



## **Aberdeen Western Peripheral Route**

### **Interim STAG Report**

**July 2008**

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Document Control Sheet**

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## **Contents**

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Objectives</b>	<b>4</b>
<b>3</b>	<b>Analysis of Existing and Potential Problems</b>	<b>5</b>
<b>4</b>	<b>Option Generation, Sifting and Development</b>	<b>11</b>
<b>5</b>	<b>Consultation</b>	<b>18</b>
<b>6</b>	<b>Part 1 (Initial) Appraisal</b>	<b>20</b>
<b>7</b>	<b>Part 2 (Detailed) Appraisal</b>	<b>21</b>
<b>8</b>	<b>Risk and Uncertainty</b>	<b>22</b>
<b>9</b>	<b>Monitoring and Evaluation</b>	<b>23</b>
<b>10</b>	<b>Conclusions</b>	<b>27</b>
	<b>Appendix A: Part 1 (Initial) Appraisal – Northern Leg</b>	<b>28</b>
	<b>Appendix B: Part 1 (Initial) Appraisal – Scheme as a Whole</b>	<b>29</b>
	<b>Appendix C: Part 2 (Detailed) Appraisal</b>	<b>30</b>

## **1 Introduction**

### **1.1 Purpose of this Report**

This report has been prepared in accordance with the requirements of the Scottish Transport Appraisal Guidance documents to summarise the appraisal process relating to the proposed Aberdeen Western Peripheral Route. It should be noted that considerable material has been published on this process in a number of documents, and that this report therefore summarises the key elements of decision making as opposed to repeating details already documented elsewhere. Reference is made within this report as appropriate to the various reports from which information has been drawn to inform this report.

It is noted that the STAG report, including the completed Part 2 appraisal, is required when final approval or funding is sought in respect of the scheme. As that stage has not yet been reached this report will remain as an Interim Report until it is finalised in relation to the scheme content then known to support such a decision.

It should be noted that this Interim STAG Report has been prepared in line with the guidance documentation current prior to 28 May 2008, when updated guidance was issued by Transport Scotland.

### **1.2 Scheme Context**

Aberdeen is the third largest city in Scotland in terms of population size and is located in the North-East of Scotland. The surrounding Aberdeenshire area has an approximately similar population to the city of Aberdeen, but is dispersed over a much larger geographical area in both towns and scattered dwellings. The general area within which the scheme is set therefore includes both urban and rural environments.

The scheme is more locally placed in farmland and other open areas of land, within which isolated dwellings are present. The route comes closest to existing settlements at Milltimber, where demolition of property is required.

Aberdeen has experienced significant economic growth over recent decades, largely due to its strategic importance in supporting the oil and gas industries. During this period of economic growth the general population of the Aberdeen and Aberdeenshire area has remained reasonably consistent, with a slight reduction in population within the city being offset by an increase in population in Aberdeenshire.

In addition to Aberdeen City being a significant origin/destination for transport movements, the existing major transport corridors for both road and rail services in the North-East of Scotland also converge in the city, with the existing A90 and A96 trunk roads both lying within the city limits. Coupled with the significant daily transport movements between Aberdeen City and

Aberdeenshire this has led to significant congestion within the road network as traffic levels have grown.

### **1.3 History of Scheme Development**

Consideration has been given to improving transport within Aberdeen and the North-East of Scotland for some considerable time, particularly with respect to the potential for constructing a new strategic road route around Aberdeen to provide traffic relief to the city and improve journey times for traffic seeking to bypass the city. The development of proposals for the proposed AWPR occurred in five distinct stages:

- Options for a 'Western Leg', connecting the A90 south of Aberdeen with the A96 west of Aberdeen were assessed in the early 1990s, leading to the identification of a preferred corridor. It should be noted that this work pre-dated the introduction of STAG methodology. This work was led by Grampian Regional Council.
- Options for a 'Northern Leg' connecting the A96 west of Aberdeen with the A90 north of Aberdeen were assessed in the early 2000s, leading to the identification of a preferred corridor. This work was undertaken using STAG methodology and was led by the North-East Scotland Transport Partnership (NESTRANS).
- The overall approach to transport provision in North-East Scotland was also considered in the early 2000s by assessing potential transport improvement options. These included public transport improvements only; public transport improvements combined with strategic road improvements; and strategic road improvements only. This process led to the identification of the Modern Transport System (MTS) as the preferred option, which is a combination of public transport improvements and strategic road improvements. The key strategic road improvement considered in this assessment was the AWPR, which is the combination of the previously identified 'Western Leg' and 'Northern Leg'. This work was undertaken using STAG methodology and was led by NESTRANS.
- Following this process the Scottish Government agreed to take forward the proposed AWPR as a trunk road project, based on a funding agreement between the Scottish Government (81%) and Aberdeen City and Aberdeenshire Councils (9.5% each). In 2005 the corridor selection process for the 'Western Leg' was reviewed, and on 1 December 2005 a new preferred corridor was announced for the whole of the scheme, which was the Milltimber Brae/Fastlink corridor. This work was undertaken using STAG methodology and was led by the Funding Partnership.
- In the period following that decision work has been undertaken to refine the scheme proposals within the preferred corridor, leading to the publication of draft Road and draft Compulsory Purchase Orders and an associated Environmental Statement in Autumn 2007. A further draft Compulsory Purchase Order was published in Spring 2008

# **Aberdeen Western Peripheral Route Interim STAG Report - Draft Introduction**

primarily to provide certainty of land acquisition in respect of proposed environmental mitigation measures. The outcomes of this work are documented in this report in accordance with STAG methodology. This work was led by the Funding Partnership.

A fuller review of the history of development of the scheme is provided in Chapters 2 and 3 of the Environmental Statement.

## **2 Objectives**

### **2.1 Development of Objectives**

Objectives for the AWPR were first identified during the assessment work undertaken in respect of the overall transport proposals for the North-East of Scotland, when objectives were set in respect of both the MTS and the AWPR as a contributor to the delivery of the MTS.

During the review work undertaken in respect of the 'Western Leg' in 2005 it was considered that the objectives as stated for the AWPR did not sufficiently reflect the needs of the wider trunk road network. The scheme objectives were therefore revised at that time, as detailed within Section 2.8 of the Project Development 2005-2006 Consolidation Assessment Report.

### **2.2 Planning Objectives for the Scheme**

There are six specific planning objectives for the AWPR:

- Improve access to and around Aberdeen to improve transport efficiency and support the industrial areas in the City and the areas to the north and west of Aberdeen.
- Provide traffic relief (including the removal of long distance heavy goods vehicle traffic) on the existing congested A90 route through and to the south of Aberdeen.
- Reduce traffic on urban radial routes reducing noise and air pollution and creating opportunities for pedestrianisation in the City Centre.
- Provide access to existing and planned park and ride facilities around the outskirts of the city encouraging modal shift.
- Increase opportunities to maximise bus lanes and other public transport priority measures.
- Improve road safety over a wide area through the reduction of traffic on local roads.

The effectiveness of the scheme in terms of these specific planning objectives is documented within this report, as is its effectiveness against the five Government objectives of Environment, Safety, Economy, Integration and Accessibility and Social Inclusion.

## **3 Analysis of Existing and Potential Problems**

### **3.1 General**

As described in Section 1.3 of this report, the proposed scheme has been developed as part of a wider approach to addressing transport within the North East of Scotland. This work is documented in full in the reports published in respect of the STAG assessment of the MTS proposals. The existing and potential problems were documented within the MTS STAG Identification of Problems Report and the MTS Opportunities Analysis Report. The problems identified in these reports were assessed under the following headings:

- Acceptability
- Deliverability
- Environment
- Safety
- Economy
- Integration
- Accessibility
- North East Specific

Those problems identified in respect of Acceptability and Deliverability are considered to relate to the process of scheme delivery rather than the nature of the existing infrastructure, and are therefore not discussed further in this report. Those problems relating to North East Specific have been allocated to the core STAG heading (Environment, Safety, Economy, Integration and Accessibility and Social Inclusion) considered most relevant. Reference numbers identified against individual problems are those allocated in the MTS STAG reports referred to above.

### **3.2 Environment**

#### **3.2.1 En1: Impact of pollution from both noise and air quality on people's health and the environment.**

Traffic levels within urban areas and consequential congestion were identified as a key issue in creating this problem. To address this problem measures are required to reduce the numbers of vehicles within the urban area of the city.



### **3.2.2 En2: Continued use of non-renewable resources.**

The implications of the current transport infrastructure for depletion of non-renewable resources were highlighted as a factor influencing this problem. To address this problem measures are required which will enable and encourage modal shift to transport modes which are less demanding of such resources.

### **3.2.3 En3: Localised air quality problems, breaching national standards.**

Partly related to En1 above, the establishment of the Air Quality Management Area within the city centre was highlighted as a specific concern. As with En1, to address this problem measures will be required to reduce the numbers of vehicles within the urban area of the city.

### **3.2.4 En4: Local impact on global problem of greenhouse gases affecting climate change.**

Partly related to En2 above, the issue of greenhouse gases and climate change was highlighted as a specific concern. As with En2, to address this problem measures are required which will enable and encourage modal shift to transport modes which generate a reduced level of greenhouse gases.

### **3.2.5 Nes2: Existing trunk road network in North East is inadequate, particularly for HGV's, leading to the use of inappropriate routes including the city centre, residential areas and country roads.**

This concern relates to the problems common to En1/En3/S1/S3/Ec3/In1/In2/Access3. To address this problem measures are required to remove traffic, particularly heavy goods vehicles, from such routes.

### **3.2.6 Nes3: Central location of harbour attracts freight and passenger traffic through Aberdeen City Centre. Rural isles rely on Aberdeen for transfer of goods and passengers.**

This concern again relates to the problems common to En1/En3/S1/S3/Ec3/Access3. Clearly it is not feasible to relocate the harbour in order to resolve this concern, therefore to address this problem measures are required to reduce the number of vehicles that are within the harbour area of the city.

### **3.2.7 Nes8: Physical constraints in Aberdeen City.**

This concern relates to the problems common to En1/En3/S1/S3/Ec3/In1/In2/Access3, particularly highlighting the difficulties that are specifically associated with factors such as the traffic restriction applying at the Bridge of Dee and the constraint that its status as a Scheduled Ancient Monument forms when considering how these restrictions could be resolved. To address this problem measures are required that enable transport movements across all modes to be undertaken in as efficient a manner as possible.

### **3.3 Safety**

#### **3.3.1 S1: Need to build upon successes in reducing accidents.**

Although some improvements in accident rates had been achieved, the level of accidents occurring was highlighted as a concern, with the benefits of major road schemes which provided enhanced infrastructure being noted. To address this problem measures are required which can reduce the risk of accidents by enabling modal shift to transport modes with lower accident rates and by providing infrastructure which removes traffic from unsuitable routes.

#### **3.3.2 S2: Traffic management lacking in areas, safer roads required for all users.**

Excess speed was highlighted as a specific concern, with the importance of traffic management measures being noted. To address this problem measures which encourage lower speeds are required, particularly in areas where vulnerable road users are present.

#### **3.3.3 S3: Vulnerable users feel their personal safety is at risk while travelling. Neighbourhoods lack security for walkers or cyclists, also at bus stops and stations.**

Safe provision for cyclists and walkers were highlighted as key concerns, together with changes in school travel behaviour and improved security in respect of public transport. To address the problem relating to cyclists and walkers measures are required which enable safer provision for such users to be achieved, together with removing traffic from routes used by these groups to reduce risk levels. To address the problem relating to security improved public transport facilities are required.

### **3.4 Economy**

#### **3.4.1 Ec1: Current transport network is limiting competitiveness; the North East is not competing on a level playing field due to congested links through Aberdeen to reach external markets.**

As with En1, traffic levels within urban areas and consequential congestion were identified as a key issue in creating this problem. To address this problem measures will be required to reduce travel costs, reduce journey times and improve journey time reliability.

#### **3.4.2 Ec2: Peripherality of the North East, due to both the physical and the psychological distance to central Scotland, other UK countries and Europe.**

While clearly the physical peripherality of the North East is not capable of being changed, the effects of high travel costs on the economy were highlighted as a concern. As with Ec1, to address this problem measures will be required to reduce travel costs, reduce journey times and improve journey time reliability.

### **3.4.3 Ec3: Poor communications affecting business efficiency.**

As with En1, traffic levels within urban areas and consequential congestion were identified as a key issue in creating this problem, with the degree of transport movement by road, much of it internal to the region, being highlighted, together with the importance of industry being able to readily access source materials. In addition to the measures identified in respect of Ec1 and Ec2, to address this problem measures are required to connect key areas in an efficient manner.

### **3.4.4 Nes1: Infrastructure has failed to keep up with the rapid growth of industry leading to restricted availability of commercially viable industrial development sites and congestion on the existing road network.**

This concern relates to the problem identified in In3 and those common to En1/En3/Ec1/Ec2/Ec3/Access3, while highlighting the particular issue of the economic effect of the lack of sites suitable for development. As with In3, to address this problem measures are required which will enable access to be taken to areas that are suitable for future development.

### **3.4.5 Nes5: The nature of freight from the North East is often high volume minimum value goods leading to high transport costs.**

This concern relates to those common to Ec1/Ec2/Ec3, focussing particularly on the costs of transport of such freight. To address this problem measures are required which will reduce transport costs.

## **3.5 Integration**

### **3.5.1 In1: Poor links between dispersed land uses.**

Poor links between dispersed land uses of a similar nature, particularly industrial and commercial land uses, raised concerns regarding the ability to implement policy on land use effectively. To address this problem measures are required which provide more effective links between co-dependent land uses.

### **3.5.2 In2: Poor linking of dispersed populated areas and land uses.**

In a similar manner to In1, the dispersed nature of North East Scotland was noted and the wide travel to work area was highlighted together with the limited public transport availability throughout the region. To address this problem measures to improve links between key complementary land uses such as residence, employment and leisure are required, together with measures to enable an enhanced public transport network to be provided.

### **3.5.3 In3: Lack of access to open further development areas.**

The limited availability of land suitable for development with existing access was noted. To address this problem measures are required which will enable access to be taken to areas that are suitable for future development.

**3.5.4 In4: Transport's limited integration with other policy areas, particularly land use and social inclusion.**

Concern regarding the availability of public transport to support travel to work was noted. As with In2, to address this problem measures are required to enable an enhanced public transport network to be provided.

**3.6 Accessibility and Social Inclusion**

**3.6.1 Access1: Few transport alternatives for rural areas and towns, increasing dependence on cars. Infrequent transport services for rural areas and towns, leading to over use of cars.**

As with In2, concern was noted regarding the limited public transport network available throughout the region. To address this problem measures are required to enable an enhanced public transport network to be provided.

**3.6.2 Access2: Access to jobs affected by mobility.**

The limited transport options available for individuals who are mobility impaired was highlighted as a particular concern. To address this problem measures are required which provide a greater range of transport choices for such individuals.

**3.6.3 Access3: Severance, perceived and physical, caused by inappropriate traffic and transport links through residential/ neighbourhood areas.**

As with En1, traffic levels within urban areas and consequential congestion were identified as a key issue in creating this problem. To address this problem measures will be required to reduce the numbers of vehicles, particularly heavy goods vehicles, within the urban area of the city.

**3.6.4 Nes4: Lack of rail structure in parts of the region.**

This concern also relates to the problems common to Ec1/Ec and those common to In1/In2/In4/In3/Access1/Access2, while highlighting the particular issue of the existing rail infrastructure. To address this problem measures are required which will enable the rail network across the region to be developed.

**3.6.5 Nes6: Polarised distribution of wealth throughout the region.**

This concern also relates to the problems common to In1/In2/Access1, highlighting that although the overall position in relation social issues such as unemployment is good, there are significant socially deprived areas. As with Access1, to address this problem measures are required to enable an enhanced public transport network to be provided.

### **3.6.6 Nes6: Cost of travel in the North East.**

This issue also relates to the problems common to In1/In2/Access1, highlighting that cost of travel is a concern in supporting accessibility and social inclusion. As with Access1, to address this problem measures are required to enable an enhanced public transport network to be provided.

### **3.7 Further Assessment**

In addition to the analysis of problems described above, as part of the process leading to selection of the corridor for the scheme in 2005, consideration was given to issues relating to the wider needs of the strategic trunk road network. That consideration, as documented in Section 2.8 and 2.9 of the Project Development 2005-2006 Consolidation Assessment Report, noted that the AWPR performs both local and strategic functions and this is reflected in the management and cost-sharing arrangements for the scheme. It was considered that the inherited scheme did not reflect completely the strategic objectives of the trunk road network. In particular, a further problem was identified, which related to the carriageway provision between Stonehaven and Aberdeen. Concern was noted that due to the relatively high levels of traffic using this section of the existing A90 it was becoming increasingly difficult to maintain the trunk road without causing significant congestion for road users. To address this problem either additional capacity on the existing road is required or additional capacity is required elsewhere.

### **3.8 Summary**

While not all of these problems are capable of being addressed directly by the proposed AWPR, its importance within the MTS is derived from its ability to address many of these issues and enable other measures to be introduced to address the remaining issues. The proposals for the scheme must therefore contain measures, linked to the scheme objectives, which:

- Reduce the number of vehicles travelling through urban areas and the number of vehicles making use of inappropriate rural routes;
- Reduce travel costs and journey times and improve journey time reliability;
- Connect key economic areas in an efficient manner and improve links between key land uses of residence, employment and leisure;
- Enable access to be taken to areas suitable for future development;
- Provide an improved level of service for trunk road traffic between Stonehaven and Aberdeen;
- Enable and encourage measures to improve public transport provision and modal shift to public transport usage; and
- Enable and encourage measures to improve cycling and walking journeys.

