1. INTRODUCTION

1.1 Introduction

This Environmental Statement (ES) for the A77 Symington and Bogend Toll junction improvement scheme has been prepared on behalf on Transport Scotland.

European legislation (EC Directive 85/337/EEC as amended by EC Directive 97/11/EC) provides the framework for the Environmental Impact Assessment (EIA). In Scotland, this is transposed into domestic law by the Environmental Impact Assessment (Scotland) Regulations 1999 which will apply to the ES for the Scheme. The findings of the EIA for this study are summarised in the Environmental Statement. Representations on this document should be addressed to:

The Chief Road Engineer
Transport Scotland
Buchanan House
58 Port Dundas Road
Glasgow
G4 0HF

Written responses are invited within 6 weeks of the advertised date of publication of the ES. A non-technical summary has been published to accompany this document and is available free of charge.

The ES is available for public viewing at the above address and at locations listed in the non-technical summary.

1.2 Background to the Scheme

The A77 dual carriageway at Symington and Bogend Toll is located in South Ayrshire between Kilmarnock and Prestwick. It forms part of the Glasgow - Stranraer Trunk Road (M77/A77), which is the main road link from Glasgow and the Central Belt to Ayrshire and on to ports serving Northern Ireland. The Trunk Road also serves to access Glasgow International Airport from the southwest and Glasgow Prestwick International Airport, which carries increasing levels of passenger and freight transport, from the north. In addition to its essential strategic role, the A77 within the Study Area serves as part of the local road network, providing access to the local centres of Ayr, Prestwick, Troon and Kilmarnock for employment, shopping and recreation activities.

The A77/M77 route is an important part of the Scottish Trunk Road network and efficient operation of the road is essential for the economic development of southwest Scotland and maintaining distribution links between Scotland and Ireland.

With the completion of the M77 extension from Malletsheugh to Fenwick in 2005, the 6.3km of dual carriageway between Dutch House Roundabout and Spittalhill Interchange now has the lowest level of road layout standard between Glasgow

and Ayr. To the north of Spittalhill Interchange, the route is a fully grade-separated dual carriageway, with the section north of Kilmarnock being constructed to motorway standard. South of Dutch House Roundabout, the route is dual carriageway with major junctions formed by at-grade roundabouts with other junctions and accesses kept to an absolute minimum. In addition, the sections to the north and south of the Study Area have a higher standard of vertical alignment resulting in generally greater forward visibility.

The A77 within the Study Area is characterised by the presence of direct access to the carriageway. There are six major/minor priority junctions with associated openings in the central reserves, principally at B730 Bogend Toll and at Symington village, which is served by two junctions. Overall there are 13 crossing points in the central reserve and some 19 private accesses to farms, dwellings and businesses, as well as numerous field accesses.

There has been much concern expressed in recent years over the safety of the junctions accessing the dual carriageway, in particular the number and severity of accidents within the study area. With reference to the accident statistics, a substantial reduction can be achieved by reducing the number of conflicting vehicle movements at junctions and accesses and at the associated central reserve openings. This can be achieved by closing the central reserve, providing grade-separated junctions at selected locations and closing many of the remaining junctions and accesses onto the A77. It is anticipated that the ongoing expansion of Glasgow Prestwick International Airport and the recent completion of the M77 Extension will result in additional traffic using the M77/A77 route, reducing the average gap between vehicles and making turning manoeuvres more difficult.

In March 2001, the Minister for Transport announced a junction improvement scheme to provide a roundabout on the A77 at Symington. South Ayrshire Council was instructed to carry out public consultations, which lead to an exhibition of proposals in Symington in August 2001. Following that, a number of scheme options were analysed by the Council and reported to the Scottish Executive such that three outline strategies were considered:

- At-grade roundabout(s) on the A77;
- Discrete grade separation of existing junctions;
- Combination of an at-grade roundabout and grade separation.

South Ayrshire Council's feasibility study work cumulated in a further public exhibition of a Preferred Scheme in Symington in July 2004, this time a grade-separated solution. The Scheme was well received by the local community who were generally supportive and made constructive comments on how the proposals should be developed.

