


**Application of a Methodology for
Prioritising and Ranking
Regional Transport Management
and Investment Priorities in
South East England**

Final Report

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Executive Summary

This report documents work undertaken by Atkins for South East England Regional Assembly for the purposes of developing a practical methodology to prioritise transport interventions on a regional basis. The resulting methodology has been developed using appraisal data for interventions cited in the Regional Transport Strategy (RTS) for South East England but has been tested and expanded to ensure that it can accommodate types of intervention not currently proposed in the RTS but which might be included in the foreseeable future.

The methodology involves the prioritisation of interventions on the basis of a combination of three banded¹ scores for each intervention, representing the dimensions of:

- ◆ Compatibility with regional policies and objectives;
- ◆ Deliverability;
- ◆ Value for money.

The report explains how scores for each of these three dimensions have been derived based on:

- ◆ Direct appraisal data;
- ◆ Appraisal data synthesised where none currently exists;
- ◆ Reasoned assumptions.

The three scores are brought together in a three-dimensional matrix, best visualised as a cube. The position of each intervention within the cube determines not just its rank compared with other interventions but also indicates which aspects of the intervention (in terms of its policy compatibility, deliverability and value for money) need to be improved in order to improve the intervention's rank.

Results of the ranking process are presented for 60 interventions including a broad mix of highway and rail infrastructure schemes, as well as other transport interventions. This mix is reflected in the interventions appearing as the highest regional priorities, as well as those appearing as the lowest priorities.

The report makes a number of recommendations, chief amongst which is the need for appraisal data. Many interventions cited in the RTS appear not to have been appraised in any formal way which means that appraisal data for use in the prioritisation methodology needs to be synthesised using rule of thumb assumptions and this appraisal data, therefore, does not necessarily reflect the true performance of the intervention in question.

Other key recommendations include the need to consider interventions of national significance in a national rather than regional context. Such interventions currently in the RTS need to be identified and considered outside this prioritisation methodology by the appropriate agencies - principally the Highways Agency and the Strategic Rail Authority (and its forthcoming successor).

¹ i.e. scored in ranges of 'High', 'Medium', 'Low' (and sometimes 'Poor').

1. Introduction

1.1 Purpose of this document

The primary purpose of this document is to describe the development of a practical methodology for prioritising transport interventions and the practical application of this to transport interventions cited in the Regional Transport Strategy (RTS) for South East England. The work was undertaken by Atkins on behalf of South East England Regional Assembly ('the Assembly') over a three month period in Autumn 2004.

As the methodology is applied using a *Microsoft Excel* spreadsheet, much of the description and discussion within this document is focused on the structure of that spreadsheet and the assumptions made within it.

1.2 Structure of this document

The remainder of this introductory chapter summarises which transport interventions have been used as the basis for developing and testing the methodology. The following chapter expands upon the Study Approach set out in the Project Plan and introduces each of three dimensions to a "Regional Prioritisation Matrix":

- ◆ Policy compatibility;
- ◆ Deliverability;
- ◆ Value for money.

Chapters 3, 4 and 5 consider in turn each of these three dimensions in greater detail. Chapter 6 presents and discusses initial results from the prioritisation of the interventions within the RTS and eight additional interventions, as introduced below. Recommendations arising from this study are set out in Chapter 7.

Appendices to this report comprise:

- A) Policy Compatibility checklist, weights and assumptions regarding intervention impacts where no appraisal data is available;
- B) Deliverability assumptions;
- C) Value for Money assumptions for those interventions where no appraisal data is available.

1.3 Interventions considered by this study

The interventions listed in the RTS form the basis for the practical development of the prioritisation methodology, and its testing. There are 98 interventions listed in Tables 1 to 7 in the current South East England RTS. Of these, 41 are components of one of five packages of measures arising from the recent Multi-Modal Studies in the region.

The relevant Multi-Modal Studies comprise:

- ◆ South Coast Multi-Modal Study;
- ◆ Thames Valley Multi-Modal Study;
- ◆ London-South Midlands Multi-Modal Study;
- ◆ ORBIT Multi-Modal Study;
- ◆ Access to Hastings Multi-Modal Study.

In recognition of the Regional Assembly's desire not to 'cherry-pick' individual interventions from packages of measures which have been developed, appraised and promoted as an integrated 'whole', this study considers each of the above Multi-Modal Study packages as a single intervention at this stage. In addition several key interventions within the Multi-Modal Study packages have also been considered in their own right. Some 64 separate interventions based on proposals in the RTS have therefore been considered.

