

## **INTERIM ADVICE NOTE 176 /13**

### **Guidance Note for the Production of an Appraisal Specification Report**

#### **Summary**

The objective of this document is to assist in the production of an Appraisal Specification Report, a new Project Control Framework (PCF) document required to outline the approach that will be undertaken during the transport modelling, economic, environmental and operational assessments of a Highways Agency Major Project and the approach to their inter-relationships.

#### **Instructions for Use**

This IAN provides guidance and information for immediate use.

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## 1 Introduction

### 1.1 Background

1.1.1 This document is intended as a guide for consultants undertaking the appraisal of a major scheme for the Highways Agency. As part of the Project Control Framework (PCF), a number of products are required through the lifetime of the scheme. The Appraisal Specification Report (ASR) has been added to the list of required products and this document provides some background to the ASR, a description of what should be included in it and advice on the overall scope of the report.

1.1.2 The overarching aim of the Appraisal Specification Report is to record the methodologies for: the transport modelling, including the traffic surveys, traffic forecasting, variable demand modelling and all other components; the economic, environmental and operational assessments, and how the interactions between the individual disciplines will be handled. The report provides a reference for the undertaking of the actual work and ensures all parties are familiar with the assumptions being made and the likely impacts, timescales and risks of the detailed work.

1.1.3 Historically, a proportion of the content of the ASR was within the purview of the Work Programme Report, a report previously required by some Highways Agency major scheme contracts. No formal definition of the report existed, however, and so the report was not incorporated into the PCF.

1.1.4 The concept of the Appraisal Specification Report was introduced in a series of WebTAG Units, released for consultation in September 2009, establishing the concept of proportionate appraisal. With the DfT's approval, the Highways Agency moved forward in introducing the ASR before the WebTAG units were adopted as definitive guidance. The Appraisal Specification Report became a definitive PCF product in March 2011.

1.1.5 The focus for the Highways Agency is to use the ASR as a tool to ensure that all parties involved in scheme preparation are aware of the details of the assessment methodologies ahead of time, allowing the project manager and project sponsor to move forward with greater confidence, whilst aiding consultants and HA Netserv specialists from both the TAME and Environment groups in agreeing the best methodology to be used.

### 1.2 Documents

1.2.1 The Department for Transport and Highways Agency documents which are relevant to the following guidance in this document are as follows:

#### **Department for Transport Published Documents**

1.2.2 The Department for Transport publish many documents that outline the various aspects of transport assessment, all of which are relevant in some manner to the Appraisal Specification Report, dependent upon the scheme details and the agreed assessment methodology. More specifically, the groundwork for the ASR was laid out within a series of WebTAG Units that were all released initially for consultation in September 2009.

#### **Specific:**

- Unit 1.1C, 'Introduction to Transport Analysis' (for consultation), updated April 2011;
- Unit 2.1.1C, 'The Steps in the Process' (for consultation), updated February 2013;
- Unit 2.1.2C, 'Option Development', (for consultation), updated February 2013; and,
- Unit 2.1.3C, 'Further Appraisal', (for consultation), updated February 2013.

**General:**

- Design Manual for Roads and Bridges (DMRB) Volume 12: Traffic Appraisal of Road Schemes;
- COBA – DMRB Volume 13: Economic Assessment of Road Schemes;
- QUADRO – DMRB Volume 14: Economic Assessment of Road Maintenance;
- TUBA – Transport Users Benefit Appraisal Manual; and
- WebTAG – Transport Analysis Guidance.

**Highways Agency Published Documents**

1.2.3 For the Highways Agency, the ASR functions as a new Project Control Framework product. The following sources provide further information on the PCF as well as providing details on the PCF products that are directly affected by the ASR:

- Design Manual for Roads and Bridges Volume 11: Environmental Assessment;
- IAN 125/09 – Supplementary Guidance for Users of DMRB Volume 11 ‘Environmental Assessment’
- The Project Control Framework Handbook, April 2008;
- PCF Product Matrix Quick Reference Guide; and,
- IAN 106/08 – Guidance Note for Traffic Consultants Employed on Highways Agency Schemes.

**1.3 Project Control Framework (PCF)**

1.3.1 All Major Projects’ road improvement schemes with a value of over £10m are subject to the planning stages presented in the Project Control Framework. The PCF is defined by a simple matrix consisting of a total of 8 Stages, shown in Figure 1.1, below.

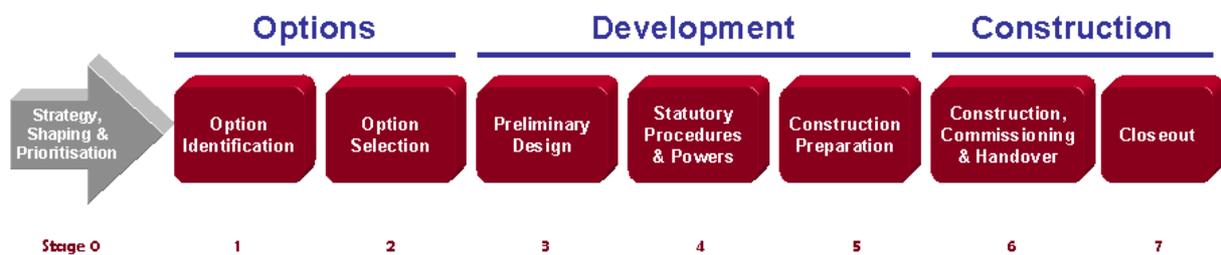


Figure 1.1 – The Project Control Framework Stages

1.3.2 The majority of the work that the Appraisal Specification Report supports is undertaken in Stages 0 through 3, with some additional refinement occurring in Stages 4 & 5 dependent upon individual scheme requirements. A sub-section of the PCF product matrix is shown in Figure 1.2, highlighting the particular products directly affected by the Appraisal Specification Report and their evolution through the various stages.

