

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part A: The Scheme

3 Alternatives Considered

3.1 Introduction

- 3.1.1 This chapter provides an outline of the development of the AWPR including an overview of the assessment work that has been undertaken in the selection of a preferred route and a summary of the objectives of the proposed scheme.

3.2 Background

- 3.2.1 As described in Chapter 2 (Need for the Scheme), a peripheral route around Aberdeen has been considered since the 1950s, and in the 1990s a western leg route corridor was proposed (the Western Peripheral Route; WPR). The WPR as identified by Grampian Regional Council and its successor authorities was subsequently extended to link with the A90 north of Aberdeen by NESTRANS. The route corridor comprising the WPR and this additional link was named the AWPR and in April 2003 was adopted and promoted by the Scottish Executive as a Trunk Road within a funding partnership of the Scottish Executive, Aberdeen City Council, and Aberdeenshire Council.
- 3.2.2 The AWPR was refined within this corridor from April 2003 until December 2004, when Transport Scotland requested that consideration be given to additional corridors. In December 2005, following consideration of the alternative corridors, including an informal public consultation held in Spring 2005, the Minister for Transport announced that the AWPR would be taken forward on the Milltimber Brae Route with a Fastlink to Stonehaven.
- 3.2.3 Various options have been considered at each of the stages described above. The option consideration process included production of many reports and papers that set out the engineering, economic and environmental advantages and disadvantages of alternative routes and corridors. The information contained in these documents is too extensive to reproduce in this ES and this chapter therefore summarises the options considered and the main conclusions reached at each stage of the process. Reference is made to the documents prepared and Aberdeen City Council holds copies of this information which is available for public scrutiny.
- 3.2.4 Many of the reports summarised in this chapter refer to the assessment of routes, however in some instances the assessment was undertaken on corridor options rather than route options. It should be noted that the terminology used in this chapter regarding routes and corridors has been retained as per the original reports. Similarly, studies prior to April 2003 referred to the WPR whereas studies since April 2003 refer to the AWPR, and for the purposes of consistency these terms are similarly retained in this chapter.

3.3 Development of the Proposed Scheme Prior to 1990

- 3.3.1 An Aberdeen City bypass/ring road was discussed prior to the 1980's with alternative road corridors being suggested to alleviate the City's growing traffic problems. Some of these suggestions were a simple upgrading of the inner city routes whilst others thought a route corridor, to the west, outwith the built up area would be best. During the 1970's a route was proposed, which followed the existing line of the developed area. This route was called the City Bypass.
- 3.3.2 In the mid 1980s an alternative route to the City Bypass was considered, this time between Cults, Kingswells and the A96. This was known as the Cross Country Route. Until 1986, policies on a WPR were qualified with statements that such a route was not currently justified despite increasing demand for cross city movements. A study was carried out for the Aberdeen Area 1986 Structure Plan Review and the results indicated that there would be a need for a post 1991 peripheral distribution road integrated with development to provide a facility for bypassing Aberdeen and linking the important traffic generators of Dyce and Altens.

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- 3.3.3 The City Bypass and Cross Country Route were not developed further primarily due to financial constraints. These routes are shown on Figure 3.1.
- 3.3.4 A separate scheme to improve the main routes through Bucksburn was developed and during the process of resolving objections to this scheme in 1989, it was considered that, although not a solution to the congestion problem in Bucksburn, the need for a route to the west of the city was becoming more acute.

3.4 Western Leg Development 1990 – 1996

Initial Options Development 1990 – 1992

- 3.4.1 On 20 November 1990, Grampian Regional Council's Transportation and Roads Committee approved commencement of a study to examine the various route options between the then A92(T) south of Aberdeen and the A96 (T) to the north west. A steering group was formed between Aberdeen District Councils Planning Department, Grampian Regional Council's Roads Department, Economic Development and Planning Department and the Scottish Office, and a report was provided to Grampian Regional Council's Transportation and Roads Committee on 18 December 1990 initiating traffic studies to identify possible lines for a WPR.
- 3.4.2 This steering group considered options for the Western Leg and considered the engineering feasibility, the cost, economic evaluation and environmental effects of alternative routes. The results of the studies were set out in 'Western Peripheral Route, Report on Options' prepared by Grampian Regional Council Department of Roads (May 1992), and summarised in a framework appraisal. The framework appraisal used the STEAM (Scottish Traffic Environmental Appraisal Manual) method and the economic evaluations were conducted using the NESA (Network Evaluation from Surveys and Assignment) and SATURN (Simulation and Assignment of Traffic to Urban Road Networks) suite of programs. It should be noted that the report refers to routes but in essence the routes were corridors within which routes could be developed if the corridor options were to be taken forward for further detailed assessment. A report on this study was provided to the Transportation and Roads Committee on 16 June 1992.
- 3.4.3 Three main route corridors were identified (A, B and C) and these later became known as the Inner, Outer and External routes respectively. The Inner Route utilised the line of the old City Bypass which followed the boundary of the built up areas of Aberdeen. The Outer Route followed the old Cross Country Route around Kingswells. The External Route involved an upgraded B979 from Peterculter to the proposed Blackburn Bypass. A number of variations to the routes were also identified for the southern section of the scheme. These were options D1, D2, E1, E2 and E3. Different combinations of these main routes and options, known as test schemes, were assessed. Initially the study considered only single carriageway routes, however subsequent testing of dual carriageway options was undertaken where initial results suggested that traffic levels may warrant that level of provision. Therefore additional test routes were developed with sections of both single and dual carriageway. All of these routes had at-grade junctions. A total of 13 single carriageway routes and six dual carriageway options were assessed as shown on Figure 3.2 and detailed below in Table 3.1.

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Table 3.1 – Options Considered in the Western Peripheral Route Report on Options May 1992

Test Route	Main Route	Variations		Cross Section
1	A - Inner	D1	E1	Single carriageway
2	A - Inner	D1	E2	Single carriageway
3	A - Inner	D1	E3	Single carriageway
4	A - Inner	D2	E1	Single carriageway
5	A - Inner	D2	E2	Single carriageway
6	A - Inner	D2	E3	Single carriageway
7	B - Outer	D1	E1	Single carriageway
8	B - Outer	D1	E2	Single carriageway
9	B - Outer	D1	E3	Single carriageway
10	B - Outer	D2	E1	Single carriageway
11	B - Outer	D2	E2	Single carriageway
12	B - Outer	D2	E3	Single carriageway
13	C - External	-	-	Single carriageway
4B	A - Inner	D2	E1	Dual carriageway
5B	A - Inner	D2	E2	Dual carriageway
6B	A - Inner	D2	E3	Dual carriageway
10B	B - Outer	D2	E1	Dual carriageway
11B	B - Outer	D2	E2	Dual carriageway
12B	B - Outer	D2	E3	Dual carriageway

3.4.4 The main findings of this report are listed below:

- Routes 3 and 9 were considered not to be feasible on engineering grounds and were not evaluated further.
- The preferred scheme in terms of traffic and economic performance was Route 12, for both single and dual carriageway options.
- The Inner Route (Main Route A) crossed an area of high amenity value (in particular, at Bucks Burn and Hazelhead Park), and although consideration was given to the construction of a tunnel at Hazelhead the option would still have required the felling of trees in this location. The route also passed close to the edge of the built up areas of the city and would have resulted in adverse visual and noise impacts to many receptors. Routes 1 to 6 were therefore rejected on traffic, economic and environmental grounds.
- The Outer Route (Main Route B) had been partially constructed at Kingswells and was an upgrading of existing routes for part of its length and had less environmental impact than the Inner Route.
- The External Route (Main Route C), which was only considered as a single carriageway, was an upgrading of the B979 for part of its length and was therefore considered to have less environmental impact than The Inner Route. The route would have had adverse environmental impacts where it was off-line at Peterculter in the south and Tertowie in the north.

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- The Outer Route was therefore assessed as being the preferred route. The variations to the southern part of the route (Routes 7-8 and 10-12) all had adverse impacts on residential properties, hospitals, listed buildings, allotments, sports fields, or other environmentally sensitive areas. The report recommended that Route 12 be adopted as the preferred option as it was considered to be the best option in both economic and traffic terms and supported Grampian Regional Council policies.

3.4.5 A report was prepared for Grampian Regional Council Transportation and Roads Committee on 16 June 1992 describing the assessment of options undertaken at that time. The minutes of the meeting recorded that 'The Director of Roads explained how the lines had been determined and tested and the factors which would affect the ultimate choice of a western peripheral route. After discussion, the Committee agreed (1) to defer consideration of the matter until after a site visit to view the various lines tested, and (2) that a further detailed report be prepared by the Director of Roads for consideration after the site visit'. Prior to the site visit by the Transportation and Roads Committee on 05 October 1992, further consideration of the section between the A92 (T) south and the A93 North Deeside Road was undertaken and an additional option, Route 14, was developed. This option followed the same line as Route 12 from the A96 (T) Inverurie Road, passing Kingswells to Countesswells Woods. From this point Route 14 passed to the west of Bieldside, connecting to the existing Charleston grade separated junction at the A92 (T) south.

3.4.6 JMP Consulting Ltd was commissioned to undertake further analysis of all of the options being developed for the Western Leg including more detailed economic appraisals. The main findings of this analysis are listed below:

- The Inner Options (Routes 1 – 6, 4B – 6B) were considered to have the best economic returns, with First Year Rate of Return (FYRR) rates of between 34% & 57%. However they were also considered to have the highest capital costs of all the routes, with major costs being incurred in constructing a cut and cover tunnel through Hazelhead. These routes were also considered to have a greater detrimental effect on properties due to their proximity to housing. It was also considered unlikely that these routes would provide good links to public transport schemes such as park-and-ride. The routes were also found to be non-compliant with Draft Structure Plans for a new settlement (Banchory-Devenick) to the southwest of Aberdeen.
- The External Option (Route 13) was found to perform favourably in terms of FYRR, but it was noted that this was only considered as a single carriageway option and was therefore the least expensive option to construct. Although favourable, the FYRR of the route was, however, lower than some of the other options, in particular, Routes 12 and 14. Traffic modelling also indicated that the route carried considerably less traffic providing negligible relief to the Anderson Drive corridor and road network within Aberdeen.
- It was also considered that the External Option (Route 13) would have difficulty in linking into public transport systems such as park-and-ride, and would be non-compliant with Draft Structure Plans for a new settlement (Banchory-Devenick) to the southwest of Aberdeen. The route would not lend itself to connect to a possible Northern Leg.
- The internal and external routes were all considered unfeasible for the above reasons.
- The Outer Options (Routes 7 – 12, 14, 10B – 12B) carried reasonable volumes of traffic and their effects were considered the least detrimental environmentally as they involved a lot of upgrading of existing routes. The location of the Outer Options was considered to facilitate adoption/incorporation into public transport schemes.
- The Outer Options were therefore considered as preferred options for the WPR.

3.4.7 On 23 December 1992 a Confidential Report (by virtue of paragraph 12 of schedule 7A to the Local Government (Scotland) Act 1973) was presented to the Transportation and Roads Committee. The report concluded that the Outer Options appeared to satisfy the requirement for a WPR. All other routes fell outside the desired thresholds.

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3.4.8 Further consideration of the assessments undertaken led to Routes 12 and 14 as dual carriageways being selected for further consideration as the preferred options for the Western Leg. This was confirmed by the Transportation and Roads Committee on 12 January 1993. All the other options had been eliminated for environmental, engineering and economic reasons including incompatibility with existing transport options.

