

SCOTTISH TRANSPORT APPRAISAL GUIDANCE

FOREWORD

The Scottish Government will continue to invest in Scotland's transport infrastructure and services to facilitate the achievement of the Government's purpose which is:



'to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth'.

The Government's particular transport purpose is to focus investment on making connections across and with Scotland better, improving reliability and journey times, and seeking to maximise the opportunities for employment, business, leisure and tourism. Additionally, to provide sustainable, integrated and cost effective public transport alternatives to the private car, connecting people, places and work, across Scotland.

Scottish Transport Appraisal Guidance (STAG) supports the Government's Purpose and National Outcomes by assessing what contribution can be made by potential transport interventions.

The Guidance was first published in September 2003, and I commend this refreshed version to you, reflecting feedback from a range of transport practitioners and decision makers.

I expect this Guidance to be followed by all those wanting to invest in transport, whether that is the Scottish Government itself, Regional Transport Partnerships, local authorities, private companies or others. In particular, the objective led framework recommended here is seen as best practice in transport appraisal internationally. Following these principles, as set out in the Guidance, will ensure that the best solutions to transport problems or opportunities to make transport improvements are taken forward, based on robust evidence.



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I. NON-TECHNICAL SUMMARY

I.1 INTRODUCTION

- 1.1.1 The Scottish Government's Purpose is 'to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth'. The Scottish Transport Appraisal Guidance (STAG) supports this Purpose by providing a clear and robust framework to identify potential transport interventions.
- 1.1.2 Commissioning authorities and their agents should be aware that only options which emerge from a STAG study will be considered where Government funding, support or approval is required for changes to the transport system. This will be reported in a STAG Report, which will include the rationale behind a potential transport intervention presented in a clear, evidence-led, manner. Such presentation provides the information required by a decision maker to make informed choices.

I.2 WHAT IS THIS GUIDANCE?

- 1.2.1 The Guidance represents best practice transport appraisal guidance. It sets out a structure and methodology drawn from UK and European sources and is supported by a Technical Database which provides detailed advice on the application of the individual elements of STAG. Both the Guidance and Technical Database are available at: <http://www.transportscotland.gov.uk/scot-tag>.
- 1.2.2 STAG involves the appraisal of generated options which could potentially address identified problems and opportunities against a range of criteria, including value for money. As such, the STAG Report provides the Strategic Business Case for options taken forward.
- 1.2.3 The completion of a STAG study and production of the STAG Report should precede any application for planning consent or the production of development management Transportation Assessments in support of developments. This ensures appropriate consideration and reporting of the transport issues relative to the options being developed. To this extent a STAG appraisal is complementary to a Transportation Appraisal.

I.3 WHO SHOULD USE THIS DOCUMENT?

- 1.3.1 The Guidance is directed at those who wish to effect changes to the transport system. This will include, but is not restricted to:
- The Scottish Government and agencies, including Transport Scotland;
 - Local authorities and Regional Transport Partnerships;
 - Transport infrastructure and service operators; and
 - Developers and their consultants.

I.4 WHEN TO USE STAG

- 1.4.1 An appraisal using STAG is required when Government funding, support or approval is sought for justified proposals to change the transport system. Its use is encouraged in other circumstances when there is a need for changes to the transport system and may be applied to issues including:
- Considering public transport and road network coverage;
 - Assessing measures to improve the reliability of the transport network;
 - Assessing issues in relation to the safety of the transport network;
 - Access to services; and
 - Land-use development.
- 1.4.2 The Guidance can be used to identify transport options to address identified or perceived problems or opportunities relating to a range of transport planning scenarios. The transport options may include, but need not be limited to:
- Cycling and walking improvements;
 - Public transport – rail, bus or other;
 - Road schemes; and
 - The development of transport and/or land-use plans, policies and strategies.
- 1.4.3 STAG should not be adopted when considering issues relating to maintenance or renewal which will not significantly change an existing asset or materially impact upon the operation of this asset. However, it must be adopted when there is likely to be:
- The creation of a new asset;
 - A significant enhancement to an existing asset; or
 - Any change to an existing asset which will materially impact upon the operation of this asset.



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1.5 HELP AND ADVICE

- 1.5.1 All appraisals using STAG must encompass the principles of being objective-led rather than solution-led, present the appraisal of options against the Transport Planning Objectives, STAG Criteria and established policy directives and include proposals for Monitoring and Evaluation. STAG should, however, be applied proportionately to the impacts of the issue under consideration. Help and advice is available from Transport Scotland on this frequently misunderstood point to ensure that the appraisal presents the information required by the decision maker in a timely manner that also represents value for money.
- 1.5.2 Practitioners should establish the clear rationale for using STAG prior to starting a study: advice should be sought from Transport Scotland if practitioners require further clarity on the purpose for which they wish to use the Guidance.
- 1.5.3 For general enquiries contact: scot-tag@transportscotland.gsi.gov.uk.

1.6 BUSINESS AS USUAL CHANGES TO THE TECHNICAL DATABASE

- 1.6.1 'Business as Usual' updates will be made to the core content in the Technical Database generally on a quarterly basis. The communication of Business as Usual updates, and the effective date for the introduction of these changes, will be made directly to registered Scot-TAG users and will be available via the above web link. Registration for Scot-TAG users is available on the same link.



I. INTRODUCTION

I.1 INTRODUCTION

- I.1.1 The Scottish Government's Purpose is 'to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth'.
- I.1.2 The Government's particular transport purpose is to focus investment on making connections across and with Scotland better, improving reliability and journey times, seeking to maximise the opportunities for employment, business, leisure and tourism. Additionally, to provide sustainable, integrated and cost effective public transport alternatives to the private car, connecting people, places and work, across Scotland.
- I.1.3 The Scottish Transport Appraisal Guidance (STAG) supports the Government's Purpose by allowing the contribution that can be made by potential transport interventions to be presented in a clear, consistent manner.
- I.1.4 Transport is one of Scotland's most vital public amenities influencing amongst others, the economy, communities, environment and quality of life. A transport system that serves Scotland well is fundamental to achieving the Scottish Government's vision of a prosperous, inclusive and sustainable society.
- I.1.5 STAG ensures that potential options to address evidenced-based transport problems or opportunities are identified and appraised in a consistent manner and that such options will contribute to the Government's Purpose and meet the transport needs of Scotland.
- I.1.6 It is a requirement that an appraisal using STAG is undertaken by commissioning authorities and their agents when seeking Government funding, support or approval for options to change the transport system.
- I.1.7 The completion of a study as documented in a STAG Report, allows the rationale behind potential transport options to be presented in a clear, evidenced manner and provides the information required by a decision maker to make an informed choice of the most appropriate option(s) for design development.

I.2 THE KEY CONCEPTS IN STAG

- I.2.1 There are a number of key concepts which underpin the Guidance:

An appraisal using STAG allows the contribution of a potential intervention to the Government's Purpose to be presented in a consistent manner.

STAG is objective-led rather than solution-led which avoids pre-conceived solution-led being brought forward without considering other options which may meet the identified problem or opportunities.

It provides best practice transport appraisal guidance to be used to find transport solutions to identified or perceived transport problems and opportunities using an evidence base.

The Transport Planning Objectives developed as part of a STAG study must capture the essence of the evidence based problem to be addressed or opportunity being undertaken.

It can be used in all transport appraisal contexts, including transport and development policies or strategies.

It is one process incorporating Pre-Appraisal, Part 1 Appraisal, Part 2 Appraisal and Post Appraisal.

It should be applied proportionately but comprehensively – the whole process should be used; the level of detail required will be determined by the scale of the impacts of the transport issue being addressed.

Robust Pre-Appraisal provides the foundation to the whole process since it promotes the analysis of opportunities during Pre-Appraisal in parallel to the identification of transport problems.

It does not prioritise between options rather it is an aid to decision makers to allow them to make informed choices. STAG may provide an initial rationale for investment and it is important that the STAG outcomes are revisited as the Business Case for an intervention develops.

The appraisal, as presented in a STAG Report, should be completed before commencing the detailed design of the options using mode specific guidance. It is recognised that whilst mode specific guidance may be used to inform the options considered as part of the appraisal, designs should not be progressed past this level until the appraisal is complete and decision makers make their informed choice of the option(s) to be developed further.

Appraisal of options and production of a STAG Report should precede any application for planning consent or the production of development management Transport Assessments in support of developments. This ensures the proper consideration of the transport issues relative to the proposals being developed, and presentation of these aspects in a clear manner. To this extent a STAG appraisal is complementary to a Transport Assessment.

Outcomes should be reported clearly and concisely – the STAG Report should document the completion of each phase of the process comprehensively but proportionately.

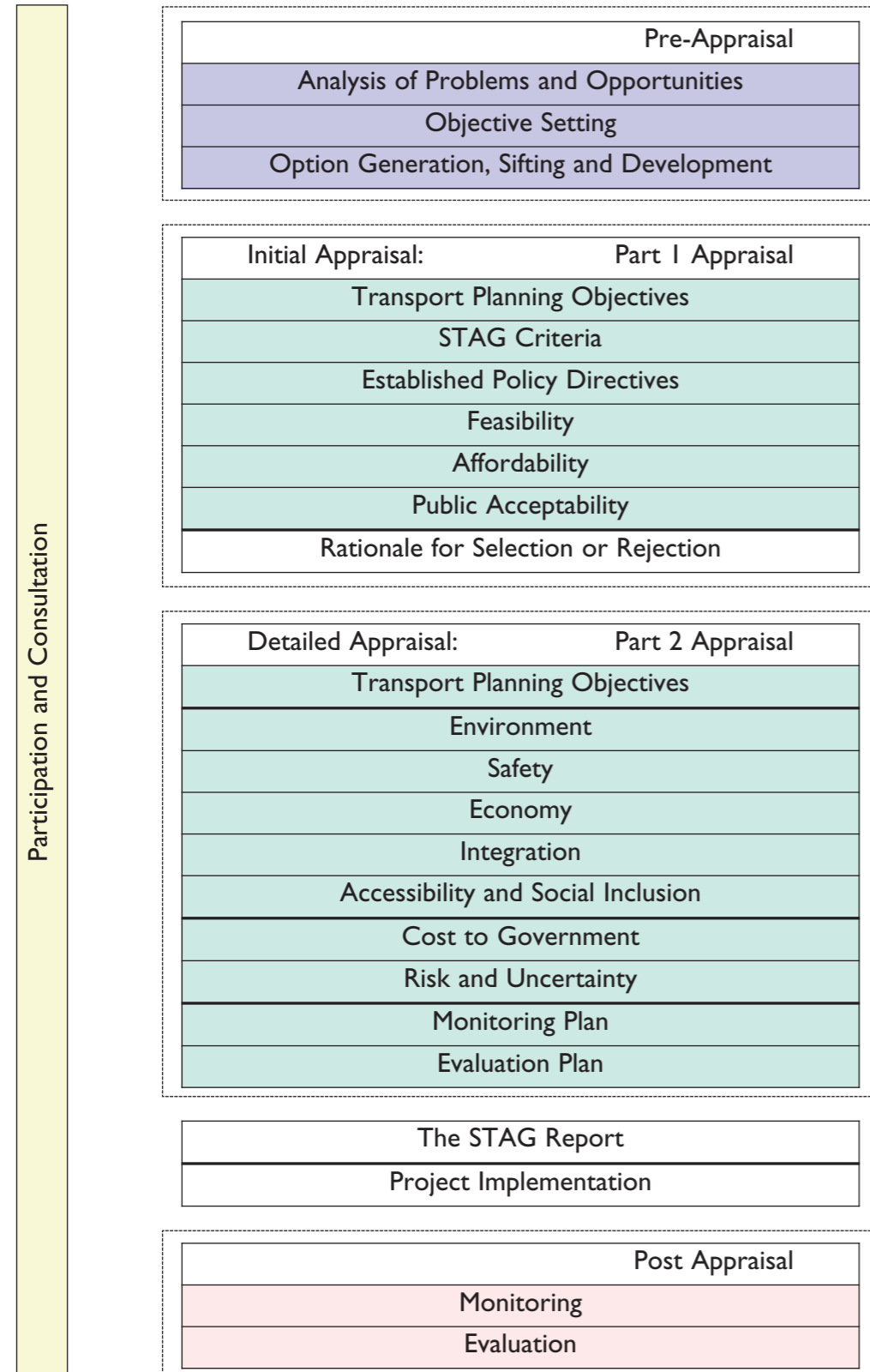
It embraces Scottish Government policy across a range of areas.

It does not remove the need for practitioners to undertake their statutory obligations – i.e. to adhere to all relevant and applicable Scottish, UK and EU legislation.

1.3 HOW THE PHASES OF THE STAG PROCESS FIT TOGETHER

1.3.1 The four phases of the Guidance are shown in Figure 1.1, and form a continuous STAG process.

FIGURE 1.1 – The STAG Process



Pre-Appraisal
Analysis of Problems and Opportunities
Objective Setting
Option Generation, Sifting and Development

Analysis of Problems and Opportunities

Identified or perceived problems or potential opportunities with the transport system are the essential starting point for any STAG study.