In October 2004, Scott Wilson Scotland Ltd was commissioned by the Trunk Roads Design & Construction Division of the Scottish Executive (now represented by Transport Scotland, the national transport agency for Scotland) to further develop and assess improvement options within the study area and to progress a Preferred Scheme towards construction. The study area is shown in Figure 1.1 – Scheme Location Plan.

The Scheme has been developed in accordance with Standard TD 37/93 *Scheme Assessment Reporting* of the Design Manual for Roads and Bridges (DMRB). Details of the Scheme, its development and the Scheme objectives are discussed in Chapter 2. Due to the extensive feasibility work carried out by South Ayrshire Council on options for the Scheme, a formal preliminary Assessment Report was not required for Stage 1 Assessment. Nevertheless, the previous work was reviewed at the Stage 2 Assessment; the review being carried out by means of a STAG Part 1 Appraisal in accordance with the Scottish Transport Appraisal Guidance, September 2003.

The design team originally investigated a number of possible solutions. Subsequent engineering and environmental investigations have identified that some of the strategies are unsuitable for further consideration and one option has been chosen as the best overall solution for the upgrading of the A77, which is the Scheme that is the subject of this ES.

1.3 Purpose of the Environmental Statement

The purpose of the Environmental Statement is to provide supporting information for the publication of statutory orders and to comply with the Scottish Ministers' determination that the Scheme should be the subject of an EIA. Throughout the ES, the A77 Symington and Bogend Toll improvement proposals are referred to as the Scheme. It should be noted that the improvement layout shown in this ES is a conceptual design and would be subject to further detailed design prior to construction on site. The main aims of the EIA process are:

- To ensure that there will be a full consideration of the likely environmental effects of the Scheme in a way that enables both the importance of the environmental effects and the scope for mitigating these to be properly evaluated; and
- To allow the public, statutory agencies and other bodies to comment on the proposals, taking account of their environmental concerns

1.4 Scoping

As part of the consultation process, a scoping report was prepared (A77 Symington and Bogend Toll Scoping Report, August 2006). This report identified key issues to enable the scope of the EIA to be determined. It was recognised that adverse impacts are likely to occur during the construction and operation of the proposed Scheme. Some impacts will be short term, for example during construction, and others may be permanent, for example land-take, or some may occur as a result of the operation of the Scheme, such as ecological effects. Effects will also be experienced in some parts of the Scheme, for example land take is required from the re-routing of local accesses. As a result mitigation measures have been designed in the Scheme to reduce adverse environmental impacts. The potential environmental issues identified during the scoping process are shown in Table 1.1. The process of identifying and mitigating impacts has continued beyond scoping to complement the development of the engineering design.

Table 1.1: Potential Environmental Issues Identified

Environmental Issue	Construction	Operation
Air Quality	X	➸
Community	X	➸
Construction Disruption	X	N/A
Cultural Heritage	O	O
Ecology	X	O
Geology and soils	X	O
Land Use	X	X
Landscape and Visual	X	O / X
Noise and Vibration	X	O
Policy Context	O	➸
Water Resources	X	➸

O No significant effect likely
➸ Positive effect likely
X Negative effect possible
N/A Not applicable

1.5 Structure and Methodology of the ES

The ESt is structured in accordance with Volume 11 of the Design Manual for Roads and Bridges. This document contains chapters for each of the specialist environmental topics, namely air quality; cultural heritage; disruption due to construction; ecology and nature conservation; landscape and visual impact; land use; noise and vibration; community effects; vehicle travellers; water resources; geology and soils; and policies and plans. Each specialist environmental topic chapter follows the same format and assessment hierarchy for ease of comparison, unless otherwise indicated within the topic chapter:

- Introduction – introduces the environmental topic.
- Methodology – describes the methodology that has been used in the assessment of the environmental topic. Unless specified as otherwise, the methodology used is generally based on the Design Manual for Roads and Bridges, Environmental Assessment, Volume 11.
- Consultations – details the consultations undertaken by each environmental topic including the concerns expressed as a result of the consultations.
- Baseline – describes the study area used for the topic as well as the baseline information obtained and the date of any surveys undertaken. The baseline

also takes into account any changes, which have been identified as likely to occur either prior to construction or prior to the operation of the Scheme.