		Pre-project	Options		Development			Construction	
		0	1	2	3	4	5	6	7
		Strategy, Shaping & Prioritisation	Option Identification	Option Selection	Preliminary Design	Statutory Procedures & Powers	Construction Preparation	Construction, Commissioning & Handover	Closeout
Risk	Risk Register		Produced	Updated	Updated	Updated	Updated	Updated	
Business Case & Funding	Economic Assessment Report		Produced	Refined	Refined	Refined	Refined		
	Economic Impact Report		Produced	Refined	Refined				
	Traffic Survey Report		Produced						
	Traffic Forecast Report		Produced	Refined	Refined				
Environmental	Local Model Validation Report		Produced	Refined	Refined				
	Environmental Assessment Report	Produced	Refined	Refined	Refined				

**Figure 1.2 – PCF Product Matrix Directly Affected by the Appraisal Specification Report**

1.3.3 The Appraisal Specification Report appears as a product within the Scope section of the product matrix, signifying its relative importance. Figure 1.3 indicates how the ASR appears within the matrix.

1.3.4 The inclusion of a refinement period in Stage 3 indicates that the ASR should reflect any preparatory changes before the public inquiry or Nationally Significant Infrastructure Project (NSIP) submission.

		Pre-project	Options		Development			Construction	
		0	1	2	3	4	5	6	7
		Strategy, Shaping & Prioritisation	Option Identification	Option Selection	Preliminary Design	Statutory Procedures & Powers	Construction Preparation	Construction, Commissioning & Handover	Closeout
Scope	Appraisal Specification Report	Produced	Refined	Refined	Refined				

**Figure 1.3 –Appraisal Specification Report Entry in the PCF Product Matrix**

1.3.5 It is important to understand that the contents of the ASR relate primarily to the work to be undertaken in the following stage, although consideration must be given within the report to modelling considerations over the remaining lifetime of the project. Thus the Stage 0 ASR defines the methodology that will be used in Stage 1, but considers issues for the full lifetime, and so forth.

1.3.6 If, for some reason such as the continuation of a project that pre-dates the introduction of the ASR, an Appraisal Specification Report is not available for a stage as the stage begins, the ASR **must** be completed and approved by Netserv representatives before any relevant work is begun in the stage addressed. Due to the absence of extensive modelling work during Stage 0, an ASR is not generally needed to cover the work that takes place during that stage. This requirement may change as the Department for Transport review the requirements for PCF Stage 0. This means that the first ASR produced for a scheme, in Stage 0, will refer to the work to be undertaken in Stage 1.

## **2 Overview of the Appraisal Specification Report**

2.1.1 The Appraisal Specification Report allows all stakeholders related to a project to understand the assessment and appraisal work that will be required to be undertaken during the PCF stage that the report relates to and the remaining life of the scheme. Important stakeholders within this process are: the Highways Agency and DfT project sponsor and project managers; the Netserv specialists who will be consulted with during the production of the ASR and will ultimately be required to sign off the ASR and other PCF products; the consultants that are undertaking the assessments and other interested, relevant parties.

2.1.2 A key part of the process of delivering the ASR is the involvement of the Netserv specialists at an early stage in order to reach agreement to the proposals contained therein. The ASR will then operate as a reference for the scheme consultants, the Netserv specialists and the Major Projects project manager in order to ensure that the technical work is carried out in the approved manner.

2.1.3 The ASR should also contain details of risks that exist within the proposed work in order to inform the project manager and project sponsor. This will increase the visibility of these risks and allow project managers to gain a greater understanding of how the technical work detailed in the ASR may impact on project timescales, quality and cost.

2.1.4 Whilst the ASR is intended to be agreed, written and signed off in the stage prior to the work described within, the ASR is also intended to function as a living document that should be updated throughout the stage it refers to, if and when any changes to the details of the assessment are agreed with the Highways Agency or any risk to the project appears or changes in likelihood or impact. For this reason, the ASR must be written in a manner that allows these changes to be easily identified, in order for it to serve its function.

## **3 Transport Modelling**

### **3.1 Model Availability and Scope**

3.1.1 The first requirement of the ASR, particularly at the earliest PCF stage, should be the examination of available existent traffic models that cover the area of interest. The benefits and likely issues of employing each should be considered, alongside a projection of the time and cost of creating a new traffic model to support the scheme. The agreed approach should be presented, supported by the available evidence backing the decision.

3.1.2 Following this, there should be a discussion of the likely transport modelling area of interest, indicating where areas will be modelled in detail and where areas of lesser detail have been approved. This is a key consideration where other disciplines must be involved, as the area of detail must encompass areas where air quality, noise or other environmental issues are important and must also encompass areas of operational and local concern. Attention should be given to other requirements such as the need for variable demand modelling (VDM) and how the inputs to such processes will influence the area of interest.

3.1.3 Once the area of interest has been established, a review of the modelling approach must be undertaken to determine any shortfalls and subsequent requirements. This could, for example, address whether the area of detailed modelling of a chosen existent model needs expanding.

3.1.4 Potential future uses of the model should be borne in mind and discussed with the Highways Agency as the modelling strategy is formulated. Care should be taken that the needs of future PCF stages are taken into consideration, as well as the likely future re-use of

the model to support other scheme business cases within the area.

