

Aberdeen to Inverness Transport Corridor Study

Non Technical Executive Summary



INTRODUCTION

The Aberdeen to Inverness transport corridor is recognised as being of national strategic importance within the Strategic Transport Projects Review. It links the urban network of the major city of Aberdeen to the city of Inverness, a strategic node on the transport network of Scotland. The corridor provides connections to international gateways at Aberdeen and Inverness airports and the major sea port of Aberdeen. This corridor is important in supporting the continued economic growth of the two cities and connecting the rural communities within the corridor to those economic centres and to each other.

The transport network in the corridor comprises the A96 trunk road and the Aberdeen to Inverness railway line.

The purpose of this study is to undertake a Pre-Appraisal assessment in accordance with the Scottish Transport Appraisal Guidance (STAG) to:

- identify the problems and opportunities along the corridor;
- to establish transport planning objectives that seek to address these problems; and
- to generate and sift a range of transport improvement options that have the capacity to deliver the established transport planning objectives.

Options emerging from the sifting process will be considered subsequently as part of the Strategic Transport Projects Review (STPR).

The Scottish Executive, Transport Scotland, Hitrans and Nestrans jointly commissioned this study. In May 2006, Scott Wilson was appointed by the Scottish Executive to carry out the study on behalf of the commissioning parties. The study was carried out under the direction of a Steering Group comprising representatives from the Scottish Executive, Transport Scotland, Hitrans, Nestrans, Highland Council, Moray Council, Aberdeenshire Council, Aberdeen City Council, Highlands and Islands Enterprise and Scottish Enterprise Grampian.

LIMITS OF THE STUDY

The transport corridor passes through the local authority areas of Highland Council, Moray Council, Aberdeenshire Council and Aberdeen City Council. The limits of the study are generally from the A90/A96 Haudagain Roundabout in Aberdeen to the A9/A96 Raigmore Interchange in Inverness for the trunk road, and between Aberdeen and Inverness railway stations, as shown in Figure 1.

STUDY REQUIREMENTS

The project brief specifies that the study is to be undertaken in accordance with the STAG pre-appraisal methodology and the following general requirements:

- analysing the existing transport conditions;
- assessing and identifying current and future transport problems and opportunities;
- establishing a set of transport planning objectives specific to the corridor; and
- generating and sifting from a wide range of options across all transport modes to identify options that have the propensity to deliver the established transport planning objectives.

CONSULTATION

A series of consultations was undertaken with key stakeholders during the course of the project involving a project specific questionnaire issued in August 2006, and Stakeholder Workshops held locally in Elgin during October and December 2006.

The main objectives of the stakeholder workshops were to involve various interested bodies in the initial stages of the transport corridor study process, to listen, discuss and take into consideration a wide range of views on how the transport corridor is perceived to operate and how it might develop in the future.

EXISTING AND FUTURE CONDITIONS

ROAD BASED CONDITIONS

The A96 trunk road between Raigmore Interchange and Haudagain Roundabout is approximately 159 kilometres long and passes through various towns and villages along the route including Nairn, Forres, Elgin, Fochabers, Keith, Huntly and Inverurie. The trunk road is single carriageway along much of its length but at the western and eastern limits has previously been upgraded to dual carriageway standard. At Inverness, the dualling extends for some 1 kilometre from Raigmore Interchange to the roundabout at Inverness Retail and Business Park. At Aberdeen, the dualling extends for some 20 kilometres from Haudagain Roundabout to Inverurie. Problems associated with peak hour congestion at Haudagain Roundabout are presently being considered by others as part of a separate STAG appraisal.

Traffic on the A96 comprises both long distance trips between Inverness and Aberdeen, and shorter, local trips between the various communities along the corridor and from those communities to Inverness and Aberdeen.