Further Options Development 1993 – 1994

3.4.9 An environmental assessment was carried out for routes 12 and 14 by RSK Environmental Ltd throughout 1993. Public consultations were held in late summer/early autumn 1993 presenting Routes 12 and 14. It should be noted that at this time consideration was also given to possible routes for a northern leg but these were not developed in any detail and were superseded by further studies into alternative options. The public consultations raised a number of issues and in particular highlighted the need for consideration of further options for routes/corridors to the west.

3.4.10 As a result of the environmental assessments and public consultations, an additional seven routes were developed (Routes 15 – 21). Routes 12 – 21 under consideration at that time are shown on Figure 3.3.

3.4.11 RSK's report 'Environmental Assessment of Routes 12 and 14' was published in March 1994. The main findings of the assessment, which was also summarised in a letter from RSK to Grampian Regional Council, are listed below.

- In broad terms, Route 14 crossed a higher quality natural environment, resulting in negative impacts.
- Route 12 was considered most detrimental to human interests (including road landscape)
- The assessment stated that weighing up between human and natural interests is never easy, and it is especially difficult given the long time scale over which the WPR may be built.
- Apart from the Dee, the most significant problems associated with Route 14 were the potential impact on the Camphill community, ecology at Murtle Den/Foggieton, and the fact that the road goes through a rural area.
- On Route 12, the major problem was considered to be the steep hill at Bairds Brae, the lack of road fit into contours (i.e. lack of landscape cover) and impact in an area used for recreation.
- In conclusion it was found that on balance, if there were no major mitigations then the preferred option would be Route 14, however, if it was possible to improve the valley crossing and the Bairds Brae cutting along the Eastern route then Route 12 would be the preferred option.

3.4.12 An assessment of Routes 12 – 21 was presented in a report titled 'Part 3 WPR Report on New Options' produced in November 1994 by Grampian Regional Council Department of Roads. At this time, objectives for the WPR had been developed which are summarised below:

- to improve accessibility throughout the region.
- to reduce congestion within the City.
- to improve the environment of the City.
- to improve safety of pedestrians and other road users.
- to provide value for money.

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- 3.4.13 The report highlighted the capital costs and engineering, economic benefits, traffic effects, environmental effects, public consultation and mitigation measures of routes 12 and 14 and the new options 15 – 21. The main findings of this report are listed below.
- It was considered that Route 14 would cost significantly less than Route 12 to construct both as a single and more significantly as a dual carriageway. The section at Baird's Brae, for example, of Route 12 created considerable problems in both construction and service diversion terms and this was reflected in a higher cost for that section.
 - The report concluded that 'the inclusion of all mitigation measures would approximately double the costs of Route 12. While the route would still give a positive return, the increased capital cost, and the difficulties in raising such capital may preclude the inclusion of either all mitigation measures in the final design, or the route as a possible Western Peripheral Route'
 - It was considered that Routes 16 – 21 which utilised the existing Maryculter bridge did not conform to the objectives laid down for WPR and so did not conform to the transportation strategy.
 - As a result of the assessments it was recommended that only Routes 12, 14 and 15 be considered further as possible routes for the WPR. It was noted, however, that Route 15 would provide a lower potential for links to a potential park and ride system.

Preferred Options Assessment 1995 – 1996

- 3.4.14 Variations to the southern end of Route 15 known as Routes 15(1) and 15(2), which connected to the A92 at Portlethen and Marywell, respectively, were considered and were also examined. These variations on Route 15 are also shown on Figure 3.3.
- 3.4.15 An environmental assessment of the Route 15 options was undertaken by RSK which concluded that Route 15(2) performed better and had fewer overall impacts than Route 15(1).
- 3.4.16 Concerns were raised regarding the potential impact of Route 14 (and 15) on the Camphill Special Needs facilities at Bieldside. A study brief was agreed with the Camphill Estates/Village Trust and Halcrow Fox was commissioned to undertake a study in relation to this issue. The report 'Proposed Aberdeen Western Peripheral Road, Route 14, Camphill Special Needs Study' was presented in February 1996, and concluded that the impacts of Routes 14 (and 15) could be mitigated.
- 3.4.17 Based on the results of the assessments undertaken in 1994 regarding Routes 12, 14 and 15 and then subsequently in 1995 for Routes 14, 15(1) and 15(2), Route 14 was recommended as the preferred route for consideration by the GRC. Route 14 was later endorsed by GRC's successor authorities, Aberdeen City Council and Aberdeenshire Council.

3.5 Northern Leg Development 2001 – 2002

- 3.5.1 In Autumn 2001 NESTRANS took forward development of a Northern Leg for the WPR with the aim of identifying a preferred route corridor, similar to the standard of the previously developed Western Leg. The appraisal team's remit was to develop a preferred route corridor using the STAG approach to a similar level of assessment as was being undertaken for the MTS.
- 3.5.2 In accordance with STAG, the objectives for the WPR were identified and these are listed below in Table 3.2.

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Table 3.2 – WPR Objectives

Criteria	Objective
Acceptability and Participation	The strategy will be developed through public participation and be endorsed by the Community.
Deliverability	The strategy will be achievable, both practically and financially, and demonstrate best value.
Environment	To reduce the impact of traffic, including in particular HGV traffic, on Aberdeen and the surrounding area whilst incurring minimal damage to the natural environment. To contribute towards reducing air pollution problems, particularly in the city centre where the problems are greatest.
Safety (Safety, Accidents)	To provide a consistent, high quality, efficient and effective route with a minimal number of high quality, high capacity junctions to maximise user safety. To reduce the traffic levels on the existing road networks thereby reducing the risk of accidents.
Economy (Economic Activity)	To provide access between proposed rail freight transfer depots, industrial estates and businesses, Park and Ride car parks, road and air links, to ensure journey times and costs are minimised. To reduce congestion and remove the bottleneck in the Trans European Network thereby increasing the reliability of journey times through and around the City, helping to limit the effects of peripherality nationally and internationally.
Integration (Transport Integration)	To produce a consistent standard of route that will bypass the city from A90 (North) to A90 (South) and attract nonessential traffic away from Aberdeen and inappropriate minor routes. To allow the reallocation of road space to more appropriate priority forms of transport. To provide access between proposed Park and Ride car parks.
Integration (Land Use Integration)	To provide good accessibility to the land required for the sustainable development of Aberdeen To provide an attractive link from residential areas on the periphery of Aberdeen and Aberdeenshire to the industrial estates and main employment areas on the periphery of Aberdeen and Aberdeenshire, reducing the need to travel through the city centre.
Integration (Policy Integration)	To produce a route which will improve access to employment and generate job opportunities thereby contributing to the social inclusion policies of both Councils.
Accessibility (Base Accessibility)	To significantly reduce the level of traffic in Aberdeen without reducing accessibility to or within the city.

3.5.3 The main problems identified that the development of the scheme sought to address are as listed in Chapter 2 (Need for the Scheme) for the MTS.

3.5.4 The study was carried out taking consideration of DMRB guidance to develop and assess options with the findings and reports had included in the overall STAG assessment. This included a DMRB Stage 1 evaluation of a large number of corridors, followed by assessment of preferred options at DMRB Stage 2 level.

DMRB Stage 1 Assessment

3.5.5 The first step in the development of route options was to define the environmental constraints to inform the development of routes and route corridors. This work was carried out by Mouchel Consulting Ltd. Environmental constraints were mapped and described and key environmental constraints were also identified.

3.5.6 Over 100 possible combinations of routes/corridors were identified and briefly assessed against engineering, traffic and environmental criteria. This assessment was undertaken by defining zones within which the route options were located. These zones were named the Northern, Central, Kirkhill, Southern and Bucksburn zones.

3.5.7 The environmental constraints identified and the results of the DMRB Stage 1 assessment of the corridors/routes is reported in 'Western Peripheral Route (North), Stage 1 Scheme Assessment

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Report' (May 2002). Annex A of this report shows the routes considered and Annex E describes the environmental assessment of the routes, and describes and illustrates the environmental constraints identified.

3.5.8 The DMRB Stage 1 Report recommended that certain of the corridors/routes (the preferred routes) be further appraised in a Stage 2 assessment. These are shown in Annex B of the Stage 1 Report and are also shown on Figure 3.4 of this ES. The reasons for the selection of routes to progress to Stage 2 were primarily related to environmental constraints, road geometry and cost, although the Kirkhill section also had constraints related to planning and development issues. The main environmental constraints that influenced the choice of corridor in the zones were:

- Northern Zone – the presence of Balmedie Quarry which was both an active quarry and Site of Special Scientific Interest (SSSI);
- Central and Southern Zones – the presence of Corby Loch Sites of Importance to Natural Science (SINS);
- Kirkhill Zone – the presence of long established woodlands, the District wildlife Site at Fairburn Wood, The Aberdeen-Inverurie Canal Scheduled Ancient Monument (SAM), other important archaeological sites, and the presence of landfill sites.
- Bucksburn Zone – the Local Nature Reserve at Scotstown Moor, a number of District Wildlife Sites and visual impacts on nearby properties.

3.5.9 The main options taken forward in each zone are listed below in Table 3.3.

Table 3.3 – DMRB Stage 1 Corridors

Zone	Corridor Name
Northern	North
Central	Central
Southern	South, South 1A, South 1B
Kirkhill	Kirkhill 1, Kirkhill 1A, Kirkhill 1B, Kirkhill 1C, Kirkhill 2, Kirkhill 2A
Bucksburn	Bucksburn, Bucksburn 1A, Bucksburn 1B

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DMRB Stage 2 Assessment

3.5.10 Eighteen complete route corridors were developed for the Northern Leg from the combination of those progressed from the Stage 1 assessment. These corridors are shown on Figure 3.5 and listed below in Table 3.4.

Table 3.4 – DMRB Stage 2 Corridors

Route Corridor	Route Corridor No.	Corridor Description
Bucksburn	B1	Combination of Bucksburn and Bucksburn 1A
	B2	Combination of Bucksburn and Bucksburn 1B
South/Kirkhill	SA1	Combination of South / South 1A / Kirkhill 1 / Kirkhill 1A / Kirkhill 1C.
	SA3	Combination of South / South 1A / Kirkhill 1 / Kirkhill 1B
	SA4	Combination of South / South 1A / Kirkhill 2
	SA6	Combination of South / South 1A / Kirkhill 1 / Kirkhill 2 (part) / Kirkhill 2A / Kirkhill 1B (part)
	SB1	Combination of South / South 1B / Kirkhill 1 / Kirkhill 1A / Kirkhill 1C
	SB3	Combination of South / South 1B / Kirkhill 1 / Kirkhill 1B
	SB4	Combination of South / South 1B / Kirkhill 2
	SB6	Combination of South / South 1B / Kirkhill 2 (part) / Kirkhill 2A / Kirkhill 1B (part)
Central/Kirkhill	C1	Combination of Central / Kirkhill 1 / Kirkhill 1A / Kirkhill 1C
	C3	Combination of Central / Kirkhill 1 / Kirkhill 1B
	C4	Combination of Central / Kirkhill 2
	C6	Combination of Central / Kirkhill 1 / Kirkhill 2 (part) / Kirkhill 2A / Kirkhill 1B (part)
Northern/Kirkhill	N1	Combination of North / Kirkhill 1 / Kirkhill 1A / Kirkhill 1C
	N3	Combination of North / Kirkhill 1 / Kirkhill 1B
	N4	Combination of North / Kirkhill 2 and
	N6	Combination of North / Kirkhill 2 (part) / Kirkhill 2A / Kirkhill 1B (part)

3.5.11 Many of these corridors are common to a number of the route options. Therefore in the DMRB Stage 2 assessment the 18 separate options were broken down into six basic corridors for reporting purposes. These were:

- North;
- Central;
- South;
- Kirkhill 1
- Kirkhill 2; and
- Bucksburn.

