A509 Isham Bypass

Environmental Impact Assessment (Stage 3) Scoping Report

November 2003

Northamptonshire County Council

A509 Isham Bypass

Environmental Impact Assessment (Stage 3) Scoping Report

JOB NUMBER: BI4001			DOC REF:P/GBCBA/BI4001/21/15REP-REV2.4 Revision Date: 28 November 2003			
	Final	M Mc Elvaney	R Atkinson	R Atkinson	S Smith	28/11
	2nd Draft	M Mc Elvaney	R Atkinson	R Atkinson	S Smith	29/09
o	1st Draft	M Mc Elvaney	R Atkinson	R Atkinson	S Smith	18/08
		Originated	Checked	Reviewed	Authorised	Date
Revision	Purpose Description	ATKINS				

Contents

1. INTRODUCTION

GENERAL INTRODUCTION

1.1 This report sets out the scope and content of an Environmental Impact Assessment which is to be carried out by Atkins for Northamptonshire County Council through the existing partnership contract.

1.2 The main focus of this project is the assessment of the preferred route for the A509 Isham Bypass in Northamptonshire. The results of the assessment will be reported in an Environmental Statement.

1.3 Following preliminary assessment of thirteen route options, eight (Routes 1, 2, 5, 6, 8, 10, 12 and 13) were subject to further assessment between November 2002 and January 2003. In February 2003, Routes 2, 5 and 6 were recommended by the Wider Reference Group for further assessment and public consultation.

1.4 The results of the further environmental assessment of the three shortlisted route options were presented in an Environmental Appraisal Report. Having considered this information, together with information on the technical merits of the routes and their economic performance, the County Council's Executive Committee agreed in May 2003 that Route 2 should be the preferred route.

1.5 Route 2 would pass to the west of Isham, commencing at the A14 Pytchley Roundabout and would run southwards to rejoin the A509 Wellingborough Road midway between Hill Top and Great Harrowden.

APPROACH TO ASSESSMENT

1.6 A Scoping Report identifies the major environmental issues which relate to both the construction and the operational phases of the scheme. It sets out the approach to be adopted including requirements for consultation.

1.7 Environmental Impact Assessment is the process of compiling, evaluating and presenting all the significant environmental effects of a proposed development. The need to undertake an assessment of a proposed road scheme is governed by EU Directives 85/337 and 97/11 and the Highways (Assessment of Environmental Effects) Regulations 1999.

1.8 The assessment process is designed to help produce an environmentally sensitive scheme. Early detection of potentially significant adverse environmental impacts will enable appropriate mitigation measures to be built into the design of the scheme at an early stage.

1.9 The assessment will be carried out in accordance with the guidance given in the Design Manual for Roads and Bridges (DMRB) Volume 11 – Environmental Assessment. This entails describing existing environmental conditions and comparing the environmental impacts on the specific topics of the following scenarios:

- Opening Year 2009 (Year 1) without scheme (2009 is the first full year after opening in 2008);
- Opening Year 2009 (Year 1) with scheme;
- Year 15 (2024) without scheme; and
- Year 15 (2024) with scheme.

1.10 The assessment will also be carried out in accordance with the "Guidance on the Methodology for Multi- Modal Studies" (GOMMMS) which was published by the Department of Transport, Local Government and the Regions in 2000 and to which road schemes are to be appraised. Reference will also be paid to "Applying the Multi-Modal New Approach to Appraisal of Highway Schemes" which is a 'bridging document' providing a link between the GOMMMS approach and the DMRB approach on environmental assessment.

SCHEME BACKGROUND

1.11 The village of Isham on the A509 suffers from the effects of through traffic. The Hill Top junction and Great Harrowden crossroads have poor accident records. The A509 south of Hilltop and the crossroads at Great Harrowden are accident hotspots. Northamptonshire Highways Service, working in partnership with Atkins has been working on traffic calming measures to reduce the number of accidents at this location. A 40mph speed limit is now in force through Great Harrowden.

1.12 Through Isham, the observed current traffic flows on the A509 are approximately 21,300, 12% of which are Heavy Goods Vehicles. Between Great Harrowden and Wellingborough, which includes the Hill Top junction, observed existing traffic flows are approximately 22,100 in 2002, 10% of which are HGV's.

1.13 There are currently up to 60,000 vehicles per day on the A14, a dual carriageway, between the A509 and the A6 junctions. It is anticipated that over the next 15 years this will become a three-lane route and carry an estimated 80,000 plus vehicles per day.

1.14 The traffic forecasts (high growth), as presented in the Annex E submission, predict that, if no scheme is implemented, 23,700 vehicles would be travelling on the A509 through Isham in 2007 rising to 27,800 vehicles per day in 2022. This means that if no scheme is implemented, traffic flows through Isham village are likely to increase from the existing traffic flows (2000) by 11% by 2007 and 34% by 2022.

1.15 Analysis has shown that Route 2 would reduce the overall number of vehicles passing through Isham to 7,800 in 2007 (58% reduction) and to 10,800 per day in 2022 (61% reduction overall).

