be required to properly quantify impacts upon the Firth of Forth designated sites from this development. Consequently the magnitude of the impact (purely from desk-based study and adopting a precautionary approach) is considered to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.3.8 If it is ascertained that there is a significant risk of impact to the Firth of Forth in further assessment procedures for either Options A and B (which implicate the SPA, SSSI and Ramsar site) then an Appropriate Assessment (AA) may be required.
- 6.3.9 Any mature trees to be demolished may provide suitable roost sites for bats. Any proposals requiring removal or disturbance to such trees may have negative impacts on any resident bat populations. Bat surveys would be required for any mature trees earmarked for demolition, and mitigation measures put in place to identify alternative roost sites and possibly provide replacement roosting boxes if necessary. In the long-term, bats would be expected to relocate their roost sites to other suitable areas.
- 6.3.10 From desk-based research it appears there is suitable badger sett and foraging habitat along Option A and B. Further survey is essential to confirm presence or absence of badgers along the route. Records from Scottish Badgers should be sought as part of further assessment procedures. Badger survey of the route would also inform mitigation options should there be any risk of impact upon this species.
- 6.3.11 There is potential for impacts on the Black Devon, Bluther Burn and Lyne Burn in addition to smaller watercourses during both construction and operation stages due to their proximity to the proposed rail options. Pollution incidents during construction/operation could have implications for the rivers and their habitats.
- 6.3.12 Aquatic species, including Atlantic salmon, river lamprey, brook lamprey, sea lamprey, European eel, water vole and otter may be impacted upon during construction. If otters venture onto the route during either construction or operational phases, they may be injured or killed. Comprehensive survey for otters along all watercourses bisecting the rail line route will be required as part of further assessment of this route option to inform mitigation options to minimise impacts upon this species.
- 6.3.13 Both Option A and B run adjacent to St Margaret's Marsh SSSI which is designated for its extensive area of coastal reedbeds and saltmarsh. Due consideration should be made during design and construction to ensure the nature conservation value of this area is not threatened.

Pollution incidents during construction/operation could have implications for this SSSI and it will therefore be necessary to take the precautions to prevent pollution incidents at this site as a result the proposed railway.

- 6.3.14 Although unconfirmed to date, there is the possibility that Japanese knotweed or giant hogweed could be spread throughout the site and surrounding area during construction and operation stages. This would breach the legislation detailed above and incur a prosecution. If found on site, these plants will be subject to a specific eradication/management programme before works can commence.

Route Option C: Bus option Alloa to Edinburgh (A985)

- 6.3.15 The impacts of this option are likely to be minimal due to the majority of the infrastructure required by this scheme being in place already. The construction phase will however require vehicles and machinery on site, and the operation of the bus route will have its associated impacts as follows.
- 6.3.16 The route runs adjacent to Ferry Hill SSSI and St Margaret's Marsh SSSI. Due consideration should be made during design and construction to ensure the nature conservation value of these areas are not threatened. As this route runs along existing roads, any impacts are likely to be negligible.
- 6.3.17 The removal of trees or scrub along the proposed bus route will result in the loss of breeding bird habitat during the construction phase. To date the nature of the vegetation cover of the existing road and the requirement of vegetation removal is unknown. An ecological survey of the bus route will be required before potential impacts upon breeding birds can be reliably quantified.
- 6.3.18 Any mature trees or structures e.g. bridges, buildings to be demolished may provide suitable roost sites for bats. Any proposals requiring removal or disturbance to such trees or structures may have negative impacts on any resident bat populations. Bat surveys would be required for any mature trees or structures earmarked for demolition, and mitigation measures put in place to identify alternative roost sites and possibly provide replacement roosting boxes if necessary. In the long-term, bats would be expected to relocate their roost sites to other suitable areas.
- 6.3.19 From desk-based research it appears there is suitable badger sett and foraging habitat along the proposed bus route. Further survey is essential to confirm presence or absence of badgers along the route. Records from Scottish Badgers should be sought as part of further assessment procedures. Badger survey of the route would also inform mitigation options should there be any risk of impact upon this species.
- 6.3.20 There is potential for impacts on Bluther Burn, Black Devon and Lyne Burn watercourses during both construction and operation stages as the proposed bus route crosses these watercourses. Pollution incidents during construction/operation could have implications for the rivers and their habitats.
- 6.3.21 Aquatic species, including Atlantic salmon, river lamprey, brook lamprey, sea lamprey, European eel, water vole and otter may be impacted upon during construction. If otters venture onto the route during either construction or operational phases, they may be injured or killed. Comprehensive survey for otters along all watercourses bisecting the bus route will be required

as part of further assessment of this route option to inform mitigation options to minimise impacts upon this species.

- 6.3.22 Although unconfirmed to date, there is the possibility that Japanese knotweed or giant hogweed could be spread throughout the site and surrounding area during construction and operation stages. This would breach the legislation detailed above and incur a prosecution. If found on site, these plants will be subject to a specific eradication/management programme before works can commence.

Route Option D: Bus option Alloa to Edinburgh (A907)

- 6.3.23 The impacts of this option are likely to be minimal due to the majority of the infrastructure required by this scheme being in place already. The construction phase will however require vehicles and machinery on site, and the operation of the bus route will have its associated impacts as follows.
- 6.3.24 The route runs adjacent to Ferry Hill SSSI and St Margaret's Marsh SSSI. Due consideration should be made during design and construction to ensure the nature conservation value of these areas are not threatened. As this route runs along existing roads however, any impacts are likely to be negligible.
- 6.3.25 The removal of trees or scrub along proposed bus route will result in the loss of breeding bird habitat during the construction phase. To date the nature of the vegetation cover of the existing road and the requirement of vegetation removal is unknown. An ecological survey of the bus route will be required before potential impacts upon breeding birds can be reliably quantified.
- 6.3.26 Any mature trees or structures e.g. bridges, buildings, to be demolished may provide suitable roost sites for bats. Any proposals requiring removal or disturbance to such trees or structures may have negative impacts on any resident bat populations. Bat surveys would be required for any mature trees or structures earmarked for demolition, and mitigation measures put in place to identify alternative roost sites and possibly provide replacement roosting boxes if necessary. In the long-term, bats would be expected to relocate their roost sites to other suitable areas.
- 6.3.27 From desk-based research it appears there is suitable badger sett and foraging habitat along the proposed bus route. Further survey is essential to confirm presence or absence of badgers along the route. Records from Scottish Badgers should be sought as part of further assessment procedures. Badger survey of the route would also inform mitigation options should there be any risk of impact upon this species.
- 6.3.28 There is potential for impacts on Bluther Burn, Black Devon and other watercourses during both construction and operation stages as the proposed bus route crosses these watercourses. Pollution incidents during construction/operation could have implications for the rivers and their habitats.
- 6.3.29 Aquatic species, including Atlantic salmon, river lamprey, brook lamprey, sea lamprey, European eel, water vole and otter may be impacted upon during construction. If otters venture onto the route during either construction or operational phases, they may be injured or killed. Comprehensive survey for otters along all watercourses bisecting the bus route will be required as part of further assessment of this route option to inform mitigation options to minimise impacts upon this species.

- 6.3.30 Although unconfirmed to date, there is the possibility that Japanese knotweed or giant hogweed could be spread throughout the site and surrounding area during construction and operation stages. This would breach the legislation detailed above and incur a prosecution. If found on site, these plants will be subject to a specific eradication/management programme before works can commence.

6.4 Appraisal

- 6.4.1 The appraisal examines the four route options for the CFE Sustainable Transport Study scheme separately. Without up-to-date survey information yielded from an ecological walkover survey, it is only possible to appraise the options using the “precautionary principle”, i.e. appraise the options as though the species would be affected, until proven otherwise.

Route Option A: Alloa to Rosyth Passenger Train (with Charleston Chord)

- 6.4.2 The impact of any loss of habitat on breeding birds would be permanent direct negative and the magnitude is expected to be negative minor as there it is unlikely a large quantity of vegetation will be lost through this option. Significance is assessed as being minor negative impact.
- 6.4.3 If structures supporting bat roosts are to be removed, this would have a short-term direct negative impact on the species involved. The magnitude of the impact would be expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.4 If badgers were discovered in the study corridor, the reinstatement of a functional rail line within their foraging grounds and territory would have a long-term direct negative impact. If good site management and any necessary mitigation is employed the magnitude of the impact is taken to be negative minor. Significance is assessed as being minor negative impact.
- 6.4.5 The impact of the loss of habitat - especially any ancient woodland habitat - along the route line would be permanent direct negative and the magnitude is expected to be negative moderate. Wherever possible, the removal of habitat/vegetation should be minimised and new native woodland/scrub species should be planted to complement any existing nature conservation interest. New planting would have a positive permanent, medium-term, direct impact of positive minor magnitude. Taken together, the significance of habitat loss on this road-side site and subsequent gains through landscape planting is assessed as negative moderate. It must be noted that loss of any ancient woodland will not be ameliorated by new planting – such loss should be avoided where possible. Ecological survey would quantify any loss involving ancient woodland.
- 6.4.6 There is likely to be a temporary, indirect negative effect on aquatic species within Black Devon, Bluther Burn and Lyne Burn and the magnitude of the effect is considered to be negative slight. There is also the potential for engineering works such as bridges, bank reinforcement, sediment management and discarded construction waste e.g. plastics and pollution incidents to affect the quality of these watercourses and injure animal life in the water such as otters. The impact would be temporary, short-term, direct negative, although it is expected that good site management and mitigation (involving adherence to SEPA pollution prevention guidance notes (PPGs) and the Water Environment (Controlled Activities)(Scotland) Regulations 2005) would minimise the risk of this occurring, and consequently the magnitude of

the impact is considered to be negative minor. Significance is assessed as being minor negative impact.

- 6.4.7 It is assessed that there is likely to be at worst a temporary, indirect negative effect on the Firth of Forth SPA, SSSI and Ramsar Site. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features (such as the geological integrity of the Firth, the important colonies of overwintering birds, and post-breeding Sandwich Tern colonies) occurring. A site visit and walkover of these sites would be required to properly quantify impacts upon the Firth of Forth designated sites from this development. Consequently the magnitude of the impact (purely from desk-based study and adopting a precautionary approach) is considered to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.8 If it is ascertained that there is a significant risk of impact to the Firth of Forth in further assessment procedures for either Options A or B (which implicate the SPA, SSSI and Ramsar site) then an Appropriate Assessment (AA)¹⁸ may be required.
- 6.4.9 There is likely to be at worst a temporary, indirect negative effect on St Margaret's Marsh and Ferry Hill SSSI. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features occurring.
- 6.4.10 The impact of the spread of Japanese knotweed or giant hogweed would be permanent direct negative and the magnitude anticipated to be negative moderate although it is expected that through good site management and species eradication, the risk of negative impacts occurring would be removed. Consequently the eradication of these invasive plant species (if found on site) would have a positive permanent, long-term, direct impact of positive minor magnitude. Significance is assessed as being minor benefit.

Route Option B: Alloa to Rosyth Passenger Train (without Charleston Chord)

- 6.4.11 The impact of the loss of habitat on breeding birds would be permanent direct negative and the magnitude is expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.12 If structures supporting bat roosts are to be removed, this would have a short-term direct negative impact on the species involved. The magnitude of the impact would be expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.13 If badgers were discovered in the study corridor, the reinstatement of a functional rail line within their foraging grounds and territory would have a long-term direct negative impact. If good site management and any necessary mitigation is employed the magnitude of the impact is taken to be negative minor. Significance is assessed as being minor negative impact.
- 6.4.14 The impact of the loss of habitat - especially any ancient woodland habitat - along the route line would be permanent direct negative and the magnitude is expected to be negative moderate.

¹⁸ S48 of the Conservation (Natural Heritage &c) Regulations 1994 requires the competent authority to undertake an Appropriate Assessment where it is considered that a development or project unrelated to the conservation management of that site is *likely* to have *significant* effects upon the features of the site for which the area has been designated. For the purposes of an Appropriate Assessment, the competent authority is defined as the organisation that grants consent for the scheme to proceed.

Wherever possible, the removal of habitat/vegetation should be minimised and new native woodland/scrub species should be planted to complement any existing nature conservation interest. New planting would have a positive permanent, medium-term, direct impact of positive minor magnitude. Taken together, the significance of habitat loss on this road-side site and subsequent gains through landscape planting is assessed as negative moderate. It must be noted that loss of any ancient woodland will not be ameliorated by new planting – such loss should be avoided where possible. Ecological survey would quantify any loss involving ancient woodland.

- 6.4.15 There is likely to be a temporary, indirect negative effect on aquatic species within Black Devon, Bluther Burn and Lyne Burn and the magnitude of the effect is considered to be negative slight. There is also the potential for engineering works such as bridges, bank reinforcement, sediment management and discarded construction waste e.g. plastics and pollution incidents to affect the quality of these watercourses and injure animal life in the water such as otters. The impact would be temporary, short-term, direct negative, although it is expected that good site management and mitigation (involving adherence to SEPA pollution prevention guidance notes (PPGs) and the Water Environment (Controlled Activities)(Scotland) Regulations 2005) would minimise the risk of this occurring, and consequently the magnitude of the impact is considered to be negative minor. Significance is assessed as being minor negative impact.
- 6.4.16 There is likely to be at worst a temporary, indirect negative effect on the Firth of Forth SPA, SSSI and Ramsar Site. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features (such as the geological integrity of the Firth, the important colonies of overwintering birds, and post-breeding Sandwich Tern colonies) occurring. It is unlikely any habitat features meriting the Firth of Firth designations will be impacted as the rail-line however, a site visit and walkover of these sites would be required to properly quantify impacts upon the Firth of Forth designated sites from this development. Consequently the magnitude of the impact (purely from desk-based study and adopting a precautionary approach) is considered to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.17 If it is ascertained that there is a significant risk of impact to the Firth of Forth in further assessment procedures for either Options A or B (which implicate the SPA, SSSI and Ramsar site) then an Appropriate Assessment (AA)¹⁹ may be required.
- 6.4.18 There is likely to be at worst a temporary, indirect negative effect on St Margaret's Marsh and Ferry Hill SSSI. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features occurring.
- 6.4.19 The impact of the spread of Japanese knotweed or giant hogweed would be permanent direct negative and the magnitude anticipated to be negative moderate although it is expected that through good site management and species eradication, the risk of negative impacts occurring would be removed. Consequently the eradication of these invasive plant species (if found on

¹⁹ S48 of the Conservation (Natural Heritage &c) Regulations 1994 requires the competent authority to undertake an Appropriate Assessment where it is considered that a development or project unrelated to the conservation management of that site is *likely* to have *significant* effects upon the features of the site for which the area has been designated. For the purposes of an Appropriate Assessment, the competent authority is defined as the organisation that grants consent for the scheme to proceed.

site) would have a positive permanent, long-term, direct impact of positive minor magnitude. Significance is assessed as being minor benefit.

Route Option C: Alloa to Edinburgh Bus Route (A985)

- 6.4.20 The impact of the loss of habitat on breeding birds would be permanent direct negative and the magnitude is expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.21 If structures supporting bat roosts are to be removed, this would have a short-term direct negative impact on the species involved. The magnitude of the impact would be expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.22 There is likely to be a temporary, indirect negative effect on aquatic species within Black Devon, Bluther Burn and Lyne Burn and the magnitude of the effect is considered to be negative slight. There is also the potential for engineering works such as bridges, bank reinforcement, sediment management and discarded construction waste e.g. plastics and pollution incidents to affect the quality of these watercourses and injure animal life in the water such as otters. The impact would be temporary, short-term, direct negative, although it is expected that good site management and mitigation (involving adherence to SEPA pollution prevention guidance notes (PPGs) and the Water Environment (Controlled Activities)(Scotland) Regulations 2005) would minimise the risk of this occurring, and consequently the magnitude of the impact is considered to be negative minor. Significance is assessed as being minor negative impact.
- 6.4.23 There is likely to be at worst a temporary, indirect negative effect on the Firth of Forth SPA, SSSI and Ramsar Site. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features (such as the geological integrity of the Firth, the important colonies of overwintering birds, and post-breeding Sandwich Tern colonies) occurring. It is unlikely any habitat features meriting the Firth of Firth designations will be impacted as the rail-line however, a site visit and walkover of these sites would be required to properly quantify impacts upon the Firth of Forth designated sites from this development. Consequently the magnitude of the impact (purely from desk-based study and adopting a precautionary approach) is considered to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.24 If it is ascertained that there is a significant risk of impact to the Firth of Forth in further assessment procedures for either Options A or B (which implicate the SPA, SSSI and Ramsar site) then an Appropriate Assessment (AA)²⁰ may be required.
- 6.4.25 There is likely to be at worst a temporary, indirect negative effect on St Margaret's Marsh and Ferry Hill SSSI. It is expected that good site management would minimise the risk of any pollution or impacts upon designated features occurring.
- 6.4.26 The impact of the spread of Japanese knotweed or giant hogweed would be permanent direct negative and the magnitude anticipated to be negative moderate although it is expected that

²⁰ S48 of the Conservation (Natural Heritage &c) Regulations 1994 requires the competent authority to undertake an Appropriate Assessment where it is considered that a development or project unrelated to the conservation management of that site is *likely* to have *significant* effects upon the features of the site for which the area has been designated. For the purposes of an Appropriate Assessment, the competent authority is defined as the organisation that grants consent for the scheme to proceed.

through good site management and species eradication, the risk of negative impacts occurring would be removed. Consequently the eradication of these invasive plant species (if found on site) would have a positive permanent, long-term, direct impact of positive minor magnitude. Significance is assessed as being minor benefit.

Route Option D: Alloa to Edinburgh Bus route (A907)

- 6.4.27 The impact of the loss of habitat on breeding birds would be permanent direct negative and the magnitude is expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.28 If trees or structures supporting bat roosts are to be removed, this would have a short-term direct negative impact on the species involved. The magnitude of the impact would be expected to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.29 If badgers were discovered in the study corridor, the proposed route option may potentially result in fragmentation their habitat and this would have a long-term direct negative impact. However, as the proposed route is along existing roads it is unlikely that the operation of this bus route will result in further fragmentation of badger habitat. If full survey for signs and setts, good site management and any necessary mitigation is employed the magnitude of the impact is taken to be negative moderate. Significance is assessed as being moderate negative impact.
- 6.4.30 The impact of the loss of habitat, including Ancient Woodland habitat, would be permanent direct negative and the magnitude is expected to be negative high. Wherever possible, the removal of habitat/vegetation should be minimised and where possible, new native woodland/scrub species should be planted to complement any existing nature conservation interest. New planting would have a positive, permanent, medium-term, direct impact of positive minor magnitude. Taken together, the significance of habitat loss through this corridor and subsequent gains through landscape planting is assessed as moderate negative. It must be noted that loss of any ancient woodland will not be ameliorated by new planting and will involve a more significant impact – such loss should be avoided where possible. Ecological survey of the route corridor would quantify any loss involving ancient woodland.
- 6.4.31 The proposed route runs within 500 metres of Lockshaw Mosses SSSI. As this route runs along existing roads however, it is not expected that there will be any impact on this designated site. However, consideration should be given to it during the planning stage.
- 6.4.32 There may be a temporary, indirect negative effect on aquatic species within Black Devon, Bluther Burn and Lyne Burn. There may be potential for engineering works such as bridges, bank reinforcement, sediment management and discarded construction waste e.g. plastics and pollution incidents to affect the quality of these watercourses and injure animal life in the water such as otters. The impact would be temporary, short-term, direct negative, although it is expected that good site management and mitigation (involving adherence to SEPA pollution prevention guidance notes (PPGs) and the Water Environment (Controlled Activities)(Scotland) Regulations 2005) would minimise the risk of detrimental impacts occurring. Consequently the magnitude of the impact is considered to be negative minor. Significance is assessed as being minor negative impact.

