

D. SPECIFIC APPLICATIONS OF STAG

D.1 Introduction

D.1.1 This appendix discusses how to apply Scottish Transport Appraisal Guidance (STAG) across a range of different modes; the purpose of the document is threefold:

- To provide “bridging advice” to planners for whom STAG constitutes a significant departure from established practice;
- To highlight any aspects of the planning process which require particular attention;
- To indicate to planners areas where development of appraisal practices, based on the general principles of STAG, could be appropriate.

D.1.2 It is recommended that, in addition to the Executive Summary, planners¹ should read the section of this appendix most relevant to the exercise they are undertaking before tackling the main guidance. This should help in two ways:

- first, it will help to establish how much of what is required is actually new, and therefore where an appreciable level of preparation is likely to be required;
- second, it should ensure that they can get started, without worrying that important steps have been missed.

General Points

D.1.3 Many planners will already be familiar with the Government’s five objectives of environment, safety, economy, accessibility and integration used in the “New Appraisal Methodology”. As STAG is essentially based on the same five objectives, it should be seen as a summary of current “best practice” in transport appraisal rather than a step change in appraisal procedures. Where there are notable differences between typical current practice and the approaches recommended in STAG, these are noted in the following sections.

D.1.4 The detailed guidance below should be seen as additional to the general injunction of STAG to be pragmatic. STAG is designed to provide considerable latitude in the scope and detail with which proposals are developed and appraised. Before conducting any piece of analysis, planners should be clear:

- that this analysis is likely to provide relevant, new information or;
- that it is essential to provide a degree of accuracy or reliability sufficient to deliver a robust recommendation.

D.1.5 In particular, resources devoted to appraisal cannot be used to develop and fund strategies. And a proposal of indifferent quality which has been very precisely

appraised will always be less desirable than a good proposal which has been appraised less thoroughly. In general, a great many of the impacts of proposals can be at least estimated without recourse to lengthy analysis. Planners should always seek the least laborious method of obtaining a trustworthy answer.

Structure of the Appendix

D.1.6 Guidance is provided according to the structure shown in Table D.1.

Table D.1: Structure of Appendix

Section	Item	Notes
D.2	Walking & Cycling	Provides guidance on the application of STAG to walking and cycling proposals that are often seen as "add-ons" to more substantial aspects of transport planning.
D.3	Bus Projects	Details of the key appraisal issues relevant to bus infrastructure, service and fiscal measures.
D.4	Information	Identifies the key appraisal issues of particular relevance to information provision.
D.5	Park and Ride	Provides reference to further guidance on the development and appraisal of Park and Ride sites.
D.6	Rail	Details of the particular considerations necessary in working up rail proposals
D.7	Road	As above; also covers appraisal of small proposals
D.8	Ferries	The role of STAG given the particular situation of ferry service and infrastructure planning and provision in Scotland
D.9	Aviation	As above for air services and airport facilities
D.10	Integrated Transport Initiatives	Specific guidance on necessary considerations when developing a strategy which includes road user charging. Explains links between appraisal and the Scottish Executive's approval process
D.11	Regional Transport Strategies / Transport Corridor Studies	Guidance on approaching these major exercises

D.1.7 In addition, a number of sources are listed in Chapter 16, which may aid planners in developing a picture of the likely impacts of proposals in the categories discussed.

Terminology

D.1.8 There is a variety of terms used to describe the outcome of transport planning activities, including policy, strategy, programme, plan, scheme, project and proposal. More generically, the terms measure and intervention are also used. In

¹ Throughout STAG, the term "planners" is used generically to describe those charged with carrying out any exercise for which STAG provides the framework. This acknowledges that the individuals and organisations involved will in fact vary considerably.

STAG, the term *proposal* is used for any type of transport measure which is being developed and appraised. The term proposal is therefore used to cover measures which comprise a single component or multiple components. The former might generally be referred to as a project or scheme, while those with multiple components are frequently referred to as strategies, programmes or plans. However, as these terms are not used consistently by planners, the term proposal has been adopted to cover all types of measures. A proposal can therefore be construction of a piece of infrastructure, the development of new transport services or a new or amended policy, and can include combinations of these.

- D.1.9 The term *options* is used interchangeably with the term alternative proposals, and, as with the term proposal, will include all of types of measures noted above.
- D.1.10 It should be noted that once a proposal (or part of one) has been implemented it ceases to be a proposal and becomes a project, scheme or programme. For consistency throughout STAG, the term project has been adopted once a proposal has been implemented. For monitoring and evaluation therefore the term project becomes appropriate. Thus when used the term project will include construction of a piece of infrastructure, the development of new transport services or a new or amended policy, and can include combinations of these, depending on the nature of the proposal which has been implemented.
- D.1.11 A fuller discussion of terminology may be found in Chapter 2.

D.2 Walking and Cycling

- D.2.1 There is often a tendency to see walking and cycling proposals as an add-on to the “more substantial” aspects of transport planning (e.g. those which include infrastructure or public transport proposals). There are three significant reasons for this:
- Transport models are rarely sophisticated enough, or the data on which they depend sufficiently detailed, to show the role of “slow modes” properly;
 - A switch of mode from, say, car to bicycle will, in most cases, not result in a welfare gain to the user (without quantifying health benefits), making the role of TEE analysis problematical;
 - Transport planning is often focussed on the most visible or audible issues, typically involving the movement of powered vehicles.
- D.2.2 This is in stark contrast to the importance accorded to these modes by the Scottish Executive, in light of the significant health and environmental benefits they can confer. In recognition of the potential benefits of expenditure to promote cycling and walking, the Scottish Executive has established a new Cycling, Walking and Safer Streets (CWSS) fund, which is distributed by formula share.
- D.2.3 As for other modes, STAG should provide a useful framework to help authorities consider the costs and benefits of potential CWSS proposals. In addition, DfT are currently developing detailed guidance and modelling software to assist authorities with the appraisal of walking and cycling measures. However, the Scottish Executive is fully aware that for smaller proposals formally assessing costs and

benefits could involve a disproportionate level of appraisal effort. In particular, it is recognised that in some instances a lack of quantitative information may be a barrier to the accurate estimate of impacts.

- D.2.4 Nevertheless, planners should still be able to present an investment case by explaining what an increase in walking and cycling is meant to achieve, and producing rough estimates of the potential impacts of proposals. For example, something as rudimentary as measurements of pedestrian and cyclist flows on links of interest could be a useful indicator, provided that what is measured reflects the emphasis of the planning objective(s).
- D.2.5 It is very likely that the planning objectives will include at least one target related to the increase of walking and cycling. But this must reflect a proper understanding of the problems and opportunities in the study area. Otherwise, there is the danger that such an objective will be viewed as “window dressing” and accordingly given little attention. Planners must have thought what an increase in cycling and walking is meant to achieve and the areas in which it is particularly desired. For example, a pronounced increase in the share of journeys to work made by sustainable means might be the key to reducing congestion on a particular link road. Alternatively, unlocking the capacity for walk trips (perhaps by building an attractive path away from a major road) may assist in reducing the social exclusion felt by people living on a particular estate.