3.5.12 Public consultations with respect to these corridors were held from June to August 2002, and comments were invited in respect of the assessment process being followed, local constraints that had not been identified and any alternative routes not identified. This consultation process did not lead to any recommendation to alter the routes/corridors being taken forward in the DMRB Stage 2 assessment.

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- 3.5.13 The results of the DMRB Stage 2 assessment are set out in the report prepared by NESTRANS titled 'Western Peripheral Route (Northern Leg) Stage Two Scheme Assessment Report' dated November 2002. The main criteria used in this further assessment were essentially, engineering, economic, planning and performance criteria. The environmental assessment and identification of environmental constraints in the DMRB Stage 1 assessment was more detailed than is normally necessary at this stage, and therefore little additional assessment was undertaken in terms of environmental criteria. The information included in the DMRB Stage 1 Report therefore formed the basis for the environmental assessment at DMRB Stage 2.
- 3.5.14 The 18 corridors were also assessed in a STAG appraisal and compared in terms of:
- their performance against the objectives of the proposed scheme;
 - problems associated with the route;
 - risks associated with the route;
 - their likely significant environmental impacts;
 - their performance in relation to traffic and access;
 - their economic performance; and
 - engineering issues.
- 3.5.15 The assessment is summarised in a Summary Spreadsheet Table that formed Appendix G in the WPR STAG Assessment. The assessment was originally taken to public consultation but with the public consultation sections left blank. Following the consultation, and after collation and review of any comments, the views of the public were included in the summary spreadsheet table, as shown in Appendix G.
- 3.5.16 The assessment method used in preparing and reading the summary spreadsheet table was to compare the Bucksburn routes together, resulting in a preferred line for a route passing to the south of the airport to be identified. The North, Central and South Routes were compared and then the Kirkhill 1 and Kirkhill 2 routes were compared to identify two preferred lines for the route to the north of the airport.
- 3.5.17 The main finding that resulted from this assessment in relation to the Bucksburn Routes was:
- A tunnel would have been required in order to locate a route in the gap between properties in the Bankhead area. This would have determined a maximum level for the road at that location. The road also had to cross over the A96 and this would have determined the minimum level of the road at this location. The resulting gradient of the road between these two points would have been too steep to meet standards therefore Bucksburn Route B1 was eliminated.
- 3.5.18 The main findings that resulted from this assessment in relation to the North, Central and South Routes were:
- It would be desirable to maintain the possibility of re-opening the Dyce/Ellon/Peterhead railway at some point in the future. Due to the proximity of the River Don it was not possible for the route to pass under the A947 or the disused railway line. The relative levels of the disused railway and the A947 meant that it was impossible to create a junction at this location. Therefore Route South 1A proved impossible and therefore Routes SA1, SA3, SA4 and SA6 were eliminated.
 - The North Routes carried the least volume of traffic on the routes and had the least overall beneficial impact on the road network. It was also considered in the environmental assessment to be the worst in environmental terms. It was very exposed in a rolling, largely open and treeless landscape. It was considered to have a substantial impact on the local environment as mitigation for the adverse landscape impacts would have been extremely difficult to achieve. For these reasons it was considered that the North Route would not compete favourably with Central or South and at this stage Routes N3 and N6 were discarded.

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- 3.5.19 The main findings that resulted from this assessment in relation to the Kirkhill Routes were:
- There were three options for the routes to cross the A96. The most westward (Kirkhill 1A/1C) was assessed as having significant adverse visual impact on the A96 approach to the City. It would have been visible before Marshalls Trailers and prior to a left hand bend that masks that property. The central of the routes (Kirkhill 1B) was beyond Marshall Trailers and was not seen on this approach to the City view. It does however pass close to the small group of houses immediately north of the Marshalls Trailers property. It was considered that the significance of the view for the many people using the city approach outweighed the impacts on residents and therefore that Kirkhill 1B was preferred.
 - The Kirkhill 2 Route was assessed as having too great an impact on the Scottish Agriculture College (Craibstone College) on both the north and south sides of the A96. This was particularly the case on the south side where the route passes immediately beside the residential and teaching area of the complex. Therefore the Kirkhill 2B/1B Route was preferred.
- 3.5.20 This limited the options for Kirkhill 1 and Kirkhill 2 to one alternative for each route and eliminated options C1, C4, N1, N4, SB1 and SB4. Together with the assessment of the Northern Routes, this also resulted in Routes N1 and N4 being discarded.
- 3.5.21 Further consideration of the Kirkhill 1 and Kirkhill 2 Routes concluded the following:
- Under the Kirkhill 2 Route, Dyce Drive would have become the WPR. There was sufficient width to construct a dual carriageway on Dyce Drive but the level differences between each side of the road would have meant that retaining walls would have been required. This would have meant that the only access doors to some properties would have opened out into walls retaining the carriageway with traffic travelling at up to 70mph just a few metres away. It was considered that the severance that this route would create between each side of Kirkhill Industrial Estate would have been significant and would have been detrimental on the operation of some of the businesses on the estate.
 - Additional access roads within the industrial estate would have been required with the Kirkhill 2 Route and a new bridge over the WPR would have been required to maintain access across the route.
 - The main disbenefits of the Kirkhill 1 Route were associated with environmental issues and particularly in connection with adverse impacts on ecological issues, visual impacts and impacts on landscape character. Discussion with the authors of the environmental report confirmed that these issues could have been mitigated by the purchase of additional land for tree planting to screen the route and by the construction of animal fencing and tunnels.
 - The Kirkhill 1 Route crossed the Shell Oil Pipeline. This would have had significant cost implications (£7 million – £10 million) and it was noted that a realignment of the route would enable the pipeline to be avoided. This realignment was preferred on environmental grounds as it would have less adverse visual impact and would be easier to screen by tree planting.
 - The operational, road safety and construction implications of the Kirkhill 2 Route were considered to be of greater significance than the adverse impacts associated with Kirkhill 1 Route which were generally considered to be mitigable.
- 3.5.22 This further consideration of the Kirkhill 1 and Kirkhill 2 Routes resulted in Routes C6 and SB6 being discarded leaving Routes B1, SB3 and C3 remaining.
- 3.5.23 A further public consultation was held presenting these three routes as the preferred options for the Northern Leg and the views of the public were recorded in the overall assessment summary spreadsheet table. These routes are shown on Figure 3.6.
- 3.5.24 A copy of the report on the public consultation process is contained in Appendix F of the WPR STAG (March 2003).

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- 3.5.25 The above information enabled a final assessment to be made and on 21 March 2003 a joint committee of councillors from both councils called the North East Strategic Planning Committee (NESPC) considered a report for Chief Officers for both councils, making a recommendation on a preferred corridor. The preferred scheme was the Central Route C3 with the modification at Kirkhill as described above, and a further modification at Potterton which had been identified during the environmental assessment of the Central Route to reduce the visual impact on Potterton. The Central Route was realigned to the south with the junction at the A90 being located at Blackdog. This route is shown on Figure 3.7.
- 3.5.26 The reasons for the selection of Route C3 as the preferred corridor are recorded in detail in the report to the NESPC and the WPR STAG assessment. These are summarised below:
- Route B1 carried the greatest risk of cost increase.
 - Route B1 resulted in the lowest benefit in traffic terms to the A96 and Haudagain Roundabout.
 - Route C3 would result in the lowest overall environmental impact once mitigation was implemented. Route B1 had the greatest overall environmental impact due to the impact of the tunnel at Bucksburn, both during and after construction, and because of the impact on the Rowett Institute. Route SB3 had a greater overall environmental impact compared to Route C3 due to effects on the River Don and Parkhill Wood, and visual impact associated with the A947 Junction.
 - Route B1 had greatest engineering difficulties associated with the tunnel at Bucksburn, with Route SB3 resulting in greater engineering difficulties associated with the Rover Don floodplain.
 - Routes C3 and SB3 both provided better links to proposed park and ride facilities on the A96 and A947, better access to the proposed Raiths Farm Rail Freight Interchange and to the airport.
 - Route C3 performed best in relation to Public Consultation and Acceptability objectives.
 - Overall, the engineering issues and local impacts of Route B1 led to it being discarded. The environmental and engineering advantages of Route C3 outweighed any traffic and integration advantages associated with Route SB3.
- 3.5.27 Aberdeen City Council considered the recommendation of the Chief Officers and the NESPC Committee and adopted the preferred corridor option at a full council meeting on 16 April 2003. Aberdeenshire Council considered the recommendation of the Chief Officers and the NESPC Committee and adopted the preferred corridor option at a full council meeting on 24 April 2003.

3.6 Western Leg Corridor Updating 2002 – 2003

- 3.6.1 In conjunction with the Northern Leg development, the Western Leg was updated on behalf of NESTRANS taking consideration of the WPR Objectives to provide high capacity (grade separated) junctions. This involved revising the vertical alignment of the main carriageway and development of alternative junction forms. A DMRB Stage 2 assessment was undertaken and is reported in the 'Western Peripheral Route (Western Leg) Stage 2 Scheme Assessment Supplementary Report' by NESTRANS dated January 2003 and in the 'Western Peripheral Route (Western Leg), Stage 2 Environmental Assessment' by Mouchel dated March 2003.
- 3.6.2 The main changes to the Western Leg are described in Table 3.5.

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Table 3.5 – Western Leg Amendments

Location	Description
B9077 South Deeside Road	A grade separated roundabout was proposed at the B9077.
A93 North Deeside Road	Main carriageway lowered to pass below the Old Deeside Line at a level that would enable it to be reinstated as a railway line in the future and also to pass below the A93. This was requested by NESTRANS following recommendations in the Halcrow Fox Camphill Special Needs Study. A grade separated junction with roundabouts either side of the WPR connected via a bridge that passed over the main carriageway was proposed in the land to the south of the A93, with a link road connecting the junction to the A93. Housing adjacent to the A93 and at Hillhead Road precluded provision of a junction directly at the A93.
Countesswells	The WPR was realigned to provide acceptable design standards required for a dual carriageway route, passing through the southeast corner of Countesswells Woods. The Kingswells to Bielside road was realigned to pass below the WPR at Loanhead and over the WPR at Blacktop. Baillieswells Road was also realigned at Foggieton Woods.
A944	A grade separated roundabout was proposed at the A944.
Kingswells	The WPR was realigned to the west alongside the southern part of Kingswells to accommodate the new grade separated junction at the A944 and to provide acceptable design standards required for the dual carriageway route. The WPR followed the line of the Bucksburn to Kingswells Road alongside the northern part of Kingswells and the existing road was realigned to pass below the WPR and run northwards alongside it to the northern edge of Kingswells. At this point a new bridge was provided to pass below the WPR connecting the realigned Bucksburn to Kingswells Road to the existing road north of Webster Park. Slip roads were provided connecting to the WPR to the north.

3.6.3 The revised Western Leg is shown on Figure 3.8. The main findings of the environmental assessment of these changes are listed below.

