

Summary

It is vital to develop options that reflect the full range available and that seek to meet a study's defined objectives, not just immediate manifestations of problems. In the past, option development has perhaps been given less attention than the new transport policy framework may require: guidance is therefore offered on the generation of options, the sifting process and option development.

Options should be developed with the intention of meeting the defined objectives. The *option definition* process should not be unreasonably constrained at the start of the process. The planner should cast the net widely and both stakeholder participation and wider consultation can have a role to play. In larger exercises, *option sifting* will be necessary to reduce the number of options and their combinations to manageable levels. A structured and transparent process that is documented and auditable is required. To this end, planners may find it appropriate to adopt a formal structured decision making process. Stakeholder and wider consultation may have an important role to play in this process.

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 planners may 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. The adoption of a reference case, however, does not obviate the need for the recommended measure(s) to be appraised against the do-minimum.

To allow alternative proposals to be considered, outline designs may be required and an assessment made of capital and other costs, and implementation timescales. There is, however, no requirement to develop alternative proposals (of any mode) to the same degree as those that have a planning history. What is required is a pre-feasibility assessment of alternative proposals, sufficient to allow appraisal to take place.

4. OPTION GENERATION, SIFTING AND DEVELOPMENT

4.1 Introduction

- 4.1.1 Option development might be considered to be self-evident or, at least, relatively straightforward. As a result, it is possibly the part of the transport planning process that receives least attention. As it is vital to derive options which fully reflect the range available and that this process is carried out in a logical, transparent and therefore auditable manner, option development actually requires greater care and attention than it has traditionally been granted.
- 4.1.2 Of major significance in larger scale studies (transport corridor studies for example) is how best to combine strategy level options for testing from the myriad number of potential combinations.
- 4.1.3 In the case of both the small and the large study, the approach to getting this right is to base the whole process on meeting the set objectives. As noted in Chapter 2, setting objectives is a participative process, undertaken in the context of problems, issues and constraints identified in the area.

4.2 Option Generation

- 4.2.1 The most common way of defining options for analysis is to assess solely how the problem being confronted can be ameliorated or eliminated. In more simple applications this might be seen as acceptable, but even so, this should be done in the context of the planning objectives set for the work. Planning objectives may (and will in larger scale studies) encompass a range of matters over and above merely solving the problem which gave rise to the analysis in the first place.
- 4.2.2 So, the generation of options can only be considered to be all-embracing if an objectives-based approach is followed. That is, explicit consideration is given to deriving options with the intent of meeting the planning objectives, rather than investigating how extant options with some history may contribute.
- 4.2.3 Furthermore, there are two issues regarding the option generation process which must be considered:
- It must not be constrained by the capabilities (or otherwise) of the modelling framework – rather, if possible – the framework should be dictated by the options developed (although this is difficult given the traditional transport planning process in which model development commences early in studies or an extant model is adopted or refined). In this context, the role of transport proposals, such as those that lead to changes in travel behaviour, are a good example. Merely because modelling in this area is less well developed than that for infrastructure proposals does not mean that such proposals should not be considered or receive prominence according to their particular applicability.