## **4 Option Generation, Sifting and Development**

### **4.1 General**

This section of the reports discusses those options considered in the early 2000s for the 'Northern Leg' and in 2005 for the 'Western Leg'. While there were a range of options considered during the 1990s in relation to the 'Western Leg', the consideration during 2005 effectively superseded the previous assessments. The summary presented below is described in more detail, including relevant graphics, within the Environmental Statement.

### **4.2 'Northern Leg'**

The assessment of options for the 'Northern Leg' initially considered corridors in terms of 'zones', as follows:

- Two zones were identified within which routes could pass the Dyce area of Aberdeen: Kirkhill Zone to the west; and Bucksburn Zone to the east.
- Three zones were identified to enable routes to connect to the existing A90 north of Aberdeen: Northern Zone, connecting in the general area of Balmedie; Central Zone, connecting in the general area of Blackdog; and Southern Zone, connecting in the general area of Berryhill.

A Stage 1 Assessment was undertaken in respect of over 100 possible combinations of routes within these zones, as a consequence of which 18 variants were identified for further assessment. The variants selected for further assessment were considered to have lesser environmental impacts, improved engineering performance and lower cost than other options, and comprised:

- Two route corridors in the Bucksburn Zone, connecting to the single route corridor in the Southern Zone
- Four route corridors in the Kirkhill Zone, connecting to the routes in any of the Northern, Central or Southern Zones.

These variants were the subject of a Stage 2 Assessment and were also assessed at a STAG 1 level of detail. This assessment, following public consultation, identified three routes corridors as being of merit for further consideration. These corridors were selected as follows:

- One of the route corridors in the Bucksburn Zone was rejected due to being unable to comply with acceptable engineering standards. This consideration therefore left one option available in the Bucksburn Zone.

## Aberdeen Western Peripheral Route Interim STAG Report - Draft Option Generation, Sifting and Development

- One of the route corridors in the Kirkhill Zone was rejected as it traversed Kirkhill Industrial Estate and was considered to have excessive impacts on the estate leading to operational, road safety and construction concerns. A variant to the remaining route was rejected as it was considered to present a greater visual impact than the alternative. This consideration therefore left one option available in the Kirkhill Zone.
- Route corridors in the Northern Zone were rejected due to their relatively poorer performance in benefiting the existing road network and the view that options in these corridors were also the poorest in terms of environmental impact. This consideration therefore left no options available in the Northern Zone.
- Route corridors connecting the Kirkhill Zone to the Southern Zone by passing north of Dyce and south of the River Don were rejected due to the constraint that they would form in relation to future re-opening of the Dyce/Ellon/Peterhead railway and difficulties in forming a junction with the A947. This consideration therefore left one option available to connect the Kirkhill Zone to the Southern Zone by passing north of Dyce and north of the River Don.
- Route Corridors to the Central Zone and the Southern Zone were considered viable. This consideration therefore left one option available in each of these Zones.

The combination of options remaining available was therefore:

- Bucksburn (Route B2) Corridor (connecting Bucksburn Zone to the Southern Zone)
- South (Route SB3) Corridor (connecting Kirkhill Zone to the Southern Zone)
- Central (Route C3) Corridor (connecting Kirkhill Zone to the Central Zone)

Further consideration of these corridors, including further public consultation, identified the Central (Route C3) Corridor as the preferred corridor, with the following modifications:

- The corridor was moved northwards in the Kirkhill area, to avoid direct impact on the Shell Oil pipeline in this area.
- The alignment of the corridor to the existing A90 was moved south to reduce visual impact of the scheme on Potterton.

The assessments described above are documented in the following reports:

- Western Peripheral Route (North), Stage 1 Scheme Assessment Report

# Aberdeen Western Peripheral Route Interim STAG Report - Draft Option Generation, Sifting and Development

- Western Peripheral Route (Northern Leg), Stage Two Scheme Assessment Report
- Northern Leg STAG Report

Further development of the route within the preferred corridor selected as outlined above is described in Section 4.4 below.

## 4.3 'Western Leg'

The assessment of options for the 'Western Leg' considered six corridors, within which one indicative route was assessed. The corridors considered were:

- Pitfodels
- Murtle
- Milltimber Brae
- Peterculter/Charleston
- Peterculter/Stonehaven
- Eastern Bypass (proposed by local interest group)

The outcomes of this work were documented in the Project Development 2005-2006 Consolidation Assessment Report, which reported the assessments made of the options at a STAG 1 level of detail. The outcomes of this assessment, in summary, were:

- The Eastern Bypass was rejected due both to its significantly greater capital cost than alternative options and its failure to meet the stated scheme objectives.
- Although all the remaining options met the then identified scheme objectives to a greater or lesser degree, it was considered that none of them individually adequately met the wider needs of the strategic road network
- The potential was identified for a combination of elements of two of the corridors being considered to provide improved performance for the strategic road network while also meeting local objectives. This combination was the joining of the Stonehaven Link element of the Peterculter/Stonehaven corridor with the Milltimber Brae corridor, known at that time as the Hybrid Option.
- The performance of the Hybrid Option showed appreciable increases in road user benefits and improved outcomes in terms of safety performance and air quality impacts. Although the capital cost was higher it was considered that the Hybrid Option presented improved



performance for the wider strategic road network while performing at an acceptable level in terms of local objectives.

The Hybrid Option, which became known as the Milltimber Brae/Fastlink corridor was therefore selected as the preferred corridor for the 'Western Leg'.

## **4.4 Scheme Development**

### **4.4.1 General**

Within the preferred corridors work was undertaken to refine the proposed scheme to provide better scheme performance, lower environmental impacts and reduce scheme costs. These refinements were typically smaller scale in nature than the alternatives considered during the corridor selection process, and therefore decision making in determining between options was based on identifying key differentiators and selecting the options considered to provide the best balance of performance. This process was carried out in relation to geographic sections of the scheme defined as follows:

- Fastlink (Southern Section), extending from Stonehaven to Berry Top
- Southern Leg/Fastlink (Central Section), extending from Berry Top in the south and the A90 in the east to Milltimber
- Southern Leg (Northern Section), extending from Milltimber to North Kingswells
- Northern Leg, extending from North Kingswells to Blackdog

The options considered and the assessment process are described within the Environmental Statement and for the Southern Leg and Fastlink sections further information is presented in the Development of Preferred Route Initial Assessment Stage Report and the Development of Preferred Route Final Assessment Stage Report.

### **4.4.2 Fastlink (Southern Section) Development**

The significant options considered on the Fastlink (Southern Section) were:

- Five major route options were initially identified in this section. One of these was rejected as it required upgrading of the B979, which would entail property demolition, leave a large number of properties close to the route, and was close to the BP and Shell pipelines for a considerable distance, with two crossings of each pipeline. The northern sections of three other options were rejected as they passed within the catchment area of Red Moss Special Area of Conservation and could affect the integrity of this site by cutting off surface and sub-surface flows. The remaining routes available formed eight route variants which were subject to further consideration, with the selected route preferred as it avoided cultural heritage impacts, avoided property demolition, was less close to residential property, was close to the BP and Shell pipelines for a shorter length, and was less costly.

## **Aberdeen Western Peripheral Route Interim STAG Report - Draft Option Generation, Sifting and Development**

- In the Stonehaven area two alternative junction options were considered, with the selected option preferred as it provided the required level of operational performance and provided an improved level of linkage for the trunk road network.

In addition to these significant options the scheme development process entailed a number of other minor changes to the design of the main carriageway and side roads leading to the outline design as defined by the Orders and Environmental Statement published in respect of the scheme.

### **4.4.3 Southern Leg/Fastlink (Central Section)**

The significant options considered on the Southern Leg/Fastlink (Central Section) were:

- Five major route options were initially identified in this section. One route was rejected as it was less effective in meeting the objective of providing a link between the main residential and commercial areas of Aberdeen, and would exacerbate problems in relation to weaving traffic on the A90 between Schoolhill and Charleston. A second route was rejected as it required a connection between the Southern Leg and the Fastlink close to the River Dee, which would increase costs should a grade-separated junction be required and would be located closer to the proposed Milltimber junction than the minimum required weaving distance. A third route was rejected as it would entail demolition within the Camphill (Milltimber) Campus and at either Kippie Lodge or the International School, with consequently greater disruption and cost. The remaining routes available formed eight route variants which were subject to further consideration, with the preferred route selected as it minimised ecological and landscape impacts, minimised impacts on Hare Moss, provided an improved alignment standard and enabled an at-grade roundabout to be accommodated at Cleanhill Junction, as described below.
- In the Cleanhill area three alternative junction options were considered, with the preferred option for this junction selected as it provided the required level of operational performance at the lowest cost and with reduced landscape, visual and ecological impacts.
- In the Charleston area three alternative junction options were considered, with the preferred option for this junction selected as it provided the required level of operational performance at the lowest cost and required less land-take.

In addition to these significant options the scheme development process entailed a number of other minor changes to the design of the main carriageway and side roads leading to the outline design as defined by the Orders and Environmental Statement published in respect of the scheme.

#### **4.4.4 Southern Leg (Northern Section)**

- Three major route options were initially identified in this section. One route was rejected as it was the continuation of route rejected within the Southern Leg/Fastlink (Central Section). A second route was rejected as it was longer and more costly and passed closer to Kingswells Consumption Dyke Scheduled Ancient Monument. The remaining routes available formed nine route variants which were subject to further consideration, with the preferred route selected as it minimised demolition of property, landscape impacts and watercourse impacts. The option selected entailed demolition and relocation of the International School of Aberdeen, which minimised the number of properties to be demolished in the Milltimber area and eliminated uncertainty over the ability to mitigate impacts of the road on the school should it remain in-situ.
- In the Milltimber area three alternative junction options were considered, with the preferred option for this junction selected as it provided the required level of operational performance while minimising demolition of properties.
- In the South Kingswells area two alternative junction options were considered, with the preferred option for this junction selected as it provided the required level of operational performance while minimising widening and associated frontage impacts on the A944.

In addition to these significant options the scheme development process entailed a number of other minor changes to the design of the main carriageway and side roads leading to the outline design as defined by the Orders and Environmental Statement published in respect of the scheme.

#### **4.4.5 Northern Leg Development**

The significant options considered on the Northern Leg were:

- In the Craibstone area four alternative junction options were considered, with the preferred option for this junction selected as it provided the required level of operational performance with reduced landscape and visual impacts, and offered significant cost savings compared to other options while still permitting future adaptation.
- In the River Don Crossing area six route variants were considered, with the preferred route for this section selected as it provided the shortest crossing of the River Don, avoided direct impact on the BP gas pipeline, avoided direct impact on the nearby Aberdeen to Inverurie Canal Scheduled Ancient Monument and minimised impacts to the River Don floodplain and Parkhill Pumping Station.
- In the Goval area three alternative junction arrangements were considered, with the preferred option for this junction selected as it provided the best operational performance, allowed effective rationalisation of the local side roads, and reduced severance impacts.

## **Aberdeen Western Peripheral Route Interim STAG Report - Draft Option Generation, Sifting and Development**

- In the Potterton area three route variants were considered, with the preferred route for this section selected as it offered the best standard of alignment and reduced landscape and visual impacts.
- In the Blackdog area three alternative junction arrangements were considered, with the preferred option for this junction selected as it avoided the need for property demolition in the Blackdog area and enabled local access arrangements to be rationalised to improve safety.

In addition to these significant options the scheme development process entailed a number of other minor changes to the design of the main carriageway and side roads leading to the outline design as defined by the Orders and Environmental Statement published in respect of the scheme.

### **4.5 Scheme Outcomes**

The finalised scheme proposals are as defined by the Environmental Statement and the Road and Compulsory Purchase Orders published in respect of the scheme.

## **5**

## **Consultation**

### **5.1 General**

Wide-ranging consultation has been undertaken during the process of developing the scheme proposals. This is described more fully below in terms of the consultation undertaken for:

- 'Northern Leg' corridor selection, undertaken in the early 2000s
- 'Western Leg' corridor selection, undertaken in 2005
- Scheme Development, undertaken since 2003

### **5.2 'Northern Leg' Corridor Selection**

Three types of consultation were undertaken to support the process of selecting a preferred corridor for the Northern Leg. These were:

- Consultation with statutory bodies, undertaken by writing and/or in meetings, to elicit their views in respect of the developing scheme proposals. This consultation was undertaken throughout the corridor selection process and the views expressed informed the determination of the preferred corridor.
- Consultation with affected landowners, generally undertaken in meetings, to elicit their views in respect of the developing scheme proposals. This consultation was undertaken throughout the corridor selection process and the views expressed informed the determination of the preferred corridor.
- Consultation with the general public, undertaken by means of exhibitions staffed by representatives of the project team, to elicit the views of the general public in respect of the developing scheme proposals. This consultation was initially undertaken in Spring 2002, when 18 corridors presented, and further consultation was undertaken in early 2003, when three corridors were presented. The views expressed informed the determination of the preferred corridor.

### **5.3 'Western Leg' Corridor Selection**

Two types of consultation were undertaken to support the process of selecting a preferred corridor for the Northern Leg. These were:

- Consultation with statutory bodies, undertaken by writing and/or in meetings, to elicit their views in respect of the proposed corridors. This consultation was undertaken following identification of the potential corridors and the views expressed informed the determination of the preferred corridor.

- Consultation with the general public, undertaken by means of exhibitions staffed by representatives of the project team, to elicit the views of the general public in respect of the proposed corridors. This consultation was undertaken in Spring 2005, when five corridors, each with an indicative route, were presented. The views expressed informed the determination of the preferred corridor.

#### **5.4 Scheme Development**

Four types of consultation were undertaken to support the process of developing specific proposals within the selected corridor for the scheme. This consultation has spanned different time periods for sections of the scheme, with consultation on the proposals for the 'Northern Leg' being undertaken since late 2003, and consultation on the proposals for the 'Western Leg' being undertaken since late 2005. This process entailed:

- Consultation with statutory bodies, undertaken by writing and/or in meetings, to elicit their views in respect of the developing scheme proposals. This consultation was undertaken throughout the scheme development process and the views expressed informed the finalisation of the scheme proposals documented in the Environmental Statement.
- Consultation with affected landowners, undertaken by writing and/or in meetings, to elicit their views in respect of the developing scheme proposals. This consultation was undertaken throughout the scheme development process and the views expressed informed the finalisation of the scheme proposals documented in the Environmental Statement.
- Consultation with the general public, undertaken by means of exhibitions staffed by representatives of the project team, to explain the scheme proposals as documented in the Environmental Statement to the general public. This consultation was initially undertaken in January 2007 in relation to draft Orders and the Environmental Statement published in December 2006. Further consultation was undertaken in October 2007 in relation to the republication in September/October 2007 of draft Orders and the Environmental Statement for the scheme. Consultation with individual landowners also took place in Spring 2008 in relation to the publication of Compulsory Purchase Order No 2.
- Consultation with the general public has also been undertaken through the statutory process, where approximately 9,250 objections to the scheme have been received, 179 of which were from parties classed as statutory objectors. Further consultation has been undertaken with many of the objectors by means of writing and/or meetings, with a view to resolving objections where possible. It is anticipated at this time that these consultations will continue and any outstanding objections will be considered at the Public Local Inquiry scheduled for commencement in September 2008.

## **6 Part 1 (Initial) Appraisal**

### **6.1 Overview**

The Part 1 (Initial) appraisal of the AWPR was carried out in two stages, as follows:

- The Northern Leg of the scheme was the subject of a Part 1 appraisal in 2002. As a result of this appraisal the Central (Route C3) Corridor was selected as the preferred route for the Northern Leg, as described in Section 4 of this report.
- The whole of the scheme was the subject of a Part 1 appraisals carried out in 2005 and 2006, as documented in reports published in 2006 and 2007. The corridor for the Northern Leg was consistent for all options considered in that appraisal, with the elements that varied relating only to the southern portions of the scheme. As a result of this appraisal the Milltimber Brae/Fastlink corridor was selected as the preferred corridor for the whole of the scheme, as described in Section 4 of this report.

### **6.2 Appraisal Documents**

The Part 1 appraisal documents for the Northern Leg STAG assessment are included in Appendix A of this report.

The Part 1 appraisal documents for the whole of the scheme assessment are included in Appendix B of this report.

## **7 Part 2 (Detailed) Appraisal**

### **7.1 Overview**

The Part 2 (Detailed) appraisal of the AWPR is required in respect of final approval or when funding is sought for the scheme. The Part 2 appraisal reported at this time is therefore an interim appraisal relating to the scheme proposals as defined at this time. Any future developments in the scheme proposals beyond the date of this appraisal and Interim Report will be included in the Final Report submitted at the appropriate time.

### **7.2 Appraisal Documents**

The Part 2 appraisal documents for the proposed scheme are included in Appendix C of this report.



## **8 Risk and Uncertainty**

### **8.1 Risk Modelling**

Risk modelling has been undertaken for the scheme in respect of both financial risk and programme risk.