- Significant adverse impacts were associated with land take and severance of Kingswells Consumption Dyke SAM.
- The main potential ecological impact was associated with bridging the River Dee which had been designated a candidate Special Area of Conservation (cSAC). Other ecological impacts included direct habitat loss and habitat severance and fragmentation.
- Large visual impacts were anticipated at the Dee valley and at the junction with the A944.
- The Camphill School Estates were recognised as having most severe and significant impacts on high valued and sensitive land. Forestry, residential and community land uses were also considered as potentially being affected by significant adverse impacts.
- Impacts on footpaths were identified with the main areas for concern noted as footpaths in Kingswells and between Countesswells Woods and Bielside, land take of the eastern terminus of the Westhill to Kingswells cycle path; and proximity to an equestrian centre at Blacktop Forest. It was indicated that the scheme would likely sever Camphill School Estate from their community facilities. A benefit was foreseen in the scheme facilitating access to community services in Kingswells for the settlements of Cults and Bielside.
- Potential water quality and drainage issues associated with bridging the River Dee and impacts on Murtle Dam were highlighted.

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3.7 AWPR Development 2003 – 2004

3.7.1 Jacobs was appointed on 31 October 2003 to develop proposals within the preferred corridor selected for the proposed scheme which combined the Western Leg (Route 14 as amended) and Northern Leg (Route C3 as amended) preferred corridors.

3.7.2 The preferred corridor was divided into the following seven sections to facilitate the development and assessment of route options:

- Charleston – A90 Schoolhill to Jameston;
- River Dee Crossing – Jameston to Foggieton;
- Countesswells – Foggieton to A944;
- Kingswells – A944 to Chapel Belts;
- West Dyce – Chapel Belts to Kirkhill;
- River Don Crossing – Kirkhill to Lochgreens; and
- Potterton – Lochgreens to Blackdog.

3.7.3 The combined corridor and the seven sections referred to above are shown on Figure 3.9. The development and assessment of options leading to selection of a preferred route within each section is described below.

Charleston Section

3.7.4 Four options were developed within this section as described below in Table 3.6 and shown on Figure 3.10.

Table 3.6 – Charleston Section – Route Options

Option	Description
Green	Base option developed for Western Leg.
Cyan Option	Located slightly further north to the west of Charleston compared to the Green Option. Junction includes a grade separated roundabout, with two bridges over of the existing A90.
Red Option	Identical to the Green Option, with the inclusion of a roundabout and slip roads to the east of the existing A90 to form a dumbbell style of junction.
Blue Option	Main carriageway connects to an additional grade separated junction 1700m south of proposed Charleston Junction at Schoolhill. Link to Charleston follows the line of the Green Option. The links from Schoolhill and Charleston tie in at Duff's Hill.

3.7.5 Junction analysis indicated that the junctions proposed for the Green, Red and Blue Options would not cater for the anticipated traffic flows. This included modelling various alternative junction layouts at Schoolhill for the Blue Option. Also, the Blue option was significantly more costly and resulted in greater environmental impacts due to the additional link required to connect the route to Schoolhill. Therefore the Red and Blue Options were not considered further.

3.7.6 The grade separated roundabout on the Cyan Option could also be provided with the Green Option and therefore both options were considered further. The main findings of this assessment are listed below.

- The Cyan Option resulted in property demolition at Whistlebrae.
- The Green Option resulted in fewer impacts on ecology.
- The Green Option had lower impacts on the landscape and visual impacts.
- The Green Option with a two bridge roundabout was therefore selected as the preferred option.

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River Dee Crossing Section

3.7.7 Five options were developed within this section as described below in Table 3.7 and shown on Figure 3.11.

Table 3.7 – River Dee Crossing Section – Route Options

Option	Description
Green Option	Base option developed for Western Leg.
Cyan Option	Cyan option lies to the west of the Green Option and provides a grade separated junction at the A93, negating need for the link road and additional roundabout that are required for the Green Option.
Red Option	Red option passes to the west of Blair's College and Murtle Estate with a grade separated junction provided at the A93.
Blue Option	Blue option follows the line of the Cyan option south of the A93, crossing the River Dee on a skew as it travels east following the line of the Green Option past Blair's College to the south of the River Dee.
Pink Option	Travels to the west of Blair's College, and east of the Murtle Estate. The junction at the A93 requires a third roundabout to the north of the A93 with a link road connecting the junction to the A93 to minimise potential impact on Murtle Estate.

3.7.8 The main findings of the assessment of these options are listed below.

- The Green and Red Options required land take from the Camphill Rudolf Steiner School at Murtle Estate and the Camphill facility at Newton Dee. At both facilities this land was part of the areas farmed biodynamically. The Red Option passed through the Blair's College estate and would affect a proposed development at the estate with significant cost implications. The Red Route would also have resulted in substantial impacts on the landscape due to the cuttings required at the Blair's College Estate and the River Dee Crossing which would have been the highest of all the proposed options at over 20m high. For these reasons, the Green and Red Options were discounted.
- The Pink Option passed through the Blair's College Estate and would also affect the proposed development at the estate with significant cost implications. Additional property demolition would also occur at Blair's. This Pink Option was also longer and more costly than other options. For these reasons, the Pink Option was discounted.
- The Cyan Option passed between the gate house and the main buildings at Grade A Listed Blair's College. The route was in cutting at this location and the access road to Blair's College could be maintained. For topographical reasons, the Cyan Option was also the only option that could pass below the South Deeside Road and over the River Dee.
- The Blue Option passed to the east of the gate house at Blair's College but this resulted in a crossing over the South Deeside Road and embankments on the AWPR close to the Blair's College estate which would affect the setting of the listed buildings. The alignment also required a significant skew on the bridge crossing the River Dee which was located at a wider point of the River Dee Special Area of Conservation (SAC). This would have significantly increased the cost of the proposed crossing and the risks associated with construction.
- The junction at the A93 on the Blue and Cyan Options required demolition of the Waterwheel Inn and adjacent properties. However, alternative junction options at this location were only possible with the Green and Red Options which were not preferred having resulted in the impacts described above.
- The impact of the Cyan Option on Blair's College was discussed with Historic Scotland and although this not preferred, was considered acceptable due to the other difficulties associated with the Green, Red, Pink and Blue Options.
- The Cyan Option was therefore selected as the preferred option.

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Countesswells Section

3.7.9 Five options were developed within this section as described below in Table 3.8 and shown on Figure 3.12.

Table 3.8 – Countesswells Section – Route Options

Option	Description
Green Option	Base option developed for Western Leg.
Cyan Option	Runs north from Foggieton through Countesswells Woods.
Red Option	Runs north from Foggieton through Countesswells Woods, further west than the Cyan Option. Junction on the A944 is located to the west of Kingswells House
Blue Option	Passes between Foggieton Woods and Countesswells Woods, but encroaches further upon Loanhead Equestrian Centre.
Pink Option	Similar to the Blue Option south of the A944 junction but passes west of Kingswells House.

3.7.10 The main findings of the assessment of these options are listed below.

- The Red and Cyan Options passed through Countesswells Woods, impacting on the woodland and also the network of frequently used paths in the woods. The Red Option also required deep cuttings at Kingshill Woods to the south of the A944, resulted in demolition to the south of the A944 and was the most costly of all the options. For these reasons, the Red and Cyan Options were discounted.
- The Pink Option affected the curtilage of the Grade B Listed Kingswells House, crossing the main access and requiring construction of a grade separated junction within the grounds south of the house. For these reasons, the Pink Option was discounted.
- The Green Option passed through the southeast corner of Countesswells Woods, severing the main car park and access tracks from the remainder of the woodland. The realignment of the Kingswells to Bieldside Road passed through Loanhead Equestrian Centre.
- The Blue Option skirted the edge of Foggieton Woods but avoided Countesswells Woods. The Blue Option would result in the demolition of Loanhead Equestrian Centre, however, the lease on the centre was due to expire as it lies on an area to be developed for housing.
- The reduced impact at Countesswells Woods was considered to be a benefit at this location and the Blue Option was therefore selected as the preferred option.

Kingswells Section

3.7.11 Five options were developed within this section as described below in Table 3.9 and shown on Figure 3.13.

Table 3.9 – Kingswells Section – Route Options

Option	Description
Green Option	Base option developed for Western Leg.
Cyan Option	Follows the same line as the Green Option north from the A944 but passed west of Webster Park.
Red Option	Passes west of Kingswells Consumption Dyke Scheduled Ancient Monument and the majority of properties to the west of Kingswells.
Blue Option	Crosses Kingswells Consumption Dyke SAM but then follows the Red Option passing west of the majority of properties to the west of Kingswells.
Pink Option	Connects to the Pink Option considered for the Countesswells Section, passes west of Kingswells Consumption Dyke SAM and lies furthest west at the north end of Kingswells.

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3.7.12 The main findings of the assessment of these options are listed below.

- The Pink Option as designed only connected to the Red Option (considered, but rejected, for the Countesswells Section). The Pink Option could, if re-designed, connect to any of the other options being considered at the Kingswells Section. The Pink Option passed through Brimmond Country Park, with impacts on land used by the community, ecological impacts and substantial landscape impacts including the requirement for more significant cuttings and embankments, and the route extending furthest into the countryside from the urban edge. For these reasons, the Pink Option was discounted.
- The Green, Blue and Cyan Options all crossed Kingswells Consumption Dyke SAM and this impact was considered unacceptable by Historic Scotland. These options were therefore discounted.
- The Red Option avoided the Consumption Dyke SAM but resulted in additional landscape and visual impacts due to its location further west and higher on the slopes of Cloghill. The Red Option (and also the Green, Blue and Cyan Options) also passed close to Home Farm which was considered by Historic Scotland to affect the setting of the Grade B Listed Kingswells House. The only option that would have reduced this impact was the Pink Option which could only connect to the Red Option on the Countesswells Section. However, this option had been rejected for the reasons described previously and as such the Pink Option could not be taken forward.
- The Red Option was therefore selected as the preferred option.

West Dyce Section

3.7.13 Only the finalised Green Option as taken forward from the previous work undertaken by Grampian Regional Council and NESTRANS was considered for the West Dyce Section because of the constraints imposed by the Scottish Agricultural College, Craibstone Golf Centre, Kirkhill Industrial Estate and property adjacent to the industrial estate. This option is shown on Figure 3.14.

River Don Crossing Section

3.7.14 Six options were developed within this section as described below in Table 3.10 and shown on Figure 3.15.

Table 3.10 – River Don Crossing Section – Route Options

Option	Description
Green Option	Base option developed for Western Leg.
Cyan Option	Travels to the south of the remains of the Aberdeenshire Canal SAM. The River Don Crossing and A947 Junction lie further to the south compared to the Green Option.
Red Option	Travels to the south of the remains of the Aberdeenshire Canal SAM, and then turns north to follow the Green Option from west of the A947 Junction.
Blue Option	Travels to the south of the remains of the Aberdeenshire Canal SAM, then turns north towards the A947 Junction, which lies further north than the Green Option
Pink Option	Follows approximately the same alignment as the Blue Option to the A947 Junction, which is situated to the northwest of the junction proposed with the Green Option.
Orange Option	Travels to the north of the Green Option, and to the north of Goval Farm Cottages. Passes through the quarry at Pitmedden Road and also crosses the reservoir adjacent to the A947.

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3.7.15 The main findings of the assessment of these options are listed below.

- The Green Option crossed the Aberdeen to Inverurie Canal (also known as the Aberdeenshire Canal) SAM and crossed the River Don at a publicly used salmon fishing pool. For these reasons, the Green Option was discounted.
- The Cyan Option crossed a wider section of the River Don floodplain with additional impacts compared to other options that would have resulted in significant additional costs. For this reason, the Cyan Option was discounted.
- The Orange Option passed through the Mill of Dyce Blockworks for which there is a proposal for a waste transfer station. The Orange Option also required property demolition at Corsehill. The main engineering impact was the crossing of the BP gas pipeline at Goval which would have had to be diverted with costs of around £7–£10 million and the crossing of the reservoir adjacent to the A947. For these reasons, the Orange Option was discounted.
- The Pink Option impacted significantly on the outlying sections of the Grade C Listed Parkhill Pumping Station, including additional sections of the Mill Lade and the reservoir to the east of the A947. The Pink Option also crossed Red Moss and was more costly than the remaining options. For these reasons, the Pink Option was discounted.
- The Blue Option required a longer crossing over the River Don and additional impacts at Goval Burn. The Blue Option also required property demolition at Corsehill. For these reasons, the Blue Option was discounted.
- The Red Option required the shortest crossing over the River Don, avoided property demolition, diversion of the BP gas pipeline and the greater impacts on the River Don floodplain and Parkhill Pumping Station associated with other options.
- The Red Option was therefore selected as the preferred option.

