

**Aberdeenshire Council**  
**A90 South Development Options – Comparative Appraisal of Major Sites**  
**Development Management Transport Appraisal Inception Report**

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## **1 INTRODUCTION**

### **1.1 Background**

SIAS Limited (SIAS), under the North East framework agreement has been requested by Aberdeenshire Council (AC) to provide a Proposal for the A90 South Development Options, Comparative Appraisal of Major Sites study. SIAS will be assisted by MVA who will provide strategic transport model support to the study.

The *Main Issues Report* in support of the emerging Aberdeenshire Local Development Plan was published for consultation in May 2009. The Report, which is available on line at [http://www.aberdeenshire.gov.uk/planning/localplan\\_new/index.asp](http://www.aberdeenshire.gov.uk/planning/localplan_new/index.asp), gives details of currently preferred (blue) sites across Aberdeenshire; although this may change as the document moves towards becoming the draft Local Development Plan (LDP) on considering the results of the consultation and further study work.

Transport Scotland has written in response to the *Main Issues Report* consultation expressing concern over the settlement strategy being proposed for the A90 south corridor with the proposed strategy having significant consequences for the strategic road network. To be able to reach a conclusion on which approach is to be supported, a more detailed comparative appraisal is needed which considers the consequences of a range of major development options along the A90 south corridor in both a site specific and cumulative context.

### **1.2 Proposed Study**

It is proposed to carry out the comparative appraisal of the A90 south corridor major development sites identified in the *Main Issues Report*; particularly those at Banchory Leggart, Marywell, Portlethen, Elsick Estate (Newtonhill), Stonehaven and Laurencekirk. The impact of development proposed in settlements along the A92 coast road should also be taken into account where the A92 meets the A90 south of Stonehaven. This area of Aberdeenshire is administered under the name of Kincardine and Mearns.

The study should be an objective led appraisal using Transport Scotland’s emerging DPM – TAG methodology, which is closely allied to the principles of STAG. This appraisal method, specifically aimed at assessing future development plans, will effectively be trialled on the new



Aberdeenshire Local Development Plan. Close partnering with both Transport Scotland and Aberdeenshire Council will be needed to ensure the study outcomes meet the objectives of each organisation.

A Consultative Draft version of *Transport Planning Appraisal Guidance for Developing Planning and Management DPMTAG Version 8 (Transport Scotland, 13 August 2009)* was made available to SIAS so that the influence of this methodology could permeate the study.

The study area is shown in Figure 1.1. The study area includes the areas of Aberdeenshire aligned to the A90 south of Aberdeen and the A92. The study area also includes areas of the City of Aberdeen up to the River Dee crossings to evaluate any cross border transport impacts.



Figure 1.1 : Study Area

### 1.3 Scenario Options

The major sites scenario tests for the study were agreed with Aberdeenshire Council, Transport Scotland and Nestrans at a pre-inception meeting on 21 August 2009. These were further confirmed by Aberdeenshire Council as:

1. Preferred MIR strategy (blue allocations)(K121, K125, K73, K67, K36, K141, K122)
2. Banchory Leggart (K121) & Porthlethan (K90)(and K73, K67, K36, K38, K141, K122)
3. Elsick East (K142, access only onto existing A90)(and K73, K67, K36, K38 K141,K122)
4. Stonehaven South (K89)(and K73, K67, K36,K38)



The location of these potential major *housing* sites is shown on diagrams in Appendix A. There are also a few minor sites in this area that will not be reviewed (K13, K59 & K71). The potential line of the proposed Aberdeen Western Peripheral Route (AWPR) has been included on the plans in Appendix A, for ease of reference. The outcome of the AWPR public inquiry is still pending at the time of writing.

The preferred MIR *employment* sites will be assumed unchanged between each Scenario. The drawings shown do not include all the MIR preferred strategy for the areas south of Stonehaven. It is assumed that the blue *housing* and *employment* allocations for areas south and south west of Stonehaven (in Aberdeenshire) will be included in each of the above Option Scenarios, unless otherwise instructed. Cross-border travel growth will need to be considered via TMfS/LATIS.

## 2 PART A: STUDY TASKS

### 2.1 Tasks

There are a series of tasks to be undertaken for the comparative study

- Task 1 Briefing
- Task 2 Defining Objectives
- Task 3 Transport Option Generation and Sifting Steering Group Workshop
- Task 4 People Trip Generation
- Task 5 Accessibility by Active travel and to public transport (Rail and Bus)
- Task 6 Appraisal of Cumulative Impact – ASAM4
- Task 7 Appraisal of local impact – selected sites using S-Paramics
- Task 8 A Matrix Comparison
- Task 9 Presentation to Steering Group
- Task 10 Final Report

The following diagram Figure 2.1 illustrates the process proposed. It was found that the option generation and sifting element would be best undertaken early in the process to enable a people trip generation exercise to take place, as this may vary between modes with differing potential transport options.