- 6.4.33 The impact of the spread of Japanese knotweed or giant hogweed would be permanent direct negative and the magnitude anticipated to be negative moderate although it is expected that through good site management and species eradication, the risk of negative impacts occurring would be removed. Consequently the eradication of these invasive plant species (if found on site) would have a positive permanent, long-term, direct impact of positive minor magnitude. Significance is assessed as being minor benefit.

Caveat

- 6.4.34 The impact of the options on protected species is only indicative and is not reliably quantifiable at this time. An ecological walkover survey will be required during further assessment procedures to fully assess the habitats present and their potential to support protected species. Specialist protected species surveys may also be required. The likely impacts and their significance can then be fully evaluated based on current field evidence.

6.5 Summary

- 6.5.1 The most likely impacts of these four route proposals on the ecological and nature conservation resources along each route are: the loss of areas of scrub and grassland habitat which have developed on site or adjacent to the site and will require clearing as part of the development works; loss of bat roosts within trees and structures to be demolished; the potential for pollutants entering sensitive and protected watercourses during both construction and operation stages; and the potential spread of invasive plant species.
- 6.5.2 Each route option has impacts of varying significance; however bus routes, Option C and D, are likely to have the lowest ecological impact principally as a result of the majority of the required infrastructure being present already, thereby necessitating minimal construction works.
- 6.5.3 There is the potential for significant impacts on protected species, such as bats and to a lesser extent badgers, otters and water voles, and legal implications pertaining to invasive plant species for each route. However the likelihood and significance of impacts will not be known until detailed ecological field surveys are carried out on site. Surveys of protected species, including detailed inspection of any structures and trees to be demolished should be conducted at an appropriate time of year to allow the results to be incorporated into the proposals.

7 Landscape

7.1 Scoping

7.1.1 This appraisal assesses the landscape effects of the proposed transport options. The landscape effects are changes to the landscape resource. The appraisal is based on the STAG Guidance (May 2008) for conducting STAG Part 2 Project Environmental Impact Assessments. It is based on desk-top research and consultation with relevant statutory bodies. There has been no site visit by a landscape Architect for this study. In order to fully assess the options a site visit would be required.

Methodology

7.1.2 The methodology is based on best practice guidance from the following sources:

- ‘Guidelines for Landscape and Visual Impact Assessment’ Second Edition, The Landscape Institute/Institute of Environmental Management and Assessment (Spon Press 2002) (GLVIA);
- ‘Landscape Character Assessment – Guidance for England and Scotland’, Scottish Natural Heritage and The Countryside Agency 2002.

7.1.3 The assessment uses the following timescale:

- Baseline - existing conditions before the proposal;
- Operation - year 1 to show the preferred option as implemented;
- Construction phase to show the temporary effects.

7.1.4 This assessment uses the five point scale in accordance with the Design Manual for Roads and Bridges Volume 11: Environment Assessment, which is intended for the assessment of roads but provides a good general landscape classification. i.e. high quality, very attractive, good landscape, ordinary landscape and poor landscape.

7.1.5 Suggested mitigation measures are reported in the AST under qualitative information to enable mitigation to be considered at an early stage in the development of the project. The residual effects (after mitigation) are recorded.

7.2 Baseline

7.2.1 There are a number of designated areas within the study area which are described under each option. These include Historic Gardens and Designed Landscapes (HGDL), Conservation Areas, Areas of Great Landscape Value (AGLV) and ancient woodland.

7.2.2 Landscape Character Assessment:

- Fife LCA - Lowland Hills and Valleys, Coastal Hills, Coastal Flats Landscape Character Types

- Clackmannanshire LCA – River Valleys (Carse of Forth), Valley Fringes (Devon/Forth) Landscape Character Types
- The Lothians LCA – Coastal Margins (Linlithgow/Queensferry Farmlands)

- 7.2.3 The landscape is relatively flat or gently undulating sloping gradually towards the Firth of Forth. The area is predominately agricultural with a number of larger areas of woodland in the wider landscape and small copses and shelter belts in the immediate vicinity of the route. The rural area is mature with a long history of settlement. The urban areas are industrial and disturbed. The coastal areas are low lying with open arable farmlands and often dominant industrial or port related development. Infrastructure is often elevated above the field level. There are a number of designed landscapes with policy plantings.
- 7.2.4 Much of the landscape is attractive but the industrial areas and increasing urban development are negative features. There are a number of AGLV's and Designed Landscapes within the Study Area and Conservation Areas in the urban areas although much of the landscape affected by the proposals is not specifically designated. The landscape would be classified as good/ordinary landscape.

7.3 Assessment

Construction

- 7.3.1 Temporary effects would depend on the scale of the works for each option. Construction works may comprise:
- The movement of construction vehicles, machinery etc;
 - Siting of the contractor's main offices and works compound areas;
 - Fencing, road works, signing etc;
 - Stripping of topsoil;
 - Excavations;
 - Transfer and storage of cut and fill material;
 - The construction of temporary haul roads;
 - Potential security lighting at night;
 - The storage of construction equipment and materials;
 - On-site fabrication of major structures;
 - Removal of trees and vegetation.
- 7.3.2 Options A and B include new railway stations/park and ride facilities at Clackmannan, Kincardine and Cairneyhill. Options A, C, and D include the Charleston Chord. The construction works associated with these facilities will cause potential negative temporary effects. Permanent effects would be the removal of vegetation and cut and fill operations. Other construction works are likely to be minor e.g. the construction of bus stops for Options C and D.

7.3.3 The magnitude of construction effects for all options would be negative minor.

Operation

Option A: Old Railway line Alloa to Rosyth (Passenger) with Charleston Chord

7.3.4 Designations potentially affected:

- Conservation Areas: 5 Conservation Areas are adjacent to the site; Alloa Glebe (potential station location), Kennet Village, Kincardine (potential station location), Culross and Inverkeithing.
- Area of Great Landscape Value: Broomhall/Bellknowes (Charleston Chord within AGLV)
- Historic Gardens and Designed Landscapes: 3 adjacent to the site; Dunimarle Castle, Culross Abbey House and Valleyfield.
- Ancient Woodland – see Biodiversity. Potential landscape effects as well as Biodiversity.

7.3.5 The railway is already in operation so the addition of more trains would not have significant landscape effects, however the addition of new station buildings and structures and associated park and ride facilities could potentially adversely affect conservation areas and would need to be carefully sited and designed. Major planned new developments in the urban area may also impact on the design. The proposed Charleston Chord would potentially adversely affect an AGLV and may result in the removal of vegetation and other features in the landscape e.g. walls and fragment the landscape structure to some extent. The magnitude of effects are likely to be negative moderate.

Option B: Old Railway line Alloa to Rosyth (Passenger) without Charleston Chord

7.3.6 Designations potentially affected:

- Conservation Areas: 5 Conservation Areas are adjacent to the site; Alloa Glebe (potential station location), Kennet Village, Kincardine (potential station location), Culross and Inverkeithing.
- Area of Great Landscape Value: Broomhall/Bellknowes (Existing railway line near to AGLV)
- Historic Gardens and Designed Landscapes: 3 adjacent to the site; Dunimarle Castle, Culross Abbey House and Valleyfield.
- Ancient Woodland – see Biodiversity. Potential landscape effects as well as Biodiversity.

7.3.7 The railway is already in operation so the addition of more trains would not have significant landscape effects, however the addition of new station buildings and structures and associated park and ride facilities could potentially adversely affect conservation areas and would need to be carefully sited and designed. Major planned new developments in the urban area may also impact on the design. The magnitude of effects are likely to be negative moderate.

**Option C: Rail Freight as alignment of Option A and Express Bus Service A985
(Clackmannan, Kincardine, Cairneyhill, and Crossford)****Rail Freight Options**

7.3.8 Designations potentially affected:

- Conservation Areas: 5 Conservation Areas are adjacent to the site; Alloa Glebe, Kennet Village, Kincardine, Culross and Inverkeithing.
- Area of Great Landscape Value: Broomhall/Bellknowes (Charleston Chord within AGLV)
- Historic Gardens and Designed Landscapes: 3 adjacent to the site; Dunimarle Castle, Culross Abbey House and Valleyfield.
- Ancient Woodland – see Biodiversity. Potential landscape effects as well as Biodiversity.

7.3.9 The railway is already in operation so the addition of more trains would not have significant landscape effects. It is assumed there will be no terminal facilities associated with this option. The proposed Charleston Chord may result in the removal of vegetation and other features in the landscape e.g. walls and fragment the landscape structure to some extent. The magnitude of effects are likely to be negative moderate.

Bus Options

7.3.10 Designations potentially affected:

- 3 Conservation Areas may be affected by the route: Alloa Glebe, Kincardine and North Queensferry.
- 1 Area of Great Landscape Value: Broomhall/Bellknowes
- 3 Historic Gardens and Designed Landscapes: Tulliallan Castle, Dunimarle Castle, Culross Abbey House.
- Ancient Woodland. – see Biodiversity. Potential landscape effects as well as Biodiversity.

7.3.11 The introduction of an express bus route with limited stops on to existing roads will have minimal landscape effects. The addition of new bus shelters, lay bys etc. could potentially adversely affect conservation areas and would need to be carefully sited and designed. Major planned new developments in the urban area may also impact on the design. The magnitude of effects are likely to be negative minor.

**Option D: Rail Freight as alignment of Option A and Express Bus Service A907
(Clackmannan, Oakley, and Crossford)****Rail Freight Option**

7.3.12 Designations potentially affected:

- Conservation Areas: 5 Conservation Areas are adjacent to the site; Alloa Glebe, Kennet Village, Kincardine, Culross and Inverkeithing.

- Area of Great Landscape Value: Broomhall/Bellknowes (Charleston Chord within AGLV)
- Historic Gardens and Designed Landscapes: 3 adjacent to the site; Dunimarle Castle, Culross Abbey House and Valleyfield.
- Ancient Woodland – see Biodiversity. Potential landscape effects as well as Biodiversity.

7.3.13 The railway is already in operation so the addition of more trains would not have significant landscape effects. It is assumed there will be no terminal facilities associated with this option. The proposed Charleston Chord may result in the removal of vegetation and other features in the landscape e.g. walls and fragment the landscape structure to some extent. The magnitude of effects are likely to be negative moderate.

Bus Option

7.3.14 Designations potentially affected:

- 3 Conservation Areas are potentially affected by the route: Alloa Glebe, Dunfermline Town Centre and North Queensferry.
- 1 Historic Garden/Designed Landscape: Pittencraeff Park.
- Ancient Woodland – see Biodiversity. Potential landscape effects as well as Biodiversity.

7.3.15 The introduction of an express bus route with limited stops on to existing roads will have minimal landscape effects. The addition of new bus shelters, lay bys etc. could potentially adversely affect conservation areas and would need to be carefully sited and designed. Major planned new developments in the urban area may also impact on the design. The magnitude of effects are likely to be negative minor.

Mitigation

7.3.16 Mitigation recommendations in relation to all Options would be careful siting and design of any associated buildings, structures and parking facilities to avoid adverse effects particularly on designated areas. There may be opportunities to introduce planting and possibly earthworks to screen and soften adverse effects. Planting and associated earthworks in association with the proposed Charleston Chord should be carefully designed to repair any fragmentation of the landscape structure.

Residual effects

7.3.17 After mitigation all options would result in changes to the landscape as described above. The degree of residual effects would depend on the siting and design of the works together with the extent to which there are opportunities for mitigation. Where planting is introduced, there is likely to be some screening and/or softening of the effects to some degree but the residual effects will largely remain as described.

7.4 Appraisal

Construction

- 7.4.1 Construction effects are temporary except for the removal of mature vegetation from the site.
- 7.4.2 Options A and B: There may be minor adverse temporary effects on the landscape and designated areas as a result of new buildings, structures and car parking facilities associated with new stations.
- 7.4.3 Options A, C, and D: The construction works associated with the Charleston Chord may cause minor temporary effects. Other construction works associated with the bus options are likely to be minor.
- 7.4.4 Significance: Minor negative impact.

Operation

- 7.4.5 Options A and B: There may be moderate adverse effects on designated areas as a result of new buildings, structures and car parking facilities associated with new stations.
- 7.4.6 Options A, C, and D: There may be moderate adverse landscape effects associated with the Charleston Chord. The effects associated with the bus options are likely to be minor.
- 7.4.7 Significance: Moderate/minor negative impact.

7.5 Summary

- 7.5.1 All options will result in changes to the landscape and Options A and B may result in adverse effects on designated areas. There may be opportunities to reduce the effects by careful siting and design. The most disruptive elements are the proposed stations with park and ride facilities and Charleston Chord. The overall effects on the landscape character are likely to be relatively minor.

8 Visual Amenity

8.1 Scoping

8.1.1 This appraisal assesses the visual effects of the proposed transport options. Visual effects are how the landscape is experienced and the modifications that the proposed development will make on views. The appraisal is based on the STAG Guidance (May 2008) for conducting STAG Part 2 Project Environmental Impact Assessments. It is based on desk-top research and consultation with relevant statutory bodies. There has been no site visit by a landscape Architect for this study. In order to fully assess the options a site visit would be required.

Methodology

8.1.2 The methodology is based on best practice guidance from the 'Guidelines for Landscape and Visual Impact Assessment' Second Edition, The Landscape Institute/Institute of Environmental Management and Assessment (Spon Press 2002) (GLVIA). The assessment uses the following timescale:

- Baseline - existing conditions before the proposal;
- Operation - year 1 to show the preferred option as implemented;
- Construction phase to show the temporary effects.

8.1.3 Suggested mitigation measures are reported in the AST under qualitative information to enable mitigation to be considered at an early stage in the development of the project. The residual effects (after mitigation) are recorded.

8.1.4 The Study Area for a full visual assessment would be the zone of visual influence (ZVI) of the proposed options as determined by a site visit. The ZVI is defined by physical conditions such as topography, built up areas and large areas of woodland. As this is a desk based study the visual effects are assessed as they relate to groups of receptors identified from the map.

8.2 Baseline

8.2.1 The proposed options are located between Alloa and Rosyth (rail options) and Alloa and Edinburgh (bus options). The landscape is relatively flat or gently undulating sloping gradually towards the Firth of Forth. The route passes through built up areas, areas of countryside and coastal areas and is crossed by other routes. There appears to be no major vantage points in the study area where an overview of the options would be seen apart from local areas of relatively high ground from which views would need to be assessed on site. In the wider area the Ochils, Cleish Hills, Benarty Hill and the Cullaloe Hills have viewpoints which overlook the area but these hills are some distance away from the study area. Where the options enter the built up areas the ZVI will be relatively confined but in the urban fringe and rural areas a wider view will be seen.

8.2.2 The groups of receptors together with the visual baseline are further reported in the STAG Part 2 AST. There are residential, business, recreational and travelling receptors along the

proposed routes. Their sensitivity to visual change rating is a judgement determined by their proximity to the route and the extent to which they are screened by vegetation, barriers, topography etc. The importance of the view is taken into account e.g. whether the property is residential or business use. Travelling receptors experience transient views whilst travelling through the area. The receptors which are likely to experience the greatest effects are the residential receptors adjacent to the proposal or in close proximity.

8.3 Assessment

Construction

8.3.1 Construction works would give rise to mainly temporary effects which would depend on the scale of the works for each option. Construction works may comprise:

- The movement of construction vehicles, machinery etc;
- Siting of the contractor's main offices and works compound areas;
- Fencing, road works, signing etc;
- Stripping of topsoil;
- Excavations;
- Transfer and storage of cut and fill material;
- The construction of temporary haul roads;
- Potential security lighting at night;
- The storage of construction equipment and materials;
- On-site fabrication of major structures;
- Removal of trees and vegetation.

8.3.2 Options A and B include new railway stations/park and ride facilities at Clackmannan, Kincardine and Cairneyhill. Options A, C, and D include the Charleston Chord. The construction works associated with these facilities will cause potentially visually intrusive temporary effects for those living near to the proposed works. Permanent effects would be the removal of vegetation and cut and fill operations. Other construction works are likely to be minor e.g. the construction of bus stops for Options C and D.

8.3.3 The magnitude of construction effects for all options would be negative moderate.

Operation

Option A: Old Railway line Alloa to Rosyth (Passenger) with Charleston Chord

8.3.4 The addition of more trains on the already operational line will not have significant visual effects because the infrastructure is already in place. Receptors will notice an increase in activity on the line. It is assumed that there will be no widening of sections of the route. The main impacts are likely to be associated with the proposed railway stations with park and ride facilities and

the Charleston Chord. The introduction of these new features could potentially have significant adverse effects on receptors located adjacent or close to them. The most sensitive visual receptors will be residential properties immediately adjacent to specific works. The degree of intrusion of the works into the view will depend on the scale of the works and siting in relation to specific properties. Any works would need to be carefully sited and designed. There are likely to be a significant number of receptors at each of the proposed stations and near to the Charleston Chord because the proposed works are within or on the edge of built up areas. The largest group of receptors are the railway travellers who will notice minor changes to their transient views at specific locations.

- 8.3.5 The magnitude of overall visual effects of the scheme are likely to be negative moderate/minor.

Option B: Old Railway line Alloa to Rosyth (Passenger) without Charleston Chord

- 8.3.6 The addition of more trains on the already operational line will not have significant visual effects because the infrastructure is already in place. Receptors will notice an increase in activity on the line. It is assumed that there will be no widening of sections of the route. The main impacts are likely to be associated with the proposed railway stations with park and ride facilities. The introduction of these new features could potentially have significant adverse effects on receptors located adjacent or close to them. The most sensitive visual receptors will be residential properties immediately adjacent to specific works. The degree of intrusion of the works into the view will depend on the scale of the works and siting in relation to specific properties. Any works would need to be carefully sited and designed. There are likely to be a significant number of receptors at each of the proposed stations because the proposed works are within or on the edge of built up areas. The largest group of receptors are the railway travellers who will notice minor changes to their transient views at specific locations.

- 8.3.7 The magnitude of overall visual effects of the scheme are likely to be negative moderate/minor.

Option C: Rail Freight as alignment of Option A and Express Bus Service A985 (Clackmannan, Kincardine, Cairneyhill, and Crossford)

Rail Freight Option

- 8.3.8 The addition of more trains on the already operational line will not have significant visual effects because the infrastructure is already in place. Receptors will notice an increase in activity on the line. It is assumed that there will be no widening of sections of the route or additional terminal facilities at stations. The main impacts are likely to be associated with the proposed Charleston Chord. The introduction of an additional section of line could potentially have significant adverse effects on receptors located adjacent or close to it. The most sensitive visual receptors will be residential properties immediately adjacent to specific works. The degree of intrusion of the works into the view will depend on the scale of the works and siting in relation to specific properties. There are likely to be a number of receptors near to the Charleston Chord because the proposed works are on the edge of built up area of Dunfermline.

Bus Option

- 8.3.9 The addition express buses on to existing roads will not have significant visual effects even for receptors living adjacent to the route. The addition of new bus shelters, lay bys etc. could

potentially adversely affect individual receptors and would need to be carefully sited and designed.

- 8.3.10 The magnitude of overall visual effects of the scheme are likely to be negative minor.