### 3.2 Data Age, Availability and Survey Programme

3.2.1 If an existent model has been identified as the approved modelling solution, whether in its current state or as the basis for an update, the issue of the underlying data age becomes paramount. In line with guidance in the Design Manual for Roads and Bridges (DMRB), Volume 12, Section 1, Part 1, The Application of Traffic Appraisal to Trunk Roads Schemes, models built primarily on data 6 years old or greater are considered too old for assessment purposes and require some form of present year validation as a minimum. Details of the data underlying any adopted existent models should be presented. It should be borne in mind that the DMRB guidance indicates the age of data at the time of use of the model; whether this is for scheme appraisal, for presentation at public consultation or evidence at public inquiry or NSIP submission, so allowance must be made when writing the ASR as to the age of the data at the future time when the model outputs are used. Care should be taken to examine the remaining stages of the scheme to determine whether data age may become a problem at a later stage and attention paid to the potential for risks from the scheme's Risk Register to impact on the scheme's programme in such a manner to impact the data age. Mitigation measures should be planned from the earliest practicable point.

3.2.2 In all cases, whether a new model is being built or an existent model is being updated, a variety of existing data sources may be of use, especially considering the cost of traffic data collection; in particular, roadside interview surveys. Such data could include traffic counts, census data, roadside interviews, GPS data, land-use data or other data that has been collected for wide ranging reasons. Again, the issue of data age is a concern and details of data sources and agreed mitigation measures must be recorded in the ASR.

3.2.3 In all cases, the ASR should clearly identify the age of any data that will be used within the following stage, whilst also looking forward to the remaining subsequent stages, and any risks due to the data age should be recorded in both the ASR and the Risk Register PCF product (for more information on the treatment of risks within the Appraisal Specification Report, see Section 7 of this IAN).

3.2.4 Areas in which data will be collected to support the transport modelling must be identified and discussed with the appropriate HA representatives and the resultant agreed survey programme should be covered in detail in the ASR. Again, **the inter-relationship between disciplines should be considered and addressed within the ASR**; for example the collection of traffic data at the location of a designated air quality site. Either a detailed outline of the data collection exercise or an initial draft of the data collection brief should be included in the ASR, which will be used in the forthcoming stage to commission the data collection. Whilst some details will not be available at the time of writing, the initial brief allows the projected scope and timeframe for the data collection exercise to be approved and recorded.

3.2.5 Reference must be made to the prior decisions on model scope as well as to later agreed decisions, such as which transport modes are to be covered within the transport model, in order to encompass all the required transport modelling data. Particular key areas that will influence data collection significantly include: the area of interest, as defined by all disciplines; modal coverage of the demand and supply models, and the existence, age and extent of any existing transport models.

### 3.3 Supply Model Structure, Calibration and Validation

3.3.1 Once the scope of the modelling within the next stage has been addressed, the ASR should address the details of the supply model structure. The areas of proposed detail within the supply model will have already been defined in relation to the areas of interest; however more detail with reference to the supply model should be agreed and presented, including details such as the manner in which junctions across the network will be represented within the model and the source of the information that will be used to support this.

3.3.2 One of the first considerations that must be addressed is the zoning structure of the supply model. The zoning structure must be appropriate to the level of detail within the transport network and take into account future, as well as existing, land uses.

3.3.3 An important consideration that must be addressed within the Appraisal Specification Report is the approved coverage of time periods of the model. WebTAG Unit 3.1, 'Modelling', recognises that the current standard practice is to model two peak periods and the average interpeak, however this may not be sufficient detail for all types of schemes and additional modelled periods such as the average daytime weekend and average offpeak periods may be required, particularly when scheme options are of radically different types; e.g. a Managed Motorway option being assessed against a standard carriageway widening. It should be noted that the economic and greenhouse gases assessments may require all hours to be modelled in some manner.

3.3.4 Even if additional periods are not required, it is important that the detail of the modelled periods is agreed and reported; for instance, whether a peak period will be modelled as a single peak hour or as an average hour from the peak period.

3.3.5 In addition to the definition of time periods, the supply model section of the ASR should cover the definition of the user classes to be used within the supply model. A typical example would be to include car business trips, car commuting trips and other car trips alongside LGV, OGV1 and OGV2 work trips for a total of six user classes, although other collections of user classes may be more appropriate for different schemes. Care must be taken that the agreed modelling software is able to cope with the projected number of user classes. Where there is a high proportion of LGVs and appreciable congestion, it may be appropriate to disaggregate LGV into business and commuting/other to enable appropriate variable demand responses to be defined.

3.3.6 The question of income segmentation within the supply model must also be considered, although this will only be applicable for certain scheme types or standard schemes within areas of the country already operating schemes that require income segmentation to model correctly, such as toll roads. The agreed outcome will significantly influence the user class decision discussed above.

3.3.7 An additional question that will be required to be answered in some ASRs will be the question of vehicle occupancy. Some scheme types such as high occupancy lanes or gates will require further sub-division of the user classes or the definition of the demand model may have to be in person trips in order to correctly model the demand forecasts.

3.3.8 The question of the modal coverage of the supply model should be detailed within the ASR, paying particular attention to how the approved decision supports all forms of assessment and making reference to the decisions regarding variable demand modelling (see following section).

3.3.9 Although WebTAG Unit 3.19, 'Highway Assignment Modelling', defines the calibration and validation criteria for the supply model, the Appraisal Specification Report should contain a summary of these alongside any unusual agreed deviations from the norm. It is expected that these will be an infrequent exception.

### **3.4 Demand Model Structure, Realism and Sensitivity Testing**

3.4.1 For the majority of schemes there must be a section of the Appraisal Specification Report on variable demand modelling (VDM). In the early stages of a scheme, this section must be devoted to how the decision will be made as to whether the scheme will require variable demand modelling to be undertaken, or, if the decision has already been made, the actual details of the VDM should be presented alongside a summary of the basis for the original decision.

