THE HIGHWAYS AGENCY

TD 37/93

THE SCOTTISH OFFICE DEVELOPMENT DEPARTMENT

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THE DEPARTMENT OF
THE ENVIRONMENT FOR NORTHERN IRELAND

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which has been issued by the Highways Agency for
use on trunk roads and motorways in England.
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# Scheme Assessment Reporting

**Summary:** This Departmental Standard sets out the general requirements for the reporting of road scheme assessments.

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## REGISTRATION OF AMENDMENTS

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VOLUME 5 ASSESSMENT AND PREPARATION OF ROAD SCHEMES

SECTION 1 ASSESSMENT OF ROAD SCHEMES

# PART 2

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# SCHEME ASSESSMENT REPORTING

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# 1. INTRODUCTION

### General

1.1 This Standard sets out the general requirements for the reporting of scheme assessments by Design Organisations. Advice on the reporting of scheme specific issues not covered in this document will normally be included in the project brief. Where this is not the case, advice should be obtained from the Overseeing Department's Project Manager.

### Scope

1.2 This Standard is applicable to all road schemes within the Overseeing Department's trunk road programme. (In Northern Ireland this Standard will apply to those roads designated by the Overseeing Department.)

### Implementation

1.3 This Standard shall be applied to all schemes which have yet to reach Stage 1 (see paragraphs 2.4 and 2.5). For schemes which have progressed beyond Stage 1, Design Organisations should consult their Overseeing Department's Project Manager for instructions on the applicability of this Standard.

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# 2. ASSESSMENT REPORTING

**The Aim of Assessment Reporting**

2.1 The main aims of the assessment reporting process are:-

- to permit consideration of the likely environmental, economic and traffic effects of alternative proposals, and

- to allow the public and statutory bodies to comment on proposals taking account of their environmental, economic and traffic implications.

2.2 Assessment reports are not intended to replace the more technical reports generated by studies for use within Overseeing Departments. They are, instead, intended to act as a summary of those reports, and their principal audience is the public. Where appropriate, they should refer to the availability of technical reports, but should not normally include them.

2.3 All the information presented in assessment reports should be:-

- unbiased: a factual style should be used, with both advantages and disadvantages of routes or corridors described impartially; and

- easy to read: clear, non-technical language should be used, with the information presented in a logical manner using appropriate maps, diagrams, sketches, etc for illustration.

**The 3 Stages of Assessment and Their Scope**

2.4 At each of the 3 Stages of assessment the objective is to ensure that assessment is sufficient to:-

**Stage 1** - identify the environmental, engineering, economic and traffic advantages, disadvantages and constraints associated with broadly defined improvement strategies.

**Stage 2** - identify the factors to be taken into account in choosing alternative routes or improvement schemes and to identify the environmental, engineeering, economic and traffic advantages, disadvantages and constraints associated with those routes or schemes.

**Stage 3** - identify clearly the advantages and disadvantages, in environmental, engineering, economic and traffic terms, of the Overseeing Department's preferred route or scheme option. A particular requirement at this stage is an assessment of the significant environmental effects of the project, in accordance with the requirements of section 105A of the Highways Act 1980 (England and Wales), Section 20A and 55A of the Roads (Scotland) Act 1984, or Article 39B of the Roads (Northern Ireland) Order 1980, implementing EC Directive 85/337.

Assessment reports are required at the end of each of these three Stages.

2.5 In England, Wales and Northern Ireland, Stage 1 corresponds to a pre-programme entry assessment and Stage 2 corresponds to a pre-public consultation assessment. In Scotland, Stage 1 is known as preliminary assessment and Stage 2 as route option assessment. For all Overseeing Departments, Stage 3 corresponds to assessment prior to the publication of orders (which includes publication of an Environmental Statement) but after the selection of a preferred route.

2.6 Progression through the stages of assessment is not automatic. At the conclusion of Stages 1 and 2 the Design Organisation should present to the Overseeing Department the assessment report for consideration by the Overseeing Department's Project Manager who will notify them of any decision to proceed further with assessment and development work.

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2.5 Outline contents for the assessment reports at Stage 1, 2 and 3 are given at Annexes A, B and C respectively. The Design Organisation should consult the Overseeing Department's Project Manager for clearance before omitting any part of these contents from a report. Specific scheme issues may require additional headings to be included. These will normally be included in the project brief. Where this is not the case, they will be agreed between the Design Organisation and the Overseeing Department's Project Manager.

2.6 The remaining Chapters in this Standard set out, for each Stage, what is required in each section of the assessment report.

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# 3. PREPARATION OF THE STAGE 1 REPORT

**Introduction**

3.1 This should set out clearly the background to the decision to undertake a Stage 1 assessment.

**Existing Conditions**

3.2 This section should summarise the existing traffic, engineering and environmental conditions in relation to the existing highway network, including any special features which can be identified at this stage. Reference should also be made to changes which it is known are due to take place

**Description of Alternative Schemes**

3.3 At this stage only broadly defined improvement strategies have been identified. These should be described in general terms, highlighting major features where appropriate. If essential work is required to allow a do minimum strategy, this should be reported.

*Preliminary Cost Estimates*

3.4 Where it is possible to do so, a broad indication of the costs of alternative improvement strategies should be given. The basis of the estimates and any specific factors allowed for should also be stated.

**Engineering Assessment**

3.5 Only a broad assessment of engineering issues can be made at this stage. The condition of existing road pavements and highway structures should be reported. Topography, hydrology, geology and geomorphology should be considered, and likely problems arising from them, such as difficult ground conditions or difficulties in alignment, should be identified.