Option D: Rail Freight as alignment of Option A and Express Bus Service A907 (Clackmannan, Oakley, and Crossford)

Rail Freight Option

- 8.3.11 The addition of more trains on the already operational line will not have significant visual effects because the infrastructure is already in place. Receptors will notice an increase in activity on the line. It is assumed that there will be no widening of sections of the route or additional terminal facilities at stations. The main impacts are likely to be associated with the proposed Charleston Chord. The introduction of an additional section of line could potentially have significant adverse effects on receptors located adjacent or close to it. The most sensitive visual receptors will be residential properties immediately adjacent to specific works. The degree of intrusion of the works into the view will depend on the scale of the works and siting in relation to specific properties. There are likely to be a number of receptors near to the Charleston Chord because the proposed works are on the edge of built up area of Dunfermline.

Bus Option

- 8.3.12 The addition express buses on to existing roads will not have significant visual effects even for receptors living adjacent to the route. The addition of new bus shelters, lay bys etc. could potentially adversely affect individual receptors and would need to be carefully sited and designed.
- 8.3.13 The magnitude of overall visual effects of the scheme are likely to be negative minor.

8.4 Mitigation

- 8.4.1 Mitigation recommendations in relation to all Options would be careful siting and design of any associated buildings, structures and car parking facilities to avoid adverse effects on adjacent receptors and minimising vegetation removal. Use planting and earthworks to provide screening where appropriate.

Residual effects

- 8.4.2 After mitigation, all options would result in changes to the views of receptors affected by the proposals as described above. The degree of residual effects would depend on the siting and design of the works together with the extent to which there are opportunities for mitigation. Where planting is introduced, there is likely to be some screening and/or softening of the effects to some degree but the residual effects will largely remain as described.

8.5 Appraisal

Construction

- 8.5.1 Construction effects are temporary except for the removal of mature vegetation from the site.
- 8.5.2 Options A and B: There may be moderate adverse temporary effects on adjacent receptors as a result of new buildings, structures and car parking facilities associated with new stations and minor effects elsewhere on the route where works are taking place.
- 8.5.3 Options A, C, and D: The construction works associated with the Charleston Chord will cause potentially visually intrusive temporary effects. Other construction works associated with the bus options are likely to be minor.
- 8.5.4 Significance: Moderate negative impact.

Operation

- 8.5.5 Options A and B: There may be moderate adverse effects on adjacent receptors as a result of new buildings, structures and car parking facilities associated with new stations. Other receptors including travelling receptors will experience minor negative impact.
- 8.5.6 Options A, C, and D: There may be moderate adverse effects on adjacent receptors associated with the Charleston Chord. The effects associated with the bus options are likely to be minor.
- 8.5.7 Significance: Moderate/minor negative impact.

8.6 Summary

- 8.6.1 For all options the most sensitive receptors are those adjacent to the proposed works which will directly overlook the scheme from close range. There may be opportunities to reduce the effects by careful siting and design. The most disruptive elements are the proposed stations with park and ride facilities and the Charleston Chord.

9 Cultural Heritage

9.1 Scoping

- 9.1.1 This section of the STAG Environmental Appraisal relates to the assessment of cultural heritage issues, with particular respect to local archaeology, listed buildings and the historic built environment within the Study Area of the route options.
- 9.1.2 Cultural heritage offers a tangible link to the past, which might be permanently affected by development. To prevent needless damage and destruction, care must be taken either through design or mitigation measures to ensure that negative impacts are kept to a minimum.
- 9.1.3 The scoping of cultural heritage issues relates to the proposed Study Area and the factors that are requiring assessment.
- 9.1.4 A 200m search zone was identified on either side of the route option. Four sources of information were used: Clackmannanshire Local Plan (December 2004)²¹; Dunfermline and Coast Local Plan (April 2002)²²; Fife West Villages Local Plan (October 2002, with alterations June 2006)²³; data from the Pastmap interactive website developed by Historic Scotland, RCAHMS; and the Association of Local Government Archaeological Officers UK²⁴. These sources of information provided details of statutory and non-statutory designated sites within the study and of archaeological remains.
- 9.1.5 In addition, a consultation response has been received from Historic Scotland.

9.2 Baseline

- 9.2.1 The baseline reported below relates to the existing situation, the year of opening and 15 years after opening. It is unknown as to what future designations will be made and what archaeological finds will be discovered. Cultural heritage appraisal is based on a desk study and consultations as described above. The constraints described below are shown in Figure 1.3 – Environmental Constraints.

Statutory designations

- 9.2.2 There are a number of Scheduled Monuments (SMs) and Archaeological Sites of Regional Importance (ASRI) located throughout the Study Area. A number of these SMs and ASRIs are located within existing settlements. However only two SM are within 200 metres of the route corridors – Parkmill Cross Slab (located close to A907 between Alloa and Clackmannan), and Tuilyes Standing Stones (located close to A985 between Valleyfields and Cairneyhill).

²¹ Clackmannanshire Council (2004) Clackmannanshire Local Plan: <http://www.clacksweb.org.uk/property/localplan/>

²² Fife Council (2002) Dunfermline and the Coast Local Plan:

<http://www.fife.gov.uk/topics/index.cfm?fuseaction=advice.display&subjectid=F0F739ED-508B-DE79-47D3A6D0F83A12CD&adviceid=4BF34F5D-98C5-42C1-45ADA7252AFEECDA>

²³ Fife Council (2002/2006) West Villages Local Plan:

<http://www.fife.gov.uk/topics/index.cfm?fuseaction=advice.display&subjectid=F0F739ED-508B-DE79-47D3A6D0F83A12CD&adviceid=554E04C6-C156-B7E2-F01B9BB81A6B434D>

²⁴ Pastmap: <http://jura.rcahms.gov.uk/PASTMAP/start.jsp>

- 9.2.3 There are a number of Conservation Areas within the Study Area at Alloa, Clackmannan, Kennet, Kincardine, Culross, Limekilns, Patesmuir, Dunfermline, Inverkeithing and North Queensferry. There are Historic Gardens and Designed Landscapes (HGDL) at Tulliallan, Dunimarle House, Culross Abbey House, Valleyfield and Pittencrief Park. There are a significant number of Listed Buildings located throughout the Study Area in between Alloa and Dunfermline/Rosyth.

Non-statutory designations

- 9.2.4 There is a significant number of National Monument Records of Scotland (NMRS) and Scottish Sites and Monument Records (SMR) within a 200m search zone of the route corridors.
- 9.2.5 There are pockets of Ancient Woodland located throughout the Study Area.

Archaeological remains

- 9.2.6 It is likely that the Study Area may contain uncharted archaeological remains due to the previous history of the Study Area, industrial activity and presence of watercourses.

9.3 Assessment

Statutory designations

- 9.3.1 Potential impacts on cultural heritage receptors would be dependent of the design and location of railway stations and park and ride facilities. Options A and B would involve the construction of railway stations with park and ride facilities at Clackmannan, Kincardine and Cairneyhill. Both Clackmannan and Kincardine have Conservation Areas, although the railway line is located out with the Clackmannan Conservation Area. The railway line passes through a Conservation Area and Listed Buildings in Clackmannan. There are no Listed Buildings or SMs located near the railway line at Cairneyhill.
- 9.3.2 It is therefore difficult to assess the likely impacts on statutory designated cultural heritage receptors, but if the railway stations are located away from the Listed Buildings and Conservation Areas in Clackmannan and Kincardine, impacts are likely to be neutral to negative minor in terms of magnitude, and no impacts to minor negative impacts in terms of significance. The construction of a Railway Station at Cairneyhill would result in neutral impacts in terms of magnitude and no impacts in terms of significance.
- 9.3.3 There are a number of Listed Buildings adjacent to the Alloa – Rosyth Railway, A985 and A907 that may experience construction impacts and impacts on their setting. However, the vast majority of the road and rail infrastructure is already in place, and impacts would depend on the extent of any additional construction/ refurbishment work required which is presently unknown at this time.
- 9.3.4 The operation of bus services and construction of bus stops (in Clackmannan, Kincardine, Cairneyhill, Oakley and Crossford) is unlikely to affect the setting of any Conservation Areas, Listed Buildings and Scheduled Monuments.
- 9.3.5 There are not expected to be any significant physical impacts on any Listed Buildings or SMs.

Non-statutory designations

- 9.3.6 Construction of the railway stations and park and ride facilities may result in direct negative impacts to NMRS and SMR depending on the final design and location. Additionally, it is likely that the settings of some of the NMRSs and SMRs will be affected, but it is unlikely to be of any great significance, as the majority of the infrastructure required for the options are existing, therefore impacts to surrounding cultural heritage receptors are likely to range from no impacts to minor negative, depending on the design and location of the works.

Archaeological remains

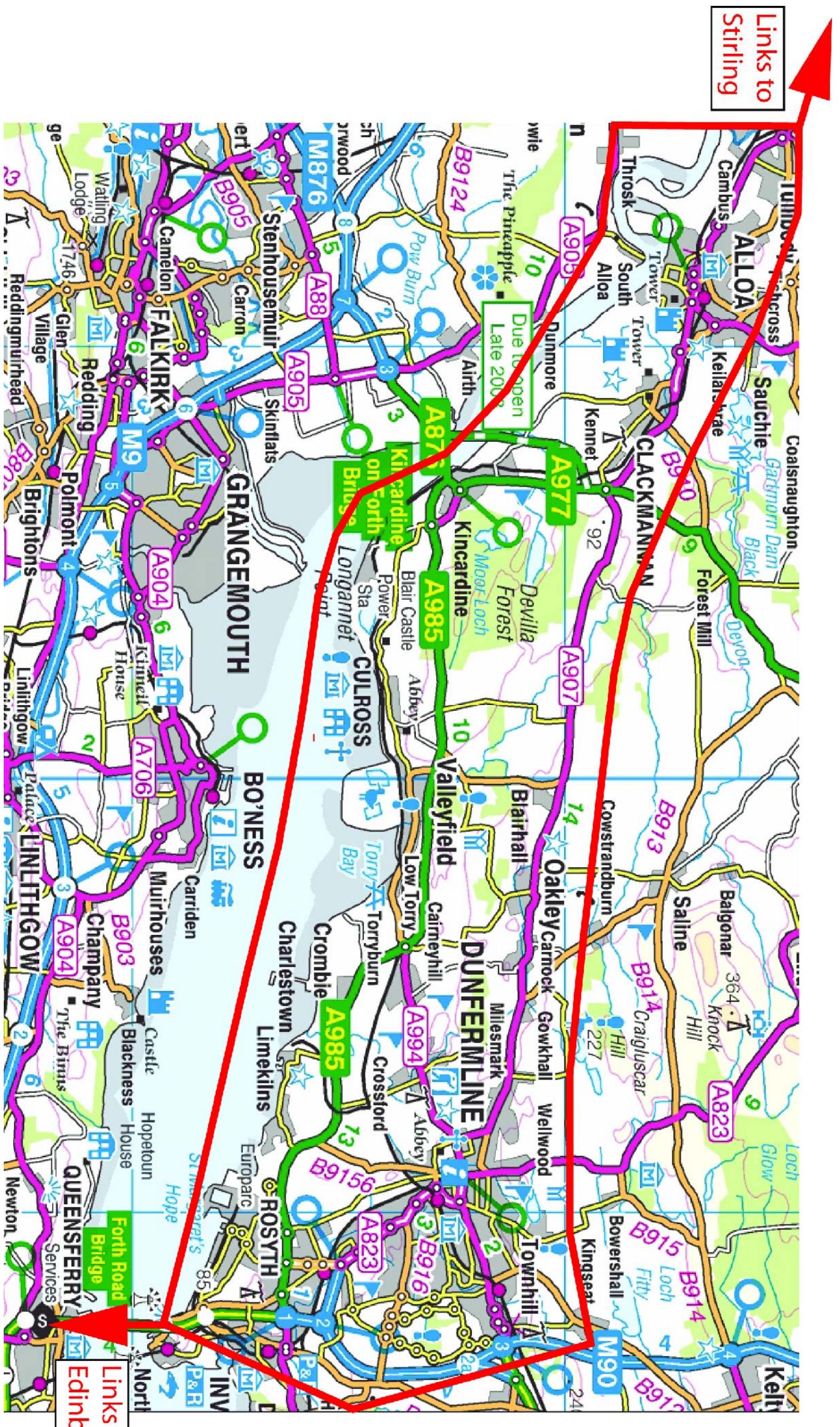
- 9.3.7 The impact of the site options on uncharted archaeological remains is not quantifiable at this time, and survey work may be required during the subsequent stages of the project in order fully assess the likely impacts and their significance.

9.4 Appraisal

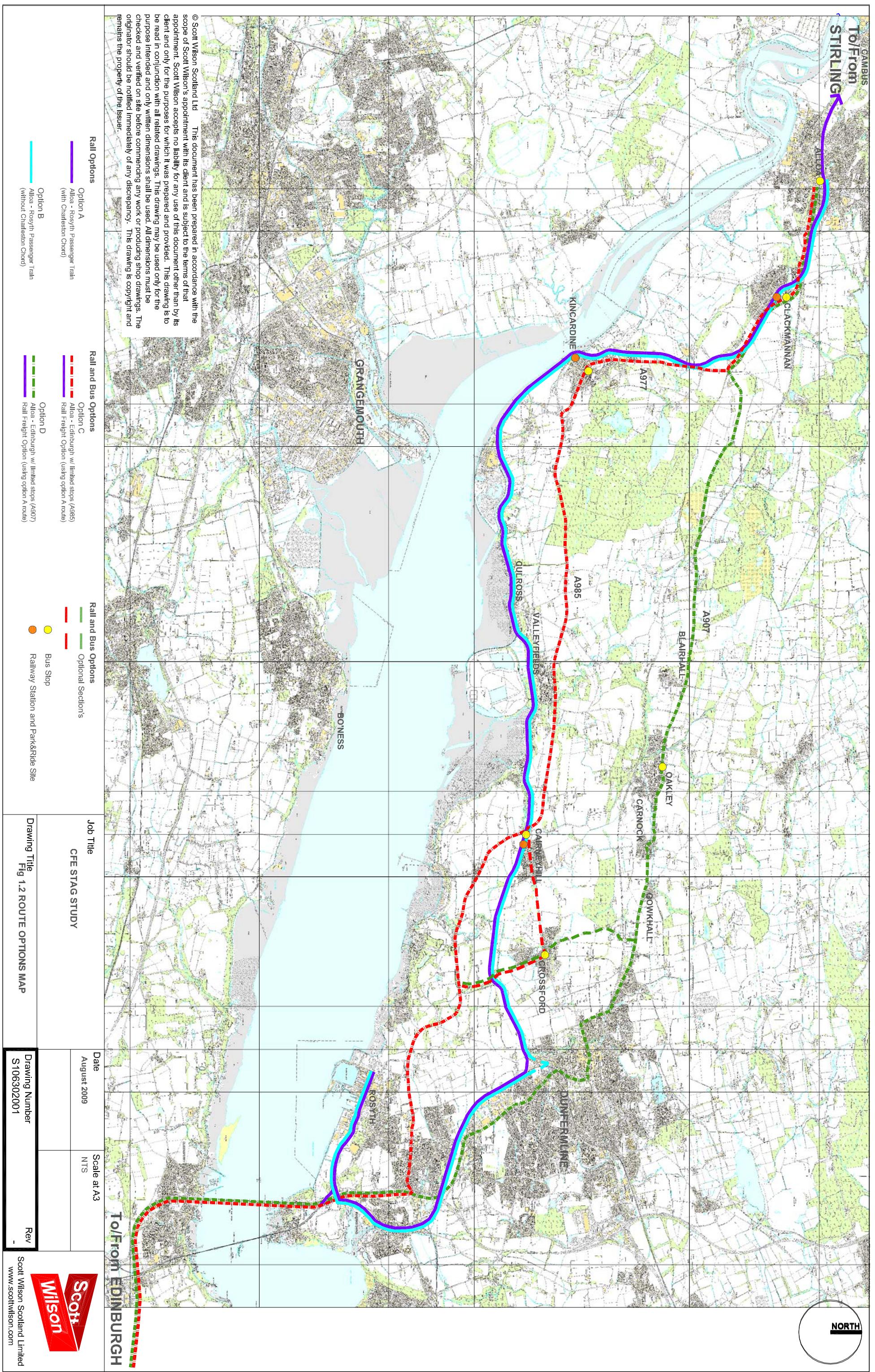
- 9.4.1 The full appraisal of cultural heritage impacts is reported in the STAG 2 AST.
- 9.4.2 The construction of a railway chord at Charleston for Option A, C and D is likely to lead to negative moderate impacts in terms of magnitude and moderate negative impacts in terms of significance given the presence of Listed Buildings (Hill House, Category A Listed Building) and an ASRI (Hill House, Remains of Windmill - also a Category B Listed Building) c200m to the south of the proposed railway chord.
- 9.4.3 Overall it is expected that the magnitude of impacts will vary from neutral to negative minor and significant of impacts will vary from no impacts to minor negative impacts.

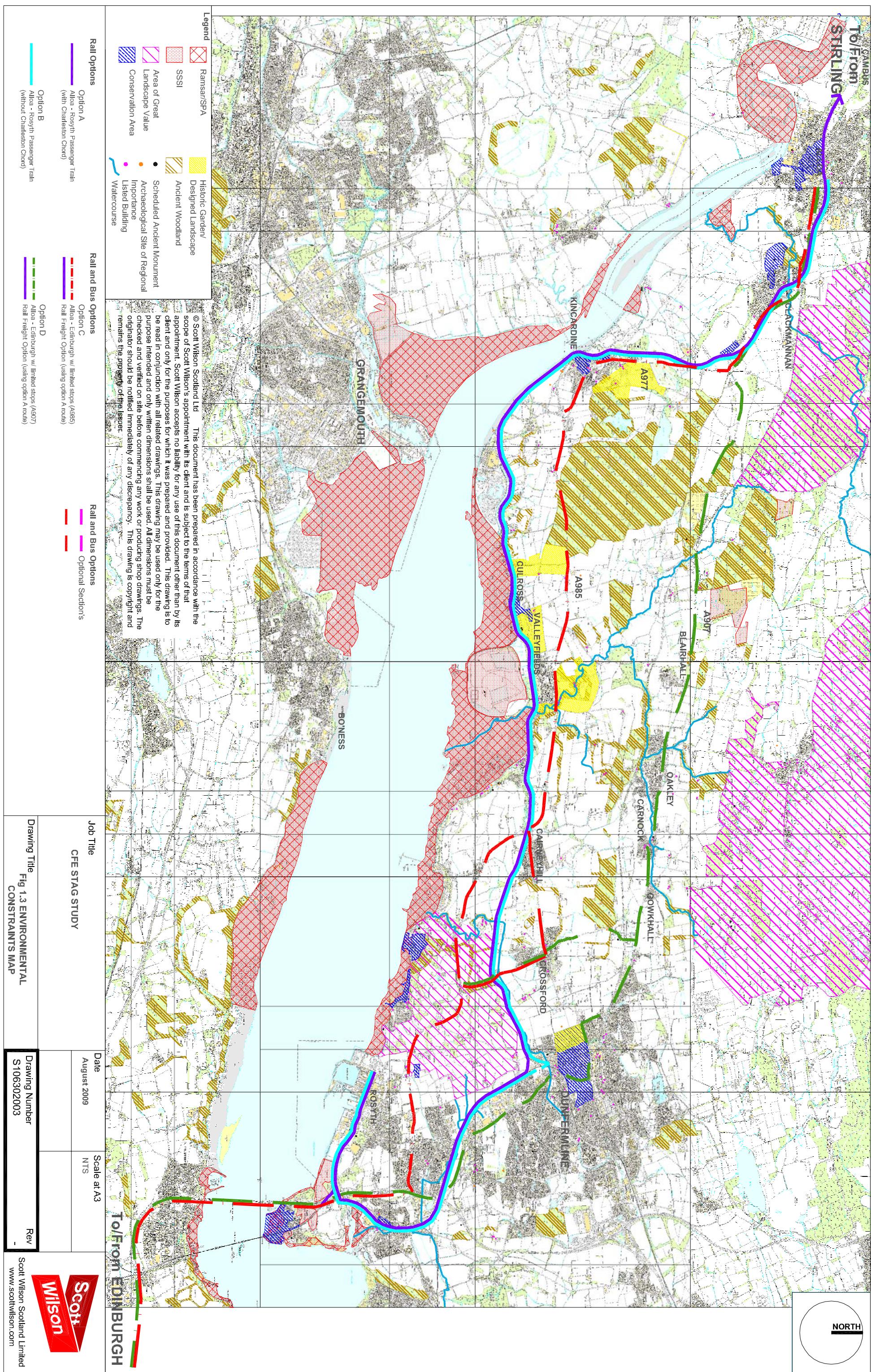
9.5 Summary

- 9.5.1 The cultural heritage assessment identified those cultural and archaeological resources within a 200m corridor along the route of the proposed options. There are a number of Listed Buildings present within the corridor. There are also a number of SMs located within the 200m corridor.
- 9.5.2 There are unlikely to be any significant impacts to statutory designations due to the fact that the vast majority of the required infrastructure for the options is already in place. There could be moderate negative impacts related to the setting of Listed Buildings and an ASRI located to the south of the Charleston railway chord proposed in Options A, C and D.
- 9.5.3 The possibility of uncharted archaeological remains was also investigated and accepted, given the nature of the Study Area and the need for further study at the next stage.
- 9.5.4 Construction and operational effects are considered to have a neutral to negative minor impact on any cultural heritage and archaeological resources within the Study Area.