1.16 The volume of traffic predicted to use the new route is above the 13,000 vehicles/day threshold in TA46/97 and the route warrants construction as a dual carriageway.

1.17 Future traffic flows will be influenced by developments in the wider area. A major development is planned for Wellingborough East (WEAST), which should provide 3000 houses, 110 hectares of employment land coupled with the potential generation of 4000 jobs. It is anticipated that such proposals would result in 5,000 additional more vehicles per day on the A509.

1.18 In addition to WEAST, the Draft Milton Keynes and South Midlands Sub Regional Spatial Strategy was launched for public consultation on 18 July 2003. This Draft Strategy proposes 40,000 houses and associated site development works should be accommodated in the towns of Corby, Kettering and Wellingborough by 2021. It also identifies a number of key infrastructure requirements including the A509 Wellingborough – Kettering dualling, being the A509 Isham Bypass and the A509 Isham to Wellingborough Improvement to be implemented through the Local Transport Plan by 2011. The A509 is the key transport corridor serving the Kettering/Wellingborough area. The Annex E submission was prepared before the sub-regional strategy and does not take account of the step-change it proposes, which will influence further traffic flow.

STRUCTURE OF THE REPORT

1.19 Chapter 2 of this report describes the proposed road scheme as far as the current design work allows. Chapter 3 describes the existing situation, potential impacts and approach to assessment associated with different aspects of the environmental assessment. Proposed mitigation measures, outlined through the Stage 2 process which will be incorporated throughout the development of the scheme are described in Chapter 4. The proposed structure of the Environmental Statement is set out in Chapter 5. The programme for the assessment is outlined in Chapter 6.

CIRCULATION OF THE REPORT

1.20 This report is being distributed to members of the Wider Reference Group.

2. SCHEME DETAILS

SCHEME ALIGNMENT

2.1 The proposed route would run to the west of Isham, commencing from the A14 Pytchley roundabout and would run southwards to rejoin the A509 Wellingborough Road midway between Hill Top and Great Harrowden. The length of the bypass would be 4.23km. The road would be dual carriageway, 3.62km in length, from the A14 Pytchley roundabout to the B574 Hill Top Road junction and would continue as a single carriageway to its tie-in to the existing A509 Wellingborough Road. All the side roads would be single carriageway, totalling 1.63km, and at-grade junctions would be required at the junction with the A509 Kettering Road south of the A14 Pytchley roundabout and at the junction with B574 Hill Top Road. These junctions would be in the form of roundabouts. An overbridge would be required where the Orlingbury Road would cross the bypass.

2.2 There would be extensive earthworks required with this route, with cuttings up to 9m deep and embankments up to 10m high. The route would pass within 30m of properties in Fairfield Road and Winston Road, Isham, in an 8m deep cutting. It would pass within 80m of Frisby Lodge, in a 7m deep cutting.

2.3 The road would cross footpaths GW15, GW2, TM3, and TK18 and would cross two tributaries of the River Ise. It may be possible to divert some of these footpaths to combined culvert and pedestrian underpasses at the stream crossings (see paragraph 4.2). Footpath TK18 could be diverted along Hill Top Road or a pedestrian overbridge could be provided. Provisions for the rights of way will be considered prior to the submission of the planning application. Facilities for cyclists will also be considered as part of the scheme design and along the existing road once it is relieved of through traffic.

CONSTRUCTION PROGRAMME

2.4 The scheme is programmed to be constructed in one phase, starting in April 2007 with completion programmed by the end of 2008.

3. ASSESSMENT – ISSUES AND APPROACH

INTRODUCTION

3.1 The assessment will examine the following topics identified in the GOMMMS approach:

- Landscape and Visual Impact;
- Townscape;
- Biodiversity;
- Heritage;
- Noise;
- Air Quality;
- Greenhouse Gases;
- Water Environment;
- Accessibility;
- Integration; and
- Physical Fitness and Journey Ambience.

3.2 In addition, the potential impact of the scheme on land use will be assessed.

3.3 Impacts on human beings are considered principally in terms of the affect of noise and air quality, though water quality and the affect on views from properties are also addressed. Impacts on soil are considered in so far as they relate to the value of the agricultural land. Impacts of the scheme on local geology are not considered likely to be significant as there are no features of geological importance in the vicinity of the site and the engineering design will reflect the prevailing ground conditions. Impacts on climate are only considered in terms of the emission of greenhouse gases – no other climatic effects are likely to occur as a result of the scheme.

3.4 As well as the consideration of environmental impacts when the scheme is operational, the assessment will consider impacts associated with the construction of the road which primarily will be temporary in nature.

3.5 Worksheets will be prepared as provided for in GOMMMS. The results of the assessment will be recorded in an Appraisal Summary Table.

3.6 It is intended that statutory bodies, including the local planning authorities, should be consulted on the draft environmental statement. The public will also be given the opportunity to comment on the draft environmental statement as part of wider consultation on the overall scheme.