- Environmental Effects – identifies the possible range and location of potential impacts before mitigation comprising:
  - Effects of Construction
  - Effects of Operation
  - Significance of environment effect – generally set out in tabular form. The assessment of significance comprises:
  - Consideration of the 'nature of the effect' (positive, neutral and negative effects are identified and evaluated for both the construction and operational stages and whether or not the effects are direct or indirect; secondary; cumulative; short, medium and long-term; permanent and temporary)
  - The 'magnitude of effect' (this considers the scale of change, the degree to which the environment is affected, the likelihood or probability of an effect occurring and the implications of any cumulative effects). For this ES, the magnitude of impact is based on a scale comprising 'Severe' (an acute change to the environment), 'Moderate' (a moderate change to the environment), 'Slight' (a small change to the environment) and 'Negligible' (a negligible change to the environment).
  - The 'sensitivity of the receptor' to the effect based on a scale comprising 'Negligible', 'Low', 'Medium', 'High' and 'Very High'.
- Mitigation – provides a hierarchy of measures to avoid adverse impacts to features where possible (e.g. by modifying the design or location), and where this is not possible then to minimise the scale, significance or degree of impact and finally to offset or compensate impacts where possible e.g. provision of new opportunities for access.
- Residual Impacts – describes the impacts, which are likely to remain after the application of mitigation measures, measured at the year of opening and 15 years after construction.
- Summary – provides a brief summary of the assessment.

The Environmental Impact Assessment (Scotland) Regulations 1999 require that the ES should describe the likely main or 'significant' impacts on the environment of the proposed scheme. In order to determine the 'significance of environment effect', consideration has been given to both the magnitude of effect and the sensitivity of the receptor. This is a qualitative judgement where 'Substantial' (a significant implication for the environment), 'Moderate' (an implication for the environment), 'Minor' (a limited implication for the environment) and 'Negligible' (an insignificant implication for the environment) has been used to describe the 'significance of environment effect', which is set out in a matrix as shown in Table 1.2. Entries in the matrix shaded in grey represent where the main or significant impacts are expected to be experienced.

Table 1.2: Significance of Environmental Effect Matrix

MAGNITUDE OF EFFECT	SENSITIVITY OF RECEPTOR				
	VERY HIGH	HIGH	MEDIUM	LOW	NEGLIGIBLE
SEVERE	Substantial	Substantial	Moderate	Minor	Negligible
MODERATE	Moderate	Moderate	Minor	Minor	Negligible
SLIGHT	Moderate	Minor	Minor	Negligible	Negligible
NEGLIGIBLE	Negligible	Negligible	Negligible	Negligible	Negligible

A glossary of the main terms used throughout this ES is given in Appendix 2 to provide a clearer understanding of the technical language.

A separate Non-Technical Summary has also been prepared, which provides a brief summary of the Scheme and the principal findings of the environmental assessment in non-technical language. In addition, a glossary of common terms and abbreviations included in this ES are included in Appendix 1.

1.6 Information Sourced

Environmental information has been obtained from a wide variety of publicly available sources together with a general knowledge of the study area. The information has been drawn from these sources and updated as necessary during the study. Details of the information sources used in this ES are given in Appendix 2.

1.7 Consultation

The consultation process involved writing to the consultation bodies as defined by the Environmental Impact Assessment (Scotland) Regulations 1999. Discussion of the consultations undertaken takes place in each topic chapter of this report. Consultations were undertaken with the consultation bodies as part of the Scoping Study and a summary of the responses from statutory consultees to this stage of consultation is given in Table 1.3. Non-statutory consultees were also consulted at this stage because of their particular interest in the Scheme, and these responses are reported in Table 1.4. Copies of the correspondence received from those organisations consulted as part of the EIA are included as Appendix 3.