Job Title	CFE STAG STUDY
Date	August 2009
Scale at A3	NTS
Drawing Number	S106302001
Rev	-
Drawing Title	Fig 1.1 STUDY AREA LOCATION





Drawing Title
Fig 1.3 ENVIRONMENTAL
CONSTRAINTS MAP

Date
August 2009

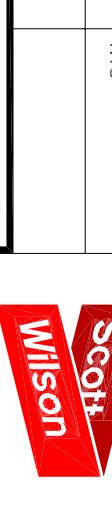
Scale at A3
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Drawing Number
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Appendix F

Land Use Report

1 Introduction

1.1 Policy Context and Scheme Background

A comprehensive review and appraisal of relevant land-use and transport policies relating to the Scheme options has been carried out in order to identify the Schemes compatibility with adopted and emerging transport and land use policies and proposals.

The reopening of the Stirling – Alloa – Kincardine (SAK) railway in May 2008 has been considered successful with passenger numbers exceeding original expectations. The focus has now moved towards examining the feasibility in providing an extension to this route to Dunfermline utilising the route and infrastructure of the Kincardine to Dunfermline line which is currently used for freight purposes - primarily serving the coal powered station at Longannet.

Currently anyone living in Dunfermline and the surrounding environs wishing to travel to Stirling requires to journey to Edinburgh in order to change trains.

SEStran's Regional Transport Strategy 2008 – 2023 identifies the A985, A907 and the Stirling – Alloa – Kincardine railway line as the major routes forming the Alloa – Dunfermline Strategic Corridor.

There is an existing bus service (Stagecoach No. 73) between Dunfermline and Stirling on the A907 via Oakley, Blairhall and Alloa, and an existing service (Stagecoach No. 78) between Dunfermline and Kincardine on the A985/A994 via Cairneyhill and Valleyfield.

1.1.1 National Policy

National Planning Framework 2 outlines the vision for Scotland's development to 2030 and identifies key national priorities in terms of development infrastructure which contribute to sustainable economic growth.

NPF2 specifically refers to Rosyth as a Gateway Port and International Gateway and identifies the Port of Rosyth as nationally important for providing additional container freight capacity on the Forth. In addition, NPF2 identifies the Replacement Forth Crossing as a priority key national development.

SPP2 Economic Development: calls on local authorities to ensure that new development is brought forward in sustainable locations to improve integration between transport and locations for development and to encourage more sustainable development. A primary objective is to ensure that good, affordable and reliable public transport links are provided.

SPP17 Planning for Transport: has the following relevant objective:

- Meeting European and UK commitments and targets on greenhouse gases and local air quality
- Reinforcing the rural economy and way of life
- Facilitating movement by public transport including provision of interchange facilities between modes
- Providing high quality public transport access in order to encourage modal shift away from car use to more sustainable forms of transport
- Fully supporting those without access to a car
- New development areas should be served or be proposed to be served by public transport accessing a range of potential destinations

Consultative Draft Scottish Planning Policy (SPP) – Transport section

The Consultative Draft Scottish Planning Policy is a statement of the likely content of the Scottish Planning Policy which when adopted (expected late 2009) will consolidate all the current Scottish Planning Policy (SPP) and National Planning Policy Guidance (NPPG) series documents into one overarching document. The extracts below are from the Consultative Draft SPP relating to transport.

130. The strategic transport network, which includes the trunk road, motorway and rail networks, is critical in supporting a level of national connectivity that facilitates sustainable economic growth. The primary purpose of the strategic transport network is to provide for the safe and efficient movement of strategic long distance traffic between major centres, although in rural areas the strategic network also performs important local functions. Development proposals that have the potential to affect the performance or safety of the strategic transport network need to be fully appraised to determine their impact. The impact of development on the strategic road and rail networks should be mitigated wherever practicable to achieve no net detriment to safety or in overall performance, including journey times and connections, emissions reduction and accessibility.

131. ...optimum utilisation and maximisation of the existing rail network should be considered before adding to rail infrastructure capacity. New stations will not normally be supported, however the case for a new station will be considered where the needs of local communities, workers or visitors will generate a high level of demand, and it will be served by feeder rather than inter-urban services.

PAN 75 Planning for Transport: aims to create an accessible Scotland which has a safe, reliable and sustainable transport system. It does so by proposing better and earlier integration between transport and land use planning at national, regional and local level.

1.1.2 Local Policy

Clackmannanshire and Stirling Structure Plan (March 2002)

The Clackmannanshire Structure Plan was approved in March 2002 and provides a strategic framework and details on Strategic transport, housing and employment proposals throughout Clackmannanshire – as well as Stirling.

Fife Structure Plan 2006 – 2026 (May 2009)

The Fife Structure Plan was approved in May 2009 and provides a strategic framework and details on transport, housing and employment policies and proposals throughout Fife. The Structure Plan makes reference to rail link between Dunfermline and Kincardine and expanding freight facilities at the Port of Rosyth.

Clackmannanshire Local Plan (April 2004)

The Clackmannanshire Local Plan was adopted on the 2nd December 2004. The Local Plan is currently (April 2009) undergoing alterations with a consultative draft first alteration (Housing Land) to the plan produced in January 2009. The Plan safeguards the route of the Alloa – Kincardine and the Alloa – Oakley rail links.

West Villages Local Plan Adopted (October 2002), with alteration (June 2006)

The West Villages Local Plan was adopted in October 2002. There have been further alterations to the plan (June 2006). However the alteration focuses on housing allocations and there no changes of any significance to the route options or land uses have been identified.

Dunfermline and the Coast Local Plan (April 2002)

The West Villages Local Plan was adopted in April 2002 and covers the period up to 2006, although still remains in place as a replacement plan has not been formally produced. The plan covers the area of Dunfermline and Rosyth. The Local Plan safeguards the potential routes of the Rosyth Bypass.

The Dunfermline and West Fife Issues and Options Paper May 2008

The Issues and options paper was published in May 2008 as first part of the process towards the emerging Dunfermline and West Fife Local Plan. Although the Paper does not formally constitute an adopted Development Plan, it is nevertheless a material consideration when examining land uses. The Paper provides an indicative map showing the route of a passenger rail service between Dunfermline and Kincardine onto Stirling with the location of proposed railway stations and junctions, and a proposed park and ride site between Rosyth and Dunfermline.

2 Transport Land-Use Integration

2.1 Introduction

The purpose of this section is to identify the potential impacts with regards to land use and the proposed Scheme. This includes a record of the baseline information and assessment of the potential for the Scheme to promote a connection between different land uses, whilst also promoting sustainable development principles.

2.1.1 Context

The CFE study corridor falls within the administrative boundaries of two local councils (Clackmannanshire and Fife) and proposes to link a number of strategically important areas within the East Central Scotland Region.

The National Planning Framework identifies South Fife as a key economic development zone. It is generally considered to be important in terms of economic development, connectivity, transport and the environment and priority is given to improving the connectivity of gateways facilities at Rosyth. Constrained transport opportunities, however, require careful integration of transport and land use.

The Fife Structure Plan 2006 – 2026 identifies the Rosyth/South Fife area as an important key Economic Development Zone for the Fife and Scotland and this looks likely to be brought forward through strategic employment and development allocations in the emerging Dunfermline and West Fife Local Plan. There is potential for business uses and the transport of goods and people to be linked to improved accessibility and infrastructure initiatives. In particular, Rosyth waterfront is promoted as an International Gateway with proposals to improve ferry facilities, development strategic employment area for business and development of multi-modal freight distribution, handling and consolidation facilities.

Currently there are strong linear linkages for private vehicular travellers to and from Alloa and Rosyth in the form of the A907 and A985, but public transport services are not considered to be as strong. As outlined in the policy above the need for improved transport between Alloa and Rosyth has been identified to offer more and better integration between transport initiatives and emerging and current land use proposals.

2.1.2 Land-use Policy Comparison

The following local and regional land-use planning documents have been considered to be relevant to this appraisal:

- SPP2 Economic Development
- SPP3 Planning for Housing
- SPP15 Rural Development
- SPP17 Planning for Transport
- PAN75 Planning for Transport

- Clackmannanshire Development Plan – Clackmannanshire and Stirling Structure Plan (March 2002), and Clackmannanshire Local Plan (December 2004)
- Fife Structure Plan 2006 - 2026 (May 2009)
- West Villages Local Plan Adopted (October 2002)
- West Villages Local Plan Alteration (June 2006)
- Dunfermline and the Coast Local Plan (April 2002)

Where adopted plans have been superseded by finalised plans, the latter have been used to determine key land uses. The area consisting of the West Villages and Dunfermline and Coast Local Plans is currently being amalgamated into the emerging Dunfermline and West Fife Local Plan. An Issues and Options paper has been produced (May 2008), and a draft version of the Dunfermline and West Fife Local Plan was due to be published in spring 2009, and will likely to be subject to a public local inquiry. The finalised version of the Dunfermline and West Fife Local Plan is likely to be adopted 2010/11.

2.1.3 *Land-use Assessment Scoping*

In terms of the study area, the assessment concentrates on land uses that will accommodate the proposed alignment and those that are adjacent to the Scheme and are considered significant in terms of integration and justification.

The assessment focuses on residential, commercial, industrial, and mixed uses, as well as highlighting areas of open space, derelict land, transport provision and identifiable uses such as areas of single use. The assessment also focuses on the interdependency between land use and transport proposals, which will assess the combined effects of land use and transport against local land use and transport objectives. The assessment looks at existing as well as future land uses well beyond the year 2012.

2.2 Options A - D

2.2.1 *Baseline*

Options A and B would utilise the existing railway line from Alloa to Kincardine onto Longannet before following the existing coastal railway along the Firth of Forth and onto Dunfermline and Rosyth where the line joins the Inverkeithing to Dunfermline Branch line at the Charleston junction. Options A, C and D would involve the construction of a new railway chord at Charleston junction. Both Options A and B would involve the construction of railway station with park and ride facilities at Clackmannan, Kincardine and Cairneyhill.

Option C would involve the same rail route as Option A, but for freight rail services instead of passenger services. In additional express bus services would operate between Alloa and Rosyth via the A985 with stops in Clackmannan, Kincardine, Cairneyhill and Crossford.

Option D would involve the same rail route as Option A, but for freight rail services instead of passenger services. In addition express bus services would operate between Alloa and Rosyth via the A907 with stops in Clackmannan, Oakley, and Crossford.

Green Belt and Open Space

There is an area of Green Belt between Alloa and Clackmannan to the south of the A907, and is protected under the Clackmannanshire Local Plan (CLP) 2004 Green Belt policy (Policy EN 19) as an area of development restraint. No areas of Green Belt are shown in the Fife West Villages Local Plan 2004 (WVLP), and the Dunfermline and Coast Local Plan 2002 (DCLP). However, the Fife Structure Plan 2006 – 2026 and the Issues and Options Paper for the Dunfermline and West Fife Local Plan indicates that there is a area of Green Belt to the west of Dunfermline.

There are a number of Historic Gardens and Designed Landscapes (HGDLs) (Policy BE 16) within the WVLP Area. Such designations are protected from development which would adversely affect the character of a HGDL.

In addition the DCLP identifies an Area of Great Landscape Value (AGLV) (Policy COU 4) at Broomhall/Belleknownes immediately to the south of the railway on the south east of Dunfermline. This AGLV is dissected by the A985. Development which is supported by other local plan policies must maintain or enhance the character of the landscape within an AGLV.

Employment (Commercial and Industrial)

The main areas of employment are located within Alloa, Rosyth and Dunfermline.

The Clackmannanshire Structure Plan key diagram shows the area around Alloa and Clackmannan as a Core Area, as this is where the greatest concentration of population, employment, shopping, leisure and public transport services are located. The Structure Plan seeks to concentrate the majority of new development within this area.

The Fife Structure Plan 2006 – 2026 identifies land around Dunfermline and Rosyth as part of the South Fife Economic Development Zone.

The CLP identifies employment land at Whins Road West, Alloa Park (J10) and Kilbagie (J38) between Clackmannan and Kincardine.

The WVLP contains areas of allocated employment land at Forthview in Valleyfield (S41), Conscience Bridge in Cairneyhill (S42) and Oakley Industrial Estate (S40) – Policy BIT1. The WVLP alterations 2006 shows a considerable size of land allocated for employment to the southeast of Kincardine in the area referred to as Kincardine Eastern Expansion (KEX).

The Kincardine Power Station is identified as a brownfield site in the WVLP and Proposal PR20 of the Local Plan states *Fife Council will work with Scottish Power to develop a Master Plan/Development Brief for the Kincardine Power Station site.*

The DCLP shows a number of sites for Allocated Employment Land (Policy BIT1) and Brownfield Sites (Policy BE7) at the Port of Rosyth. The DCLP shows a large area of proposed employment land adjacent to the A985 in Rosyth – Admiralty Business Park (Policy BIT1 - S124).

Residential

Existing residential development in the vicinity of the railway is mostly located in Alloa, Clackmannan, Kincardine, Culross Valleyfield, Torry, Cairneyhill, Dunfermline, Inverkeithing and Rosyth.

The A985 passes adjacent to and through a number of settlements between Alloa and Rosyth including Kincardine, Valleyfield, and Crombie.

The A907 passes adjacent to and through a number of settlements between Alloa and Dunfermline including Blairhall, Comrie, Oakley, and Carnock.

The Clackmannanshire Local Plan 1st Alteration specifically identifies additional housing supply land in the local authority area in particular in eastern Alloa (including H1, H10, H14, H18 and H21 – all now developed) and Clackmannan (H44).

In Fife the WVLP identifies a number of small to medium sized housing sites in settlements through which the railway passes. The West Villages Local Plan alteration 2006 indicates additional housing sites and the considerable expansion of Kincardine to the southeast for 350 houses as part of KEX.). The WVLP Alterations also shows housing sites in Blairhall, Oakley, Carnock, Valleyfield, Crombie and Cairneyhill. The most sizeable of these allocations is in Blairhall for the development of 50 housing units. There are two housing sites near to the A907 in the Milesmark area of northwest Dunfermline in the DCLP under Policy H1 - Swallowdrum (S52) and Blackburn Avenue West (S56) – both of which have now been developed.

The DCLP shows a large area of strategic housing to the East of Dunfermline. This area is known as the Dunfermline Eastern Expansion (DEX) and many of the proposed sites shown in the DCLP 2004 have now been developed. A number of housing sites are shown in Rosyth including Pease Hill (S72) for 341 units (now developed), Granville (S83) 60 for units, and Castle Hill (S69) for 19 units (now developed).

Transport

The CLP safeguards two major transportation schemes which have now been implemented; the Stirling – Alloa – Kincardine (SAK) Railway; and the Kincardine (Upper Forth) crossing. This route option would utilise the reopened SAK railway between Alloa and Kincardine. Policy INF 1 of CLP states that *There will be a general*

presumption against development which would prejudice the re-opening of the Alloa - Stirling-Kincardine rail line and stations at Cambus, Alloa and Clackmannan.... Option A would give effect to the opening of a station at Clackmannan.

Plan Reference T18 safeguards a rail halt and car park at Alloa Road in Clackmannan.

The CLP also indicates the route option intersecting with Policy T4 – Alloa Eastern Relief Road (B909) – this route is now operational and involved the construction of a bridge over the railway line.

Policy T1 of the WVLP for the Kincardine Eastern Link Road has now been implemented and is operational. This link road effectively bypasses Kincardine between the Kincardine Crossing and the A985 to the east of Kincardine thereby alleviating through traffic congestion within Kincardine itself. An indicative Bus Interchange is shown in Kincardine, Walker Street as part of Policy T3 of the WVLP. Policy T4 of the WVLP safeguards the Dunfermline to Kincardine coastal rail link. This option would utilise the route safeguarded by Policy T4.

The DCLP shows a propose park and ride site at Rosyth Station as part of Policy T8 which safeguards land to the east of Rosyth railway station to enable the future extension of park and ride services. Policy T1 of the DCLP safeguards the land between the north and south route options for the A985 Rosyth Bypass. Policy T7 of the DCLP safeguards land to the west of the A90 Ferrytoll Interchange for an extended park and ride facility.

Proposal PT1 of the Fife Structure Plan makes reference to passenger services on Dunfermline – Kincardine – Alloa – Stirling line. This proposal is likely to be developed further in the emerging Dunfermline and West Fife Local Plan and South East of Scotland Plan (SESPLAN). Proposal PT2 of the Structure Plan states that *The Port of Rosyth will be developed as a multi-modal international freight distribution facility. Proposals likely to prejudice the development of an integrated road, rail and port freight transport hub will not be supported.*

2.2.2 Assessment (Potential Impacts)

The introduction of passenger rail and bus services between Alloa and Edinburgh via Rosyth presents an opportunity to better link land uses and transport nodes in the between Alloa and Rosyth and throughout western Fife. There are no conflicting land uses along the proposed routes (A985, A907 and railway) and the railway corridor is considered to satisfy Policy T4 of WVLP 2004 and Policy T2 and Proposal PT2 of the Fife Council Structure Plan to safeguard a route for railway line between Kincardine and Dunfermline, although future developments of strategic housing and employment at sites in Alloa, Dunfermline, and Rosyth as well as smaller settlements coupled with growth of the Port of Rosyth and the New Forth Crossing would all benefit from

enhanced public transport links which would ensure that different travel options are available and would help existing systems to cope with future/rising travel demand.

The proposal for the Rosyth Bypass (A985) as safeguarded by Policy T1 of the DCLP may have a future impact on the route.

The Scheme also gives effect to part of Policy INF 1 of the CLP to presume against development which would prejudice the reopening of a railway station at Clackmannan.

The key potential impacts that may occur are a reduction in private car journeys, the integration of different land uses and transport modes, a reduction in traffic congestion and the promotion of developing regeneration housing and employment sites.

A summary statement is contained within the AST regarding the integration of transport and land use.