More Formal Appraisal of CWSS Proposals

- D.2.6 For larger-scale CWSS projects (e.g. cycle networks, pedestrianisation projects, etc) more formal appraisal would be justified. Ideally this would involve modelling of cycling/pedestrian flows but, even where this is not feasible, proposals would benefit from structured thought about likely costs and benefits to cyclists and pedestrians. For example, standard traffic modelling may suggest that a pedestrianisation proposal would have a negative NPV. However, this is largely because the time savings to pedestrians are ignored in traffic models. In a busy shopping area, the number of pedestrians is likely to significantly exceed the level of traffic so it seems likely that in many situations the benefits to pedestrians would outweigh the costs to drivers.
- D.2.7 Table D.2 provides some advice on the likely major impacts of CWSS proposals. Again, it should be emphasised that the level of appraisal detail should be proportionate to the size/cost of the proposal in question, and this will drive the extent to which each of the following issues are addressed in detail. In addition, planners may find it helpful to concentrate the appraisal on the specific objectives of the proposal in question (e.g. is it intended to promote a shift to more sustainable modes? Is the aim to reduce accidents amongst existing users?)
- D.2.8 From Table D.2 it should be apparent that one of the key factors driving the appraisal results is the extent to which new cycling/walking trips would be generated. Planners should investigate and carefully assess to what extent the project will stimulate additional trips, and to what extent the project encourages a shift away from non-sustainable modes of travel. These assessments should be backed by empirical evidence or local research, where this is available.

Table D.2: Potential Impacts of CWSS Projects

Objective	Possible impacts
Economy (TEE and EALIs)	<p>Transport Economic Efficiency: Is the proposal likely to have a significant impact on journey times/costs for pedestrians, cyclists, and/or car drivers? How many people would be affected, and by how much?</p> <p>Economic Activity and Location Impacts: Is the proposal likely to promote tourism (e.g. a rural cycle network) or local retailing (e.g. pedestrianisation)? (Note however that such impacts will generally involve displacement of activity from other areas).</p>
Environment	Will the project lead to significant modal shift, and hence produce environmental benefits?
Safety and Security	<p>Will the project have a significant impact on safety? Given that cyclists are more likely to be involved in accidents, there is a danger that modal shift will increase the overall accident rate. Conversely, however, segregated cycle lanes should help reduce accidents amongst existing cyclists.</p> <p>Improved lighting etc may have an impact on security, which may also have consequential impacts on the overall level of walking.</p>
Accessibility	Walking proposals, in particular, should help reduce severance – public transport modes or community facilities may become more accessible. How many people would be affected, from which areas, and by how much?
Integration	The main “integration” impacts will be in terms of health benefits. These will occur where modal shift is induced and/or people take longer walking/cycling trips.

- D.2.9 Thought should be given to whether it is realistic to expect sustained growth in walking/cycling as the result of a policy or project. It seems likely that many projects will simply lead to a one-off rise in activity rather than sustained growth, so realistic assumptions should be adopted in appraisals.
- D.2.10 The potential impact of a walking or cycling project is dependent on numerous inter-related factors including: car ownership; policy towards motorised modes; topography/morphology (hilliness, land use policy, etc); spatial layout of population (cities with a compact spatial structure are likely to offer more potential); level of cycling/walking activity already undertaken; the economic structure; the historical tradition and cycling culture; cycling/walking infrastructure and facilities; education/encouragement; car restraint; planning; risk of accidents, etc.
- D.2.11 Evidence suggests that, in the longer term, land use planning policies may ultimately have a stronger influence on modal choices than, for example, the provision of new cycle lanes and it is important to note that such proposals are unlikely to be successful unless wider policies are also complementary.

D.3 Bus Projects

- D.3.1 The Transport (Scotland) Act 2001 Guidance explores the wide range of policy measures available to authorities in the context of delivering their bus objectives. The Scottish Executive believes that in most circumstances the emphasis of bus policy should be on *partnership with operators* given the background of deregulation, and there is now greater scope for comprehensive packages of measures to be developed to influence improved bus service provision. The bus provisions in the 2001 Act added to authorities' existing "toolkit" of options available to assist them in revitalising bus services in their area.
- D.3.2 Broadly, the areas of intervention available to planners are:
- Infrastructure measures – bus stops, bus stations, priority measures;
 - Service measures - network coverage, frequency, vehicle types, ticketing and information requirements, etc can all be influenced by local authorities either individually or as part of a package with the tendering of subsidised services, Quality Partnerships, and Quality Contracts.
 - Fiscal measures – e.g. concessionary fares structures.
- D.3.3 It is important not to focus on one of these to the exclusion of others. A good strategy for improving bus services is likely to involve a combination of these interventions. The Scottish Executive has produced detailed guidance on how proposals for Quality Partnerships, Quality Contracts, ticketing and information requirements should be developed and assessed. This guidance is entirely in keeping with STAG, and indeed refers to STAG as a useful source of appraisal guidance.
- D.3.4 Appraisal of bus proposals need not present too great a problem, though reliability gains and improvements in interchanges are generally hard to quantify. Some guidance is offered on these topics in Chapters 8 and 9 of STAG (with additional comments on security in Chapter 7). In general, planners should not devote significant time to quantification methods if a qualitative statement will make clear the nature of the improvements. Nevertheless, estimates of the number of passenger-journeys affected by an intervention (and preferably an estimate of the size of impacts, e.g. the typical amount of time saved by a bus priority measure) will give a helpful scale to such statements.
- D.3.5 A 30-year appraisal may be inappropriate for smaller proposals. Planners should instead attempt to provide a snapshot of benefits and costs (the period of a year is an obvious choice) but should retain the flexibility to make additional statements concerning likely impacts "downstream". For example, a new bus interchange may offer some immediate benefits but with the prospect that the completion of a major housing programme nearby will bring significant additional patronage (and hence benefits) in four years' time. The requirement to retain ten- and twenty-year outlooks is important here.

- D.3.6 Rudimentary analysis of accessibility may be adequate to show the impact of service extensions or frequency improvements but, as the guidance in Chapter 10 of STAG states, a project devoted to improving accessibility (perhaps for particular groups) will be best supported by appraisal which makes the impacts sufficiently clear.
- D.3.7 For larger proposals, e.g. major bus priority projects, more careful appraisal would be appropriate and STAG provides a useful framework for such assessments. The key questions are likely to revolve around impacts on car journey times, bus journey times, and patronage. It is entirely possible for such an assessment to produce a negative NPV in terms of monetised costs and benefits, particularly where roadspace is reallocated from car users to buses. However, proposals could still be justified with reference to wider (non-monetised) social and environmental benefits – provided that these benefits are sufficiently large to offset any negative effects.

Quality Partnerships

- D.3.8 In practice, it may prove difficult to quantify the benefits of a Quality Partnership (QP) proposal. However there are published examples of evaluation evidence for non-statutory projects that illustrate that significant quality improvements can be made, with corresponding impacts on bus passenger benefits. DfT have produced “best practice” guidance material that includes examples of the impact that QP projects have had. Planners are encouraged to think about the types of quality improvements that might best benefit bus passengers, the linkages between increasing quality and bus passenger benefits, and ultimately on modal switch. Key questions might include:
- The extent to which Quality Partnerships could have a significant impact on journey time savings and quality;
 - The number of existing passengers who would benefit from the improvements;
 - The extent to which the improvements might generate additional bus trips and encourage some trips to be made by bus instead of car;
 - The ultimate impact on social inclusion, congestion, pollution objectives etc.