Objective Setting

Transport Planning Objectives should express the outcomes sought for the transport appraisal exercise under consideration.

Option Generation, Sifting and Development

The generation of options should be based on the widest possible set of potential options which could alleviate the identified or perceived problems, or address the potential opportunities.



Initial Appraisal:	Part 1 Appraisal
	Transport Planning Objectives
	STAG Criteria
	Established Policy Directives
	Feasibility
	Affordability
	Public Acceptability
	Rationale for Selection or Rejection

Part 1 Appraisal

An initial appraisal of all options generated during Pre-Appraisal with specific consideration given to:

- Is the option going to alleviate the identified or perceived transport problems and/or maximise potential opportunities?
- Is the option consistent with established policy directives?
- Is the option likely to meet the Transport Planning Objectives?
- What are the likely impacts against the STAG Criteria?
- Is the option likely to be: acceptable to the public, affordable and feasible to construct and operate?
- Is there a clear rationale for the rejection of options on completion of Part 1 Appraisal?



Detailed Appraisal:	Part 2 Appraisal
	Transport Planning Objectives
	Environment
	Safety
	Economy
	Integration
	Accessibility and Social Inclusion
	Cost to Government
	Risk and Uncertainty

Part 2 Appraisal

Detailed appraisal of the options which have been taken forward from Part 1 Appraisal with specific consideration given to:

Transport Planning Objectives

A detailed appraisal of options against the Transport Planning Objectives using quantitative techniques and analysis.

STAG Criteria

A detailed appraisal of options against the STAG Criteria using qualitative and quantitative techniques and analysis.

Cost to Government

A detailed analysis of the total public sector cost of options, including investment costs, operating and maintenance costs and grant/subsidy payments.

Risk and Uncertainty

A detailed analysis of the risk and uncertainty associated with each option.



THE STAG REPORT

- 1.3.2 The successful completion of a STAG study, as documented in a STAG Report, allows the rationale behind a potential transport intervention to be presented in a clear, evidence led manner and provides the information required by a decision maker to make an informed and appropriate choice.
- 1.3.3 An appraisal using STAG provides the Strategic Business Case for the options taken forward, and the foundations for the Investment Case elements of an Outline Business Case.

Format of a STAG report:

- Introduction;
- Analysis of Problems and Opportunities;
- Objective Setting;
- Option Generation, Sifting and Development;
- Part 1 Appraisal;
- Part 2 Appraisal;
- Cost to Government;
- Risk and Uncertainty;
- Option Summary Table;
- Monitoring Plan;
- Evaluation Plan; and
- Conclusions.



Post Appraisal
Monitoring
Evaluation

Post Appraisal

Once investment is committed and following implementation, Monitoring and Evaluation to assess performance against the original appraisal is essential.

Monitoring

It is a requirement that a clear Monitoring Plan is prepared as part of a study and reported in the STAG Report.

Evaluation

It is a requirement that a clear Evaluation Plan is prepared as part of a study and reported in the STAG Report.



2. PRE-APPRAISAL

1.4 PARTICIPATION AND CONSULTATION ARE IMPORTANT

- 1.4.1 Participation and consultation are key elements of a STAG study and should ensure the interests of stakeholders are considered in an inclusive, open, transparent and appropriate manner.
- 1.4.2 In order for participation and consultation to be effective and contribute positively to the identification and analysis of transport problems and opportunities, the following participation and consultation guidance should be adopted:
- **Explain the STAG process:** avoiding the use of technical terminology where possible;
 - **Explain roles and responsibilities,** encouraging ‘shared ownership’ of the work being undertaken;
 - **Be open** so that those taking part understand the process and can see how their views are being taken into account;
 - **Be proportionate** in relation to the identification of the transport problems to be addressed and the transport opportunities to be undertaken;
 - **Start as early as possible** in the process and continue throughout to maximise stakeholder confidence in the process as it develops and to reach consensus, as far as possible, on outcomes;
 - **Involve stakeholders** both in the identification of problems and opportunities, and the development and assessment of solutions; and
 - **Provide feedback** to contributors wherever possible.

1.5 WHAT SHOULD BE REPORTED

- 1.5.1 The STAG Report is the means through which practitioners communicate the appraisal work undertaken. It should be written in a manner which will inform the decision making process. A STAG Report should provide a concise summary demonstrating that the process of STAG has been followed and the Guidance adhered to.
- 1.5.2 To seek to ensure that the STAG Report is both comprehensive and proportionate, reporting guidance is provided throughout this Guidance, supplemented where necessary, with the detailed advice in the Technical Database.
- 1.5.3 At the end of each chapter there is a list of key points which practitioners must use to ensure they are following the appraisal process as intended whilst assembling sufficient information to be included in the STAG Report.
- 1.5.4 The Scottish Government and/or its agency Transport Scotland may seek a review or an audit of STAG studies where further confidence in the application of the process and/or outcomes is sought.



2.1 ANALYSIS OF PROBLEMS AND OPPORTUNITIES

- 2.1.1 The identification of problems and opportunities within the transport and land-use system must form the starting point for a STAG study.
- 2.1.2 The process of defining objectives and the identification of problems and opportunities are parallel and iterative processes. An initial assessment of problems and opportunities should inform Objective Setting, which in turn may highlight the need for further investigation of problems and opportunities.
- 2.1.3 It is essential that consideration is given to existing and future problems and opportunities that may potentially arise. Similarly, those perceived by stakeholders should also form a part of the Pre-Appraisal process.
- 2.1.4 This phase of STAG is often given insufficient attention during STAG studies and its importance should not be underestimated.

DATA ANALYSIS

- 2.1.5 For a full understanding of the study area and the transport system under consideration, practitioners must identify appropriate data analysis requirements.
- 2.1.6 The nature and extent of data analysis within a STAG study is clearly correlated with its duration and the resources available. The effort put into the analysis of data must be commensurate with the scale of the Pre-Appraisal analysis undertaken for the study area and potential impacts of the options to be considered.
- 2.1.7 However, practitioners must ensure that the analysis of data provides sufficient evidence of the problems and/or opportunities. The analysis of data should provide a significant contribution to establishing the basis of a STAG study and simply providing contextual information must be avoided.
- 2.1.8 An appropriate evidence base is crucial when moving to the Objective Setting phase of Pre-Appraisal and the setting of SMART Transport Planning Objectives as the STAG study progresses. This is reflected by the iterative nature of the Analysis of Problems and Opportunities, and Objective Setting.

IDENTIFYING PROBLEMS AND OPPORTUNITIES

- 2.1.9 It is important to recognise that actual and perceived problems or opportunities within the transport system must be the rationale for any STAG study.
- 2.1.10 The analysis of problems should look beyond the immediate manifestation of such problems on the transport system. The analysis should, instead, explore the root causes and consequences of problems. At this phase of the Pre-Appraisal process, opportunities for improvements to the transport system and the way it is used should be thoroughly explored.

- 2.1.11 Practitioners should ensure that an appropriate analysis of data has been undertaken to provide an evidence base. The Technical Database provides detailed guidance for what is required at this phase in Pre-Appraisal.

ISSUES AND CONSTRAINTS

- 2.1.12 In parallel to problem and opportunity analysis, relevant Issues and Constraints should also be considered within the context of a STAG study. It is important that the identification of problems and opportunities are considered within the wider context.
- 2.1.13 'Issues' are uncertainties that the study may not be in a position to resolve, but must work within the context of. Examples of Issues include:
- Uncertainty at the time of the study whether a major road or rail link will be built that will affect the study area;
 - The impact of a major new land-use development has yet to become clear; and
 - A study for a neighbouring area may lead to a proposal that results in significant changes to through trips passing across a study area.
- 2.1.14 Practitioners should account for, or if possible neutralise, such Issues through liaison with neighbouring authorities, government departments and agencies, and transport operators.
- 2.1.15 Constraints represent the bounds within which a study is being undertaken. These may include, but are not limited to:
- The statutory powers of an authority to promote change;
 - The funding levels that can realistically be obtained;
 - Scottish, UK or EU legislation; and
 - Scottish or UK fiscal policy.
- 2.1.16 Similarly, Constraints on the shape of a particular option could be affected by:
- Sensitive areas of ecological, landscape or heritage importance;
 - Built-up areas;
 - Rivers or railway lines which are expensive to bridge;
 - Rough terrain making infrastructure works expensive; and
 - Unusual existing patterns of development such as industry and commerce spread over wide areas outside the traditional urban centre.

PARTICIPATION AND CONSULTATION

- 2.1.17 It should be recognised that people will naturally have more reliable views about current problems, potential opportunities, Issues and Constraints than those predicted to occur in the future.
- 2.1.18 People are more likely to be concerned with Issues that directly affect them, their immediate environments and lifestyles. Some may also be well informed on more strategic Issues and could contribute a useful perspective on these. It is important not to underestimate the level of detailed knowledge people may have and it must be recognised that perceived problems, opportunities, Issues and Constraints can also feed into the Pre-Appraisal process.
- 2.1.19 In order to fully understand and confirm the issue under appraisal, there may be value in consulting with members of the public alongside key stakeholders. The scale and focus of this consultation must be proportionate to the appraisal itself and draw from other consultations where appropriate.

REPORTING

- 2.1.20 It is expected that the thorough analysis of existing and future problems and opportunities will have comprised an integral part of the methodology adopted to develop the study and, therefore, clear evidence of existing and future problems and opportunities must be presented in the STAG Report.
- 2.1.21 A textual statement of the assessment of problems and opportunities together with identification of any Issues and Constraints should be presented in the STAG Report. The statement should summarise the sources of data and any consultation activities undertaken. It should highlight the key problems, Issues, Constraints and opportunities and also provide details of associated severity/magnitude and the root causes and consequences of such problems, Issues, Constraints and opportunities.
- 2.1.22 Practitioners should avoid simply providing background information for the study area. The geographic scope of the study should be presented with clear evidence of the problems and/or opportunities together with the methods of analysis used.



Pre-Appraisal: Key Points

- The identification of problems and opportunities and Objective Setting are iterative exercises, one informed by the other;
- Perceived problems and opportunities should be considered, i.e. those that are experienced but cannot be easily encapsulated through data analysis;
- The analysis of problems should look beyond the immediate manifestation of such problems on the transport system and should explore root causes and consequences;
- Data analysis must be used to assist in the identification of problems and opportunities. The Technical Database provides detailed guidance on data that will be helpful and describes how it can be used;
- Practitioners must avoid simply providing background information for the study area. Robust analysis must provide sufficient evidence of the identified problems and/or opportunities;
- Consultation with stakeholders and the public can provide a valuable input into the identification of problems and opportunities;
- When considering problems it will also be important for the practitioner to consider Issues and Constraints that may affect the study; and
- 'Issues' are uncertainties that the study may not be in a position to resolve, but must work within the context of. 'Constraints' are the bounds within which a study is being undertaken.



2.2 OBJECTIVE SETTING

INTRODUCTION

- 2.2.1 The Transport Planning Objectives for the appraisal are developed to reflect the issues and opportunities as well as established policy directives, including the Government's Purpose.

TRANSPORT PLANNING OBJECTIVES

- 2.2.2 In developing a transport option it is essential to be clear about what the study aims to achieve. The term 'Transport Planning Objectives' is used to describe those objectives adopted for the purposes of the specific transport appraisal exercise being undertaken for which STAG is being used.
- 2.2.3 The Transport Planning Objectives should express the outcomes sought for the study and will describe (while avoiding indications of potential solutions) how problems will be alleviated. Additionally, the Transport Planning Objectives provide the basis for the appraisal of alternative options and, during Post Appraisal, will be central to Monitoring and Evaluation.
- 2.2.4 The setting of Transport Planning Objectives is important and offers significant value for a number of reasons. They:
- Provide all stakeholders with a clear indication of what practitioners are trying to accomplish;
 - Serve as a basis for directing and guiding the entire study process;
 - Can provide motivation, unity and integration;
 - Facilitate accountability of the decision maker, from the STAG perspective, both during the transport planning, appraisal, implementation process and Post Appraisal (a key concern in light of the need for Monitoring and Evaluation); and
 - Introduce clarity where there may exist strong vested interests and entrenched views on priorities.
- 2.2.5 Transport Planning Objectives will be specific to each individual study and the specific problems and opportunities to be addressed. Consequently, it is expected that Transport Planning Objectives would differ between individual studies. It is, therefore, not practical to be prescriptive in STAG about the formulation of Transport Planning Objectives.
- 2.2.6 In some cases, Transport Planning Objectives may not appear to be directly related to the STAG Criteria. In many other cases, these will be subsidiary objectives, devised to focus on the way in which the STAG Criteria can be achieved.