In addition, a further eight 'concept' interventions have been remitted to this study by the Assembly for consideration alongside the above 64 interventions. The extra eight interventions are:

- A) A Travel Planning Centre in each of Crawley/Gatwick Airport and Reading;
- B) Road User Charging scheme in South Hampshire;
- C) A20 Townwall Street, Dover ("local" highway, accessing Dover Port);
- D) Reinstatement of Lewes - Uckfield rail line;
- E) Reallocating the inside lane of the M25 between M4 and M23 to a shared Coach / High Occupancy Vehicle lane;
- F) Improving road and rail access to Manston Airport, Kent;
- G) Construction of a CTRL Domestic parkway station by the M20 on the edge of Maidstone;
- H) Road User Charging scheme at Reading.

For clarity, the road and rail links in F) have been considered as separate interventions.

We have been advised that 13 of the interventions in the RTS have already been implemented or are in the process of implementation. The results of the prioritisation are presented with these interventions removed. Therefore, this report considers the prioritisation methodology in the context of 60 separate interventions.

2. Study Approach

2.1 Achieving consistency with existing transport strategy development and appraisal processes

There is much in common between the 'New Approach to Appraisal' (NATA) and 'Guide to Producing Regional Transport Strategies' approaches to prioritisation which were distilled from MVA's earlier work for the Regional Assembly.

The main difference between the two approaches is:

- ◆ the level of detail at which certain steps are undertaken; and
- ◆ the relatively prescriptive approach to appraisal using NATA and embodied in the Guidance on the Methodology for Multi-Modal Studies (GOMMMS).

We conclude from this that, irrespective of the prioritisation methodology adopted, the RTS and individual transport interventions of regional significance need to be developed by moving from the problem identification and objective setting through to appraisal. This then provides the starting point for prioritisation.

We note that if prioritisation is to be founded on the relative impacts of different interventions, then the prioritisation methodology *must* be fed by appraisal results of some form. Given the widespread use of NATA-derived "Appraisal Summary Tables" (AST) and supporting worksheets to consider transport interventions of all types, it is inescapable that any practical prioritisation methodology must implicitly draw heavily on the NATA methods and formats. The approach described below reflects this.

2.2 Study approach

We have relied, where available, on appraisals already undertaken. Where suitable appraisal data has not been readily available we have synthesised appraisal results in a pragmatic but reasonable fashion, using rules of thumb to distinguish between interventions of different types and scales. This process of synthesis has been a 'necessary evil' within the requirements and constraints of this study and we should stress that there is no substitute for detailed appraisal work, commensurate with the scale of the intervention and its progression through the planning process.

With regard to appraisal data, the process we have adopted has been sufficient to develop and test the application of the prioritisation approach.

The approach adopted is very clearly a "bottom-up" approach based on significant data collation and interpretation of 'real' interventions, for instance against regional objectives, as expressed in the RTS and associated documents. This is in contrast to certain previous research studies of this nature, in which emphasis has been placed on developing loose frameworks that link policy objectives to broad criteria.

2.3 The means of prioritising

Developing and applying a prioritisation methodology has been at the heart of the project work. We have approached this by prioritising using a combination of three generic criteria.

Contribution to regional policies and objectives – based on the weighted average compliance with all relevant documents and their constituent policies and objectives. Four bands have been defined:

- ◆ Poor = lowest compatibility with policies and objectives;
- ◆ Low = below average compatibility with policies and objectives;
- ◆ Medium = above average compatibility with policies and objectives;
- ◆ High = highest compatibility with policies and objectives.

Within the spreadsheet tool developed as part of this study, numerical scores are calculated for each intervention and cut-offs have been defined in order to ‘normalise’ the scores such that there is a broad spread of interventions across the four bands. This means that the bands are entirely a ‘relative’ concept – a ‘Low’ intervention is less compatible with policies and objectives than a ‘Medium’ intervention but should not necessarily be considered to be mediocre in any absolute sense. This explains the imprecise nature of the definitions given above. Further explanation is provided in Chapter 3.

Initial work identified 17 relevant policies in the RTS² and nine specific objectives under paragraph 9.8 of that document, as being relevant to the policy compatibility criterion. During the study, a new set of sub-regions was defined which differed from those used in the aforementioned tables of interventions in the RTS. The new sub-regional strategies were felt to be covered by the previous nine specific RTS objectives with the addition of one further sub-regional strategy for the Gatwick sub-region which was defined for the purposes of this study³.

To reflect compliance with other regional policies and objectives, the spreadsheet tool has been developed to accommodate a score against the Integrated Regional Framework, the Regional Economic Strategy, the Regional Housing Strategy, plus a single score against ‘Other’ Regional Strategies (e.g. Tourism) and a set of Regional Spatial Strategy objectives. The interventions have *not* been scored against any of these additional policies and objectives as part of this study.