Quality Contracts

- D.3.9 As with all aspects of STAG, it should be remembered that the level of appraisal effort should be commensurate with the scale of the proposals. Where a Quality Contract would involve major changes in local transport systems, short-cut appraisal techniques will not generally be appropriate and hence the planner should refer to the main text of STAG for detailed guidance. The key point that should be re-emphasised here is that the Scottish Executive expects authorities to have gone through the process of setting objectives and considering alternative options for addressing these objectives. The Scottish Executive also expects to see a reasonably robust assessment of the main costs and benefits of the Quality Contract option (should this turn out to be the preferred option) in terms of transport economic efficiency, accessibility, integration etc, noting any significant distributional effects.

D.3.10 It is anticipated that the most significant impacts will be in terms of costs and benefits to transport users, operators and to the authority (particularly financial costs and benefits). Depending on the nature of the proposals, there may also be impacts in terms of integration, accessibility, and the environment. The Quality Contract guidance provides more detail on these points. It is not expected that safety impacts or local economic impacts (EALIs) would be significant.

D.4 Information

D.4.1 It is well understood that the accessibility and reliability of information concerning public transport are key to public perceptions and, as a direct result, patronage. The precise benefits accruing from improved information are, however, hard to detect and harder still to appraise. With this in mind, the concept of “seamless public transport network” has been established under the Integration objective, so as to allow significant improvements in this area to be highlighted without undue associated analysis.

D.4.2 For larger “information” proposals, more detailed assessment may be considered worthwhile. Whilst it is probably unrealistic to expect to be able to produce monetised figures for costs and benefits, it should be possible to arrive at a broad judgement as to the likely value for money of proposals. In particular, thought should be given to possible linkages between improved information and planning objectives. Key questions might include:

- How many people would use the improved information?
- How would they benefit from this information?
- Is it likely that behaviour will change, e.g. might people increase their use of public transport?
- If so, what impact might this have on objectives concerning congestion, pollution, etc?

D.5 Park and Ride

D.5.1 The full effects of Park and Ride proposals may not be obvious without some quite careful analysis of the full range of journey patterns in the area in question. It is possible for good facilities to attract many users who access the site by foot or bicycle, for example. Also, where the public transport link is more attractive (e.g. cheaper) than nearby alternatives, it is possible that existing public transport users will divert to the new service. Whilst these effects need not be problems, they highlight the need to define a sufficiently wide scope for appraisal if the full impact of such a proposal is to be captured. There is a further need to consider any measures at the destination (alterations to the parking regime, say) which are felt necessary to ensure the desired uptake.

D.5.2 Much work has been done to assess impact of Park and Ride. The WS Atkins report *The Travel Effects of Park and Ride*, is a helpful reference as is English Historic Towns Forum *Bus-Based Park and Ride; A Good Practice Guide*.

- D.5.3 It is likely that traffic modelling will be necessary if the specific local characteristics likely to affect uptake are to be properly allowed for, and a full appraisal (in line with STAG) would generally be worthwhile.
- D.5.4 It is important for planners to be aware of the possibility of generating new car-based trips to the Park and Ride sites, and to note the potential for generating local congestion near the site. Indeed, it is possible that poorly-designed Park and Ride proposal could actually do more harm than good, which again points to the need for careful modelling and appraisal of major proposals.
- D.5.5 As with bus priority proposals, Park and Ride proposals may quite possibly fail to deliver a positive Net Present Value in terms of monetised costs and benefits. In essence, the decongestion benefits may simply be insufficient to offset the cost of land, additional operating costs, interchange penalties for P&R users, etc. However, as noted earlier, proposals could still be justified with reference to (non-monetised) wider social and environmental benefits – provided that these benefits are sufficiently large to offset any negative effects.

D.6 Rail

- D.6.1 The Scottish Executive will expect to see that any rail proposal genuinely represents the best way of achieving the relevant objectives, as evidenced by the rationale and associated sections of the Part 1 Appraisal.
- D.6.2 Funds for rail developments can be sought from three sources:
- The Scottish Executive;
 - UK Government (mainly through the Strategic Rail Authority (SRA) but potentially through DfT);
 - Commercial sources , e.g. Network Rail, train operating companies (TOCs), and developers.
- D.6.3 Each of these types of organisation is likely to take a somewhat different approach to assessing the merits of a proposal. Any commercial organisation's consideration will be quite straightforward, however: the proposal will have to present the funder with a commercially viable prospect. The differences in priorities between the Scottish Executive and the SRA are likely to be subtler.
- D.6.4 The SRA already recommends carrying out appraisals using the five objectives, as in STAG. But it has additional considerations imposed upon it including a "value for money" criterion which is represented by the Net Present Value of a proposal's (monetised) benefits per £ of SRA support. Whilst the SRA retains the option of considering other significant benefits and disbenefits which cannot be monetised, the "value for money" criterion is bound to feature in the overall decision. This may also indicate that the SRA will be expecting a strong case to be made for quality benefits which are not captured by a commensurate fares increase.

- D.6.5 These comments indicate that planners developing rail proposals will need to be aware of the distinct expectations of the various bodies which they may approach for support. In the case of the Scottish Executive and the SRA, the differences are not so pronounced as to be likely to create a conflict of priorities. Where there is some chance of a difference, it would be sensible for planners to consult with representatives of both bodies at the earliest juncture to explore this and seek a way forward.
- D.6.6 There is a further consideration which relates to the sources of funding the planner may approach. “Whenever feasible, the SRA will normally expect the markets, both for the provision of new investment and its financing, to have been tested competitively” (Chapter 2: The Criteria - A Guide to the Appraisal of Support for Passenger and Freight Rail Services, Strategic Rail Authority, April 2003). As in all projects, there will be a need to consider the various options for funding proposals but here the implication is plainly that planners will need to demonstrate that they have exhausted all other avenues before approaching the SRA.
- D.6.7 The slightly different priorities of the SRA and the Scottish Executive also extend to scope: where a proposal is going to have impacts beyond the Scottish border, the SRA will (given its UK remit) be interested in those wider impacts. The Scottish Executive will probably not consider them in detail. In particular, where “Economic Activity and Location Impacts” (EALIs) are likely to occur within Scotland with the expectation that this would result in displacement from England or Wales, it will be necessary to identify this in the submission.
- D.6.8 In general, where seeking the support of both the Scottish Executive and the SRA, planners are advised to consult the SRA’s appraisal criteria in detail so as to establish exactly what evidence is required by the SRA.

D.7 Road

Introduction

- D.7.1 All major road projects are required to be subject to full STAG Appraisal.
- D.7.2 For smaller road schemes estimated to cost less than £5m where a multi-modal solution is evidently and demonstrably not applicable a full STAG Appraisal may not be appropriate. The approach to appraising such small road schemes is outlined at §D.7.9. Where it is proposed to adopt such an approach this is to be discussed and agreed with the Scottish Executive in advance.
- D.7.3 A STAG appraisal is not required for road maintenance schemes that replace the layout of existing infrastructure broadly like for like and do not directly affect the future operation of the network.