SMART TRANSPORT PLANNING OBJECTIVES

- 2.2.7 At Pre-Appraisal, Transport Planning Objectives may be articulated in general terms indicating the desired direction of change. It is recommended that this is sufficient for the purposes of the qualitative Part 1 Appraisal.
- 2.2.8 It is imperative that Transport Planning Objectives are expressed with SMART principles in mind. This will enable the Transport Planning Objectives to be sharpened and refined as the STAG study progresses and more information becomes available. The analysis of data and evidence of problems and/or opportunities is crucial in setting robust Transport Planning Objectives.
- 2.2.9 In advance of Part 2 Appraisal, Transport Planning Objectives must be finalised and, where appropriate, include a target.
- 2.2.10 A SMART objective will be:
- **Specific**, it will say in precise terms what is sought;
 - **Measurable**, there will exist means to establish to stakeholders' satisfaction whether or not the objective has been achieved;
 - **Attainable**, there is general agreement that the objective set can be reached;
 - **Relevant**, the objective is a sensible indicator or proxy for the change which is sought; and
 - **Timed**, the objective will be associated with an agreed future point by which it will have been met.
- 2.2.11 SMART Transport Planning Objectives can be challenging to set – they demand insight, careful consideration and impose greater accountability. There is, however, an importance attached to making the necessary effort in arriving at SMART Transport Planning Objectives as:
- The SMART Transport Planning Objectives provide an essential focus on the outcomes sought for a study area and, if intelligently set, will facilitate the satisfactory resolution of any conflicting priorities; and
 - They may foster a shared enthusiasm for their achievement.
- 2.2.12 SMART Transport Planning Objectives provide a unique opportunity for recognition of achievement. As described in Chapter 6, during Post Appraisal, indicators must be developed from the Transport Planning Objectives established for the study.
- 2.2.13 It is important that SMART Transport Planning Objectives are finalised in advance of Part 2 Appraisal with the intention of developing meaningful indicators for detailed quantitative appraisal and subsequent Monitoring and Evaluation purposes.

STAG CRITERIA

- 2.2.14 The STAG Criteria are:
- Environment;
 - Safety;
 - Economy;
 - Integration; and
 - Accessibility and Social Inclusion.
- 2.2.15 The STAG Criteria provide a framework to ensure all impacts are considered, and practitioners should not begin the process of formulating Transport Planning Objectives by considering only the national objectives. This could dilute the importance of local objectives or the inclusion of issues which, for the transport planning context in question, are not relevant.

ESTABLISHED POLICY DIRECTIVES

- 2.2.16 Objectives and policy directives that are already established must also be considered during the Objective Setting process and are used to describe the existing objectives and directives which practitioners should take cognisance of during the STAG study.
- 2.2.17 By definition, established policy directives will have been set by a third party or, if set by the body undertaking the study, are independent of the study. Established policy directives may be national, regional or local and may be more or less precise.
- 2.2.18 Practitioners should take cognisance of the Government's Purpose and the National Transport Strategy (NTS). The associated strategic outcomes and indicators, including the Government's National Outcomes, outlined in the Technical Database, should be recognised during the Objective Setting process and should contribute towards the appraisal of options.

PARTICIPATION AND CONSULTATION

- 2.2.19 Reaching a broad agreement on the Transport Planning Objectives for a study, particularly amongst interested stakeholders and the wider public, is of value at this phase. It will provide a focus for the continued development of the study and could prove vital if, at a later date, objections to specific options emerge. If it can be demonstrated that particular options meet the agreed objectives for a study, it can be asserted that such options are in keeping with the view of the wider public and there is evidence to support these options.

REPORTING

- 2.2.20 In order to fulfil the requirements of STAG, the reporting on Objective Setting within the STAG Report should provide a summary of the methodology applied in developing the Transport Planning Objectives.
- 2.2.21 In the STAG Report, practitioners should outline the approach adopted and state the Transport Planning Objectives clearly. In summarising the methodology used, it should be demonstrated that the principles promoted by STAG, including the establishment of value-led SMART Transport Planning Objectives, have been followed.
- 2.2.22 Practitioners must present the relationship between the analysis of data, evidence of problems and/or opportunities, and the derivation of the Transport Planning Objectives. These are the essential first phases of Pre-Appraisal and practitioners must not proceed to Option Generation, Sifting and Development until there is confidence in the evidence base and articulation of Transport Planning Objectives.
- 2.2.23 It is anticipated that to ensure appropriate focus there should be no more than six clearly defined Transport Planning Objectives for any study.
- 2.2.24 If there is a relationship between any of the Transport Planning Objectives derived and the STAG Criteria then this should be clearly identified. Similarly, during the Pre-Appraisal process for the study under consideration, the relevant established policy directives for a study should be stated clearly together with the rationale for inclusion of such established policy directives.

Objective Setting: Key Points

- Transport Planning Objectives should express the outcomes sought in the study area as opposed to any of the activities planned to achieve the Transport Planning Objectives;
- The formulation of Transport Planning Objectives should take full account of a thorough investigation of the root causes and consequences underlying identified problems or opportunities and the provision of robust evidence of problems and/or opportunities;
- It is recognised that Transport Planning Objectives may not be entirely SMART (i.e. include targets) at the Pre-Appraisal phase, but such Transport Planning Objectives should be set in such a way to facilitate the establishment of entirely SMART Transport Planning Objectives in advance of Part 2 Appraisal;
- Any existing resources in the form of previously established sets of objectives or data resulting from surveys or consultation exercises should be used fully to inform the setting of Transport Planning Objectives;
- The Government's Purpose and National Outcomes should inform practitioners in setting of Transport Planning Objectives;
- Consideration should be given to the relevant established policy directives;
- A regular dialogue should take place between practitioners and decision makers throughout the Objective Setting phase (and throughout the STAG study as a whole); and
- Any application for funding, support or approval from the Scottish Government and/or Transport Scotland will be assessed, in part, on whether there is a clear statement of objectives supported by an explanation of the derivation of such objectives.



2.3 OPTION GENERATION, SIFTING AND DEVELOPMENT

INTRODUCTION

- 2.3.1 The purpose of Option Generation, Sifting and Development is to derive a range of options which should provide the solution/s to meet the Transport Planning Objectives and alleviate the problems or address the opportunities identified.
- 2.3.2 This phase of Pre-Appraisal must not be started until a thorough Analysis of Problems and Opportunities has been completed, and until robust Transport Planning Objectives are set.
- 2.3.3 It is vital to derive options which fully reflect the range available and at this early phase in the process, this exercise should not be constrained. It is imperative that practitioners cast the net wide in generating options as potential solutions to the identified transport problems and opportunities.
- 2.3.4 Option Generation, Sifting and Development should be carried out in a logical, transparent and therefore auditable manner.

DO-MINIMUM

- 2.3.5 The options generated must be appraised against a do-minimum option that includes transport improvement commitments that have policy and funding approval and from which it would be difficult to withdraw.
- 2.3.6 The do-minimum must reflect trends in the provision of transport. This philosophy is intended to answer the question: if no action is taken, what form will the transport system take at some defined point in the future?
- 2.3.7 The do-minimum will include relevant assumptions of land-use/development. Practitioners must ensure that a robust development profile with clear geographic scope is included in the do-minimum scenario.
- 2.3.8 The Technical Database provides detailed guidance on the do-minimum.

REFERENCE CASE

- 2.3.9 Practitioners may also find it helpful to develop a 'reference case', which includes other non-controversial but as yet uncommitted transport schemes and/or development profiles, and which can be used as a baseline for option comparison.
- 2.3.10 The reference case does not replace the do-minimum scenario but should be used to complement STAG.
- 2.3.11 The Technical Database provides detailed guidance on the reference case.

OPTION GENERATION

- 2.3.12 Once the situation in the study area has been examined, problems and opportunities identified and Transport Planning Objectives set, the next step is to start developing options which will achieve the desired transport outcomes.
- 2.3.13 In general terms, options should be generated through the following sources:
- As ideas/outputs from the consultation and participation process;
 - Ideas/proposals which have a history and which (or derivations thereof) remain viable options;
 - Through the statutory planning and policy process, both for transport initiatives and land-use plans; and
 - As ideas/outputs from a structured decision making process followed by the team undertaking the transport planning exercise.
- 2.3.14 The range of policy instruments available to practitioners include but need not be limited to:
- Land-use measures;
 - Infrastructure measures;
 - Management measures;
 - Information provision; and
 - Pricing measures.
- 2.3.15 Where appropriate, practitioners should investigate the possibility of packaging measures in order to achieve the desired transport outcomes. Packaging measures effectively can:
- Reinforce, extend or complement the impact of a particular measure;
 - Mitigate potential adverse impacts of a particular measure; and
 - Increase public acceptability of a particular measure.
- 2.3.16 It is important to recognise cumulative impacts which may arise from the packaging of measures. This should be accounted for fully during analysis.

OPTION SIFTING

- 2.3.17 The Option Sifting process should be undertaken when an unmanageably large number of options have been generated or where there is general consensus that a particular option or options generated will clearly not achieve the intended objectives or meet the identified transport problems and/or opportunities.

2.3.18 There are a number of ways in which options can be sifted and practitioners should agree the approach with stakeholders (and, where appropriate, decision makers).

2.3.19 At this stage it is essential to document why options have been recommended for Part I Appraisal or why they have been sifted out prior to Part I Appraisal.

OPTION DEVELOPMENT

2.3.20 The aim of Option Development, the next step of the process, is to develop a reasonable number of broadly defined alternative options that can be subjected to appraisal.

2.3.21 In parallel to the continuing development of options, a number of other tasks may be undertaken. The aims of these complementary tasks are:

- To confirm that the elements that will be examined are broadly feasible;
- To define each option carefully so that it can be analysed independently from other options with confidence; and
- To develop costing and timescale information sufficient for the STAG study.

PARTICIPATION AND CONSULTATION

2.3.22 The activities adopted for participation and consultation during the Analysis of Problems and Opportunities, and Objective Setting should continue and will inform:

- The identification of options for consideration; and
- The development of options or packages of options for appraisal.

2.3.23 At this early phase of the process, practitioners must cast the net wide – brainstorming, workshop discussions and other consultation and participation measures are encouraged. This will encourage new potential options to be identified, as well as those which might have been proposed for some time.

REPORTING

2.3.24 The methodology adopted for generating, sifting and developing options should be described clearly and concisely in the STAG Report. In addition, all options generated, the do-minimum and any reference case should be described in full.

2.3.25 If options are rejected at the Option Sifting phase, the reasons for rejection should be briefly and clearly outlined. This may include identifying inconsistencies between options and Transport Planning Objectives.

2.3.26 In summary, the methods by which the Option Generation, Sifting and Development process is carried out must be comprehensively documented, with a clearly defined audit trail.

Option Generation, Sifting and Development: Key Points

- It is vital to develop options that reflect the full range of options available and that seek to meet the Transport Planning Objectives set for a study, not just immediate manifestations of problems;
- The Option Generation process should not be unreasonably constrained at the start of the process. Practitioners should cast the net widely and both stakeholder participation and wider consultation can have an important role to play;
- Option Sifting is often necessary to reduce the number of options and combinations of options to manageable levels. A structured and transparent process that is documented and auditable is required;
- Future year options will be appraised against a do-minimum. The specification of the do-minimum forms a natural part of the Option Development process;
- The do-minimum comprises all schemes and proposals under construction or for which statutory powers exist and funding is available;
- When assessing options practitioners may also find it helpful to develop a reference case, which includes other non-controversial but as yet uncommitted schemes and which can be used as a baseline for option comparison;
- To allow alternative options to be considered, outline designs may be required and an assessment made of capital and other costs, and implementation timescales; and
- There is, however, no requirement to develop alternative options (of any mode) to the same degree as any options that have a transport planning history. What is required is a pre-feasibility assessment of alternative options, sufficient to allow appraisal to take place.



3. PART I APPRAISAL

3.1 INTRODUCTION

- 3.1.1 The Part I Appraisal is an initial appraisal of the options generated during Pre-Appraisal and involves a qualitative assessment of the likelihood of such options being able to meet the Transport Planning Objectives, and subsequently proceed to the more detailed Part 2 Appraisal.
- 3.1.2 In this respect, Part I Appraisal is intended to focus appropriate effort and resources towards options which merit detailed quantitative appraisal and eliminate options which are unlikely to meet the Transport Planning Objectives, alleviate problems or realise opportunities identified during Pre-Appraisal.
- 3.1.3 It is likely that no single option will emerge from the Part I Appraisal and as such, the Part 2 Appraisal should be used to appraise alternative options in detail.
- 3.1.4 The Part I Appraisal concentrates on the following areas:
- An initial appraisal of the likely impact of options against Transport Planning Objectives;
 - An initial appraisal of the likely impact of options against the STAG Criteria;
 - An initial appraisal of the fit of options with established policy directives; and
 - An initial appraisal of the feasibility, affordability and likely public acceptability of options.
- 3.1.5 At this phase in the STAG study, practitioners must produce an indicative assessment of the scope and scale of the benefits and impacts associated with an option for each area noted above. In addition to these tasks, it is important to be clear about relevant background information including the geographic, social and economic context for a particular study.
- 3.1.6 It should be noted that quantitative information can be used as evidence of impacts if this is available and likely to support the Part I Appraisal.