**Environmental Assessment**

*Baseline Conditions*

3.5 The appraisal of each potential impact should begin with a description of the relevant baseline conditions over the area which could be significantly affected by any route corridors, but assuming that the scheme is not built. This is discussed in more detail in DMRB 11.4.1.

3.6 For most of the potential impacts the first stage in the assessment will be to map all relevant constraints (for example, population centres, historic buildings, or sites of ecological value). The most important constraints should then be brought together on a single, up to date, large scale Ordnance Survey map (the Constraints Map). Where other aspects of the existing environment could be significantly affected they should also be included.

*Assessment of Environmental Effects*

3.7 By sketching possible improvement strategies on the Constraints Map, an initial assessment of their potential impact can be made. Advice on assessment for different impacts at Stage 1 is given in DMRB.11.3. This level of assessment will give only a broad indication of likely effects, as it takes no account of detailed alignments or mitigation measures.

3.8 The length and detail of the descriptions of effects should reflect their relative importance. Cumulative impacts on a particular location or group of people should also be noted, where appropriate.

3.9 An overall assessment of the importance of the impact on the baseline environment should be provided highlighting any major problems or benefits.

*Mitigation*

3.10 Mitigation cannot be considered in detail at Stage 1. However, particular improvement strategies may suggest mitigation features. Where this is the case, any mitigation aimed at preventing, reducing or offsetting adverse environmental effects should be described. The description should cover the type of mitigation measure, its probable cost, and also indicate its effectiveness, as far as possible.

*Presentation of Key Issues*

3.11 The key issues from the assessment of effects should be brought together in summary form in an Environmental Impacts Table. DMRB 11.4.4 describes how an Environmental Impacts Table should be compiled. Illustrative examples are provided at Annex D. Beneficial impacts should be noted, as well as adverse ones.



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**Sources of Information**

3.12 The source of any information gathered should be recorded.

**Traffic and Economic Assessment**

3.13 The extent of information available at this stage will vary from scheme to scheme, depending upon the nature of the scheme, its relationship with other schemes (local authority as well as trunk road authority) and with development proposals, and the possible role of the scheme as part of a strategy for the route as a whole.

3.14 The following paragraphs outline the minimum requirements for this Stage of the assessment. Where additional work has been carried out, the results should be reported, drawing upon the requirements for Stage 2 for guidance.

3.15 Information presented should be reliable. Where information is known to be less reliable than is usually the case at this stage, clear statements concerning its limitations should be made.

*Existing Conditions*

3.16 For all schemes, currently available traffic flow, turning count and accident data for the trunk road and for relevant local roads should be presented. This should include data from the Overseeing Department's central databases and from local databases where available.

3.17 All traffic flow and turning count data should be adjusted to a suitable common base (see TAM (England, Wales and Northern Ireland) or STEAM (Scotland)) and presented on a map base and in tabular form. For each data item, the dates and collection methods (ie automatic traffic count, manual classified count etc) should be reported.

3.18 Where conditions in the peak periods are of particular importance, traffic flow and turning count data for the peak and inter-peak periods should be presented separately, if it is available.

3.19 Accident data should be summarised to provide values for links and, where appropriate, junctions separately. The data used should cover at least the past three years, (preferably five) provided there have been no changes to the network during that period. Values should be presented as numbers of accidents, together with an indication of severity, on a map base and in tabular form.

3.20 Where it is available, journey time information for the routes being examined should be presented.

3.21 The presentation of data should be supported by a description of existing conditions in both peak and inter-peak periods on the trunk road and, where appropriate, on relevant local roads.

For holiday areas or other locations where unusual traffic conditions occur, a description of conditions during the affected periods may also be appropriate.

*Future Conditions*

3.22 Forecasts of conditions on the existing network should be provided. These forecasts will usually be derived by applying suitable growth factors to base year values. The basis for the forecast growth rates used should be stated, confirming consistency with National Road Traffic Forecasts (NRTF). Forecasts for both high and low growth should be presented. Where appropriate, the results of sensitivity tests based on other forecast growth rates should be reported, together with reasons for doing them.

3.23 Forecasts for two future years should be presented. These will generally be the probable opening year and the fifteenth year after opening.

3.24 Estimates of future daily flows on the existing network should be presented on a map base and in tabular form.

3.25 The risk that the simple techniques likely to have been used at this Stage will provide misleading results is such that projections of future turning movements and peak and inter-peak period flows based on such methods should not normally be presented.

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3.26 Where changes in the surrounding network (trunk or local authority) or in land use can be anticipated, their expected effect on future traffic conditions should be discussed.

*The Effect of Options*

3.27 At this Stage, scheme options will not normally have been identified. However, it may be possible to identify possible improvement strategies to be examined and to make broad estimates of their anticipated traffic and accident effects.

3.28 Where this is the case, these estimates should be presented and discussed, emphasising the uncertainties associated with them.

*Economics*

3.30 Results of economic analysis may not be available at this Stage. However, it will usually be possible to identify potential sources of economic benefits, especially where possible improvement strategies have been identified. Examples include: congested junctions which would be relieved; accident blackspots where conditions would be improved; opportunities for reductions in journey times for certain through movements; etc. There may also be disbenefits - significant construction delays may be unavoidable, for example.

3.31 These sources of benefit (and disbenefit) should be identified in the report. Generally, they will be linked to features discussed in the traffic appraisal, thus reference to the relevant material should be made. However, it will not normally be possible to reliably quantify the economic benefits. Presentation of rough estimates should be avoided, although broad indications (eg high/moderate/low) of the scale of benefits relative to costs may be given.