3.4.2 The decision on whether to include VDM should be based upon the principles contained in WebTAG 3.10.1, 'Variable Demand Modelling – Preliminary Assessment Procedures'.

3.4.3 During later stages of the PCF, although possibly from the beginning if the VDM decision has already been made, the ASR must contain the details of the agreed VDM that will be carried out during the following stage. The details should include the full specification of the VDM and the approved proposed strategy to deliver the model.

3.4.4 The specification should, as a minimum, discuss the proposed responses to travel cost changes, detailing which will be included and which will be excluded from the standard set of responses including: trip frequency; trip distribution, either singly or doubly constrained by user class; mode choice and time of day choice, including both micro and/or macro time period choice.

3.4.5 The zonal structure of the demand model should be addressed, in particular highlighting the relationship to the supply model zonal structure and detailing the reasons behind any differences and how these will be accounted for.

3.4.6 The subject of segmentation should also be addressed within the ASR, cataloguing the approved segmentation, particularly highlighting any differences to the supply model user class structure. This will normally involve, at the least, some form of segmentation between car-available and non-car-available travellers.

3.4.7 The Appraisal Specification Report should also identify the source of the parameter values that will be used in the demand model and the process by which these values will be adjusted to provide realistic outputs. This decision will generally be between the illustrative parameter values provided in WebTAG Unit 3.10.3, 'Variable Demand Modelling – Key Processes' and locally calibrated data.

3.4.8 As with the supply model and the issue of calibration and validation, contained in WebTAG Unit 3.19, demand models should be the subject of testing, whatever source of parameter values has been agreed. The testing should include both the realism of the predicted responses and the sensitivity of the scheme options to the final parameter values, in line with the guidance within WebTAG, appropriate to the stage of the scheme, and should be detailed in the ASR.

### 3.5 Forecasting

3.5.1 The subject of forecasting in the Appraisal Specification Report covers the decisions that have been agreed over a number of areas of detail. The first of these ties in with the earlier section on data and includes all information on where the data for the forecasting will be sourced from. This may include previous assessments of growth in the area, the support of Local Authorities or other similar bodies, individual development details from Transport Assessments or other sources.

3.5.2 The second area of detail that should be recorded in the ASR covers the actual methodology that will be used to forecast the future growth and how it will make use of the above data. Particular areas of concern that should be agreed and recorded will be the manner in which individual development data will be separated from background growth.

3.5.3 The process by which forecast years will be identified should also be recorded after agreement has been achieved. Whilst common, minimum, practice has been to forecast only the opening year and a single design year fifteen years later, best practice is to include forecast years to cover all major changes that affect the network, whether the introduction of nearby schemes, the opening of new developments or the expected rerouting of traffic due to capacity being reached on the network. The method by which forecast years will be, or have been, identified should be approved and recorded. Agreement should be reached with all relevant parties concerning the forecast years; this is likely to include the consultants undertaking the environmental assessment as well as the design consultants.

3.5.4 WebTAG Unit 3.15.5, 'The Treatment of Uncertainty in Traffic Forecasting', introduced the procedure to be undertaken to assess the impact of different levels of uncertainty in particular proposals affecting the transport system. It set out a minimum number of forecast scenarios to be run for any particular scheme; three, to be composed of a core scenario and two sensitivity scenarios made up of different combinations of proposed schemes, developments affecting growth and levels of national background growth, although it also indicates why additional forecast scenarios may be useful.

3.5.5 The Appraisal Specification Report should record the number of agreed scenarios and their composition to the best knowledge available at the time. At early stages of scheme development, this may just identify that low, central and high demand scenarios will be required and which categorisations of development or scheme uncertainty will fall into each. At later stages, this may be much more specific, identifying, for example, that a particular, near certain, development will be considered in all three growth scenarios with a fourth scenario developed to satisfy local stakeholder interest that does not feature the development explicitly.

3.5.6 Any additional scenarios that have been required as part of the assessment process should also be documented in the ASR. This may include scenarios specific to the assessment of air quality or other environmental assessments.

3.5.7 The issue of constraint to TEMPRO, and the manner in which this will be achieved, must also be recorded in the ASR, alongside the agreed scenarios. Whilst the core scenario and the majority of other sensitivity scenarios are required to be constrained to TEMPRO, there is leeway to include an allowance for national economic uncertainty in the non-core scenarios. The ASR should therefore record which forecast scenarios will be constrained to TEMPRO projections and which of these will include the national economic uncertainty allowance.

### **3.6 Interaction with Other Disciplines**

**3.6.1 Of critical importance when considering the specification of the transport modelling to be undertaken during the project are the interactions with other disciplines.** Whilst economic assessment has historically been viewed as the logical endpoint of transport modelling, the environmental disciplines and any operational assessment of the scheme also make use of the outputs from transport modelling.

3.6.2 The requirements of these other disciplines may be different from the requirements for economic assessment and equal weight should be attached to them. Specialists from all involved disciplines should be consulted throughout the work leading up to the publication of the ASR in order to be certain that no particular requirements are overlooked.

3.6.3 The Appraisal Specification Report should indicate the requirements of all the supported disciplines and combine this with an indication of the manner and timescale in which the transport modelling will feed information to the other disciplines. This will allow project managers a greater understanding of the interdependencies and risks that stem from the traffic modelling.

## **4 Economic Assessment**

### **4.1 Assessment Methodology**

4.1.1 The methodology for the economic assessment of a scheme is defined within WebTAG and supporting documents such as DMRB Volumes 12, 13 and 14, and the TUBA manual and user guide; however there is leeway for decisions to be made on individual details of the economic assessment. These details should be the subject of discussion with Highways Agency Netserv specialists, and the agreed outcome recorded in the ASR.