- It must not be constrained by the extent to which options are already developed. Often a small number of proposals have been worked up in some detail by promoting authorities/agencies. While, naturally, these may well be relevant (indeed, maybe the genesis of a study itself), it is important to consider what else might be applicable and work it up to a level of detail sufficient for a realistic appraisal against other more detailed proposals.
- 4.2.4 In general terms, appropriate proposals should be generated through the following sources:
- As ideas/outputs from the consultation and participation process;
 - Ideas/proposals which have a planning history and which (or derivations thereof) remain valid options;
 - Through the statutory planning and policy process, both for transport initiatives and land use plans;
 - As ideas/outputs from a structured decision making process;
 - Generated by the team undertaking the planning exercise.
- 4.2.5 A summary of possible policy instruments is provided in WebTAG 2.3. Planners should not regard this list as comprehensive or prescriptive when generating their options.
- 4.2.6 In any event, the method by which the process is carried out must be comprehensively documented; an audit trail is a vital output.
- 4.2.7 In small scale studies, it might be expected that those conducting them would be able to piece together a listing of proposals which may meet the objectives of the study, and to be able then to take these forward for analysis.
- 4.2.8 For more complex processes, and especially in a transport corridor study or in strategic urban studies, it may not be immediately apparent which options are available that might help to meet the defined objectives. The meeting of more complex objectives is only likely to be achieved through a combination of measures. Additionally therefore, and probably more difficult still, it is also necessary to work out which options, in combination, would help to meet objectives.
- 4.2.9 At the option generation stage, the following points are worth noting:
- It might be appropriate to look away from the source of the problem being addressed in geographical terms: the objective could be met by a geographically distant proposal;
 - For a strategy-level proposal, neighbouring transport plans and or local plans should be taken into consideration;
 - In a similar way, the planner should consider proposals which prioritise modes which are not fundamental in causing the problem being addressed but may offer alternative ways of meeting objectives; in the case where road congestion is identified as a problem, examples might be public transport priority, high occupancy vehicle priority, economically or socially orientated provision or

prioritisation of road space, planning amendments (although the timescale for significant land use changes should be recognised);

- Simply retro-fitting existing proposals or those with a planning history, to objectives may be tempting but is clearly not the way to proceed;
- Are proposals being developed at the appropriate level of detail? This does not have to be the equivalent of the greatest level of detail of any proposal that is considered. It is likely that any proposal with a planning history will be developed to some degree. However, alternatives do not all have to be defined to the same degree, but they all do have to be specified to an extent that the appraisal of alternatives can be undertaken on a comparable basis.

4.2.10 Appropriate resources should be devoted to consider the following when generating proposals:

- What are the key variables at work which create the problem, how have these worked in the past and what will be their influence in the future?
- How do these variables interact, is there any discernible causal link, has or will this linkage evolve?
- So, on the above basis, what would be the position in the future if nothing were done? (not a model-based “do-minimum” but a logic based view of the potential future (see §4.3.20 where the concept of a Reference Case is introduced));
- Will, therefore, the current problem be different in the future, will it have evolved, multiplied, even disappeared?

4.2.11 In such a process, understanding the genesis of the problem, how it relates to objectives and, more importantly, what might contribute to a solution become far clearer; this becomes a potentially extremely valuable tool at this stage.

4.2.12 In any event, at this early stage of the assessment, the planner must cast the net wide: brainstorming, workshop discussions and other consultation and participation measures are encouraged, to unearth new potential interventions, as well as those which might have been on the drawing board for some time.

4.2.13 The next step then is to sift options into those which may assist in meeting objectives. This step is required irrespective of the size of the study.

4.3 Option Sifting

4.3.1 In a small scale study, there may only be a small number of proposals available for assessment which can be taken forward into the assessment framework. Even at this stage, it is worth going through each one to see whether or not any are self-evidently unsuitable, in the sense that they would make no progress to meeting study objectives. If this is the case, these should be set aside through agreement with those responsible for study progress. The reason for setting proposals aside should be recorded to provide an audit trail through the study, useful for documentation purposes or providing evidence in any subsequent planning inquiry as to the veracity of the work carried out.