Potterton Section

3.7.16 Three options were developed within this section as described below in Table 3.11 and shown on Figure 3.16.

Table 3.11 – Potterton Section – Route Options

Option	Description
Green Option	Base option developed for Western Leg.
Cyan Option	Follows a line further to the south of the Green Option at Newtonhill.
Red Option	Follows a line to the south of the Green Option at Lochgreens and Newtonhill, but further north adjacent to Potterton.

3.7.17 The main findings of the assessment of these options are listed below.

- The Green Option had a poorer standard of alignment than the Cyan Option and would also have greater visual impacts.
- The Red Option had a poorer standard of alignment than the Cyan Option, particularly on the approach to junction with the A90, and would also have greater landscape and visual impacts
- The Cyan Option improved the alignment of the AWPR but was slightly closer to Corby and Lily Loch SSSI. This was not, however, considered to have any additional impacts. The Cyan Option also resulted in the least visual impacts.
- The Cyan Option was therefore selected as the preferred option.

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Additional Route Variations

3.7.18 Following selection of the preferred options for the AWPR, further route development and refinement was undertaken to improve the standard of alignment, reduce environmental impacts and accommodate anticipated traffic flows. Changes to the preferred route are summarised below in Table 3.12.

Table 3.12 – AWPR Additional Route Variations and Refinement

Section	Location	Route Variation
Charleston	A90 Schoolhill to Charleston	Additional lane added on A90 to south of Charleston to accommodate anticipated traffic flows on A90 and between the junction at Charleston and a junction proposed by a developer at Schoolhill.
Charleston	Jameston/ Scatterburn	Route realigned to west of Scatterburn Farm to improve alignment, reduce farm severance impacts and realign the route further away from properties at Banchory-Devenick.
River Dee	A93 Junction	Junctions between the slip roads and A93 changed to traffic-signal controlled junctions to accommodate anticipated traffic flows. Access to Murtle Estate and Murtle Dam realigned to connect to A93.
Countesswells	Foggieton	Main carriageway realigned slightly further west to move the route further from property to the west of Foggieton Woods. Baillieswells Road realigned.
Kingswells	A944 Junction	Alternative junction form developed with junctions between the slip roads and A944 changed to traffic-signal controlled T-junctions and a looped slip road for the northbound merge to reduce the potential impact of the route to Home Farm.
Kingswells	Cloghill	Route realigned to reduce overall impacts on property including Cloghill, Fairley Home Farm and Fairley House and the adjacent property. Resulted in demolition of Grandview.
West Dyce	A96 Junction	Junction form changed to grade separated roundabout located on the A96 to accommodate anticipated traffic flows.
West Dyce	West Overton	Route realigned slightly further north to reduce the potential impact on the Shell oil pipeline.
River Don	A947 Junction	A947 Junction relocated to the east of the Formartine and Buchan Way to cater for anticipated future traffic flows from the B977 corridor including proposed development areas including Whitestripes. A junction previously proposed by NESTRANS for the B977 area had been removed due to safety issues associated with its proximity to the original A947 junction. The A947 was realigned from Rosehill to connect to the junction.
Potterton	A90 North Junction	A90 North Junction changed to dumbbell arrangement with two roundabouts either side of the A90 connected with a bridge which crossed over the A90.

3.7.19 The route resulting from the above assessment and refinement process is shown on Figure 3.17.

3.7.20 In December 2004, Transport Scotland requested that consideration be given to additional corridors for the section south of Kingswells; the previously named Western Leg. The current preferred route developed for the AWPR up to this time was included as one of the options and was named the Murtle Route. The corridor options developed following this request and the consideration of these options is described in Section 3.8 below.

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3.8 Alternative Corridor Development 2004 – 2005

3.8.1 Five options were identified for consideration as alternative corridors for the Southern and Western Leg of the proposed scheme, as listed below in Table 3.13 and shown on Figure 3.18. As described above, these options connected to the Northern Leg of the proposed scheme at Kingswells. The Northern Leg as described in section 3.7 above was common to each option.

Table 3.13 – AWPR Alternative Corridors

Corridor Option	Description
Pitfodels Route	Runs from A90 junction at Charleston to Kingswells crossing the River Dee at Pitfodels and following Baird's Brae and Countesswells Road to Countesswells.
Murtle Route	Runs from the A90 junction at Charleston to Kingswells crossing the River Dee at Murtle and passing between Foggieton and Countesswells Woods. Route developed as described in Sections 3.4 – 3.7 of this ES.
Milltimber Brae Route	Runs from the A90 junction at Charleston to Kingswells crossing the River Dee to the east of the B979 and Maryculter Bridge. Passes through Milltimber and to the west of Kingshill Woods.
Peterculter/Charleston Route	Runs from the A90 junction at Charleston, crossing the River Dee at Peterculter Golf Course to pass west of Peterculter and passing west of Kingshill Woods.
Peterculter/Stonehaven Route	Runs from the A90/B979 junction at Stonehaven alongside the B979 Netherley Road, crossing the River Dee at Peterculter Golf Course to pass west of Peterculter and passing west of Kingshill Woods.

3.8.2 Environmental, engineering, economic and traffic assessments were undertaken and reported in Assessment Summary Tables based on those in the STAG documentation used previously to develop the MTS and WPR.

3.8.3 Public consultations were held around Aberdeen and Aberdeenshire in Spring 2005. The Murtle Route was referred to as the current preferred route at the public consultations because it had been confirmed as the preferred route previously and no decision had been made at the time which changed the status of the route.

3.8.4 Development of the Murtle Route as the current preferred route continued during the period between the public consultations and the announcement of the new preferred corridor in December 2005. This refined Murtle Route was considered in the selection of the preferred corridor by Transport Scotland. This refinement took consideration of environmental, engineering, traffic and economic factors and also issues raised at the public consultations. Changes to the Murtle Route in that period are summarised below in Table 3.14

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Table 3.14 – Murtle Route Refinement

Location	Route Variation
Hillhead Road	Route realigned to the east to reduce the impact on Murtle Den and property on the west side of Hillhead Road, following consultation with adjacent property owners. Realignment resulted in demolition of property on east side of Hillhead Road. The diversion of Hillhead Road was also amended.
Kingswells	The main carriageway of the AWPR was realigned to the west as the route passed Derbeth Farm in response to the public consultations. The route was realigned further from property in the area reducing noise and visual impacts. This also enabled the junction to be formed below the main carriageway thereby reducing landscape and visual impacts.
North Kingswells Junction	North Kingswells junction was lowered so that the slip roads connected to a road which passed below the main carriageway and connected to the Chapel of Stoneywood – Fairley Road adjacent to Webster Park as described above. The junctions between the slip roads and the connector road were changed from roundabouts to at grade T junctions to reduce the size of the junctions.
Craibstone	The route was realigned to the south of Craibstone following consultation with adjacent property owners. The route was realigned to the east to take it out of the golf course at Craibstone Golf Centre resulting in property demolition at Sunnybank Cottages.
A96 Junction	The A96 junction was changed from that shown at the public consultation to accommodate the traffic flows predicted in a later revision of the traffic model. Significant volumes of traffic are anticipated to use the AWPR and A96 junction to access the airport and Kirkhill Industrial Estate in the future and as such a higher standard of junction was required. The revised junction comprises a grade-separated junction at the AWPR and another at the A96 linked via a dual carriageway connector road.
South Kirkhill Junction	In addition to the A96 junction amendments, an additional junction was required to the west of Kirkhill Industrial Estate to cater for anticipated traffic flows. This junction was South Kirkhill junction. The proposed junction includes slip roads enabling access to and from the south with a link road connecting to Dyce Drive within the Industrial Estate.
A96/Dyce Drive Junction	The existing roundabout on the A96 which enables access to Dyce Drive does not have the capacity to cater for the anticipated traffic flows on the A96 and the junction was therefore improved to form an at-grade signalised crossroads. The southern extents of Dyce Drive are also to be improved as part of the junction upgrading.
Pitmedden Road	Pitmedden Road was realigned to the east of its current line to enable a bridge to be provided to maintain it without impacting on the Shell oil pipeline.
B977 at Goval	The B977 at Goval was realigned to the east of Goval Villa to reduce the impact of the road on the River Don floodplain.
A947 Junction	The A947 junction was changed from that shown at the public consultation to accommodate the traffic flows predicted in a later revision of the traffic model. The junction enables access to and from Aberdeen along the A947 to be maintained with minimal conflict between the main A947 flow and traffic from the B977 corridor to the southeast of the route. The layout reduces the length of the A947 realignment and reduces severance caused by the previous A947 realignment to the north of the route.
B977 at Corsehill	The B977 was realigned at Corsehill to provide an acceptable standard of realignment.
Blackdog	The AWPR was realigned to a new junction position north of Blackdog. The revised junction avoided the need for Strabathie Cottages to be demolished and enabled an access to Blackdog Industrial Estate to be provided directly from the A90/AWPR junction, improving safety compared to the previous layout. The realignment also reduced the impact on property at Harehill, although additional impacts resulted at Middleton and Wester Hatton. The route was not realigned as far north as the original Northern Leg described in Section 3.5 and did not therefore increase visual impacts at Potterton to levels previously experienced.

3.8.5 The refined Murtle Route is shown on Figure 3.19.

3.8.6 Following the public consultation a detailed response was received from the Aberdeen Greenbelt Alliance (AGA) proposing an alternative Eastern Bypass which ran from the A956 Wellington Road to the east of the city, passing in a tunnel below the River Dee, Aberdeen Harbour and the golf courses on the east side of the city, before crossing over the River Don to connect to the A90 at Bridge of Don. This AGA proposal is shown on Figure 3.20. A preliminary appraisal of this option was undertaken and the main findings of this assessment are listed below.