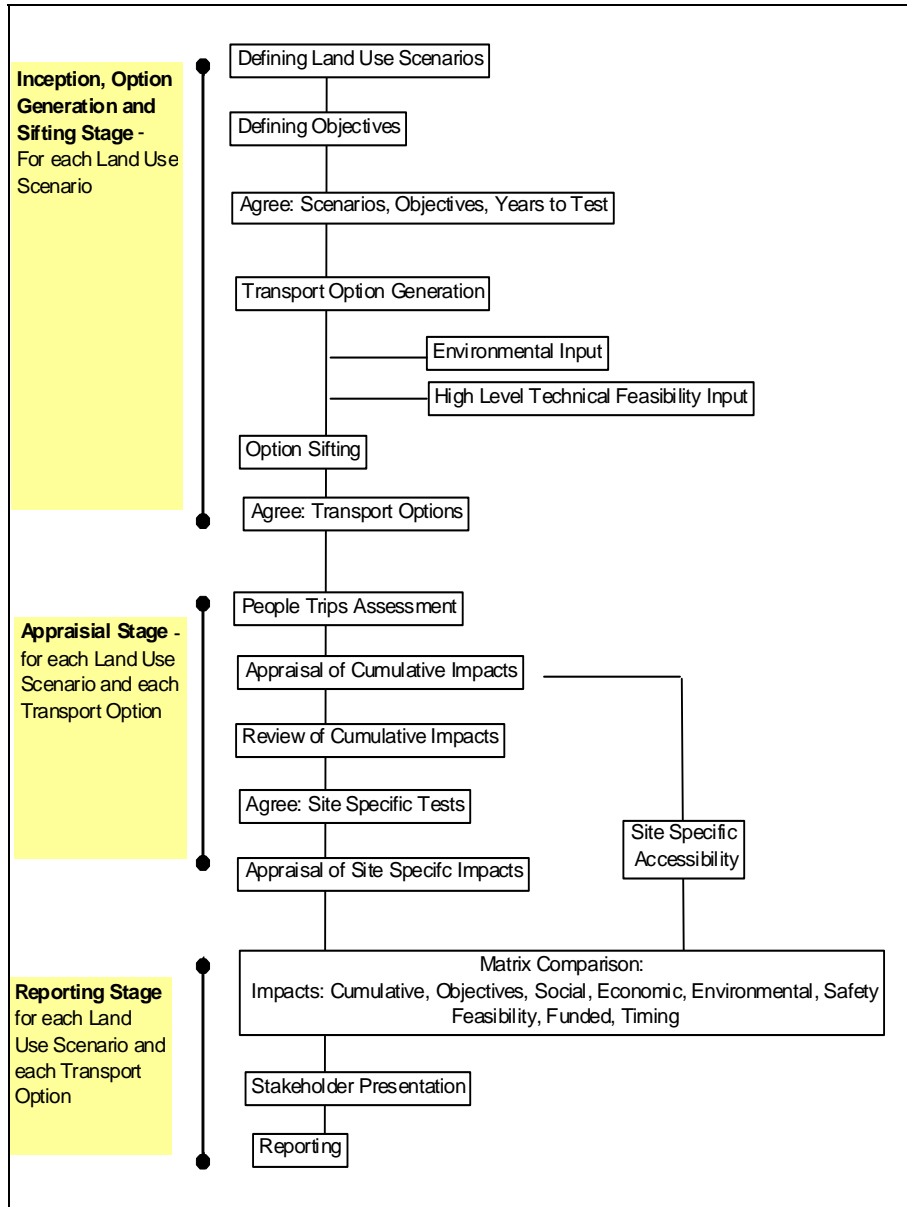


Figure 2.1 : Study Process

**2.2 Task 1: Briefing and Land Use Scenarios**

An initial meeting was held on 21 August 2009 that established the Steering Group for the study and discussed the Brief. The Steering Group is established as:

- Aberdeenshire Council – Peter MacCallum & Piers Blaxter
- Transport Scotland and Representatives – Alison Irvine (TS), John Milligan (JMP)
- Nestrans – Rab Dickson
- Aberdeen City Council – Joanna Murray

The detail of land use scenarios are being developed in consultation with Aberdeenshire Council.