4.1.2 The decision on the software to use for the assessment should be recorded; this will normally be TUBA for Highways Agency schemes and any approved alternative should be recorded and justified within the ASR. Whatever assessment software is to be used, the agreed principles for the calculation of the annualisation factors to be used should be included within the ASR.

4.1.3 Other aspects of the assessment that should be fixed within the Appraisal Specification Report include details on how any non-modelled periods will be incorporated within the economic assessment. Whilst current best practice only allows for explicitly modelled periods to be included in the economic assessment, some historic practice has allowed for manipulation of annualisation factors to be adjusted to extend the assessment to include portions of non-modelled periods, this is no longer regarded as acceptable.

4.1.4 The issue of whether an assessment of the impact of maintenance and construction delays on users will be included in the economic assessment should be addressed in the ASR. At early stages of a scheme's assessment lifecycle it may be appropriate to exclude these impacts or use a simplified methodology to assess them, whilst at later stages of scheme assessment, it becomes a firm requirement to include these impacts in detail. Care should be taken to discuss this decision with Environmental specialists to determine whether there are wider reasons for including detail at earlier stages of assessment.

4.1.5 The economic assessment section of the ASR should also reflect the agreed methodology for the assessment of the impact on accidents as well as the impact on journey time reliability. The general methodologies for these subjects are available in the Design

Manual for Roads and Bridges, Volumes 13 and 14, for the valuation of impacts on accidents, and WebTAG Unit 3.5.7, 'The Reliability Sub-Objective'.

4.1.6 WebTAG Unit 3.5.8, 'Regeneration Impacts', introduces the need for an assessment of impacts in regeneration areas if one is influenced by the scheme. The strategy to deliver the wider impact assessment should be approved and included in the ASR. Similarly WebTAG Unit 3.5.14, 'The Wider Impacts Sub-Objective', introduces the assessment of economic impacts not covered by standard assessments of transport user benefits, such as the impact on agglomeration, increased or decreased output in imperfectly competitive markets, and labour market impacts. The ASR should record the decisions made regarding the assessment of these wider impacts.

4.1.7 The subject of sensitivity testing of the variable demand model should also be addressed in this section, since the measure of the sensitivity is the impact on the benefits of the scheme. WebTAG Unit 3.10.4, 'Variable Demand Modelling - Convergence Realism and Sensitivity', outlines the typical minimum sensitivity testing that should be employed, although the approach for each scheme should be discussed and agreed with Netserv representatives and reported in the ASR.

4.1.8 Finally, this section should address the need for analysis of the Social and Distributional Impacts of the scheme on the relevant economic indicators. WebTAG Unit 3.17, 'Detailed Guidance on Social and Distributional Impacts of Transport Interventions', contains advice on the indicators that should be addressed, as well as indicating the depth of the analysis at different points in a scheme's developmental lifetime. The approach appropriate for the PCF stage addressed by the ASR should be agreed with Netserv representatives and, where appropriate, DfT officials and reported in the ASR.

## 5 Environmental Assessment

### 5.1 Outline and Scope

5.1.1 The Project Control Framework indicates that the environmental assessment for a project is controlled through a series of products. For Stage 0, the Environmental Inception Report (EIR) will be used to report and describe any environmental risks that may influence the scheme and set out how these risks will be assessed in subsequent PCF Stages. During PCF Stages 1 to 3, the Environmental Scoping Report, which is part of the Environmental Assessment Report (EAR) product, would perform the same function. In this manner it can be seen that, strictly for environmental purposes, the EIR and the Scoping section of the EAR cover many of the same functions as the Appraisal Specification Report does for traffic modelling.

5.1.2 The relationship between the ASR and EIR/EAR is governed by the fact that transport modelling provides the inputs for various elements of any environmental assessment; particularly air quality, noise, water environment and, to a lesser extent, ecology. **It is therefore important to ensure that all parties are aware of the requirements and cross-dependencies of the various involved disciplines within the Environmental and traffic modelling assessments.**

5.1.3 The inclusion of environmental considerations within the ASR is not intended to represent a duplication of effort or purpose, but should be used to highlight how the environmental disciplines will interact with other associated disciplines, such as transport modelling, during the assessment work

5.1.4 During each PCF Stage, the ASR should include the agreed constraints plan and indicate the assessment area for each environmental topic; these areas should already have been set out in the Environmental Scoping Report. For these areas, the ASR should set out the traffic modelling requirements as outlined in the various DMRB and WebTAG assessment guidance. This exercise may indicate that the proposed transport modelling is insufficient for the environmental topic in question or it may indicate that the environmental area of interest includes areas that are unlikely to show any significant impact in terms of traffic.

5.1.5 It should be noted that whilst the scope of the environmental assessment work is usually set out early in PCF Stage 1, it is possible that changes to the project may result in changes to the scope of the air quality, noise, or water assessments, resulting in the need to examine the issue in a more detailed manner. In this case, the ASR should be used to record the differences from the initial transport modelling requirements for any change in scope or level of environmental assessment. Any mismatches should be highlighted and any required strategies to support the environmental assessment should be included.

## 5.2 Data Availability and Survey Programme

5.2.1 Both the EIR and EAR outline what data is currently available and how any deficiencies will be covered by means of an agreed programme of surveys. The ASR should cover the relationship with other disciplines, particularly transport modelling, and highlight any opportunity to find synergies between the different survey programmes. This could cover, for example, the placement of automatic traffic counters at a site of importance in terms of air quality so that the transport model can be directly validated at the same location as the air quality monitoring station. This may also reflect new local environmental developments, such as the introduction of a new Air Quality Management Area (AQMA), not covered by the previous stage of environmental assessment.