3.2 BACKGROUND INFORMATION

- 3.2.1 To provide relevant context, the Part I Appraisal requires a summary of the following:
- Geographical Context – a general statement describing the geographic area likely to be affected by the option;
 - Social Context – a summary of the social makeup of the area likely to be affected by the option; and
 - Economic Context – a description of the principal sectors and industries within the study area as well as a summary of factors affecting performance.

3.3 TRANSPORT PLANNING OBJECTIVES

- 3.3.1 A summary of the performance of each option against each Transport Planning Objective is required during Part I Appraisal. At this stage, it is recommended that this will be a wholly qualitative appraisal based on the likely impacts of the options against each Transport Planning Objective. However, where quantitative information is available without expending significant additional resources this can also be used to inform the Part I Appraisal.
- 3.3.2 A qualitative assessment should be completed for each option against each Transport Planning Objective, using a seven-point assessment scale, that considers the relative size and scale of impacts. It is important that practitioners provide details of why options are unlikely to meet the Transport Planning Objectives sufficiently and as such, should be rejected at this stage. The reasons for rejection should be clearly outlined.
- 3.3.3 If required, practitioners should undertake appropriate stakeholder participation and consultation in order to gain agreement on the likely performance of options against Transport Planning Objectives.
- 3.3.4 The methodology for this initial appraisal of options against the Transport Planning Objectives is outlined in the Technical Database.

3.4 STAG CRITERIA

- 3.4.1 At Part I Appraisal, a qualitative assessment should be completed for each option against the STAG Criteria, using a seven point assessment scale, that considers the relative size and scale of impacts. The Part I Appraisal should capture the likely impacts of options but detailed appraisal should not be undertaken until the Part 2 Appraisal phase. It should be noted that at this phase, qualitative information on likely impacts is all that is required, but, where available, quantitative information can be provided.
- 3.4.2 A summary of the requirements for appraisal against the STAG Criteria for transport is presented below:

ENVIRONMENT

- 3.4.3 The key environmental attributes and characteristics of the study area must be summarised. This should draw attention to the particular qualities of the area, making reference to specially designated sites within the study area and to known proposals for change.
- 3.4.4 The collation of environmental baseline data is important at the outset to allow an informed view to be taken of the vulnerability of the study area to likely changes associated with transport or other proposals under consideration. Baseline data is required to inform both the Part I and Part 2 Appraisals. For the Part I Appraisal, the data will be generally limited to readily available existing information.

- 3.4.5 In summary, it is important to:
- Confirm the nature of the option including the alternatives under consideration;
 - Identify if an Environmental Impact Assessment, Strategic Environmental Assessment is required;
 - Identify the range of likely impacts on the environment;
 - Identify the extent to which these impacts need to be investigated;
 - Identify methodologies to be employed;
 - Define data availability and further data gathering requirements;
 - Set the indicative thresholds and significance criteria to be used in the Evaluation of impacts;
 - Identify broad mitigation measures; and
 - Agree the above with statutory bodies.

- 3.4.6 At Part I Appraisal, a qualitative assessment should be completed using the seven-point-scale assessment, considering the relative size and scale of its impacts.

SAFETY

- 3.4.7 The Safety Criterion comprises two sub-criteria: accidents and security. In Part I Appraisal, practitioners should take account of impacts against both sub-criteria including:
- Identifying for accidents which, if any, user groups may be affected and develop projections of what will be the likely impact of each option; and
 - Considering whether each option has any material impact on security for the users.

- 3.4.8 At Part I Appraisal, a qualitative assessment should be completed using the seven-point-scale assessment, considering the relative size and scale of impacts.

ECONOMY

- 3.4.9 The Economy Criterion has three sub-criteria, which together should summarise the full extent of impacts on the Economy. These include:
- Transport Economic Efficiency (TEE) covers the benefits ordinarily captured by standard cost-benefit analysis – the transport impacts of an option;
 - Wider Economic Benefits (WEBs) relate to the notion of potential transport impacts on agglomeration and the relationship between agglomeration and productivity. Further guidance can be found in the Technical Database and practitioners should note that it is likely that appraisal of this sub-criterion should only be completed in Part 2 Appraisal; and
 - Economic Activity and Location Impacts (EALIs) allow the impact of an option to be expressed in terms of the net effects of the option on the local and/or national economy.

- 3.4.10 At Part I Appraisal, a qualitative assessment should be completed using the seven-point-scale assessment, considering the relative size and scale of its impacts.

INTEGRATION

- 3.4.11 The Integration objective has three sub-criteria, which together should summarise the full extent of integration impacts. These include:
- Transport Integration, which relates to the degree to which a proposal fits with other transport infrastructure and services;
 - Transport and Land-Use Integration, which relates to the fit between the option and established land-use plans and land-use/transport planning guidance; and
 - Policy Integration, which relates to the appropriateness of the option in light of wider policies including those of both Central and Local Government.
- 3.4.12 At Part I Appraisal, a qualitative assessment should be completed using the seven point scale assessment, considering the relative size and scale of its impacts.

ACCESSIBILITY AND SOCIAL INCLUSION

- 3.4.13 The Accessibility and Social Inclusion Criterion includes the sub-criteria of Community Accessibility and Comparative Accessibility, the Part I Appraisal involves qualitative assessment of:

Community Accessibility

- Public transport network coverage – changes in accessibility provided by the public transport system; and
- Access to local services – changes in accessibility by walking and cycling to local services.

Comparative Accessibility

- The distribution of impacts by people group – compare impacts for different population groups relevant to local policy objectives; and
- The distribution of impacts by location – compare impacts for policy sensitive locations such as Community Regeneration Areas and areas of deprivation defined by the Scottish Index of Multiple Deprivation.

- 3.4.14 At Part I Appraisal, a qualitative assessment should be completed for the overall appraisal against the Accessibility and Social Inclusion Criterion using the seven-point-scale assessment, considering the relative size and scale of impacts.

3.5 ESTABLISHED POLICY DIRECTIVES

3.5.1 The established policy directives identified during Objective Setting in Pre-Appraisal must also be considered during Part I Appraisal. A clear conflict between an option and, for example, established land-use planning policy or transport targets in the area is likely to jeopardise its potential for funding, support, approval and implementation. A positive contribution towards the achievement of other relevant objectives will be to an option's credit. Further guidance on using the established policy directives during Part I Appraisal can be found in the Technical Database.

3.6 FEASIBILITY, AFFORDABILITY AND PUBLIC ACCEPTABILITY

3.6.1 The Part I Appraisal must also assess the feasibility, affordability and public acceptability of each option. Practitioners must consider:

- Feasibility – a preliminary assessment of the feasibility of construction or implementation and operation (if relevant) of an option and the status of its technology (e.g. proven, prototype, in development, etc.) as well as any cost, timescale or deliverability risks associated with the construction or operation of the option, including consideration of the need for any departure from design standards that may be required;
- Affordability – the scale of the financing burden on the promoting authority and other possible funding organisations and the risks associated with these should be considered together with the level of risk associated with an option's ongoing operating or maintenance costs and its likely operating revenues (if applicable); and
- Public Acceptability – the likely public response is of importance at this initial appraisal phase and reference to supporting evidence, for example results from a consultation exercise must be provided where appropriate.

3.7 RATIONALE FOR SELECTION OR REJECTION

3.7.1 The rationale for selection or rejection must always be explained fully. The results of the Part I Appraisal should be presented clearly and concisely so that it is understood why options have been either taken forward to the more detailed Part 2 Appraisal or rejected on completion of Part I Appraisal. Where there is insufficient information or data available to fully justify the rejection of a particular option during the Part I Appraisal, then the particular option must be taken forward for more detailed appraisal in the Part 2 Appraisal.

3.8 PARTICIPATION AND CONSULTATION

3.8.1 The continuous process of participation and consultation can also contribute to appraising options during the Part I Appraisal and in making recommendations for the next stages in the STAG study.

3.8.2 Practitioners should plan carefully for stakeholder involvement and feedback at this stage in advance of finalising the Part I Appraisal results. Adopting a proactive approach that includes the wider public, can encourage and promote momentum in the overall process and ensure, as far as possible, consensus on outcomes.

3.9 REPORTING

3.9.1 Part I Appraisal reporting should concentrate on the following areas:

- An initial appraisal of the likely impacts of options against Transport Planning Objectives, which should record the performance using the seven-point scale assessment;
 - An initial appraisal of the likely impacts of options against the STAG Criteria which should record the performance using the seven-point scale assessment;
 - An initial appraisal of the fit of options with established policy directives – i.e. relevant established transport, land-use planning and other policies; and
 - An initial appraisal of the feasibility, affordability and likely public acceptability of options.
- 3.9.2 An outline of the appraisal work undertaken during the initial Part I Appraisal should be provided together with Part I Appraisal Summary Tables (ASTs) for all options considered during the Part I Appraisal.

PART I APPRAISAL SUMMARY TABLES

3.9.3 The Part I ASTs should set out in one place:

- A brief description of the option;
- Summary background information on the geographic, social and economic context of the study area likely to be affected by the option;
- The Transport Planning Objectives set, as defined during Objective Setting, and a summary of the performance of the option against these objectives;
- A summary of the scoping appraisal of the impacts of the option against the STAG Criteria;
- Any relevant additional established policy directives and a summary of the performance of the option against these objectives;
- A statement of the scope for implementation – i.e. feasibility, affordability and public acceptability; and
- A brief summary of the rationale for taking the option forward to Part 2 Appraisal or a summary explanation of why the option is being rejected.

- 3.9.4 For each option which is rejected at Part I there should be discussion of its performance against the Transport Planning Objectives. Additional issues which led the practitioner to conclude that the option should not progress to Part 2 will require full explanation.
- 3.9.5 Full Part I ASTs do not need to be included for rejected options although it is expected that at least partly completed Part I ASTs would be produced as part of the study process and could be called upon for audit or inquiry purposes at a later date.

Part I Appraisal: Key Points

The Part I Appraisal is intended as a check on the suitability of the options and the likelihood of options proceeding to the detailed Part 2 Appraisal. In this respect, Part I Appraisal is intended to act as an initial appraisal.

The Part I Appraisal concentrates on the following areas:

- An initial appraisal of the likely impacts of options against Transport Planning Objectives;
- An initial appraisal of the likely impacts of options against the STAG Criteria;
- An initial appraisal of the fit of options with established policy directives – i.e. relevant additional transport, land-use planning and other policies;
- An initial appraisal of the feasibility, affordability and likely public acceptability of options;
- The practitioner should produce an indicative assessment of the scope and scale of the benefits and impacts associated with the options for each area noted above;
- In addition to these tasks, it is important to be clear about relevant background information including the geographic, social and economic context for a particular study;
- At Part I Appraisal, reporting of qualitative information is all that is required but where available, quantitative information should also be provided; and
- The Part I Appraisal should be summarised using Part I ASTs.



4. PART 2 APPRAISAL

4.1 INTRODUCTION

- 4.1.1 The Part 2 Appraisal phase requires a more detailed appraisal of options taken forward from Part 1. The Part 2 Appraisal includes detailed analysis of an option's performance against:
- Transport Planning Objectives;
 - STAG Criteria;
 - Cost to Government; and
 - Risk and Uncertainty.
- 4.1.2 The Technical Database provides and references techniques and methodology to support the Part 2 Appraisal. Practitioners must adhere to the detailed guidance in the Technical Database, which may be subject to change as new techniques and methodologies emerge.
- 4.1.3 If practitioners are considering deviating from the methodology found in the Technical Database, they should consult with the Scottish Government and/or its agency Transport Scotland or other such agency for guidance and prior approval.

TRANSPORT PLANNING OBJECTIVES

- 4.1.4 Before commencing Part 2 Appraisal, practitioners must revisit the Transport Planning Objectives developed during the Pre-Appraisal phase to ensure that the Transport Planning Objectives are SMART.

STAG CRITERIA

- 4.1.5 The Part 2 Appraisal against the STAG Criteria is outlined in the following sections of this chapter and include an overview of the guidance on Part 2 Appraisal against:
- Environment;
 - Safety;
 - Economy;
 - Integration; and
 - Accessibility and Social Inclusion.

4.2 ENVIRONMENT

- 4.2.1 Within the Part 2 Appraisal, all options taken forward from Part 1 Appraisal are measured against a number of Environmental sub-criteria.