Fit with the New Appraisal Methodology (NAM)

- D.7.4 STAG builds upon the New Appraisal Methodology (NAM) that was developed for the appraisal of those major road projects included within the 1999 Strategic Roads Review. Unlike the NAM, STAG is applicable to all modes. In order to ensure consistency of appraisal methodologies across modes (and to allow more direct comparison of impacts) STAG should now be used in preference to NAM.
- D.7.5 The Appraisal Summary Tables (ASTs) in STAG have a slightly different emphasis to NAM as regards certain objectives, notably:
- changes to the integration objective;
 - changes to the accessibility objective, a feature designed to make explicit the relative ease of movement of those with cars and those without, and which now also covers social inclusion impacts;
 - the more sophisticated requirements of the transport economic efficiency aspect of the economy objective.
- D.7.6 Perhaps the least familiar aspect of the appraisal framework will be Economic Activity and Location Impacts (EALIs) under the economy objective. This replaces the “local economic development” objective in NAM, and has been developed to address the concerns of SACTRA in their report on Transport and the Economy. In essence, where it is expected that a proposal might have significant impacts on economic activity (or the location of economic activity), then this should be reported. However, in many cases (particularly smaller proposals) such impacts will probably be negligible. Further guidance is contained within the main body of the Guidance.

Fit with Design Manual for Roads & Bridges (DMRB)

- D.7.7 A STAG Appraisal shall be undertaken, as directed by the Scottish Executive, either (a) in advance of; or (b) in parallel with the Stage One DMRB Assessment (corridor assessment). In the case of trunk road proposals, the STAG Appraisal shall guide Scottish Executive Investment Decision Makers (IDM's) as to whether or not (and/or to what extent) a road project should be taken forward.
- D.7.8 A validation of previous STAG Appraisal work shall also be undertaken during DMRB Stage 3 Assessment (preferred route assessment) both to guide IDM approval to commence statutory procedures and (in the event that such approval is given) for the purposes of the statutory process. Validation is necessary to test the development of the project against the original planning objectives.

Small Road Schemes

- D.7.9 It is recognised that for small road schemes that address particular problems on the road network (for example, road safety or improved overtaking) full multi-modal appraisal might add very little to the decision-making process. The point here is not

that other modes need not be considered, but that it may not be helpful to make direct appraisal comparisons of projects and policies that address wholly different objectives.

- D.7.10 In such circumstances, a cut-down appraisal may be more appropriate, such as the example shown in Table D.3. Table D.3 is appropriate at the Part 2 stage, and has been designed to be consistent with the main Part 2 AST in STAG (to facilitate comparisons with different modes), but it excludes those rows/columns that are likely to be superfluous in the context of a small road improvement (e.g. EALIs, impacts on security, etc). A similar AST has been used to appraise the small schemes in the 2003 Review of Route Action Plans.
- D.7.11 It should be noted that the use of a small scheme AST (SSAST) will only be appropriate where this is backed up by a coherent strategy for identifying objectives and potential options². For example, if the objective of a proposal is to improve safety, systematic analysis of accident blackspots would be required to identify potential areas for intervention. Possible solutions could then be generated, appraised and the results presented using the SSAST. It is important to emphasize that the SSAST was arrived at both as a result of experience gained from the Strategic Roads and RAP Reviews and after careful consideration of which STAG sub-objective impacts are appropriate and relevant in the context of small schemes and how these are best presented. The SSAST should *not* be used for other purposes without going through a similar process.

² Proposals identified in Route Action Plans are backed up by numerous studies of opportunities, constraints, etc. In effect, many of the tasks recommended in STAG have already been covered, e.g. objective setting, option generation including multi-modal options, sifting, consultation, etc. The use of the SSAST is therefore appropriate and should ensure that previous work is reviewed and brought into line with the STAG philosophy.

Table D.3: Small Scheme Appraisal Summary Table Example

Proposal Name:	Total Public Sector Funding Requirement:		Capital Costs (undiscounted)
			Annual Costs
			Present value of Cost to Govt.
Background:	Provide summary background information on the geographic, social and economic context of the study area.		
Planning Objectives	Objective	Performance Against Planning Objective	
	Summarise each of the key planning objectives (e.g. promotion of safety, addressing congestion).	For each planning objective describe to what extent the proposal is expected to meet the objective.	
Objective	Sub-Objective	Qualitative / Quantitative & Distributional Impacts	Appraisal Summary
Environment	Noise & Vibration	Describe new noise impacts (qualitative) and number of properties subject to +/-3dB(A) (quantitative).	3 pt scale
	Air Quality	Describe changes in emission levels (qualitative) and number of properties better/worse off (quantitative).	3 pt scale
	Water Quality, Drainage & Flood Defence	Name affected water courses and any particular risk / change to water environment (qualitative)	7 pt scale
	Biodiversity	Provide information on impacts, by magnitude and significance, for all sites / features affected.	7 pt scale
	Visual Amenity & Landscape	Provide information on impacts, by magnitude and significance, for all sites / features affected in each category.	7 pt scale
	Cultural Heritage	Provide information on impacts, by magnitude and significance, for all sites / features affected in each category.	7 pt scale
Safety	Accidents	State casualty savings by severity.	PV1

Table D.3: Small Scheme Appraisal Summary Table Example (continued)

Objective	Sub-Objective	Qualitative / Quantitative & Distributional Impacts	Appraisal Summary
Economy User Benefits	Travel Time	State peak & interpeak time savings (qualitative) & discounted value of time savings (quantitative).	PV2
	Vehicle Operating Costs	State discounted value of vehicle operating cost savings.	PV3
	Quality / Reliability Benefits	Describe quality / reliability benefits.	3 pt scale
Integration	Land-Use Transport Integration	State any inconsistency with Central & Local Policies & Plans.	3 pt scale
	Accessibility & Social Inclusion	State main impact on public transport & non-motorised users (qualitative).	3 pt scale
Accessibility & Social Inclusion	Change in Severance	State main impacts relating to new or relived severance (qualitative).	3 pt scale
Costs to Public Sector			
Item	Qualitative Information	Quantitative Information	
Public Sector Investment Costs	Quote costs in current prices, undiscounted.	PV4	
Public Sector Operating Costs	Quote annual costs in current prices.	PV5	
Taxation Impacts	Identify any changes in tax revenues attributable to the proposal, e.g. loss of fuel duty	PV6	
Monetised Summary			
Present Value of Transport Benefits	Total PVB = PV1 + PV2 + PV3 (Negative values = disbenefits)		
Present Value of Cost to Government	Total PVC = PV4 + PV5 + PV6 (Negative values = costs)		
Net Present Value	Total NPV = PVB + PVC		
Benefit - Cost to Government Ratio	Ratio = PVB / (PVC x -1)		

D.8 Ferries and Port Infrastructure

Introduction

D.8.1 There are 4 main ferry providers in Scotland:

- Caledonian MacBrayne Ltd, a nationalised company, which provides most of the Clyde and Western Isles services;
- NorthLink Orkney and Shetland Ferries Ltd which provides services to the Northern Isles under a subsidy contract;
- Local authorities (Highland Council, Argyll and Bute Council, Western Isles Council, Orkney Islands Council and Shetland Islands Council) and the Strathclyde Passenger Transport Executive all run local ferries; and
- Private operators provide a small number of services.

D.8.2 Many of these services are subsidised, by the Scottish Executive in respect of CalMac and P&O services or by local authorities themselves. Vessels are owned by the respective companies/councils. Piers and harbours are owned variously by CalMac, local councils, independent harbour trusts or privately owned. In all these circumstances, STAG can have a useful role to play in helping plan the provision of services.

Ferry Services Supported by the Scottish Executive

D.8.3 The Scottish Executive will need assurance that any proposed ferry project receiving public support will achieve the relevant objectives and offer value for money. This indicates a clear role for appraisal in the decision making process.