Existing information was extracted from Transport Scotland's traffic database to establish the following variation in traffic volumes (expressed in vehicles per day (vpd)) along the route:

- 36,000 vpd between Raigmore Interchange and the Inverness Retail and Business Park;
- 16,000 vpd to the west of Smithton and Culloden;
- 11,500 vpd between Culloden and Nairn;
- 10,200 to 11,600 vpd between Nairn and Elgin;
- 14,200 to 17,000 vpd between Elgin and Fochabers where the A98 joins the A96;
- 6,800 to 7,700 vpd between Fochabers and Inverurie;

- 16,100 and 27,200 vpd to the east of Inverurie; and
- 39,300 vpd on the approach to Haudagain Roundabout.

Based on data collected the 24-Hour traffic composition is as follows:

- Cars 80%
- LGV 12%
- OGV1 5%
- OGV2 2%
- PSV 1%

Between 2002 and 2005 traffic growth along the A96 trunk road is between 1.5% and 4.5% per annum.

Journey time surveys were undertaken between Inverness and Aberdeen in June 2006 to assist in quantifying perceived problems in journey time reliability along the length of the A96.

PUBLIC TRANSPORT- BUSES

There is a regular bus service serving the various communities along the route. A total of 14 services between Inverness and Aberdeen between 0600 hrs and 2025 hrs have been identified. The average journey time of these bus services is 3 hours 47 minutes.

PUBLIC TRANSPORT - RAIL

The Aberdeen to Inverness railway is approximately 174 km long between Aberdeen and Inverness Stations. The railway is mostly single track and generally follows the same corridor as the trunk road over the western section of the route from Inverness to Lhanbryde, but follows an alternative alignment from Lhanbryde to Aberdeen, with the exception of a 5.5 kilometre section to the north of Inverurie where the railway is adjacent to the trunk road.

The Aberdeen to Inverness IOS (Incremental Output Statement) study, undertaken in 2005 on behalf of the Scottish Executive, Nestrans and the SRA, considered possible improvement schemes for the railway between Aberdeen and Inverness. Options were considered with the primary objectives of improving journey times along the route and introducing an hourly service between Aberdeen and Inverness.

INTERNATIONAL GATEWAYS

The corridor also serves two international airports, namely the Aberdeen Airport at Dyce and Inverness Airport at Dalcross. Aberdeen Airport provides more than 40 fixed wing domestic and international air connections and represents the region's main international gateway, supporting the tourism industry and other important business interests. As well as road links to the airport, Aberdeen is also served by a rail connection at Dyce station.

Inverness Airport is the main domestic air gateway for the Highlands and Islands of Scotland and handles more than 330 scheduled flights a week to UK destinations. It is the largest of 10 domestic airports serving the region operated by Highlands and Islands Airports Limited (HIAL). Although the railway line passes in close proximity to the runway at Inverness there is currently no rail connection to Inverness airport.

CYCLING

In terms of cycling provision between Aberdeen and Inverness along the transport corridor, the National Cycle Network currently only covers a short section of the route. The route originates within Aberdeen city centre, passes Haudagain Roundabout to the north before heading north towards Dyce. A limited section of the National Cycle Network could potentially be used by cyclists on the A96 at this location between Haudagain Roundabout and Bucksburn Roundabout.

ROAD SAFETY

Information on road traffic accidents involving personal injury for the five-year period between 2001 and 2005 was obtained from Transport

Scotland for analysis and comparison with national trends. 487 accidents occurred along the A96 between Inverness and Aberdeen during the five-year period between 2001 and 2005 inclusive, of which 24 (5%) were fatal accidents, 94 (19%) were serious accidents and 369 (76%) were slight accidents.

MAJOR TRANSPORT IMPROVEMENT PROPOSALS

The Aberdeen Western Peripheral Route is a key component of the planned 'Modern Transport System' and is a key component of the recently published Regional Transport Strategy. This is of strategic importance for the immediate area and Scotland as a whole and will help tackle congestion within and on the approaches to Aberdeen and increase accessibility to the area.

Proposals for the Aberdeen Crossrail are at an advanced stage of development and have been taken forward by Nestrans in partnership with Aberdeenshire and Aberdeen City Councils, Transport Scotland and the rail industry. Invernet was launched in December 2005 as a suburban network for Inverness. The scheme was conceived by Highland Rail Partnership and funded for 3 years by Highland Council, Highlands and Islands Enterprise and the Scottish Executive. It will be incorporated within the current ScotRail franchise.