## 2.3 Task 2: Defining Objectives

### 2.3.1 Local Development Plan Vision and Aims

Aberdeenshire Council has adopted the vision and aims of the finalised Structure Plan for the Aberdeenshire Local Development Plan and will develop objectives for the plan based on those aims. These are to:

- *provide a strong framework for investment decisions which help to grow and diversify the regional economy, supported by promoting the need to use resources more efficiently and effectively; and*
- *take on the urgent challenges of sustainable development and climate change.*

To support these main aims, the LDP also aims to:

- *make sure the area has enough people, homes and jobs to support the level of services and facilities needed to maintain and improve the quality of life;*
- *protect and improve our valued assets and resources, including the built and natural environment and our cultural heritage;*
- *help create sustainable mixed communities, and the associated infrastructure, which meet the highest standards of urban and rural design and cater for the needs of the whole population; and*
- *make the most efficient use of the transport network, reducing the need for people to travel and making sure that walking, cycling and public transport are attractive choices.*

The transport study under consideration requires comparing the site specific and cumulative impacts and best fit of a series of land allocations against the objectives of the Local Development Plan and make sure that these also meet the overall objectives of Local, Regional and National Transport Strategies. At the moment there are not specific objectives associated with the LDP, but the *vision* and *aims* that exist can be used to develop overarching transport objectives that can be given indicators on which to evaluate performance.

### 2.3.2 Key Questions Answered by Transport Appraisal

At the start of the study there are key questions that require answered in order to provide an evidence base for any future decisions on land allocations. The questions will assist in developing the study:

- What is the relationship between demand and supply of transport networks and how will this affect the Strategic Transport Network?
- What is the cumulative impact of the plan proposals on travel demand?
- What options best meet Local Development Plan objectives?
- What are the wider policy impacts (social, economic and environmental)?

It is proposed to address these questions in a strategic but quantitative way in this current study.



For the proposed plan there will also have to be additional questions answered:

- Are the interventions technically feasible?
- How will they be funded?
- When are they required?

It is proposed to address these questions in a strategic qualitative way in this current study. More detailed appraisal will be subsequently required.

Some local transport appraisal work has already been undertaken in the study area for the towns of Portlethen and Stonehaven. Capacity studies assessed traffic capacity and sustainable accessibility and are available at the following location.

<http://www.aberdeenshire.gov.uk/transportation/TrafficCapacityStudies.asp>

### 2.3.3 DPMTAG Transport Appraisal

DPMTAG Transport Appraisal procedures suggest that it would be useful to set out broad objectives for the transport networks in the context of the overall vision and planning objectives.

Broad Objectives for transport networks have been drafted, by the consultants, for this study from the aims of the LDP, as follows:

- Objective 1 – **Make the most efficient use of the transport network** – by movement of people and goods using existing networks, locally and across boundaries, and when considering the new communities associated infrastructure
- Objective 2 – **Reducing the need for people to travel** – in terms of the ability of mixed development communities to operate internally for some journeys, by reducing distance to other facilities, as well as acknowledging the role of technology
- Objective 3 – **Making sure that walking, cycling are attractive choices** – by taking cognizance where sites are accessible to facilities within an active travel range and that any natural or manmade barriers to walking or cycling movement are identified and can be overcome
- Objective 4 – **Making sure that public transport is an attractive choice** – by making best locational use of existing public transport networks and identifying where additional measures will be required

### 2.3.4 Broad Objectives Cross Examination

A matrix check will be undertaken as part of this study to demonstrate that these objectives accord with the Aberdeenshire Council Local Transport Strategy, the Nestrans Regional Transport Strategy and the Scottish Government's National Transport Strategy.

## 2.4 Task 3: Transport Option Generation and Sifting Steering Group Workshop

### 2.4.1 Steering Group Workshop

It is proposed to undertake one Steering Group workshop to address problems and issues, objectives, assumptions, option generation and initial sifting.



#### 2.4.2 Problems and Issues

In the Steering Group workshop an overview will be given of transport related problems and issues based on the framework of land use options already proposed by Aberdeenshire planning Department.

#### 2.4.3 Objectives

DPMTAG requires a broad set of objectives to be identified. At the workshop the Steering Group will be asked to review and approve the broad objectives of the study.

#### 2.4.4 Assumptions

At the workshop it will be necessary to agree a series of assumptions. These include the detail of Land-Use scenarios and those assumptions applicable to the Aberdeen Sub Area Model (ASAM), such as:

- Application of ASAM4 in areas other than the southern corridor
- Aberdeen City LDP alterations within ASAM4
- Aberdeenshire LDP alterations outwith the A90 corridor within ASAM4
- Land Use Scenarios for the A90 South corridor within ASAM4
- Forecast Years 2030 (intermediate years to be agreed)

#### 2.4.5 Transport Options Generation

A number of outline strategic access transport options need to be identified to provide sufficient information for further assessment; this shall be discussed at the workshop.

The problems and issues with each site shall be the starting point for addressing access options. The access options shall be based on input from the Steering Group, environmental constraint information (from Aberdeenshire Council), and engineering judgement. Transport options may include any public transport or roads based options, including any relevant documented representations from major site developers on potential access solutions. Each land use scenario shall have a series of transport options which shall be initially sifted to two or three access strategies for appraisal purposes. Given the high level nature of the study, the public transport options will be approved by the Steering Group, but consultation with Operators will be required in more detailed development planning stages.