Financial risk has been assessed in a two-stage process, as follows:

- The first stage involved preparation of a financial risk register in relation to the scheme. This risk register was the subject of a Monte Carlo modelling process to provide a risk model for the scheme, identifying the range of risk costs that could occur and their associated probabilities. The mean value of this risk model forms the first element of financial risk assessment.
- The second stage involves considering the appropriate level of Optimism Bias to apply in relation to the scheme. As the scheme has reached the stage of publishing statutory documents it was considered that an allowance of 15% was appropriate. This allowance is applied in respect of costs that have yet to be incurred, including the risk sum identified from the first stage of the assessment, to provide the total financial risk allowance for the scheme.

Programme risk has been assessed by evaluating the impact of delay to scheme completion. As scheme completion is planned for late 2012, the effects of delay have been modelled by basing the economic assessment of the scheme on a scenario where a notional delay of one year occurs in scheme completion.

The economic assessment presented in the Part 2 (Detailed) Appraisal Summary Tables is based on the application of both the financial and the programme risk events described above.

### **8.2 Risk Management**

In addition to testing the robustness of the scheme against potential risk events, a risk management process has been adopted throughout scheme delivery. This process enables key risks to be identified and actively managed to reduce the impact that they may have on project delivery.

## **9 Monitoring and Evaluation**

### **9.1 General**

Monitoring and evaluation of the scheme have different functions, as follows:

- Monitoring is intended to track progress towards meeting the planning objectives for the project. In practice, for infrastructure of the type represented by the scheme proposals, progress towards achieving the planning objectives can only be observed once the scheme is brought into use. In this context, monitoring is therefore taken to be the regular review of scheme performance in the period following completion.
- Evaluation refers to the process of assessing the performance of the scheme against the stated planning objectives at a specific point in time, once sufficient time has elapsed to enable a full and detailed assessment to be made.

Proposals in respect of each of these processes are described below.

### **9.2 Monitoring Proposals**

#### **9.2.1 General**

The monitoring proposals outlined below have been developed in respect of each of the planning objectives detailed in Section 2 of this report. These monitoring proposals will be undertaken over the three year period following scheme completion.

#### **9.2.2 Improve access to and around Aberdeen to improve transport efficiency and support the industrial areas in the City and the areas to the north and West of Aberdeen.**

The effectiveness of the scheme in meeting transport efficiency objectives will be monitored by reviewing performance against each of the measures where predicted changes have been referred to in identifying the expected performance of the scheme. These are:

- Traffic reduction performance at the key locations identified will be reviewed on a six-monthly basis by reference to recorded traffic volumes at these points on the road network;
- Journey time reduction performance will be assessed by undertaking a pre scheme completion journey time survey for the journeys identified, and undertaking post scheme completion journey time surveys on a six-monthly basis;
- Journey time reliability will be assessed by comparing the outcomes of each of the six-monthly post completion journey time surveys undertaken.

**9.2.3 Provide traffic relief (including the removal of long distance heavy goods vehicle traffic) on the existing congested A90 route through and to the south of Aberdeen.**

The effectiveness of the scheme in meeting traffic relief objectives on the existing A90 will be monitored for all vehicles by means of the traffic reduction monitoring proposals described above. This process will also capture data relating to heavy goods vehicles to enable that aspect to also be assessed.

**9.2.4 Reduce traffic on urban radial routes reducing noise and air pollution and creating opportunities for pedestrianisation in the City Centre.**

The effectiveness of the scheme in meeting this objective will be monitored by reviewing performance against each of the areas that have been referred to in identifying the expected performance of the scheme. These are:

- Traffic relief performance on urban radial routes will be monitored for all vehicles by means of the traffic reduction monitoring proposals described above;
- Noise reductions will be monitored by conducting an updated baseline study pre scheme completion and conducting post completion studies of actual outcomes on an annual basis. These studies are separate from the noise assessments required in accordance with the Noise Insulation (Scotland) Regulations 1975;
- Air pollution reductions will be monitored by conducting an updated baseline study pre scheme completion and conducting post completion studies of actual outcomes on an annual basis;
- Pedestrianisation opportunities in the city centre will be monitored by on-going consultation with Aberdeen City Council to determine whether it is feasible to introduce such measures. It should be noted that the actual implementation of pedestrianisation in the city centre is beyond the scope of this scheme, and may depend on external factors such as completion of other transport schemes that are also beyond the scope of this project and the availability of funding to undertake such works. The monitoring proposals are therefore targeted at the feasibility of this being achieved rather the actuality.

**9.2.5 Provide access to existing and planned park and ride facilities around the outskirts of the city encouraging modal shift.**

The effectiveness of the scheme in meeting this objective will be monitored by reviewing the specific objective criteria as follows:

- Access to existing and planned park and ride facilities will be monitored by on-going consultation with Aberdeen City and Aberdeenshire Council to assess the effectiveness of access arrangements to existing and planned park and ride sites close to the proposed scheme;

- Encouragement of modal shift will be monitored by conducting pre scheme completion surveys of park and ride usage of existing sites and conducting post scheme completion surveys to identify changes in levels of usage. Performance of new park and ride sites brought into use following scheme completion will also be assessed and compared against the levels of usage that could be expected from sites at such locations in the absence of the scheme.

#### **9.2.6 Increase opportunities to maximise bus lanes and other public transport priority measures.**

The effectiveness of the scheme in meeting this objective will be monitored by reviewing the specific objective criteria as follows:

- Journey time reduction performance for buses will be assessed by undertaking a pre scheme completion journey time survey for the journeys identified, and undertaking post scheme completion journey time surveys on a six-monthly basis;
- Opportunities to maximise bus lanes and other transport priority measures will be monitored by on-going consultation with NESTRANS and Aberdeen City and Aberdeenshire Councils to determine whether it is feasible to introduce such measures. It should be noted that the actual implementation of these measures is beyond the scope of this scheme, and may depend on external factors that are also beyond the scope of this project and the availability of funding to undertake such works. The monitoring proposals are therefore targeted at the feasibility of this being achieved rather the actuality.

#### **9.2.7 Improve road safety over a wide area through the reduction of traffic on local roads.**

The effectiveness of the scheme in this objective will be monitored by conducting analysis of accident statistics on annual basis commencing three years before scheme completion until three years after scheme completion. This analysis will also identify any other measures introduced which may have had positive or negative implications for safety performance in order to enable the change specifically associated with the scheme to be identified.

### **9.3 Evaluation Proposals**

#### **9.3.1 General**

There are two forms of evaluation proposed for this scheme:

- Process Evaluation, which considers how well the project has been implemented;
- Outcome Evaluation, which considers how effective the scheme has been in meeting its stated objectives.

Proposals in respect of each of these forms of evaluation are described below.

### **9.3.2 Process Evaluation**

The process evaluation will take the form of structured interviews with key stakeholders leading to preparation of a formal report on scheme delivery. These interviews will be conducted after one year's monitoring has been completed and reported, to enable the stakeholders to provide input in relation to measured performance of the scheme.

### **9.3.3 Outcome Evaluation**

The outcome evaluation will take the form of a report covering the cumulative findings of all of the monitoring work undertaken in respect of the scheme. This evaluation will be conducted following completion of three years of monitoring activities.

## **10 Conclusions**

The purpose of the work undertaken as documented in this report is to support the development of scheme proposals which are capable of delivering the objectives set in respect of the project. The methodology adopted has resulted in the following outcomes:

- The scheme objectives have been developed in the context of an integrated transport strategy combining public transport and strategic road provision. Within this strategy, in recognition of the constrained existing road network, the AWPR is a key enabling project supporting subsequent delivery of many of the road-based public transport proposals.
- The scheme objectives have informed corridor selection outcomes by means of the STAG 1 appraisal process, carried out for both the Northern Leg and for the whole of the scheme. This process led to the identification of the preferred corridor referred to Milltimber Brae/Fastlink.
- The specific route defined by the draft Road Orders, draft Compulsory Purchase Orders and Environmental Statement has been developed as described in Section 4 of this report. The statutory process in respect of the scheme has now been initiated and the next stage of scheme delivery rests on the conclusions of that process.
- The effectiveness of the scheme proposals in meeting the specific objectives for the scheme and the Government's five objectives of Environment, Safety, Economy, Integration, Accessibility and Social Inclusion are documented in the Part 2 (Detailed) Appraisal Summary Tables included in this report.
- The scheme proposals consist of 34.8km of new dual carriageway providing a peripheral route around Aberdeen on its west side, together with 11.5km of new dual carriageway (Fastlink) from Stonehaven to the peripheral route. The scheme is estimated to cost £347.4m at Q4 2003 rates, and provides a benefit to cost ratio of 4.2. The peripheral route is to be funded jointly by the Scottish Government (81%), Aberdeen City Council (9.5%) and Aberdeen City Council (9.5%). The Fastlink is wholly funded by Transport Scotland, as is all maintenance of the new trunk road.

## **Appendix A: Part 1 (Initial) Appraisal – Northern Leg**

The Part 1 Appraisal of the Northern Leg will be included in the Final STAG Report. It has not been included in this Interim Report as it is available on the internet at the web address noted below:

[www.aberdeencity.gov.uk/ACCI/web/site/Roads/SL\\_WPR/roa\\_WPR\\_North\\_Leg.asp](http://www.aberdeencity.gov.uk/ACCI/web/site/Roads/SL_WPR/roa_WPR_North_Leg.asp)

## Appendix B: Part 1 (Initial) Appraisal – Scheme as a Whole

The Part 1 Appraisal of the Scheme as a Whole will be included in the Final STAG Report. It has not been included in this Interim Report as it is available on the internet at the web address noted below:

[www.awpr.co.uk/document\\_archive.asp?command=OpenFolder&folder=&File=STAG+assessments](http://www.awpr.co.uk/document_archive.asp?command=OpenFolder&folder=&File=STAG+assessments)

The documents available at that address are the Part 1 Appraisal Summary Tables prepared in respect of:

- Pitfodels Corridor
- Murtle Corridor
- Milltimber Brae Corridor
- Milltimber Brae/Fastlink Corridor
- Peterculter/Charleston Corridor
- Peterculter/Stonehaven Corridor
- Eastern Bypass Corridor



**Appendix C: Part 2 (Detailed) Appraisal**

The following pages present the Part 2 (Detailed) Appraisal Summary Tables prepared in respect of the proposed scheme.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

**Part 2 (Detailed) Appraisal Summary Tables**

<b>Proposal Details</b>				
Name and address of authority or organisation promoting the proposal:		Transport Scotland, on behalf of the Scottish Government, in partnership with Aberdeen City Council and Aberdeenshire Council		
Proposal Name:	Aberdeen Western Peripheral Route	Name of Planner:	AWPR Managing Agent	
Proposal Description:	Dual two lane carriageway Special Road forming a key component of the Modern Transport System as identified in the MTS STAG Part 1. Additional Fastlink dual two lane carriageway between Stonehaven and Cleanhill.	Total Public Sector Funding Requirement:	Capital costs	£347.4m (Q4 2003 Rates)
			Annual revenue support	-
			Present Value of Cost to Govt.	£342.5m (see monetised summary)
Funding Sought From:	<p>Funding for Northern Leg and Southern Leg capital cost: 81% by Scottish Government, 9.5% each by Aberdeen City Council and Aberdeenshire Council</p> <p>Funding for Fastlink capital cost: 100% by Scottish Government</p> <p>Funding for maintenance of the whole scheme: 100% by Scottish Government</p>	Amount of application:	Application for funding is not being made at the time of preparation of this Interim STAG Report.	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Background Information</b>	
Geographic Context:	Aberdeen is the urban centre of North-East Scotland. The existing trunk road network runs through Aberdeen, with the local road network entering the city radially. The existing road infrastructure is significantly constrained in many areas, with the trunk road bridge across the River Dee being unable to accommodate heavy goods vehicles and the trunk road through Aberdeen having a number of traffic signal controlled junctions and at grade roundabouts. In addition, over much of its length the trunk road is on a steep vertical alignment and is closely bounded by a mix of residential, leisure and commercial premises. These various constraints result in diversion by drivers onto local roads, causing further congestion across the network. The study area straddles the Aberdeenshire/Aberdeen City Council boundary and comprises primarily of Aberdeen's rural hinterland although it passes close to or through several built-up areas within the city boundary. The study crosses the River Dee Special Area of Conservation and River Don (District Wildlife Site). The study area passes close to Aberdeen Airport and crosses the Aberdeen to Inverness railway line.
Social Context:	The study area comprises farmland and urban areas which are primarily industrial or residential. The radial routes which the study area crosses are primarily commuter routes connecting the urban areas to the west of the city centre and west of Aberdeen with the city. The main trunk roads are the A90 which runs from north to south and the A96 which heads west.
Economic Context:	Congestion on approach to and within Aberdeen has become of increasing concern, in terms of both environmental impacts associated with congested traffic and with the economic impact are areas north of Aberdeen. Economic activity within the study area is primarily agricultural. There are industrial estates at Tullos and Altens in the south, Westhill and Kirkill on the western fringes and Bridge of Don and Blackdog in the north. Aberdeen airport is located adjacent to Kirkill industrial estate at Dyce in the west of the city. In built up areas the main economic activity is that associated with residential areas, such as shops, restaurants and hotels. Economic activity is adversely affected due to complex journeys and increasing and unreliable journey times through the city. This affects both Aberdeen City and Aberdeenshire.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