LAND USE

Existing Situation

3.7 The land use in the area is predominantly agricultural classified as Grade 2 (very good quality) on the higher ground and Grade 3 (moderate quality) elsewhere. There is no Grade 1 land in the vicinity of the route. The only published soil map of the district is the 1:250,000 Soil Map of England and Wales (Eastern Region) and the soils are described in the accompanying book, *Soils and their Use in Eastern England*. This identifies three soil associations in the area of the route. On the high ground there are brashy, well drained Banbury soils developed in Ironstone. On the valley sides there is the very variable Morton association on outcrops of clays, limestones and loamy deposits, passing downslope to very heavy, wet Denchworth soils where Lias clay outcrops.

3.8 The great majority of the area is under winter wheat, oil seed rape and winter beans, produced in very large fields. There are also a number of sheep and beef cattle enterprises around Isham. Northfield Farm is a poultry enterprise just off Orlingbury Road.

3.9 There are several residential properties close to the route, notably on the western edge of Isham village and off Hill Top Road.

Potential Impacts

3.10 The main impacts of the scheme in agricultural terms are on landtake, severance and disruption to sensitive farming systems such as dairying.

3.11 Seven holdings would be affected by direct landtake, of which the Stage 2 assessment considered there would be a major impact on one and a moderate impact on another.

3.12 There is unlikely to be any direct impact on non-agricultural uses, though such uses could be affected by issues such as emissions, which will be considered in another section of the assessment.

Approach to Assessment

3.13 The assessment will consider the impact of the scheme on agricultural land and the viability of farm holdings and recommendations will be made concerning possible mitigation measures. The assessment will follow the DMRB guidelines for agricultural impact assessment as GOMMMS has not been adapted to agricultural studies.

3.14 The impacts that will be considered include landtake, severance and disruption to sensitive farming systems such as dairying. Where landtake or severance is significant in relating to the overall size of the holding, an estimate will be made of the impact on farm income, using standard gross margin data. Other impacts that will be considered are the potential disruption to drainage and field access.

3.15 The data will be gathered by interviews with affected farmers, supported by walk over surveys if necessary. An important aspect of the farm interviews will be to identify appropriate mitigation measures such as new access arrangements, screening and rerouted drainage.

3.16 The assessment will also consider the impact of the scheme on allocated development land and other recent planning permissions. Consultations will be carried out with relevant planning officers at Wellingborough and Kettering Borough Councils.

LANDSCAPE, TOWNSCAPE AND VISUAL IMPACT

Existing Situation

Landscape

3.17 The Isham study area falls within the 'Northamptonshire Vales' landscape character zone as defined by the Countryside Agency, lying alongside the 'Rockingham Forest' character zone which is to the north of the A14. The scheme is located within the undulating landform of the Ise Valley which in this location is dominated by the towns of Wellingborough in the south and Kettering in the north. The local landforms consist of gently rolling clay, vales and ridges rising to over 100m (AOD). The scheme would pass through an area of good landscape quality.

Townscape

3.18 There is a sensitive balance between landscape, townscape and heritage within the study area. The townscape context within the study area falls broadly into three categories; the towns of Kettering and Wellingborough; the smaller town of Burton Latimer and large village of Finedon; and historic villages which include Isham, Pytchley, Orlingbury, Little Harrowden and Great Harrowden.

Potential Impacts

Landscape

3.19 Route 2 would have a significant adverse impact on the local landscape as it crosses three valleys against the lie of the land, necessitating embankments of up to 10m in height and cuttings down to 9m in depth. The steep embankment and cutting slopes would make the road more intrusive on the surrounding landscape. The two lit roundabouts would have an adverse night time impact. The Stage 2 assessment concluded that views from 82 properties would be adversely affected with Route 2 in Year 1 winter and 80 in year 15 summer; 21 properties would experience a substantial adverse impact.

Townscape

3.20 Route 2 would result in a positive benefit to the townscape of Isham village, as it would reduce the amount of traffic travelling along the A509, improve the pedestrian environment and increase visual tranquillity for properties located nearby. The Conservation Area in Isham would also experience beneficial impacts with the scheme. The context of Pytchley could suffer slightly as there are likely to be views of the route from the eastern outskirts of the village. The context of Great Harrowden Hall could also be slightly affected as Route 2 comes back on the line.

3.21 Landscape proposals will be incorporated into the detailed design which will provide visual screening of unattractive views from local properties, roads and public footpaths. The objective of the landscape mitigation is to integrate the scheme into the surrounding countryside and landscape through sensitive road alignment, ground modelling and planting, and thus reduce the degree of impact identified at Stage 2.

Approach to Assessment

3.22 The landscape and visual impact assessment will be carried out in accordance with the following guidance:

- Guidelines for Landscape and Visual Impact Assessment by the Institute of Environmental Assessment and The Landscape Institute.
- Volume 11 of the Design Manual for Roads and Bridges by the Highways Agency and associated organisations.
- Guidance on the Methodology for Multi-Modal Studies (GOMMMS).

3.23 The assessment will involve the utilisation of the results of the evaluation of existing landscape/townscape quality for the area, through which the scheme will run. Reference will be made to the emerging landscape character assessment being prepared by Northamptonshire County Council. An analysis will then be made of how the scheme would affect the key characteristics of the landscape/townscape and their appreciation from different viewpoints.