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# 4. PREPARATION OF THE STAGE 2 REPORT

**Introduction**

4.1 This should report the conclusion of the Stage 1 assessment report and the basis of the decision to proceed further with a scheme.

**Existing Conditions**

4.2 The traffic, engineering and environmental conditions in relation to the existing highway network should be described, including any special features which can be identified at this stage. Reference should also be made to changes which it is known are due to take place. Changes in conditions since the Stage 1 assessment should be indicated.

**Description of Scheme Options**

4.3 At this Stage, the Design Organisation will have identified a wide range of scheme options for improving the road. In consultation with the Overseeing Department's Project Manager, they will have selected those most likely to meet the objectives and limitations of the scheme brief. The scheme options selected will have been assessed in detail and are the subject of the assessment report at this Stage.

4.4 The scheme options should be described and shown on plans no smaller than 1:10,000, so that the routes can be seen in relation to existing topography.

4.5 In some cases, there may be `do minimum' schemes which can be tested as alternatives to carrying out the scheme options. Where this is so, they should be described and illustrated in the same way as the scheme options.

*Cost Estimates*

4.6 Estimated costs for each scheme option (including `do minimum' improvements) should be provided. The basis of the estimates should be given, together with details of any special factors taken into account. Any items of significant high cost should be identified and explained. A breakdown of the estimated costs should be provided, under the following headings: roads, structures; other works; and land. Costs in this section of the report should be presented in current prices.

**Engineering Assessment**

4.7 At this stage, data will have been collected on geotechnics, topography, existing structures and public utilities' installations in the study area. The assessment of each of the scheme options against these data should be reported.

4.8 Each of the scheme options will be sufficiently developed to indicate the approximate dimensions of the embankments and cuttings and the locations of principal structures. These, and any other engineering characteristics should be reported, drawing attention to significant differences between the scheme options. Each of the scheme options should, as far as is possible at this Stage, be assessed for compliance with standards. When departures from standard are envisaged, the justification and implication of them should be reported.

4.9 Throughout the report on the engineering assessment, attention should be drawn to any unusual features or significant engineering difficulties associated with the scheme options.

**Environmental Assessment**

*Baseline Conditions*

4.10 The appraisal of each potential impact should begin with a description of the relevant baseline conditions over the area which will be significantly affected by the scheme, but assuming that the scheme is not built. The area should be defined in a sufficiently broad way to include all features of the environment which could be significantly affected by the scheme. Further guidance on this is given in DMRB.11.4.2.

4.11 The Stage 2 assessment should review and update information relevant to the scheme options gathered at Stage 1. This information should be supplemented by details gathered through site visits. This information should be brought together on a single up to date, large scale Ordnance Survey map.

*Assessment of Environmental Effects*

4.12 Guidance on the assessment of the main effects associated with a trunk road scheme is contained in DMRB.11.3. However, that guidance is not exhaustive, and if other effects not included are likely to be significant, they should also be assessed.

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4.13 The sections of the assessment report describing the assessment of effects should include a reference to the assessment methodologies used and a brief description of their main features. Any descriptions used to indicate the magnitude or significance of an impact should be defined. Any difficulties in compiling or assessing information should be reported.

4.14 The length and detail of the descriptions of effects should reflect their relative importance. Cumulative impacts on a particular location or group of people should also be noted (for example, if several houses would experience large increases in noise level, and new severance and visual intrusion). It may be necessary to add a note in the comments column of the Environmental Impacts Table (DMRB.11.4.4) to highlight such cumulative effects.

4.15 An overall assessment of the importance of the impact on the baseline environment should be provided, highlighting any major problems or benefits.

4.16 Value judgements about the importance of an impact are bound to be made when conducting an assessment. It is therefore important to give as full a factual description as possible of predicted impacts. Where value judgements are made, the underlying assumptions should be described.

*Mitigation*

4.17 Where Design Organisations have agreed mitigation measures with the Overseeing Department's Project Manager these should be described and their purpose and effectiveness stated.

*Presentation of Key Issues*

4.18 The assessment of effects of each scheme option (and, where appropriate, any `do minimum' schemes) should be presented in the assessment report. In addition, the key issues from the assessment of effects of each option should be brought together in summary form in an Environmental Impacts Table. DMRB 11.4.4 describes how an Environmental Impacts Table should be compiled and illustrative examples are provided in Annex D. Beneficial impacts should be noted, as well as adverse ones.

*Sources of Information*

4.19 The sources of information gathered for the assessment should be recorded.

*In Confidence Consultations*

4.20 List those statutory bodies consulted. Where these bodies have expressed their view on the route options "In Confidence", these should not be recorded in the Stage 2 report.

**Traffic and Economic Assessment**

4.21 At this Stage, all scheme options will have been the subject of traffic modelling, forecasting and economic appraisal analyses. However, the nature of the work done will vary, depending upon the scheme, the network affected by the scheme, and the interaction of the scheme with other schemes (local authority as well as trunk) and with development proposals.

4.22 The work will have been reported on in detail in the relevant technical reports on local model validation, forecasting, and economic appraisal. These reports are not formally requested in Scotland. However, the information will have been gathered using guidance provided in STEAM Part B and hence should be reported upon fully. In addition, Technical Memorandum SH2/91 (DMRB 5.1) gives further advice on Reporting of Results in Scotland, including the use of the `Appendix A' Form.

4.23 The scheme assessment report should present a summary of the results of the traffic and economic appraisal work. The following paragraphs set out what is required, covering the following topics: modelling; forecasting; the expected effects of the scheme options; and the economic performance of the selected alternative schemes. The information presented should be sufficiently reliable to enable the relative merits of the selected alternative schemes to be compared. Where this is not the case, explanations of the impact of the less reliable elements must be given.