Planning Objectives	
Objective:	Performance against planning objective:
<p><b>General:</b> Figures quoted below in respect of changes in traffic volumes are based on comparing predicted traffic volumes with the AWPR and all other MTS proposals in place to the Reference Case, which assumes that all MTS proposals with the exception of AWPR are in place. This comparison allows the specific changes associated with the AWPR to be identified.</p>	
<p>1. Improve access to and around Aberdeen to improve transport efficiency and support the industrial areas in the City and the areas to the north and west of Aberdeen.</p>	<p>The scheme improves transport efficiency in three key ways.</p> <p>Firstly it removes a significant volume of traffic from existing routes in and around Aberdeen. This has the effect of improving transport efficiency at these locations. Notable changes in annual average daily traffic flows include:</p> <ul style="list-style-type: none"> <li>• A90 (North of Stonehaven), 31% reduction in year of opening</li> <li>• A90 (Bridge of Dee), 14% reduction in year of opening</li> <li>• A93 (Milltimber), 26% reduction in year of opening</li> <li>• A90 (Anderson Drive), 22% reduction in year of opening</li> <li>• Market Street, 10% reduction in year of opening</li> <li>• A944 (Kingswells), no change in year of opening</li> <li>• A90 (North Anderson Drive), 20% reduction in year of opening</li> <li>• A96 (Auchmill Road), 14% reduction in year of opening</li> <li>• A947 (River Don), 14% reduction in year of opening</li> <li>• A90 (Parkway), 26% reduction in year of opening</li> <li>• A956 (River Don), 14% reduction in year of opening</li> <li>• A90 (Denmore), 18% reduction in year of opening</li> </ul> <p>Secondly it provides both a significant reduction in journey times and a considerable improvement in journey time reliability. For some of the main strategic journeys which make use of the AWPR the change in journey times in the year of opening are as follows:</p> <ul style="list-style-type: none"> <li>• Stonehaven to Dyce, reduction of 27 minutes (49%) in the AM peak period and reduction of 22 minutes (43%) for the return journey in the PM peak period</li> </ul>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Planning Objectives (cont'd)</b>	
<b>Objective:</b>	<b>Performance against planning objective:</b>
<p>1. Improve access to and around Aberdeen to improve transport efficiency and support the industrial areas in the City and the areas to the north and west of Aberdeen. (cont'd)</p>	<ul style="list-style-type: none"> <li>• Bridge of Don to the Airport, reduction of 10 minutes (35%) in the AM peak period and reduction of 1 minute (6%) in the return journey PM peak period</li> <li>• Peterculter to Bridge of Don, reduction of 21 minutes (46%) in the AM peak period and reduction of 14 minutes (35%) in the return journey in the PM peak period</li> <li>• Ellon to Portlethen, reduction of 22 minutes (36%) in the AM peak period and reduction of 18 minutes (34%) in the return journey in the PM peak period</li> <li>• Westhill to Altens, reduction of 10 minutes (28%) in the AM peak period and reduction of 13 minutes (35%) in the return journey in the PM peak period</li> <li>• Cove to Kirkhill, reduction of 20 minutes (47%) in the AM peak period and reduction of 15 minutes (40%) in the return journey in the PM peak period</li> </ul> <p>A reduction in journey times is also seen for journeys accessing Aberdeen via key radial routes, where the changes in journey time to and from the city centre in the year of opening are as follows:</p> <ul style="list-style-type: none"> <li>• Stonehaven, reduces in: AM by 5 minutes (13%); PM by 5 minutes (13%)</li> <li>• Banchory, reduces in: AM by 7 minutes (16%); PM by 4 minutes (9%)</li> <li>• Westhill, reduces in: AM by 3 minutes (9%); PM by 3 minutes (8%)</li> <li>• Blackburn, reduces in: AM by 2 minutes (8%); PM by 5 minutes (14%)</li> <li>• Old Meldrum, reduces in: AM by 9 minutes (19%); PM by 7 minutes (17%)</li> <li>• Newburgh, reduces in: AM by 9 minutes (22%); PM by 7 minutes (19%)</li> </ul> <p>A reduction in journey times is also seen for journeys wholly within the city centre area, where the changes in journey time for individual journeys in the year of opening are as follows:</p> <ul style="list-style-type: none"> <li>• Bridge of Dee to Haudagain, reduction of 6 minutes (22%) in the AM peak period and reduction of 4 minutes (18%) for the return journey in the PM peak period</li> <li>• Tullos to the Aberdeen Exhibition and Conference Centre, reduction of 8 minutes (22%) in the AM peak period and reduction of 6 minutes (18%) in the return journey PM peak period</li> </ul>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Planning Objectives (cont'd)</b>	
<b>Objective:</b>	<b>Performance against planning objective:</b>
<p>1. Improve access to and around Aberdeen to improve transport efficiency and support the industrial areas in the City and the areas to the north and west of Aberdeen. (cont'd)</p>	<ul style="list-style-type: none"> <li>• City centre to the University, reduction of 3 minutes (18%) in the AM peak period and reduction of 2 minutes (15%) in the return journey in the PM peak period</li> <li>• City Centre to Aberdeen Royal Infirmary, reduction of 1 minute (12%) in the AM peak period and reduction of 2 minutes (12%) in the return journey in the PM peak period</li> </ul> <p>Thirdly it provides an improvement in journey time reliability over time. In terms of the journeys quoted above, the average increase in journey time between the year of opening (2012) and the design year (2027) for the reference case is 11%. For the case where the AWPR is in place the average increase in journey time for the same journeys over the same period is only 4%.</p>
<p>2. Provide traffic relief (including the removal of long distance heavy goods vehicle traffic) on the existing congested A90 route through and to the south of Aberdeen.</p>	<p>The figures quoted in respect of Objective 1 demonstrate significant delivery of traffic relief on the existing A90 through and to the south of Aberdeen as a result of the scheme.</p> <p>The changes in annual average daily traffic flows of heavy goods vehicles at specific locations on the existing A90 are as follows:</p> <ul style="list-style-type: none"> <li>• A90 (North of Stonehaven), 32% reduction in year of opening</li> <li>• A90 (King George VI Bridge), 21% reduction in year of opening</li> <li>• A90 (Anderson Drive), 28% reduction in year of opening</li> <li>• A90 (North Anderson Drive), 30% reduction in year of opening</li> <li>• A90 (Parkway), 20% reduction in year of opening</li> <li>• A956 (River Don), 23% reduction in year of opening</li> <li>• A90 (Denmore), 36% reduction in year of opening</li> </ul> <p>The total annual average daily traffic volume entering the Anderson Drive section of the A90 is predicted to reduce by 18% in the year of opening.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Planning Objectives (cont'd)</b>	
<b>Objective:</b>	<b>Performance against planning objective:</b>
<p>3. Reduce traffic on urban radial routes reducing noise and air pollution and creating opportunities for pedestrianisation in the City Centre.</p>	<p>The figures quoted in respect of Objective 1 for the A93 (Milltimber), A944 (Kingswells), A96 (Auchmill Road) and A947 (River Don) generally demonstrate significant traffic reductions on the urban radial routes entering Aberdeen in the year of opening of the scheme.</p> <p>The changes in annual average daily traffic flows of heavy goods vehicles on these urban radial routes are as follows:</p> <ul style="list-style-type: none"> <li>• A93 (Milltimber), 82% reduction in year of opening</li> <li>• A944 (Kingswells), 12% reduction in year of opening</li> <li>• A96 (Auchmill Road), 23% reduction in year of opening</li> <li>• A947 (River Don), 10% reduction in year of opening</li> </ul> <p>The total annual average daily traffic volume entering the air quality management area in Aberdeen is predicted to reduce by 6% in the year of opening.</p> <p>The change in annual average daily traffic flows of heavy goods vehicles at Market Street in the year of opening is a reduction of 16%.</p> <p>The total annual average daily traffic volume entering the city centre of Aberdeen is predicted to reduce by 4% in the year of opening.</p> <p>Across the whole of the study area, out of approximately 44,200 people, approximately 1,600 fewer people are expected to be annoyed by noise than would be the case without the scheme being in place.</p> <p>Air quality across the whole of the study area is expected to improve for over 75,000 properties and deteriorate for fewer than 20,000 properties. The number of exceedences of National air quality objectives and EU limit values are expected to reduce as a consequence of the scheme.</p> <p>The reduction in traffic entering the city centre provides the opportunity to consider further pedestrianisation measures within the city centre area.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Planning Objectives (cont'd)</b>	
<b>Objective:</b>	<b>Performance against planning objective:</b>
4. Provide access to existing and planned park and ride facilities around the outskirts of the city encouraging modal shift.	<p>The scheme is close to a number of existing and proposed park and ride facilities, including:</p> <ul style="list-style-type: none"> <li>• The proposed Park and Ride site near Charleston/Schoolhill, locations for which are under consideration at present</li> <li>• Kingswells Park and Ride site on the A944 is immediately east of the proposed scheme</li> <li>• The proposed Dyce Park and Ride site on the A96 is likely to be located immediately east of the proposed scheme</li> <li>• The proposed Goval Park and Ride site on the A947, locations for which are under consideration at present</li> <li>• Exhibition Centre Park and Ride site on the A956 is a short distance south of the proposed scheme. Consideration is being given at present to moving this site north, closer to the proposed scheme.</li> </ul> <p>The proximity of the scheme to these facilities will assist in encouraging modal shift to public transport.</p>
5. Increase opportunities to maximise bus lanes and other public transport priority measures.	<p>The figures quoted in respect of Objective 1 demonstrate a significant reduction in traffic volumes on the existing road network. Specific assessment of journey time changes for bus journeys along key radial routes has been undertaken, and the results for the year of opening are as follows:</p> <ul style="list-style-type: none"> <li>• A956 (South) Corridor, reduces in: AM by 4 minutes (16%); PM by 3 minutes (13%)</li> <li>• A93 Corridor, reduces in: AM by 2 minutes (8%); PM by 1 minute (3%)</li> <li>• A944 Corridor, reduces in: AM by 2 minutes (9%); PM by 2 minutes (9%)</li> <li>• A96 Corridor, reduces in: AM by 2 minutes (5%); PM by 3 minutes (8%)</li> <li>• A947 Corridor, reduces in: AM by 2 minutes (7%); PM by 3 minutes (11%)</li> <li>• A956 (North) Corridor, reduces in: AM by 4 minutes (13%); PM by 2 minutes (9%)</li> </ul> <p>Further opportunities to optimise the benefits of the AWPR for public transport are discussed in the NESTRANS Locking in the Benefits of the AWPR Report.</p>



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Planning Objectives (cont'd)</b>	
<b>Objective:</b>	<b>Performance against planning objective:</b>
6. Improve road safety over a wide area through the reduction of traffic on local roads.	<p>Changes in road safety have been assessed based on standard accident rates for predicted traffic flows and routes travelled, and the results of this assessment in terms of total numbers of accidents per annum in the year of opening are as follows:</p> <ul style="list-style-type: none"> <li>• Urban routes have a predicted reduction of: 1 fatal; 8 serious; and 83 slight accidents.</li> <li>• Rural routes (excluding the AWPR) have a predicted reduction of: 1 fatal; 5 serious; and 36 slight accidents.</li> <li>• There are therefore total predicted reductions on the existing road network of: 2 fatal; 13 serious; and 119 slight accidents.</li> <li>• The AWPR, which forms additional infrastructure, has a predicted occurrence of: 1 fatal; 4 serious; and 47 slight accidents.</li> <li>• The overall position is therefore that with the AWPR in place there is a net predicted reduction of: 1 fatal; 9 serious; and 72 slight accidents</li> </ul>
Rationale for Selection of Proposal:	<p>The corridor with which the proposed scheme lies was selected as the preferred corridor in December 2005. This was based on comparison of this corridor with a number of other corridors, from which comparison the following key factors were decisive:</p> <ul style="list-style-type: none"> <li>• The preferred corridor offers 20% higher user benefits than the next best corridor, associated with reduced travel times and vehicle operating costs</li> <li>• The preferred corridor offers better safety benefits than the next best corridor, with an additional saving of 8 accidents per year</li> <li>• The preferred corridor performs better in terms of air quality than the next best corridor, producing less greenhouse gas emissions.</li> <li>• The preferred corridor has a high benefit to cost ratio providing value for money</li> </ul> <p>The scheme has now been refined within the selected corridor and is reported here for further consideration.</p>

<b>Implementability Appraisal</b>	
Technical:	<p><b>General</b></p> <p>The scheme consists of some 46km of dual carriageway main line, along with associated side road diversions. The scheme will largely be constructed within a greenfield environment, although demolition of a number of residential properties will be required as will demolition of the International School of Aberdeen. The scheme does not include elements which are unproven or untried and there are few departures from standard within the main carriageway itself, although there are some sections of relatively steep gradient.</p> <p><b>Scheme Length</b></p> <p>Northern Leg: Extending from North Kingswells Junction to Blackdog Junction, a length of 16.1km            Southern Leg: Extending from Charleston Junction to North Kingswells Junction, a length of 18.7km            Fastlink: : Extending from Stonehaven Junction to Cleanhill Junction, a length of 11.5km</p> <p><b>Carriageway Provision</b></p> <p>All sections of the scheme are proposed as dual two lane carriageway, with the following exceptions:</p> <ul style="list-style-type: none"> <li>• The section between North Kingswells Junction and Craibstone Junction is proposed as dual three lane carriageway achieved by means of lane-gain/land-drop arrangements between the respective merging and diverging slip roads at these junctions.</li> <li>• The section of the existing A90 between Schoolhill Junction (under construction at present by others) and Charleston Junction is proposed as dual three lane carriageway achieved by means of lane-gain/land-drop arrangements between the respective merging and diverging slip roads at these junctions.</li> </ul> <p><b>Junctions</b></p> <p>All directions grade-separated junctions at Stonehaven (A90), Charleston (A90), Milltimber (A93), South Kingswells (A944), Craibstone (A96), Goval (A947) and Blackdog (A90)</p> <p>A grade-separated junction with north facing slips only at North Kingswells</p> <p>An at-grade junction which connects the Southern Leg and the Fastlink at Cleanhill.</p> <p><b>Demolition</b></p> <p>A total of 13 residential properties (3 on the Northern Leg, 10 on the Southern Leg) with 3 associated outbuildings require demolition, in addition to relocation and demolition of the International School of Aberdeen.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Implementability Appraisal (cont'd)</b>	
Technical (cont'd):	<p><b>Local Routes</b></p> <p>Generally side roads are maintained either on their existing alignment or by local diversion. In some instances side roads are not maintained and traffic will in future make use of other side roads to cross over the line of the scheme. More details of the side road treatment in each of the sections of the scheme are provided below. Note that this description does not include arrangements for private accesses.</p> <p><u>Northern Leg</u></p> <p>Side roads crossed by the scheme which are maintained on or close to their existing alignment are: U90C, A96, C55C, B977 (West), A947, B977 (East), U19C, B999, C1C and U240C.</p> <p>Side roads crossed by the scheme which are not maintained are: C89C (alternative access provided across the proposed scheme by means of the Link Road between the A96 and the C89C), U53C (no alternative access provided) and C25C (alternative access provided across the proposed scheme by means of the B977 (East)).</p> <p><u>Southern Leg</u></p> <p>Side roads crossed by the scheme which are maintained on or close to their existing alignment are: C30K, C5K, U63K, B9077, Station Road (Milltimber), A93, Contlaw Road, C127, A944 and C39C.</p> <p>Side roads crossed by the scheme which are not maintained are: C5K at Charleston and U58K at Charleston (alternative access provided across the proposed scheme by means of the Hatton Side Road), C34K (alternative access provided across the proposed scheme by means of the Hatton Side Road); U59K (no alternative access provided) and Culter House Road (Milltimber) (alternative access provided to link this road on the west to the A93).</p> <p><u>Fastlink</u></p> <p>Side roads crossed by the scheme which are maintained on or close to their existing alignment are: U88K, C12K, C25K, C13K, C5K.</p> <p>Side roads crossed by the scheme which are not maintained are: U89K (alternative access provided to link this road on the east to the U88K).</p>

<b>Implementability Appraisal (cont'd)</b>	
Technical (cont'd):	<p><b>Earthworks</b></p> <p>Total earthworks volumes are estimated as excavation of some 7,436,000m<sup>3</sup> and filling of some 7,164,000m<sup>3</sup>. More details are provided below in terms of the sections within which the earthworks have been assessed:</p> <p><u>Northern Leg</u></p> <p>Total excavation of some 2,392,000m<sup>3</sup> and filling of some 3,547,000m<sup>3</sup>.</p> <p>Significant cuttings (&gt;5m in depth below ground level) include: Ashtown (c.9m), Kirkhill (c.9m), Pitmedden (c.13m), Corsehill (c.9m) and Newtonhill (c.16m).</p> <p>Significant embankments (&gt;5m in height above ground level) include: Craibstone (c.14m), Walton/Baljosie (c.12m), Bogenjoss (c.20m), River Don (c.20m), Meadowhead (c.12m) and Red Moss (c.6m)</p> <p><u>Southern Leg (North of the River Dee)</u></p> <p>Total excavation of some 2,385,000m<sup>3</sup> and filling of some 1,121,000m<sup>3</sup>.</p> <p>Significant cuttings (&gt;5m in depth below ground level) include: Milltimber (c.10m), Beans Hill (c.14m), West Hatton (c.6m), Cloghill (c.16m) and Derbeth (c.15m).</p> <p>Significant embankments (&gt;5m in height above ground level) include: River Dee (c.12m), Silverburn (c.11m), Gairn Hill (c.8m), West Hatton (c.13m), Fairley (c.10m)</p> <p><u>Fastlink/Southern Leg (South of the River Dee)</u></p> <p>Total excavation of some 2,659,000m<sup>3</sup> and filling of some 2,496,000m<sup>3</sup>.</p> <p>Significant cuttings (&gt;5m in depth below ground level) on the Fastlink include: Megray (c.12m), Elrick (c.7m), Cookney (c.8m), Newhall (c.7m), North Rothnick (c.10m) and Stranog (c.11m). Significant cuttings (&gt;5m in depth below ground level) on the Southern Leg (South of the River Dee) include: Hatton (c.6m), Greenloaning (c.15m) and Cleanhill (c.14m).</p> <p>Significant embankments (&gt;5m in height above ground level) on the Fastlink include: Limpet Burn (c.22m), Fishermyle (c.10m), Burn of Muchalls (c.10m), Crossley (c.7m), Blakiewell (c.9m). Significant embankments (&gt;5m in height above ground level) on the Southern Leg (South of the River Dee) include: Duffs Hill (c.9m), Hare Moss (c.7m), Burnhead (c.9m), Cleanhill (c.13m) and Kingcausie (c.8m).</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