Sub-objective	Item	Qualitative statement information
Transport and Land-Use Integration	Transport Assessment	<p>The Scheme promotes integrated public transport, by providing a bus and rail service from Alloa (including railway station at Clackmannan as supported by Policy INF 1 of CLP) through western Fife towards the South Fife Economic Development Zone and the International Gateway located at Rosyth. As a result, land uses along the route corridor, including the Port of Rosyth have the potential to be better linked together. The implementation of the Scheme will provide additional transport links to development land particularly around Dunfermline and the Core Area around Alloa towards achieving an integration of land uses with public transport. The Scheme will thus promote transport objectives, by improving the quality and efficiency of public transport, reducing the need to travel by car and alleviating localised vehicle congestion, thereby contributing towards a reduction in CO₂ emissions.</p>

3 Policy Integration

3.1 Introduction

This section of the report sets out the assessment of policy integration with respect to the proposed Scheme. Having examined the proposal's relationship with land-use planning objectives, the Policy Integration criterion examines whether the proposed scheme contributes to and is consistent with other Government policies and legislation in areas beyond land-use.

The White Paper, *Travel Choices for Scotland* quotes education, health and wealth creation as key areas of concern when planning transport; recognising that transport decisions have wide impacts upon communities. Within this assessment, the Scheme is appraised against the key government policy areas of disability, health, and rural affairs. There is also a separate statement relating to the effect of the proposed Scheme on social exclusion.

3.2 Scoping

The assessment has been approached in two parts; a “*simple check to see if the proposal is in harmony with the aims of wider government policies and national transport targets*” and a brief assessment of options against local and central government transport policies as well as non-transport policies in the following fields:

- Disability
- Health
- Rural Affairs
- Social Exclusion
- Transport Targets

The Disability and Social Exclusion issues will be dealt with in more detail in the Accessibility and Social Inclusion section of this chapter.

3.3 Transport Policies

Reference was made to the following statutory documents:

- National Transport Strategy for Scotland (December 2006);
- SEStrans Regional Transport Strategy 2008 – 2023;
- Clackmannanshire Council Local Transport Strategy 2006 – 2009;
- Local Transport Strategy for Fife 2006 – 2026;
- Scotland's Climate Change Programme; and
- Air Quality Strategy for England, Scotland, Wales and Northern Ireland

3.4 Non-Transport Policies

- **Disability** – The design of trains and railway stations, buses and bus stops, fully DDA (1995) compliant and with level boarding, would provide easy access to wheel (and push) chairs, facilitating the access not only for the mobility impaired but also the elderly and mothers with babies.
- **Health** – The expected modal shift from car to public transport for journeys by residents in local areas and future commuters (as well as the modal shift for freight journeys from lorry to rail) to the various stops on the routes who are travelling to local employment and commercial activities in Stirling, Alloa, Dunfermline and Edinburgh will provide greater opportunities for increased walking and cycling trips to reach the new bus stops. In addition, the use of buses and trains (as opposed to cars) will reduce the adverse environmental impacts of traffic and congestion, particularly harmful local emissions, with an overall positive effect on health.
- **Rural Affairs** – The proposed route connects rural areas within Clackmannanshire and Fife with key land uses in the greater urban areas of Alloa, Dunfermline and Edinburgh. The Scheme should make it easier for residents living in rural locations such as Oakley, Cairneyhill and Crossford to access employment opportunities in Stirling, Alloa, Dunfermline and Edinburgh.
- **Social Exclusion** – The Scheme is compliant with policies which aim to promote social inclusion by enabling the socially deprived (particularly those with no access to a car) access to the public transport network. These benefits are accounted for further in the following section.

Therefore, it can be seen that the Scheme is consistent with national policies beyond transport.

3.5 Transport Targets

A number of transport specific targets were identified from the following documents:

- National Transport Strategy for Scotland
- SEStrans Regional Transport Strategy
- Clackmannanshire Council Local Transport Strategy 2006 – 2009
- Local Transport Strategy for Fife 2006 – 2026
- Scotland's Climate Change Programme
- Air Quality Strategy for England, Scotland, Wales and Northern Ireland

These targets are too numerous to list here. However an initial review of the targets contained within these documents revealed that the proposed Scheme would have beneficial (i.e. give effect to) or neutral effects on the various targets.

It is anticipated that the proposal will have a range of beneficial impacts on the numbers of people travelling by public transport in the Clackmannanshire and West Fife region and Scotland as a whole although perhaps not in time to contribute to 2010 targets. There are likely to be benefits from reduced congestion and accident severity due to the modal shift and the likely reduction in road usage/vehicle travel. Accessibility targets will be positively affected on account of the new links to employment areas, in particular the South Fife Economic Development Zone, Strategic Employment Areas around Rosyth and Dunfermline. Finally, modal shift to more sustainable transport modes will support the Scottish Climate Change Programme and the Air Quality Strategy.

3.6 Summary

The proposed Scheme can be seen to have positive effects on the implementation of policies and legislation relating to disability, health and rural affairs. Policies addressing social exclusion are also promoted by the Scheme, which supports relevant development plan policies.

A summary statement is given in the AST regarding the integration of policies with respect to the proposed Scheme.

AST - POLICY INTEGRATION

Sub-objective	Item	Qualitative statement information
Policy Integration	Fit with Key Policies	The scheme is consistent with regional and local transport policies and policies beyond transport (disability, rural affairs, social exclusion and health).
	Development Plans	The Fife Structure Plan 2006 - 2026 identifies a number of strategic transport investment proposals required to deliver the growth aspirations contained in the Plan including potential passenger railway line from Kincardine to Dunfermline/Rosyth (also reflected in the Dunfermline and West Fife Local Plan Issues and Options Paper), new railway station at Dunfermline south and Rosyth Bypass. The Dunfermline and Coast Local Plan contains a proposal for the regeneration of Rosyth Waterfront and safeguarded route for Rosyth Bypass. The Clackmannanshire Local Plan safeguards the passenger railway route from Alloa to Kincardine.

	Social Exclusion Impacts	The Scheme will promote social inclusion objectives by allowing excluded groups including those with disabilities, the elderly, people with young children, women, and those who are unemployed, access to safe and efficient public transport that links land uses from and to which they might travel frequently. In particular, the scheme runs through the South Fife Economic Development Zone.
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Appendix G

Detailed Appraisal Summary Tables (ASTs)

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Name and address of authority or organisation promoting the proposal:		SEStran 8b MacDonald Road Edinburgh EH7 4LZ	
Proposal Name:	Existing Rail Line (freight and passengers) Alloa – Rosyth with Charleston Chord – Option A	Name of Planner:	SEStran Programme Manager
Proposal Description:	The proposal would consist of re-opening of the existing railway line from Alloa to Rosyth for both freight and passenger services, with the Charleston Chord in place, and with possible stops at Clackmannan, Kincardine and Cairneyhill.	Estimated Total Public Sector Funding Requirement:	Capital costs/grant: £93.6m (2008 prices) (including risk & Optimism Bias) Present Value of Cost to Govt: £213.2m (2002 prices)
Background Information			
Geographic Context:	<p>The proposed study corridor is characterised by a mixture of land under environmental protection, farmland and woodland, which is punctuated by a few small settlements giving the whole region a relatively low population density. However there are a number of larger towns on the periphery, with Alloa and Clackmannan to the west and Dunfermline to the east being the principal settlements.</p> <p>The transport corridor is confined to the north shore of the Forth, a transport corridor bound by the A907 to the north from the vicinity of Cambus/Tullibody eastwards to Crossgates, close to the Halbeath Lorry Park in Fife. The area boundary then follows south to the Forth at Dalgety Bay – Inverkeithing, and then proceeds westwards bordering the north shore of the Forth to the Kincardine Bridge, encompassing the current rail alignment and the A985 trunk route before finally linking Kincardine with Alloa in the Tullibody area.</p> <p>There are some new and planned developments committed over the next 10 years for both Fife and Clackmannanshire, including more than 11 thousand housing units and 260 hectares of industrial space by 2022, which will place greater pressure on the region's transport network and services. In addition SEStran and its partners are pursuing other new transport infrastructure initiatives that are commensurate with this study and which will simultaneously serve the development proposals and pursue the opportunities for modal shift that the new transport infrastructure will confer.</p>		

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Social Context:	<p>The study area is largely rural; with a significant proportion of the population in the study area resident in the towns at both ends of the corridor, in particular in Dunfermline, gateway to both Edinburgh and the north east of Scotland, and Clackmannan/Alloa/Stirling the main conduit to Glasgow, Perth and the north-west of Scotland. The remaining population in the corridor is largely confined to a small number of minor settlements scattered along the corridor, the main ones being Kincardine, Culross/Valleyfield and Oakley.</p> <p>Figures from the 2001 Census suggest that the corridor of the route is characterised by variable rates of social deprivation, with some settlements showing significant deprivation compared with many areas of Scotland.. For example, settlements closer to Dunfermline, and therefore easier access to Edinburgh, such as Crossford, tend to have a much lower proportion of the population who, as a proxy indicator for deprivation, are long term unemployed or have never worked, at 0.8%. This is much lower than the value for Fife as a whole, at 3.7%, and even considerably lower than for Edinburgh, at 3.2%. However, the towns and villages to the west, and the more remote settlements in the corridor have a much higher proportion of the population who are in long term unemployment, or who have never worked. High Valleyfield, Oakley and especially the Clackmannanshire towns of Clackmannan and Alloa all have rates well above the regional and national average, with Alloa itself seeing a rate of over 5%.</p> <p>The social grade of the population in the study corridor broadly follows the same pattern as for deprivation. The proportion of the population in Crossford that belong to the social group ABC1 (the highest) at 68% is well above the average for Fife at 44%, and even higher than Edinburgh at 59%. On the other hand this proportion drops to 39% for Oakley, 36% for Clackmannan and 30% for High Valleyfield. Therefore, it appears that the variations socio-economic classification and social grade noted above across the corridor seem to relate closely to proximity of the settlement to Dunfermline and the links this town offers to Edinburgh and the Central Belt of Scotland.</p>
Economic Context:	<p>Along the route corridor, with the exception of the Longannet Power Station, economic activity tends to be concentrated on the eastern and western fringes of the corridor. Moreover, it is likely that the region closest to Dunfermline benefits from the proximity of a number of developed transport links to Edinburgh.</p> <p>In the study area, only Alloa has a proportion of the workforce in manufacturing that is consistent with the Clackmannanshire or Fife. The west Fife towns generally have a significant numbers of employed in the hospitality industry, where for instance, nearly 8% of the workforce of Crossford work in hotels or restaurants, a greater proportion than seen for Fife as whole (4.7%) or for Scotland (5%). Many of the settlements in west Fife are heavily dependent on the public sector for employment. Within the study corridor, 10.4% and 15.3% of the employed in High Valleyfield work either in public administration or education, compared with Fife averages of 7.1% and 8.0% for these sectors. Remarkably, nearly 26% of the working population of Kincardine work in the health sector which is well above the average for Scotland (12.6%), Fife (12.4%) or Clackmannanshire (10.6%). The reason for this is unclear, although it is noted that High Valleyfield also has a relatively high proportion of the working population in health at 15.5%.</p> <p>Unemployment patterns remain largely consistent with those for deprivation across the corridor. The highest levels of unemployment are found in Kincardine (5.5%), Oakley (5.1%) and Clackmannan (4.7%). These rates are higher than across Fife as a whole (4.4%) and significantly greater than for Edinburgh (2.9%). Only Crossford has an unemployment rate (2%) that is well below the corridor average of 4.3%.</p>

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Planning Objectives	
Objective:	Performance against planning objective:
<ul style="list-style-type: none"> ▪ Objective 1 (Connectivity) Improve connectivity along the corridor to/from Clackmannan to east and west, from south and west Fife to Edinburgh, and from Dunfermline and west Fife to Clackmannanshire, and further west. ▪ Objective 2 (Freight Accessibility) Improve connections for freight to serve the emerging plans from the National Planning Framework (NPF2) and Freight Action Plan (FAP), and encourage the transfer of movement of goods, produce and materials from road to more sustainable distribution. ▪ Objective 3 (Safety) Improve road safety along the A907 and A985. ▪ Objective 4 (Environment) Minimise the environmental issues of severance / noise at strategic locations along the corridor, and reduce carbon emissions to correspond with government targets. 	<p>Yes, this CFE Study option will reduce journey times throughout the study corridor by up to 28 minutes by 2022, thus significantly improving on connectivity with region and between the study area and destinations in Edinburgh and elsewhere.</p> <p>Yes, this CFE Study option will reduce the requirement for freight train operations by over 50,000 train-kilometres per annum by 2022, and will go some way towards meeting modal shift targets by transferring over 13% of freight from road to rail by 2022.</p> <p>Yes, this CFE Study option will improve road safety on the key road links within the study corridor by reducing Personal Injury Accidents by 53%, considerably more than the target reduction of 33%.</p> <p>Yes, this CFE Study option will reduce severance by 7.5% by 2022, reduce road traffic noise by 0.6 dB(A) by 2022 and reduce road vehicle kilometres by 4.98m per annum by 2022, the latter is measured as a proxy indicator for the reduction in carbon emissions.</p>

Implementability Appraisal	
Technical:	There are not expected to be any serious technical issues associated with the implementability of this option, but it should be noted that a new section of rail alignment associated with the Charleston Chord will be required
Operational:	There are not expected to be any operational issues associated with the implementability of this option.
Financial:	There are not expected to be any problems associated with the financial requirements for the implementation of this option.
Public:	There are no issues associated with public support for the implementability of this option.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Environment			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Noise and Vibration	Minor beneficial impacts across the existing road network including the A985 and the A907.	The rail services will mainly pass through rural areas where there are no significant receptors. This option is also anticipated to reduce traffic volumes on the two major roads through the corridor, giving a net positive impact in terms of a reduction of 0.6 dB (A).	These correspond in overall terms to a minor net benefit where the increase in noise associated with the option is compensated for by a potential decrease in volume of traffic noise and vibration of displaced traffic.
Air Quality - Overall	It is estimated that given the predicted decreases in vehicle kilometres on the road network, there is likely to be minor beneficial impacts to those properties fronting and in close proximity to the major road network in the study corridor.	Meets safe levels for Scottish Government Guidance in terms of CO ₂ global, PM ₁₀ local and NO ₂ local. Slightly lower emissions expected overall over the Reference Case.	Minor beneficial.
CO ₂ - Global	All these meet safe levels for Scottish Government Guidance.	For each of these there will be slightly lower emissions expected overall over the Reference Case.	The impact here will be as for overall air quality noted above, i.e. there will be a minor beneficial effect.
PM ₁₀ - Local			
NO ₂ - Local			
Water Quality, Drainage and Flood Defence	The impacts of construction and operation on the hydrological resource are likely to be low providing that the necessary mitigation measures are put in place to avoid pollution of watercourses.	Some short term impacts possible during the construction phase only. No impacts expected occurring during the operational phase, and unlikely to be any disturbance and release of groundwater contaminants.	Assessed as being of minor negative impact.
Geology, Agriculture and Soils	The construction of the new section of rail alignment, stations and station infrastructure will have an impact on the Geology, Agriculture and Soils. The overall the predicted effects are likely to be moderate/major impacts.	There could be potential major impacts to properties; further investigation will be required at the detailed design stage.	Moderate negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Biodiversity	The most likely impacts are the loss of areas of scrub and grassland habitat which have developed on site or adjacent to the site and will require clearing as part of the development works; there is the potential for significant impacts on protected species, such as bats and to a lesser extent badgers, otters and water voles.	This option with the construction of the Charleston Chord is likely to have the greatest impact of any of the options. However, a full ecological survey of the corridor would have to be conducted before potential impacts upon biodiversity receptors can be reliably quantified.	Minor negative impact.
Visual Amenity	This option may result in adverse effects on designated areas. There may be opportunities to reduce the effects by careful siting and design; the most disruptive elements are the proposed stations with park and ride facilities and the Charleston Chord. The overall effects on the landscape character are likely to be relatively minor.	The rail line already exists, so only the most sensitive receptors, those adjacent to the proposed works especially at the Charleston Chord area and in proximity to the stations which will directly affected by the scheme. There may be opportunities to reduce the effects by careful siting and design.	Both construction and operation will have a moderate negative impact.
Cultural Heritage	There are unlikely to be any significant impacts to statutory designations due to the fact that the vast majority of the required infrastructure for this option is already in place. There could be moderate negative impacts related to the setting of Listed Buildings and an ASRI located to the south of the Charleston railway chord	The possibility that uncharted archaeological sites remain was investigated and accepted, given the nature of the Study Area and the need for further study at the next stage.	Minor negative impact.
Landscape	There will be some landscape changes with this option.	This option that will have some effect on the landscape because it will introduce some new infrastructure.	Moderate negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Safety			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Accidents	This option would be expected to reduce the accident rates on the corridor road network, by removing road vehicular traffic; therefore, it would be reasonable to expect that this option would have a minor positive impact with respect to lowering accidents	The option under consideration will remove traffic from the main roads in the study corridor and will undoubtedly have an impact on both the number and severity of accidents on these roads. The estimated PVB for savings in accidents is £0.75m.	Minor positive beneficial impact.
Security	This option would include stations and termini designed to standard engineering guidance and hence would include adequate security facilities for passengers and freight. However, making these facilities secure does not necessarily increase the overall security for users.	In terms of these new facilities, it is expected that minimum safety requirements would be met in terms of personal security concerning their design and implementation of site perimeters, site surveillance, both formal and informal, lighting, visibility and emergency call facilities.	It is expected that the overall impact will be neutral.