ENVIRONMENTAL CONDITIONS

Potential environmental constraints within a 1 km width of the corridor of the A96 trunk road and the railway have been examined. The main sensitive receptors are residential properties adjacent to the transport corridor, which could experience changes in noise, air quality and vibration.

There are a large number of Category B and C Listed Buildings as well as several category A Listed Buildings within the route corridor.

There are Conservation Areas in the centres of most of the major towns within the route corridor. A large number of Scheduled Ancient Monuments could also experience changes upon their setting.

There are seven Historic Gardens and Designed Landscapes within the study area that could also experience a slight change upon their setting depending on location and scale of any improvement options that may be proposed.

The main ecological sensitive receptor is the Moray Firth, which is a SAC and Ramsar Site. There are only a few Sites of Special Scientific Interest (SSSI's) within the study area, with the Quarry Wood SSSI outside Elgin being the most likely to experience an adverse impact should a bypass of Elgin be identified. There are large pockets of Ancient Woodland adjacent to the A96 throughout most of the study corridor.

There are no landscape designations of national importance within or adjacent to the study area although part of the route passes through an 'Area of significant landscape' and 'Area of Great Landscape Value'.

The water quality of the watercourses is, in general, 'Excellent', and these are therefore considered to be particularly sensitive receptors. All the major watercourses as well as the smaller watercourses are liable to flooding.

Overall, there are a number of environmental constraints along the transport corridor between Inverness and Aberdeen that need to be taken into careful consideration to minimise any significantly adverse environmental impacts.

PROBLEMS AND OPPORTUNITIES

A key element in the STAG process is to identify and quantify where possible actual transport problems exist and to develop transport improvement options that address the root causes of such problems.

In this study, identification of initial problems has required the collection of additional information to assist in defining conditions within the corridor including in particular data on journey times along the route, trends in road safety and passenger volumes at the rail stations within the corridor.

The key problems identified are summarised as follows:

- Poor road safety on some sections of the A96 between Aberdeen and Inverness;
- Poor journey time reliability on some rural sections of the A96;
- Increased traffic demand and vehicle composition leading to platooning, queuing and increased carbon emissions on the A96;
- Lack of safe overtaking opportunities along the A96;
- Congestion on the A96 on the approach to and through urban areas;
- Lack of attractive, sustainable transport alternatives to private car;
- Conflict between strategic and local traffic in urban areas;
- Severance for pedestrians caused by strategic traffic in urban areas;
- Poor air quality in some urban areas;
- Increased transport costs for local businesses leading to an adverse impact on economic growth within the corridor; and
- Difficulties associated with freight movements along the transport corridor.

SETTING THE TRANSPORT PLANNING OBJECTIVES

The transport planning objectives established for this study express the desired outcomes in the study area and the wider local area. To ensure that the established transport planning objectives are consistent with other transport policy objectives, the following hierarchy has been considered:

- Government Objectives;
- National Transport Strategy;
- Regional Transport Strategies; and
- Local Transport Strategies.

Government objectives relating directly to this study reflect the five main areas to be considered when appraising transport proposals, namely Environment, Safety, Economy, Integration, and Accessibility and Social Inclusion.

NATIONAL TRANSPORT STRATEGY

Within the National Transport Strategy (NTS), the Scottish Executive recognises that potential tensions exist between these high level objectives such as promoting economic growth while protecting our environment. However, great emphasis is placed on ensuring that synergy is achieved. The NTS identifies 3 key strategic outcomes required to achieve this vision. They are to:

- Improve journey times and connections, to tackle congestion and the lack of integration and connections in transport which impact on our high level objectives for economic growth, social inclusion, integration and safety;
- Reduce emissions, to tackle the issues of climate change, air quality and health improvement which impact on our high level objective for protecting the environment and improving health; and
- Improve quality, accessibility and affordability, to give people a choice of public transport, where availability means better quality transport services and value for money or an alternative to the car.