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*Modelling*

4.24 All schemes require some kind of modelling. At its simplest, this involves no more than adjusting observed data to a common base. At the other extreme, the modelling for a scheme may include sophisticated sub-models for short time periods, or hierarchies of models. A summary of the characteristics of the modelling work should be provided, covering all of the following aspects.

4.25 For all models, the model base units of flow (eg vehicles per 12hr average May weekday) should be clearly stated, and all results presented in those units. If reference is made elsewhere in the assessment report to other units, the relationship between them and the model base units should be clearly stated, and factors provided to enable conversion between the two. For schemes where separate sub-models have been used for short time periods, the periods modelled and their extent (eg AM peak, 08.00-10.00) should be stated.

4.26 The modelled highway network should be clearly shown on a map base. Skeletal links beyond the model study area should not normally be shown, but their presence should be indicated. Where congested assignment models have been used, the locations of junctions where delays have been explicitly modelled should be shown.

4.27 The coding of speeds on the network should be reported, indicating whether fixed or flow-related speeds have been used. Where both types have been used, a map illustrating the location of each type should be provided.

4.28 Where appropriate, the coding of other network characteristics should also be reported.

4.29 For most models, the base trip matrix will be partially or wholly observed. The data collection method used (usually roadside interview) should be stated, and the locations of survey sites should be shown on a map. Where unobserved matrix elements have been synthesised, the method used should be described, and the locations of the synthesised elements should be indicated.

4.30 The main movements in the base matrix should be presented diagrammatically, on a map base. Desire line diagrams will usually be most appropriate, but, in certain instances, assignment of selected single roadside interview station matrices, or of select link matrices, may also be satisfactory.

4.31 The assignment method used should be described, together with the formulation of generalised cost. If assignment is sensitive to the choice of generalised cost formulation, this should be reported. Where stochastic assignment methods have been used, the magnitude of the stochastic element should be reported.

4.32 Where other modelling techniques (eg distribution, mode choice etc) have been used, they should be described, and key numeric parameter values reported.

4.33 The modelled base year flows should be presented on a map base, together with observed validation data, to demonstrate the validation of the base model.

*Forecasting*

4.34 The years for which forecasts have been prepared should be stated. These will generally include the expected opening year and the fifteenth year after opening, but may include other years in some cases.

4.35 For most studies in England, growth factors for car trips will be based on projections from the National Trip Ends Model. The districts and/or counties considered should be stated. Where other sources have been used (eg results from strategic models), consistency with the National Road Traffic Forecasts (NRTF) should be confirmed. A graph comparing study area growth with NRTF growth should be provided.

4.36 In Scotland and Wales, NRTF will have been the main forecasting tool for inter-urban trunk road schemes, but when area wide studies have been carried out, advice will have been provided by the Scottish Office Industry Department's Roads Directorate and Welsh Office Highways Directorate respectively.

4.37 Where developments or other land use changes are expected to occur, their locations should be marked on a map and their effects on the forecast matrices described. Measures taken to ensure consistency with district level constraints should also be described.

4.38 Other adjustments to the forecast matrices (eg to reflect the effects of parking constraints, etc) should be clearly described and their effects on the forecast matrices should also be described.

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4.39 Where limits to growth have been applied, the methods used should be clearly described. Any key parameter values or criteria used should be reported. Where limits to growth differ across the matrix, these variations should be described.

4.40 The development of `do minimum' forecast networks should be reported. All assumed changes to the network other than the scheme options should be described and illustrated on a map base. These may include other schemes (both trunk and local authority), and small scale improvements which are an alternative to the scheme options but which do not merit treatment as a `do minimum' scheme (see the COBA (in England, Wales and Northern Ireland) or NESA (in Scotland) manuals for further guidance).

4.41 Predicted traffic flows (for high and low growth, for the opening year and at least one other forecast year) on the `do minimum' network should be illustrated on a map base. Values should normally be in the model base units.

4.42 Predicted journey times for key routes through the do minimum network should be presented. The routes chosen should usually include the trunk road route which is the subject of the study, together with other major routes which may be affected by the scheme options. The routes chosen should be illustrated on a map base. For schemes using COBA (in England, Wales and Northern Ireland) or NESA (in Scotland) for economic assessment, these journey times should be derived from the COBA or NESA analysis; for other economic assessment techniques, they should come from the traffic model.

*Effects of Scheme Options*

4.43 The effects of all scheme options (and any `do minimum' schemes which have been identified and assessed in detail) should be presented. For each option, the effects in all forecast years and for both high and low growth should be reported.

4.44 Predicted traffic flows on the scheme options and on the surrounding network should be illustrated on a map base. Values should normally be in the model base units.

4.45 Predicted journey times for key routes through the network should be presented for each option. Key routes should normally include all those considered for the do minimum network. For off-line options, at least one route via the scheme should be included. The routes chosen should be illustrated on a map base. Where an option provides substantial relief at certain junctions, this should be reported and the locations of the junctions should be illustrated on a map base.

4.46 Overall changes in the numbers of accidents in the study area should be reported. Where substantial reductions in the numbers of accidents are predicted at specific locations, this should be reported and the locations shown on a map. Warnings about the uncertainty of estimates of reductions in numbers of accidents must always be given.