SUB-CRITERIA

- 4.2.2 The Environmental sub-criteria considered in detail during Part 2 Appraisal, include:
- Noise and vibration;
 - Global air quality – carbon dioxide (CO₂);
 - Local air quality – particulate matter (PM₁₀) and nitrogen dioxide (NO₂);
 - Water quality, drainage and flood defence;
 - Geology;
 - Biodiversity and habitats;
 - Landscape;
 - Visual amenity;
 - Agriculture and Soils; and
 - Cultural heritage.
- 4.2.3 The scoping exercise undertaken during Part 1 Appraisal should identify the relevance of each sub-criterion to a particular option and whether any additional topics need to be covered. The Part 1 Appraisal will also determine the scope and level of detail required for the appraisal against each sub-criterion at Part 2. Further detailed guidance can be found in the Technical Database.
- 4.2.4 The underlying fundamental principles are that practitioners should concentrate on significant impacts and that both qualitative and quantitative measures should be used to determine significance, provided that these measures are understandable and robust.
- 4.2.5 Significant impacts may be defined as those which should be given due consideration in decision-making. Where an impact on a particular sub-criterion is unlikely to be significant, the detailed assessment as reported in Part 2 Appraisal may not be necessary. On the other hand if the scope of the assessment is too narrowly defined, significant issues may not be identified at the outset of the study and subsequent data collection and analysis may be inadequate. Issues which are significant at the specific option level (such as land take from a particular habitat of ecological value) may not be significant at the more strategic level.

ADDITIONAL ENVIRONMENTAL ASSESSMENT REQUIREMENTS

- 4.2.6 Before substantive work is undertaken the need for a Strategic Environmental Assessment (SEA) or an Environmental Impact Assessment (EIA) should be considered carefully.

- 4.2.7 There is a certain level of overlap between STAG and both SEA and EIA. However, duplication of effort can be avoided if the available guidance on SEA and EIA is reviewed prior to undertaking the STAG study to ensure there is continuity in the methodology and approach adopted.
- 4.2.8 In summary, if a SEA or EIA is undertaken as part of the STAG study, the focus should be on:
- Collection of baseline information and identification of environmental problems;
 - Prediction of significant environmental effects;
 - Identification of mitigation measures;
 - Identification of alternatives and the effects of such alternatives;
 - Consultation with the public and authorities with environmental responsibilities;
 - Reporting on the results of the SEA/EIA assessment and how consultation responses have been taken into account;
 - Non-technical summary; and
 - Monitoring of the actual environmental effects during implementation.
- 4.2.9 The following sections provide an introduction to SEA and EIA. Practitioners should refer to the Technical Database and the statutory guidance documents on SEA and EIA if appropriate.

STRATEGIC ENVIRONMENTAL ASSESSMENT

- 4.2.10 SEA is a systematic method which extends the assessment of environmental impact beyond individual projects. The Environmental Assessment (Scotland) Act 2005 extends the scope of SEA in Scotland beyond the provisions of the European Union Directive 2001/42/EC to include strategies as well as plans and programmes.
- 4.2.11 In September 2006 the Scottish Government launched the SEA toolkit. The aim of the toolkit is to provide advice on the requirements of the Environmental Assessment (Scotland) Act 2005. The toolkit gives guidance on when a SEA will be required, practical advice on how to do a SEA and templates for each stage of the report writing process.
- 4.2.12 Further information and guidance on the SEA process can be obtained from <http://www.scotland.gov.uk/Topics/Environment/14587>.

ENVIRONMENTAL IMPACT ASSESSMENT

- 4.2.13 The European Commission Directive on Environmental Assessment (85/337/EEC) (1985) has subsequently been amended by Directive 97/11/EC and also Article 3 of Directive 2003/35/EC. The Directives set out a framework for environmental impact assessment which has been enacted in Scotland principally by means of the Environmental Impact Assessment (Scotland) Regulations 1999 as amended. These regulations are applicable to specific development projects rather than strategies, plans or programmes.
- 4.2.14 EIA draws together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects, and the scope for reducing such effects, are understood by relevant stakeholders, the public and decision makers prior to any decision being made.

PARTICIPATION AND CONSULTATION

- 4.2.15 Throughout the process it will be important to consult with statutory bodies and special interest groups who may have a responsibility and/or interest in the environmental effects of options. The main areas of expertise of statutory bodies are set out in the Technical Database. In addition to statutory bodies, non-statutory national and local interest groups, community organisations and individuals may also have an interest in the assessment of environmental effects.
- 4.2.16 The approach to each organisation may be different as some will be principally information providers, while others have statutory functions to perform or simply hold opinions on particular topics. It is good practice to develop a consultation strategy and protocol at an early stage in the process. This will identify the relevant parties for consultation and the appropriate method of approach.
- 4.2.17 It is important to note that for options requiring a SEA or EIA to be completed, there are specific reporting and consultation requirements. Further guidance is provided in the Technical Database.

REPORTING

- 4.2.18 The environmental appraisal information in the STAG Report should include a discussion of what the likely environmental effects may be and the extent to which these effects have been investigated. The methodologies used should be described and data sources listed. Particular attention should be given to explaining the indicators and significance criteria used in evaluating the impacts. Any mitigation measures that have been developed to remove or reduce the adverse effects of an option should be outlined.

- 4.2.19 The distribution of environmental impacts should be identified. Depending on the context, the distribution of impacts by social group and/or geographic area might be considered important.
- 4.2.20 The results of the appraisal of environmental impacts should be presented in a manner which will assist decision-makers and be summarised in Part 2 ASTs.
- 4.2.21 In order to provide confidence about the objectivity of the assessment underlying this summary, worksheets or working papers should be prepared for each topic and summarised within the report. These should not be included within the STAG Report although it would be expected that they could be called upon for audit or inquiry purposes at a later stage.

Part 2 Appraisal against the Environment Criterion: Key Points

The Part 2 Appraisal against the Environment Criterion involves a detailed appraisal against the following sub-criteria:

- Noise and vibration;
- Global air quality – carbon dioxide (CO₂);
- Local air quality – particulate matter (PM₁₀) and nitrogen dioxide (NO₂);
- Water quality, drainage and flood defence;
- Geological features;
- Biodiversity and habitats;
- Visual amenity;
- Agriculture and soils;
- Cultural heritage; and
- Landscape.

Consideration should focus on significant impacts with qualitative and quantitative measures used to determine significance, provided that these measures are understandable and robust.

The need for wider environmental assessment in relation to Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) should be taken into consideration by practitioners.



4.3 SAFETY

4.3.1 The Safety Criterion includes two sub-criteria which the Part 2 Appraisal should consider in detail:

- Accidents; and
- Security.

ACCIDENTS

4.3.2 The impact of an option on the number of transport related accidents and/or severity should be considered. If measurable changes to accident numbers and/or severity are identified as important impacts of an option then use should be made of established methodologies to aid the quantification of road traffic accidents. Only in exceptional circumstances should practitioners depart from such methodologies.

4.3.3 For options which change road traffic accident numbers and/or the severity of the road traffic accident, the recommended approach to appraising the accident impacts should be followed by practitioners during the Part 2 Appraisal.

4.3.4 Standard methodologies exist for calculating the projected number of accidents, the types of accidents and associated casualties in the before and after scenarios. The methods relate traffic on the road (measured by vehicle kilometres) to the number of accidents via the application of an accident rate. Accident rates (and casualty rates) for different road types are referenced in the Technical Database and should be used by practitioners.

4.3.5 Standard cost values are attributed to fatal, serious and slight casualties allowing the monetisation of accidents in the before and after scenarios, and hence the calculation of the benefits or otherwise of an option. The standard costs per accident are referenced in the Technical Database. Also referenced in the Technical Database are costs per accident for insurance administration, damage to property and police costs for different types of accidents on different types of roads.

4.3.6 STAG also allows a qualitative assessment of accident benefits to be included. A qualitative assessment can be used to highlight matters including, but not limited to:

- The user groups affected by safety improvements, for example, car occupants, pedestrians and cyclists;
- A change in the balance of accidents, for example, fewer fatalities or serious injury accidents, but an increase in slight injury accidents; and
- Any uncertainties in the assessment, such as a view that the rate based calculation either under or over estimates accident savings.

4.3.7 The methodology found in the Technical Database requires projections of vehicle-kilometres in the before and after scenarios. Such projections could be sourced from transport models, or may be derived from other data as appropriate for the scale and type of intervention being considered.

4.3.8 For public transport options, changes in accidents involving traffic due to a transfer away from cars to public transport are captured by the rate-based approach found in the Technical Database.

4.3.9 Current Government advice is that accidents on segregated rail-based systems are negligible and so need not be considered. For systems that involve shared running by rail and other road vehicles, promoters should seek the advice of the Scottish Government and/or its agency Transport Scotland on how to consider accidents in the appraisal of such options.

4.3.10 For options in the marine or aviation sectors that are expected to have a measurable impact on accident rates or the risk of accidents, specific advice should be sought from the Maritime and Coastguard Agency and the Civil Aviation Authority, as appropriate.

SECURITY

4.3.11 Where appropriate, consideration should be given to any security impacts of an option. Options may impact on a range of users including pedestrians, cyclists (and stored/secured cycles) and equestrians as well as public transport and car users. The Security sub-criterion should also consider the impacts of options on particularly vulnerable sections of the community such as children, the elderly or women travelling alone.

4.3.12 At Part 2 Appraisal it will be necessary to introduce quantitative measures to the appraisal to complement or even replace qualitative measures. Examples include:

- Outputs from surveys designed to capture users' perception of security in different scenarios or assess their preference for different security measures;
- Quality of service monitors which explicitly capture perception of security at different facilities; and
- 'Before and After' surveys of levels of use of comparative facilities where security enhancing measures have been introduced.

4.3.13 Further detailed guidance can be found in the Technical Database.

PARTICIPATION AND CONSULTATION

- 4.3.14 Participation and consultation are of particular value to informing both the appraisal of security improvements and the identification of problems associated with the security of a particular mode.

REPORTING

- 4.3.15 This section of the STAG Report should describe which, if any, user groups are affected by the options. The calculation of monetised accident costs and benefits follows a well established methodology and no further detailed descriptions are required. However, where the methodology does not allow the full benefits of an option to be identified then this, and any additional analysis, should be included in the report and summarised in the Part 2 AST.

Part 2 Appraisal against the Safety Criterion: Key Points

The Part 2 Appraisal against the Safety Criterion involves a detailed appraisal against two sub-criteria:

- Accidents; and
- Security.

Accidents

- Consideration is required of whether the option will have any measurable impact on the number of transport related accidents and/or the severity of transport-related accidents; and
- If measurable changes to accident numbers and/or severity are identified to be of significance, well established methodologies should be adopted to aid the quantification of road traffic accidents and only in exceptional circumstances should there be deviation from the standard methodologies.

Security

- The impacts of options on pedestrians, cyclists (and stored/secured cycles) and equestrians as well as public transport and car users should be considered;
- Account should be taken of the impacts of options on particularly vulnerable sections of the community such as children, the elderly or women travelling alone; and
- The adopted approach is largely qualitative. Quantitative methods may be adopted if they are robust and have been discussed with the Scottish Government and/or its agency Transport Scotland or other agency, as appropriate.



4.4 ECONOMY

4.4.1 The Part 2 Appraisal under the Economy Criterion has three sub-criteria which together should summarise the full extent of economic impacts. These are:

- Transport Economic Efficiency (TEE) – the benefits ordinarily captured by standard cost-benefit analysis – the transport impacts of a proposal;
- Wider Economic Benefits (WEBs) – relate to the notion of wider economic benefits derived from the impact of transport upon agglomeration, and the underlying relationship of impacts of agglomeration upon productivity; and
- Economic Activity and Location Impacts (EALIs) – allow the impacts of a proposal to be expressed in terms of their net effects on the local and/or national economy.

TRANSPORT ECONOMIC EFFICIENCY (TEE)

4.4.2 This section provides guidance on how to assess the contribution that an option may have on economic welfare. Cost benefit analysis techniques are used to show the net welfare effect, as measured by costs and benefits, of options. It provides guidance on the principles which underpin the general approach to be followed and outlines issues and methodologies relating to different components.

4.4.3 Additional Transport Economic Efficiency guidance is available for practitioners in the Technical Database.

CALCULATION OF TEE INPUTS

BENEFITS TO TRANSPORT USERS

4.4.4 The economic benefits of transport projects are often captured through an analysis of the impacts on transport users. Benefits to users often fall into the following sub-groups:

- Transport users whose travel patterns do not change but who enjoy time saving and/or other benefits;
- Diverting users, who switch from other routes because of changes in relative (generalised) costs;
- Diverting users who switch mode in response to changes in relative (generalised) costs;
- Generated users, whose use was previously frustrated by, for example, traffic conditions on the proposal, route or service; and
- Redistributed users who may change their origin or destination in response to transport changes (for example, finding employment elsewhere).

4.4.5 Benefits typically arise from a combination of the following:

- Changes in the monetary costs of travel;
- Journey time savings achieved directly, for example by using a new road or bridge rather than the next best alternative;
- Improvements in journey time reliability, which may be especially important for certain types of users such as delivery services; and
- Improvements in journey quality, such as comfort or reduction in number of interchanges.