Economy (Transport Economic Efficiency)			
Sub-objective	Item	Qualitative Information	Quantitative Information
User Benefits	Travel Time	Users will benefit from improved travel times due to de-congestion effects. Values for these were derived from the national default value-of-time data obtained from WebTAG and average (default) information.	£88.5m (PB 60-years)
	User Charges	There are limited user charges associated with this option.	-£47.5m (PB 60-years)
	Vehicle Operating Costs	Users will benefit from savings in fuel costs and from savings in vehicle wear and tear consistent with greater uniformity in vehicle speed. Values were based on the WebTAG and average (default) data.	£106.5m (PB 60-years)
	Carbon Benefits	The modal shift expected with the introduction of new high quality PT services in the corridor will result in reduced carbon emissions	£0.43m (PB 60-years)

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Private Sector Operator Impacts	Investment Costs	There are no anticipated private sector investment costs. Assumes Govt will pay for all infrastructure costs.	Not applicable here
	Operating Costs	Private sector operating costs are the difference between total operating costs and the level of subsidy required with this option.	£47.5m (PC 60-years)
	Revenues	There will be fare-box receipts from this option. Only the net gain is presented in this AST, that is, the difference between revenues generated by the new services and those “abstracted” (lost) from other services.	£15.5m (PC 60-years)
	Grant/Subsidy payments	There are anticipated to be grant/subsidy payments with this option.	£11.5m (PC 60-years)

Economy (Economic Activity and Location Impacts)			
Sub-objective	Item	Qualitative Information	Quantitative Information
Economic Activity and Location Impacts	Local Economic Impacts	<p>This option will facilitate business supplies and deliveries, business meetings & activities and access to job opportunities, and thus to encourage inward investment. It will also enable commuters to remain in the study corridor, and to provide wider opportunities for shoppers.</p> <p>There may be some loss to the existing local public transport operators in terms of revenues and loss of custom by some local retailers.</p>	<p>There is expected to be a moderate beneficial impact at both a local and national level.</p> <p>.</p>
	National Economic Impacts	<p>The Study Corridor contains the new national freight facility, considered in the National Planning Framework 2, which is being constructed at Rosyth, and rail freight improvements will enable quicker freight delivery to and from these new facilities from both a regional and national context.</p> <p>The study corridor also contains the Longannet Power Station which is featured in the National Planning Framework 2, and the efficient operation of which depends on being reliably supplied by coal six days a week 24 hours a day.</p>	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

	Distributional Impacts	<p>There will be some distributional effects associated with travel time changes, which are captured quantitatively in the TEE analysis.</p>	The travel time savings within the TEE results of which the distributional impacts are part are fairly substantial and therefore show a moderate beneficial impact.
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Integration			
Sub-objective	Item	Qualitative Information	Quantitative Information
Transport Interchanges	Services & Ticketing	This option will provide an opportunity for the integration of services with the existing bus and rail service network. Opportunities will arise within the corridor to share brand names, ticketing arrangements and to 'dove-tail' rail and bus timetables with existing service timetables.	Major beneficial impact.
	Infrastructure & Information	The option provides good potential car-rail, bus-rail and rail-rail interchange facilities at such locations as Rosyth, Kincardine and Clackmannan, including park and ride sites, particularly at both ends of the corridor.	Major beneficial impact.
Land-use Transport Integration		<p>The Port of Rosyth and other types of land use along the corridor have the potential to be better linked together with this option, which will facilitate land use integration by providing additional transport links to development land particularly around Dunfermline and the Core Area around Alloa.</p> <p>This scheme option will also promote transport objectives by improving the quality and efficiency of public transport, reducing the need to travel by car and alleviating localised vehicle congestion, thereby contributing towards a reduction in CO₂ emissions.</p>	Minor beneficial impact

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

Policy Integration		<p>This option articulates well the transport policies and strategies as detailed in the STPR, Clackmannanshire and Fife LTSs, the Fife Structure Plan (version 2), the SEStran Regional Transport Strategy, SPP17 and PP1, and in doing so increase access for all to a public transport system serving areas of employment, housing and recreation and would encourage social inclusion.</p> <p>Furthermore, improvements to passenger connectivity by public transport in general, both within the corridor and between the corridor and the adjacent regions, will in turn encourage modal shift from car to public transport usage.</p>	Major beneficial impact
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Accessibility & Social Inclusion			
Sub-objective	Item	Qualitative Information	Quantitative Information
Community Accessibility	Public Transport Network Coverage	<p>This option will open up alternative commuter and tourism access to the area from the surrounding towns and cities such as Dunfermline, Edinburgh, Stirling, Perth and Glasgow. Moreover, this option also provides direct connections to the regional and national rail networks which significantly increase connectivity.</p>	The results of the accessibility and social inclusion show a moderate beneficial impact.
	Access to Other Local Services	<p>This option, with new station infrastructure and park and ride sites, will provide intermodal change facilities for bus, rail and car, giving ready access to local facilities and services.</p>	
Comparative Accessibility	Distribution/Spatial Impacts by Social Group	<p>Enhancing the modal choice available to residents is provided by an expanded local public transport network which will be beneficial to all groups. The only possible caveat is the fare terms arranged for public transport and whether there is a cost recovery component included in these that penalise those unable to afford them, such as the unemployed, the elderly and the lower socio-economic groups.</p>	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option A: Existing Rail Line with Charleston Chord

	Distribution/Spatial Impacts by Area	The public transport investment proposed for the area will assist a broad range of beneficiaries. This option will assist commuters and those seeking work, those visiting further afield, tourists and business movements into and out of the area.	The results of the accessibility and social inclusion show a moderate beneficial impact.
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Cost to Public Sector		
Item	Qualitative information	Quantitative information
Public Sector Investment Costs	These anticipated public sector investment costs include risk & Optimism Bias.	-£57.8m (PC 60-years)
Public Sector Maintenance Costs	There are anticipated to be significant public sector maintenance costs with this option.	-£59.0m (PC 60-years)
Grant/Subsidy Payments	There are public sector grant and subsidy payments with this option.	-£11.5m (PC 60-years)
Revenues	There are no anticipated public sector revenues with this Option.	Not applicable here
Taxation impacts	Due to a loss of Government taxation revenues from improved VOCs.	-£52.9m (PC 60-years)

Monetised Summary	
Present Value of Transport Benefits	£274.6m (PVB 60-years)
Present Value of Cost to Government	-£213.2m (PVC 60-years)
Net Present Value	£61.4m (PVB 60-years), adjusting for total wider economic benefits £101.4m (PVB 60-years)
Benefit-Cost to Government Ratio	1.29, adjusting for total wider economic benefits 1.48

Rationale for Selection or Rejection of Proposal:	It is recommended that the proposal be taken forward to the next stage as this scheme option meets the planning objectives and has no significant adverse impacts on the government's 5 objectives for transport.
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Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

Name and address of authority or organisation promoting the proposal:		SEStran 8b MacDonald Road Edinburgh EH7 4LZ	
Proposal Name:	Existing Rail Line (freight and passengers) Alloa – Rosyth without Charleston Chord – Option B	Name of Planner:	SEStran Programme Manager
Proposal Description:	The proposal would consist of re-opening of the existing railway line from Alloa to Rosyth for both freight and passenger services, without the Charleston Chord in place, and with possible stops at Clackmannan, Kincardine and Cairneyhill.	Estimated Total Public Sector Funding Requirement:	Capital costs/grant: £87.8m (2008 prices) (including risk & Optimism Bias) Present Value of Cost to Govt: £236.6m (2002 prices)
Background Information			
Geographic Context:	<p>The proposed study corridor is characterised by a mixture of land under environmental protection, farmland and woodland, which is punctuated by a few small settlements giving the whole region a relatively low population density. However there are a number of larger towns on the periphery, with Alloa and Clackmannan to the west and Dunfermline to the east being the principal settlements.</p> <p>The transport corridor is confined to the north shore of the Forth, a transport corridor bound by the A907 to the north from the vicinity of Cambus/Tullibody eastwards to Crossgates, close to the Halbeath Lorry Park in Fife. The area boundary then follows south to the Forth at Dalgety Bay – Inverkeithing, and then proceeds westwards bordering the north shore of the Forth to the Kincardine Bridge, encompassing the current rail alignment and the A985 trunk route before finally linking Kincardine with Alloa in the Tullibody area.</p> <p>There are some new and planned developments committed over the next 10 years for both Fife and Clackmannanshire, including more than 11 thousand housing units and 260 hectares of industrial space by 2022, which will place greater pressure on the region's transport network and services. In addition SEStran and its partners are pursuing other new transport infrastructure initiatives that are commensurate with this study and which will simultaneously serve the development proposals and pursue the opportunities for modal shift that the new transport infrastructure will confer.</p>		

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

Social Context:	<p>The study area is largely rural; with a significant proportion of the population in the study area resident in the towns at both ends of the corridor, in particular in Dunfermline, gateway to both Edinburgh and the north east of Scotland, and Clackmannan/Alloa/Stirling the main conduit to Glasgow, Perth and the north-west of Scotland. The remaining population in the corridor is largely confined to a small number of minor settlements scattered along the corridor, the main ones being Kincardine, Culross/Valleyfield and Oakley.</p> <p>Figures from the 2001 Census suggest that the corridor of the route is characterised by variable rates of social deprivation, with some settlements showing significant deprivation compared with many areas of Scotland.. For example, settlements closer to Dunfermline, and therefore easier access to Edinburgh, such as Crossford, tend to have a much lower proportion of the population who, as a proxy indicator for deprivation, are long term unemployed or have never worked, at 0.8%. This is much lower than the value for Fife as a whole, at 3.7%, and even considerably lower than for Edinburgh, at 3.2%. However, the towns and villages to the west, and the more remote settlements in the corridor have a much higher proportion of the population who are in long term unemployment, or who have never worked. High Valleyfield, Oakley and especially the Clackmannanshire towns of Clackmannan and Alloa all have rates well above the regional and national average, with Alloa itself seeing a rate of over 5%.</p> <p>The social grade of the population in the study corridor broadly follows the same pattern as for deprivation. The proportion of the population in Crossford that belong to the social group ABC1 (the highest) at 68% is well above the average for Fife at 44%, and even higher than Edinburgh at 59%. On the other hand this proportion drops to 39% for Oakley, 36% for Clackmannan and 30% for High Valleyfield. Therefore, it appears that the variations socio-economic classification and social grade noted above across the corridor seem to relate closely to proximity of the settlement to Dunfermline and the links this town offers to Edinburgh and the Central Belt of Scotland.</p>
Economic Context:	<p>Along the route corridor, with the exception of the Longannet Power Station, economic activity tends to be concentrated on the eastern and western fringes of the corridor. Moreover, it is likely that the region closest to Dunfermline benefits from the proximity of a number of developed transport links to Edinburgh.</p> <p>In the study area, only Alloa has a proportion of the workforce in manufacturing that is consistent with the Clackmannanshire or Fife. The west Fife towns generally have a significant numbers of employed in the hospitality industry, where for instance, nearly 8% of the workforce of Crossford work in hotels or restaurants, a greater proportion than seen for Fife as whole (4.7%) or for Scotland (5%). Many of the settlements in west Fife are heavily dependent on the public sector for employment. Within the study corridor, 10.4% and 15.3% of the employed in High Valleyfield work either in public administration or education, compared with Fife averages of 7.1% and 8.0% for these sectors. Remarkably, nearly 26% of the working population of Kincardine work in the health sector which is well above the average for Scotland (12.6%), Fife (12.4%) or Clackmannanshire (10.6%). The reason for this is unclear, although it is noted that High Valleyfield also has a relatively high proportion of the working population in health at 15.5%.</p> <p>Unemployment patterns remain largely consistent with those for deprivation across the corridor. The highest levels of unemployment are found in Kincardine (5.5%), Oakley (5.1%) and Clackmannan (4.7%). These rates are higher than across Fife as a whole (4.4%) and significantly greater than for Edinburgh (2.9%). Only Crossford has an unemployment rate (2%) that is well below the corridor average of 4.3%.</p>

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

Planning Objectives	
Objective:	Performance against planning objective:
<ul style="list-style-type: none"> ▪ Objective 1 (Connectivity) Improve connectivity along the corridor to/from Clackmannan to east and west, from south and west Fife to Edinburgh, and from Dunfermline and west Fife to Clackmannanshire, and further west. ▪ Objective 2 (Freight Accessibility) Improve connections for freight to serve the emerging plans from the National Planning Framework (NPF2) and Freight Action Plan (FAP), and encourage the transfer of movement of goods, produce and materials from road to more sustainable distribution. ▪ Objective 3 (Safety) Improve road safety along the A907 and A985. ▪ Objective 4 (Environment) Minimise the environmental issues of severance / noise at strategic locations along the corridor, and reduce carbon emissions to correspond with government targets. 	<p>Yes, this CFE Study option will reduce journey times throughout the study corridor by up to 18 minutes by 2022, thus significantly improving on connectivity with region and between the study area and destinations in Edinburgh and elsewhere.</p> <p>Yes, this CFE Study option will reduce the requirement for freight train operations by over 50,000 train-kilometres per annum by 2022, and will go some way towards meeting modal shift targets by transferring nearly 8% of freight from road to rail by 2022.</p> <p>Yes, this CFE Study option will improve road safety on the key road links within the study corridor by reducing Personal Injury Accidents by 48%, considerably more than the target reduction of 33%.</p> <p>Yes, this CFE Study option will reduce severance by 7.5% by 2022, reduce road traffic noise by 0.4 dB(A) by 2022 and reduce road vehicle kilometres by 4.49m per annum by 2022, the latter is measured as a proxy indicator for the reduction in carbon emissions.</p>

Implementability Appraisal	
Technical:	There are not expected to be any serious technical issues associated with the implementability of this option.
Operational:	There are not expected to be any operational issues associated with the implementability of this option.
Financial:	There are not expected to be any problems associated with the financial requirements for the implementation of this option.
Public:	There are no issues associated with public support for the implementability of this option.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

Environment			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Noise and Vibration	Minor beneficial impacts across the existing road network including the A985 and the A907.	The rail services will mainly pass through rural areas where there are no significant receptors. This option is also anticipated to reduce traffic volumes on the two major roads through the corridor, giving a net positive impact in terms of a reduction of 0.4 dB (A).	These correspond in overall terms to a minor net benefit where the increase in noise associated with the option is compensated for by a potential decrease in volume of traffic noise and vibration of displaced traffic.
Air Quality - Overall	It is estimated that given the predicted decreases in vehicle kilometres on the road network, there is likely to be minor beneficial impacts to those properties fronting and in close proximity to the major road network in the study corridor.	Meets safe levels for Scottish Government Guidance in terms of CO ₂ global, PM ₁₀ local and NO ₂ local. Slightly lower emissions expected overall over the Reference Case.	Minor beneficial.
CO ₂ - Global	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	The impact here will be as for overall air quality noted above, i.e. there will be a minor beneficial effect.
PM ₁₀ - Local	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	
NO ₂ - Local	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	
Water Quality, Drainage and Flood Defence	The impacts of construction and operation on the hydrological resource are likely to be low providing that the necessary mitigation measures are put in place to avoid pollution of watercourses.	Some short term impacts possible during the construction phase only. No impacts expected occurring during the operational phase, and unlikely to be any disturbance and release of groundwater contaminants.	Assessed as being of minor negative impact.
Geology, Agriculture and Soils	The construction of the new stations and station infrastructure will have an	There could be potential major impacts to properties; further investigation will be	Moderate negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

	impact on the Geology, Agriculture and Soils. The overall predicted effects are likely to be moderate/major impacts.	required at the detailed design stage.	
Biodiversity	The most likely impacts are the loss of areas of scrub and grassland habitat which have developed on or adjacent to the sites likely to be developed, and will require clearing as part of the development works; there is the potential for significant impacts on protected species, such as bats and to a lesser extent badgers, otters and water voles.	This option is unlikely to have as large an impact as option A, as there is no requirement for an additional rail alignment. However, a full ecological survey of the corridor would have to be conducted before potential impacts upon biodiversity receptors can be reliably quantified.	Minor negative impact.
Visual Amenity	This option may result in adverse effects on designated areas. There may be opportunities to reduce the effects by careful siting and design; the most disruptive elements are the proposed stations with park and ride facilities. The overall effects on the landscape character are likely to be relatively minor.	The rail line already exists, so only the most sensitive receptors, those adjacent to the proposed works in proximity to the stations which will directly affected by the scheme. There may be opportunities to reduce the effects by careful siting and design.	Both construction and operation will have a moderate negative impact.
Cultural Heritage	There are unlikely to be any significant impacts to statutory designations due to the fact that the vast majority of the required infrastructure for this option is already in place. There could be moderate negative impacts related to the setting of Listed Buildings and an ASRI located to the south of where the Charleston railway chord is proposed in option A.	The possibility that uncharted archaeological sites remain was investigated and accepted, given the nature of the Study Area and the need for further study at the next stage.	Minor negative impact.
Landscape	There will be some landscape changes with this option.	This option that will have some effect on the landscape because it will introduce	Moderate negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

		some new infrastructure.	
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Safety			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Accidents	This option would be expected to reduce the accident rates on the corridor road network, by removing road vehicular traffic; therefore, it would be reasonable to expect that this option would have a minor positive impact with respect to lowering accidents	The option under consideration will remove traffic from the main roads in the study corridor and will undoubtedly have an impact on both the number and severity of accidents on these roads. The estimated PVB for savings in accidents is £0.67m.	Minor positive beneficial impact.
Security	This option would include stations and termini designed to standard engineering guidance and hence would include adequate security facilities for passengers and freight. However, making these facilities secure does not necessarily increase the overall security for users.	In terms of these new facilities, it is expected that minimum safety requirements would be met in terms of personal security concerning their design and implementation of site perimeters, site surveillance, both formal and informal, lighting, visibility and emergency call facilities.	It is expected that the overall impact will be neutral.

Economy (Transport Economic Efficiency)			
Sub-objective	Item	Qualitative Information	Quantitative Information
User Benefits	Travel Time	Users will benefit from improved travel times due to de-congestion effects. Values for these were derived from the national default value-of-time data obtained from WebTAG and average (default) information.	£71.1m (PB 60-years)
	User Charges	There are user charges associated with this option.	-£32.4m (PB 60-years)
	Vehicle Operating Costs	Users will benefit from savings in fuel costs and from savings in vehicle wear and tear consistent with greater uniformity in vehicle speed. Values were based on the WebTAG and average (default) data.	£100.7m (PB 60-years)

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

	Carbon Benefits	The modal shift expected with the introduction of new high quality PT services in the corridor will result in reduced carbon emissions	£0.39m (PB 60-years)
Private Sector Operator Impacts	Investment Costs	There are no anticipated private sector investment costs. Assumes Govt will pay for all infrastructure costs.	Not applicable here
	Operating Costs	Private sector operating costs are the difference between total operating costs and the level of subsidy required with this option.	£32.4m (PC 60-years)
	Revenues	There will be fare-box receipts from this option. Only the net gain is presented in this AST, that is, the difference between revenues generated by the new services and those “abstracted” (lost) from other services.	£8.2m (PC 60-years)
	Grant/Subsidy payments	There are anticipated to be grant/subsidy payments with this option.	£37.7m (PC 60-years)

Economy (Economic Activity and Location Impacts)			
Sub-objective	Item	Qualitative Information	Quantitative Information
Economic Activity and Location Impacts	Local Economic Impacts	<p>This option will facilitate business supplies and deliveries, business meetings & activities and access to job opportunities, and thus to encourage inward investment. It will also enable commuters to remain in the study corridor, and to provide wider opportunities for shoppers.</p> <p>There may be some loss to the existing local public transport operators in terms of revenues and loss of custom by some local retailers.</p>	There is expected to be a moderate beneficial impact at both a local and national level.
	National Economic Impacts	<p>The Study Corridor contains the new national freight facility, considered in the National Planning Framework 2, which is being constructed at Rosyth, and rail freight improvements will enable quicker freight delivery to and from these new facilities from both a regional and national context.</p> <p>The study corridor also contains the Longannet Power Station which is featured in the National Planning Framework 2, and the efficient operation of which depends on being reliably supplied by coal six days a week 24 hours a day.</p>	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

	Distributional Impacts	<p>There will be some distributional effects associated with travel time changes, which are captured quantitatively in the TEE analysis.</p>	The travel time savings within the TEE results of which the distributional impacts are part are fairly substantial and therefore show a moderate beneficial impact.
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Integration			
Sub-objective	Item	Qualitative Information	Quantitative Information
Transport Interchanges	Services & Ticketing	This option will provide an opportunity for the integration of services with the existing bus and rail service network. Opportunities will arise within the corridor to share brand names, ticketing arrangements and to 'dove-tail' rail and bus timetables with existing service timetables.	Major beneficial impact.
	Infrastructure & Information	The option provides good potential car-rail, bus-rail and rail-rail interchange facilities at such locations as Rosyth, Kincardine and Clackmannan, including park and ride sites, particularly at both ends of the corridor.	Major beneficial impact.
Land-use Transport Integration		<p>The Port of Rosyth and other types of land use along the corridor have the potential to be better linked together with this option, which will facilitate land use integration by providing additional transport links to development land particularly around Dunfermline and the Core Area around Alloa.</p> <p>This scheme option will also promote transport objectives by improving the quality and efficiency of public transport, reducing the need to travel by car and alleviating localised vehicle congestion, thereby contributing towards a reduction in CO₂ emissions.</p>	Minor beneficial impact