*Economic Performance of Options*

4.47 The methods used for economic analysis should be described. Where methods other than COBA (in England, Wales and Northern Ireland) or NESA (in Scotland) have been used, the description should cover both the principles (eg fixed or variable matrix) and the practical aspects. Practical matters include: the extent of any time periods not included (eg night-time, weekends); the handling of seasonality; interpolation between forecast years and extrapolation beyond the last forecast year; accident modelling; non-standard values of time, vehicle operating costs etc; and any other significant differences from a COBA or NESA analysis.

4.48 Where the costs of delays during construction and maintenance have been analysed, these should also be reported. If methods other than QUADRO have been used, they should be fully described, explaining any differences between the method used and QUADRO.

4.49 Where some elements of costs or benefits have been omitted from the analysis (eg maintenance delays), the elements omitted should be listed, and reasons given for having omitted them. However, the report should not normally indicate whether these elements would tend to increase or reduce economic performance.

4.50 For each option, the results of the economic analysis should be reported in the form of an Economic Performance Table. The layout of this should be consistent with that of the Environmental Impacts Tables. An illustrative example is given at Annex D.

4.51 Results for both high and low growth should be given; weighted results should not be presented. Results should be presented in two parts: costs; and benefits.

4.52 Costs should be subdivided into the following categories: construction; land; preparation and supervision; and changes in maintenance costs (both traffic related and non-traffic related).

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4.53 Benefits should be subdivided into the following categories: time savings; vehicle operating cost savings; and changes in accident costs. In some cases (eg where one of the components is exceptionally large or small in relation to the other), it may be appropriate to present link and junction benefits separately. Where construction and maintenance delay analyses have been done, the results should be reported separately.

4.54 All costs and benefits in this section of the report should be discounted (the discount rate should be stated) to a common base year, and the results adjusted to the price base for that year. The year chosen should be stated.

4.55 Summary results should be reported and should include: present value of costs; present value of benefits; and net present value.

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# 5. PREPARATION OF THE STAGE 3 REPORT

5.1 The Stage 3 Scheme Assessment Report is divided into two parts: the Environmental Statement; and a report covering all other aspects of the assessment not covered in the Environmental Statement.

**Environmental Statement**

5.2 Environmental information should be presented in the Environmental Statement, discussed in detail in DMRB.11.4.3. For those schemes where an Environmental Statement is not required, the Stage 3 environmental assessment should still be reported. This should generally follow the format and guidance for an Environmental Statement. The Environmental Statement forms a separate part of the assessment report at this Stage. That part of the assessment report dealing with issues other than environmental may include a copy of the Non-Technical Summary (DMRB.11.4.3.3), which is part of the Environmental Statement.

5.3 A brief summary of the legal basis, purpose and composition of the Environmental Statement is provided at Annex E. Further information is provided in DMRB.11.4.3 This Standard provides no further guidance on the Environmental Statement.

**Report on Other Aspects of the Assessment**

5.4 The remainder of this Chapter provides guidance on that part of the assessment report which deals with issues not covered by the Environmental Statement.

*Introduction*

5.5 This should briefly summarise the history of the scheme since the Stage 2 assessment report and set out the basis of the preferred route.

*Existing Conditions*

5.6 The traffic, engineering and environmental condition in relation to the existing highway network should be described where relevant, references should also be made to changes which are known to be due to take place. Changes in them since the Stage 2 assessment should be reported.

*Description of Scheme*

5.7 At this Stage, the preferred scheme option will have been selected This should be described in detail, covering the following points:-

(a) Length and cross section of road.

(b) Line and level related to existing features.

(c) Amount and nature of landtake.

(d) Property demolished.

(e) Volume of surplus excavated material for disposal off-site and/or volume of material required to be brought on site.

(f) Structures to be demolished and/or constructed.

Note that a similar descripton should also appear in the Environmental Statement. Repetition here is justified by the need to ensure that this report is internally consistent.

*Cost Estimates*

5.8 Estimated costs for the scheme should be provided. The basis of the estimates should be given, together with details of any special factors taken into consideration. Any item of significant high cost should be identified and explained. A breakdown of the estimated costs should be provided, under the following headings: roads; structures; accommodation works; works by other authorities; and land. Cost in this section of the report should be in current prices.

*Engineering Information*

5.9 The engineering information provided should include:

a summary of any geotechnical survey information;

drainage issues;

the results of the assessment of structures;



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a review of engineering problems, having regard to ground conditions identified;

significant layout issues, such as proposed departures from standards, and the justification for them;

any probable operational problems.

*Traffic and Economic Information*

5.10 At this stage, the traffic modelling, forecasting and economic appraisal work reported at Stage 2 may have been refined to enable decisions on standards, junction type etc to be made. However, there will not normally be significant changes in the scope of the work, thus the reporting required at this Stage will be similar to that required at Stage 2.

5.11 The reporting at Stage 3 should, therefore, follow the requirements for reporting at Stage 2, with particular attention being given to the issues discussed in the following paragraphs.

5.12 Refinements to the modelling and forecasting since Stage 2 should be discussed, explaining why they were considered necessary and what effect they have had on both traffic and economic results.

5.13 Forecast and economic results should be presented for the do minimum and the scheme only. Results for rejected options should not normally be presented. Where appropriate, supplementary results should be presented to support decisions on standards, junction type etc.

5.14 Reference should be made to the availability of detailed technical reports (on local model validation, forecasting, and economic appraisal) describing the traffic and economic appraisal work.