As a result of the workshop it is envisaged that the transport options will then be available to be used for the cumulative impact assessment.

### 2.5 Task 4: People Trip Generation for the A90 South Corridor

#### 2.5.1 Methodology

The people trip generation for the land use scenarios of the A90 South corridor will be developed within ASAM4. ASAM uses household, population and employment information to calculate the level of trip movements across Aberdeen and Aberdeenshire. This includes forecasting future traffic levels and public transport patronage. Mode share is determined by the travel characteristics of a particular area (i.e. time to travel to/from other origins/destinations), so it is important that an appropriate representation of access strategies (for both road based and public transport modes) is included at an early stage of the appraisal process. Where a transport



option has an intensification of public transport availability this will have impacts modelled by ASAM.

### 2.5.2 ASAM4 inputs

At the initial stages, ASAM4 requires the following specific information (at a geographical or zonal level) to generate forecasts relating to people trip generation associated with particular developments:

- Household Estimates
- Population estimates
- Employment Estimates

Where relevant, ASAM also requires information relating to road and public transport access strategies for new development areas (i.e. general information anticipating how each development would be connected to the transport system.

### 2.5.3 ASAM4 outputs

Using these inputs ASAM4 can forecast changes in the level of travel movements based on car ownership levels:

- Car owning trip productions
- Car owning public transport trip productions
- Non-car owning PT trip productions
- Total Trip Attractions (Car and PT)

ASAM4 can also generate forecasts at a more detailed time period level, producing overall levels of Road and Public Transport Demand in the morning, inter peak and evening peak time periods:

- Change in Cars and Light Goods Vehicle Demand
- Change in Heavy Goods Vehicle Demand
- Change in Public Transport passenger Demand

ASAM4 can generate travel statistics for each modelled time period: (AM, IP, PM):

- Change in Vehicle Kilometres Travelled
- Change in Vehicle or Public Transport Travel Time
  - Along specific sections of the road network
  - Between key origins and destinations (i.e. to/from key employment locations or transport interchange points)
- Identify congestion pinch points
- Evaluate changes in road vehicle based Carbon emissions

ASAM4 can output strategic road based link flows and changes in public transport patronage.





## 2.6 Task 5: Accessibility by Active Travel and to Public Transport (Rail and Bus)

Issues of accessibility cover a number of the broad objectives in the study. It is proposed to undertake some Accession accessibility assessments to determine indicators in relation to objectives of making sure that walking and cycling are attractive choices and making sure that public transport is an attractive choice. An initial general review of current public transport accessibility will also be beneficial in identifying current accessibility issues at major sites.

It is acknowledged that major sites will have planning frameworks that encourage certain community facilities in the developments to encourage short journeys that can be undertaken by walking or cycling. The focus of the assessment in this study will be outward looking to give an indicator as to what other travel destinations are available within an active travel range of major sites.

In relation to major sites for Active travel modes it is proposed to:

- Assess the existing weight of employment/higher education opportunities within active travel ranges (Data from Census)
- Comment on potential future weight of employment/higher education within active travel ranges (Data from Main Issues Report)
- Assess active travel access to key Public Transport nodes (rail, bus stations, future Park & Rides)

In relation to major sites for Public Transport modes it is proposed to:

- Comment on options for access to key Public Transport nodes
- Indicate existing journey opportunities from key nodes

The assessment of future public transport indicators will be also undertaken using ASAM4. 'Heat mapping' will be used to indicate where there may be capacity issues in the rail network.

## 2.7 Task 6: Appraisal of Cumulative Impact – ASAM4

ASAM4 contains a representation of several transport infrastructure schemes that are anticipated to be introduced in the short to medium term. These assumptions currently include the following proposals and would be the committed Structure plan infrastructure as a Do-Minimum – this requires confirmation:

- AWPR including the Fastlink
- A90 Balmedie to Tippetty dualling
- Union Street Pedestrianisation
- Third Don Crossing
- Haudagain A96/A90 Improvements
- Berryden Improvements
- A90 South Park & Ride
- A96 Park & Ride



A Reference case may also include:

- HOV lane on the A90 northbound
- Basic transport access strategies for proposed sites

The confirmed Do-Minimum scenario would form the basis to appraise the proposed land use strategies in the A90 South corridor.

## 2.8 Task 7: Appraisal of local impact – selected sites potentially using S-Paramics

The Brief for the study states that both a ‘site specific’ and ‘cumulative’ comparative appraisal should be undertaken to be able to reach a conclusion on the consequences of a range of major development options along the A90.