Implementability Appraisal (cont'd)	
Technical (cont'd):	<p><b>Structures</b></p> <p>The structures proposed as part of the scheme are summarised below for each section of the scheme.</p> <p><u>Northern Leg</u></p> <p>Major Structures: 2 No. – 1 No. River Don Crossing; 1 No. Aberdeen-Inverness Railway Crossing            Family Overbridges: 11 No. – 9 No. Side Road Bridges; 1 No. Agricultural Bridge; 1 No. Aqueduct.            Family Underbridges: 7 No. – 7 No. Side Road Bridges            Underpasses: 5 No. – 2 No. Non-Motorised User; 3 No. Pipeline Crossings            Watercourses (excluding River Don): 27 No. – 4 No. Bridges, 23 No. Culverts            Other: 1 No. – Wildlife Bridge</p> <p><u>Southern Leg</u></p> <p>Major Structures: 1 No. – River Dee Crossing            Family Overbridges: 11 No. – 10 No. Side Road Bridges; 1 No. Agricultural Bridge.            Family Underbridges: 5 No. – 5 No. Side Road Bridges            Underpasses: 3 No. – 3 No. Agricultural Bridges            Watercourses (excluding River Dee): 15 No. – 1 No. Bridge, 14 No. Culverts            Other: 3 No. – 1 No. Wildlife Bridge; 2 No. Retaining Walls</p> <p><u>Fastlink</u></p> <p>Family Overbridges: 4 No. – 4 No. Side Road Bridges.            Family Underbridges: 2 No. – 2 No. Side Road Bridges            Underpasses: 2 No. – 1 No. Non-Motorised User; 1 No. Agricultural Bridge            Watercourses: 13 No. – 2 No. Bridges, 11 No. Culverts</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Implementability Appraisal (cont'd)</b>	
Technical (cont'd):	<p><b>Risks</b></p> <p>Key technical risks identified in respect of the project include:</p> <ul style="list-style-type: none"> <li>• Ground conditions present risks of actual conditions varying from those known at present: this risk is being addressed by completion of the detailed ground investigation;</li> <li>• Working close to existing roads, over open areas of water and close to urban areas presents technical, logistic and health and safety risks: these risks are being addressed by considering safe working requirements during construction operations and compliance with Construction (Design and Management) Legislation, including preparation of pre-contract Health and Safety Plans;</li> <li>• Crossing of Aberdeen-Inverness Railway Line presents technical and logistic risks: these risks are being addressed by consultation with Network Rail;</li> <li>• Environmental mitigation presents risks associated with gaining necessary approvals from statutory bodies; these risks are being addressed by advance consultation on detailed proposals which can be adopted by the appointed contractor;</li> <li>• Public utilities works present technical and logistic risks: these risks are being addressed by consultation with utility owners to agree proposals, assess costs and consider optimal programming arrangements;</li> </ul> <p>These risks, along with risks in other categories, are the subject of regular reviews to identify risk management actions that can be taken to eliminate or minimise the risk concerned.</p>
Operational:	<p>Arrangements for operation of the scheme will depend on the procurement method selected, which is still to be determined. Options currently being considered include the operation of the scheme being incorporated into the Trunk Road Management Contracts immediately on completion, or the operation of the scheme for a fixed period being included within the contract to construct the scheme. Although the scheme includes a number of elements requiring periodic rather than on-going maintenance, for example swales and water treatment ponds, there are not considered to be any elements which represent an excessive maintenance or operational burden.</p>
Financial:	<p>As noted above, the procurement method for the project has still to be determined, and therefore the financial arrangements supporting the project have not been finalised at this time. The funding arrangements for the project are that the Scottish Government will be responsible for funding 81% of the combined capital cost of the Northern and Southern Legs, 100% of the capital cost of the Fastlink, and 100% of the operating costs of the scheme as a whole. Aberdeen City Council and Aberdeenshire Council will each be responsible for funding 9.5% of the combined capital cost of the Northern and Southern Legs.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Implementability Appraisal (cont'd)</b>	
Public:	The draft Orders and Environmental Statement have been published, initially in December 2006 and then republished in Autumn 2007 with a further draft Compulsory Purchase Order published in Spring 2008. This has led to the lodging of some 9,250 objections from some 9,400 objectors, of which some 179 parties have been identified as statutory objectors. These objectors raise a number of different grounds of concern, some relating to questions of principle and some relating to questions of detail. Discussions are continuing with objectors to resolve their objections where possible, however, it is expected that a Public Local Inquiry will be held in relation to the scheme and arrangements for this are currently in the hands of the Directorate of Planning and Environmental Appeals of the Scottish Government.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment</b>											
Mitigation Options Included:	<p>Mitigation measures included in the proposed scheme at this time are those detailed within the Environmental Statement (ES) published in 2007, supplemented by the amendments to those mitigation measures identified within the Report to Inform the Appropriate Assessment (unpublished), the Assessment of Effects of Updated Traffic Model (UD) Report, published in parallel with this Interim STAG Report, and the Offset Mitigation Report (unpublished). This latter report identifies a number of mitigation projects to be undertaken as part of a wider approach to mitigation, the benefits of which are not relied upon within the ES. It should be noted that where assessment outcomes are related to traffic modelling work, the outcomes described within these Part 2 Appraisal Summary Tables relate to the updated traffic model.</p> <p>Impacts identified within this report are residual impacts taking account of the above mitigation measures where applicable. Where referred to, the Design Year is 2027, 15 years after the opening year of 2012.</p> <p>Costs for all of the mitigation measures described in the documents noted above have been included within the cost estimate prepared for the scheme, enabling the realisation of benefits through reducing potential impacts to lower levels of residual impacts as described in these documents.</p>										
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>								
Noise and Vibration	<p><b>References:</b> ES 2007, Chapters 15, 30, 45 and 54 and UD Report</p> <p><b>General:</b> There will be more beneficial than adverse noise impacts over the wider area.</p> <p><b>Northern Leg:</b> A total of 291 residential properties and 73 non-residential receptors were identified within 300m of the road.  An additional 185 residential properties and 50 non-residential receptors were identified within 300-500m of the road.</p>	<p>The net annoyance change in the Design Year would be that 1,574 fewer people out of a total of 44,224 would be annoyed by noise than would occur without the scheme in place.</p> <p><b>Year of Opening (Design Year)</b></p> <table border="0"> <tr> <td>4</td> <td>(4) Property</td> </tr> <tr> <td>72</td> <td>(37) Properties</td> </tr> <tr> <td>53</td> <td>(88) Properties</td> </tr> <tr> <td>128</td> <td>(132) Properties</td> </tr> </table>	4	(4) Property	72	(37) Properties	53	(88) Properties	128	(132) Properties	<p><b>Mitigation:</b> Mitigation proposed includes false cuttings, use of low noise surfacing and placement of acoustic screens.</p> <p>No change Slight Beneficial Moderate Beneficial, or better Moderate Adverse, or worse</p>
4	(4) Property										
72	(37) Properties										
53	(88) Properties										
128	(132) Properties										



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Noise and Vibration (cont'd)	<p><b>Southern Leg:</b></p> <p>A total of 450 residential properties and 84 non-residential receptors were identified within 300m of the road.</p> <p>An additional 726 residential properties and 26 non-residential receptors were identified within 300-500m of the road.</p> <p><b>Fastlink:</b></p> <p>A total of 179 residential properties and 20 non-residential receptors were identified within 300m of the road.</p> <p>An additional 232 residential properties and 18 non-residential properties were identified within 300-500m of road.</p>	<p><b>Year of Opening (Design Year)</b></p> <p>9 (6) Properties</p> <p>136 (133) Properties</p> <p>48 (50) Properties</p> <p>199 (197) Properties</p> <p>7 (0) Property</p> <p>99 (42) Properties</p> <p>9 (9) Properties</p> <p>39 (39) Properties</p>	<p>No change</p> <p>Slight Beneficial</p> <p>Moderate Beneficial, or better</p> <p>Moderate Adverse, or worse</p> <p>No change</p> <p>Slight Beneficial</p> <p>Moderate Beneficial, or better</p> <p>Moderate Adverse, or worse</p>
Air Quality – Overall	<p><b>References:</b></p> <p>ES 2007, Chapter 55 and UD Report</p> <p><b>Wider Scale Air Quality</b></p> <p>The scheme will cause an overall increase in total emissions of wider-scale pollutants, the levels of which are very small in the context of the total vehicle emissions in Aberdeen and Aberdeenshire.</p>	<p>Increase of 22 tonnes/year (1%) of Carbon Monoxide due to the scheme.</p> <p>Increase of 1 tonne/year (&lt;1%) of Total Hydrocarbons due to the scheme.</p> <p>Increase of 93 tonnes/year (10%) of Nitrogen Oxides due to the scheme.</p> <p>Increase of 5 tonnes/year (16%) of Particulates (PM<sub>10</sub>) due to the scheme</p>	<p><b>Mitigation:</b></p> <p>No mitigation is proposed.</p> <p>In a national context, the significance of these changes is considered to be Negligible.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Air Quality – Overall (cont'd)	<p><b>Overall Local Air Quality</b></p> <p>There will be more beneficial than adverse air quality impacts over the wider area. The scheme is expected to provide air quality benefits to densely-populated areas within the City of Aberdeen. This includes areas of poor air quality which are designated as an Air Quality Management Area (AQMA). As a result of the scheme, the number of exceedences of National air quality objectives and EU limit values are expected to be reduced.</p> <p>Predicted impacts on sensitive vegetation are not significant.</p>	<p><b>Note:</b> Numbers below refer to selected residential and educational properties that are within 10km of the proposed scheme.</p> <p><b>PM<sub>10</sub> – Overall Local Air Quality</b></p> <p>77,431 properties are predicted to experience improved air quality</p> <p>17,371 properties are predicted to experience poorer air quality</p> <p><b>NO<sub>2</sub> – Overall Local Air Quality</b></p> <p>75,019 properties are predicted to experience improved air quality</p> <p>19,988 properties are predicted to experience poorer air quality</p>	<p>Overall significance of impact on receptors for PM<sub>10</sub> is predicted to vary from Substantial Adverse to Substantial Beneficial.</p> <p>Overall significance of impact on receptors for NO<sub>2</sub> is predicted to vary from Moderate Adverse to Substantial Beneficial.</p>
CO <sub>2</sub> – Global	<p><b>References:</b></p> <p>ES 2007, Chapter 55 and UD Report</p> <p><b>General:</b></p> <p>The scheme will bring about a small increase in carbon dioxide emissions. The increase in emissions would not run counter to the assumptions made in Scotland's Climate Change Programme (2006), which shows how reductions in emissions from non-transport sectors can offset the increases associated with road-vehicles.</p>	<p>Increase of 10 Kilotonnes (8%) of CO<sub>2</sub> due to the scheme.</p>	<p><b>Mitigation:</b></p> <p>No mitigation is proposed.</p> <p>This amounts to less than 0.3% of the expected greenhouse gas savings in Scotland associated with policies contained in the UK and Scottish Climate Change Programmes that were introduced between 2000 and 2006.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
PM <sub>10</sub> – Local	<p><b>References:</b> ES 2007, Chapters 14, 29 and 44 and UD Report</p> <p><b>General:</b> More locations within 500m of the route are expected to experience adverse impacts than would experience beneficial air quality impacts. Where adverse impacts occur air quality will however remain good in terms of compliance with national air quality objectives.</p> <p><b>Northern Leg:</b> Without the scheme an exceedence of the Government's health-based PM<sub>10</sub> objectives is expected in 2012, but with the scheme no exceedences are expected.</p> <p><b>Southern Leg:</b> PM<sub>10</sub> concentrations in 2012 will be below the Scottish objectives with or without the proposed scheme in place. In a national context, concentrations such as these are considered to represent very clean air.</p>	<p><b>Note:</b> Numbers below refer to selected residential and educational properties that are within 500m of the scheme. They represent locations that will experience the full range of scheme-related impacts.</p> <p><b>Predicted Annual Mean PM<sub>10</sub> impacts at 19 selected receptors</b></p> <p>14 Properties 4 Properties 1 Property</p> <p><b>Predicted Annual Mean PM<sub>10</sub> impacts at 20 selected receptors</b></p> <p>6 Properties 11 Properties 3 Properties</p>	<p><b>Mitigation:</b> No mitigation is proposed.</p> <p>Slight/Negligible Adverse Slight Beneficial Moderate Beneficial</p> <p>Moderate/Substantial Adverse Slight/Negligible Adverse Slight Beneficial</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
PM <sub>10</sub> – Local (cont'd)	<p><b>Fastlink:</b></p> <p>PM<sub>10</sub> concentrations in 2012 will be well below the Scottish objectives with or without the proposed scheme in place. In a national context, concentrations such as these are considered to be exceptionally low.</p>	<p><b>Predicted Annual Mean PM<sub>10</sub> impacts at 20 selected receptors</b></p> <p>17 Properties 2 Properties 1 Properties</p>	<p>Slight/Negligible Adverse Negligible Beneficial Slight Beneficial</p>
NO <sub>2</sub> – Local	<p><b>References:</b></p> <p>ES 2007, Chapter 14, 29 and 44 and UD Report</p> <p><b>General:</b></p> <p>More locations within 500m of the route are expected to experience adverse impacts than would experience beneficial air quality impacts. Air quality will however remain good in terms of compliance with National air quality objectives.</p> <p><b>Northern Leg:</b></p> <p>Annual mean nitrogen dioxide concentrations will be well below the level of the Government's health-based air quality objective with or without the proposed scheme. In a national context, concentrations such as these are considered to represent very clean air.</p>	<p><b>Note:</b> Numbers below refer to selected residential and educational properties that are within 500m of the scheme. They represent locations that will experience the full range of scheme-related impacts.</p> <p><b>Predicted Annual Mean Nitrogen Dioxide impacts at 19 selected receptors</b></p> <p>11 Properties 4 Properties 3 Properties 1 Property</p>	<p><b>Mitigation:</b></p> <p>No mitigation is proposed.</p> <p>Moderate Adverse Slight/Negligible Adverse Slight Beneficial Moderate Beneficial</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
NO <sub>2</sub> – Local (cont'd)	<p><b>Southern Leg:</b> At every location, annual mean nitrogen dioxide concentrations in 2012 would be less than half of the level set in the Government's health-based air quality objective with or without the proposed scheme in place. In a national context, concentrations such as these are considered to represent very clean air.</p> <p><b>Fastlink:</b> Annual mean nitrogen dioxide concentrations in 2012 will be well below the level of the Government's health-based air quality objective with or without the proposed scheme in place. In most locations, even directly adjacent to the proposed route, predicted concentrations are expected to remain less than one quarter of the objective level. In a national context, concentrations such as these are considered to represent very clean air.</p>	<p><b>Predicted Annual Mean Nitrogen Dioxide impacts at 20 selected receptors</b></p> <p>14 Properties 3 Properties 3 Properties</p> <p><b>Predicted Annual Mean Nitrogen Dioxide impacts at 20 selected receptors</b></p> <p>12 Properties 5 Properties 2 Properties 1 Property</p>	<p>Moderate Adverse Slight Adverse Slight Beneficial</p> <p>Moderate Adverse Slight/Negligible Adverse Slight Beneficial Moderate Beneficial</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Water Quality, Drainage and Flood Defence	<p><b>Surface Water</b></p> <p><b>References:</b></p> <p>ES 2007, Chapters 9, 24, 39 and 54 and UD Report</p> <p><b>General:</b></p> <p>When considered in its entirety, the operation of the AWPR is not expected to present a significant impact to the water environment as a result of impacts to surface water hydrology, flood risk and water quality.</p> <p>From a fluvial geomorphology perspective, there are a number of watercourses that are already highly modified and have low morphological diversity. However, more morphologically diverse catchments will undergo major realignments and proposed culverting.</p> <p>Loss of morphologically diverse channels is undesirable in the context of the Water Framework Directive.</p>	<p>For the whole scheme, there would be 18 outfalls draining a total area of 105.80ha. Eleven of these outfalls would drain to the River Dee and Don catchments, which receive a total drainage area of 68.36ha.</p> <p>Watercourses affected by the scheme are detailed below and classified using the SEPA Water Quality Classification Scheme</p>	<p><b>Mitigation:</b></p> <p>Mitigation measures include:</p> <ul style="list-style-type: none"> <li>• Incorporation of filter drains, catchpits, detention basins and treatments ponds, swales for road drainage.</li> <li>• Provision of water crossings (bridges, culverts etc) designed to carry 1:200 year flow and maintain bed continuity through structure.</li> <li>• Watercourse realignments designed to reproduce geomorphological features.</li> </ul>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Water Quality, Drainage and Flood Defence (cont'd)	<p><b>Northern Leg:</b></p> <p>Residual impacts on most watercourses are not considered significant, however, the proposed realignment and culverting of Gough, Craibstone and Bogenjoss Burns, will result in the permanent loss of sinuosity and a reduction of morphological diversity in some short sections of these watercourses.</p>	<p>Kepplehill Burn – not classified</p> <p>Gough Burn – not classified</p> <p>Craibstone Burn – not classified</p> <p>Green Burn – not classified</p> <p>Bogenjoss Burn – not classified</p> <p>River Don – Class A2 (Good)</p> <p>Goval Burn – Class B (Fair)</p> <p>Mill Lade – not classified</p> <p>Corsehill Burn – not classified</p> <p>Red Moss Burn – not classified</p> <p>Blackdog Burn – Class B (Fair)</p> <p>Middlefield Burn – Class A2 (Good)</p>	<p>Negligible Adverse</p> <p>Substantial Adverse</p> <p>Substantial Adverse</p> <p>Slight Adverse</p> <p>Substantial Adverse</p> <p>Slight/Negligible Adverse</p> <p>Slight/Negligible Adverse</p> <p>Negligible Adverse</p> <p>Slight Adverse</p> <p>Slight Adverse</p> <p>Negligible Adverse</p> <p>Negligible Adverse</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Water Quality, Drainage and Flood Defence (cont'd)	<p><b>Southern Leg:</b></p> <p>Residual impacts on most watercourses are not considered significant, however, the realignment and culverting of Kingcausie Burn will result in potential impacts to geomorphological processes.</p> <p>Hydrodynamic modelling of the River Dee valley indicates that the proposed River Dee Crossing would not increase flood risk upstream for the 1 in 200 year event flow levels.</p> <p><b>Fastlink:</b></p> <p>Residual impacts on most watercourses are not considered significant, however, the realignment of Limpet Burn will result in potential impacts to geomorphological processes.</p>	<p>Loirston Burn/Loch – not classified</p> <p>Jameston Ditch – not classified</p> <p>Burnhead Burn – not classified</p> <p>Blaikiewell Burn – not classified</p> <p>Kingcausie Burn – not classified</p> <p>River Dee – Class A2 (Good)</p> <p>Milltimber Burn – not classified</p> <p>Gairn Burn – not classified</p> <p>Westholme Burn – not classified</p> <p>Megray Burn – not classified</p> <p>Limpet Burn – not classified</p> <p>Green Burn – not classified</p> <p>Allochie Burn – not classified</p> <p>Burn of Muchalls – Class A2 (Good)</p> <p>Balnagubs Burn – not classified</p> <p>Tributary of Elsick Burn – not classified</p> <p>Whiteside Burn – not classified</p> <p>Crossley Burn – not classified</p> <p>Craigentath Burn - not classified</p>	<p>Slight Adverse</p> <p>Slight/Negligible Adverse</p> <p>Slight/Negligible Adverse</p> <p>Slight/Negligible Adverse</p> <p>Moderate Adverse</p> <p>Slight/Negligible Adverse</p> <p>Negligible Adverse</p> <p>Negligible Adverse</p> <p>Negligible Adverse</p> <p>Slight Adverse</p> <p>Moderate Adverse</p> <p>Slight Adverse</p> <p>Negligible Adverse</p> <p>Slight/Negligible Adverse</p> <p>Negligible Adverse</p> <p>Slight Adverse</p> <p>Negligible Adverse</p> <p>Negligible Adverse</p> <p>Negligible Adverse</p>