3.24 The visual impact assessment identifies the appropriate Zone of Visual Influence for the scheme and will make a selection of representative viewpoints (from properties and public areas) within this area. It will analyse the quality of the existing views from these locations and compare this with its quality if the scheme were built. Adverse or beneficial changes will then be classified.

3.25 The visual impact assessment will examine the impact of a winter's day in the year of the scheme opening, and the road's impact in the summer of the fifteenth year after opening. Changes in visual impact could arise as a result of new roads, buildings, structures and lighting, associated works and changes to vegetation cover.

3.26 An intrinsic element of the assessment will be the supporting illustrations which will include landscape context, character and quality, landscape proposals, visual impact (Year one winter and Year 15 summer) and a selection of photographs. Photomontages will be provided to show the with/without scheme scenarios for key viewpoints.

3.27 The text and illustrations will be supported by environmental impact tables in the form of GOMMMS Worksheets. Conclusive statements and impact assessment values will be incorporated in an Appraisal Summary Table.

BIODIVERSITY

Existing Situation

3.28 There are no statutorily designated or locally designated sites of nature conservation importance that would be directly affected by the scheme. Route 2 passes within 2 km of Big Covert which is a Northamptonshire Wildlife Trust Prime Site. Habitats within the study area can best be described as predominantly agriculturally improved grassland and arable land with hedge field boundaries and blocks of plantation woodland. The River Ise and four of its tributaries cross the study area.

3.29 There is potential habitat for a number of species protected by Schedules 1 and 5 of the Wildlife and Countryside Act 1981 and the Protection of Badgers Act 1992, such as badgers, bats, otters, water vole and white-clawed crayfish in the River Ise corridor as well as potential habitat for great-crested newts in small field ponds within the study area.

3.30 The study area also provides habitat for a number of birds, specially protected under Schedule 1 of the 1981 Wildlife and Countryside Act including barn owl and possibly kingfisher. A range of more common birds will certainly breed in hedges; woodland and scrub throughout the survey area. A number of bird species were observed on the ploughed fields. In particular several skylarks, which is a UK priority BAP species, were observed performing territorial displays on fields near Isham cemetery.

Potential Impacts

3.31 Route 2 would result in the loss and severance of some small areas of woodland, arable land and agriculturally improved grassland with its associated ditches and hedges. Route 2 would involve crossing two tributaries of the River Ise with potential impacts on protected species and severance of habitat. It is estimated that Route 2 would result in the loss of 0.9ha of riparian habitat associated with the River Ise tributaries and approximately 2,200m of hedgerow. Route 2 would also sever Big Covert County Wildlife Site from other areas of adjacent habitat.

3.32 In summary, the proposed route would impact on the ecology of the study area through direct habitat loss, potential severance of habitat and disruption of wildlife corridors during construction. Mitigation measures such as habitat creation and enhancement and protected species mitigation such as badger fencing/badger tunnels and bat boxes will be required to minimise ecological impacts.

Approach to Assessment

3.33 Further work will be undertaken to allow a more detailed and informed assessment of the impacts of the scheme to be made. This particularly applies to protected species and the following ecological surveys will be carried out:

- Badger Survey;

- Water Vole and Otter Survey;
- Bat Survey;
- Reptile Survey;
- Other protected species surveys following walkover survey.

3.34 An extended Phase 1 Habitat Survey will be carried out on the route corridor. This will consider, in particular, habitats along Hardwick Brook which could have implications for severance and species movement related to Big Covert and Ashpole Plantation. Areas which could be disturbed by temporary works/activities will be included in this survey. Hedgerows which may be adversely affected by the scheme will be surveyed to determine their status under the Hedgerow Regulations 1997.

3.35 Further consultation will be carried out with English Nature, particularly with regard to measures for protected species, and with the Northamptonshire Wildlife Trust and local badger and bat groups to ensure that the mitigation proposals are acceptable to all parties.

CULTURAL HERITAGE

Existing Situation

3.36 The proposed route runs along the valley of the River Ise. Settlement potential may be expected in the river valley with particular potential for remains of the Iron Age and Romano-British periods.

3.37 Parts of Isham, Pytchley, Burton Latimer and Finedon are designated as Conservation Areas and have a number of listed buildings. Great Harrowden Hall is a Grade I listed building and parts of its grounds are registered in the Historic Parks and Gardens register of England and Wales. This designation extends into the boundary of the golf course. Both Finedon and Orlingbury Halls are listed buildings. There are known archaeological remains within the area including extensive cropmarks north of the B574 Hill Top Road as well as other areas of known archaeological remains from the prehistoric and Romano-British period.

Potential Impacts

3.38 Route 2 would have a direct impact on an enclosure/pit alignment and ditch visible in aerial photographs which is located just south of the River Ise Tributary. In addition, Route 2 could impact on a number of features which extend into land-take including known archaeological remains of Romano-British and possible prehistoric period just north of the B574 Hill Top Road, west of its junction with the A509. Route 2 may also impact on prehistoric features to the north of the route. Route 2 would have no direct impact on known built heritage including listed buildings. However the setting of the grounds of Great Harrowden Hall could be affected to a limited degree.