In this respect it is likely that some detailed assessment will be required over and above the wider ASAM transport modelling. It is proposed that options for these be assessed using microsimulation. It is not proposed to undertake a detailed STAG on the access options for any site, this will have to take place in due course to support a business case including elements, such as benefits due to safety improvements. The transport appraisal work proposed could be used to provide evidence for any future STAG assessment.

It has already been identified in the MIR that the operation of junctions at Laurencekirk may need review. This proposal takes account of a detailed set of junction assessments at that location. Aberdeenshire have survey data already available to inform this assessment. The detail of any assessment requires to be discussed.

ASAM results will need to be reviewed to assess if microsimulation modelling is required to determine the differences between access options at other locations.

Link capacity will be reviewed in the context of *Design Manual for Roads and Bridges (DMRB)* Volume 5, such as, TA46/97 and TA79/99. The outline form of generated junction options will be informed by reference to *DMRB* Volume 6, such as, TD42/95.

Time constraints on the project may reduce the amount of testing that can be undertaken and key decisions on which junctions may require testing will be necessary. If more time was available then site specific assessments could be undertaken for all land use scenarios and all transport options. Allowance is given in this proposal for appraisal of key junctions associated with the preferred MIR alone. These arrangements can be reviewed once cumulative impacts are known.

## 2.9 Task 8: A Matrix Comparison

A matrix assessment will be required to enable each of the four land use options to be considered. For each scenario option there may be a number of access related options. The outline framework for the matrix indicators are shown in Table 2.1. These will be developed during the course of the study to provide a mechanism for the Steering Group to compare the relative impacts of the land use scenarios and the transport options for each scenario.



Table 2.1 : Framework for Matrix Indicators

<b>Impacts</b>	<b>Description</b>	<b>Indicators</b>
<b>Cumulative Impact</b>	Link based assessment of the cumulative impact on the trunk road network and rail network	ASAM4 indicators (e.g. traffic flow, rail passenger capacity)
<b>Objective 1</b>	<b><i>make the most efficient use of the transport network</i></b> Efficiency of Road Network Efficiency of Public Transport Network	ASAM4 indicators (e.g. journey times, capacity) ASAM4 indicators (e.g. journey times, capacity)
<b>Objective 2</b>	<b><i>reducing the need for people to travel</i></b> Overall distances travelled Consideration of impact of technology	ASAM4 indicators (e.g. Demand and Vehicle Kilometres travelled) Qualitative Assessment (e.g. ASAM4/LATIS assumptions)
<b>Objective 3</b>	<b><i>making sure that walking, cycling are attractive choices</i></b> Destination facilities within active travel range Assessment of physical barriers to active travel	Accession indicators (e.g. to existing employment /higher education). Comment on potential new facilities. Qualitative Assessment
<b>Objective 4</b>	<b><i>making sure that public transport is an attractive choice</i></b> PT accessibility to key PT nodes PT opportunities to Aberdeen City Centre	Comment on access to rail, bus stations and Park & Rides Existing rail and express bus frequency and journey times.
<b>Social</b>	General comment on the level of social accessibility impact	Qualitative Assessment
<b>Economic</b>	General comment of economic efficiency related to journey times	ASAM4 data to key locations.
<b>Environmental</b>	General comment on environmental constraints Carbon Emissions Impact	Qualitative Assessment by Aberdeenshire Council ASAM4 data
<b>Safety</b>	General comment on safety of access strategies	Qualitative Assessment
<b>Feasibility</b>	High Level Technical Feasibility	Qualitative Assessment
<b>Funded</b>	Significance of cost, evidence based input from Aberdeenshire Council	Qualitative Assessment, potentially informed by local appraisal
<b>Timing</b>	Discussion of timing issues	Qualitative Assessment



## 2.10 Task 9: Presentation to Steering Group

A presentation will be made to the Steering Group summarising the assessment of options and matrix development. Steering Group feedback will be noted for development of the final report.

## 2.11 Task 10: Final Report

A final report will be written incorporating the findings of the study.

## 3 STANDARDS

The study will be undertaken in accordance with the relevant documentation, including the *DMRB*, *STAG* and draft *DPMTAG* guidance.

## 4 TIMESCALES

It is understood that the study would need to be completed by end of November 2009 (to be confirmed).

It is proposed to have a matrix comparison available in this timescale but that full reporting would not be available until the end of December 2009.

Key milestones are:

- |                                |                              |
|--------------------------------|------------------------------|
| • Briefing                     | 21.08.2009                   |
| • Transport Options Workshop   | 08.09.2009 (To be confirmed) |
| • Site Test Definition Meeting | 09.11.2009 (To be confirmed) |
| • Steering Group Presentation  | 01.12.2009 (To be confirmed) |
| • Report                       | 22.12.2009 (To be confirmed) |

## 5 IDENTIFICATION OF RISKS

There is potential risk to the programme from the following factors:

- Delay in obtaining data from the Client/Council
- Delay in arrangement of scoping meetings/responses from the Council
- Delay from third parties

SIAS will inform the Client in writing of any potential new risks to the programme as the project progresses. SIAS will specifically identify risks that may have implications for the potential deliverability in terms of timescales and additional costs.