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- The AGA East attracts some of the highest traffic flows of all the route options as it is closest to the city centre and therefore provides relief to certain streets. However, increased traffic flows from the AGA East would be likely to result in severe congestion occurring on existing streets leading to the city centre such as the Beach Boulevard. The effect of any congestion or queuing on the Beach Boulevard and surrounding streets on the operation of the main AGA junction and tunnel sections would need to be determined. The route also attracts traffic to the A956 Wellington Road and improvements to existing infrastructure including Charleston Junction are likely to be required.
- The route does not provide a connection from the main residential areas on the western periphery of Aberdeen and wider areas of Aberdeenshire to the industrial estates and main employment areas and this traffic will continue to use the existing radial routes and city streets. To counteract this, AGA proposed a scheme named the AGA West, which is an associated single carriageway improvement which would form part of the overall AGA proposal to provide relief to traffic from the west of Aberdeen. This route would involve upgrades of existing roads and sections of new road constructed between Bridge of Muchalls to the south of Newtonhill, passing Netherley, crossing the River Dee to the west of Peterculter Golf Club, passing west of Peterculter and Westhill and connecting to the A90 at Blackburn. The AGA West was not reviewed in the Assessment Summary Tables (refer to paragraph 3.8.2).
- Traffic analysis undertaken indicated that the route provides the lowest economic savings in terms of accidents of all the options under consideration.
- A speed limit of 40mph would have to be provided to match the speed limits of adjacent roads and also due to the horizontal curvature of the alignment. It may be necessary to provide widening in the bored tunnel section of the route to provide adequate sight lines.
- To the south of the River Dee the tunnel would comprise twin bores with cross passages between the bores. To the north of the River Dee, the route would comprise cut and cover tunnel. The ground conditions along the route represent risk areas in relation to the design, construction, programme and cost of the route.
- Retaining walls would be required to minimise landtake around the proposed junction at the Beach Boulevard.
- As with the other options under consideration, the AGA East would potentially impact on the River Dee SAC. There would also be the potential for impacts on marine water quality to occur during construction.
- There would be property demolition of commercial/recreational businesses in the harbour/Beach Boulevard area.
- The route would pass through Kings Links and Royal Aberdeen Golf Courses with extensive construction required within the courses.
- There would be a significant reduction in traffic levels and hence pollution levels in the Air Quality Management Zone around the harbour. However, there would be a corresponding significant increase in traffic levels at the Beach Boulevard area with an increase in pollution occurring.
- There would be impacts on ecology and landscape, with approximately 50% of the route lying within the Greenbelt and the remainder within the Urban Green Space.
- The route does not provide access to the rail freight depot at Dyce, nor the park and ride car parks on the western fringes. The route does not support development of all of the public transport improvements as proposed within Modern Transport System.
- The AGA Eastern Bypass was estimated to cost in excess of £600 million.
- The AGA Eastern Bypass was discounted for the above reasons.

3.8.7 In December 2005, the Minister for Transport announced a change to the preferred corridor for the Southern and Western Leg of the proposed scheme. As described in Chapter 2 (Need for the

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Scheme), this involved further consideration of trunk road strategies and objectives and led to the development of additional scheme specific objectives for the AWPR, namely:

- Improve access to an around Aberdeen to improve transport efficiency and support the industrial areas in the City and the area to the north and west of Aberdeen (Economy and Employment);
- 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 (Environment and Accessibility);
- Reduce traffic on urban radial routes reducing noise and air pollution and creating opportunities for pedestrianisation in the City Centre (Environment and Accessibility);
- Provide access to existing and planned park and ride and rail facilities around the outskirts of the City encouraging modal shift (Integration);
- Increase opportunities to maximise bus lanes and other public transport priority measures (Integration); and
- Improve road safety over a wide area through the reduction of traffic on local roads (Safety)

3.8.8 The revised corridor was a combination of the Milltimber Brae and Peterculter / Stonehaven routes presented at the public exhibitions. This provides a peripheral route around the city and a fast link from the A90 at Stonehaven to take orbital traffic to the North and West of Aberdeen. The line announced, which was indicative of a corridor, is shown in Figure 3.21.

3.8.9 The reasons for choosing the Milltimber Brae route and Fastlink are described further in a separate Consolidation Assessment Report.

3.9 AWPR Preferred Route Development 2005 – 2006

3.9.1 As described in Chapter 1 (Introduction) the preferred scheme is comprised of three sections:

- Northern Leg: between North Kingswells and Blackdog;
- Southern Leg: between Charleston and North Kingswells; and
- Fastlink: between Stonehaven and Cleanhill.

3.9.2 Development of the Southern Leg and Fastlink was undertaken from December 2005 onwards. The refinement of the Northern Leg and options considered for the Southern Leg and Fastlink are described below.

Northern Leg Refinement

3.9.3 As described in section 3.8 above, the Northern Leg was refined between Kingswells and Blackdog as part of the Murtle Route following public consultations. These modifications resulted in the proposed scheme described in more detail in Chapter 4 (The Proposed Scheme).

Southern Leg and Fastlink Development

3.9.4 Development of the Southern Leg and Stonehaven Fastlink followed a three stage process as follows:

- Initial Assessment;
- Final Assessment; and
- Route Refinement.

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3.9.5 The Initial Assessment and Final Assessment stages led to the selection of a preferred route for the Southern Leg and Fastlink. The preferred route was further developed in the Route Refinement stage.

Initial Assessment

3.9.6 Following the announcement in December 2005 a number of options were identified within the broad route corridor following a desk and field based constraints study exercise. These options were then subjected to environmental, engineering and economic assessment to facilitate selection of a narrowed route corridor that was taken forward to the Final Assessment stage. The assessments undertaken were described as a 'negative' assessment, where particular options or parts of options were suspended from consideration due to them being significantly less advantageous than other options that remained available. This process was undertaken by making a series of decisions based on the information gathered as part of the assessment process. The process is recorded in a separate Initial Assessment Report.

3.9.7 The broad route corridor was divided into the following three sections to facilitate the development and assessment of route options:

- Southern Section – Stonehaven to Berry Top;
- Central Section – Berry Top to River Dee and east to A90; and
- Northern Section – River Dee to North Kingswells.

Southern Section

3.9.8 Five options were developed within this section as described in Table 3.15 and shown on Figure 3.22.

Table 3.15 – Southern Section – Route Options

Option	Description
Green Option	On-line of B979
Blue Option	Off-line from B979, west of Red Moss
Red Option	Off-line from B979, east of Red Moss, west of Cookney, west of Berry Top
Orange Option	Off-line from B979, east of Red Moss, east of Cookney, east of Berry Top
Purple Option	Off-line from B979, east of Red Moss, east of Cookney, west of Berry Top

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3.9.9 The decisions made in the initial assessment of the Southern Section are given in Table 3.16 below.

Table 3.16 – Southern Section Initial Assessment Decisions

Decision	Description
Decision 1 Green Option	<p>The Green Option was considered significantly less advantageous than other options because:</p> <p>It entailed an on-line up-grade of the B979 resulting in significantly more properties demolished and remaining in close proximity;</p> <p>It would not provide local access and as such a parallel all-purpose road would be required with resulting cost and further impacts on properties;</p> <p>The current B979 was below the required alignment, pavement and drainage standards, requiring extensive improvement works and significantly reducing the length which could be incorporated into the proposed scheme; and</p> <p>It ran close to the BP and Shell pipelines over a length of approximately 1.5km, crossing each pipeline twice and requiring containment measures to address the risk of errant vehicles impacting with the pipelines.</p> <p>As a consequence of the above, it was recommended that the Green Option within the Southern Section should not be taken forward for further consideration.</p>
Decision 2 Blue Option	<p>The Blue Option was considered significantly less advantageous than other options because:</p> <p>It passed through an area of peat associated with the Red Moss Special Area of Conservation (SAC) and may impact on groundwater movement; and</p> <p>It ran close to the BP and Shell pipelines over a length of approximately 5.5km, crossing each pipeline twice and requiring a significant length of containment measures to address the risk of errant vehicles impacting with the pipelines.</p> <p>As a consequence of the above, it was considered that the Blue Option within the Southern Section could only be taken forward with a modification to the west in the vicinity of Red Moss SAC.</p>
Decision 3 Red Option	<p>The Red Option, between Cookney and Westside, was considered significantly less advantageous than other options because:</p> <p>It passed within the catchment area of the Red Moss SAC and could affect the integrity of the SAC by cutting off surface and sub-surface flow; and</p> <p>It passed to the west of Cookney in deep cutting requiring property demolition and considerable landscape and severance impacts.</p> <p>As a consequence of the above, it was recommended that the Red Option, between Cookney and Westside, within the Southern Section should not be taken forward for further consideration.</p>
Decision 4 Purple Option	<p>The Purple Option, between Cookney and Westside, was considered significantly less advantageous than other options because:</p> <p>It passed within the catchment area of the Red Moss SAC and could affect the integrity of the SAC by cutting off surface and sub-surface flow.</p> <p>As a consequence of the above, it was recommended that the Purple Option, between Cookney and Westside, within the Southern Section should not be taken forward for further consideration.</p>

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Central Section

- 3.9.10 Five options were developed within this section as described below in Table 3.17 and shown on Figure 3.23.

Table 3.17 – Central Section – Route Options

Option	Description
Green Option	From Westside, junction at Burnside, west of Kirkton of Maryculter, crosses River Dee west of Maryculter Bridge, connects to A90 via Burnhead. The link to the A90 can connect to Charleston either north or south of Hare Moss, or to Schoolhill.
Blue Option	From Westside, west of Kirkton of Maryculter, junction at Kingcausie, crosses River Dee east of Maryculter Bridge, connects to A90 via Craingles Wood. The link to the A90 can connect to Charleston either north or south of Hare Moss, or to Schoolhill.
Red Option	From Westside, junction at Burnhead, east of Kirkton of Maryculter, crosses River Dee east of Maryculter Bridge, connects to A90 via Burnhead. The link to the A90 can connect to Charleston either north or south of Hare Moss, or to Schoolhill.
Orange Option	From Crossley, junction at Burnhead, east of Kirkton of Maryculter, crosses River Dee east of Maryculter Bridge, connects to A90 via Burnhead. The link to the A90 can connect to Charleston either north or south of Hare Moss, or to Schoolhill.
Purple Option	From Westside, junction at Craigend, crosses River Dee east of Maryculter Bridge, connects to A90 via Craingles Wood. The link to the A90 can connect to Charleston either north or south of Hare Moss, or to Schoolhill.

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3.9.11 The decisions made in the initial assessment of the Central Section are given in Table 3.18 below.

Table 3.18 – Central Section Initial Assessment Decisions

Decision	Description
Decision 5 Blue Option	<p>The Blue Option was considered significantly less advantageous than other options because:</p> <p>the proposed junction location at Kingcausie would be close to the River Dee and as a consequence, the north facing slips for a grade separated junction would entail additional structures across the river to carry slip roads;</p> <p>the distance between this junction and the proposed A93 junction would not provide the desirable weaving distance separation and would represent a safety hazard; and</p> <p>should the junction at Kingcausie be at-grade, the length of the Blue Option (including the southern section) would be approximately 0.75km longer than the alternative options and variants thereof, to an at-grade junction at Cleanhill. This increased length would lead to a less operationally efficient and more costly route.</p> <p>As a consequence of the above, it was recommended that the Blue Option within the Central Section should not be taken forward for further consideration.</p>
Decision 6 Schoolhill Options	<p>The option connecting to Schoolhill was considered significantly less advantageous than other options because:</p> <p>it was not as successful at achieving the strategic objective of providing a link between the main residential/commercial areas of Aberdeen and the North East; and</p> <p>it would exacerbate the problems in relation to weaving traffic volumes on the A90 between Schoolhill and Charleston.</p> <p>As a consequence of the above, it was recommended that the Schoolhill Option within the Central Section should not be taken forward for further consideration.</p>
Decision 7 Green Option	<p>The Green Option was considered significantly less advantageous than other options because:</p> <p>it entailed an on-line up-grade of some 3km of the B979 resulting in significantly more properties demolished and remaining in close proximity;</p> <p>over this length it would not provide local access and as such a parallel all-purpose road would be required with resulting cost and further impacts on properties;</p> <p>the current B979 over this length is below the required alignment, pavement and drainage standards, requiring extensive improvement works and significantly reducing the length which could be incorporated into the proposed scheme; and</p> <p>it would involve demolition of either Kippie Lodge or the International School and within the Camphill (Milltimber) Campus, with areas not demolished remaining in close proximity to the route requiring likely relocation of the facility. This demolition and relocation is likely to lead significantly greater costs than those relating to the other options.</p> <p>As a consequence of the above, it was recommended that the Green Option within the Central/Northern Sections should not be taken forward for further consideration.</p>

Northern Section

3.9.12 Three options were developed within this section as described in Table 3.19 below and shown on Figure 3.24.

Table 3.19 – Northern Section – Route Options

Option	Description
Green Option	Crosses River Dee west of Maryculter Bridge, west of B979, west of Countesswells Woods, connects to Northern Leg at North Kingswells junction.
Blue Option	Crosses River Dee east of Maryculter Bridge, east of B979, west of Countesswells Woods, connects to Northern Leg at North Kingswells junction.
Red Option	Crosses River Dee east of Maryculter Bridge, east of B979, east of Countesswells Woods, connects to Northern Leg at North Kingswells junction.