The NTS is supported by the following strategy documents:

- Action Plan for Buses in Scotland
- Scotland's Railways
- Freight Action Plan for Scotland

REGIONAL TRANSPORT STRATEGIES

The Aberdeen to Inverness transport corridor passes through two regional transport strategy areas, namely, Hitrans, which includes the Highland and Moray Council areas; and Nestrans, which includes the Aberdeenshire and Aberdeen City Council areas.

Both Hitrans and Nestrans have prepared draft regional transport strategies which have been submitted to Scottish Ministers for consideration.

Hitrans has identified common issues, builds consensus on the ways to tackle these issues, and sets out the priorities for future investment in the region. The Strategy is considered to be a framework against which policy initiatives and projects can be developed across the region and beyond. The Strategy also seeks to promote the region's strategic priorities as policy develops at the national and local levels.

Nestrans' Regional Transport Strategy sets out the challenges facing Aberdeen City and Aberdeenshire over the next fifteen years and how they will be addressed. The strategy includes a comprehensive appraisal of the problems and issues affecting transport in the north east, sets clear objectives and proposes a detailed plan of action for improving transport in the region between now and 2021.

LOCAL TRANSPORT STRATEGIES

The Aberdeen to Inverness transport corridor passes through four local transport strategy areas, encompassed in the following documents:

- Local Transport Strategy for the Highlands – October 2000
- The Moray Local Transport Strategy
- Aberdeenshire Council Local Transport Strategy Review 2006 – Full Consultation Document
- Local Transport Strategy for Aberdeen – December 2000

TRANSPORT PLANNING OBJECTIVES

To facilitate constructive dialogue at the stakeholder workshops, a series of draft transport planning objectives was prepared. These draft objectives were developed by the stakeholders and considered further to distinguish between objectives and solutions. This led to the development of SMART objectives and an implementation timeframe as follows:

- In the immediate short term, improve road safety along the A96 between Aberdeen and Inverness where the local accident rate AND the associated severity ratio for a cluster of accidents both exceed the corresponding national average values over the 5 year period (2001 to 2005) to reduce local values to less than the national values;
- In the short term, improve road safety along the A96 between Aberdeen and Inverness where the local accident rate OR the associated severity ratio for a cluster of accidents exceeds the corresponding national average values over the 5 year period (2001 to 2005) to reduce local values to less than the national values;
- In the medium term, to improve journey time reliability on rural sections of the A96 trunk road where the speed limit is 60 mph to achieve an average link speed which is more than 50 mph OR a minimum link speed which is less than 30% below the average link speed relative to the 2006 baseline conditions;
- In the medium term, to achieve a 5% mode shift from private car commuting and inter-urban trips to more sustainable forms of transport, including bus, rail, walking and cycling, within the transport corridor and to contribute to the UK target for reducing carbon emissions;
- In the long term, to reduce the conflict between strategic and local traffic in urban areas leading to improvements in local air quality, reduced severance for pedestrians and supporting economic growth and development within the corridor; and
- In the medium term, to improve the efficiency of freight movements along the transport corridor.

For the purpose of these objectives, short term has been defined as up to 5 years, medium term as 5 to 10 years and long term as 10 to 15 years.

The relationship between the SMART Transport Planning Objectives developed for the Aberdeen to Inverness Transport Corridor Study and the Government's five main objectives for transport is shown in Table 1.

TABLE 1 – SMART TRANSPORT PLANNING OBJECTIVES

REF.	SMART TRANSPORT PLANNING OBJECTIVES	APPRAISAL CRITERIA OBJECTIVE				
		ENV.	SAFETY	ECO	IINTEG.	ACC.
1 (S1)	In the immediate short term, improve road safety along the A96 between Aberdeen and Inverness where the local accident rate AND the associated severity ratio for a cluster of accidents both exceed the corresponding national average values over the 5 year period (2001 to 2005) to reduce local values to less than the national values.		✓			
2 (S2)	In the short term, improve road safety along the A96 between Aberdeen and Inverness where the local accident rate OR the associated severity ratio for a cluster of accidents exceeds the corresponding national average values over the 5 year period (2001 to 2005) to reduce local values to less than the national values.		✓			
3 (JTR)	In the medium term, to improve journey time reliability on rural sections of the A96 trunk road where the speed limit is 60 mph to achieve an average link speed which is more than 50 mph OR a minimum link speed which is less than 30% below the average link speed relative to the 2006 baseline conditions.			✓		