3.39 Route 2 would result in the reduction of through traffic in Isham Village, which is designated as a Conservation Area. This would be beneficial to the amenity of the area and would enhance its setting.

Approach to Assessment

3.40 Baseline information (already gathered) on known archaeological and listed building constraints will be checked in the Sites and Monuments Records held by Northamptonshire County Council's Built and Natural Environment service, for a study area approximately 1 km either side of the scheme. Any listed buildings in the study area will be identified / researched.

3.41 Additional documentary/cartographic research will be undertaken in the County Records Office.

3.42 Aerial photographs of the area will be consulted at the County Records Office and at the Built and Natural Environment service to reveal the past land-use of the site

3.43 Published and unpublished information on the archaeological background of the area will be collected to assess the likelihood of discovering previously unidentified remains along the route.

3.44 Archive/other written material will be consulted in local studies libraries and archives

3.45 Information relating to current structures and geotechnical information will be reviewed if appropriate/available.

3.46 A walkover survey will be carried out to identify known constraints, to assess the condition of the route, and to assess the potential for survival of remains as yet unidentified (i.e. buried archaeological remains)

3.47 Consultation will be held with the Local Authorities' Archaeological Representatives to discuss broad issues relating to archaeological potential in the area, and in relation to any specific issues raised during research.

3.48 Based on the results of the desk studies, walkover survey and consultation, it is possible that geophysical surveys or trial excavations may be required at potentially significant sites along the route, to assess further the potential for the survival of buried archaeological remains. This might be necessary if, for example, there has been found to be insufficient information available to clarify to an acceptable degree, the extent or nature of archaeological remains present. The requirements for these elements of work will also be discussed with the Local Authority Planning Archaeologist. Recommendations will be made for mitigation of the impacts of the preferred route on the archaeological resource.

NOISE

Existing Situation

3.49 The route passes through a predominantly rural area where prevailing noise levels are likely to be in the region of 45-50dB LA10,18hr. The principal noise sources will be traffic on the existing A509, and on the A14 at the northern end of the study area.

Potential Impacts

3.50 The Stage 2 assessment concluded that 84 properties would have a reduction in noise levels with Route 2 and 11 properties would experience an increase in noise levels.

Approach to Assessment

3.51 The Stage 3 assessment for noise will fundamentally be an extension of the Stage 2 assessment. The basic methodology will mirror that of the Stage 2 assessment however, the assessment will be undertaken in greater depth.

3.52 A noise assessment of typical properties and relevant locations within 300m of roads where existing traffic changes by 25% will be conducted. Noise levels will be calculated at the points of interest using the DoT's Calculation of Road Traffic Noise, using the traffic flow and traffic and road parameters such as speed and percentage heavy goods vehicles. Calculations will be undertaken for the maximum traffic flow expected on a normal working day 15 years after the opening of the new road. Parallel calculations will be carried out for a Do minimum alternative. The calculated noise level changes will be classified into bands depending upon the ambient noise levels and the scale of the noise level change. The number of properties in each of these bands will be aggregated. The number of properties and the corresponding level of annoyance will then be tabulated.

3.53 The assessment will provide estimates of the existing and future noise levels with and without the proposed scheme 15 years after the opening of the new road. Plans and tables will list the impacts at key and representative properties after mitigation measures such as noise barriers. Noise level changes will also be expressed in terms of the percentage of the population bothered by traffic noise. Those properties eligible for Statutory Insulation under the Noise Insulation Regulations will be indicated.

3.54 The assessment for noise will be based on the structure and results from the stage 2 assessment but augmented with new work to cover the detailed analysis expected for a stage 3 assessment under DMRB Volume 11: Environmental Assessment.

3.55 In order to quantify the scale of changes in noise level and the corresponding annoyance on local communities, which wasn't assessed at the stage 2 assessment stage, the noise level changes (measured in decibels), will be remodelled into bands 1 - 3, 3 – 5, 5 – 10, 10 – 15 and more than 15, in accordance with DMRB guidance. This will provide a more localised understanding of noise impact.

3.56 The impact of noise during construction will also be assessed.

AIR QUALITY

Existing Situation

3.57 Air quality reviews undertaken by the Borough Council of Wellingborough and Kettering Borough Council concluded that nitrogen dioxide and small particles were below the maximum concentrations set by the United Kingdom Air Quality Objective. These assessments were expected to fall further over the next few years. They determined that it was not necessary to declare any Air Quality Management Areas in the vicinity of Isham.

Potential Impacts

3.58 The Stage 2 assessment concluded that Route 2 would result in 423 properties with improved air quality and 59 with worsened air quality. 38 properties are expected to have increases in particulates (PM10), by more than 2 ìg/m³. 38 dwellings would have increases in NO2, of more than 4 ìg/m³. The largest deterioration in air quality predicted for an individual property would still be no more than the variation in background air quality across different parts of the study area.