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- 3.9.13 The decisions made in the initial assessment of the Northern Section are given in Table 3.20 below.

Table 3.20 – Northern Section Initial Assessment Decisions

Decision	Description
Decision 8 Red Option	<p>The Red Option was significantly less advantageous than other options because:</p> <p>It was approximately 1.3km longer between the A93 and Kingswells than the alternative option and variants thereof. This increased length would lead to a less operationally efficient and more costly route; and</p> <p>It passed in close proximity of the Kingswells Consumption Dyke SAM.</p> <p>As a consequence of the above, it was recommended that the Red Option within the Northern Section should not be taken forward for further consideration</p>

- 3.9.14 The decisions made for the Southern, Central and Northern Sections had implications for other route options under consideration. Based on Decision 5, the modified Blue Option within the Southern Section (Decision 2; Table 3.16 above) could not be taken forward for further consideration as the length of that option to a junction in the Burnhead area would be approximately 1km longer than the alternative options and variants thereof. This increased length was considered to lead to a less operationally efficient and more costly route.

- 3.9.15 The recommendations from the Initial Assessment were reviewed and accepted by a Partners' Panel comprising representatives of the proposed scheme funding partners. The result of the Initial Assessment was that a number of options representing main options within a narrower route corridor were taken forward for further development and assessment. The reduced corridor and options that remained available for further consideration are shown on Figure 3.25 and listed in Table 3.21 below.

Table 3.21 – Initial Assessment – Remaining Route Options

Option	Description
Southern Section	<p>Red Option, south of Cookney.</p> <p>Orange Option.</p> <p>Purple Option, south of Cookney.</p>
Central Section	<p>Orange Option.</p> <p>Purple Option (including north and south of Hare Moss).</p>
Northern Section	Blue Option.

Final Assessment

- 3.9.16 Further engineering development was undertaken at the final assessment stage to develop the main options further and enable minor variations to the main options to be considered. Further assessment work was undertaken in relation to environmental and engineering issues and costs.

- 3.9.17 The corridor sections considered at the initial assessment stage were used to assess the further options under consideration, however following the Initial Assessment there was only one option remaining between Cookney and Cleanhill Junction. In addition to determining a preferred line for the Southern Leg and Stonehaven Fastlink, the Final Assessment also considered the preferred location of the junction at Cleanhill. The sections considered at the Final Assessment stage were therefore:

- Southern Section – Stonehaven to Cookney;
- Central Section – North or South of Hare Moss (including decision on junction form/priority); and

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- Northern Section – River Dee to North Kingswells.

3.9.18 The Final Assessment of the options was then undertaken as follows:

- likely significant environmental, engineering and economic factors in relation to each option were assessed;
- a further 'Negative' assessment, similar to that carried out at the Initial Assessment Stage was undertaken; and
- a 'Positive' assessment was carried out whereby options were assessed comparatively by means of a cascading series of decisions, leading to identification of the preferred route within each of the Sections described above.

Southern Section

3.9.19 Eight options were developed within this section as described in Table 3.22 below and shown on Figure 3.26.

Table 3.22 – Southern Section – Route Options

Option	Description
Orange Option 1	From the A90 at Megray passing west of Kempstone Hill and Hill of Muchalls, crossing the Burn of Muchalls at Elrick and passing to the east of Cookney.
Orange West Option 2	From the A90 at Megray passing west of Kempstone Hill and Hill of Muchalls, crossing the Burn of Muchalls at South Cookney and passing to the east of Cookney.
Orange East Option 3	From the A90 at Megray passing west of Kempstone Hill and through Hill of Muchalls, crossing the Burn of Muchalls at Elrick and passing to the east of Cookney.
Red Option 4	From the A90 at Megray passing through Kempstone Hill and east of Hill of Muchalls, crossing the Burn of Muchalls at Elrick and passing to the east of Cookney.
Purple Option 5	From the A90 at Megray passing east of Kempstone Hill and crossing the Burn of Muchalls south of Montgatehead and passing to the east of Cookney.
Red/Orange Option 6	From the A90 at Megray passing through Kempstone Hill and Hill of Muchalls, crossing the Burn of Muchalls at Elrick and passing to the east of Cookney.
Orange East/Red Option 7	From the A90 at Megray passing west of Kempstone Hill and east of Hill of Muchalls, crossing the Burn of Muchalls at Elrick and passing to the east of Cookney.
Purple/Red Option 8	From the A90 at Megray passing east of Kempstone Hill and Hill of Muchalls, crossing the Burn of Muchalls at Elrick and passing to the east of Cookney.

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3.9.20 The decisions made in the final assessment of the Southern Section are given in Table 3.23 below.

Table 3.23 – Southern Section Final Assessment Decisions

Decision	Description
Decision 1	Following the 'negative' assessment undertaken, the decision was taken to suspend Options 4, 6 and 8 from further consideration as these options resulted in significant impacts on the Kempstone Hill Complex and Kempstone Hill Cairn (although currently unscheduled, the site is potentially of National Importance in relation to archaeology/cultural heritage and is being assessed for scheduling).
Decision 2	Option 1 was preferred over Option 2 for the following reasons: There are fewer properties within close proximity (100m) of the route thus reducing impact on the local population. It runs close to the BP and Shell pipelines over a significantly shorter length. The cost is lower.
Decision 3	Option 3 was preferred over Option 7 as although there are similar impacts, Option 3 has a reduced cost, primarily due to a lesser volume of earthworks and less expensive structures on the basis of form and complexity.
Decision 4	Option 3 was preferred over Option 5 for the following reasons: The overall landscape impacts are lower. The route is less likely to affect private ground water supplies. The disruption during construction based on the volume of earthworks is estimated to be less. The cost is significantly lower primarily due to greatly reduced earthworks which contribute better to the overall earthworks strategy for the proposed scheme. However, it was noted that Option 3 is likely to have operational impacts on a larger local population.
Decision 5	Option 1 was preferred over Option 3 for the following reasons: There is no demolition required. The impact on important cultural heritage sites is lower.
Recommendation	Based on the decisions made it was recommended that Option 1 be selected as the preferred route for the Southern Section between Stonehaven and Cookney.

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Central Section

3.9.21 Eight options were developed within this section as described in Table 3.24 below and shown on Figure 3.27.

Table 3.24 – Central Section – Route Options

Option	Description
Blue Option 9	From Charleston passing south of Hare Moss and Greenloaning and passing through Cleanhill Wood with the Fastlink connecting to a junction on the AWPR west of Hill of Blairs.
Purple Option 10	From Charleston passing north of Hare Moss and Greenloaning and south of Hill of Blairs and passing through Cleanhill Wood with the Fastlink connecting to a junction on the AWPR west of Hill of Blairs.
Blue Option 11	From Charleston passing south of Hare Moss and Greenloaning and immediately south of Burnhead connecting to a junction on the Fastlink at Blaikiewell.
Purple Option 12	From Charleston passing north of Hare Moss and Greenloaning and immediately south of Burnhead connecting to a junction on the Fastlink at Blaikiewell.
Blue Option 13	From Charleston passing south of Hare Moss and Greenloaning and between Burnhead and Craigentath connecting to a junction on the Fastlink south of Blaikiewell.
Blue Option 14	From Charleston passing south of Hare Moss and Greenloaning and north of Burnhead connecting to a junction on the Fastlink at Blaikiewell.
Purple Option 15	From Charleston passing north of Hare Moss and Greenloaning and between Burnhead and Craigentath connecting to a junction on the Fastlink south of Blaikiewell.
Purple Option 16	From Charleston passing north of Hare Moss and Greenloaning and north of Burnhead connecting to a junction on the Fastlink at Blaikiewell.

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3.9.22 The decisions made in the final assessment of the Central Section are given in Table 3.25 below.

Table 3.25 – Central Section Final Assessment Decisions

Decision	Description
Decision 6	<p>Following the 'negative' assessment undertaken, the decision was taken to suspend Options 9 and 10 from further consideration for the following reasons:</p> <p>These options result in potentially significant ecological impacts on four areas of long established woodland resulting in habitat loss, fragmentation and disturbance.</p> <p>These options also result in potentially substantial landscape impacts on Craingles Hill.</p>
Decision 7	<p>Option 13 was preferred over Option 15 for the following reasons:</p> <p>It passes through less valuable agricultural land.</p> <p>It has lesser ecological impacts, avoiding significant impacts on Greenloaning Long Established Woodland.</p> <p>The southern route would have a lesser impact on the hydrology of Hare Moss as a result of the reduction in watercourse realignments.</p> <p>It avoids the need for reduced standard horizontal curvature, is shorter and provides a more flowing alignment.</p> <p>The cost is lower.</p>
Decision 8	<p>It was noted that Options 11, 13 and 14 all follow the same alignment as they pass south of Hare Moss while Options 12, 15 and 16 all follow the same alignment to the north. As such, taking account of Decision 7, it was considered that the options south of Hare Moss are preferred over the options north of Hare Moss. Therefore, Option 11 is preferred over Option 12 and Option 14 is preferred over Option 16.</p>
Decision 9	<p>Option 13 was preferred over Option 11 for the following reasons:</p> <p>It is further from the local population and reduces severance of the Maryculter East community.</p> <p>It has lower landscape impacts in the Blaikiewell Open Farmland area.</p>
Decision 10	<p>Based on the provision of a dumbbell style grade-separated form of junction, Option 13 was preferred over Option 14 for the following reasons:</p> <p>It is further from the local population and reduces severance of the Maryculter East community.</p> <p>It has lower ecological impacts particularly in relation to long established woodland and Blaikiewell Burn.</p> <p>It impacts on fewer sites of cultural heritage interest.</p>
Decision 11	<p>Based on the provision of an at-grade roundabout form of junction, Option 14 is preferred over Option 13 for the following reasons:</p> <p>The ecological impacts particularly in relation to Cleanhill Wood and Blaikiewell Burn would be reduced by alignment improvements afforded by the introduction of the roundabout.</p> <p>It reduces landscape and visual impacts for the residents of Maryculter East.</p>
Decision 12	<p>Based on the provision of a free flow grade-separated form of junction provision, Option 14 is preferred over Option 13 for the following reason:</p> <p>It provides the only sensible angle for alignment connectivity between the Fastlink and the Charleston Leg of the AWPR.</p> <p>However, it is noted that a free flow junction layout would result in considerably increased environmental impacts as a result of the larger overall junction footprint and the crossings of Blaikiewell and Burnhead Burns.</p>
Recommendations	<p>Based on the decisions made it was recommended that Option 14 be selected should the junction at Cleanhill be an at-grade or free flow form of junction, and that Option 13 be selected should the junction at Cleanhill be a dumbbell style grade-separated form of junction.</p>

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Northern Section

3.9.23 Nine options were developed within this section as described in Table 3.26 below and shown on Figure 3.28.

Table 3.26 – Northern Section – Route Options

Option	Description
Orange Option 17	Passing through the International School and Upper Beanshill, east of Beans Hill, west of Rotten O'Gairn and Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Red Option 17A	A minor variant of Option 17 passing through Kippie Lodge.
Blue Option 18	Passing east of the International School and through Upper Beanshill, east of Beans Hill, west of Rotten O'Gairn and east of Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Purple Option 19	Passing east of the International School and west of Upper Beanshill, east of Beans Hill, Rotten O'Gairn and Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Orange/Purple Option 20	Passing through the International School and Upper Beanshill, east of Beans Hill, Rotten O'Gairn and Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Orange/Blue Option 21	Passing through the International School and Upper Beanshill, east of Beans Hill, west of Rotten O'Gairn and east of Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Blue/Orange Option 22	Passing east of the International School and through Upper Beanshill, east of Beans Hill, west of Rotten O'Gairn and Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Blue/Purple Option 23	Passing east of the International School and through Upper Beanshill, east of Beans Hill, Rotten O'Gairn and Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.
Purple/Orange Option 24	Passing east of the International School and west of Upper Beanshill, east of Beans Hill, west of Rotten O'Gairn and Auchlea Moss before crossing the A944 at East Kingsford and heading on to North Kingswells.