Table 1.3: Consultation responses from statutory consultees (continued over)

Consultee	Comments
Ayrshire Joint Structure Plan and Transportation Committee	Draws attention to Policy Trans3 from the emerging Joint Ayrshire Structure Plan supporting the Scheme on economic and safety grounds and ENV 11, which seeks to minimise air, noise and light pollution from developments.
Forestry Commission Scotland	Awaiting response
Health and Safety Executive	HSE had no comments to make on the Environmental Statement.
Historic Scotland	Scheme will not directly affect any historic environmental assets nor raise any significant issues for their setting. Taking account of existing archaeological information, the nature and scale of the works proposed and current surrounding land use, the risk of these small-scale road improvements disturbing any unrecorded archaeological remains is very low. Consequently there is no need for any archaeological work to be undertaken in advance of construction.
Local BAP and Sustainable Development, South Ayrshire Council	Awaiting response
Scottish Environmental Protection Agency (SEPA)	There are no outstanding issues in the scoping report. SUDS will be required for both the completed road and construction drainage. The discharge from the road drainage may require CAR licenses and there may be discharge pipes serving septic tanks in the area of the works, which may be affected.

Consultee	Comments
Scottish Executive Development Department – Environment Group	Developers should ensure that there are no significant impacts on the water environment during and after construction. They should identify all pollution risks associated with the proposals and identify preventative and mitigation measures. Sustainable Urban Drainage (SUDS) measures should be adopted where applicable for road drainage and the ES should include reference to the arrangements made for proposed temporary and/or long term methods of disposal of foul water. The Water Environment (Controlled Activities) Regulations 2005 have recently come into force, on 1st April 2006. Method statements should be produced for all aspects of site work that may impact upon the environment and SEPA should view method statements in draft form prior to the finalised form.
Scottish Executive Development Department – Fisheries and Rural Development Group	Awaiting response
Scottish Executive Development Department – Planning Division	Acknowledges receipt of letter and copies are being circulated within Executive to interested parties.
Scottish Natural Heritage (SNH) – Ecology/Landscape	SNH states that the scoping report contains enough ecological issues to inform a full ES. Although concern was mentioned over Badgers turning up as road kill in 2003/04, surveys indicate no presence in vicinity. Agree with badger/otter road crossing mitigation measures as numbers may increase in future. In terms of Landscape and Visual issues, the scoping report acknowledges the importance of the pastoral landscape character and points to the importance of a landscape plan, SNH supports this approach.

Consultee	Comments
Scottish Water	Awaiting response
South Ayrshire Council, Outdoor Access Officer	Awaiting response
South Ayrshire Council, Parks and Landscape Strategy	SAC produced tables last year showing viewpoints and comments relating to visual effects. This information has been offered for use within the ES.
South Ayrshire Council, Building Standards	There are a number of watercourses adjacent to the A77 which drain into Dow's Burn and Pow Burn and they seek assurance that any proposed works do not exacerbate any potential flooding downstream. Any new construction should incorporate Sustainable Urban Drainage Systems (SUDS).

Consultee	Comments
South Ayrshire Council, Development Safety and Regulation	South Ayrshire Council (SAC) would like confirmation of the area of agricultural land to be impacted on. The scoping report suggests agricultural land take will be less than 10ha, confirming this figure will rule out further consultation with the Scottish Executive. SAC have also pointed out that the loss of agricultural land would be contrary to the provisions of ENV13 of the Finalised South Ayrshire Local Plan (FSALP). SAC also note that Coodham House is a Category A – listed building and that Coodham House Stables which does not appear in the report, is category B – listed. Coodham East Lodge is a category C – listed building and no reference is made to this building in the scoping report. In addition the report identifies West Lodge at Coodham Estate, which has been demolished. SAC noticed inconsistencies in the report and stated that the discrete junction was the overall preference of South Ayrshire Council. The report stated that only some trees at Coodham Estate are protected by Tree Preservation Orders (TPOs) whereas in fact all trees on the estate are protected by TPOs. Although the Scheme does not impact South Ayrshire Councils adopted and proposed green belt land, recognition should be given to the aims and objectives of the green belt and should any works indirectly impact upon these areas. Consideration should in particular be given to the principles of the green belt that preserve the landscape settings of towns and landscape character. The FSALP includes a housing site at Symington Road North of which there is an outline planning application pending determination. The map in the scoping report does not indicate this and the site may experience some indirect impacts and this should be fully assessed. In terms of other developments, there are ongoing discussions with the council over development of residential properties at Coodham Estate. An application has recently been approved for erection of a warehouse distribution building and associated office accommodation at 23 Kilmarnock Road. SAC state that they see no major obstacles to the proposed works and as noted under Recommendation 1 of the FSALP the Council are strongly in favour of the proposed upgrading of the A77.