Approach to Assessment

Local air quality

3.59 Where there are significant changes to the traffic flow on the existing road network, local air quality will be calculated for representative properties within 200m of the road. Similar calculations will be made along the new route. These calculations will be for the existing situation and for the traffic flows expected during the opening year and the worst year in the first 15 years after opening, with and without the proposed new road. In each case the background air quality concentrations will be included. The significance of the changes in air quality will be assessed, by comparing the expected air quality, with the National Air Quality Objectives. Account will be taken of the dates by which the concentrations of particular air pollutants must achieve the Objectives.

3.60 Where, following the stage 2 assessment, there was a deterioration in air quality, the air quality at these locations will be reconsidered and compared with the National Air Quality Standards and an explanation will be given if there are any exceedences.

3.61 Primarily, calculations of air quality, will be by the methodology set out in section 3, part 1 of Volume 11 of DMRB as amended February 2003. If the expected air quality obtained using this approach is found to be close to the air quality criteria then more detailed air quality modelling will be undertaken using one of the models recommended for this process in Review and Assessment: Selection and Use of Dispersion Models DETR Report LAQM.TG3 (00) May 2000.

Regional air quality

3.62 The net contribution of the project to the overall air quality will be assessed, by using the methodology set out in Section 3, Part 1 of Volume 11 of DMRB.

3.63 The assessment for air quality will be based on the structure and results from the stage 2 assessment but augmented with new work to cover the detailed analysis expected for a stage 3 assessment under DMRB Volume 11: Environmental Assessment.

3.64 The impact of construction on air quality will also be assessed.

WATER QUALITY AND DRAINAGE

Existing Situation

3.65 The land around Isham is undulating and is drained by a number of small streams that flow into the southward flowing River Ise. There are also various drains on both sides of the River Ise that drain the flatter area of the floodplain. Route 2 crosses three watercourses – Pytchley Brook, Hardwick Brook and an unnamed watercourse which flows east from Little Harrowden. The route passes over a mixture of non-aquifer and minor aquifer of high to intermediate vulnerability. However, there are no Source Protection Areas within the locality.

Potential Impacts

3.66 With any construction work undertaken close to a watercourse there is an inherent risk of surface water and groundwater contamination. Potential contaminants include fuel oils from mechanical plant, dirty water run-off from the site, cement, site disturbance within the river channel and general debris from the construction site. The risk of pollution can be significantly reduced by the adoption of good working practices and strict adherence to the Environment Agency's Pollution Prevention Guidelines. Timing of any works may also be important so as not to interfere with spawning fish.

3.67 The new road will potentially impact on the water quality of the receiving watercourses, the River Ise and their associated tributaries. Water quality is potentially affected by pollutants from runoff and spray including heavy metals (such as zinc and copper), suspended solids, chloride ions, organics and hydrocarbons. These are derived from road surface and vehicle wear, exhaust emissions, oil, de-icing salts and rubbish. Pollution can also result from spillages and accidents. Contamination can affect surface waters and also groundwater, potentially causing longer-term problems. This could impact on existing uses of the water for amenity, water abstraction and habitats. Pollution control measures may be necessary in the drainage design.

3.68 The hydrology of the receiving watercourses may also be affected by the presence of a new impermeable surface. A new road may increase the volume of runoff that reaches the receiving watercourse and also reduce the time it takes to get there. This has implications for channel stability, aquatic habitats and flooding. Where the movement of any existing channel is required, this may also affect the local hydrological regime. Some attenuation of flows from the road drainage system is likely to be required.

3.69 New development in the floodplain can have implications for flooding both for the new development itself and elsewhere. The effect of the Link Road on the receiving watercourses and their floodplains will require a Flood Risk Assessment to be submitted to the Environment Agency.

Approach to Assessment

3.70 The Guidance on the Methodology for Multi-Modal Studies (GOMMMS) will be used to assess the impacts as part of the Stage 3 Assessment. This sets out the framework in which to assess the attributes of the water environment and their importance, along with the potential impacts of a new road and their magnitude and significance. The Stage 3 Assessment allows more detailed analysis of the chosen route allowing specific impacts and mitigation measures to be identified.

3.71 The existing nature of the water environment was identified during the Stage 2 Assessment through correspondence and consultation with the Environment Agency. Stage 3 will analyse in greater detail the data received from the Agency.

3.72 For the Stage 3 assessment potential impacts of constructing the road will be considered including compliance with relevant guidelines and the timing of the works which may impact on the sensitive nature of the receiving watercourses.

3.73 The potential impacts on water quality were assessed during the Stage 2 Assessment using the established methodology for routine runoff outlined in Construction Industry Research and Information Association (CIRIA) Report 142

3.74 The results of the routine runoff assessment indicated that there would be no water quality problems for the River Ise associated with routine pollution from any of the proposed routes. However, all of the roads would first drain to tributaries of the River Ise. Pollution may be problematic for these watercourses due to limited dilution at times of low flows. The effects of routine runoff will be considered in more detail during the Stage 3 Assessment when more details of the drainage system are known, for example the lengths of road which drain to specific watercourses.

3.75 The spillage risk was also assessed during Stage 2 using the methodology outlined in the Design Manual for Roads and Bridges Volume 11 Section 3 Part 10 (DMRB 11.3.10). The impact is deemed significant if the spillage risk return period is less than 1 in 50 years. The Stage 3 Assessment will involve a more rigorous and comprehensive analysis of the spillage risk assessment as more information becomes available on the drainage design and layout. This will allow more specific impacts to be identified and suitable mitigation measures to be recommended.