- 4.3.2 That leaves the remainder to be analysed through modelling or whatever assessment tool is being developed, prior to formal appraisal against objectives.
- 4.3.3 In the case of a larger study, and as noted above, it is unlikely that the above process will be sufficient. As is rightly pointed out in WebTAG, *“no one measure on its own is likely to provide a solution to the transport problems within the study areas. Whilst all of the instruments described in this TAG Unit [Unit 2.3] can contribute to the achievement of the Government’s five objectives for integrated transport, it is anticipated that the most effective solutions will consist of packages of different measures.”* It then goes on to identify the benefits of packaging measures but stops short of giving guidance on how to do this.
- 4.3.4 Again, it might be felt that packaging measures could be a fairly simple process but experience from large-scale studies shows that different individuals and agencies will have different views on how this should be done to the extent that study progress can be rendered difficult. There are two issues here:
- The conflict between wishing to include all potential options (i.e. increasing the number), while keeping timescales/budgets within appropriate levels (i.e. seeking to reduce them);
 - An inherent difficulty in combining options into packages, the whole and the elements of which need to be appraised.
- 4.3.5 What is clear is that some mechanism for sifting is needed as the number of proposals and consequently the number of potential combinations of proposals that arise could be close to unmanageable. Manageability is required both in a modelling environment and, more importantly, for the understanding of outcomes by the planner and stakeholders.
- 4.3.6 What is needed is structure and transparency in a process which can all too easily become random and clouded, even divisive. At issue here is ensuring that those responsible for decision-making, and stakeholders in the community who will be primarily affected by the outcome, are aware of the way in which decisions were reached. Even if they do not fully support the final decision, all concerned should still appreciate the process through which it was attained. Consensus may be impossible, understanding is more realistic.
- 4.3.7 There are a number of ways of achieving the sifting process although this is far from an exact science and the planner will need to agree it with the stakeholders (and perhaps funders). Where appropriate, an Option Development Process paper will help to chart the way through projects. This should be undertaken at the start of the process and amended as it evolves.
- 4.3.8 As what is needed is a form of structured decision making, the planner should derive an approach designed to help people think through complex problems, combinations of decisions to be taken, conflicting points of view and uncertainty, allowing them to reach decisions about what to do.
- 4.3.9 The first thing to do is to agree things about which decisions must be made and from which specific actions will follow. In any significant problem there will be many

of these, and they will almost certainly be interlinked, so that decisions made in one area will have a bearing on decisions elsewhere.

- 4.3.10 The planner is encouraged to adopt clear thinking about which proposals need to be compared, how they might be measured (if they can be) and the measuring units to use.
- 4.3.11 Not surprisingly, these are things about which there is doubt or uncertainty. Planners should think through the importance of uncertainty, and the value of additional information to reduce it. In any decision making process the complexities are likely to be such that planners will need to be able to review previous stages as necessary as new information becomes available or circumstances change.
- 4.3.12 In practice it can be useful to add any number of additional items in the process, particularly when working with groups of people. These might include, in addition to the futures exercise described earlier:
- Identification of stakeholders, whose views might be sought or whose interests must be considered;
 - Identification of data sources to back up the chosen comparison criteria.
- 4.3.13 The strength of such an approach is that it helps participants develop structure and a cogent case based on transparent logic. The planner might consider the use of pictorial devices as these can aid the portrayal of complex ideas, and can help to make the process auditable, so that arguments developed in workshops can be presented in detail in subsequent reports.
- 4.3.14 In application, the outline approach indicated here will operate well through facilitated workshops, followed by background work using traditional transport planning tools. This may then be followed by further workshops at which progress is explained and reviewed. Because of their structuring, these workshops are much more than 'brain-storming' sessions, which run the risk of becoming talking shops, or of being dominated by a few individuals. The facilitation requires skill, but if done well will result in highly effective workshops that focus effort and give all participants the opportunity to contribute.
- 4.3.15 The use of such structured decision making, combined with conventional modelling and survey methods is very effective, chiefly because it forces the early identification of significant problems, potential solutions and the information or research needed to select the best way forward. This sets a clear context for all the subsequent modelling or analytical work, which then becomes more focussed and directed and will not dominate the process unduly.