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Water Quality, Drainage and Flood Defence (cont'd)	<p><b>Groundwater Quality</b></p> <p><b>References:</b></p> <p>ES 2007, Chapters 8, 23, 38 and 54</p> <p><b>General:</b></p> <p>Groundwater is generally present at shallow depth in the area and is expected to be intercepted at numerous cuttings. However, impacts on groundwater are expected to be localised, and the implementation of mitigation measures will result in negligible impacts on private groundwater supplies.</p> <p>The metamorphic and crystalline igneous rocks present beneath the Fastlink study area do not have the capacity to store or transmit large volumes of water, although some limited potential may exist in cracks and joints opened by weathering close to rockhead. The alluvial deposits around the major watercourses crossed by the proposed scheme and significant deposits of glacial sand and gravel may represent shallow aquifers capable of providing small scale private supplies. Groundwater in local drift deposits may also support important ecological resources.</p>	<p><b>Note:</b> Numbers below relate to wells or springs used for private water supply. Further assessment of potential impacts is being undertaken for these locations.</p> <p><b>Northern Leg:</b></p> <p>24 locations, of which:</p> <ul style="list-style-type: none"> <li>5 likely to be affected</li> <li>6 will potentially be affected</li> <li>2 not surveyed</li> <li>11 unlikely to be affected/not in use</li> </ul> <p><b>Southern leg:</b></p> <p>65 locations, of which:</p> <ul style="list-style-type: none"> <li>4 likely to be affected</li> <li>12 will potentially be affected</li> <li>2 not surveyed</li> <li>47 unlikely to be affected/not in use</li> </ul> <p><b>Fastlink:</b></p> <p>40 locations, of which:</p> <ul style="list-style-type: none"> <li>1 likely to be affected</li> <li>2 will potentially be affected</li> <li>3 not surveyed</li> <li>34 unlikely to be affected/not in use</li> </ul>	<p><b>Mitigation:</b></p> <p>Mitigation measures to reduce impacts on groundwater resources and quality include provision of alternative sources of water supply, such as new wells/boreholes or connection to public water supply; and lining of road drainage to prevent impacts on the water quality of groundwater and private water supplies.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Water Quality, Drainage and Flood Defence (cont'd)	<p><b>Groundwater Supporting Sensitive Habitats</b></p> <p><b>Northern Leg:</b></p> <p>Corby Loch SSSI is located approximately 300m from the nearest cutting on the scheme. Groundwater levels are likely to be lowered in the adjacent Newtonhill cutting.</p> <p><b>Southern Leg:</b></p> <p>The Southern Leg will pass along the southern edge of Hare Moss, between the moss and its inflowing surface water features. Consequently there is potential for the road to alter the water balance in the moss.</p> <p><b>Fastlink:</b></p> <p>The Fastlink will run along the extreme eastern part of Fishermyre, which is a highly sensitive site of ecological importance dependent on groundwater.</p>	<p><b>Note:</b> Further assessment is being undertaken in respect of groundwater impacts on sensitive habitats.</p> <p>Corby Loch</p> <p>Hare Moss</p> <p>Fishermyre</p>	<p>Slight/Moderate Adverse</p> <p>Slight/Moderate Adverse</p> <p>Slight</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Geology	<p><b>References:</b> ES 2007, Chapters 8, 23, 38 and 54</p> <p><b>General:</b> The solid geology of the area comprises granite and metasediments, while drift deposits mainly include boulder clay with significant areas of glacial meltwater deposits and occasional peat deposits.</p> <p>Excavations required for the scheme will reach the solid geology in places. There is a potential impact on the rock mass from blasting, which may lead to altered hydrogeological characteristics and consequent impacts on groundwater flow and quality.</p> <p>No mineworkings or shaft locations were identified along the route alignment; an absence of mining is consistent with the geological strata in the area. The only mineral extraction identified is former sand and gravel quarries. These features are of interest in relation to potential past landfilling and associated contamination and to potential future sand and gravel exploitation. Any contaminated land will be further investigated and treated or removed as necessary, in agreement with SEPA and the local authority.</p>	<p>No geological Sites of Special Scientific Interest (SSSIs), Regionally Important Geological Sites (RIGS) have been identified in the study area.</p> <p>Potential resources of alluvial sand and gravel resources have been identified in the Fastlink and Northern Leg.</p>	<p><b>Mitigation:</b> No mitigation measures are necessary in relation to the solid or drift geology or mineral extraction. Mitigation for impacts from blasting include technical methodologies e.g. use of low-explosive loading densities</p> <p>No significant impacts are predicted in respect of geology.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Biodiversity	<p><b>References:</b> ES 2007, Chapters 10, 25, 40 and 54 and Offset Mitigation Report</p> <p><b>General:</b> Prior to mitigation the overall cumulative effects of the entire proposed scheme on ecology would be significantly adverse. However, detailed ecological mitigation incorporating both specific mitigation and offsite habitat creation will have the effect of reducing cumulative impacts to minor significance overall.</p> <p>Key issues include displacement of home ranges of protected species through habitat loss and fragmentation arising from construction of the AWPR, which may result in the reduction of the local range of social groups such as badgers, otters and red squirrels, thus introducing or increasing intra-specific competition.</p>		<p><b>Mitigation:</b> Mitigation measures will include: incorporation of measures to reduce habitat fragmentation, such as wildlife bridges and mammal underpasses; habitat replacement and creation using carefully selected species; timing of works to minimise impacts on species and habitats; undertaking pre-construction surveys to confirm baseline conditions and allow detailed mitigation measures to be finalised; and presence of an Ecological Clerk of Works throughout construction.</p> <p>In relation to wetland habitats, these assessments are based on the assumption that the scheme will have no impact on groundwater flow and water table. Further studies are being undertaken to identify whether there is a need for localised mitigation.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Biodiversity (cont'd)	<p><b>Northern Leg:</b></p> <p>Corby, Lily, and Bishops Lochs form a composite SSSI designated for the habitat it supports, which includes wet heath, marshy grassland, open water, and basin mire habitat. These water bodies are also important as a wintering site for wild fowl.</p> <p>There are also a number of District Wildlife Sites (DWS) and Sites of Interest to Natural Science (SINS).</p> <p>Other ecologically important locations on the Northern Leg include the Scottish Agricultural College campus at Craibstone, the Kirkhill Forest area, the River Don valley and the Goval Burn area.</p>	<p>Corby, Lily, and Bishops Lochs SSSI</p> <p>Brimmond Hill DWS and SINS.</p> <p>Gough Burn DWS.</p> <p>Farburn Wood DWS.</p> <p>River Don DWS.</p> <p>Newton of Shielhill DWS.</p> <p>Den of Moss-side DWS.</p> <p>Formartine and Buchan Way DWS.</p> <p>Badgers</p> <p>Bats</p> <p>Otters</p> <p>Breeding Birds</p> <p>Red Squirrel</p>	<p>No residual impacts</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor - Moderate Adverse</p> <p>Negligible - Minor Adverse</p> <p>Negligible - Major Adverse</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Biodiversity (cont'd)	<p><b>Southern Leg:</b></p> <p>The River Dee (including some of one of its tributaries, Crynoch Burn) is designated as a SAC. It is a high quality watercourse supporting rare species such as Atlantic salmon, otter, and freshwater pearl mussel (for which species it was designated). This SAC also supports brown and sea trout, brook and sea lamprey, and various wetland species.</p> <p>A number of District Wildlife Sites are also present, as well as one Study of Environmentally Sensitive Area.</p> <p>Other ecologically important locations on the Southern Leg include Hare Moss, Cleanhill Wood, Kingcausie, Milltimber and Gairnhill.</p> <p><b>Fastlink:</b></p> <p>There are no designated sites on the Fastlink, however ecologically important locations on the Fastlink include Limpet Burn, Megray Wood, Burn of Muchalls and Fishermyle.</p>	<p>River Dee SAC.</p> <p>River Dee Valley SSSI and DWS.</p> <p>Cleanhill Wood and Kingcausie SESA.</p> <p>Deeside Old Railway DWS.</p> <p>Guttrie Hill Wood DWS.</p> <p>Culter House Wood DWS.</p> <p>Rotten O'Gairn DWS.</p> <p>Moss of Auchlea DWS.</p> <p>West Hatton Woods DWS.</p> <p>Bats</p> <p>Breeding Birds</p> <p>Otter</p> <p>Badger</p> <p>Freshwater Pearl Mussel</p> <p>Red Squirrel</p> <p>Water vole</p> <p>Badger</p> <p>Bats</p> <p>Otter</p>	<p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Negligible/Minor Adverse</p> <p>Minor Adverse</p> <p>Negligible - Minor Adverse</p> <p>Negligible - Minor Adverse</p> <p>Negligible - Minor Adverse</p> <p>Negligible - Moderate Adverse</p> <p>Negligible Adverse</p> <p>Negligible - Major Adverse</p> <p>Minor Adverse</p> <p>Negligible - Minor Adverse</p> <p>Negligible - Minor Adverse</p> <p>Negligible Adverse</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Visual Amenities	<p><b>References:</b> ES 2007, Chapters 12, 27, 42 and 54 and UD Report</p> <p><b>General:</b> Built receptors (mainly dwellings, but also workplaces and recreational buildings) are scattered or clustered in small settlements throughout the area. Outdoor receptors such as roads, pedestrian, equestrian, cycle routes and outdoor recreational areas are also distributed throughout the length of the scheme. During the winter year of opening, the majority of receptors in close proximity to the scheme will receive significant adverse impacts, but the development of the mitigation planting will see this decrease.</p> <p><b>Northern Leg:</b> The Northern Leg of the new road will follow a route across predominantly open farmland resulting in a range of visual impacts for a total of 1013 built receptors and 80 outdoor receptors.</p>	<p><b>Winter, Year of Opening (Summer, 15 Years after Opening)</b></p> <p>622 (360) Built Receptors 53 (45) Outdoor Receptors 351 (482) Built Receptors 25 (21) Outdoor Receptors 40 (171) Built Receptors 2 (14) Outdoor Receptors</p>	<p><b>Mitigation:</b> Mitigation measures will include, planting to screen views, use of drystone walling, and earthworks and sensitive grading of slopes</p> <p>Moderate Adverse, or worse</p> <p>Moderate/Slight to Slight Adverse</p> <p>Slight/Negligible Adverse to Negligible</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Visual Amenity (cont'd)	<p><b>Southern Leg:</b> The proposed scheme would follow a route through undulating agricultural and wooded land with several hills and a wide river valley, resulting in a range of visual impacts for a total of 1326 built receptors and 224 outdoor receptors.</p> <p><b>Fastlink:</b> The proposed scheme would follow a route through predominantly open farmland and undulating hills, resulting in a range of visual impacts for a total of 444 built receptors and 138 outdoor receptors.</p>	<p><b>Winter, Year of Opening (Summer, 15 Years after Opening)</b></p> <p>782 (436) Built Receptors 174 (137) Outdoor Receptors 484 (445) Built Receptors 38 (51) Outdoor Receptors 60 (445) Built Receptors 12 (36) Outdoor Receptors</p> <p>171 (77) Built Receptors 101 (83) Outdoor Receptors 223 (216) Built Receptors 27 (30) Outdoor Receptors 50 (151) Built Receptors 10 (25) Outdoor Receptors</p>	<p>Moderate Adverse, or worse</p> <p>Moderate/Slight to Slight Adverse</p> <p>Slight/Negligible Adverse to Negligible</p> <p>Moderate Adverse, or worse</p> <p>Moderate/Slight to Slight Adverse</p> <p>Slight/Negligible Adverse to Negligible</p>



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Agriculture and Soils	<p><b>References:</b> ES 2007, Chapters 7, 22, 37 and 54</p> <p><b>General:</b> The proposed scheme would pass through an area which is largely rural in nature, with a predominately agricultural land use. There would be a loss of agricultural land throughout the entire length of the scheme. Overall the scheme is considered to have a moderate adverse impact on agriculture, commercial forestry and sporting interests. This assessment is based on the total area of land lost and its quality, together with the overall impacts of severance, access and drainage on the affected agricultural, forestry and sporting land interests.</p> <p><b>Northern Leg:</b> Six farming businesses on the Northern Leg have been identified where the scheme proposals are expected to affect the viability of the business.</p>	<p>A total of 119 agricultural and commercial forestry land interests will be affected by the proposals. This represents approximately 8% of the commercial farms in Aberdeenshire.</p> <p>Some 37ha of land will be suitable for return to agricultural/forestry use after completion of the scheme.</p> <p>Total land-take – 282ha. Of this 47ha is prime agricultural land class 3.1.</p> <p>39 Units, of which:</p> <p>10 (6)</p> <p>10</p> <p>8</p> <p>2</p> <p>9</p>	<p><b>Mitigation:</b> Mitigation measures will include minimising temporary loss of land through construction programming, consultation with landowners, and reinstatement, best practice measures for soil stripping, handling, and storage, and provision of financial compensation to landowners.</p> <p>In a Scottish context this represents less than 1% of the total prime land area and is thus not considered to be a significant cumulative impact.</p> <p>Substantial (no. with viability affected)</p> <p>Moderate/Substantial</p> <p>Moderate</p> <p>Slight/Moderate</p> <p>Slight or less</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Agriculture and Soils (cont'd)	<p><b>Southern Leg:</b></p> <p>No farming businesses on the Southern Leg have been identified where the scheme proposals are expected to affect the viability of the business.</p>	<p>Total land-take – 219ha. Of this 0ha is prime agricultural land.</p> <p>48 Units, of which:</p> <p>6 (0)</p> <p>6</p> <p>19</p> <p>6</p> <p>11</p>	<p>Substantial (no. with viability affected)</p> <p>Moderate/Substantial</p> <p>Moderate</p> <p>Slight/Moderate</p> <p>Slight or less</p>
	<p><b>Fastlink:</b></p> <p>No farming businesses on the Southern Leg have been identified where the scheme proposals are expected to affect the viability of the business.</p>	<p>Total land-take – 141ha. Of this 5ha is prime agricultural land class 3.1.</p> <p>32 Units, of which:</p> <p>1 (0)</p> <p>12</p> <p>6</p> <p>1</p> <p>12</p>	<p>Substantial (no. with viability affected)</p> <p>Moderate/Substantial</p> <p>Moderate</p> <p>Slight/Moderate</p> <p>Slight or less</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Cultural Heritage	<p><b>References:</b> ES 2007, Chapters 13, 28, 43 and 54</p> <p><b>General:</b> The study area contains a number of sites and areas of cultural heritage interest. While some of these sites have been assessed as being of National or Regional importance, the vast majority have been assessed as being of Local or Less than Local importance. The historic landscape is assessed as being of Local importance. It is agricultural in nature, laid out in the 18th and 19th Centuries, and partially modified in the 20th Century.</p> <p><b>Northern Leg:</b> Sites subject to direct impact include: Site 120 - Ashtown Boundary Stone, will be relocated prior to construction works. Site 170 - Parkhill Pumping Station\ Lade\Aqueduct, Tanks and Supervisors House. The lade will receive a direct impact from the proposed scheme and will be severed in two places. Proposed mitigation is reconstruction and repair. Sites subject to indirect impacts include: Site 134 - Tyrebagger Hill Recumbent Stone Circle.</p>	<p>Site 120 is a Category B Listed boundary stone.</p> <p>Site 170 is Category B Listed</p> <p>Site 134 is a Scheduled Ancient Monument (SAM)</p>	<p><b>Mitigation:</b> Mitigation will include the following (as appropriate): detailed archaeological excavation and recording, archaeological watching brief, building recording.</p> <p>Moderate Adverse</p> <p>Moderate Adverse</p> <p>Substantial Adverse</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Cultural Heritage (cont'd)	Site 159 - an extant section of the Aberdeenshire Canal.	Site 159 is a SAM	Moderate Adverse
	Site 282 - March Stone No.38.	Site 282 is a Category B Listed Structure	Slight Adverse
	Sites 283 and 284 – Old Parish Church and Churchyard of Newhills.	Sites 283 and 284 are Category B Listed Buildings	Substantial Adverse
	Site 125a - St Mary's Chapel	Site 125a is a proposed SAM	Slight Adverse
	Site 125b - St Mary's Chapel Graveyard.	Site 125 is a Category C (s) Listed Building	Slight Adverse
	<b>Southern Leg:</b>		
	There are no sites subject to direct impact. Sites subject to indirect impacts include:		
	Site 309 - Beans Hill archaeological complex.	Site 309 is a proposed SAM	Substantial Adverse
	Site 431- Friends Burial Site.	Site 431 is a proposed SAM	Substantial Adverse
	Site 444- Kingswells Consumption Dyke.	Site 444 is a SAM	Moderate Adverse
	Site 448- Cloghill Long Cairn.	Site 448 is a SAM	Substantial Adverse
	Site 185, Kingcausie House and the associated sundials (sites 176 and 184).	Site 185 is a Category B Listed Building, Sites 176 and 184 are Category B and Category C (s) listed structures respectively	Substantial Adverse
	Site 457 - Cloghill is a sundial	Site 457 is a Category B listed structure	Slight Adverse
Site 458 - Cloghill House	Site 458 is a Category B listed building	Slight Adverse	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Cultural Heritage (cont'd)	Site 460 - Cloghill, Offices	Site 460 is a Category C (s) listed structure	Slight Adverse
	Site 151 - Kirkton of Maryculter, Glenburnie Manse	Site 151 is a Category C (s) listed structure	None
	Site 191 - Milton Bridge.	Site 191 is a Category C (s) listed structure	Slight Adverse
	Site 193 - Mill Inn, a former 18 <sup>th</sup> century corn mill.	Site 193 is a Category C (s) listed structure	Slight Adverse
	Site 157 - Eastland House is a manse built in the 18 <sup>th</sup> century.	Site 157 is a Category C (s) listed structure	Slight Adverse
	Site 472 - Fairley House.	Site 472 is a Category C (s) listed structure.	Slight Adverse
	Site 306 - Peterculter Old Free Church.	Site 306 is a Category C (s) listed structure	None
	<b>Fastlink:</b> There are no sites subject to direct impact. Sites subject to indirect impacts include:		
	Site 25 - White Hill Hut Circles.	Site 25 is a SAM	Substantial Adverse
	Site 28 - Canleyhills Cairn.	Site 28 is a SAM	Slight Adverse
Site 91- East Crossley Hut Circle.	Site 91 is a SAM	Substantial Adverse	
Site 95 - Mill of Crynoch, Watermill.	Site 95 is a Category C (s) Listed Building	Slight Adverse	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Landscape	<p><b>References:</b> ES 2007, Chapters 11, 26, 41 and 54</p> <p><b>General:</b> The route will have significant direct adverse impacts on the Hill, Open Farmland, Wooded Farmland and Valley type landscape character areas which encompass Aberdeen and provide an attractive setting for the city. The urban landscape of Milltimber will also be significantly affected.</p> <p>The scheme will also have indirect impacts on a number of local landscape character and urban areas, where people's experience of their surroundings will be altered by the proposals, for example through visual impacts. The residual impact of the route on indirectly affected areas will be no greater than slight to moderate in winter of the year of opening, reducing to slight or less in the summer 15 years after opening.</p> <p>The route generally lies within areas that are identified by Aberdeen City Council in their 'Green Spaces: New Places' (2005) policy and in the Aberdeenshire Local Plan (Adopted 2006).</p>	<p><b>Note:</b> Locations with a landscape designation are detailed for each of the sections of the scheme, together with Local Landscape Character Areas (LLCAs) within each section of the scheme where the residual impact of the scheme 15 years after opening is moderate adverse or worse.</p>	<p><b>Mitigation:</b> Mitigation will include measures to integrate cuttings and embankments into the landscape; create naturalistic rock faces and soften ledges and terraces; replace walls lost to the road by use of new drystone walling using salvaged stone; integrate treatment ponds and detention basins; integrate noise barriers and reduce visual impacts; integrate structures within the surrounding landscape; and use of planting based predominantly on native species to replace trees lost to scheme construction.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Landscape (cont'd)	<p><b>Northern Leg:</b></p> <p>The Northern Leg will impact on dense mature woodlands at Craibstone; the river valley of the River Don; the lower slopes of Tyrebagger Hill and the open farmlands around Kirkhill and Dyce, and between Goval and Blackdog.</p> <p>The most significant impacts will occur at the Goval and Craibstone LLCAs.</p>	<p>The area north of the River Don is designated as an Area of Local Landscape Significance (ALS).</p> <p>An area at Parkhill Wood, Dyce has been designated with a Tree Protection Order (TPO).</p> <p>Hill Type Local Landscape Character Areas (LLCA) are:</p> <ul style="list-style-type: none"> <li>• Tyrebagger Hill / Kirkhill</li> </ul> <p>Open Farmland Type LLCA's are:</p> <ul style="list-style-type: none"> <li>• Newton</li> <li>• Goval</li> <li>• Perwinnes</li> <li>• Potterton</li> </ul> <p>Wooded Farmland Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Craibstone</li> <li>• Red Moss</li> </ul> <p>Valley Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Lower Goval</li> </ul>	<p>Substantial Adv (Moderate Adv)</p> <p>Substantial Adv (Moderate Adv)</p> <p>Severe Adv (Substantial Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p> <p>Substantial Adv (Moderate Adv)</p> <p>Severe Adv (Substantial Adv)</p> <p>Substantial Adv (Moderate Adv)</p> <p>Substantial Adv (Mod-Subs Adv)</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Environment (cont'd)</b>			
<b>Sub-objective</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>	<b>Significance of Impact</b>
Landscape (cont'd)	<p><b>Southern Leg:</b></p> <p>The Southern Leg will impact on the river valley of the River Dee and the hillsides of Craingles and Milltimber.</p> <p>The most significant impacts will occur at the Craingles, Dee Valley and Milltimber LLCAs.</p>	<p>The area south of the River Dee is designated as an ALS.</p> <p>An area at Milltimber between Culterhouse Road and North Deeside Road is designated with a TPO.</p> <p>Hill Type Local Landscape Character Areas (LLCA) are:</p> <ul style="list-style-type: none"> <li>• Craingles</li> <li>• Beanshill</li> <li>• Fifeshill</li> <li>• Auchlea</li> </ul> <p>Open Farmland Type LLCA's are:</p> <ul style="list-style-type: none"> <li>• Hare Moss</li> <li>• Merchant's Croft</li> <li>• Blaikiewell</li> <li>• Clintery / West Brimmond</li> </ul> <p>Wooded Farmland Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Netherley/Altries</li> <li>• Craigton</li> <li>• Broomfold</li> <li>• Kingswells</li> </ul>	<p>Severe Adv (Substantial Adv)</p> <p>Substantial Adv (Substantial Adv)</p> <p>Substantial Adv (Substantial Adv)</p> <p>Mod-Subs Adv (Mod-Subs Adv)</p> <p>Substantial Adv (Mod-Subs Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p> <p>Sub-Sev Adv (Mod-Subs Adv)</p> <p>Mod-Subs Adv (Mod-Subs Adv)</p> <p>Sub-Sev Adv (Mod-Subs Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p>