² There are 18 RTS policies but Policy T17 relates to the process of prioritisation itself, and is therefore omitted for the purposes herein.

³ “to manage the transport network and invest in transport infrastructure to optimise capacity within, to and from the (Gatwick) sub-region”.

In addition each intervention has been assessed against the following Government objectives stated in the New Approach to Appraisal (NATA):

- ◆ Environment;
- ◆ Safety;
- ◆ Accessibility;
- ◆ Integration.

Compliance with these general objectives has in turn been derived by considering the interventions' compatibility with each of the relevant sub-objectives. These sub-objectives should each be already scored on a standard Appraisal Summary Table (AST), which ideally would be available for each intervention. Where an AST has not been available the scores against each NATA sub-objective have been synthesised using 'rule of thumb' assumptions.

The fifth NATA objective, 'Economy', has been excluded from this process as this is covered directly by the 'Value for Money' criterion introduced below.

Each intervention has been scored as compliant, counter or neutral to the each of the policies and objectives (except for the Government objectives which have been scored using the 7 point scale⁴ commonly applied on the relevant ASTs). Combining scores across all the relevant policies and objectives has been undertaken using weights as described in Chapter 3 and listed in Appendix A.

Certainty of deliverability - based on the probability of overcoming practicability issues of political acceptability; planning hurdles and obtaining funding. Three bands have been defined:

- ◆ High = highest certainty of deliverability;
- ◆ Medium = average certainty of deliverability;
- ◆ Low = lowest certainty of deliverability.

As with the policy compatibility measures discussed above the bands are entirely a 'relative' concept – a 'Low' intervention is less deliverable than a 'Medium' intervention but should not necessarily be considered to be undeliverable in any absolute sense.

We have derived a score for deliverability based on the product of two⁵ separate determinants of risk:

- ◆ Funding certainty;
- ◆ Public acceptability.

⁴ Significant/large beneficial; moderate beneficial, slight beneficial, neutral, slight adverse, moderate adverse and significant/large adverse.

⁵ At the outset of the study we considered a third determinant, "certainty of obtaining planning approvals". However, it was concluded that this was so highly correlated to the other two determinants that its inclusion could not be justified.

These are discussed further in Chapter 4 but in summary: Public Acceptability is assumed to be assured unless certain triggers of public dissent are present (large adverse environmental impacts, increase travel costs, etc.); while Funding Certainty is based on a set of assumptions governed by:

- ◆ Intervention status (under investigation, committed, etc.);
- ◆ Funding scale (large or small, with an assumed £50m threshold);
- ◆ Intervention sponsor (rail industry interventions are currently subject to greater uncertainty);
- ◆ Implementation timescale.

Value for money - based on monetised costs/benefits. Four bandings have been used consistent with central Government's classification:

- ◆ Poor value for money = Benefit:Cost Ratio (BCR) is less than 1;
- ◆ Low value for money = BCR is between 1 and 1.5;
- ◆ Medium value for money = BCR is between 1.5 and 2;
- ◆ High value for money = BCR is over 2.

Although the NATA 'Economy' objective can be split into various sub-objectives such as time savings, accident cost savings and wider economic benefits, in one sense such a disaggregation serves no purpose in the context of this prioritisation methodology. If assessed separately, all the sub-objective scores would require combining into a single 'Value for Money' score and the only sensible choice of weights would be one that reflects the monetised value of the intervention's score against each sub-objective – i.e. the overall relationship between monetised costs and benefits; namely the BCR.

At the same time it *could* be argued that wider economic benefits satisfy different policies and objectives from those related to the transport intervention *per se*, and that consequently there may be circumstances where wider economic benefits should be weighted differently from other benefits. However, we believe this issue should be accommodated through the Policy Compatibility dimension, with interventions which provide wider economic benefits scoring more highly against compatibility with the Regional Economic Strategy, particularly where those benefits are to be felt in growth and/or regeneration areas designated in that document. In any case, wider economic benefits are difficult to evaluate even after an intervention has been implemented and values from a pre-implementation appraisal of such benefits are very rarely available.

The derivation of the value for each intervention is discussed further in Chapter 5.