5.2.2 **Care must also be taken to highlight, in conjunction with the transport modelling teams, any weaknesses identified in the supply of data between disciplines.** This should, for example, highlight geographical areas where the data quality is inadequate or whether certain aspects of the required data, such as HGV flows, will be of poorer quality.

5.2.3 The ASR should set out a preliminary estimate of the timescales involved for both traffic modelling and the consequent environmental assessments. Any risks to these timescales should also be reported.

## 5.3 Methodology

5.3.1 At each stage, the ASR should highlight any environmental risks, which should also be included in the scheme Risk Register. The ASR should also outline the process by which additional requests for traffic data may be agreed with the Highways Agency and the consultancy team undertaking the transport modelling. The impact on the scheme timeframe of additional requests should be included within both the Risk Register and the ASR.

5.3.2 Finally, this section should address the need for analysis of the Social and Distributional Impacts of the scheme on the relevant environmental indicators. WebTAG Unit 3.17, 'Detailed Guidance on Social and Distributional Impacts of Transport Interventions', contains advice on the indicators that should be addressed, as well as indicating the depth of the analysis at different points in a scheme's developmental lifetime. The approach appropriate for the PCF stage addressed by the ASR should be agreed with Netserv representatives and, where appropriate, DfT officials and reported in the ASR.

## **5.4 Mitigation Proposals**

5.4.1 At later stages of scheme development, when any of the environmental assessments have identified mitigation solutions that may require transport modelling outputs, the ASR should be used to record the agreed details of the proposed mitigation and the manner in which their effectiveness will be assessed. In particular, this process should highlight where additional traffic modelling and/or environmental data will be required and any burdens imposed on other disciplines.

5.4.2 This process will allow, for example, additional transport modelling runs to be identified in the preceding stage and ensure that sufficient time and resources can be devoted to allow this work to occur without unidentified risk to the project timescales. Where the effectiveness of early mitigation proposals is uncertain and the likelihood of repeat requests for additional transport modelling to support further refinements to the mitigation proposals is substantial, this risk should be clearly highlighted in the ASR as well as in the scheme Risk Register.

## **6 Operational Assessment**

### **6.1 Methodology**

6.1.1 There is always a need to ensure that a given scheme design will operate satisfactorily under projected levels of traffic, a requirement that is particularly true of any junctions designed as part of a scheme. The assessment of the scheme in these terms is often referred to as an operational assessment and, whilst also using modelling techniques, different software and methods are used to provide slightly different outputs.

6.1.2 The requirements of any operational assessment should be agreed directly with the project manager, who will involve Netserv specialists, typically from the TAME group, and the consultants undertaking the scheme design to inform the methodology. The methodology may involve the use of junction or micro-simulation models, which may require additional survey data to be collected. The operational assessment can, therefore, influence the wider transport modelling exercise, and this potential interaction should be carefully noted within the ASR.

6.1.3 The operational assessment should reflect any requirements of the scheme design highlighted by the design consultants and communication with the design consultants should be handled in a similar manner as communication with the environmental consultants.

## **7 The Handling of Risks in the Appraisal Specification Report**

7.1.1 It has been the experience of the Highways Agency that the disciplines that the Appraisal Specification Report focuses on can be the source of significant risk to scheme timescales and costs. In order to aid Department for Transport and Highways Agency project sponsors and project managers in their care of duty, the ASR should highlight the areas of risk associated with the contained disciplines.

7.1.2 It is of particular importance that when the specification for the appraisal has necessarily had to take account of the effects on cost and time, that any consequential increases in risk are fully recorded. This should not be a replacement to the formal Risk Register for the scheme, but should serve as an adjunct to it, with the risks highlighted in the ASR also included in the Risk Register.

7.1.3 As indicated in Section 2 of this IAN and explained in detail in Section 9, whilst the ASR should be prepared in advance of each particular stage as part of the prior stage's product list, the ASR should be treated as a living document that can be altered throughout the stage that it refers to. Any alterations should be agreed with the relevant Netserv representatives, which include any alterations to identified risks. Any changes to risks must be communicated to the project manager in order that any necessary mitigation can be introduced into the project.

## **8 Reporting of the Appraisal Specification**

### **8.1 Contents List**

8.1.1 The PCF Product Description page is composed of a document outlining the requirements for the Appraisal Specification Report. The document defines the purpose of the ASR as well as detailing the contents list and the general quality criteria that the report must satisfy. At the time of publication of this IAN, it is intended that the section of IAN 106/08 that includes details on the Work Programme Report, will be replaced by a section on the Appraisal Specification Report.

8.1.2 The contents list for the ASR has been presented here in Table 8.1, in order to demonstrate how all the detail of the report discussed in the last five chapters should be presented.

8.1.3 Table 8.1, overleaf, shows that the overall structure of an ASR should be built as a set of repeating sections, including the detail for each discipline in a set structure.

**Contents:**

- *Introduction*
  - *The purpose of the Appraisal Specification Report*
  - *The current Stage of the project and the Stage(s) to which the ASR relates*
- *Project Definition*
  - *Project Title*
  - *ID Numbers*
    - *PIN*
    - *MS Number*
  - *Scheme Type (added once preferred option is selected)*
  - *Road and/or Geographic Location*
    - *National or Regional*
  - *Project Description (enhanced description added once the preferred option is selected)*
  - *Status*
- *Challenges and Issues*
  - *Strategic Case*
  - *Transport Objectives*
  - *Other Objectives*
- *Options and Outputs*
  - *Options*
  - *Transport and Road Infrastructure Deliverables*
  - *Time Frames*
- *Constraints*

**NB** Contents in italics may already be included within the Client Scheme Requirements (CSR) product. If so, these should not be replicated within this product but a link to the CSR should be embedded in accordance with the guidance on using the CSR as a central summary document contained within MPI-02-092012.