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

Environment (cont'd)			
Sub-objective	Qualitative Information	Quantitative Information	Significance of Impact
Landscape (cont'd)	<p><b>Fastlink:</b></p> <p>The Fastlink will impact on the valley at the Burn of Muchalls; the hillsides at Megray, Cookney and Stranog; and the open farmland at Blaikiewell.</p> <p>The most significant impacts will occur at the Burn of Muchalls, Stranog and Blaikiewell LLCAs.</p>	<p>Valley Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Dee Valley</li> </ul> <p>Urban Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Milltimber</li> </ul> <p>Hill Type Local Landscape Character Areas are:</p> <ul style="list-style-type: none"> <li>• Stranog</li> </ul> <p>Open Farmland Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Megray</li> <li>• Muchalls</li> <li>• Blaikiewell</li> </ul> <p>Wooded Farmland Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Kempstone</li> </ul> <p>Valley Type LLCA are:</p> <ul style="list-style-type: none"> <li>• Burn of Muchalls</li> </ul>	<p>Severe Adv (Subs-Sev Adv)</p> <p>Severe Adv (Subs-Sev Adv)</p> <p>Sub-Sev Adv (Substantial Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p> <p>Substantial Adv (Substantial Adv)</p> <p>Sub-Sev Adv (Mod-Subs Adv)</p> <p>Mod-Subs Adv (Moderate Adv)</p> <p>Severe Adv (Substantial Adv)</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Safety</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Accidents	Change in Annual Personal Injury Accidents	<p>Changes in annual personal injury accidents were predicted using the ASAM traffic model developed to provide strategic transport modelling outputs for the Aberdeen and Aberdeenshire areas.</p> <p>Overall there are substantial reductions in total accidents, with reduction being predicted in all accident classes. It should be noted that as the AWPR represents additional infrastructure there are accidents predicted for it which offset a greater level of accident reduction predicted on the existing road network. This process has not identified any significant distributional impacts by area or social group.</p>	<p>Net changes in annual personal injury accidents per annum are noted below.</p> <p>Year of opening: 2012 (Design Year: 2027)</p> <ul style="list-style-type: none"> <li>-1 (-1) fatal accidents</li> <li>-9 (-9) serious accidents</li> <li>-73 (-76) slight accidents</li> </ul>
	Change in Balance of Severity	<p>The balance in severity of accidents has been assessed comparing the proportion of individual accident classes to the total number of accidents.</p> <p>It is not considered that there is any significant change in balance of severity of accidents associated with the opening of the AWPR.</p>	<p>Net changes in the balance of severity of annual personal injury accidents per annum are noted below for the year of opening and the design year (shown in brackets):</p> <ul style="list-style-type: none"> <li>fatal accidents are 1.0% (1.0%) of total, compared with 1.0% (1.0%) in the absence of the AWPR</li> <li>serious accidents are 8.6% (8.6%) of total, compared with 8.7% (8.7%) in the absence of the AWPR</li> <li>slight accidents are 90.4% (90.4%) of total, compared with 90.3% (90.3%) in the absence of the AWPR</li> </ul>
	Total Discounted Savings	Accident savings have been monetised over a 60 year period using national rates for accident types.	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Safety (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Security		<p>Security has been assessed based on the criteria detailed in WebTAG 3.4.2, coupled with consideration of the differences in travel experience for road users.</p> <p>There is no formal or informal surveillance expected as part of the scheme, therefore there is no difference in these categories between the with scheme and without scheme assessment.</p> <p>While the landscape design is significantly different between the with scheme and the without scheme scenarios, it is not considered that the difference would result in a change in security.</p> <p>There is a considerably greater proportion of the existing network with lighting compared to the proposed scheme. While this is not likely to affect the majority of road users who will be travelling at reasonable speeds, the scheme will be slightly adverse in terms of road users who may have broken down and are making use of lay-bys on the AWPR, which will not be lit, compared with breakdowns on the existing road network which is lit more extensively.</p> <p>While the scheme may be considered to be adverse compared to the existing road network in terms of security in the event of having to make emergency calls, the scheme will include dedicated emergency facilities, which are not available on the existing road network.</p>	A quantitative assessment of security has not been undertaken.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Safety (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Security (cont'd)		<p>The scheme is considered to be slightly adverse in terms of pedestrian/cyclist security due to areas of existing remote paths being placed in underpasses. While these will be developed with good visibility and lighting, it is expected that the presence of underpasses may increase security concerns.</p> <p>Overall the scheme is considered to represent slightly adverse security compared to the existing road network for pedestrians/cyclists and road users who have to leave their vehicle. However, it is considered that most road users will be able to use the road without leaving their vehicle, in which case security is likely to be neutral between the with scheme and without scheme case.</p>	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Transport Economic Efficiency)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>
User Benefits	Travel Time	Individual examples of journey time savings are detailed in respect of Planning Objective 1, and illustrate the substantial benefits in journey time savings resulting from the scheme.	£1,511,214,000 (PV2)
	User Charges	No user charges are proposed in respect of the scheme, with the costs noted here representing the reduction in fares paid by users of public transport following implementation of the scheme.	£1,269,000 (PV3)
	Vehicle Operating Costs	This disbenefit relates to the additional fuel and non-fuel costs associated with making use of the longer but faster AWPR	-£86,640,000 (PV4)
	Quality/Reliability Benefits	<p>This assessment considers the level of provision offered on the main carriageway of the scheme, comparing predicted levels of annual average daily traffic flow usage with general flow ranges appropriate for that class of road, expressing the predicted flow as a percentage of the upper bound of the general flow range.</p> <p>This assessment shows that most of the scheme provides a high degree of capacity which supports journey time reliability and a high quality experience for road users. Between Milltimber and Craibstone traffic volumes represent a higher proportion of available capacity, although reserve capacity is always available.</p>	<p>Main Carriageway Assessment at Year of Opening (2012)</p> <ul style="list-style-type: none"> <li>• Stonehaven to Cleanhill, predicted flow 12,000, range 11,000-39,000, proportion 30.8%</li> <li>• Charleston to Cleanhill, predicted flow 12,900, range 11,000-39,000, proportion 33.1%</li> <li>• Cleanhill to Milltimber, predicted flow 24,900, range 11,000-39,000, proportion 63.8%</li> </ul>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Transport Economic Efficiency) (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>
User Benefits (cont'd)	Quality/Reliability Benefits (cont'd)		<ul style="list-style-type: none"> <li>• Milltimber to South Kingswells, predicted flow 33,800, range 11,000-39,000, proportion 86.7%</li> <li>• South Kingswells to North Kingswells, predicted flow 36,900, range 11,000-39,000, proportion 94.5%</li> <li>• North Kingswells to Craibstone, predicted flow 43,800, range 23,000-54,000, proportion 81.1%</li> <li>• Craibstone to Goval, predicted flow 16,300, range 11,000-39,000, proportion 41.8%</li> <li>• Goval to Blackdog, predicted flow 18,300, range 11,000-39,000, proportion 46.9%</li> </ul>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Transport Economic Efficiency)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>
Private Sector Operator Impacts	Investment Costs	No private sector operator investment costs have been identified at this time.	-
	Operating and Maintenance Costs	No private sector operator operating and maintenance costs have been identified at this time.	-
	Revenues	The costs noted here represent a reduction in revenue for private sector operators following implementation of the scheme	-£3,575,000
	Grant/Subsidy payments	No private sector operator grant/subsidy payments have been identified at this time.	-

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Economic Activity and Location Impacts)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Economic Activity and Location Impacts	Local Economic Impacts	<p><b>General</b></p> <p>The scheme will take traffic away from the city, reduce journey times and relieve congestion, both in the city and on rural roads. The benefits will be felt across North East Scotland as a whole as the scheme will provide better connections between housing and employment areas and will also improve freight movements to and from towns to the north and west of Aberdeen.</p> <p>It is anticipated that the AWPR will impact on the North East economy as noted below.</p> <p><b>Existing Businesses</b></p> <p>First, it will impact on costs as consistent, more reliable journeys will enable businesses to obtain and deliver goods more effectively. Secondly, it may enable businesses to expand their markets through quicker, more reliable access to new customers and potential suppliers.</p> <p>The extent to which the businesses will benefit from the AWPR will depend upon the sectors in which they are operating and the importance of the road for making deliveries and accessing markets/suppliers.</p> <p>The impact of the AWPR on key sectors in North East Scotland is summarised under Quantitative Performance.</p>	<p><b>General</b></p> <p>This assessment relates to a 30 year period following scheme completion.</p> <p><b>Existing Businesses</b></p> <p>The impact of the scheme on key sectors in North East Scotland is summarised below.</p> <ul style="list-style-type: none"> <li>• <b>oil and gas</b> – estimated to reduce costs by 2% by 5 years after completion</li> <li>• <b>food and beverages manufacturing</b> – estimated to increase sales by 1% and reduce costs by 5% by 5 years after completion</li> <li>• <b>non-food manufacturing</b> – estimated to increase sales by 1.3% and reduce costs by 2.5% by 5 years after completion</li> <li>• <b>retail</b> – estimated to increase sales by 5% and reduce costs by 1.7% by 5 years after completion</li> </ul>