4.4.6 As transport projects form part of a system or network, network-wide effects should be considered. This can help show whether transport users of other modes or routes gain if an option is implemented. Network effects which may contribute to benefits for non users include:

- Reduction in journey times on other routes which arise because of some users of the other route(s) switching to the new route or switching mode; and
- Improvements in journey time reliability and other aspects of journey quality, arising for similar reasons.

PRIVATE SECTOR OPERATOR IMPACTS

4.4.7 The other category of transport economic efficiency benefits is the impact on private sector operators – investment costs, operating and maintenance costs, revenues and grant/subsidy payments. Guidance on how to assess these impacts can be found in the Technical Database.

APPRAISAL PARAMETERS

4.4.8 Standard appraisal parameters are applicable for appraisal against the Economy Criterion and in particular, within TEE calculations. The Technical Database includes guidance on adopting the appropriate appraisal parameters. Practitioners must follow this guidance and, if required, request advice from Transport Scotland on technical matters relating to the appraisal parameters set out in the Technical Database.

WIDER ECONOMIC BENEFITS (WEBs)

4.4.9 The second sub-criterion found under the Economy Criterion, concerns Wider Economic Benefits (WEBs) derived from the impact of transport upon agglomeration, and the underlying relationship of impacts of agglomeration upon productivity. Practitioners must follow the Technical Database guidance and if required, request advice from Transport Scotland.

ECONOMIC ACTIVITY AND LOCATION IMPACTS (EALIs)

- 4.4.10 Economic Activity and Location Impact analysis will only be necessary if it has been identified as important or significant within the Part 1 Appraisal. If so, practitioners should seek to identify and quantify impacts at the national and local level. As a practical approach to identifying and quantifying EALIs (at least in orders of magnitude), it is necessary to consider the nature and scale of these on a case-by-case basis.
- 4.4.11 A case-by-case approach must be tailored specifically to the transport option under consideration and to the appropriate area or spatial level. This forms a partial analysis, which involves a detailed segmentation of the economic actors in the spatial areas relevant to the appraisal of the option.
- 4.4.12 The Technical Database sets out the approach which should be followed for the detailed appraisal of EALIs. Practitioners should follow this guidance and, if required, request the advice of Transport Scotland on technical matters relating to the detailed appraisal guidance on EALI analysis.
- 4.4.13 The approach outlined can be tailored to particular studies and local circumstances, with the degree of quantification appropriate to the size of the study, the scale of the option under consideration and the expected relative significance of EALIs (both positive and negative) in the overall appraisal.

PARTICIPATION AND CONSULTATION

- 4.4.14 It will be useful for practitioners to agree appraisal parameters, methodologies and appropriate appraisal tools with the Scottish Government and/or Transport Scotland in advance of the detailed Part 2 Appraisal of impacts against the Economy Criterion. Detailed information on participation and consultation guidance for EALI analysis should be particularly useful to practitioners and this is outlined in the Technical Database.

REPORTING

- 4.4.15 It is important that practitioners provide clear and concise details of the impacts which are calculated during Part 2 Appraisal under the Economy Criterion in the STAG Report. For the TEE analysis, it should be clear what is driving the present value of benefits calculated and what appraisal parameters have been used. A tabular presentation of results is expected in the Part 2 AST with supporting information provided to outline the main quantitative impacts calculated.
- 4.4.16 Similarly, the WEB and EALI analysis should be summarised in the Part 2 AST with supporting information provided where relevant. If no impacts are found against either the WEB or EALI sub-criteria then this should be stated clearly.

Part 2 Appraisal against the Economy Criterion: Key Points

The Part 2 Appraisal against the Economy Criterion involves a detailed appraisal against three sub-criteria:

- Transport Economic Efficiency (TEE);
- Wider Economic Benefits (WEBs); and
- Economic Activity and Location Impacts (EALIs).

Transport Economic Efficiency (TEE)

Net benefits to transport users, comprising:

- Travel time savings;
- User charges including fares, parking charges and tolls;
- Vehicle operating cost changes for road vehicles;
- Quality benefits to transport users; and
- Reliability benefits to transport users.

Net benefits to private sector operators, comprising:

- Investment costs;
- Operating and maintenance costs;
- Revenues; and
- Grant and subsidy payments.

Wider Economic Benefits (WEBs)

WEB analysis relates to the notion of Wider Economic Benefits derived from the impact of transport upon agglomeration, and the underlying relationship of impacts of agglomeration upon productivity.

Economic Activity and Location Impacts (EALIs)

EALI analysis allows the impacts of an option to be expressed in terms of their net effects on the local and/or national economy.



4.5 INTEGRATION

4.5.1 There are three sub-criteria to the Part 2 Appraisal of the Integration Criterion:

- Transport Integration – the degree to which an option fits with other transport infrastructure and services;
- Transport and Land-Use Integration – the fit between an option and established land-use plans and land-use/transport planning guidance; and
- Policy Integration – the appropriateness of an option in light of wider policies including those of both Central and Local Government.

4.5.2 These sub-criteria are different in both concept and scope, and they therefore require separate treatment in the STAG study.

TRANSPORT INTEGRATION

4.5.3 The Part 2 Appraisal requires detailed consideration of the following aspects of Transport Integration:

- Services and ticketing; and
- Infrastructure and information.

4.5.4 In relation to services and ticketing, the Part 2 Appraisal should focus on:

- Seamless public transport network (where the user's experience is of a single, genuinely integrated system); and
- Seamless ticketing (where no barriers are presented to purchasing whole-journey tickets).

4.5.5 Consideration of infrastructure and information relates to what is provided at an interchange point independent of actual public transport services. Examples include, but are not limited to:

- Quality of infrastructure: waiting areas, amenities on site (such as toilets, refreshment areas and shops), quantity and quality of seating;
- Layout: distances between boarding points, changes of level, widths of corridors, physical accessibility/barrier-free design, weather protection; and
- Information: provision of accessible information, provision of whole-journey information, accuracy of information (e.g. real-time), signing between points.

TRANSPORT AND LAND-USE INTEGRATION

4.5.6 Developments in UK and Scottish Government policy in recent years have provided a clear framework for the integration of land-use and transport planning with a focus on sustainability and reducing the need to travel. It is expected that options emerging from STAG studies are consistent with existing policy.

4.5.7 For the Part 2 Appraisal the relationship between an option and any major existing or proposed developments should be considered to determine the likely impacts of an option on existing and planned land-use developments.

POLICY INTEGRATION

4.5.8 The Part 2 Appraisal requires more detailed checks to identify complementary or conflicting impacts with the wider Scottish policy context including, but not limited to, the Government's Purpose. Additional benefits in the context of Scottish policy on disability, health and rural matters together with further social inclusion impacts should also be outlined. The purpose is to check for compliance with legislation and policy in addition to specific accessibility issues, including but not limited to:

- Disability;
- Health;
- Rural Affairs; and
- Social Inclusion.

4.5.9 The Part 2 Appraisal also requires a more detailed assessment of the consistency of options with national transport targets, for example for road traffic reduction.

PARTICIPATION AND CONSULTATION

4.5.10 Consultation should be integral when considering the impact of an option on Integration. For example, in terms of Transport and Land-Use Integration it may be appropriate to target individuals involved in planning decisions at the local and regional level. Furthermore, the movement of people is a key aspect of Transport Integration and users should be consulted to ensure account is taken of real and perceived integration issues.

REPORTING

4.5.11 Reporting on Integration in the STAG Report should cover the three sub-criteria of Transport integration, Transport and Land-Use Integration and Policy Integration.

4.5.12 It should be noted that there is possible overlap and the potential for double counting between Transport Integration and Transport Economic Efficiency (TEE) appraisal. It is therefore important for practitioners to provide an explanation in support of the Part 2 AST in the form of answers to the following two questions:

- Is there an identifiable impact upon transport interchange resulting from the option; and
- Is it definitely the case that some aspect(s) of this impact will not be captured by the TEE or another aspect of the appraisal?

- 4.5.13 Under the Transport and Land-Use sub-criterion any conflicts and potential synergies with existing statutory documents concerning planning should be reported. In addition it is necessary to demonstrate that a proper analysis has been undertaken of the relationship between the option and any major existing or proposed developments, taking into account the principles of sustainability and reduction in the need to travel.

Part 2 Appraisal against the Integration Criterion: Key Points

The Part 2 Appraisal against the Integration Criterion involves a detailed appraisal against three sub-criteria:

- Transport Integration;
- Transport and Land-Use Integration; and
- Policy Integration.

Transport Integration

- The Transport Integration sub-criterion should focus on services and ticketing and infrastructure and information.

Transport and Land Use Integration

- The relationship between an option and any major existing or proposed development should be considered in accordance with established land-use policy to determine the likely impacts of an option in the context of existing and planned land-use developments.

Policy Integration

- For Policy Integration, a series of checks are required to establish whether the options integrate with wider policies, including those of both Central and Local Government including, but not limited to, the Government's Purpose; and
- Additional benefits in the context of policy on disability, health and rural matters should be identified, together with further social inclusion impacts.



4.6 ACCESSIBILITY AND SOCIAL INCLUSION

4.6.1 Accessibility is a broad concept that defines the ability of people and businesses to access goods, services, people and opportunities. The Part 2 Appraisal focuses on detailed qualitative and quantitative assessment of Community and Comparative Accessibility.

COMMUNITY ACCESSIBILITY

4.6.2 Community Accessibility comprises:

- Public Transport Network Coverage – a consideration of the impacts of an option on each group in society for a range of trip purposes; and
- Local Accessibility – the measurement of opportunities to walk or cycle to services and facilities is required, including severance arising from proposed changes.

COMPARATIVE ACCESSIBILITY

4.6.3 Comparative Accessibility considers the distribution of impacts by:

- People group – particular attention should be given to the needs of socially excluded groups with age, gender, mobility impairment, income group and car ownership factors of relevance; and
- Geographic location – locations relevant to the local Transport Planning Objectives considered, for example community regeneration areas, areas of disadvantage and deprivation and rural areas. The appraisal should describe where impacts are occurring and compare the impacts within these locations with other areas.

4.6.4 It should be noted there is also a further aspect to Accessibility – expressed or revealed accessibility i.e. the demand for travel. This is captured through the Transport Economic Efficiency (TEE) analysis completed as part of the economic appraisal where a monetary value can be provided for observed and forecast travel demand.

EQUALITY IMPACT ASSESSMENT

4.6.5 The Public Sector Equality Duties require public bodies to promote race, disability and gender equality. As part of this requirement public bodies should take due consideration of the impact of their policies and practices on race, disability and gender issues through the undertaking of an Equality Impact Assessment. It is also good practice for account to be taken of age, sexual orientation and faith. Further information on the requirements of the Public Sector Equality Duties and Equality Impact Assessment process is available from <http://www.scottishexecutive.gov.uk/Topics/People/Equality>.

PARTICIPATION AND CONSULTATION

4.6.6 With a focus on people and places rather than modes of transport, consultation should be integral to the appraisal of the impacts of an option on Accessibility and Social Inclusion. This is of particular value to the accessibility analysis completed in that the opportunity is presented to capture both real and perceived accessibility issues. Coverage should therefore be wide ranging and focus on people and places rather than modes of transport. A range of methods can be used and the selected approach should be fully reported. Further detailed guidance can be found in the Technical Database.

REPORTING

4.6.7 A presentation of results should be given in the Part 2 AST with supporting information provided to outline the main impacts identified.

4.6.8 Accessibility and Social Inclusion findings can be much easier to understand when presented on maps. The Technical Database outlines the different options available for presenting Accessibility and Social Inclusion results for each of the sub-criteria considered. This should be included in the STAG Report and presented clearly and concisely.



Part 2 Appraisal against the Accessibility and Social Inclusion Criterion: Key Points

The Part 2 Appraisal against the Accessibility and Social Inclusion Criterion involves a detailed appraisal against two sub-criteria:

- Community Accessibility; and
- Comparative Accessibility.

Community Accessibility

- This includes consideration of public transport network coverage and access to local services.

Comparative Accessibility

- This concerns the distribution of accessibility impacts by people group (for example age, gender etc) and by location.

Consideration should also be given to the need to complete an Equality Impact Assessment in accordance with the Public Sector Equality Duties for race, disability and gender. It is also good practice for account to be taken of age, sexual orientation and faith.



4.7 COST TO GOVERNMENT

- 4.7.1 At Part 2 Appraisal, it is essential to assess the net cost of an option from a public spending perspective. This cost can then be compared with the total benefits of the option in terms of the STAG Criteria. This allows an overall value for money assessment to be made. It is important that practitioners adhere to the detailed Cost to Government and Risk and Uncertainty guidance provided in the Technical Database. This will ensure that costs are presented robustly and consistently across Scotland.
- 4.7.2 Cost to Government refers to all costs incurred by the public sector as a whole, net of any revenues. The total net cost consists of investment costs, operating and maintenance costs, grant/subsidy payments, revenues, and taxation impacts. All investment costs presented should be adjusted for Optimism Bias. Detailed guidance on Optimism Bias is outlined in the Technical Database.
- 4.7.3 Costs and revenues to private sector operators should be separately identified. If there is any ambiguity about whether a cost should be allocated to the public or the private sector (e.g. in the case of public-private partnerships), advice should be sought from the Scottish Government and/or its agency Transport Scotland.