Consultee	Comments
South Ayrshire Council, Environmental Health	Awaiting response
South Ayrshire Council, Planning and Transportation	Awaiting response

Table 1.4: Consultation responses from non-statutory consultees (continued over)

Consultee	Comments
Aerodrome Inspector, Civil Aviation Authority	Awaiting response
Amey Infrastructure Services, Scottish Trunk Roads South West	The overbridges would have significant residual impacts on landscape. Concerns that planting trees and shrubs on the embankments could impact further. Further land take around overbridges may be necessary to provide suitable landscape design. Concern raised regarding safety of access from Hansel Village as the construction of overbridges may lead to higher speeds on this section of the A77. Sightlines at Hansel are poor and vehicles exiting find it difficult to find suitable gap in the traffic. Suggest that access to Hansel Village and Langlands could be combined and exit onto C138, which would lead to vehicles joining the A77 at Underwood junction, which has improved sightlines and merging junctions.
Ayrshire Archaeological and Natural History Society	Awaiting response

Consultee	Comments
Ayrshire Bat Group (c/o Dean Castle Ranger Services	Awaiting response
Ayrshire Cyclists Touring Club	Awaiting response
Ayrshire Rivers Trust	Hold no data on fish populations for Pow Burn therefore recommend that an electrofishing survey of the watercourse is undertaken prior to commencement of works. This will ensure effective mitigation measures are put in place.
British Geological Survey	Awaiting response
British Horse Society Scotland	Awaiting response
British Trust for Ornithology, Scotland	Not able to comment. Provide details of ornithological contact/data held if required.
Councillor Hywel Davies, South Ayrshire Council	Awaiting response
Farming and Wildlife Advisory Group (FWAG) Scotland	Awaiting response

Consultee	Comments
Kyle and Carrick Civic Society	Stated that the removal of crossing traffic from this stretch of road can only be an improvement. They also stated that they would have preferred further reductions in access roads but presume this was ruled out due to financial considerations. Nonetheless they welcome the proposed improvements and look forward to their implementation.
Mr Brian Donohoe MP	Awaiting response
Mr John Scott MSP	Awaiting response
National Farmers Union Scotland (NFUS)	Awaiting response
Ramblers Association Scotland	Awaiting response
Red Squirrels in South Scotland	Awaiting response
RSPB Scotland	Awaiting response
Scottish Ambulance Service	Awaiting response

Consultee	Comments
Scottish Badgers	States that there is a badger presence along section of road and that their database holds 5 recorded traffic incidents and this data is available as required. Recommend survey 1km either side of road to identify setts, crossing points and any loss of foraging resource. A Badger Mitigation Plan should address any impacts and associated mitigation. Provided a table of National Grid Ref locations of Road Traffic Accident details.
Scottish Ornithological Club, Ayrshire	No major issues regarding proposal from ornithological viewpoint, providing safeguards are put in place for nesting species assuming work is between March and July. No info available for area of any species that may be seriously affected by proposal.
Scottish Rights of Way and Access Society	The National Catalogue of Rights of Way (RoW) does not show any rights of way in the vicinity of the Scheme. There may however be other routes in area that meet all criteria of RoW but have never been recorded.
Scottish Wildlife Trust	Only Local Wildlife Site that could be affected is Coodham Estate, however it is unlikely that this site would be adversely affected. It was noted that in the past salty drainage water from the A77 has been blamed for damaging some of the trees along the boundary of the estate. Scottish Wildlife Trust encourages the use of native trees and shrubs and locally sourced wildlife seeds for landscaping work to benefit insects and other invertebrates.
Strathclyde Fire and Rescue	Awaiting response
Strathclyde Police Headquarters	Awaiting response
SUSTRANS Scotland	Awaiting response

Consultee	Comments
Symington Community Council	Awaiting response
The Garden History Society in Scotland	Awaiting response
The Royal Geographical Society	Awaiting response
The Vincent Wildlife Trust	Have no records that would be of relevance, as their work in Scotland is currently very limited.
West of Scotland Archaeology Service	Awaiting response