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Economic Activity and Location Impacts) (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Economic Activity and Location Impacts (cont'd)	Local Economic Impacts (cont'd)	<p><b>New Business Investment</b></p> <p>Transport infrastructure improvements, where they have a significant impact on improving the accessibility of a region, will improve “place competitiveness”.</p> <p>It is anticipated that the AWPR will help business competitiveness and stimulate business investment across a wide range of sectors including energy, non-food manufacturing, retailing and tourism.</p>	<ul style="list-style-type: none"> <li>• <b>tourism:</b> estimated to increase sales by 5.6% and reduce costs by 2.5% by 5 years after completion</li> <li>• <b>haulage and distribution</b> – estimate to reduce costs by 3.3% by 5 years after completion</li> <li>• <b>business services</b> – estimated to reduce costs by 5% by 5 years after completion</li> </ul> <p>The combined impact of increased sales and reduced costs across the key sectors of the economy is estimated to generate total additional income in the North East Scotland area of £4,267 million (discounted) and additional employment of 3,120 by 5 years after completion, which would be sustained over the remaining 25 years of the assessment period.</p> <p><b>New Business Investment</b></p> <p>Additional income to the North East of £105 million (discounted) from new business investment is forecast over the 30 years following completion. Additional employment in the study area supported by business investment is forecast to be 600 by the end of that period.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Economic Activity and Location Impacts) (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Economic Activity and Location Impacts (cont'd)	Local Economic Impacts (cont'd)	<p><b>Site Development Impacts</b></p> <p>The development of the AWPR will enable a number of sites to be brought forward for development which would not otherwise have been possible.</p> <p><b>Total Impact in North East</b></p> <p>In terms of income the majority of benefits occur to existing businesses in the form of cost savings. In terms of employment, the majority of jobs arise from site development as a result of the AWPR.</p>	<p><b>Site Development Impacts</b></p> <p>Using employment density ratios it is forecast that 10,500 jobs could be created on the sites which would be dependent on the AWPR. The income associated with these jobs is estimated to be £1,958 million (discounted).</p> <p><b>Total Impact North East</b></p> <p>The total additional income to the North East over the 30 year assessment period is forecast to be £6,330 million (discounted), with employment of 14,220.</p>
Economic Activity and Location Impacts (cont'd)	National Economic Impacts	<p><b>Existing Businesses</b></p> <p>The impact of the scheme on key sectors at the Scotland level is summarised below.</p> <ul style="list-style-type: none"> <li>• <b>Oil and Gas:</b> costs reduced by 2% by 5 years after completion. No losers displacement at Scotland level</li> <li>• <b>Food Manufacturing:</b> displacement of sales from other Scottish manufacturers of 40%, but majority of benefits arise from reduced costs.</li> <li>• <b>Non-Food Manufacturing:</b> displacement of sales from other Scottish manufacturers of 40%, but majority of benefits arise from reduced costs.</li> </ul>	<p><b>General</b></p> <p>This assessment is undertaken over a 30 year period following scheme completion.</p> <p><b>Existing Businesses</b></p> <p>At the Scotland level, the AWPR is estimated to generate total additional income to existing businesses of £3,519 million over the 30 year assessment period (discounted). This would support 630 additional jobs. This relatively high income figure at the Scotland level reflects the fact that much of the benefit arises through cost reductions to businesses in North East Scotland, which are also benefits at the national level.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Economic Activity and Location Impacts) (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Economic Activity and Location Impacts (cont'd)	National Economic Impacts (cont'd)	<ul style="list-style-type: none"> <li>• <b>Retail:</b> displacement of sales from other retailers of 95%. Potential losers include Inverness and Dundee retailers.</li> <li>• <b>Tourism:</b> displacement of sales of 90%. Losers include other city tourist destinations.</li> <li>• <b>Haulage and Distribution:</b> reduction in costs of 3%. No expected losers at the Scotland level as the cost saving is also at the national level and there is no direct impact on sales.</li> <li>• <b>Business Services:</b> reduction in costs of 5%. No expected losers at the Scotland level as the cost saving is also at the national level and there is no direct impact on sales.</li> </ul> <p><b>New Business Investment</b> No impact at the Scotland level as business investment is 100% displaced.</p> <p><b>Site Development Impacts</b> No impact at the Scotland level as site development is a local benefit.</p> <p><b>Total Impact Scotland</b> The total additional income and employment which could be created in Scotland as a result of the AWPR derives only from the benefits to existing businesses in the North East.</p>	<p><b>New Business Investment</b> There is no additional income and employment supported at the Scotland level as all new businesses are assumed to displace investment from elsewhere in Scotland.</p> <p><b>Site Development Impacts</b> There is no additional income and employment supported at the Scotland level as site development impacts are a local benefit.</p> <p><b>Total Impact Scotland</b> The total additional income to Scotland over the 30 year assessment period is forecast to be £3,519 million (discounted), with employment of 630.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Economy (Economic Activity and Location Impacts) (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Economic Activity and Location Impacts (cont'd)	Distributional Impacts	<p>Aberdeen City and Aberdeenshire record very low rates of unemployment. Aberdeenshire continues to have the lowest unemployment rate of all local authorities in Scotland, while only four other authorities record a rate lower than Aberdeen City. It should be noted that such averages mask considerable variation in unemployment rates within each of the local authority areas covered within this analysis.</p> <p>An estimated total of 14,220 additional jobs could be created in North East Scotland as a result of the scheme. The scheme would therefore facilitate additional employment opportunities for residents across Aberdeen City and Aberdeenshire, including residents of the regeneration areas.</p> <p>The benefits of the AWPR will be felt across the North East as a whole as the scheme will provide better connections between housing and employment areas and will also improve freight movements to and from towns to the north and west of Aberdeen.</p>	<p>In April 2008 the unemployment rates of Aberdeen City and Aberdeenshire were 1.2% and 0.8% respectively, compared to 2.3% across Scotland as a whole.</p> <p>Within Aberdeen City, unemployment rates range from 0.1% in the Murtle and Seafield areas to over 3% in the regeneration areas of Seaton and Woodside.</p> <p>Similarly, while unemployment rates in Aberdeenshire are generally low, in the regeneration areas of Fraserburgh North and Peterhead Central rates are as high as 3-4.5% are recorded.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Integration</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Transport Interchanges	Services and Ticketing	The scheme does not directly support services and ticketing integration, however, the proximity of the existing and proposed Park and Ride sites allow the scheme to encourage greater use of public transport services for travellers to complete their journeys.	No quantitative assessment has been carried out in respect of this criterion.
	Infrastructure and Information	The scheme is developed to assist in providing an integrated transport system allowing modal transfer in order to encourage modal shift to public transport. The effectiveness of this opportunity is dependent on the services offered to the travelling public to meet their travelling needs.	No quantitative assessment has been carried out in respect of this criterion.
Land-use Transport Integration		<p>The scheme has been assessed in terms of a number of relevant policies and plans, including:</p> <ul style="list-style-type: none"> <li>• Scotland's Transport Future (2004)</li> <li>• Aberdeen and Aberdeenshire Structure Plan 2001-2016 North East Scotland Together</li> <li>• Aberdeen City District Wide Local Plan</li> <li>• Finalised Aberdeen Local Plan Green Spaces New Places</li> <li>• Aberdeenshire Local Plan</li> </ul> <p>These documents are considered to be supportive of the scheme in terms of transport policy.</p> <p>The relationship between other aspects of land-use policy and the scheme is summarised below.</p>	No quantitative assessment has been carried out in respect of this criterion.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Integration (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Land-use Transport Integration (cont'd)		<ul style="list-style-type: none"> <li>• Green Belt: Parts of the Northern and Southern Legs of the scheme lie within land designated as Green Belt. While policy on Green Belt is not supportive of use of green belt for infrastructure development, other parts of the relevant plans accept that the scheme may require to be constructed within the green belt.</li> <li>• Landscape: The significance of the residual impacts of the scheme are such that conflict results with policy seeking to protect and enhance areas of landscape character and value.</li> <li>• Ecology: The significance of the residual impacts of the scheme are such that conflict results with policy seeking to conserve the natural environment.</li> <li>• Watercourses: Changes to existing watercourses conflict with policy seeking to maintain and enhance watercourse status.</li> <li>• Non-Motorised Users: Changes in access routes for pedestrians, equestrians and cyclists conflict with policy seeking to protect and enhance access.</li> <li>• Agriculture: The loss of 55Ha of Prime Agricultural Land is not considered to be a significant conflict with policy protecting such land.</li> </ul>	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Integration (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Land-use Transport Integration (cont'd)		<ul style="list-style-type: none"> <li>• Cultural Heritage: Conflict is not envisaged with policies that seek to protect and enhance cultural heritage.</li> </ul>	
Policy Integration		<p>The integration of the Scheme in terms of a number of policy areas is summarised below:</p> <ul style="list-style-type: none"> <li>• Disability: The design of the road for the AWPR route and associated works such as bridges, junctions, footways and pavements will be in accordance with appropriate legislation. Consultations are on-going with Camphill Rudolph Steiner School (Milltimber) regarding detailed proposals for access arrangements in the Milltimber areas to agree appropriate measures for incorporation in the scheme proposals.</li> <li>• Health: Health impacts of transport relate primarily to the impacts of road safety, air quality, noise pollution, and also opportunities for physical activity. The removal of traffic from the existing road network is expected to result in a net reduction in road traffic accidents. While areas close to the location of the Scheme will experience local deterioration of air quality, at these locations the air quality will remain good in terms of compliance with national air quality objectives. Elsewhere air quality levels will improve, with more than 75,000 properties predicted to experience improvements, while less than 20,000 properties are predicted to experience deterioration. In a similar manner</li> </ul>	No quantitative assessment has been carried out in respect of this criterion.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Integration (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Policy Integration (cont'd)		<p>noise levels are predicted to increase at locations close to the proposed Scheme, but to reduce elsewhere adjacent to the existing road network, resulting in a predicted net reduction in the number of people bothered by road traffic noise. In respect of physical activity, increased safety levels will benefit cyclists and pedestrians and reductions in traffic levels in the city centre will assist in pedestrianisation schemes being implemented. Rural recreational activities may be affected by the severance of areas of open land, although access networks have generally been maintained throughout the Scheme. On balance, the Scheme will provide benefits in respect of Government objectives to improve health.</p> <ul style="list-style-type: none"> <li>• Rural Affairs: The proposed Scheme will provide improved accessibility and connectivity for rural communities and businesses throughout the north east of Scotland, facilitating a stronger rural economy and improving rural links to public services and employment opportunities. Parts of the route are proposed on land designated as Green Belt, and while policy is not generally supportive of use of green belt for infrastructure development, it is accepted in development plans that the Scheme may require to be constructed within the green belt. Around 640 hectares of agricultural land will be lost, and the route will cut through existing agricultural units. However, the proportion of agricultural land to be used</li> </ul>	



**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Integration (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Policy Integration (cont'd)		<p>which is defined as 'prime quality' by the Macauley Institute (Grade 3.1) is relatively little at 8%, and linkages between land on either side of the route will be provided. It is estimated that six of the 119 agricultural units affected by land-take for the scheme may have their viability affected. There may also be some impacts on rural recreational opportunities due to severance of existing links, however these will be relatively localised, and a comprehensive access network will be maintained. On balance, whilst it is acknowledged the Scheme will conflict with aspects of rural policy, it will make a significant contribution towards enhancing opportunities for rural economic and community development through improved accessibility.</p> <ul style="list-style-type: none"> <li>• Social Exclusion: Positive and negative impacts on social exclusion arising from a transport scheme generally relate to the availability and affordability of transport methods and particularly public transport options. Whilst the scheme does not include public transport provision, it will act as a facilitator for improved public transport accessibility, which assists in tackling social exclusion. In addition the reduction in traffic on the existing road network is predicted to reduce journey times for existing public transport facilities, improving access to employment opportunities both in the city and around its periphery. Social groups throughout the city will benefit from improved quality of life arising from less air and noise pollution and</li> </ul>	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Integration (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Policy Integration (cont'd)		<p>enhanced safety. In addition, it is predicted that AWPR will provide employment opportunities for residents throughout Aberdeen and its environs, including communities in disadvantaged areas, with the creation of around 14,200 jobs.</p> <ul style="list-style-type: none"> <li>• <b>Economy:</b> One of the key benefits of AWPR is the improvement of accessibility into and around Aberdeen and the north east of Scotland. Market conditions for key industries in the area such as oil and gas exploration, paper, fish, retail and tourism will be enhanced, with benefits including reduced business costs, improved accessibility for freight and increased availability of employment opportunities.</li> <li>• <b>National Transport Targets:</b> The proposed Scheme will fulfil two of the three strategic outcomes required within Scotland's National Transport Strategy (2006), namely Item 1 (improved journey times) and Item 3 (improving quality, accessibility and affordability). While the scheme will not fulfil Item 2 (reduce emissions), there is recognition and acceptance within the Strategy that not all projects and policies will fulfil all of the three key strategic outcomes, and that this does not mean that the project cannot proceed. The Strategy includes the proposed scheme in the current capital investment programme, and it is also included within both the National Planning Framework and its emerging replacement.</li> </ul>	

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Accessibility and Social Inclusion</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Community Accessibility	Public Transport Network Coverage	<p>The AWPR is a new dual carriageway which will act as a bypass and distributor around the city of Aberdeen between the A90 Trunk Road to the north and south.</p> <p>It will provide links between the proposed and existing park and ride sites, and integrating with the proposed rail freight transfer sites around the periphery of the city.</p> <p>In attracting traffic from the existing road network it will enable enhanced levels of service to be offered by the public transport network, and the scheme proposals will enable existing bus routes to be maintained.</p> <p>Access to bus stops will be improved by relocating to safer locations, where less conflict will occur with traffic.</p> <p>Access to the existing local road network will, in the main, be unaffected by the AWPR. Over or under bridges will be provided to ensure that vehicles, pedestrians and other non-vehicular traffic can still enjoy full access to the local network and to reduce community severance. Users will experience a marked improvement in accessibility on local roads with the AWPR in place as a result of reductions in traffic.</p>	<p>Since access to the existing local road network will, in the main, be unaffected by the AWPR and existing bus routes will be maintained, population catchment areas for public transport services will be unaffected.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Accessibility and Social Inclusion (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Community Accessibility (cont'd)	Access to Other Local Services	<p><b>General:</b></p> <p>Diversion routes for Non Motorised Users (NMU) paths have been developed to maintain access between communities.</p> <p><b>Northern Leg:</b></p> <p>No direct severance of communities.</p> <p>The scheme would affect the local paths, tracks and roads used by scattered settlements to access shared community facilities, including schools and recreational woodland areas.</p> <p>The most significant adverse impacts are identified on the paths from Craibstone to Parkhead, from Craibstone to Chapel Croft, and on Walton Road Right of Way.</p> <p>Beneficial impacts are identified at the A90 Blackdog Junction, where the relocation of the bus stops currently on the A90 just south of the junction will provide a safer means to access the bus stops. It is noted that this will increase the distance walked to reach these bus stops for residents of Blackdog.</p>	<p><b>Northern Leg:</b></p> <p>No significant changes are predicted to catchment areas for schools and other facilities due to the rural nature and size of the catchment areas.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Accessibility and Social Inclusion (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Community Accessibility (cont'd)	Access to Other Local Services (cont'd)	<p><b>Southern Leg:</b></p> <p>Some community severance is anticipated for the settlements of Peterculter/Milltimber and Kingswells.</p> <p>Proposed diversions via the Milltimber Junction overbridge would expose pedestrians and others to greater traffic volumes and diversion routes of NMU paths increase journey lengths and times.</p> <p>Beneficial impacts are identified at the A90 Charleston Junction, where the relocation of the bus stops currently on the A90 just north of the junction will provide a safer means to access the bus stops, using the traffic signals and footpaths of the Charleston Junction overbridge.</p> <p><b>Fastlink:</b></p> <p>Some severance for Cookney as a result of changes to journeys lengths, traffic volumes and the addition of a bridge/underpass. However traffic volumes are low and DMRB guidance therefore suggests that no significant severance is likely to result.</p>	<p><b>Southern Leg:</b></p> <p>No significant changes are predicted to most population catchment areas. However some properties within the catchment area around Kingswells, situated on the western side of the AWPR, may experience significant changes due to increased journey lengths to reach Kingswells.</p> <p><b>Fastlink:</b></p> <p>No significant changes are predicted to catchment areas for schools and other facilities due to the rural nature and size of the catchment areas. Most minor roads will be maintained across the Fastlink, maintaining access.</p>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Accessibility and Social Inclusion (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Comparative Accessibility	Distribution/Spatial Impacts by Social Group	<p>Due to the scale of the proposed scheme the distribution of impacts are expected to affect all social groups in the Aberdeen and Aberdeenshire areas. These impacts include:</p> <ul style="list-style-type: none"> <li>The majority of the benefits accrue to the City area, where all social groups will benefit from reduced traffic volumes resulting in reduced congestion and reductions in noise levels and air pollution. Social groups making extensive use of public transport will benefit directly from reduced journey times and improved journey time reliability, and have the opportunity to benefit further from further improvements in public transport enabled by the completion of the proposed scheme.</li> <li>Substantial benefits accrue to Aberdeenshire, particularly in relation to journeys either into the City or to the periphery of the City. Again, all social groups will realise these benefits. The improved accessibility to the peripheral areas of Aberdeen, where many of the industrial businesses are located, should offer particular benefits for the workforce employed in these industries.</li> </ul>	<p>Assessment of distribution of transport economic benefits results in the following outcomes:</p> <ul style="list-style-type: none"> <li>49% of benefits accrue for journeys within the City area</li> <li>13% of benefits accrue for journeys between central Aberdeen and Aberdeenshire (3% to the City and 10% to Aberdeenshire)</li> <li>20% of benefits accrue for journeys between the periphery of Aberdeen and Aberdeenshire (5% to the City and 15% to Aberdeenshire)</li> <li>7% of benefits accrue for journeys within Aberdeenshire</li> <li>4% of the benefits accrue for journeys between Aberdeen City and the area beyond Aberdeenshire (2% to the City and 2% to the wider area)</li> <li>6% of the benefits accrue for journeys between Aberdeenshire and the area beyond Aberdeenshire (3% to Aberdeenshire and 3% to the wider area)</li> <li>1% of the benefits accrue for journeys within the wider area</li> <li>66% of benefits accrue to Aberdeen City</li> <li>28% of benefits accrue to Aberdeenshire</li> <li>6% of benefits accrue to the wider area</li> </ul>

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Accessibility and Social Inclusion (cont'd)</b>			
<b>Sub-objective</b>	<b>Item</b>	<b>Qualitative Performance</b>	<b>Quantitative Performance</b>
Comparative Accessibility (cont'd)	Distribution/Spatial Impacts by Social Group (cont'd)	<p>The distribution of impacts by location shows the following outcomes:</p> <ul style="list-style-type: none"> <li>• The majority of the benefits accrue to the City area, with almost half of all benefits being realised wholly within the city area.</li> <li>• A significant volume of the benefits accrue to Aberdeenshire</li> <li>• A small minority of the benefits accrue beyond the Aberdeen City and Aberdeenshire areas</li> </ul>	The data noted above also applies in respect of this assessment category.

<b>Strategic Environmental Assessment (SEA)</b>	
Summary of SEA outcome where appropriate	Strategic environmental assessment was not necessary in respect of this scheme.

**Aberdeen Western Peripheral Route  
Interim STAG Report - Draft  
Appendix C**

<b>Cost to Public Sector</b>		
<b>Item</b>	<b>Qualitative Information</b>	<b>Quantitative Information</b>
Public Sector Investment Costs	Costs provided are determined from base cost estimate of £347.4m at Q4 2003 rates.	£367,938,000 (PV9)
Public Sector Operating and Maintenance Costs	Operating and maintenance costs are based on national standard rate per km per year over 60 year economic assessment period.	£20,370,000 (PV10)
Grant/Subsidy Payments	No grant or subsidy payments are proposed in respect of the scheme.	-
Revenues	No revenues are anticipated in respect of the scheme.	-
Taxation Impacts	Taxation increase is principally caused by additional revenue associated with increased fuel purchases.	-£46,890,000 (PV13)

<b>Monetised Summary</b>	
Present Value of Transport Benefits	£1,607,047,000 (including accident savings) £1,445,575,000 (excluding accident savings)
Present Value of Cost to Government	£351,173,000
Net Present Value	£1,265,629,000 (including accident savings) £1,094,402,000 (excluding accident savings)
Benefits-Cost to Government Ratio	4.7 (including accident savings) 4.2 (excluding accident savings)