4 (MS)	In the medium term, to achieve a 5% mode shift from private car commuting and inter-urban trips to more sustainable forms of transport, including bus, rail, walking and cycling, within the transport corridor and to contribute to the UK target for reducing carbon emissions.	✓		✓	✓	✓
5 (TC)	In the long term, to reduce the conflict between strategic and local traffic in urban areas leading to improvements in local air quality, reduced severance for pedestrians and supporting economic growth and development within the corridor.	✓	✓	✓		✓
6 (FM)	In the medium term, to improve the efficiency of freight movements along the transport corridor.	✓		✓		

The established objectives are generally consistent with the three key strategic outcomes of the NTS, namely:

- improve journey times and connections;
- reduce emissions; and
- improve quality, accessibility and affordability.

OPTION GENERATION, SIFTING AND DEVELOPMENT

The nature and scale of the transport improvement options generated for appraisal reflect the work undertaken in setting the transport planning objectives, as outlined previously. The key opportunities for the transport corridor relate primarily to:

- Addressing road safety concerns along the A96 trunk road;
- Improving journey time reliability on rural sections of the A96 trunk road;
- Encouraging a shift from private car trips to more sustainable forms of transport such as bus, rail, cycling and walking and contributing positively to targets for reducing carbon emissions;
- Addressing the conflict between strategic and local traffic in urban areas, air quality, pedestrian severance issues, and contributing positively to supporting economic growth; and
- Improving the efficiency of freight movements along the transport corridor.

In total, some 58 options were generated through consultation with the stakeholders.

Although some of the improvement options identified were of a significant scale and could be considered 'major' schemes, none of the options has been developed beyond an initial concept.

To assist in the sifting process, an initial investigation of the feasibility, affordability and likely public acceptability of the proposals was undertaken as part of a pre-implementation appraisal. Through the consultation process and workshops, it is considered unlikely that the provision of double track railway from Aberdeen to Inverness could be delivered cost effectively at this time. Consequently, this option has been rejected.

From a preliminary assessment, 27 (47%) of the 58 options contributed positively to the established transport planning objectives. Although the remaining 31 (53%) options contribute to the objectives, the results of the preliminary assessment indicate that these are less effective in contributing to the full range of objectives.

In addition, it was considered reasonable to include 2 additional options which could also contribute to the objectives, namely removal of the

shuttleworking section (at Inveramsay) and the addition of bus lanes at Inverness and Aberdeen.

It has been recognised that synergies might exist through combining a series of discrete improvement options which could potentially be lost when considering the options in isolation. The effects of a 1.5 to 2 hour rail service between Aberdeen and Inverness and the provision of interchange facilities have therefore been identified for more detailed consideration within the Strategic Transport Projects Review. In addition, the potential synergy from the introduction of additional local commuter rail services, such as Aberdeen Crossrail and Invernet, and new rail stations such as those being considered at Kintore and Inverness Airport, and the combined benefits of an increased frequency of train services coupled with the provision of passing loops, should be considered further.

Consequently, two additional options have been developed based on these discrete options.

CONCLUSIONS

From the information set out in the pre-appraisal report it is concluded that the key problems along the corridor have been identified and a set of SMART transport planning objectives which will address these problems has been defined.

A wide range of options of different scale and across all modes have been generated and a number of potential options have been sifted for further consideration as part of the Strategic Transport Projects Review.

RECOMMENDATION

From the results of the pre-appraisal assessment, the 28 broadly defined transport improvement options described in Table 2 below should be taken forward for further more detailed consideration within the Strategic Transport Projects Review.

