

**International Association for Impact Assessment
24th Annual Conference, Vancouver, 26-29 April 2004**

Developments in EIA of national highway schemes in the United Kingdom

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Introduction

The Design Manual for Roads and Bridges (DMRB) Volume 11 provides guidance on environmental impact assessment (EIA) requirements for national highway schemes (known as trunk roads) in the United Kingdom (UK), combining procedural and technical advice. DMRB Volume 11 was first published in June 1993 with specific sections revised as required in the intervening period. Users have commended the document and it has had wide and positive application. Volume 11 is the definitive guidance on the environmental assessment of trunk road projects, but sections of the volume are dated and increasingly risk exposing the national road administrations to challenge.

The objective of this paper is to outline the emerging direction of Volume 11. The paper will describe the current Volume 11, provide details of the specific issues to be revised and/or updated, and consider the developing requirement for flexibility in application, including some brief examples.

Context

The national road network in the UK is designed and operated by four trunk road authorities, one for each of the administrations: England, Wales, Scotland and Northern Ireland. The trunk road authorities work within a varied legislative and policy context including:

- the European and international context. The European Community has a rolling 5 year Environmental Action Programme, which has resulted in a significant amount of environmental legislation since the 1970s. Key areas covered include EIA, air quality, noise, nature conservation, water resources and quality, and strategic environmental assessment.
- UK-wide legislation.
- legislation and policy developed within each of the four administrations. This is a developing and complex situation since the devolution of Scotland, Wales and Northern Ireland in 1999.

The responsibility of the trunk road authorities is to manage and maintain the trunk road network, which includes

- planning and design;
- construction; and
- operation and maintenance.

A key document in these operations is the Design Manual for Roads and Bridges, 15 volumes in total, which provides the national procedures, standards and guidance for application across the whole of the UK.

EIA of trunk roads projects

In the early 1960s, the environment of roads was mainly perceived as being the landscape through which the road passed. Awareness of environmental issues increased through the 1960s and 70s. The early 1980s saw the introduction of formal assessment of the environmental effects of roads, sitting alongside the economic and engineering appraisal framework, through the Manual of Environmental Appraisal (MEA) published in 1983.¹

Statutory environmental impact assessment was first required by European legislation in 1985² which took effect in the UK in 1988³. The MEA was updated to take the new legislation into account, and trunk road authorities continued to use it until 1993, when Volume 11 was published. Volume 11 provided procedures for undertaking EIAs in line with the requirements of the Directive and regulations.

Since then, the EIA legislation has been updated with a new European Directive in 1997⁴ and UK regulations in 1999⁵. The key changes were to the types of projects subject to EIA, the requirement to report alternatives investigated, and the introduction of a screening procedure for EIA.

Volume 11

The DMRB sets out the road planning and design process, which is undertaken in 3 stages. Stage 1 is a broadbrush stage, looking at constraints and opportunities and identifying route options to be taken forward for further study. This is done at Stage 2 which involves a limited amount of design. Options are compared with a view to identifying a preferred option. The preferred option is taken forward to a more detailed design stage, and then goes through the statutory consents procedures.

The key factors considered in the planning and design of roads are:

- engineering;
- economics;
- environmental issues; and
- other statutory requirements (e.g. health and safety).

¹ Scottish Traffic and Environmental Appraisal Manual (STEAM) in Scotland.

² Directive 85/337 on the assessment of the effects of certain public and private projects on the environment.

³ For trunk roads, the implementing legislation was the Environmental Assessment (Scotland) Regulations 1988 and the Highways (Assessment of Environmental Effects) Regulations 1988

⁴ Directive 97/11/EC amending Directive 85/337/EEC

⁵ The regulations pertaining to trunk roads were replaced by Environmental Impact Assessment (Scotland) Regulations 1999 and the Highways (Assessment of Environmental Effects) Regulations 1999

Volume 11 provides some general advice on the aims and objectives of the EIA of roads, how the EIA should be reported, how to identify significance of impact, and the principles of mitigation.

The majority of Volume 11 is given over to specific guidance on 12 environmental topics, which reflect the topics identified in the EIA Directive and regulations as they apply to roads:

- air quality
- cultural heritage
- construction
- ecology/nature
- landscape
- land use
- noise and vibration
- community effects, pedestrians, equestrians and cyclists
- water
- geology and soils
- policies and plans

EIA is integrated into the planning and design process, and is a key component in informing the decisions made in the development and design of a trunk road project. Essentially the EIA becomes more detailed as the three stages progress:

- Stage 1 is broad brush, identifying environmental opportunities and constraints. It is at this stage that the avoidance of impacts is most easily achieved and some mitigation principles can be identified. This is mostly undertaken through desk study, with some limited survey work.
- Stage 2 is the comparative environmental assessment of the options. The environmental assessment is more detailed and more survey work is done. A mitigation strategy can be identified at this stage, including outline mitigation measures where appropriate.
- Stage 3 is the detailed environmental assessment of the preferred option and culminates in the publication of an Environmental Statement (where one is required). This is where the majority of the survey work is undertaken, and detailed mitigation measures are identified.