3.76 Consultation with the Environment Agency will develop the precise scope for the Flood Risk Assessment which may include a requirement to model the effects of the new road in detail.

INTEGRATION

Existing Situation

3.77 The current development plan for the area is the Northamptonshire County Structure Plan which was adopted in March 2001. The local planning framework is provided by the Wellingborough Local Plan adopted in April 1999 and the Kettering Local Plan adopted in 1995. Kettering Borough Council published a Key Issues Report following consultation in summer 2002 on a series of Issues Papers. The Borough of Wellingborough published its Local Plan Alteration Proposed Modifications Report in September 2003. The main planning policy documents relevant to this scheme are:

- Integrated Transport White Paper (1998);
- PPG1: General Policies and Principles (1997);
- PPG7: The Countryside: Environmental Quality and Economic and Social Development (1997);
- PPG9: Nature Conservation (2001);
- PPG13: Transport (2001);
- PPG15: Planning and the Historic Environment (1994);
- PPG16: Archaeology and Planning (1990);
- PPG25: Development and Flood Risk (2001);
- Regional Planning Guidance for East Midlands (2002);
- Northamptonshire County Structure Plan (2001)
- Northamptonshire Local Transport Plan (2001)
- Kettering Borough Council Local Plan (1995)
- Wellingborough Local Plan (1999)
- Borough of Wellingborough Local Plan Alteration Proposed Modifications (September 2003)
- Milton Keynes and South Midlands Sub Regional Strategy consultation draft (2003).

Potential Impacts

3.78 The Isham Bypass proposal is supported through local transport policies outlined in Kettering and Wellingborough Local Plans and the Northamptonshire Local Transport Plan. The provision of a bypass would also contribute to improving county and local environmental objectives in the village centre of Isham which is designated as a Conservation Area.

3.79 Despite its compliance with transport policy objectives, there would be a degree of conflict with local planning policies which seek to protect open landscape, best and most versatile agricultural land, nature conservation and policies against development in the floodplain.

3.80 Route 2 would conflict with national, regional and local planning policies protecting the best and most versatile agricultural land from inappropriate development. With regard to designated Conservation Areas, Route 2 could slightly affect the setting of Pytchley and to a greater degree, the setting of Great Harrowden Hall. Route 2 would conflict to a lesser degree with land use planning policy as it would not involve construction in the flood plain. In accordance with GOMMS methodology, using a three point scale to determine the overall assessment score, Route 2 is assessed as neutral in terms of land use policy.

Approach to Assessment

3.81 The assessment will primarily be a review of the planning policy assessment carried out at the stage 2 which will take account of any planning policy documents at a national, regional or local level which have recently been published.

3.82 At a national level, the assessment will consider, by means of a desk study, how the scheme addresses relevant issues included in Government planning/transport policy. The degree of consistency or conflict with these statements will be identified and the extent to which the proposal is integrated, as required by GOMMMS, in the wider land use policy framework will be clarified.

3.83 At a local level, the assessment will consider policies and proposals included in the Structure Plan, Local Transport Plan and Local Plans and the degree to which the scheme will facilitate or hinder policy objectives will be assessed as required by GOMMMS. This part will also be carried out through a desk study as well as information gathered from Northamptonshire County Council and Kettering Borough Council on any recent planning applications and unimplemented planning permissions.

TRAFFIC, ACCESSIBILITY, PHYSICAL FITNESS AND JOURNEY AMBIENCE

Existing Situation

3.84 Through Isham, the observed current traffic flows on the A509 are approximately 21,300, 12% of which are Heavy Goods Vehicles.

3.85 At present, the village of Isham experiences a high degree of severance on the existing A509 due to the volume of traffic and level of HGV's which splits the village of Isham in two and raises concern for public safety. The A509 has been designated a red-route by the Northamptonshire Casualty Reduction Partnership with a record of an above average number of injury accidents.

Potential Impacts

3.86 The scheme, by reducing the volume of traffic through the village of Isham would result in a significant improvement to the environment of the village centre and in conditions for pedestrians and cyclists. The scheme would result in a reduction in community severance currently experienced in Isham creating a much less hazardous environment.

3.87 Route 2 would sever five public rights of way. However, the provision for rights of way will be incorporated into the scheme design in the form of diversions or over/under bridges. Footpaths may experience a loss in amenity value due to disturbance of traffic both in terms of noise and changes to rural views.

3.88 Access to bus routes should be made easier and safer. Bus routes along the existing A509 are unlikely to vary with the introduction of the bypass. Bus journey times and punctuality may improve slightly with the opening of the bypass.

3.89 During the construction phase, additional movements of HGVs may use local roads to reach construction sites. Construction activities could also disrupt existing traffic flows during construction of junctions.