INVESTMENT COSTS

- 4.7.4 These should include all infrastructure and other capital costs incurred by public sector operators which are additional to those incurred in the do-minimum scenario. In addition to construction costs, fees, design, land acquisition and other preliminary works should be included.

OPERATING AND MAINTENANCE COSTS

- 4.7.5 Operating and maintenance costs should include the annually recurring costs incurred by the public sector in running and maintaining the option considered.

GRANT AND SUBSIDY PAYMENTS

- 4.7.6 Should private sector operator revenues not cover the investment and operating costs, some form of grant or subsidy may be required for the delivery of an option by private sector operators. Any such grant or subsidy represents a Cost to Government.
- 4.7.7 At the appraisal phase funding agencies are unlikely to be able to give commitments or to be precise about the amounts of support likely to be available. However, the deficit arising from private sector provision without the benefit of grant or subsidy will be indicative of the level of support likely to be required to deliver the proposal (although the private sector is likely to require an additional profit margin/return on capital).

4.7.8 Grant and subsidy payments are transfer payments, and hence the assumed level of subsidy provision should not affect the overall net present value of an option – it simply affects the distribution of costs and benefits between different parties. The figure recorded under Cost to Government should be equal, but of opposite sign to, the figure recorded in the Grant/Subsidy section of Private Sector Operator Impacts in the Transport Economic Efficiency section of the appraisal.

4.7.9 In some cases, it may be possible to identify potential developer contributions. In effect, these are ‘negative grants’. These contributions also represent transfer payments and should be recorded both as a benefit to the public sector and a cost to the private sector.

REVENUES

4.7.10 Public sector revenues are most likely to be relevant in the case of road user charging and where an option would impact on parking revenues. Revenues are related to user charges, as user charges represent monetary transfers from users to the Government, although in many cases the revenues are subsequently re-invested in the transport system.

INDIRECT TAX REVENUE

4.7.11 Options which substantially promote public transport can lead to reductions in HM Revenue & Customs tax receipts by shifting expenditure from cars and car fuel, which are heavily taxed, to public transport services on which the indirect tax rate is relatively low. Similarly, a saving in fuel costs for drivers (e.g. due to a road improvement) will lead to loss of tax revenue to Government.

4.7.12 These impacts represent costs to the Government, and it may therefore be necessary to assess the expected change in indirect tax revenue to the Government due to changes in the transport sector.

APPRAISAL PARAMETERS

4.7.13 The Technical Database includes detailed guidance on adopting standard appraisal parameters which are applicable for the detailed appraisal of Cost to Government and in particular, for the assessment of investment costs, lifecycle costs and indirect tax revenue impacts. Practitioners must follow this guidance and, if required, request the advice of Transport Scotland on technical matters relating to the appraisal parameters found in the Technical Database.

PARTICIPATION AND CONSULTATION

4.7.14 It will be useful to engage with stakeholders and specialists during the early stages of the transport planning process through to the Part 2 Appraisal to accurately identify public sector costs. If practitioners are uncertain about whether specific costs are public or private, then advice should be sought from the Scottish Government and/or Transport Scotland.

REPORTING

4.7.15 At this stage in the STAG Report, there must be a clear statement of the likely net cost of the option/s under consideration. This should include all costs incurred by the public sector as a whole, net of any revenues.

4.7.16 If possible, costs should be broken down further with potential funding partners and procurement routes identified. Although desirable, it is acknowledged that this may only be possible for options that are at an advanced stage of development.



Cost to Government: Key Points

- It is essential that the likely net cost of an option from the public sector's point of view is identified within the appraisal. This enables a comparison with the total benefits and an assessment of overall value for money.
- Cost to Government refers to all costs incurred by the public sector as a whole, net of any revenues. The total net cost consists of investment costs, operating and maintenance costs, grant/subsidy payments, revenues, and taxation impacts.
- In many cases the revenues of private sector operators are unlikely to cover the investment and operating costs of an option considered. As a result, some form of grant or subsidy may be required, and any such payments represent a cost to the Government.
- Revenues are most likely to be relevant in the context of road user charging and parking strategies. Some options, particularly those aimed at promoting modal shift, could have a significant impact on indirect tax receipts. These impacts represent costs to the Government and, where appropriate, the appraisal should assess the expected change in indirect tax revenue attributable to changes in the transport sector.
- All capital costs and estimate of works duration should be adjusted for Optimism Bias and risk.



4.8 RISK AND UNCERTAINTY

- 4.8.1 In appraisals there is always some difference between what is expected, and what eventually happens, because of biases unwittingly inherent in the appraisal, and risks and uncertainties that materialise. As a result, it is important to identify and mitigate risks, and make allowances for Optimism Bias.
- 4.8.2 The aim of taking account of risks, uncertainties, and Optimism Bias is to obtain the best possible estimates of the costs and benefits of each option.
- 4.8.3 Practitioners should calculate an expected value of all risks for each option and consider how exposed each option is to future uncertainty. In addition, before and during implementation, steps should be taken to prevent and mitigate both risks and uncertainties. Risk management strategies should be adopted for the appraisal and implementation of large transport options being considered, although these principles can also be applied to smaller options.

RISK MANAGEMENT

- 4.8.4 Risk management is a structured approach to identifying, assessing and controlling risks that emerge during the course of the option lifecycle. This supports better decision-making by developing a more thorough understanding of the risks inherent within an option and their likely impact. Risk management involves:
- Identifying possible risks in advance and putting mechanisms in place to minimise the likelihood of their materialising with adverse effects;
 - Having processes in place to monitor risks, and access to reliable, up-to-date information about risks;
 - The right balance of control in place to mitigate the adverse consequences of the risks, if they should materialise; and
 - Decision-making processes supported by a framework of risk analysis and evaluation.
- 4.8.5 At the level of individual transport projects, risk management strategies should be adopted in a way that is appropriate to their scale. The aim of risk management is not necessarily to completely eliminate risks, but to reduce risks wherever the cost of mitigation is less than the cost of the risk.

OPTIMISM BIAS

- 4.8.6 There is a demonstrated, systematic, tendency for project appraisers to be overly optimistic. This is a worldwide phenomenon that affects all types of projects, including transport, in both the private and public sectors. The available evidence suggests that many project parameters are affected by optimism – appraisers tend to overstate benefits, and understate timings and costs, both capital and operational.

- 4.8.7 To redress this tendency, appraisers should make explicit adjustments for this bias when appraising projects. These will take the form of increasing estimates of the costs and decreasing, and delaying the receipt of, estimated benefits. Sensitivity testing should be used to consider uncertainties around the adjustment for Optimism Bias.

QUANTIFIED RISK ASSESSMENT (QRA)

- 4.8.8 Practitioners are required to present a Quantified Risk Assessment (QRA) for all transport options. As project design and development progresses, it should become possible to explicitly quantify and value risk factors. The assessment of risk allows practitioners to calculate a risk-adjusted expected value of the option. In general terms this is calculated by multiplying the probability of the risk occurring by the size of the outcome (as monetised) and summing the results for all the risks and outcomes. However, practitioners are required to undertake a number of steps before deriving the risk-adjusted expected value. Further details on this process are provided in the Technical Database

ASSESSING UNCERTAINTY

- 4.8.9 An expected value is a useful starting point for understanding the impact of risk between different options. However, no matter how well risks are identified and analysed, the future is uncertain. Therefore it is also essential to consider how future uncertainties could affect the choice between options.

SENSITIVITY ANALYSIS

- 4.8.10 Sensitivity analysis is a fundamental part of a STAG study. It is used to test the vulnerability of options to future uncertainties which are unavoidable. Through analysing the range of values for key variables through sensitivity analysis any resultant effects on options can be examined.
- 4.8.11 The calculation of switching values shows by how much a variable would have to fall or rise to make it not worth undertaking an option. This should be considered a crucial input into the decision as to whether a proposal should proceed.
- 4.8.12 Therefore it should be the norm, rather than the exception, to carry out sensitivity analysis on the key variables for a given transport option considered during Part 2 Appraisal. These variables will usually have a significant impact on either the overall cost or benefit of the project.

PARTICIPATION AND CONSULTATION

- 4.8.13 It is important that the participation and consultation activities adopted as part of a STAG study feed into the risk and uncertainty analysis undertaken by transport planners. It will be useful to engage with stakeholders and specialists during the early stages of a STAG study through to the STAG Part 2 analysis in order to identify, control and mitigate risks identified.

REPORTING

- 4.8.14 The practitioner should be able to demonstrate in the STAG Report the steps taken to identify, control and mitigate the risks identified. It should also be clear what allowances have been made for Optimism Bias. It is a requirement that all capital costs used in the Part 2 Appraisal and reported in the ASTs have been adjusted for Optimism Bias and an explanation of the methodology adopted to do this and the outcome should be clearly and concisely reported.
- 4.8.15 Sensitivity testing of key variables for a given option is also required to demonstrate the robustness of the option to the assumptions made. It should be made clear what key variables were selected for sensitivity analysis and also what the outcomes were from this analysis and the implications for the proposal under consideration. It is expected that explicit consideration of risk and uncertainty will feed back into the feasibility, affordability and public acceptability analysis undertaken during Part 1 Appraisal.
- 4.8.16 Further detailed guidance on all matters relating to Risk and Uncertainty analysis can be found in the Technical Database. Practitioners should seek the advice of the Scottish Government and/or Transport Scotland where further clarity is required.



Risk and Uncertainty: Key Points

- All risks and uncertainties associated with an option need to be fully taken into account within a STAG study.
- Risk management strategies should be adopted throughout the appraisal and implementation stages of options in order to ensure that steps have been taken to prevent and mitigate risks and uncertainties.
- Evidence from past transport projects illustrates that there is a systematic tendency for project appraisers to be overly optimistic when estimating costs and benefits. To redress this tendency, practitioners should make explicit adjustments for bias when appraising projects.
- When more reliable estimates of relevant costs are built up, risks are explicitly assessed and quantified, and work to minimise project-specific risks is undertaken, adjustments can be made to reduce the level of Optimism Bias.
- However, in general, even with a well developed project there will remain some risks which cannot be foreseen. In such cases it will not be possible to include these risks in the expected value, so instead a contingency figure should be added in order to take account of possible unanticipated risks.
- No matter how well risks are identified and analysed, the future is uncertain. Therefore a fundamental part of a STAG study is to carry out sensitivity analysis to test the vulnerability of options to future uncertainties.
- Through analysing the range of values that key variables may take, practitioners can examine how this may alter the preferred option.

4.9 PART 2 APPRAISAL SUMMARY TABLES

- 4.9.1 The Part 2 ASTs summarise the results of the Part 2 Appraisal and are more detailed than the Part 1 Appraisal ASTs. The Technical Database provides detailed guidance on preparing the Part 2 ASTs.



5. THE STAG REPORT

5.1 OVERVIEW

- 5.1.1 All STAG study submissions to the Scottish Government and/or its agency Transport Scotland must be incorporated in the STAG Report. The STAG Report must reflect that STAG is one continuous process and the format of the STAG Report must follow the structure of the Guidance:
- Introduction;
 - Analysis of Problems and Opportunities;
 - Objective Setting;
 - Option Generation, Sifting and Development;
 - Part 1 Appraisal;
 - Part 2 Appraisal;
 - Cost to Government;
 - Risk and Uncertainty;
 - Option Summary Table;
 - Monitoring Plan;
 - Evaluation Plan; and
 - Conclusions.
- 5.1.2 The aim of the STAG Report is to provide a concise summary of the work undertaken to demonstrate that the process of STAG has been followed. Whilst the report should be concise, the size of the report will be determined by the complexity of the transport planning exercise undertaken. For this reason specific guidelines on the size of reports are not included in this Guidance.
- 5.1.3 The STAG Report is intended to act as a summary of technical reports completed throughout a STAG study and, as such, the principal audience should be viewed as the public. Where appropriate, the STAG Report should refer to the availability of technical reports, but should not normally include such technical reports.
- 5.1.4 All information contained in the STAG Report should be easy to read, that is, it should be clear, use non-technical language and present information in a logical manner using appropriate maps, diagrams or other illustration tools.
- 5.1.5 A commentary on the contribution of option(s), satisfactorily completing the Part 2 Appraisal, to the Government's Purpose must be included in the STAG Report. This should be presented as part of the information included within an Option Summary Table (OST). The Technical Database provides detailed guidance on preparing a OST.
- 5.1.6 Option Summary Table (OST). The Technical Database provides detailed guidance on preparing an OST.