The guidance sets out what has to be done at each stage of planning and assessment, including the outputs. For example, a key output of Stage 1 is a map showing the environmental constraints.

The guidance also identifies where specific methods are to be used. For example, an air quality assessment method was developed specifically for this document. In contrast, for noise Volume 11 refers the reader to other technical documents.

Consultation bodies are identified, and the different statutory bodies and policies are provided for each of the different administrations. This is most noticeable in the section on cultural heritage, where there are very different approaches used in each of the 4 administrations.

Recommendations are also made for mitigation, though specific design advice is provided in Volume 10 of the DMRB, particularly for landscape and ecological design.

References and links to other guidance and policy documents are also provided in each section.

The focus of Volume 11 is on trunk road projects (rather than plans or programmes). It advises on EIA during the planning and design process only, which is completed at the end of Stage 3. (So, for example, there is no advice on implementation of the commitments made in the Environmental Statement.)

The EIA Regulations are focused on the project submitted to the consents procedure. In contrast, Volume 11 is focused on the design procedure, as well as the preferred option taken forward for consent.

Volume 11 Issues

Volume 11 has been updated as needed since 1993, with particular focus on air quality and water. However, there have been significant changes in legislation since then and best practice has evolved as more experience has been gained. As a result, Volume 11 needs to be updated to take these issues into account.

Work undertaken to date has identified the main issues to be taken into consideration in this update:

- need for flexibility
- screening
- scoping
- stakeholder involvement
- legislative/policy changes
- extent/scope of DMRB
- delivery/procurement mechanisms
- integration with other appraisal methods

Many of them result in the need for flexibility within the document. For certain projects the three-stage design process has been found to be rather inflexible when applied to the EIA process. This has resulted in a demand for more flexibility in the way EIA is integrated into design. European legislation on nature conservation is a driver in this area. For example, the new crossing of the Forth Estuary at Kincardine in Scotland is located in a Special Area of Protection which is a site designated to protect waterbirds and their habitats. During Stage 2, in terms of the ecological issues, options were assessed at a level of detail which would usually be undertaken at the preferred option stage. This was done to provide the necessary information about ecological impacts to the decision makers at the time of route choice.

Volume 11 was originally designed to deal with major projects. However, the portfolio of the trunk road authorities has changed since 1993, with a much wider and more diverse range of schemes – including the provision of electronic information. At the same time, the changes to the EIA legislation have introduced requirements for screening which now capture

the majority of schemes, regardless of size and/or scale. In consequence, Volume 11 needs to be able to deal with small schemes as well as large ones.

One way to do this would be through introducing scoping to the Volume 11 process – which is needed in any case to be in line with good practice. At the moment, many Volume 11 assessments provide information on each of the 12 topics, when some of these topics could be usefully scoped out of the process at an early stage.

A significant amount of environmental legislation is emanating from Europe, pertaining to strategic environmental assessment, noise, air quality, and water, amongst others. There are also policy initiatives being taken by the devolved administrations, and policies are sometimes moving in somewhat different directions according to the evolving needs of these administrations. Consideration has been given to whether Volume 11 needs to be able to take account of the different and changing policy context, whilst still providing national advice, or whether separate guidance should be prepared for each administration. One example of the results of devolution is the Scottish Executive's landscape policy "Cost-Effective Landscape: Learning from Nature". This was developed to provide advice on landscape design in particular, and is used as an adjunct to Volumes 10 and 11. Another example of devolution and the divergence of policy and legislation is the inclusion of sustainable development in the Government of Wales Act 1998. This means that the activities of the National Assembly for Wales are to be assessed, at every level, against sustainable development criteria. This includes transport and, again, Volume 11 is assisting in providing the necessary environmental information to be fed into the process.

Included in the changing context are the relatively recent developments in transport appraisal, reflecting changes in government policy. Transport projects are now appraised according to five criteria, one of which is environment. Volume 11 guidance underpins the environmental, social and health aspects of this appraisal process. The changes in appraisal processes are driving demands for changes in assessment techniques and information provision, and Volume 11 needs to respond accordingly.

Users are also demanding more of Volume 11 and would like to see its extent and scope extended. This ranges from the detail of advice provided to the implementation of environmental commitments on the ground, including such tools as environmental management systems and environmental management plans.

Conclusion

Work on the updating of Volume 11 is currently underway. Key decisions have been taken, one of which is that Volume 11 should retain its UK-wide status. Accordingly, flexibility will need to be built in to take account of the different legislative and policy environments within the four administrations. Flexibility will also be built in to the assessment process to take account of the requirements of the project and the receiving environment.

Volume 11 will also be updated to incorporate new legislative requirements and current good practice, and will take on board the experience to date of its implementation. A key issue will be to develop a flexible approach which will satisfy the needs of its users.