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

Policy Integration		<p>This option articulates well the transport policies and strategies as detailed in the STPR, Clackmannanshire and Fife LTSs, the Fife Structure Plan (version 2), the SEStran Regional Transport Strategy, SPP17 and PP1, and in doing so increase access for all to a public transport system serving areas of employment, housing and recreation and would encourage social inclusion.</p> <p>Furthermore, improvements to passenger connectivity by public transport in general, both within the corridor and between the corridor and the adjacent regions, will in turn encourage modal shift from car to public transport usage.</p>	Major beneficial impact
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Accessibility & Social Inclusion			
Sub-objective	Item	Qualitative Information	Quantitative Information
Community Accessibility	Public Transport Network Coverage	<p>This option will open up alternative commuter and tourism access to the area from the surrounding towns and cities such as Dunfermline, Edinburgh, Stirling, Perth and Glasgow. Moreover, this option also provides direct connections to the regional and national rail networks which significantly increase connectivity.</p>	The results of the accessibility and social inclusion show a moderate beneficial impact.
	Access to Other Local Services	<p>This option, with new station infrastructure and park and ride sites, will provide intermodal change facilities for bus, rail and car, giving ready access to local facilities and services.</p>	
Comparative Accessibility	Distribution/Spatial Impacts by Social Group	<p>Enhancing the modal choice available to residents is provided by an expanded local public transport network which will be beneficial to all groups. The only possible caveat is the fare terms arranged for public transport and whether there is a cost recovery component included in these that penalise those unable to afford them, such as the unemployed, the elderly and the lower socio-economic groups.</p>	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option B: Existing Rail Line without Charleston Chord

	Distribution/Spatial Impacts by Area	The public transport investment proposed for the area will assist a broad range of beneficiaries. This option will assist commuters and those seeking work, those visiting further afield, tourists and business movements into and out of the area.	Moderate beneficial impact
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Cost to Public Sector		
Item	Qualitative information	Quantitative information
Public Sector Investment Costs	These anticipated public sector investment costs include risk & Optimism Bias.	-£54.2m (PC 60-years)
Public Sector Maintenance Costs	There are anticipated to be significant public sector maintenance costs with this option.	-£70.1m (PC 60-years)
Grant/Subsidy Payments	There are public sector grant and subsidy payments with this option.	-£37.7m (PC 60-years)
Revenues	There are no anticipated public sector revenues with this Option.	Not applicable here
Taxation impacts	Due to a loss of Government taxation revenues from improved VOCs.	-£50.5m (PC 60-years)

Monetised Summary	
Present Value of Transport Benefits	£234.6m (PVB 60-years)
Present Value of Cost to Government	-£236.6m (PVC 60-years)
Net Present Value	-£2.0m (PVB 60-years), adjusting for total wider economic benefits £30.3m (PVB 60-years)
Benefit-Cost to Government Ratio	0.99, adjusting for total wider economic benefits 1.13

Rationale for Selection or Rejection of Proposal:	It is recommended that the proposal is not taken forward to the next stage, because, though this scheme option meets the planning objectives, it is of marginal benefit in terms of economic performance, and does not perform as well as option A.
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Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Name and address of authority or organisation promoting the proposal:		SEStran 8b MacDonald Road Edinburgh EH7 4LZ	
Proposal Name:	Existing Rail Line (freight services only) Alloa – Rosyth with Charleston Chord – plus Express Bus Passenger Services on A985 - Option C.	Name of Planner:	SEStran Programme Manager
Proposal Description:	The proposal would consist of re-opening of the existing railway line from Alloa to Rosyth for freight traffic with the Charleston Chord in place, and implementing express bus passenger services on the A985 to/from Edinburgh, stopping at Clackmannan, Kincardine and Cairneyhill.	Estimated Total Public Sector Funding Requirement:	Capital costs/grant: £18.8m (2008 prices) (including risk & Optimism Bias) Present Value of Cost to Govt: £52.4 m (2002 prices)
Background Information			
Geographic Context:	<p>The proposed study corridor is characterised by a mixture of land under environmental protection, farmland and woodland, which is punctuated by a few small settlements giving the whole region a relatively low population density. However there are a number of larger towns on the periphery, with Alloa and Clackmannan to the west and Dunfermline to the east being the principal settlements.</p> <p>The transport corridor is confined to the north shore of the Forth, a transport corridor bound by the A907 to the north from the vicinity of Cambus/Tullibody eastwards to Crossgates, close to the Halbeath Lorry Park in Fife. The area boundary then follows south to the Forth at Dalgety Bay – Inverkeithing, and then proceeds westwards bordering the north shore of the Forth to the Kincardine Bridge, encompassing the current rail alignment and the A985 trunk route before finally linking Kincardine with Alloa in the Tullibody area.</p> <p>There are some new and planned developments committed over the next 10 years for both Fife and Clackmannanshire, including more than 11 thousand housing units and 260 hectares of industrial space by 2022, which will place greater pressure on the region's transport network and services. In addition SEStran and its partners are pursuing other new transport infrastructure initiatives that are commensurate with this study and which will simultaneously serve the development proposals and pursue the opportunities for modal shift that the new transport infrastructure will confer.</p>		

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Social Context:	<p>The study area is largely rural; with a significant proportion of the population in the study area resident in the towns at both ends of the corridor, in particular in Dunfermline, gateway to both Edinburgh and the north east of Scotland, and Clackmannan/Alloa/Stirling the main conduit to Glasgow, Perth and the north-west of Scotland. The remaining population in the corridor is largely confined to a small number of minor settlements scattered along the corridor, the main ones being Kincardine, Culross/Valleyfield and Oakley.</p> <p>Figures from the 2001 Census suggest that the corridor of the route is characterised by variable rates of social deprivation, with some settlements showing significant deprivation compared with many areas of Scotland.. For example, settlements closer to Dunfermline, and therefore easier access to Edinburgh, such as Crossford, tend to have a much lower proportion of the population who, as a proxy indicator for deprivation, are long term unemployed or have never worked, at 0.8%. This is much lower than the value for Fife as a whole, at 3.7%, and even considerably lower than for Edinburgh, at 3.2%. However, the towns and villages to the west, and the more remote settlements in the corridor have a much higher proportion of the population who are in long term unemployment, or who have never worked. High Valleyfield, Oakley and especially the Clackmannanshire towns of Clackmannan and Alloa all have rates well above the regional and national average, with Alloa itself seeing a rate of over 5%.</p> <p>The social grade of the population in the study corridor broadly follows the same pattern as for deprivation. The proportion of the population in Crossford that belong to the social group ABC1 (the highest) at 68% is well above the average for Fife at 44%, and even higher than Edinburgh at 59%. On the other hand this proportion drops to 39% for Oakley, 36% for Clackmannan and 30% for High Valleyfield. Therefore, it appears that the variations socio-economic classification and social grade noted above across the corridor seem to relate closely to proximity of the settlement to Dunfermline and the links this town offers to Edinburgh and the Central Belt of Scotland.</p>
Economic Context:	<p>Along the route corridor, with the exception of the Longannet Power Station, economic activity tends to be concentrated on the eastern and western fringes of the corridor. Moreover, it is likely that the region closest to Dunfermline benefits from the proximity of a number of developed transport links to Edinburgh.</p> <p>In the study area, only Alloa has a proportion of the workforce in manufacturing that is consistent with the Clackmannanshire or Fife. The west Fife towns generally have a significant numbers of employed in the hospitality industry, where for instance, nearly 8% of the workforce of Crossford work in hotels or restaurants, a greater proportion than seen for Fife as whole (4.7%) or for Scotland (5%). Many of the settlements in west Fife are heavily dependent on the public sector for employment. Within the study corridor, 10.4% and 15.3% of the employed in High Valleyfield work either in public administration or education, compared with Fife averages of 7.1% and 8.0% for these sectors. Remarkably, nearly 26% of the working population of Kincardine work in the health sector which is well above the average for Scotland (12.6%), Fife (12.4%) or Clackmannanshire (10.6%). The reason for this is unclear, although it is noted that High Valleyfield also has a relatively high proportion of the working population in health at 15.5%.</p> <p>Unemployment patterns remain largely consistent with those for deprivation across the corridor. The highest levels of unemployment are found in Kincardine (5.5%), Oakley (5.1%) and Clackmannan (4.7%). These rates are higher than across Fife as a whole (4.4%) and significantly greater than for Edinburgh (2.9%). Only Crossford has an unemployment rate (2%) that is well below the corridor average of 4.3%.</p>

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Planning Objectives	
Objective:	Performance against planning objective:
<ul style="list-style-type: none"> ▪ Objective 1 (Connectivity) Improve connectivity along the corridor to/from Clackmannan to east and west, from south and west Fife to Edinburgh, and from Dunfermline and west Fife to Clackmannanshire, and further west. ▪ Objective 2 (Freight Accessibility) Improve connections for freight to serve the emerging plans from the National Planning Framework (NPF2) and Freight Action Plan (FAP), and encourage the transfer of movement of goods, produce and materials from road to more sustainable distribution. ▪ Objective 3 (Safety) Improve road safety along the A907 and A985. ▪ Objective 4 (Environment) Minimise the environmental issues of severance / noise at strategic locations along the corridor, and reduce carbon emissions to correspond with government targets. 	<p>Yes, this CFE Study option will reduce journey times throughout the study corridor by up to 18 minutes by 2022, thus significantly improving on connectivity with region and between the study area and destinations in Edinburgh and elsewhere.</p> <p>Yes, this CFE Study option will reduce the requirement for freight train operations by over 30,000 train-kilometres per annum by 2022, and will go some way towards meeting modal shift targets by transferring over 13% of freight from road to rail by 2022.</p> <p>Yes, this CFE Study option will improve road safety on the key road links within the study corridor by reducing Personal Injury Accidents by 34%, a higher reduction than the target of 33%.</p> <p>Yes, this CFE Study option will reduce severance by 5.8% by 2022, and reduce road vehicle kilometres by 1.73m per annum by 2022, the latter is measured as a proxy indicator for the reduction in carbon emissions.</p>

Implementability Appraisal	
Technical:	There are not expected to be any serious technical issues associated with the implementability of this option.
Operational:	There are not expected to be any operational issues associated with the implementability of this option.
Financial:	There are not expected to be any problems associated with the financial requirements for the implementation of this option.
Public:	There are no issues associated with public support for the implementability of this option.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Environment			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Noise and Vibration	Minor beneficial impacts across the existing road network including the A985 and the A907.	Both rail and bus services will mainly pass through rural areas where there are no significant receptors. This option is somewhat anticipated to reduce traffic volumes on the two major roads through the corridor, giving a net positive impact.	These correspond in overall terms to a minor net benefit where the increase in noise associated with the option is compared with the potential decrease in volume of traffic noise and vibration.
Air Quality - Overall	It is estimated that given the predicted decreases in vehicle kilometres on the road network, there is likely to be minor beneficial impacts to those properties fronting and in close proximity to the major road network in the study corridor.	Meets safe levels for Scottish Government Guidance in terms of CO ₂ global, PM ₁₀ local and NO ₂ local. Slightly lower emissions expected overall over the Reference Case.	Minor beneficial.
CO ₂ - Global	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	The impact here will be as for overall air quality noted above, i.e. there will be a minor beneficial effect.
PM ₁₀ - Local	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	
NO ₂ - Local	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	
Water Quality, Drainage and Flood Defence	The impacts of construction and operation on the hydrological resource are likely to be low providing that the necessary mitigation measures are put in place to avoid pollution of watercourses.	Some short term impacts possible during the construction phase only. No impacts expected occurring during the operational phase, and unlikely to be any disturbance and release of groundwater contaminants.	Assessed as being of minor negative impact.
Geology, Agriculture and Soils	Depending on the level of upgrade needed for the rail alignment and the construction of the new rail freight	There could be potential major impacts to properties; further investigation will be required at the	Moderate negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

	infrastructure, this may have an important impact on the Geology, Agriculture and Soils. Overall the predicted effects are likely to be moderate/major impacts. The bus services on the other hand are unlikely to have a discernable impact.	detailed design stage.	
Biodiversity	The most likely impacts are the loss of areas of scrub and grassland habitat which have developed on or adjacent to sites where freight facilities likely to be developed, and will require clearing as part of the development works; there is the potential for significant impacts on protected species, such as bats and to a lesser extent badgers, otters and water voles. The bus services on the other hand are unlikely to have a discernable impact.	A full ecological survey of the corridor would have to be conducted before potential impacts upon biodiversity receptors for this option can be reliably quantified.	Minor negative impact.
Visual Amenity	This option may result in adverse effects on designated areas. There may be opportunities to reduce the effects by careful siting and design of any freight facilities proposed. The overall effects on the landscape character are likely to be relatively minor. The bus services on the other hand are unlikely to have a discernable impact.	The rail line already exists, so only the most sensitive receptors, those adjacent to the proposed works in proximity to the freight facilities which will directly affected by the scheme. There may be opportunities to reduce the effects by careful siting and design.	Both construction and operation will have a moderate negative impact.
Cultural Heritage	There are unlikely to be any significant impacts to statutory designations due to the fact that the vast majority of the required infrastructure for this option is already in place. There could be moderate negative impacts related to the setting of Listed Buildings and an	The possibility that uncharted archaeological sites remain was investigated and accepted, given the nature of the Study Area and the need for further study at the next stage.	Minor negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

	ASRI located to the south of where the Charleston railway chord is proposed in option A. However, the bus services are unlikely to have a discernable impact.		
Landscape	There will be some landscape changes with this option. However, the bus services are unlikely to have a discernable impact.	This option that will have some effect on the landscape because it will introduce some new infrastructure.	Moderate negative impact.

Safety			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Accidents	This option would be expected to reduce the accident rates on the corridor road network, by removing road vehicular traffic; therefore, it would be reasonable to expect that this option would have a minor positive impact with respect to lowering accidents	The option under consideration will remove traffic from the main roads in the study corridor and will undoubtedly have an impact on both the number and severity of accidents on these roads. The estimated PVB for savings in accidents is £0.25m.	Minor positive impact.
Security	This option would include stations and termini designed to standard engineering guidance and hence would include adequate security facilities for passengers and freight. However, making these facilities secure does not necessarily increase the overall security for users.	In terms of these new facilities, it is expected that minimum safety requirements would be met in terms of personal security concerning their design and implementation of site perimeters, site surveillance, both formal and informal, lighting, visibility and emergency call facilities.	It is expected that the overall impact will be neutral.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Economy (Transport Economic Efficiency)			
Sub-objective	Item	Qualitative Information	Quantitative Information
User Benefits	Travel Time	Users will benefit from improved travel times due to de-congestion effects. Values for these were derived from the national default value-of-time data obtained from WebTAG and average (default) information.	£21.8m (PB 60-years)
	User Charges	There are user charges associated with this option.	-£4.8m (PB 60-years)
	Vehicle Operating Costs	Users will benefit from savings in fuel costs and from savings in vehicle wear and tear consistent with greater uniformity in vehicle speed. Values were based on the WebTAG and average (default) data.	£14.3m (PB 60-years)
	Carbon Benefits	The modal shift expected with the introduction of new high quality PT services in the corridor will result in reduced carbon emissions	£0.15m (PB 60-years)
Private Sector Operator Impacts	Investment Costs	There are no anticipated private sector investment costs. Assumes Govt will pay for all infrastructure costs.	Not applicable here
	Operating Costs	Private sector operating costs are the difference between total operating costs and the level of subsidy required with this option.	£4.8m (PC 60-years)
	Revenues	There will be fare-box receipts from this option. Only the net gain is presented in this AST, that is, the difference between revenues generated by the new services and those “abstracted” (lost) from other services.	£3.1m (PC 60-years)
	Grant/Subsidy payments	There are anticipated to be grant/subsidy payments with this option.	£13.3m (PC 60-years)

Economy (Economic Activity and Location Impacts)			
Sub-objective	Item	Qualitative Information	Quantitative Information
Economic Activity and Location Impacts	Local Economic Impacts	This option will facilitate business supplies and deliveries and access to job opportunities. It will also enable commuters to remain in the study corridor, and to provide wider opportunities for shoppers. There may be some loss to the existing local public transport operators in terms of revenues and loss of custom by some local retailers.	There is expected to be a minor beneficial impact at both a local and national level.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

	National Impacts	Economic	<p>The Study Corridor contains the new national freight facility, considered in the National Planning Framework 2, which is being constructed at Rosyth, and rail freight improvements will enable quicker freight delivery to and from these new facilities from both a regional and national context.</p> <p>The study corridor also contains the Longannet Power Station which is featured in the National Planning Framework 2, and the efficient operation of which depends on being reliably supplied by coal six days a week 24 hours a day.</p>	<p>There is expected to be a minor beneficial impact at both a local and national level.</p>
	Distributional Impacts		<p>There will be some distributional effects associated with travel time changes, which are captured quantitatively in the TEE analysis.</p>	<p>The travel time savings within the TEE results of which the distributional impacts are part are fairly substantial and therefore show a moderate beneficial impact.</p>

Integration				
Sub-objective	Item	Qualitative Information	Quantitative Information	
Transport Interchanges	Services & Ticketing	<p>This option will provide an opportunity for the integration of services with the existing bus and rail service network, the latter on the periphery of the project area. Opportunities will arise, particularly on the edge of the study area to share brand names, ticketing arrangements and to 'dove-tail' rail and bus timetables with existing service timetables.</p>	<p>Moderate beneficial impact.</p>	
	Infrastructure & Information	<p>The option provides potential car-bus and bus-bus interchange facilities at locations within the corridor such as at Rosyth, Kincardine and Clackmannan, which may include park and ride sites, with potential for bus-rail and car-rail interchange facilities at both ends of the corridor.</p>	<p>Moderate beneficial impact.</p>	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Land-use Transport Integration		<p>The Port of Rosyth and other types of land use along the corridor have the potential to be better linked together with this option, which will facilitate land use integration by providing additional transport links to development land particularly around Dunfermline and the Core Area around Alloa.</p> <p>This scheme option will also promote transport objectives by improving the quality and efficiency of public transport, reducing the need to travel by car and alleviating localised vehicle congestion, thereby contributing towards a reduction in CO₂ emissions.</p>	Minor beneficial impact
Policy Integration		<p>This option articulates well the transport policies and strategies as detailed in the STPR, Clackmannanshire and Fife LTSs, the Fife Structure Plan (version 2), the SEStran Regional Transport Strategy, SPP17 and PP1, and in doing so increase access for all to a public transport system serving areas of employment, housing and recreation and would encourage social inclusion.</p> <p>Furthermore, improvements to passenger connectivity by public transport in general, both within the corridor and between the corridor and the adjacent regions, will in turn encourages modal shift from car to public transport usage.</p>	Major beneficial impact

Accessibility & Social Inclusion			
Sub-objective	Item	Qualitative Information	Quantitative Information
Community Accessibility	Public Transport Network Coverage	<p>This option will open up alternative commuter and tourism access to the area from the surrounding towns and cities such as Dunfermline, Edinburgh, Stirling, Perth and Glasgow. Moreover, this option also provides direct connections to the regional and national transport networks which significantly increase connectivity.</p>	The results of the accessibility and social inclusion show a moderate beneficial impact.
	Access to Other Local Services	<p>This option will provide intermodal change facilities for bus and car within the corridor, and between bus-bus and bus-rail at either end of the study area, giving ready access to local facilities and services.</p>	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option C: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A985 Trunk Route

Comparative Accessibility	Distribution/Spatial Impacts by Social Group	Enhancing the modal choice available to residents is provided by an expanded local public transport network which will be beneficial to all groups. The only possible caveat is the fare terms arranged for public transport and whether there is a cost recovery component included in these that penalise those unable to afford them, such as the unemployed, the elderly and the lower socio-economic groups.	The results of the accessibility and social inclusion show a moderate beneficial impact.
	Distribution/Spatial Impacts by Area	The public transport investment proposed for the area will assist a broad range of beneficiaries. This option will assist commuters and those seeking work, those visiting further afield, tourists and business movements into and out of the area.	