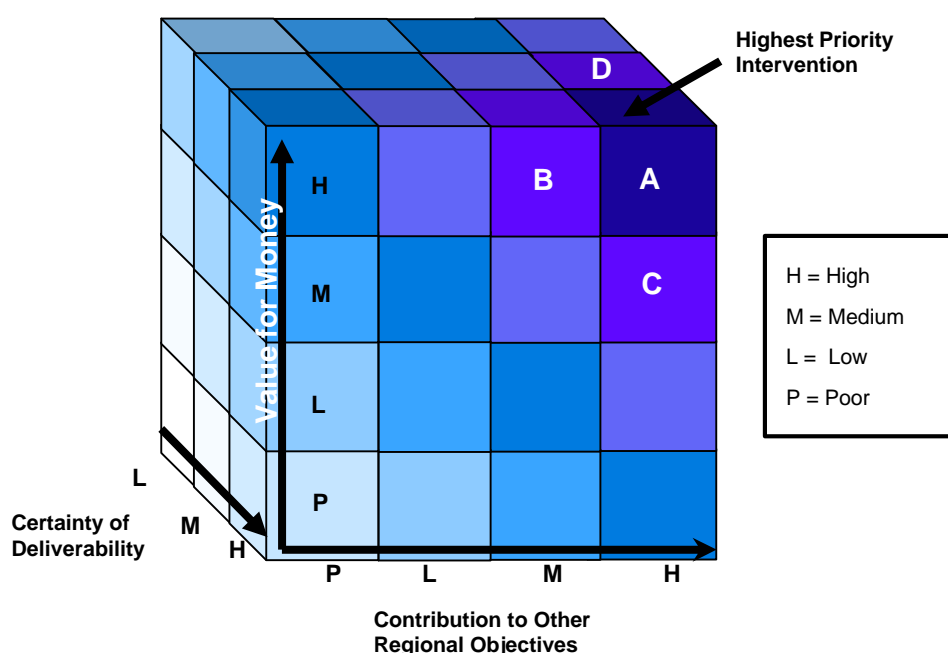
2.4 A Regional Prioritisation Matrix (RPM)

The assessment under each of these three generic criteria allows the development of a three dimensional matrix in which interventions will be assigned to one cell for any given implementation timescale. Figure 2-1 depicts the matrix. The highest priority interventions will be those in cell A; those with greater certainty of deliverability, high value for money and significant (high) contribution to regional planning policies and objectives.

Interventions in cells B, C and D will be of second highest priority and may warrant further consideration to be given to how they can be refined:

- ◆ to make a greater contribution to regional policy objectives (for example, through environmental mitigation) (for interventions in cell B);
- ◆ to provide better value for money (for interventions in cell C);
- ◆ to overcome obstacles to deliverability (for Interventions falling in cell D).

Figure 2-1 - The Regional Prioritisation Matrix



Deliverability has been considered for three different timescales:

- ◆ short - term (to 2011);
- ◆ medium - term (to 2016);
- ◆ long - term (beyond 2016);

An intervention falling into cell D for the short-term may move to cell A for the medium to long-term as a direct result of the Funding Certainty measure which it is assumed has greater certainty over a longer time frame, to account for the time required to progress through the planning processes, obtain the necessary approvals and funding.

The prioritisation matrix will, therefore, assist both in terms of consideration of phasing and in terms of identifying where efforts are best focused to refine interventions.

While the matrix shows unambiguously that interventions falling into cell A should receive the highest priority and those not labelled should receive the lesser priority, it cannot distinguish between the relative priorities of interventions falling within cells B,

C and D. The three axes of the matrix are dimensionless bands and cannot be equated in like terms⁶.

The relative importance of each dimension of the matrix is as much a political judgement as a technical judgement. Determination of this relative importance does not lend itself to a prescriptive approach – i.e. in which each intervention is rigidly placed in a priority list according to its location in the RPM. Indeed, we feel that were a prescriptive approach to be used this would undermine the credibility of the overall methodology by effectively removing the decision from the decision-makers. Consequently we propose that, for any given appraisal period, our methodology will rank interventions falling within cells B, C and D of the matrix as “equal”⁷.

2.5 Practical application of the methodology

The methodology is applied using a systematic process at the centre of which is an MS Excel spreadsheet. Inputs to the spreadsheet include, for each intervention:

- ◆ some basic indicators such as intervention type, mode affected, current intervention status, physical scale (large or small), location (urban or non-urban), funding scale (<£50m or >£50m), whether any new infrastructure is significantly beyond existing network boundaries, whether travel costs rise, whether road traffic volumes rise, fall or are unaffected and whether appraisal data is available;
- ◆ Appraisal Summary Table data if available;
- ◆ a qualitative score for consistency with each regional planning policy/objective⁸;
- ◆ a user-defined adjustment for the Funding Certainty score, to reflect special planning or political circumstances that otherwise would be ignored.

The spreadsheet uses automated techniques to rank each intervention within the Regional Prioritisation Matrix. The criteria used are based on the description set out above. In all cases the spreadsheet utilises available appraisal material where available and only synthesises appraisal data where this is necessary.