Approach to Assessment

3.90 The impact of the scheme on traffic flows will be reviewed at this stage primarily to take account of the sub-regional strategy and also to provide data to inform the assessment of noise and air quality impacts. Consideration will also be given to the potential impact of the scheme on local journeys by modes other than private vehicles and the degree to which severance would occur as required under the 'physical fitness' environmental sub-objective outlined in the GOMMMS approach. The impact of the scheme on the traveller in terms of journey ambience will also be considered.

3.91 The existing modelling work undertaken in providing traffic flows and economic assessments for the stage 2 assessment , has identified the best route alignment in terms of traffic and benefit to cost ratio. Although some detailed coding of the junctions associated with the scheme has been assessed, there will be the requirement to run further modelling assignments once the scheme has undergone the detailed design stage. These will provide up to date data on traffic flows to inform the assessment of noise and air quality impacts. The following scenarios will be modelled with more detailed junction layouts incorporated into the models:

- Do Nothing 2009;
- Do Something 2009;
- Do Nothing 2024;
- Do Something 2024.

4. MITIGATION MEASURES

4.1 The mitigation of potential adverse impacts is intended to be an integral part of the design process and will be informed by continual liaison between engineering and environmental disciplines. The Environmental Statement will outline mitigation measures within each of the environment sub-objectives chapters as well as including a summary of all mitigation measures. Where appropriate, residual impacts persisting after mitigation will be identified.

4.2 The Stage 2 assessment work has identified the following mitigation measures which will be reviewed and amended following the Stage 3 assessment:

- Minimise land take and design accommodation works to safeguard agricultural interests;
- Ensure satisfactory access arrangements to land remaining in agricultural use and maintain agricultural drainage through the restoration of field dykes and drains;
- Modifications to the vertical alignment to reduce visual impacts on adjacent properties and those with longer distance views of the road, visual screening could be incorporated into the detailed design;
- Finishing cutting and embankment slopes to gentle gradients;
- Provision of environmental barriers (such as fences and earth mounds) to protect residential and other sensitive properties from excessive noise;
- Minimising damage to existing vegetation and retention wherever possible. Reinstatement/replacement of existing trees, hedgerows and shrubs lost during the construction phase. Integration of existing vegetation within the landscape proposals;
- Modifications to horizontal alignment to avoid established vegetation, creation of replacement habitats, programming of construction to avoid bird nesting seasons, mitigation measures for impacts on protected species;
- Pollution control measures such as oil and petrol receptors to be installed at sensitive locations such as at Hardwick Brook crossing; attenuation of surface run-off through the application of sustainable urban drainage techniques; balancing ponds which would incorporate ecological enhancement, spillage containment at roundabouts;
- A programme of pre-construction archaeological investigation and recording;
- Ensure the continuity of public rights of way are addressed through the provision of underbridges/overbridges or by means of realignments of rights of way.

4.3 Where appropriate, the design of mitigation measures will be agreed with the relevant statutory bodies.

5. STRUCTURE OF ENVIRONMENTAL STATEMENT

5.1 Discussions will be held with the County Planning, Transportation and Environmental Officer, at an early stage to agree the structure of the Environmental Statement.

5.2 Subject to discussions, the Environmental Statement will consist of three main components:

- **A Non-Technical Summary** – providing a brief description of the scheme and its development, a broad summary in simple layman's terms of the significant issues and impacts likely to arise and mitigation measures to be incorporated into the detailed design;
- **The Main Text** – providing :
  - a detailed description of the scheme;
  - a review of the development of the scheme including the assessment of alternatives;
  - a description of the baseline situation;
  - the detailed method of assessment, including the criteria for assessing the significance of impacts;
  - an assessment of potential impacts during the construction and operational phases;
  - a description of mitigation measures to be incorporated into the detailed design
  - an Appraisal Summary Table.

  The text will be subdivided by topic and illustrated by figures as appropriate. The figures will be presented in a separate A3 bound report;
- **Appendices** – containing technical data to support the main text including the GOMMMS worksheets for each topic.

6. PROGRAMME

6.1 The Stage 3 environmental assessment is programmed to commence in October 2003.

6.2 Key deliverables will include a draft Environmental Statement which should be completed in July 2004 (the programme for which is determined by the need to undertake seasonally dependent ecological surveys). This will be subjected to consultation to ensure that all issues have been properly addressed. Following consultation the Environmental Statement will be finalised by October 2004.

Atkins is one of the world's leading providers of professional, technology based consultancy and support services. In recent years, it has expanded from its historical base in traditional engineering, management consultancy and property services into related technological consultancy and the management of outsourced facilities. With over 14,000 staff worldwide, Atkins has enormous expertise, providing both breadth and depth of knowledge in an extremely diverse range of disciplines.

Our clients are varied and include governments, local and regional authorities, funding agencies and commercial and industrial enterprises. We help our clients to realise their objectives by developing and delivering practical solutions, adding value to their businesses through the application of our experience, innovative thinking and state-of-the-art technology.

Atkins

Wellbrook Court
Girton Road
Cambridge
CB3 0NA

Telephone +44 01223 276002
Fax +44 01223 277529

info@atkinsglobal.com
www.atkinsglobal.com

Client Address

Northamptonshire County Council
Planning, Transportation & Environment
PO Box 163
County Hall
Northampton, NN1 1AX