- For *Each* Topic (Transport Modelling, Economic Assessment, Operational Assessment and Each Environmental Sub-Objective)
  - Existing knowledge and data
  - Brief evaluation of topic-related constraints
  - Identify likely scale of impacts (inc. map)
  - Additional data requirements and survey approach
  - Proposed methodology, including:
    - Study area
    - The proposed assessment/modelling approach
    - The forecast approach
    - A consideration of cumulative effects
    - Determination of significance (Environmental Sub-Objectives only)
    - Justification for the chosen approach
    - The proposed approach to considering Social and Distributional Impacts
  - Summary of the relevant areas of the Communication Strategy
  - Work programme
  - Summary of risks added to the Project Risk Register
  - Change log
- *References*
- *Glossary*

Table 8.1 – Appraisal Specification Report Contents List

## 8.2 Details

8.2.1 The early sections of an Appraisal Specification Report serve to establish the backdrop to the project and should be in sufficient detail to fully describe the project. Since the purpose of the ASR is primarily to inform and support technical stakeholders, the language of the ASR should be apposite for a technical audience.

8.2.2 It is important that, where appropriate, use is made of maps and constraint and layout drawings in order to visually express concepts relating to, for example, the areas of interest.

8.2.3 Whilst it is recognised that the ASR should not, as far as possible, overlap other PCF products, it should include sufficient detail on the scheme options to be considered in the relevant stage to inform differences in the required assessment and supporting methodologies. As such, the early sections are structured in the same manner as other PCF products, such as the Client Scheme Requirements product, to minimise the repetition of work.

## 8.3 Transport Modelling

8.3.1 As indicated in the contents list in Table 8.1, a summary of existing knowledge and data should open the transport modelling chapter. For transport modelling at the start of the project, this should indicate the existence, coverage, age and suitability of existing models as well as a similar summary of available data. At later stages of scheme development this section should indicate the current state of the traffic model and its supporting data, indicating any weaknesses that have been discovered during the current stage.

8.3.2 The evaluation of the topic-related constraints should include any restraints specific to the transport modelling. These could include project management constraints such as timescales or costs, but could also include availability of data or similar limitations.

8.3.3 The agreed area of detail and coverage of the traffic model should be discussed and also presented on a map.

8.3.4 As discussed in detail in Section 3.2 of this IAN, a summary of the additional data requirements and the outline of any required surveys should be included.

8.3.5 The following section on the approved methodology should contain all the details discussed in Sections 3.3, 3.4 and 3.5 of this report, including, but not limited to the:

- supply model structure and details of the delivery strategy;
- details on junction modelling and the corresponding data sources;
- time periods covered by the model and their definitions;
- user classes to be considered in the supply model;
- inclusion of income segmentation and/or car occupancy within the supply model;
- modal coverage of the supply model;
- agreed calibration and validation criteria, if different to the standard DMRB/WebTAG criteria;
- basis for the decision to include or exclude variable demand modelling;
- demand model structure and details of the delivery strategy;
- included variable demand responses;
- issue of segmentation within the demand model;
- source of the parameter values for the demand model and how any adjustments will be made;
- realism testing that will take place;
- availability and source of forecasting data;

- detail of the growth methodology for all user classes, trip purposes and modes;
- inclusion of individual developments, separate from background growth;
- effect of other nearby schemes;
- process by which forecast years will be, or have been, determined;
- number and composition of the agreed forecast scenarios; and,
- issue of constraint to TEMPRO and the exact methodology to be used.

8.3.6 The question of communication with, and relationship to, other disciplines is of primary importance within the transport modelling section and the outputs expected from the transport modelling process by the other disciplines should be carefully laid out in a table, detailing what is required and exactly how the information will be calculated. Any expected risks or shortcomings of the data should be identified in this table. Reference should be made, where applicable, to the relevant sections of the Communication Strategy PCF product.

8.3.7 Following the communication strategy, the initial agreed work programme should be included in order to inform both the NetServ specialist and the Major Projects project manager. Inclusion of the work programme will aid the project management of the specialist work and ensure that appropriate timescales have been identified.

8.3.8 The chapter should be ended by a summary of all the risks involved in the transport modelling process in a standard manner, compatible with the format used in the Risk Register PCF product, and a change log. The details of the change log are addressed in Section 9 of this IAN.

## **8.4 Economic Assessment**

8.4.1 Whilst the approaches to the economic assessment contain fewer choices than the approaches to other disciplines, the same general structure should be employed for the economic assessment chapter of the ASR as for the other disciplines.

8.4.2 The section on existing data should contain information on any prior assessments of the scheme options, in particular highlighting any non-standard practices employed.

8.4.3 Topic-related constraints are likely to be minimal for the economic assessment but may include information on the reliability of cost information or similar issues.

8.4.4 The section identifying the likely scale of impacts may be excluded from the economic assessment, since this section primarily deals with geographical concerns.

8.4.5 The data requirements section should include what cost information and details regarding the construction and maintenance regimes are required and how these requirements will be satisfied.

8.4.6 The agreed methodology will need to include, but should not be limited to, details on the:

- software that will be used to assess the economics;
- calculation methodology for the annualisation factors;
- manner in which non-modelled periods will be incorporated;
- assessment of the impact on scheme benefits of maintenance and construction;
- assessment of the impact on scheme benefits of accidents;
- methodology for assessing the impact on journey time reliability;
- agreed proposal for the inclusion of wider economic impacts; and,
- sensitivity testing of the scheme benefits to assumed parameter values.