D.8.4 The provision of public ferry services in Scotland is currently under review. To comply with the 1997 guidelines on maritime cabotage, a public tender is necessary where financial compensation is being offered to a ferry operator for Public Sector Obligations (PSOs). A PSO is an obligation imposed on the carrier to ensure the provision of certain services that would otherwise be uneconomic.

D.8.5 In the context of the tendered services to the Clyde and the Western Isles, it is likely that any bidder will be bound to lease existing vessels. However, under future arrangements (e.g. when vessels need replacing) each time a service is re-tendered this presents an opportunity to reassess the overall aims of the subsidy. For example, an analysis could be undertaken of the trips people need and want to make between the points separated by water, probably supported by some notion of accessibility thresholds. The use of the second interpretation of the base accessibility measure as set out in Chapter 10 of STAG could support this process.

D.8.6 Once a picture has emerged of the requirements for journeys over water, the next logical step would be to explore, via a business plan, the optimal means of fulfilment, using ferries, aircraft and, in the long run, road (bridge or causeway) crossings. Though undoubtedly demanding, this exercise could be attempted using cost models to test the various options and to arrive at a workable balance which

satisfied constraints of expenditure and speed of access, amongst other key considerations.

D.8.7 The principles of STAG are in harmony with such an approach and the recommended techniques should provide a useful framework to help planners consider the costs and benefits of different types of transport provision for island and peninsula areas.

D.8.8 If the business plan points to the provision of ferry services as the most efficient option for achieving the objectives, the next stage is to determine the optimum service standards and associated vessel requirements. As procurer of services, it is expected that the Scottish Executive will ask prospective operators to bid against a detailed service specification (including fare levels, frequencies and safety standards). The principles outlined in STAG will also assist the Scottish Executive in drawing up such specifications so that they best meet the needs of the communities they serve given all other considerations.

Ferry Services Supported by Local Authorities

D.8.9 The applicability of the 1997 guidelines with respect to Local Authorities is currently under review. Nevertheless, most of the above comments are equally relevant to LA-supported services. Again, STAG provides a useful framework for making decisions about ferry services.

Ports and Harbour Infrastructure

D.8.10 In determining ferry service requirements consideration will also be required of the impact on the existing port and harbour infrastructure as the size of vessels increases. For example, there may be a need to develop or improve dockside facilities. Changes to infrastructure facilities will need to be supported by a thorough appraisal in line with STAG though it is likely that more detailed business cases will be an additional requirement.

D.8.11 Many of the general principles of STAG could also be applied to improvements to freight ports. However, inland waterways and short sea shipping freight facilities may be eligible for Freight Facilities Grants, in which case more specific appraisal guidance should be used in preference to STAG. Where such facilities would have a significant impact on the environment through the removal of lorry trips on the road network, FFG eligibility is based on the value of these environmental benefits and the extent of any financial deficit. For specific guidance on the FFG scheme, promoters should contact the Scottish Executive.

Ferries and Ports: Specific Issues

D.8.12 The main report sets out the recommended methodology and the Scottish Executive's 5 objectives for appraising transport infrastructure investment. In the case of ferry and port projects, one consideration that is worthy of further discussion is the "economy" objective.

Economy: Economic Activity and Location Impacts (EALIs)

- D.8.13 Many of the remote parts of the Highlands and Islands tend to have relatively higher problems associated with unemployment, social exclusion and deprivation. In areas that have been identified as being a particular priority, the extent to which ferry service/infrastructure improvements might help promote self-sustaining economic, physical and social regeneration may be of particular interest.
- D.8.14 The section of STAG on “EALIs” (Economic Activity and Location Impacts”) sets out a general methodology for assessing such impacts. As explained in the EALI chapter, a coherent chain of cause and effect will be required to substantiate claims that ferry or harbour improvements will have a significant economic impact.
- D.8.15 Careful attention should be paid to displacement issues. In particular, if additional tourism is attracted to one island this will often be at the expense of another island which may well be of equal priority in terms of unemployment, income, etc. Similarly, planners should consider how far ferry traffic attracted to an improved port or harbour facility would be genuinely additional, and to what extent it would be displaced from other ports.

Environment

- D.8.16 The degree of detail for the analysis of environmental objectives depends on the scale and the significance of likely effects. However, changes to ports and harbours can have a significant impact on the marine environment. New port and harbour infrastructure developments which would adversely affect environmentally sensitive areas must comply with strict EU environmental guidelines and proposals will not go ahead unless developers can show that net benefits clearly override the disbenefits (including all environmental disbenefits). It must be demonstrated that there is no better option, and that all reasonable steps have been taken to mitigate the negative environmental effects.
- D.8.17 Coverage of environmental impacts extends beyond the nature and scope of the port development itself and should include the environmental impacts of consequential inland transport infrastructure and any other associated developments.

Reference

- D.8.18 Planners may wish to refer to the Department for Transport’s “*A Project Appraisal Framework for Ports*” for more detailed advice on appraisal of port infrastructure investment.

D.9 Aviation

Introduction

- D.9.1 The decisions to be made about the provision of aviation services are complex. Aviation is a highly technical and dynamic industry in which commercial decisions play a major role. Air travel and its associated surface travel also have local, regional and, in the case of the environment, global implications. The costs and benefits to airport operators, airlines, the travelling and non-travelling public, and to the local/regional economy arising from airport development will in some cases be very significant.
- D.9.2 Given the importance of decisions about aviation, there is a clear role for appraisal. STAG is based on the principle of clear objective setting and the use of the Scottish Executive's five objectives: environment, safety, economy, integration and accessibility. It provides an appraisal framework that is consistent with other transport modes, and yet should be flexible enough to cope with issues that are specific to the aviation sector.
- D.9.3 Appraisal of the aviation sector can be split into services and infrastructure. Appraisal issues associated with each of these areas is discussed in turn below.

Services

- D.9.4 In the main, aviation services in Scotland are provided by the private sector where commercial decisions play a major role. However, in many parts of Scotland non-profitable air services are extremely important and provide lifeline services between remote areas and service centres. There is therefore every need to apply clear thinking in planning in this area. There is no reason why the principles of STAG cannot be quite effectively applied in planning aviation services.
- D.9.5 In general, aviation planning will involve considering a number of aviation service options in searching for the most efficient way forward. But a key point in the appraisal of aviation services is the fact that there may exist other means of achieving the objectives for which aviation proposals may be developed. If, for example, the aim is to improve the accessibility of a remote island, it may be possible to achieve this through the provision of air services. However, alternative options could also include:
- Ferry service developments;
 - Building a bridge or causeway.
- D.9.6 The appropriate type of transport provision will normally be determined by a business plan.
- D.9.7 A long-term approach to planning the provision of island transport services may involve improving accessibility by developing key services on the island. Both established planning structures and appraisal techniques may obstruct the consideration of such alternatives let alone an even-handed comparison of them.

On at least the latter, the approach set out in STAG will provide a common framework for the consideration and presentation of impacts and planners should therefore endeavour to use the approach as fully as possible. In an attempt to overcome the former, it is incumbent on planners to conduct consultations with relevant individuals within other planning structures so that, at the very least, the other alternatives have been discussed and briefly assessed.