TABLE 2 – TRANSPORT IMPROVEMENT OPTIONS TO BE CONSIDERED WITHIN STRATEGIC TRANSPORT PROJECTS REVIEW

SIFT OPT. REF.	OPT REF.	OPTION SOURCE	DESCRIPTION OF IMPROVEMENT OPTION	TRANS GROUP	OPTION SCORE / RATING	S1	S2	JTR	MS	TC	FM
1	3	All-3	Nairn Bypass	Road	4		✓	✓✓		✓✓✓	✓✓
2	4	All-4	Elgin Bypass	Road	4		✓	✓✓✓		✓✓✓	✓✓
3	5	All-5	Keith Bypass	Road	3		✓	✓✓		✓✓	✓✓
4	6	All-6	A82/A9/ A96 Link Road	Road	4		✓		✓✓	✓✓✓	✓✓
5	7	All-7	Provision of Grade separated junctions on dual carriageway	Road	3		✓✓	✓✓		✓	✓
6	8	All-8	Removal of shuttleworking section (at Inveramsay A96/rail crossing)	Road	1			✓✓			✓
7	10	All-10	Increasing frequency of train services (hourly schedule)	Rail	3			✓	✓✓	✓	✓
8	11	All-11	Addition of bus lanes at Inverness and Aberdeen	Bus	2		✓		✓✓✓	✓	✓
9	13	All-13	2 hour journey time from Aberdeen to Inverness (rail) – Note 1	Rail	3			✓	✓✓	✓	✓
10	14	All-14	Climbing Lanes/WS2+1 – (Strategic dual carriageways)	Road	3		✓✓	✓✓			✓✓
11	16	G1-16	Travel planning and demand management	Bus & Rail	4	✓	✓✓	✓	✓✓✓	✓✓	
12	17	G1-17	Quality bus partnerships/ schemes	Bus	4	✓	✓✓	✓✓	✓✓✓	✓✓	
13	18	G1-18	Investment in cycling and walking infrastructure	Peds & Cyc	3	✓	✓		✓✓✓	✓	
14	19+20	G1-19 +G1-20	Interchange facilities at railway stations and key junctions for all modes	Rail	3	✓✓	✓✓	✓	✓✓✓	✓	
15	21	G1-21	Facilities for HGV's & tractors lay-bys for platoons to disperse	Road	4	✓✓	✓✓	✓✓			✓✓

16	28	G1-28	Keith – a carbon neutral town (a test case)	Env	3				✓✓✓	✓✓✓	
17	30+35	G1-30 +G2-20	Short term AIP schemes	Safety	3	✓✓✓	✓✓✓				
18	31	G2-16	Fochabers and Mosstodloch bypass	Road	4	✓		✓✓✓		✓✓✓	✓
19	41	G3-16	Park & Ride sites	Bus & Rail	3		✓		✓✓	✓✓	✓
20	43	G3-18	Education/behavioural change – travel planning, travel awareness e.g. car sharing, video conferencing	Bus & Rail	3	✓	✓	✓	✓✓	✓	✓
21	44	G3-19	Relative cost of modes – pricing & fares/subsidy	Bus & Rail	4	✓	✓	✓	✓✓✓	✓	✓
22	45	G3-20	Priority lanes & HOV Lanes	Freight	3	✓	✓		✓✓	✓	✓✓
23	46	G3-21	Pedestrian crossings at local points	Peds & Cyc	3	✓✓	✓✓			✓✓	
24	48	G3-23	Enforcement e.g. cameras/signs/policing	Safety	3	✓✓	✓✓✓	✓✓			
25	49	G3-24	Short term measure & Dualling to Inverness Airport	Road	3	✓	✓	✓✓		✓	✓
26	58	Add-2	Provision of WS2+1 from Inverness to Fochabers/ Mosstodloch	Road	3		✓	✓✓		✓✓	✓✓
27	10+15	Dev-1	Increased frequency of train services with provision of passing loops	Rail	3			✓	✓✓	✓	✓
28	40+9	Dev-2	Local commuter rail services such as Aberdeen Crossrail and Invernet, with new rail stations, e.g. Inverness Airport and Kintore	Rail	3		✓		✓✓✓	✓✓	