The Use of Weightings for Sifting Options

- 4.3.16 A further way of undertaking the option sifting process is to develop a set of weightings for the planning objectives and combined with an assessment (perhaps *a priori*) of a proposal's attainment of the planning objectives, a scoring can be developed. Weighting is a subject on which planners should make decisions as appropriate. On the one hand, a weighting system is necessary if a straightforward

comparison is to be made between candidate proposals. On the other, if SMART targets have been set which reflect not only what is possible but the relative importance of the various issues, it should not be necessary to develop a convoluted set of weights for the planning objectives. The exception to this is where the domains of planning objectives differ: for example, one planning objective may relate to the improved accessibility of one development site, whilst another may relate to the operating speed of public transport across the study area. Planners are likely to consider the global planning objective more important than the local one and should weight accordingly.

4.3.17 It is expected that few planners will consider it either necessary or desirable to produce a weighted system of planning objectives and a resulting linear ordering of proposals. Rather than explaining this process in detail then, the following references are provided to texts in which the subject is dealt with thoroughly.

- A discussion of the topic and a range of case studies are included in *Readings in Decision Analysis*, Simon French, Chapman and Hall, London, 1989;
- A survey of commercially available software to aid in the weighting process is reported on the website of OR/MS magazine: <http://lionhrtpub.com/orms/surveys/das/das.html>

4.3.18 In summary, the steps within the option sifting process for large-scale proposals are suggested in outline as follows:

- Define, in broad terms, what decisions have to be made when developing the transport proposal and within these what the options are (noting the comments above regarding casting the net wide);
- Assess which options are compatible with each other. The compatibility of one option with another is simply an assessment of whether two options can be implemented together. It is *not* an assessment of the contribution of an option (or pairs of options) to achieving the study's objectives. The compatibility assessment of options is a relatively simple way of filtering infeasible or nonsensical combinations of options;
- With the combinations of options that remain after the compatibility assessment, sift the options to identify which, based on an *a priori* assessment, are likely to contribute most to the achievement of objectives and which are likely to contribute the least.

The Do-Minimum and Reference Case

4.3.19 The *do-minimum* applies to all proposals, i.e. projects, plans and strategies. The *do-minimum* comprises all schemes and proposals under construction or for which statutory powers exist to develop the proposal and the funding mechanism has been approved or funding is available. Options for the future transport proposal will be appraised by reference to their performance against the do-minimum scenario.

4.3.20 There are often a number of other proposals which do not meet the criteria to allow their inclusion in the do-minimum. It may be appropriate to concoct a "do-minimum plus" or *reference case*, in which non-controversial but non-committed elements are added. These may be proposals that are believed by the planner to be almost

certain to gain statutory approval and for which funding is very likely to be made available. If this is done it must be appraised against the do-minimum for achievement against study objectives. When developing a strategy, other strategic options can be appraised against this reference case. At the end of the analysis, when completing the appraisal described later in this Guidance, the agreed way forward needs to be appraised against the do-minimum.

- 4.3.21 If this process is followed, it is important that the inclusion of some elements within a reference case does not preclude other proposals being included in other later options, or even that items included in the *reference case* do not get excluded from greater development in later options. An example is including some “hearts and minds” options in the reference case to their potential exclusion from widespread implementation as one of (or part of one of) the later options.

4.4 Option Development

- 4.4.1 The aim of the next steps of the process is to develop a reasonable number of broadly defined alternative options that can be subjected to analysis and appraisal. The outputs of this work would then feed into a process of proposal refinement leading to the derivation of recommendations.

- 4.4.2 In parallel to the continuing development of the options a number of other tasks may need to be undertaken. As noted previously, it will be expected in a complex study that some of the proposals put forward are well developed. In the case of some infrastructure proposals, this means that the layout and alignment will have been specified in sufficient detail and there is a view on implementation timescale, costs and responsibility for implementation. At the other extreme, some options will not have been specified beyond a conceptual stage. The purpose of the parallel tasks is therefore fourfold:

- To confirm that the elements that will be examined are broadly feasible;
- For each option, define them to such a degree that they can be analysed with confidence;
- To have costing and timescale information sufficient for the appraisal process;
- In some cases, undertake further assessment to help provide more information on the potential role of an option where at present its role is unclear or there are divergent views on its efficacy.