The supply of 3<sup>rd</sup> party data and agreeing the scope of the study with the Client are the main risks to the anticipated programme for the study.



**A APPENDIX A**

**A.1 Major Sites – Scenarios**

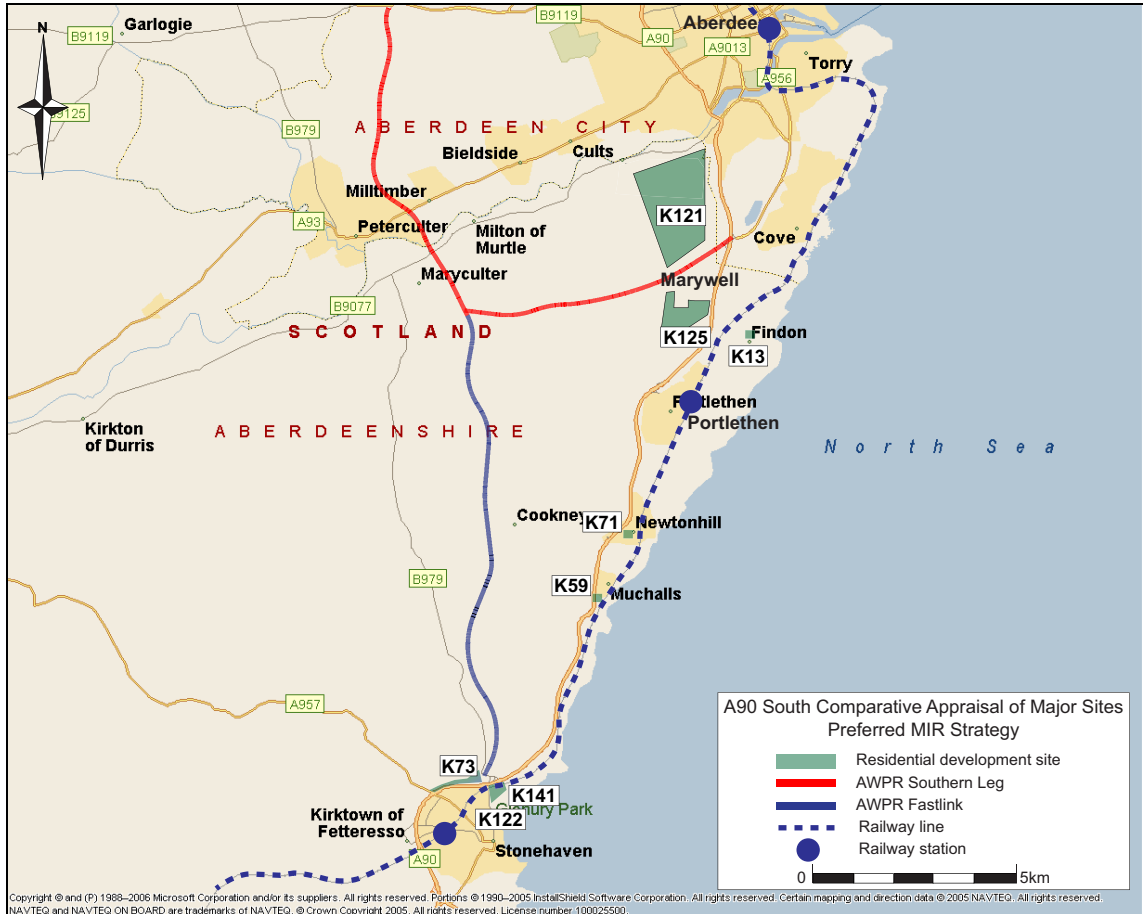


Figure A.1 : Scenario 1 – Preferred MIR Strategy



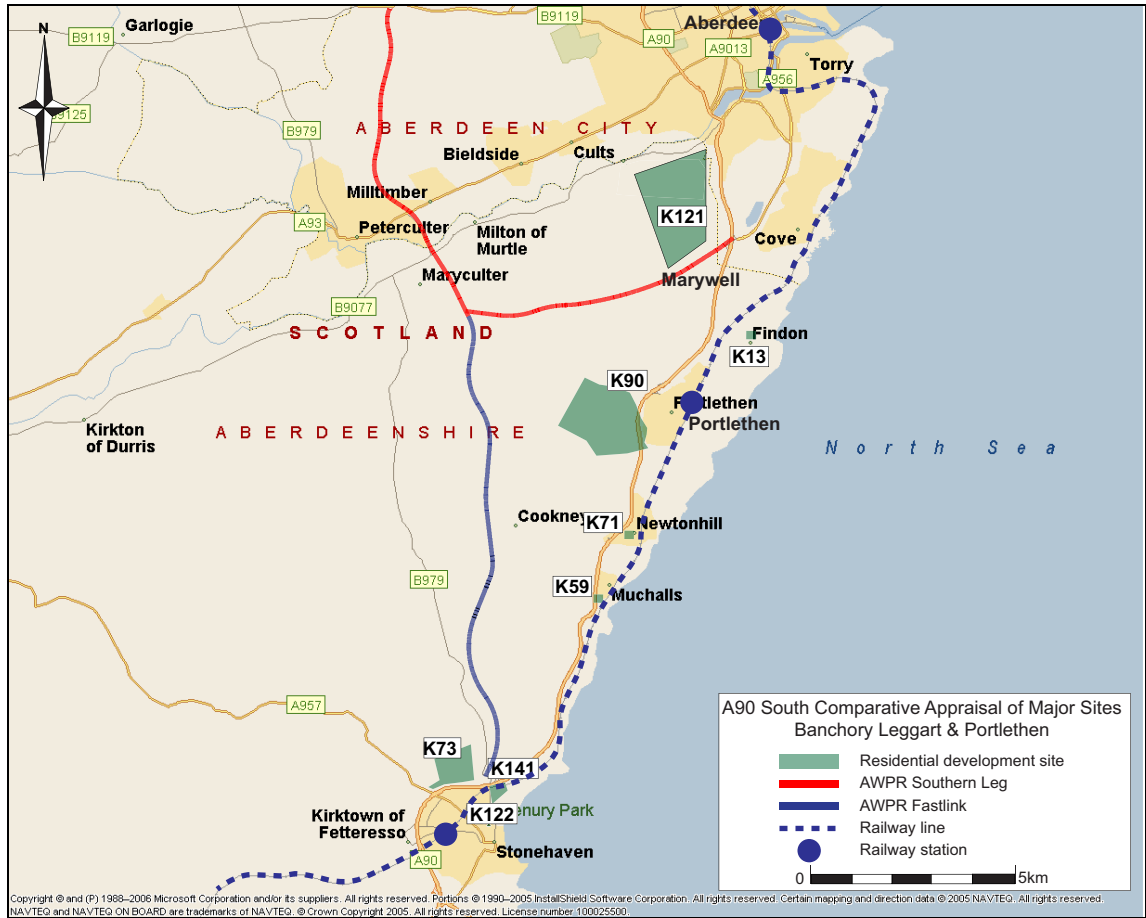


Figure A.2 : Scenario 2 – Banchory Leggart & Portlethen