Infrastructure

- D.9.8 An appropriate framework will also need to be used for appraisal of aviation infrastructure investment options. STAG is capable of application to alternative ways of dealing with demand for more airport capacity (either terminal or runway). The framework will mean that any projects put forward to meet increasing demand can be compared on a consistent basis.
- D.9.9 For example, the application of STAG will provide information to assist decisions required in the future:
- Between different options for providing capacity at one particular airport site;
 - Between options for providing capacity at different locations around the study area, and perhaps outside the study area.

Aviation-Specific Appraisal Issues

- D.9.10 Methodologies for appraisal against each of the Scottish Executive's 5 objectives are set out in detail in the main report. However, there are particular issues within these objectives that planners will need to consider for aviation projects. These are discussed below.

Environment

- D.9.11 Changes to aviation infrastructure and services can have highly significant environmental impacts, particularly in terms of noise and emissions. In addition, surface access to airports can cause significant environmental problems. Such factors should be given due consideration in appraisals.

Safety

- D.9.12 Some aviation proposals may be required simply to meet legislative requirements for aviation safety. In such circumstances the appraisal may revolve around a simple analysis of the cost-effectiveness of the options to meet these standards.

Economy: Transport Economic Efficiency

- D.9.13 The key benefits of infrastructure improvements (e.g. an increase in airport capacity) or service improvements will accrue to users of those services. For example, some passengers might be able to use the airport who previously would have had to travel from a different airport or perhaps not travel at all. Similarly, improved infrastructure/services could reduce the time/money costs of travel for existing passengers (e.g. via lower airfares and/or an increase in the range, reliability and frequency of services provided by an airport). These costs and benefits should be

appraised as outlined in the main text of STAG, noting impacts on passengers, airport and/or service operators, and the Government.

- D.9.14 One key difference from the usual form of TEE analysis is that benefits accruing to travellers from outside the UK should be noted separately from the benefits to UK residents. This should allow planners to make a distinction between proposals that would primarily benefit foreign travellers rather than UK taxpayers - though one of the objectives of a proposal might be to boost tourism, in which case benefits to foreign travellers would still be of interest.
- D.9.15 The cost of surface access related to an airport proposal should also be considered alongside those of the airport proposal. It is essential to know whether there is sufficient capacity on the surface access network to accommodate prospective levels of airport traffic (though surface access impacts are likely to be small for HIAL airports).

Economy: Economic Activity and Location Impacts (EALIs)

- D.9.16 Many of the remote parts of the Highlands and Islands tend to have relatively higher problems associated with unemployment, social exclusion and deprivation. In areas that have been identified as being a particular priority, the extent to which air service/infrastructure improvements might help promote self-sustaining economic, physical and social regeneration may be of particular interest.
- D.9.17 The section of STAG on “EALIs” (Economic Activity and Location Impacts”) sets out a general methodology for assessing such impacts. Although the *direct* benefits to airport users should already be caught by the analysis of Transport Economic Efficiency, it is sometimes argued that air service/infrastructure improvements will have impacts on perceptions of the peripherality of an area, and hence on inward investment, residential choice, etc. As explained in the EALI chapter, a coherent chain of cause and effect will be required to substantiate such claims.
- D.9.18 In addition, careful attention should be paid to displacement issues. In particular, if additional tourism/inward investment is attracted to one airport this will often be at the expense of a different area of Scotland which may well be of equal priority in terms of unemployment, income, etc.

D.10 Integrated Transport Initiatives

Introduction

- D.10.1 Under the provisions in the Transport (Scotland) Act 2001, local authorities in Scotland are empowered to impose charges for the use of roads, and are required to ring-fence revenues gathered from these measures to improve local transport infrastructure and services. The aim of this section is to provide additional guidance on how such measures should be worked up and appraised.
- D.10.2 This advice draws on existing information published by the Scottish Executive to aid planners in developing integrated transport initiatives (*Delivering integrated transport initiatives (ITI) through road user charging – consultation and approval process*, Scottish Executive). The term *integrated transport initiative* (ITI) reflects the fact that in practice what will be implemented is a package comprising “carrots and sticks”, respectively:
- the carrot of local transport infrastructure and service improvements
 - the stick of road user charging.
- D.10.3 An essential point of which planners should be aware is that ITIs are not to be developed merely as a revenue-raising measure. That is, a clear link must exist between the ITI proposed and the authority’s transport objectives. It is anticipated that the primary objectives for which an ITI may be an appropriate strategy will include either or both of the following:
- Reducing congestion;
 - Reducing noise and emissions.
- D.10.4 In addition, sub-objectives might include:
- Improving safety;
 - Promoting social inclusion;
 - Decreasing severance.
- D.10.5 It is envisaged that the net revenues raised from charging would be spent in ways which would benefit those who pay the charge, those who change modes to avoid the charge, and/or those who suffer from the congestion or environmental problem. If the charging proposal is well designed and the associated transport projects are carefully selected, it is anticipated that the welfare of majority of the local population (and that of surrounding areas) could be improved. However, careful appraisal and thorough consultation with neighbouring authorities will be required to ensure that this is the case.
- D.10.6 Scottish Ministers will put considerable weight on appraisal results when deciding whether to approve a proposal for an Integrated Transport Initiative. STAG is considered to provide a suitable basis for appraising ITIs, and the following sections outline what is expected by way of appraisal at both the “Approval in principle” and the “Approval in detail” stages.

Underlying Principles

- D.10.7 In considering appraisal issues concerned with traffic reduction measures, the SACTRA report Transport and the Economy makes a number of useful statements of principle which are worth setting out here.
- D.10.8 First, for there to be a gain in economic welfare, the net benefits must exceed the net costs. In the case of road user charging, there will be both gainers (benefits) and losers (disbenefits).
- D.10.9 Second, charging mechanisms aimed at reducing traffic will generally meet the above condition where current prices of travel paid by users are less than marginal social costs, including all external effects. The most common cause of such a situation, which measures such as road user charging are normally intended to tackle, is traffic congestion and associated environmental impacts.
- D.10.10 Third, some measures can be shown to yield substantial benefits, the main component of which consists of the revenues, net of operating costs, which accrue to the authority imposing the charges. It is therefore important to ensure that the revenues are spent in a manner which produces a net welfare gain, i.e. the revenues must be spent on good projects.
- D.10.11 Fourth, the basic principles of appraisal apply equally to measures such as road user charging as to investment in new infrastructure and services.
- D.10.12 The pure economist's view underpinning the possibility of congestion charging arises from the point made at §D.10.9 about the private cost of travel being less than the marginal social cost. Another way of phrasing this is to say that in such situations, the price of car travel is *inefficient*. In such situations, it is theoretically possible to calculate the optimal charge to apply so as to maximise social welfare (the net benefit to all relevant parties). In the simplest formulations, the congestion charge should be set equal to the cost of marginal congestion imposed on all travellers by the last user.
- D.10.13 This example should not be taken as a blueprint however, as discussion concerning feedback, diversion and dynamic effects below will show. Also, given that net revenues will be hypothecated to local transport improvements, the desirable level of charges will be partly determined by the number of worthwhile transport proposals in the area. In practice, all this makes the establishment of the efficient price more an art than a science.
- D.10.14 Equally, whilst overall economic welfare is important, thorough consideration should be given to ensuring that the impact of charging is equitable. Where charges would adversely affect certain areas and/or sections of the population, consideration should be given to ways of offsetting these impacts via local transport improvements. For example, car drivers from poorer areas may be the first to be priced off the road, suggesting that there will be a need to consider whether public transport alternatives are adequate.