Cost to Public Sector		
Item	Qualitative information	Quantitative information
Public Sector Investment Costs	These anticipated public sector investment costs include risk & Optimism Bias.	-£11.6m (PC 60-years)
Public Sector Maintenance Costs	There are anticipated to be significant public sector maintenance costs with this option.	-£18.2m (PC 60-years)
Grant/Subsidy Payments	There are public sector grant and subsidy payments with this option.	-£13.3m (PC 60-years)
Revenues	There are no anticipated public sector revenues with this Option.	Not applicable here
Taxation impacts	Due to a loss of Government taxation revenues from improved VOCs.	-£7.6m (PC 60-years)

Monetised Summary	
Present Value of Transport Benefits	£50.6m (PVB 60-years)
Present Value of Cost to Government	-£52.4m (PVC 60-years)
Net Present Value	-£1.8m (PVB 60-years), adjusting for total wider economic benefits £3.1 (PVB 60-years)
Benefit-Cost to Government Ratio	0.97, adjusting for total wider economic benefits 1.06

Rationale for Selection or Rejection of Proposal:	It is recommended that the proposal is not taken forward to the next stage, because this option does not meet the Government economic objective
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Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Name and address of authority or organisation promoting the proposal:		SEStran 8b MacDonald Road Edinburgh EH7 4LZ	
Proposal Name:	Existing Rail Line (freight services only) Alloa – Rosyth with Charleston Chord – plus Express Bus Passenger Services on A907 - Option D.	Name of Planner:	SEStran Programme Manager
Proposal Description:	The proposal would consist of re-opening of the existing railway line from Alloa to Rosyth for freight traffic with the Charleston Chord in place, and implementing express bus passenger services on the A907 to/from Edinburgh, stopping at Clackmannan and Oakley.	Estimated Total Public Sector Funding Requirement:	Capital costs/grant: £18.2m (2008 prices) (including risk & Optimism Bias) Present Value of Cost to Govt: £51.4m (2002 prices)
Background Information			
Geographic Context:	<p>The proposed study corridor is characterised by a mixture of land under environmental protection, farmland and woodland, which is punctuated by a few small settlements giving the whole region a relatively low population density. However there are a number of larger towns on the periphery, with Alloa and Clackmannan to the west and Dunfermline to the east being the principal settlements.</p> <p>The transport corridor is confined to the north shore of the Forth, a transport corridor bound by the A907 to the north from the vicinity of Cambus/Tullibody eastwards to Crossgates, close to the Halbeath Lorry Park in Fife. The area boundary then follows south to the Forth at Dalgety Bay – Inverkeithing, and then proceeds westwards bordering the north shore of the Forth to the Kincardine Bridge, encompassing the current rail alignment and the A985 trunk route before finally linking Kincardine with Alloa in the Tullibody area.</p> <p>There are some new and planned developments committed over the next 10 years for both Fife and Clackmannanshire, including more than 11 thousand housing units and 260 hectares of industrial space by 2022, which will place greater pressure on the region's transport network and services. In addition SEStran and its partners are pursuing other new transport infrastructure initiatives that are commensurate with this study and which will simultaneously serve the development proposals and pursue the opportunities for modal shift that the new transport infrastructure will confer.</p>		

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Social Context:	<p>The study area is largely rural; with a significant proportion of the population in the study area resident in the towns at both ends of the corridor, in particular in Dunfermline, gateway to both Edinburgh and the north east of Scotland, and Clackmannan/Alloa/Stirling the main conduit to Glasgow, Perth and the north-west of Scotland. The remaining population in the corridor is largely confined to a small number of minor settlements scattered along the corridor, the main ones being Kincardine, Culross/Valleyfield and Oakley.</p> <p>Figures from the 2001 Census suggest that the corridor of the route is characterised by variable rates of social deprivation, with some settlements showing significant deprivation compared with many areas of Scotland.. For example, settlements closer to Dunfermline, and therefore easier access to Edinburgh, such as Crossford, tend to have a much lower proportion of the population who, as a proxy indicator for deprivation, are long term unemployed or have never worked, at 0.8%. This is much lower than the value for Fife as a whole, at 3.7%, and even considerably lower than for Edinburgh, at 3.2%. However, the towns and villages to the west, and the more remote settlements in the corridor have a much higher proportion of the population who are in long term unemployment, or who have never worked. High Valleyfield, Oakley and especially the Clackmannanshire towns of Clackmannan and Alloa all have rates well above the regional and national average, with Alloa itself seeing a rate of over 5%.</p> <p>The social grade of the population in the study corridor broadly follows the same pattern as for deprivation. The proportion of the population in Crossford that belong to the social group ABC1 (the highest) at 68% is well above the average for Fife at 44%, and even higher than Edinburgh at 59%. On the other hand this proportion drops to 39% for Oakley, 36% for Clackmannan and 30% for High Valleyfield. Therefore, it appears that the variations socio-economic classification and social grade noted above across the corridor seem to relate closely to proximity of the settlement to Dunfermline and the links this town offers to Edinburgh and the Central Belt of Scotland.</p>
Economic Context:	<p>Along the route corridor, with the exception of the Longannet Power Station, economic activity tends to be concentrated on the eastern and western fringes of the corridor. Moreover, it is likely that the region closest to Dunfermline benefits from the proximity of a number of developed transport links to Edinburgh.</p> <p>In the study area, only Alloa has a proportion of the workforce in manufacturing that is consistent with the Clackmannanshire or Fife. The west Fife towns generally have a significant numbers of employed in the hospitality industry, where for instance, nearly 8% of the workforce of Crossford work in hotels or restaurants, a greater proportion than seen for Fife as whole (4.7%) or for Scotland (5%). Many of the settlements in west Fife are heavily dependent on the public sector for employment. Within the study corridor, 10.4% and 15.3% of the employed in High Valleyfield work either in public administration or education, compared with Fife averages of 7.1% and 8.0% for these sectors. Remarkably, nearly 26% of the working population of Kincardine work in the health sector which is well above the average for Scotland (12.6%), Fife (12.4%) or Clackmannanshire (10.6%). The reason for this is unclear, although it is noted that High Valleyfield also has a relatively high proportion of the working population in health at 15.5%.</p> <p>Unemployment patterns remain largely consistent with those for deprivation across the corridor. The highest levels of unemployment are found in Kincardine (5.5%), Oakley (5.1%) and Clackmannan (4.7%). These rates are higher than across Fife as a whole (4.4%) and significantly greater than for Edinburgh (2.9%). Only Crossford has an unemployment rate (2%) that is well below the corridor average of 4.3%.</p>

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Planning Objectives	
Objective:	Performance against planning objective:
<ul style="list-style-type: none"> ▪ Objective 1 (Connectivity) Improve connectivity along the corridor to/from Clackmannan to east and west, from south and west Fife to Edinburgh, and from Dunfermline and west Fife to Clackmannanshire, and further west. ▪ Objective 2 (Freight Accessibility) Improve connections for freight to serve the emerging plans from the National Planning Framework (NPF2) and Freight Action Plan (FAP), and encourage the transfer of movement of goods, produce and materials from road to more sustainable distribution. ▪ Objective 3 (Safety) Improve road safety along the A907 and A985. ▪ Objective 4 (Environment) Minimise the environmental issues of severance / noise at strategic locations along the corridor, and reduce carbon emissions to correspond with government targets. 	<p>Yes, this CFE Study option will reduce journey times throughout the study corridor by up to 18 minutes by 2022, thus significantly improving on connectivity with region and between the study area and destinations in Edinburgh and elsewhere.</p> <p>Yes, this CFE Study option will reduce the requirement for freight train operations by over 30,000 train-kilometres per annum by 2022, and will go some way towards meeting modal shift targets by transferring over 13% of freight from road to rail by 2022.</p> <p>Yes, this CFE Study option will improve road safety on the key road links within the study corridor by reducing Personal Injury Accidents by 33%, meeting target of 33%.</p> <p>Yes, this CFE Study option will reduce severance by 5.8% by 2022, and reduce road vehicle kilometres by 1.62m per annum by 2022, the latter is measured as a proxy indicator for the reduction in carbon emissions.</p>

Implementability Appraisal	
Technical:	There are not expected to be any serious technical issues associated with the implementability of this option.
Operational:	There are not expected to be any operational issues associated with the implementability of this option.
Financial:	There are not expected to be any problems associated with the financial requirements for the implementation of this option.
Public:	There are no issues associated with public support for the implementability of this option.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Environment			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Noise and Vibration	Minor beneficial impacts across the existing road network including the A985 and the A907.	Both rail and bus services will mainly pass through rural areas where there are no significant receptors. This option is anticipated to reduce traffic volumes on the two major roads through the corridor, but giving only a rather small net positive impact.	These correspond in overall terms to a minor net benefit where the increase in noise associated with the option is compensated for by a potential decrease in volume of traffic noise and vibration of displaced traffic.
Air Quality - Overall	It is estimated that given the predicted decreases in vehicle kilometres on the road network, there is likely to be minor beneficial impacts to those properties fronting and in close proximity to the major road network in the study corridor.	Meets safe levels for Scottish Government Guidance in terms of CO ₂ global, PM ₁₀ local and NO ₂ local. Slightly lower emissions expected overall over the Reference Case.	Minor beneficial.
CO ₂ - Global	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	The impact here will be as for overall air quality noted above, i.e. there will be a minor beneficial effect.
PM ₁₀ - Local	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	
NO ₂ - Local	Meets safe levels for Scottish Government Guidance.	Slightly lower emissions expected overall over the Reference Case.	
Water Quality, Drainage and Flood Defence	The impacts of construction and operation on the hydrological resource are likely to be low providing that the necessary mitigation measures are put in place to avoid pollution of watercourses.	Some short term impacts possible during the construction phase only. No impacts expected occurring during the operational phase, and unlikely to be any disturbance and release of groundwater contaminants.	Assessed as being of minor negative impact.
Geology, Agriculture and Soils	Depending on the level of upgrade needed for the rail alignment and the construction of the new rail freight	There could be potential major impacts to properties; further investigation will be required at the	Moderate negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

	infrastructure, this may have an important impact on the Geology, Agriculture and Soils. Overall the predicted effects are likely to be moderate/major impacts. The bus services on the other hand are unlikely to have a discernable impact.	detailed design stage.	
Biodiversity	The most likely impacts are the loss of areas of scrub and grassland habitat which have developed on or adjacent to sites where freight facilities likely to be developed, and will require clearing as part of the development works; there is the potential for significant impacts on protected species, such as bats and to a lesser extent badgers, otters and water voles. The bus services on the other hand are unlikely to have a discernable impact.	A full ecological survey of the corridor would have to be conducted before potential impacts upon biodiversity receptors for this option can be reliably quantified.	Minor negative impact.
Visual Amenity	This option may result in adverse effects on designated areas. There may be opportunities to reduce the effects by careful siting and design of any freight facilities proposed. The overall effects on the landscape character are likely to be relatively minor. The bus services on the other hand are unlikely to have a discernable impact.	The rail line already exists, so only the most sensitive receptors, those adjacent to the proposed works in proximity to the freight facilities which will directly affected by the scheme. There may be opportunities to reduce the effects by careful siting and design.	Both construction and operation will have a moderate negative impact.
Cultural Heritage	There are unlikely to be any significant impacts to statutory designations due to the fact that the vast majority of the required infrastructure for this option is already in place. There could be moderate negative impacts related to the setting of Listed Buildings and an	The possibility that uncharted archaeological sites remain was investigated and accepted, given the nature of the Study Area and the need for further study at the next stage.	Minor negative impact.

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

	ASRI located to the south of where the Charleston railway chord is proposed in option A. However, the bus services are unlikely to have a discernable impact.		
Landscape	There will be some landscape changes with this option. However, the bus services are unlikely to have a discernable impact.	This option that will have some effect on the landscape because it will introduce some new infrastructure.	Moderate negative impact.

Safety			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Accidents	This option would be expected to reduce the accident rates on the corridor road network, by removing road vehicular traffic; therefore, it would be reasonable to expect that this option would have a minor positive impact with respect to lowering accidents	The option under consideration will remove traffic from the main roads in the study corridor and will undoubtedly have an impact on both the number and severity of accidents on these roads. The estimated PVB for savings in accidents is £0.24m.	Minor positive beneficial impact.
Security	This option would include stations and termini designed to standard engineering guidance and hence would include adequate security facilities for passengers and freight. However, making these facilities secure does not necessarily increase the overall security for users.	In terms of these new facilities, it is expected that minimum safety requirements would be met in terms of personal security concerning their design and implementation of site perimeters, site surveillance, both formal and informal, lighting, visibility and emergency call facilities.	It is expected that the overall impact will be neutral.

Economy (Transport Economic Efficiency)

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Sub-objective	Item	Qualitative Information	Quantitative Information
User Benefits	Travel Time	Users will benefit from improved travel times due to de-congestion effects. Values for these were derived from the national default value-of-time data obtained from WebTAG and average (default) information.	£15.6m (PB 60-years)
	User Charges	There are user charges associated with this option.	-£4.4m (PB 60-years)
	Vehicle Operating Costs	Users will benefit from savings in fuel costs and from savings in vehicle wear and tear consistent with greater uniformity in vehicle speed. Values were based on the WebTAG and average (default) data.	£13.9m (PB 60-years)
	Carbon Benefits	The modal shift expected with the introduction of new high quality PT services in the corridor will result in reduced carbon emissions	£0.14m (PB 60-years)
Private Sector Operator Impacts	Investment Costs	There are no anticipated private sector investment costs. Assumes Govt will pay for all infrastructure costs.	Not applicable here
	Operating Costs	Private sector operating costs are the difference between total operating costs and the level of subsidy required with this option.	£4.4m (PC 60-years)
	Revenues	There will be fare-box receipts from this option. Only the net gain is presented in this AST, that is, the difference between revenues generated by the new services and those “abstracted” (lost) from other services.	£2.7m (PC 60-years)
	Grant/Subsidy payments	There are anticipated to be grant/subsidy payments with this option.	£13.2m (PC 60-years)

Economy (Economic Activity and Location Impacts)			
Sub-objective	Item	Qualitative Information	Quantitative Information
Economic Activity and Location Impacts	Local Economic Impacts	<p>This option will facilitate business supplies and deliveries and access to job opportunities. It will also enable commuters to remain in the study corridor, and to provide wider opportunities for shoppers.</p> <p>There may be some loss to the existing local public transport operators in terms of revenues and loss of custom by some local retailers.</p>	<p>There is expected to be a minor beneficial impact at both a local and national level.</p>

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

	National Impacts	Economic	<p>The Study Corridor contains the new national freight facility, considered in the National Planning Framework 2, which is being constructed at Rosyth, and rail freight improvements will enable quicker freight delivery to and from these new facilities from both a regional and national context.</p> <p>The study corridor also contains the Longannet Power Station which is featured in the National Planning Framework 2, and the efficient operation of which depends on being reliably supplied by coal six days a week 24 hours a day.</p>	There is expected to be a minor beneficial impact at both a local and national level.
	Distributional Impacts		<p>There will be some distributional effects associated with travel time changes, which are captured quantitatively in the TEE analysis.</p>	The travel time savings within the TEE results of which the distributional impacts are part are fairly substantial and therefore show a moderate beneficial impact.

Integration				
Sub-objective	Item	Qualitative Information	Quantitative Information	
Transport Interchanges	Services & Ticketing	This option will provide an opportunity for the integration of services with the existing bus and rail service network, the latter on the periphery of the project area. Opportunities will arise, particularly on the edge of the study area to share brand names, ticketing arrangements and to 'dove-tail' rail and bus timetables with existing service timetables.	Moderate beneficial impact.	
	Infrastructure & Information	The option provides potential car-bus and bus-bus interchange facilities at locations within the corridor such as at Rosyth, Oakley and Clackmannan, which may include park and ride sites, with potential for bus-rail and car-rail interchange facilities at both ends of the corridor.	Moderate beneficial impact.	

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Land-use Transport Integration		<p>The Port of Rosyth and other types of land use along the corridor have the potential to be better linked together with this option, which will facilitate land use integration by providing additional transport links to development land particularly around Dunfermline and the Core Area around Alloa.</p> <p>This scheme option will also promote transport objectives by improving the quality and efficiency of public transport, reducing the need to travel by car and alleviating localised vehicle congestion, thereby contributing towards a reduction in CO₂ emissions.</p>	Minor beneficial impact
Policy Integration		<p>This option articulates well the transport policies and strategies as detailed in the STPR, Clackmannanshire and Fife LTSs, the Fife Structure Plan (version 2), the SEStran Regional Transport Strategy, SPP17 and PP1, and in doing so increase access for all to a public transport system serving areas of employment, housing and recreation and would encourage social inclusion.</p> <p>Furthermore, improvements to passenger connectivity by public transport in general, both within the corridor and between the corridor and the adjacent regions, will in turn encourages modal shift from car to public transport usage.</p>	Major beneficial impact

Accessibility & Social Inclusion			
Sub-objective	Item	Qualitative Information	Quantitative Information
Community Accessibility	Public Transport Network Coverage	<p>This option will open up alternative commuter and tourism access to the area from the surrounding towns and cities such as Dunfermline, Edinburgh, Stirling, Perth and Glasgow. Moreover, this option also provides direct connections to the regional and national transport networks which significantly increase connectivity.</p>	<p>The results of the accessibility and social inclusion show a moderate beneficial impact.</p>
	Access to Other Local Services	<p>This option will provide intermodal change facilities for bus and car within the corridor, and between bus-bus and bus-rail at either end of the study area, giving ready access to local facilities and services.</p>	<p>The results of the accessibility and social inclusion show a moderate beneficial impact.</p>

Appraisal Summary Table – Clackmannanshire – Fife – Edinburgh STAG Study: Option D: Existing Rail Alignment with Charleston Chord for Freight Services plus Express Bus for Passenger Services on A907 Trunk Route

Comparative Accessibility	Distribution/Spatial Impacts by Social Group	Enhancing the modal choice available to residents is provided by an expanded local public transport network which will be beneficial to all groups. The only possible caveat is the fare terms arranged for public transport and whether there is a cost recovery component included in these that penalise those unable to afford them, such as the unemployed, the elderly and the lower socio-economic groups.	The results of the accessibility and social inclusion show a moderate beneficial impact.
	Distribution/Spatial Impacts by Area	The public transport investment proposed for the area will assist a broad range of beneficiaries. This option will assist commuters and those seeking work, those visiting further afield, tourists and business movements into and out of the area.	

Cost to Public Sector			
Item	Qualitative information	Quantitative information	
Public Sector Investment Costs	These anticipated public sector investment costs include risk & Optimism Bias.	-£11.3m (PC 60-years)	
Public Sector Maintenance Costs	There are anticipated to be significant public sector maintenance costs with this option.	-£17.6m (PC 60-years)	
Grant/Subsidy Payments	There are public sector grant and subsidy payments with this option.	-£13.2m (PC 60-years)	
Revenues	There are no anticipated public sector revenues with this Option.	Not applicable here	
Taxation impacts	Due to a loss of Government taxation revenues from improved VOCs.	-£7.5m (PC 60-years)	

Monetised Summary	
Present Value of Transport Benefits	£43.7m (PVB 60-years)
Present Value of Cost to Government	-£51.4m (PVC 60-years)
Net Present Value	-£7.7m (PVB 60-years), adjusting for total wider economic benefits -£4.8m (PVB 60-years)
Benefit-Cost to Government Ratio	0.85, adjusting for total wider economic benefits 0.91
Rationale for Selection or Rejection of Proposal:	It is recommended that the proposal is not taken forward to the next stage, because this option does not meet the Government economic objective

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