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# 6. REFERENCES

1. The Design Manual for Roads and Bridges

   Volume 5: Section 1: Assessment of Road Schemes

   SH 2/91 Traffic and Economic Evaluation of Trunk Road Schemes Using the NESA Computer Program (DMRB 5.1) *[for use in Scotland only]*

   Volume 11: Environmental Assessment

   Section 1: Introduction (DMRB 11.1)

   Section 2: General Principles of Environmental Assessment (DMRB 11.2)

   Section 3: Environmental Assessment Techniques (DMRB 11.3)

   Section 4: Reporting the Environmental Assessment (DMRB 11.4)

2. TAM: Traffic Appraisal Manual DOT: 1981

3. STEAM: Scottish Traffic and Environmental Appraisal Manual: SDD: 1986 (Parts C and D are superseded by DMRB 11) *[for use in Scotland only]*

4. NRTF: National Road Traffic Forecasts (Great Britain): HMSO: 1989

5. COBA: COBA 9 Manual: DOT: 1981

6. NESA: NESA User Manual: SDD: 1986 *[for use in Scotland only]*

7. QUADRO: QUADRO 2 Manual: DOT: 1982

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# 7. ENQUIRIES

All technical enquiries or comments on this Standard should be sent in writing as appropriate to:-

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# STAGE 1 REPORT CONTENTS

1. Introduction

2. Existing Conditions

3. Description of Alternative Schemes

   3.1 Description

   3.2 Preliminary Cost Estimates

4. Engineering Assessment

   4.1 Condition of Existing Road Pavements and Highway Structures

   4.2 Preliminary Consideration of:-

   Topography and Land Use

   Geology and Geomorphology

   Hydrology Drainage

   Public Utilities

5. Environmental Assessment

   5.1 Baseline Condition

   5.2 Environmental Constraints

   5.3 Environmental Effects

   5.4 Mitigation

   5.5 Consultations

6. Traffic and Economic Assessment

   6.1 Existing Conditions

   6.2 Future Conditions

   6.3 Effect of Options

   6.4 Economics

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# STAGE 2 REPORT CONTENTS

1. Introduction

2. Existing Conditions

3. Description of Scheme Options

   3.1 Description of Options

   3.2 Cost Estimates

4. Engineering Assessment

   4.1 Engineering Description of Each Option in Relation to:-

   Engineering Standards

   Climate, Topography and Land Use

   Geology, Geomorphology and Ground Conditions

   Hydrology, Hydrogeology Drainage

   Public Utilities

   4.2 Preliminary Consideration of:-

   Structure Required Engineering Standards

   Assessment of Anticipated Departure From Standard

5. Environmental Assessment

   5.1 Baseline Condition

   5.2 Environmental Effects

   5.3 Mitigation

   5.4 Consultations

6. Traffic and Economic Assessment

   6.1 Modelling

   6.2 Forecasting

   6.3 Effects of Scheme Options

   6.4 Economic Performance of Options

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# STAGE 3 REPORT CONTENTS

Part 1: Environmental Statement (for contents, see DMRB 11.4)

Part 2: All Other Aspects of Assessment

1. Introduction

2. Existing Conditions

3. Description of Scheme

   3.1 Description

   3.2 Cost Estimate

4. Engineering Assessment

   4.1 Detailed Engineering Description of Route in Relation to:-

   Engineering Standards, Proposed Departures and the Reason for Them

   Climate, Topography and Land Use

   Ground Conditions, Geology and Geomorphology

   Drainage, Hydrology and Hydrogeology

   Public Utilities

   Structure Required

   Intended Construction Sequence

5. Traffic and Economic Assessment

   5.1 Modelling

   5.2 Forecasting

   5.3 Effects of Scheme

   5.4 Economic Performance of Scheme

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# ASSESSMENT SUMMARY TABLES - ILLUSTRATIVE EXAMPLES

1.1 The attached tables illustrate what is required for Stage 3.

**For Stage 2** the layout should be similar, allowing additional columns to permit all scheme options to be tabulated.

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**GROUP 1: LOCAL PEOPLE AND THEIR COMMUNITIES**

| SUB GROUP | EFFECTS | UNITS | PREFERRED ROUTE | DO-MINIMUM | COMMENTS |
|---|---|---|---|---|---|
| **Commercial buildings used by people:** Retail Premises | Properties demolished | Number | 0 | 0 | |
| | Noise.<br>dB $L_{A10, 18hr}$ | Number of properties experiencing an increase of more than<br>1 < 3<br>3 < 5<br>5 < 10<br>10 < 15<br>≥ 15 | <br><br><br>0<br>0<br>0<br>3 | <br><br><br>12<br>0<br>0<br>0 | The changes in noise are the difference between the forecast for the Published Route for 2010 and the existing levels. The units are dB (A) L10 18hr 6am - midnight. |
| | | Number of properties experiencing a decrease of<br>1 < 3<br>3 < 5<br>5 < 10 | <br><br><br>5<br>7<br>0 | <br><br><br>No Change<br>No Change<br>No Change | |
| | Visual Impact | Number of properties subject to:<br>Substantial<br>Moderate<br>Slight<br>No Change<br>Visual Impact | <br><br>0<br>1<br>0<br>0 | <br><br>No Change<br>No Change<br>No Change<br>No Change | |
| | Severance:<br>(a) Relief to existing severance;<br>(b) Imposition of new severance. | <br>-<br>- | <br>(a) None<br>(b) Slight for DIY City | <br>(a) None<br>(b) None | |
| | Disruption during construction | - | 3 premises within 100m of site both slightly affected | None | |