Technical Issues

D.10.15 While the underlying economic principles are clear and robust, the implementation of road user charging proposals has been hampered by both practical and policy considerations. The underlying principles would suggest that road user charging using some form of charging system which varied by location and time of day would come closest to the optimum in terms of reducing traffic to the socially optimum level, given variations in the levels and effects of congestion across areas at time periods. However, there are major problems concerning the availability, reliability and cost of the information needed to set such charging levels. In addition, there remain concerns in the UK associated with variable charging systems, particularly in terms of informing users of changes and avoiding gluts of users waiting for a step-change in the charge.

D.10.16 In addition, it seems likely that in most circumstances the level of charges needed to bring about a significant change in driver behaviour would be very high. However, it has increasingly been realised that the revenue generation potential of charging is significant, that such revenues could be used to make substantial improvements in local transport infrastructure and services, and that road user charging together with the revenue-financed improvements in local transport stood a much better chance of effecting behavioural change than road user charging by itself. Hence the emphasis on integrated transport initiatives.

D.10.17 The full ramifications of a charging proposal in isolation (leaving aside the effects of local transport improvements) are likely to be complex. For example, the following series of short-term responses to a peak-time cordon-charge on a city centre is entirely feasible:

- Some users will stop travelling by car;
- Some will change the time of their trip;
- Some will continue as before;
- Some will make part of their previous journey by car before changing mode;
- Some will attempt to alter their destination within the urban area;
- Some will choose a different centre altogether.

D.10.18 There could also be quite significant secondary effects resulting from changes to traffic profiles across urban areas and time periods. Moreover, medium-term and long-term responses are likely to be more complex still because relocation decisions by all actors will be influenced by the charging system and its short-term effects. Planners should therefore expect to carry out sensitivity tests around proposed charge rates to explore their relative performance.

D.10.19 The challenge faced by the planner is to account as fully as possible for these dynamic interactions so as to ensure that the appraisal of the ITI does not miss important effects which would affect its apparent merits. This task is not aided by the current state of the art in transport modelling which has only sporadically

departed from a “fixed matrix” approach. Guidance is not provided here on modelling approaches; planners should discuss this with the Scottish Executive before the ITI is developed in detail. However, the following advice is given:

- The ideal modelling tool will adequately account for individuals’ journey requirements, the flexibility they have in terms of time, destination, mode and money;
- It will also allow for the types of dynamic interaction discussed above;
- “Activity-based modelling” is a field in which the fundamental building blocks are the activities or opportunities for which journeys are made – models of this type should in principle better reflect the possible impacts of charging;
- Some land-use modelling may be inevitable to capture the likely lag effects of charging on the location decisions of individuals and businesses;
- Most important, *a model which purports to have one or more of these features will only be a reliable appraisal tool if it has been properly designed and calibrated* – planners should exercise due caution.

D.10.20 SACTRA also states that “as long as the welfare of an area increases as a result of a traffic reduction measure, the local economy can be expected to be unharmed and may gain”. However, economic performance is likely to depend at least in part upon how gains and losses are distributed between types of users and trip purposes, and also on complex dynamic processes which affect the relative competitiveness of different areas.

D.10.21 In practice, the latter has been an area of concern among authorities which are potential users of traffic reduction measures, because of the possible loss of retail and other trade and negative impacts on the ability to attract new investment. These issues are discussed more fully in §D.10.44 et seq.

Project Definition

D.10.22 A key first step in appraisal is the definition of the proposal. Here, therefore, what has to be appraised is not road user charging by itself, or local transport proposals by themselves, but the integrated package comprising both sets of measures.

D.10.23 Another key step is the correct definition of domain. If a congestion-charging project is proposed for a town centre, the area of impact resulting from the proposal is likely to be much wider, including both the hinterland of the town in question and other competing centres. The Scottish Executive will expect planners to have given proper thought to the furthest potential effects of the ITI’s components.

D.10.24 As discussed below, the fact that the strategy is a package of measures which interact dynamically makes this an area where modelling has to form a key part of the appraisal process.

Approval in Principle – The “Part 1 Appraisal”

Introduction

D.10.25 The main text of STAG suggests dividing the appraisal process into a “Part 1 Appraisal” and a “Part 2 Appraisal”. These two appraisals will form the foundation for “Approval in principle” and “Approval in detail” by Scottish Ministers. This section provides additional guidance on specific aspects of the Part 1 appraisal which need to be considered in developing an integrated transport initiative proposal.

Planning Objectives

D.10.26 As stated throughout STAG, it is important first to note that an integrated transport initiative is a means to an end and not an end in itself. Accordingly in the Part 1 appraisal it is necessary to have clear statements of the objectives which the ITI will serve.

D.10.27 An integrated transport initiative is likely to have a combination of transport objectives, but the key objectives should concern the reduction of congestion and pollution. Objectives need to be clearly articulated, and consideration must be given in the option appraisal process to trade-offs between objectives. This issue is discussed in Chapter 2 of STAG.

Options and Rationale

D.10.28 To make a good case for the ITI under consideration, planners should demonstrate that they have investigated other means of achieving the same objectives without necessarily charging road users. Whilst it is likely that they will conclude no alternative will have precisely the same impacts (given that an ITI is likely to have impacts on congestion, emissions, public transport patronage and possibly many other transport issues), it is possible that a package could be developed which might emulate reasonably well the ITI’s effects. For example, stringent controls on parking and the closure of certain links might provide an alternative means of deterring car trips. Public-private finance, meanwhile, may help provide up-front capital for major local transport investment. The ITI will only be accepted by the Scottish Executive as the best way forward if planners can make a satisfactory case for preferring it to alternative packages.

D.10.29 At the Part 1 (Approval in principle) stage, the Scottish Executive does not expect authorities to have modelled and appraised the proposal in a high degree of detail. However, a broad assessment of the scope and scale of costs, benefits and other impacts is required in order to demonstrate that the ITI is likely to be the best strategic option - and clearly the robustness of this conclusion will depend on the amount of appraisal work that has been undertaken. The Part 1 AST should aim to assess the performance of the proposed ITI in comparison to a realistic “dominimum” (non-ITI) scenario. Supporting text should be provided to show the full range of non-ITI options that were considered, and why they were rejected.

D.10.30 Where an integrated transport initiative is selected as the best strategic option, sub-options within this would be concerned with issues such as

- charging strategies (e.g. times, costs, exemptions) and collection methods;
- location of cordons / boundaries / zones;

- types of local transport improvements;
- timing of implementation of the road user charging element, in relation to implementation of local transport improvements.

D.10.31 Recognising the particular sensitivities of road user charging and that there will be opposition from businesses and individual road users, particular emphasis must be put on thorough public consultation throughout the planning stages and prior to implementation of a particular proposal. In particular, the links between the charging revenue and the improvements it will purchase will need to be made quite explicit.

Implementation

D.10.32 At present there is no Scottish example of a fully developed and implemented integrated transport initiative. Therefore, there are greater than usual uncertainties surrounding the appraisal of such proposals against the new implementation criterion (within Part 1 appraisals). Accordingly, planners should give considerable weight to each sub-element of this criterion in developing any proposals for an integrated transport initiative.