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3.9.24 The decisions made in the final assessment of the Northern Section are given in Table 3.27 below.

Table 3.27 – Northern Section Final Assessment Decisions

Decision	Description
Decision 13	<p>Following the 'negative' assessment undertaken, the decision was taken to suspend Option 17A from further consideration for the following reasons:</p> <p>It would require the introduction of a considerable reduction in horizontal design standards within the vicinity of Milltimber Junction with consequent safety implications.</p> <p>It would pass close to residential facilities within the Camphill (Milltimber) Estate resulting in exacerbated noise and visual impacts.</p> <p>It would render the Kippie Lodge golf course unusable</p> <p>It would require demolition of Milltimber Farm and the associated buildings.</p>
Decision 14	<p>Option 20 was preferred over Option 17 for the following reasons:</p> <p>There are fewer properties demolished and within close proximity (100m) of the route thus reducing impact on the local population.</p> <p>It has reduced impacts on watercourses.</p> <p>It has reduced landscape impacts.</p> <p>The disruption during construction is considered to be lower on the basis of earthworks movement and proximity to properties.</p> <p>The cost is lower.</p>
Decision 15	<p>Option 20 was preferred over Option 21 for the following reasons:</p> <p>There are fewer properties demolished and within close proximity (100m) of the route thus reducing impacts on the local population.</p> <p>It has reduced impacts on watercourses.</p> <p>It has reduced landscape impacts.</p> <p>The disruption during construction is considered to be lower on the basis of earthworks movement and proximity to properties.</p> <p>The cost is lower.</p>
Decision 16	<p>Option 22 is preferred over Option 18 for the following reasons:</p> <p>It has reduced ecological impacts in relation to the Auchlea Moss District Wildlife Site (DWS) and Kingshill Woods.</p> <p>It has reduced landscape impacts.</p> <p>The disruption during construction is lower on the basis of earthworks movement and proximity to properties.</p> <p>The cost is lower.</p>
Decision 17	<p>Option 23 was preferred over Option 22 for the following reasons:</p> <p>There are fewer properties demolished and within immediate proximity (50m) of the route thus reducing impacts on the local population.</p> <p>It has reduced impacts on watercourses.</p> <p>It has reduced landscape impacts.</p> <p>It impacts on fewer and less significant sites of cultural heritage value.</p> <p>The disruption during construction is lower on the basis of earthworks movement and proximity to properties.</p> <p>It has more flowing horizontal and vertical alignment.</p> <p>The cost is lower.</p>

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Decision	Description
Decision 18	Option 19 was preferred over Option 24 for the following reasons: There are fewer properties demolished and within immediate proximity (50m) of the route thus reducing impact on the local population. It has reduced impacts on watercourses. It has reduced landscape impacts. The cost is lower.
Decision 19	Option 19 was preferred over Option 23 as there are fewer properties demolished and within close proximity (100m) of the route thus reducing impact on the local population.
Recommendations	Based on the decisions made it was recommended that Option 19 be selected if the International School is to be retained and that Option 20 be selected if the International School is to be demolished and relocated.

3.9.25 The recommendations from the Final Assessment were reviewed and accepted by the Partners' Panel. Further decisions were required in relation to the location and form of the junction at Cleanhill, the line of the route at Milltimber and the cross section of the Fastlink.

Junction Options

3.9.26 There are five junction locations on the Southern Leg and Fastlink:

- Stonehaven;
- Cleanhill;
- Charleston;
- Milltimber; and
- Kingswells.

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3.9.27 The final assessment stage also considered various junction forms at each location, as described in Table 3.28 below.

Table 3.28 – Southern Leg and Stonehaven Fastlink Junction Options

Location	Option	Description
Stonehaven (A90)	Option 1	Provision of a half diamond dumbbell grade-separated junction with southbound slips connecting to a roundabout with new link road over the railway and retention of the existing loop for northbound traffic.
	Option 2	Provision of a half diamond grade-separated junction with southbound slips connecting to the B979 and retention of the existing loop for northbound traffic.
Cleanhill (Southern Leg/ Stonehaven Fastlink)	Option 1	Provision of a half priority/dumbbell grade-separated junction.
	Option 2	Provision of a free flow grade-separated junction.
	Option 3	Provision of an at-grade roundabout junction.
Charleston (A90)	Option 1	Provision of a two-bridge grade-separated junction.
	Option 2	Provision of a single bridge signalised priority grade-separated junction.
	Option 3	Provision of a full diamond dumbbell grade-separated junction.
Milltimber (A93)	Option 1	Provision of a full diamond dumbbell grade-separated junction located between the A93 and Contlaw Road.
	Option 2	Provision of a split diamond grade-separated junction with north facing slips on the A93 and south facing slips on the B9077.
	Option 3	Provision of a looped dumbbell grade-separated junction located between the A93 and Contlaw Road.
Kingswells (A944)	Option 1	Provision of a single bridge signalised priority junction.
	Option 2	Provision of a two-bridge grade-separated junction.

3.9.28 The junctions were assessed considering traffic, environmental, engineering and economic factors to enable a decision to be made regarding the junction form to be provided in the proposed scheme. The decisions made are listed below.

- Stonehaven – Option 1 was preferred as it performs better in traffic terms while still retaining as much of the existing layout as possible, improving constructability.
- Cleanhill – The form of junction at Burnhead was considered dependant on further decisions in relation to route choice and additional assessment work on the junctions under consideration.
- Charleston – Option 2 was preferred as it performs as well as Option 1 in traffic terms and requires less land and only one crossing of the A90, reducing costs and improving constructability.
- Milltimber – Option 3 was preferred as it minimises demolition in Milltimber and additional traffic volumes on the B979 past the Camphill Community while also reducing land take.
- Kingswells – Option 2 was preferred as it performs significantly better in traffic terms and minimises the widening and consequent property frontage impacts along the A944. It also allows off-line construction of the structures, improving constructability.

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Southern Leg and Fastlink - Further Decisions

- 3.9.29 As described above, further decisions were required to confirm the location and form of the junction at Cleanhill and the line of the route at Milltimber. The decisions made are listed below.
- The funding partners confirmed that the Option 14 for the Central Section should be the preferred route at this location as it resulted in reduced landscape and visual impacts on the properties at Burnhead. Further analysis of the overall performance, impact and cost of the junction was undertaken and the at-grade roundabout selected as the preferred junction form.
 - Following consideration it was decided that the route would follow Option 20 through the present site of the International School at Milltimber. This option reduced demolition of residential property in the area but will necessitate the relocation of the school. Further details regarding the consideration of this decision are provided in the separate Consolidation Assessment Report prepared by Transport Scotland.
 - Following consideration it was decided that the cross section of the Fastlink would be dual two lane carriageway. Details regarding the consideration of this decision are provided in the separate Consolidation Assessment Report prepared by Transport Scotland.
- 3.9.30 The preferred route is shown in Figure 3.29.

Route Refinement

- 3.9.31 Development of the preferred route for the Southern Leg and Fastlink continued taking consideration of environmental, engineering, traffic and economic factors. Changes to the route are summarised in Table 3.29 below.

Table 3.29 – Southern Leg and Stonehaven Fastlink Route Refinement

Location	Route Variation
Horizontal Alignment	Various minor changes were made to the horizontal alignment of the route in order to reduce the scale of earthworks required and reduce environmental impacts. The most significant change occurred on the Stonehaven Fastlink to the north of Stonehaven Junction where the route was realigned slightly further to the west from that selected at the Final Assessment stage.
Vertical Alignment	Various changes were made to the vertical alignment of the route in order to reduce the scale of earthworks required and reduce environmental impacts.
Side Roads	Side roads were developed in greater detail across the route in consultation with the relevant local authorities.
Footpaths	Facilities for Non-motorised Users (NMUs) including pedestrians, equestrians and cyclists were developed further in consultation with local access groups and the relevant local authorities. This included inclusion of bridges to facilitate access across the route.
River Dee Crossing	Options were considered for the bridge across the River Dee, including consideration of environmental factors such as the SAC status of the river, bridge aesthetics, flooding and costs.
Junction Refinement	Minor changes were made to the junctions in order to accommodate changes to the anticipated volumes of traffic. The most significant change occurred at the Stonehaven Junction where the slip roads were relocated to the east of the A90 between the existing A90 and the Aberdeen to Dundee railway line to improve connectivity for trunk road traffic. This change also requires the replacement of the existing bridge that carries the A90 over the B979.
Farm Access	Access roads for farms, including several bridges to carry farm traffic across the route were included.

- 3.9.32 The route described above was assessed in the Environmental Statement published in December 2006.

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3.10 AWPR Preferred Route Refinement 2006 – 2007

- 3.10.1 Refinement of the preferred route described in the December 2006 ES was undertaken taking consideration of environmental, engineering, traffic and economic factors. The most significant changes related to the A96 Junction and were due to changes in traffic forecasts for the scheme. Other changes were relatively minor in nature and related to side roads, accesses and development of detailed mitigation measures. Changes to the route from this refinement stage are summarised in Table 3.30 below.

Table 3.30 – Preferred Route Refinement

Location	Route Variation
Northern Leg	
A96 Junction	Following consideration of environmental, engineering, traffic and economic factors, the grade separated junction on the A96 was changed to a large diameter at-grade roundabout. In conjunction with this the grade separated junction at South Kirkhill was removed and the Chapel of Stonewood – Kirkhill Road realignment was deleted.
A90 North Junction (Blackdog)	Following consideration of engineering and safety factors, the access to Blackdog was changed. The access to Blackdog at North Tarbothill was removed and replaced with an access road connecting to the grade separated roundabout at the A90 North Junction.
Access	Alterations to several accesses were made including Lochills Farm and Wester Hatton Cottages and additional accesses at Harehill included.
Southern Leg	
Charleston/Duffshill	A side road between Whistlebrae and Schoolhill was included to cater for local access. In conjunction with this the side road at Duffshill was removed and replaced with a bridge to accommodate agricultural traffic and other non-vehicular traffic.
River Dee Crossing	The River Dee crossing was changed from a bow-arch style bridge to a viaduct style bridge.
Access	Minor access road realignments were made and other access roads and field accesses were included along the scheme.
Fastlink	
Access	Minor access road realignments were made and other access roads and field accesses were included along the scheme.

- 3.10.2 These modifications resulted in the proposed scheme as assessed within this ES. The route described above is shown on Figure 3.30 and the scheme proposals are described in more detail in Chapter 4 (The Proposed Scheme).