**ILLUSTRATIVE EXAMPLE AT STAGE 3**

EXTRACT FROM GROUP 1 : LOCAL PEOPLE AND THEIR COMMUNITIES



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**GROUP 2: TRAVELLERS**

| SUB GROUP | EFFECT | UNITS/INTEREST | PREFERRED ROUTE | DO MINIMUM | COMMENTS |
|---|---|---|---|---|---|
| **Traveller Amenity** Vehicle Users' Amenity | Driver Stress | - | Low | Eastbound high<br>Westbound moderate | |
| | View from the Road | - | Agricultural Upland | Agricultural Upland | |
| Pedestrians' and Equestrians' Amenity | Severance (New) | Number | Moderate relief of severance. | No change | Footpaths and Bridleways will be diverted to suit the published route. No designated Footpaths or Bridleways will be severed. |
| | Change in Amenity | Bridleway A7 | Reduction in amenity for equestrians and ramblers. Estimated usage 50 and 100 journeys/week respectively. | Existing good amenity unchanged | |
| **Traveller Safety** Pedestrians' and Equestrians' Safety | | - | Segregation of pedestrians and vehicles will improve safety | No improvement in road safety | |
| All Vehicle Travellers' Safety | Reduction in casualties<br><br>Fatal<br>Serious<br>Slight | <br><br><br>Number<br>Number<br>Number | High Growth / Low Growth<br><br><br>47 / 38<br>350 / 280<br>997 / 801 | <br><br><br>0<br>0<br>0 | The figures indicate the probable total reduction in casualties over the whole of the 30 years assessment period if the national average rates and distribution between groups apply to each alternative. They take no account of the safety implications of the detailed design of the new route. |

**ILLUSTRATIVE EXAMPLE AT STAGE 3**

EXTRACT FROM GROUP 2 : TRAVELLERS





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| GROUP 3: THE CULTURAL AND NATURAL ENVIRONMENT | | | | | |
|---|---|---|---|---|---|
| SUB GROUP | EFFECT | UNITS/VALUE | PREFERRED ROUTE | DO-MINIMUM | COMMENTS |
| **Heritage**<br><br>(a) Punchbowl Hotel (Grade II Listed Building) | Noise | | Decrease of 1-3dB(A) at 3 facades; increase of 3dB(A) at fourth | No Change | For note on noise see Group 1 |
| | Severance | | Substantial reduction | No Change | |
| | Visual Impact | | Slight increase | No Change | |
| (b) Augill House (Grade II Listed Building) | Visual Impact | | Slight increase | No Change | Within 200m of centre line |
| **Nature and Landscape**<br><br>(a) North Pennines AONB | Landtake | ha | 0.7 ha | No Change | Existing route forms boundary of AONB |
| | Landscape effect | | Some views of an from the AONB will be moderately worsened, although planting will mitigate adverse effcts in longer term | | |
| (b) Limestone Pavement | | | | | Within 50m of centre line, but no nearer than existing road. No significant effect. |

**ILLUSTRATIVE EXAMPLE AT STAGE 3**

EXTRACT FROM GROUP 3 : THE CULTURAL AND NATURAL ENVIRONMENT







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**GROUP 4: POLICIES AND PLANS**

| POLICY | AUTHORITY | INTEREST | PREFERRED ROUTE | DO-MINIMUM | COMMENTS |
|---|---|---|---|---|---|
| 1. Structure Plan Policy number 17(a): | **Coombeshire CC** | To regenerate the town centre of Coombetown | Removes estimated 50% of through traffic, will enable the introduction of parking and traffic calming measures | The existing poor conditions will deteriorate | Parking and traffic calming measures would be the responsibility of Coombeshire CC |
| 2. Structure Plan Policy number 23(c):<br><br>3. Local Plan: To resist the loss of recreational land to other uses. | Coombeshire CC<br><br>Warbury DC | <br><br>Playing Field Cedar Park | Route requires 10% of Field but re-orientation of soccer pitches will enable all to be retained | No Change | |
| 4. Structure Plan Policy number 4(a):<br><br>5. Local Plan Policy number 5: To preserve and enhance potential of the Medan Canal for leisure. | Coombeshire CC<br><br>Woodleigh DC | <br><br>Old Wharf side and locks | Two new bridges across canal will maintain navigation clearances | No Change | The effects of the scheme on the canal setting are described in Group 3. |
| 6. Structure Plan Policy number 10: To restore derelict land within the county. | Coombeshire CC | Disused quarry Medan Valley | 50% of quarry will be filled by scheme | No Change | |

**ILLUSTRATIVE EXAMPLE AT STAGE 3**

EXTRACT FROM GROUP 4 : POLICIES AND PLANS





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**PART 1: COSTS**

| **Note:** All costs are expressed in 1988 prices, discounted to 1988. | **Units** | **Do-Minimum** | **Preferred Option** | **Comments** |
|---|---|---|---|---|
| 1. Construction | | | | |
| | | | - | Needed by 1998 |
| Signalisation of existing major/minor junction | £m | 0.20 | - | Needed by 1998 |
| Local widening at existing roundabout | £m | 0.10 | 13.67 | Opening in 1996 |
| Provision of D2AP bypass and junction improvements | £m | - | | |
| 2. Land | | | | |
| Land needed for Do-Minimum scheme | £m | 0.01 | - | See Environmental Impact Tables for numbers of properties and areas of land affected |
| Land needed for Do-Something scheme | £m | - | 0.50 | |
| 3. Preparation | £m | 0.10 | 0.40 | (Assessed using standard %s of construction and land costs) |
| 4. Supervision | £m | 0.05 | 0.20 | |
| 5. Maintenance | | | | |
| Traffic Related Maintenance - ie reconstruction, resurfacing, surface dressing, etc. | £m | 1.80 | 0.80 | Extensive repairs needed on existing road that can be avoided by building bypass. |
| Non-Traffic Related Maintenance - ie sweeping, gully clearance, etc. | £m | 0.01 | 0.02 | Increased length of network to be maintained in Do-Something |
| 6. Total Cost | £m | 2.27 | 15.59 | |