D.10.33 In particular, robust evidence is required with regard to:

- technical and operational risks associated with collection and other technologies;
- financial risks relating to potential over estimation of revenue;
- costs, affordability and financing of local transport improvements from future revenue streams from road user charging;
- public acceptability.

Approval in Detail – The “Part 2 Appraisal”

D.10.34 In most cases, guidance on transport project appraisal is concerned with new investment in infrastructure, where such investment is generally intended to allow more trips to be made between those points on the network connected by the investment. In addition, the investment may also stimulate additional trips elsewhere in the network, depending on how existing trips are re-allocated once the investment is made.

D.10.35 In contrast, road user charging is designed to manage the number and distribution of road vehicle trips within an overall network. As explained at §D.10.17 et seq., from the perspective of predicting changes in travel behaviour the matter of how changes impact throughout the network may be more complex in the case of ITIs than for most infrastructure investments.

D.10.36 However, in terms of appraisal of these effects, there is a complete symmetry between physical investment in infrastructure and road user charging. In the case of infrastructure investment, that investment increases supply at all prices and hence reduces generalised cost for any given amount of traffic. In contrast, road user charging generally aims to increase (generalised private) costs to road users in

order to limit use, where that level of use involves a divergence between social and private costs. Therefore, use of road user charging may be thought of as an increase in price at any level of traffic.

D.10.37 There is, therefore, no difference in principle between investment to add to capacity or measures to regulate use of given capacity; the correct approach to the former can be applied to the latter. The issue is thus identified as selecting the appropriate cost benefit analysis framework to be applied to either case.

D.10.38 In the Part 2 appraisal, particular attention must be given to:

- the Transport Economic Efficiency (TEE) analysis;
- the analysis of Economic Activity and Location Impacts (EALIs);
- accessibility.

D.10.39 For all other elements of the AST, the guidance set out in the main text applies.

TEE Analysis

D.10.40 In the case of road user charging proposals integrated with spending of revenues on local transport, the TEE analysis must include the following:

- the benefits accruing to continuing travellers by road, who benefit through reduced congestion and hence shorter and / or more reliable journey times;
- the impacts on continuing travellers who are likely to experience changes (usually reductions) in vehicle operating costs arising from reduced congestion;
- financial disbenefits to continuing road users due to toll payments; in some cases the gain from reduced congestion may be worth less than the charge for making the trip, whereas for others (e.g. time-sensitive business deliveries) the balance may be the other way around;
- the impacts to travellers who change their travel mode, in whole or in part (e.g. park-and-ride);
- benefits to public transport operators and existing users arising from mode shift: the extent to which users benefit depends upon the response of operators to increased demand for public transport services, and the way in which the charging authority spends its revenues from the charges;
- public transport users and others who benefit from the spending of the revenues from the charging regime.

D.10.41 The TEE analysis must aim to identify and quantify all of these impacts, and also assess whether there may be further impacts arising from particular circumstances. As discussed below in the section on EALIs, the way in which road user charging will affect individuals and businesses is highly complex and involves dynamic interactions involving decision makers located both within the charging area and external to that area. Consequently, the approach suggested is intended to encapsulate these interactions within a dynamic framework.

D.10.42 For an ITI proposal, it will be particularly important to render explicit the distribution of winners and losers under a given scenario. This assessment should be undertaken from a number of perspectives, with a view to breaking down impacts on different groups of people. For example, groups could be identified on the basis of:

- Nature of trip (commuting, leisure, shopping);
- Geographic sector of origin and/or destination;
- Substitutability (readiness with which a different mode could be used, availability of another destination unaffected by charging);
- Income group.

D.10.43 If adverse impacts are found for particular groups, this may suggest a need to revisit the package of measures to be funded by charging. The links between this process and the public acceptability of the proposals should be self-evident, and hence the Scottish Executive will expect such issues to have been adequately addressed.

EALIs

D.10.44 The impact of charging on economic activity and on the location of such activity has been an area of some concern to authorities considering the introduction of road user charging and similar measures. Such concerns arise in part because with no charging regimes currently in place, the introduction of charging will differentiate an area from competing areas. In contrast, everywhere is affected by congestion to a greater or lesser degree and that congestion is itself in part a product of the economic success of an area.

D.10.45 The available evidence suggests that differences in congestion, public transport services and transport infrastructure do not typically affect an area's competitive position when set against other factors such as the quality and availability of labour, general quality of life, the tourism and retailing infrastructure and the presence of successful high technology industries.

D.10.46 Nevertheless, it is accepted that the introduction of road user charging by an individual authority could have an influence on the competitiveness of that authority's area as a place to live, invest in and visit. The extent of impacts on place competitiveness is likely to depend on the level of charges and on the extent to which spending of revenues improves local transport services and infrastructure. Whilst high charges may make the charged area less attractive to certain businesses, reduced congestion, an improved environment, and significant improvements in local transport could have a positive impact on external perceptions of an area, thereby enhancing overall competitiveness.

D.10.47 Charging could also affect the ability of existing businesses in the charging authority's area to compete in markets outside that area, depending on cost structures and profit margins. Although the overall level of economic activity may be largely unaffected, some businesses may relocate in order to retain competitive

positions. This could have knock-on implications for both transport and land-use planning.

D.10.48 It is clear therefore, that the analysis of the impacts of charging on economic performance and on location is complex and depends upon dynamic processes which involve individuals and businesses located within the charging area and others located outside that area, including mobile investors, tourists, shoppers and potential new residents.

D.10.49 Accordingly, the approach required to address these processes (for both EALI and TEE analysis) involves identification and modelling of these interactions which as far as possible should be undertaken within a dynamic framework.

D.10.50 For EALIs, while the simple sectoral analysis discussed in the main text may be adequate, it is recommended that appropriate modelling based approaches should be assessed. For example, a systems dynamics approach should be considered, as this has the potential to encompass economic and transport interactions and to model short, medium and long term impacts, including the effect of charging on the relative competitiveness of locations. Land use transport interaction models may also have a useful role to play, given the scope for feedback between an ITI and land uses. As emphasised elsewhere in STAG, the level of modelling detail should be related to the likely significance of the proposal.

Accessibility

D.10.51 The measurement of the base accessibility impacts of an ITI will almost certainly centre on changes in comparative accessibility since user charging is unlikely to be considered in a setting where the overall accessibility of a community as a whole is a cause for concern.

D.10.52 As fiscal measures will generally have a graduated effect in inverse proportion to the wealth of the user, there is a need for the planner to analyse what the imposition of charging means for the distribution of individuals' abilities to reach destinations important to them. Of course, this analysis should also reflect any remedial effect which improved local transport might bring.

D.10.53 Given the significant social and policy implications of introducing an ITI, the Scottish Executive will in general be expecting to see quite exhaustive analysis of options and their impacts, suggesting that some quantified accessibility analysis could have a role to play.

D.11 Regional Transport Strategies / Transport Corridor Studies

D.11.1 These two areas of transport planning are presented together because they share a number of features:

- A large area of concern;

- The possibility of very significant implications in terms of infrastructure and provision;
- The involvement of a wide range of stakeholders.

D.11.2 Whilst this is true, it is unlikely that a regional transport strategy will develop proposals to the same degree of detail as a transport corridor study, though this may not be the case.

D.11.3 These two applications constitute the “upper limit” in terms of thoroughness and detail demanded by STAG. Hence, planners should assume that, unless there are clear reasons to the contrary, all the elements of a planning exercise should be undergone.