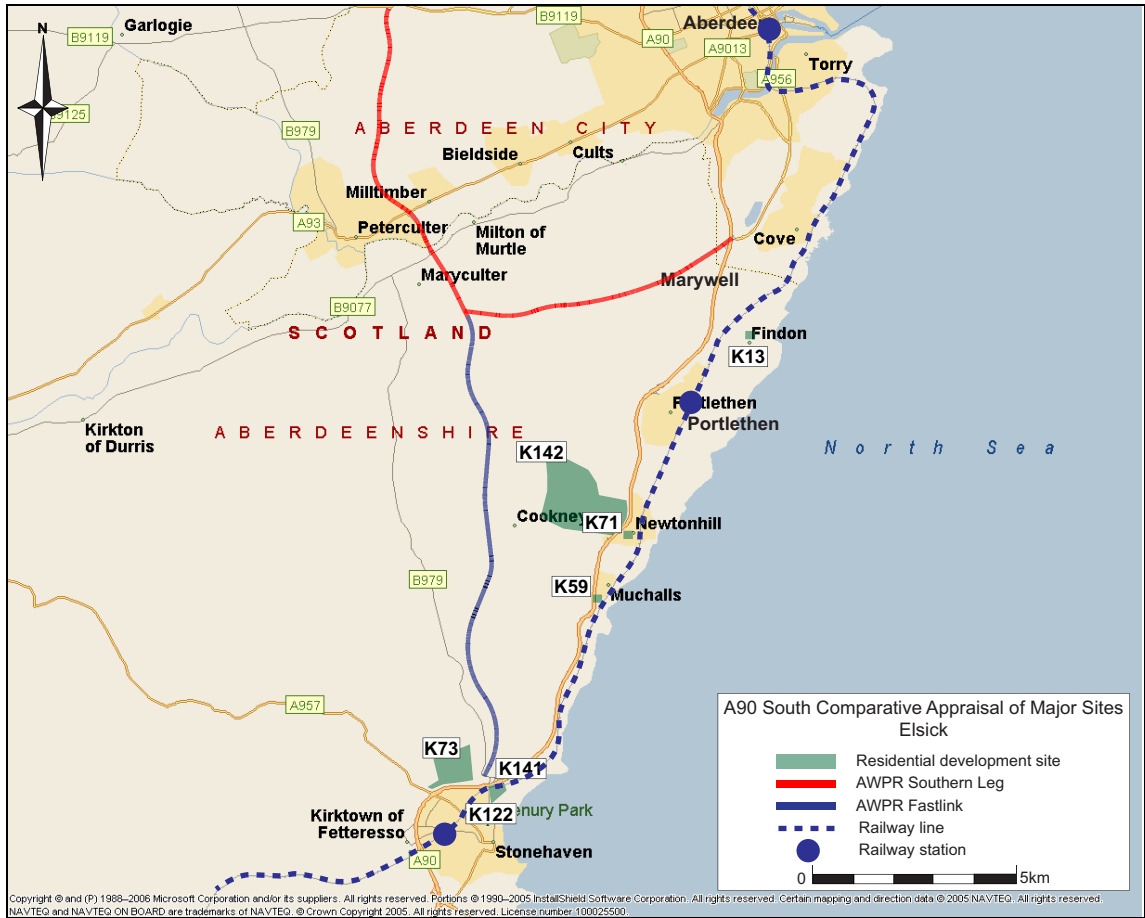


Figure A.3 : Scenario 3 – Elsick



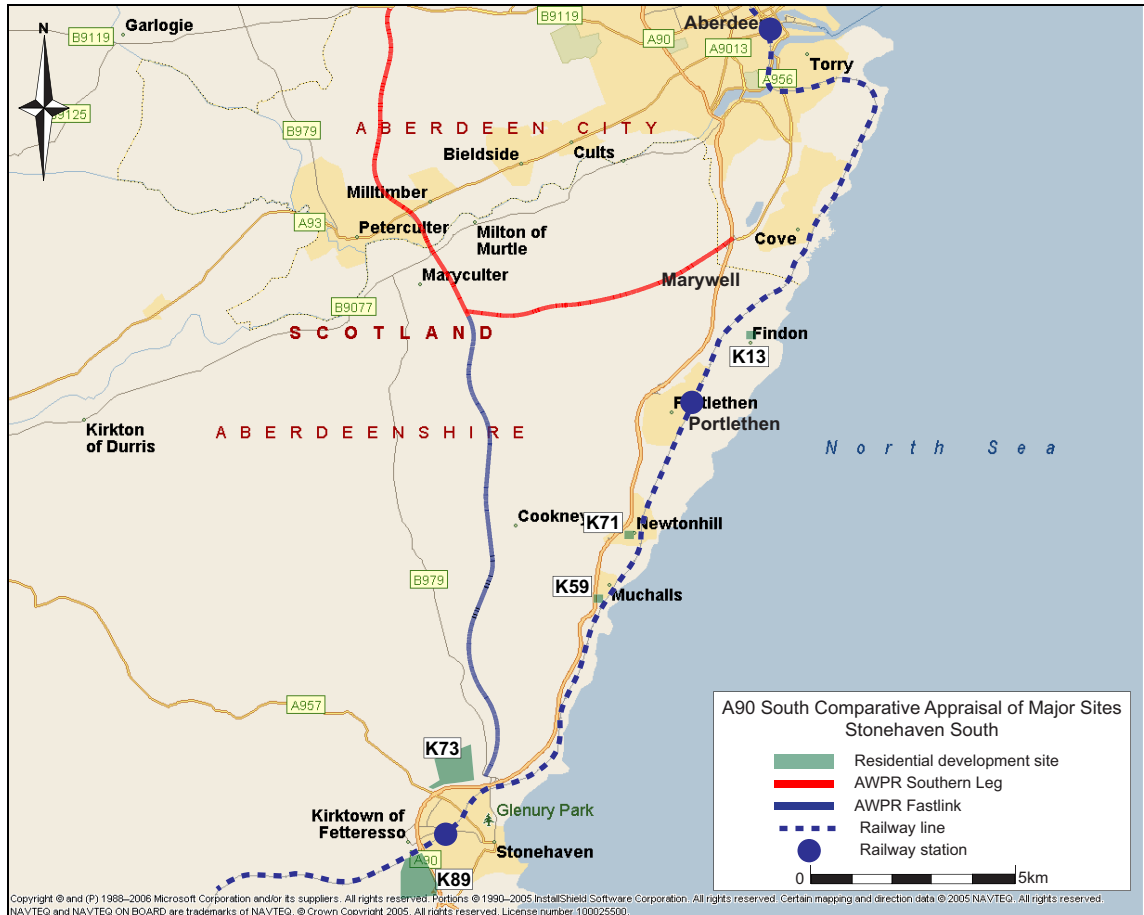


Figure A.4 : Scenario 4 – Stonehaven South