**ILLUSTRATIVE EXAMPLE AT STAGE 3:**

PERFORMANCE TABLE, PART 1







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**PART 2: BENEFITS**

| **Note:** All benefits are for 30 years and are expressed in 1988 prices discounted to 1988. | **Units** | **Preferred Option** | | **Comments** |
|---|---|---|---|---|
| | | **Low Growth** | **High Growth** | **Note:** Benefits of the Preferred Option are relative to the Do Minimum |
| 1. Time Savings | | | | |
| (i) Link Transit | £m | 6.60 | 10.60 | |
| (ii) Junction Delay | £m | 1.80 | 3.60 | |
| 2. Vehicle Operating Costs Savings | | | | |
| (i) Cars | £m | -0.12 | -0.17 | |
| (ii) Light Goods Vehicles | £m | -0.01 | -0.02 | |
| (iii) Heavy Goods Vehicles | £m | -0.07 | -0.11 | Includes public service vehicles |
| 3. Accidents | | | | |
| (i) Value of savings on Links | £m | 0.90 | 1.40 | |
| (ii) Value of savings at Junctions | £m | 0.30 | 0.60 | |
| (iii) Reduction in casualties | | | | |
| Fatal | number | 1.4 | 1.7 | |
| Serious | number | 15.9 | 19.4 | |
| Slight | number | 108.8 | 118.6 | Only minor delays caused at tie-in points |
| 4. Delays During Construction | | | | |
| Total: | £m | -0.10 | -0.10 | |
| 5. Delay Savings During Maintenance | | | | |
| Total: | £m | 2.80 | 4.10 | |
| 6. Total Benefits (PVB) | £m | 12.10 | 19.90 | |

**ILLUSTRATIVE EXAMPLE AT STAGE 3:** ECONOMIC PERFORMANCE TABLE, PART 2





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| PART 3: SUMMARY RESULTS | | | | |
|---|---|---|---|---|
| **Note:** All costs and benefits are expressed in 1988 prices, discounted to 1988. | **Units** | **Preferred Option** | | **Comments** |
| | | **Low Growth** | **High Growth** | **Note:** Costs and benefits of the Preferred Option are relative to the Do-Minimum |
| 1. Present Value of Costs, PVC | £m | 13.3 | 13.3 | |
| 2. Present Value of Benefits, PVB | £m | 12.1 | 19.9 | |
| 3. Net Present Value, NPV | £m | -1.2 | 6.6 | |

**ILLUSTRATIVE EXAMPLE AT STAGE 3:**

ECONOMIC PERFORMANCE TABLE, PART 3

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# ENVIRONMENTAL STATEMENT

**Legal Basis of the Environmental Statement**

1.1 EC Directive 85/337 on the assessment of the effects of certain public and private projects on the environment has been transposed in respect of trunk road projects into UK law by Section 105A of the Highways Act 1980 in England and Wales, Section 20A and 55A of the Roads (Scotland) Act 1984 in Scotland and in Northern Ireland Article 39B of the Roads (Northern Ireland) Order 1980. Copies of all the above legislation are given in ANNEX I. If the Overseeing Department's Secretary of State determines that a scheme `falls within ANNEX I [of the EC Directive], or that it falls within ANNEX II and has such characteristics that it should be made subject to an environmental assessment in accordance with the Directive, the Secretary of State shall publish not later than the date of publication of details of the project an environmental statement, that is, a statement containing the information referred to in Annex III to the Directive to the extent that the Secretary of State considers -

(a) that it is relevant to the specific characteristics of the project and of the environmental features likely to be affected by it; and

(b) that (having regard in particular to current knowledge and methods of assessment) the information may reasonably be gathered;

including at least-

(i) a description of the project comprising information on the site, design and size of the project;

(ii) a description of the measures envisaged in order to avoid, reduce and if possible, remedy significant adverse effects;

(iii) the data required to identify and assess the main effects which the project is likely to have on the environment;

(iv) a non-technical summary of the information mentioned in paragraphs (i) to (iii) above.'

1.2 Design Organisations should confirm with the Overseeing Department's Project Manager the requirement to produce an Environmental Statement.

**Purpose of the Environmental Statement**

1.3 The function of an Environmental Statement is to give the public and, in certain circumstances, statutory environmental bodies an opportunity to express an opinion before a project is initiated.

1.4 In order to meet this objective, an Environmental Statement must be:-

- unbiased: a factual style should be used, with both advantages and disadvantages of the scheme described impartially;

- comprehensive: all relevant information on the existing situation, proposed mitigation and forecast significant impacts should be included;

- sufficiently detailed: the level of detail should reflect the significance of the impact;

- easy to read: clear, non-technical language should be used, with the information presented in a logical manner using appropriate maps, diagrams, sketches, etc, for illustration.

**The Three Parts of an Environmental Statement**

1.5 An Environmental Statement should comprise three parts, of different levels of detail:-

(i) Volume 1 - a comprehensive document drawing together all the relevant information about the scheme;

(ii) Non-Technical Summary (NTS) - a brief report summarising the principle sections of volume 1 of the ES in terms which are readily understandable by members of the public. It should be bound in to the main volume, but also be available as a free-standing document;

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(iii) Volume 2 - a volume which contains a detailed assessment of environmental effects by subject area.

1.6 Where a large amount of assessment has been necessary, volumes may be divided into several parts (for example, volume two, parts one to three).

**Further Information**

1.7 Further information on the Environmental Statement is given in DMRB 11.4.

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