8.4.7 The section on the communication strategy for the economic assessment should reflect any requirements of the wider scheme work for the outputs of the economic assessment. Key amongst these would be relevant stakeholders and any public consultation or public inquiry preparation.

8.4.8 Again, the communication strategy should be followed by the initial agreed work programme. Inclusion of the work programme will aid the project management of the specialist work and ensure that appropriate timescales have been identified.

8.4.9 As discussed above in the transport modelling section, the chapter should summarise any risks involved in the economic assessment process in a standard manner. The chapter should close with a change log where necessary.

## **8.5 Environmental Assessment**

8.5.1 The key requirements for the environmental section of the ASR are to set out the transport modelling requirements required for environmental assessments for each relevant environmental topic, including estimated timescales. These requirements will be determined by the scope and level of the assessment, both of which will be set out in the EIR/EAR scoping sections. Environmental assessment broadly has three levels of assessment:

- scoping;
- simple; and
- detailed,

each of which has different requirements from the supporting traffic model.

8.5.2 As a project moves through the PCF, the scoping exercise is refined so that a more detailed understanding of the project is achieved. It is therefore important that the ASR requirements referred to in 8.5.1 are reported for each PCF stage. At each PCF stage, the environmental constraints and assessment area should be reviewed to ensure that they remain appropriate and robust. Any differences should be highlighted in the ASR alongside any subsequent changes to data requirements and the implications for the scheme assessment; e.g. timescales and costs.

8.5.3 The section on the environmental assessment communication strategy should focus on the supply of the traffic data from the traffic model, reflecting and highlighting specifics from the section on the traffic modelling earlier in the ASR. It should also highlight any requirements of the wider scheme work for the outputs of the environmental assessment. Key amongst these would be relevant stakeholders and any public consultation or public inquiry preparation.

8.5.4 Again, the communication strategy should be followed by the initial agreed work programme, clearly showing the dependencies on traffic modelling data. Inclusion of the work programme will aid the project management of the specialist work and ensure that appropriate timescales have been identified.

8.5.5 At each stage, the risks involved in the transfer of data from the traffic model should be reported along with the consequential follow on risks to the environmental assessment process in a standard manner. The chapter should close with a change log where necessary.

## **8.6 Operational Assessment**

8.6.1 As with the economic assessment chapter of the ASR, the operational assessment chapter should begin with a summation of any previous assessments of the junctions in question, followed by an outline of any constraints on the junction design, such as land take.

8.6.2 A map should be provided highlighting all the junctions where an operational assessment is required, if necessary indicating whether each of these will be assessed in isolation or together in small compound junctions. This should indicate where junctions may interact at future congestion levels as this could influence the operational assessment proposals.

8.6.3 Although the data requirements for an operational assessment will generally be subsumed by the data requirements for the general transport modelling there may be additional requirements covering, for example, lane markings and stopping sight distances. The requirements should be addressed in the ASR alongside the proposal for any survey work or data sources to supply the requirement.

8.6.4 The methodology for the operational assessment should begin by clearly defining the required outputs and timescale, which will have been agreed with the project sponsor, project manager and relevant Netserv specialists. The methodology will also need to include, but should not be limited to, details on the:

- software that will be used to undertake the operational assessment;
- method in which data will be supplied from the wider traffic modelling; and,
- manner in which any cumulative interactions between junctions will be assessed.

8.6.5 The section on the communication strategy for the operational assessment should reflect any requirements of the wider scheme work for the outputs of the operational assessment. Key amongst these would be the consultancy team undertaking the detailed design alongside other relevant stakeholders.

8.6.6 As discussed in previous sections, the chapter should conclude with the initial work programme, the detail of any risks involved in the operational assessment process and a change log where necessary.

## **8.7 Risks**

8.7.1 It is not intended that risks should be addressed in their own separate section of the ASR, but should be considered inherently within the associated sections. Some thought should, however, be given to highlighting risks in an appropriate manner in order to draw attention to their presence, such as a prominently formatted table at the end of each section.

## **9 Appraisal Specification Report Revision Control during Scheme Development**

9.1.1 As indicated in Sections 2 and 7, the ASR is not intended to remain static throughout the stage that it refers to. It is recognised that details of assessments may need to change as details are uncovered that were not available at the time that the ASR was written.

9.1.2 If the need arises, the ASR should be updated to reflect any changes in methodology that have been agreed with the appropriate Highways Agency specialists. The necessary changes should also be highlighted in a change log at the end of each section in order that the changes are obvious.

9.1.3 The ASR should be given an ordinal number dependent on the stage that it refers to and a cardinal number, separated by a decimal place, dependent on the number of revisions made during the course of the work that it describes; thus the ASR prepared in Stage 0 of a scheme that has not been modified would be referred to as version 1.0, whilst an ASR referring to Stage 2 that has had to be amended twice during the stage would be referred to as version 2.2. This strict naming convention ensures that all stakeholders are aware of any agreed changes.

9.1.4 For ease of readability and understanding, changes highlighted in the change log at the end of each chapter should be marked by the version number of the document at the time that they were introduced. The change log should therefore show all changes during any particular stage. When the scheme is ready to progress to a new stage, a new ASR will be required, and the change log can be reset.

9.1.5 This IAN reflects the requirements of the Highways Agency at the time of writing, but it must be borne in mind that the guidance on the assessment of transport schemes is constantly being updated and therefore the detailed requirements laid out in this IAN may not cover all the required details of an ASR at the time of use. The Highways Agency specialists should be involved in the process of writing an ASR in order to be certain that all proposals are agreed to and that all necessary details are covered.

## 10 Contacts

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10.1.2 E-mail queries should be directed to: [standards\\_enquiries@highways.gsi.gov.uk](mailto:standards_enquiries@highways.gsi.gov.uk)