The STAG Report: Key Points

All STAG study submissions to the Scottish Government and/or its agency Transport Scotland must be incorporated in the STAG Report. The format of the Report must follow the process of STAG:

- Introduction;
- Analysis of Problems and Opportunities;
- Objective Setting;
- Option Generation, Sifting and Development;
- Part 1 Appraisal;
- Part 2 Appraisal;
- Cost to Government;
- Risk and Uncertainty;
- Option Summary Table;
- Monitoring Plan;
- Evaluation Plan; and
- Conclusions.



6. POST APPRAISAL

6.1 MONITORING

- 6.1.1 Monitoring is the process of gathering and interpreting information on the performance of a project post-implementation. This process should be on-going and will usually take place in conjunction with other information gathering exercises being undertaken by a local authority or other organisation implementing an option.
- 6.1.2 The term 'project' is used in this section for any option which has been implemented, whether it is an individual project or programme comprising a series of projects. Similarly, at this stage the term 'project manager' is used to describe those who would undertake the Monitoring.

PROPOSED MONITORING PLAN

- 6.1.3 As part of a STAG study a Monitoring Plan should be developed to outline how Monitoring will be undertaken following implementation. This should be reported in the STAG Report. Further guidance is provided in the Technical Database. It is important to consider the scope of Monitoring activity during a STAG study. Failure to do so will make it difficult to assess the impacts of projects after their implementation. A Monitoring framework should therefore be established early in a STAG study to ensure the gathering of relevant and appropriate information.
- 6.1.4 The Monitoring Plan should form an integral part of the development and implementation of projects. Selecting measurable indicators of progress towards meeting the Transport Planning Objectives, performance against the STAG Criteria and evaluating the impacts of the project on established policy directives should be seen as a priority. Key performance indicators (KPIs) must, however, be set early in the development process.
- 6.1.5 Developing the Monitoring Plan at the same time as setting targets and indicators can help in defining more affordable Monitoring programmes.

PROJECT MONITORING

- 6.1.6 Effective Monitoring requires the regular analysis of the information being gathered in order to continuously review the performance of the project against the established Transport Planning Objectives and STAG Criteria and the impacts of the project on established policy directives. Used in this way, Monitoring should identify any areas of under-performance, and should also identify factors causing under-performance, thus allowing practitioners to implement appropriate changes at an early stage.

- 6.1.7 Monitoring performance is fundamentally important as it allows a measurement to be made of whether a project has been successfully implemented or not. The current focus in transport planning, and many other areas of government, is to measure success in terms of Best Value. This requires a measurement of outcomes from projects to be made rather than the outputs of an authority's activity.
- 6.1.8 The levels of effort and expenditure required to monitor a project will vary. There are a range of factors which should be considered when determining the appropriate level of effort and expenditure for a particular project, including the level of resources available (both in terms of time and finances); the scale of the project; the degree of innovation of the project; and the degree of risk exposure associated with adverse outcomes and the quality/robustness of the Monitoring outcome.
- 6.1.9 Resource requirements associated with Monitoring should also be determined by the amount of information already available. It is important for practitioners to scan for information that may already be in the public domain. This would include Best Value reviews, Audit Commission reviews and modernising local government sources. It should be noted there are also ongoing traffic surveys and national data sources to draw upon.

PARTICIPATION AND CONSULTATION

- 6.1.10 Stakeholders should be consulted during the development and implementation of the Monitoring Plan. Support for the Monitoring Plan is essential as when agreed it will ensure performance can be effectively monitored and the integrity of a STAG study is maintained.

REPORTING

- 6.1.11 The project manager should develop a Monitoring Report that reflects the proposed Monitoring Plan developed as part of a STAG study. The details of this Monitoring Plan should be clearly described within the Monitoring Report.
- 6.1.12 The Monitoring Report will allow performance against objectives and indicators to be formally recorded. Monitoring periods by their very nature are required to be flexible and responsive to the type of information which becomes available between prescribed Monitoring intervals.
- 6.1.13 A large, technical, document is not appropriate for a Monitoring Report. Rather, a summary report in which key findings and trends are identified and displayed in a readable format is preferable. The use of charts and diagrams rather than paragraphs of text to convey relevant information should be used wherever appropriate. As part of the Monitoring Report an indication of the scope and timing of the Evaluation should be provided.

- 6.1.14 As the results of a Monitoring Plan are assessed, the detailed performance indicators and targets may need to be re-defined. The development of revised targets and performance indicators must be carefully considered and be compliant with SMART principles and be linked to the Transport Planning Objectives, STAG Criteria and established policy directives. In particular, such targets and performance indicators must continue to be achievable, yet challenging.
- 6.1.15 Depending on the Monitoring results, it might be necessary to consider whether a detailed Evaluation is warranted before making any major changes to the project.
- 6.1.16 The Monitoring Plan itself may need to be reviewed over time and modified according to the extent to which it is achieving reliable and cost effective results.
- 6.1.17 Additionally, the Monitoring Plan, detailed performance indicators and targets may need to be reviewed and updated to appropriately reflect any changes to established policy directives.
- 6.1.18 For the purposes of the STAG Report it will only be necessary to provide an indication of the proposed scope of the Monitoring to be undertaken and the identification of appropriate indicators to measure performance against the Transport Planning Objectives and STAG Criteria and the impact of the project on established policy directives.

Monitoring: Key Points

The term 'Monitoring' describes an ongoing process which has an important role in determining the success of a project in achieving established Transport Planning Objectives and measuring the performance of the project against the STAG Criteria and the impacts of the project on established policy directives. Monitoring includes:

- The development of a proposed Monitoring Plan, as part of a STAG study, to outline how Monitoring will be undertaken, post-implementation, and the scope of the Monitoring process;
- The development of challenging but achievable key performance indicators (KPIs) clearly linked to the Transport Planning Objectives, STAG Criteria and established policy directives;
- The collection, analysis and interpretation of data relating to any number of established indicators. The amount of effort and expenditure required should be appropriate to the scale and nature of the proposed intervention; and
- The development of a Monitoring Report to detail the extent to which a project is delivering value for money and achieving the objectives set.



6.2 EVALUATION

- 6.2.1 Evaluation is a specific post-implementation event designed to identify whether or not a project is performing as originally intended, whether, and to what extent, it is contributing to established policy directives and whether the implemented project continues to represent value for money. An Evaluation will use information gathered for Monitoring purposes but will also involve data gathering, analysis and detailed interpretation that is particular to the Evaluation itself.
- 6.2.2 Evaluation is always undertaken against indicators and targets derived from the Transport Planning Objectives, STAG Criteria and relevant established policy directives for a particular project and involves comparisons of the ‘do-minimum’ with actual outcomes. It is, therefore, important that, at the outset, Transport Planning Objectives are set within a framework that assists subsequent Evaluation.

PROPOSED EVALUATION PLAN

- 6.2.3 As part of a STAG study an Evaluation Plan should be developed to outline how Evaluation will be undertaken following implementation. It is expected the Evaluation Plan would consider the following:
- **Process Evaluation** – this is conducted at an early stage in the existence of a project and which is primarily concerned with how well the project has been implemented, this is also known as formative Evaluation; and
 - **Outcome Evaluation** – this is conducted once the project has been in existence for a sufficient period to enable an examination to be undertaken of actual performance against identified targets.
- 6.2.4 During a STAG study, the term ‘practitioners’ was used to describe those planning, developing and appraising an option. At the Evaluation stage the term ‘project manager’ is considered more appropriate and would be used to describe the manager who would adopt the Evaluation Plan outlined in the STAG Report.

PROCESS EVALUATION

- 6.2.5 Process Evaluation is concerned with implementation, and it is therefore necessary to establish a usable number of performance indicators and measures relevant to what is expected during implementation. These may be thought of as tests of good implementation practice.
- 6.2.6 Process Evaluation is particularly useful in the early stages of implementation when there is scope for amending a project to make it more efficient or effective. The precise point in time for such an Evaluation has to be judged carefully to ensure that initial problems have been addressed and resources are not being used ineffectively where a project is performing poorly.



- 6.2.7 There can be particular value in the undertaking of Process Evaluation to highlight issues such as project selection and planning, the application and funding process, the way in which funds are allocated and the management of the project at national and local levels.
- 6.2.8 Process Evaluation should also highlight issues for the future Outcome Evaluation, including the extent to which the information being produced by the Monitoring process is likely to be adequate for subsequent Outcome Evaluation.

OUTCOME EVALUATION

- 6.2.9 Outcome Evaluation should look for clear and measurable outcomes from the project. The timing of an Outcome Evaluation needs to be carefully programmed. If undertaken too soon, final impacts may not have had time to ‘work through’, but if undertaken too late, resources will be wasted if the project is not efficient or effective.
- 6.2.10 Outcome Evaluations are intended to answer questions such as ‘what is the extent of the identified outcomes, and what were the costs of achieving this?’ and, where comparisons can be made with similar projects, ‘do these resources and outcomes together represent value for money?’.
- 6.2.11 The process used in an Outcome Evaluation may be set out as a series of sequential steps, as follows:
- Definition of scope and purpose;
 - Project rationale;
 - Aims and objectives;
 - Measures and indicators;
 - Base case for comparison;
 - Analysis and interpretation; and
 - Reporting and recommendations.

PARTICIPATION AND CONSULTATION

- 6.2.12 Stakeholders should be consulted during the development and implementation of the Evaluation Plan. The support and acceptance of the Evaluation Plan by Stakeholders is essential to ensure the performance of the project can be effectively evaluated and the integrity of the process of STAG is maintained.

REPORTING

- 6.2.13 The project manager would be expected to prepare an Evaluation Report based on the Evaluation Plan developed as part of the STAG study. An Evaluation Report will be required to take into account outputs from both the process and Outcome Evaluations undertaken.
- 6.2.14 In summary, the Evaluation Report should show whether a project represents a good use of resources, whether value for money could be improved, and, if so, how best to achieve this.
- 6.2.15 Further detail on the specific reporting requirements expected from the Process Evaluation and Outcome Evaluations undertaken are provided in the Technical Database.
- 6.2.16 For the purposes of the STAG Report it will only be necessary to provide detail on the proposed Evaluation Plan, outlining the scope and timing of the Evaluation to be undertaken together with an Evaluation Summary Table to be used to report outturn performance and impacts following implementation.

Evaluation: Key Points

The term 'Evaluation' describes a detailed, one-off objective driven review or audit of a project's performance and includes:

- The development of an Evaluation Plan as part of a STAG study to outline how Evaluation will be undertaken post-implementation;
- Process Evaluation. This is carried out early in the life of a project, before its full effects are known and concentrates on whether input (activity) and expected outcomes for a project are being/have been met;
- Outcome Evaluation. This is carried out once sufficient time has elapsed for the project to have delivered its principal outcomes, and assesses whether the Transport Planning Objectives have been achieved and the performance of the project against the STAG Criteria and the impacts of the project on established policy directives and whether this has been done effectively and efficiently; and
- The preparation and completion of an Evaluation Report, based on the outputs from the Process Evaluation and Outcome Evaluation undertaken.



7. ANNEX A: BACKGROUND

Scottish Transport Appraisal Guidance (STAG) was first published in September 2003. Since then it has been the Scottish Government's objective-led multimodal transport appraisal framework. It was, however, recognised that there was an opportunity to refresh STAG for the following reasons:

To make STAG better fit-for-purpose, in response to feedback from consultation with stakeholders, so that STAG studies are more likely to be proportionate to the transport problems to be addressed and the transport opportunities being undertaken and are, therefore, more likely to be less resource intensive with outcomes more quickly produced;

To make STAG easier to follow. The new compressed version of the Guidance explains the process of STAG and is supported by a Technical Database, which provides more detailed guidance on how to undertake a STAG study. The Guidance and Technical Database, are accessible via the following link: <http://www.transportscotland.gov.uk/scot-tag>;

Changes have been introduced to improve clarity on STAG and reporting, although it is important to note that the principles of STAG have not changed from the previous version of the Guidance. The publication of the restructured and refreshed STAG has also provided an opportunity to update and augment some aspects of the material that now rests in the Technical Database;

To highlight that an appraisal using STAG and STAG Report should be completed before commencing detailed design elements using mode specific guidance and/or before undertaking a development management Transport Assessment, although it is appreciated that these types of mode specific guidance can be used partly to inform the STAG Report;

To re-emphasise that STAG is a whole process, inclusive of Monitoring and Evaluation, and that no investment decision should be taken until the successful completion of a STAG study, as documented in a STAG Report;

To stress that it is the responsibility of any party undertaking a STAG study to check at key points that the process of STAG is being followed as intended;

To clearly establish that the five STAG Criteria (Environment, Safety, Economy, Integration, Accessibility and Social Inclusion) support the Scottish Government's Purpose which is: 'to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth'; and

Additionally: 'to focus investment on making connections across and with Scotland better, improving reliability and journey times, seeking to maximise the opportunities for employment, business, leisure and tourism'; and finally, 'to provide sustainable, integrated and cost effective public transport alternatives to the private car, connecting people, places and work, across Scotland'.