⁶ It is of note that at the outset of the study it was assumed that Policy Compatibility was in some sense a more important dimension and that *ceteris paribus* those interventions with a higher Policy Compatibility would be ranked higher. This means of ranking gives rise to twice as many ranks and therefore may assist in distinguishing better between interventions.

⁷ As part of the development work on this matrix we have transformed each cell in the matrix as a record in a one-dimensional prioritisation list. Should the Assembly wish to ascribe different weights to the different axes such that Cell B may be ranked higher than Cell C or vice versa, then the effects of this judgement may be quickly assessed by altering the prioritisation list.

⁸ Compatibility with RTS Policies has been taken directly from the RTS. Compatibility with RTS Objectives, incorporating Sub-Regional Strategies, has been assessed using a generic reference table which typifies the interventions likely to be compatible (and incompatible) with each objective. Compatibility with Government objectives has been based on AST appraisal data where available and rules of thumb where not available. Assessment against other regional policies and objectives has not been undertaken as part of this methodology development study.

3. Policy Compatibility

3.1 Introduction

The position of each intervention on the policy compatibility axis of the cube is derived by scoring its impacts against a wide range of strategies, policies and objectives. These can be grouped into three broad categories:

- ◆ Regional Transport Strategy policies and objectives, incorporating sub-regional strategies;
- ◆ National objectives (from the Department for Transport's (DfT's) New Approach to Appraisal (NATA));
- ◆ Other regional strategies and documents (including the Regional Spatial Strategy, Integrated Regional Framework, Regional Economic Strategy, Regional Housing Strategy and other strategies).

Each intervention is scored in terms of its contribution to each strategy, policy and objective within each category. Each of these component scores is then combined using a series of weights to produce the final policy compatibility score and thus the intervention's position on the policy compatibility axis.

This chapter discusses the processes used to score each intervention against each strategy, policy and objective and concludes with a discussion of the weightings used to combine the component scores to produce the final overall policy compatibility score.

It is recognised that the weightings and policy compatibility objectives are likely to be subject to change as the approach is further developed and refined.

3.2 Regional Transport Strategy policies and objectives, incorporating Sub-Regional Strategies

The elements of the Regional Transport Strategy (RTS) considered for the policy compatibility dimension can be disaggregated as follows:

- ◆ *Regional Transport Policies.* These are 17 of the 18 policies listed at the beginning of the Regional Transport Strategy (Policy 17 – Priorities for Investment - is omitted as redundant for this process).
- ◆ *Regional Transport Objectives,* incorporating sub regional strategies. These are the 8 objectives listed in paragraph 9.8 of the RTS, adjusted to reflect the revised definitions of the sub-regions emerging through the development of the South East Plan. This adjustment results in 14 objectives overall.

Table 3-1 lists the policies and objectives considered.

Tables 1 to 7 of the RTS detail the policies to which each intervention is assumed to contribute. Interventions were therefore scored as supporting a given policy (a score of 1) or having a neutral impact (a score of 0) using information taken directly from the RTS.

Comparable information was not available on the compatibility of each intervention with each regional objective and sub regional strategy. These scores were therefore derived independently as part of the development of the prioritisation spreadsheet. To ensure the process was as consistent as possible between interventions, the meaning of each objective was analysed and a checklist derived of the types of intervention that might contribute towards its achievement and the types that might act counter to it (Appendix A). Each intervention was then scored on the basis of this checklist as either contributing to, having a neutral impact on or acting counter to each objective (scores of 1,0 and -1 respectively).

Table 3-1: Regional Transport Policies and Objectives, incorporating Sub Regional Strategies

Regional Transport Policies	
T1	Manage and Invest
T2	Key Management Issues
T3	The Rural Dimension
T4	Regional Hubs
T5	Regional Spokes
T6	Airports
T7	Ports
T8	Ports – Short Sea Services
T9	Public Transport
T10	Mobility Management
T11	Charging
T12	Parking
T13	Travel Plans and Advice
T14	Rail Freight
T15	Freight and Site Safeguarding
T16	Inter-Modal Interchanges
T18	Delivery Partnerships
Regional Transport Objectives Incorporating Sub Regional Strategies (Paraphrased)	
a	Facilitate urban renaissance and foster social inclusion
b	Manage the transport system to reduce car dependence
c	Improve transport infrastructure within and to the Thames Gateway
di	Improve strategic road and rail links within and to Central Oxfordshire
dii	Improve strategic road and rail links within and to Western Corridor/ Blackwater Valley
diii	Improve strategic road and rail links within and to the London Fringe
ei	Improve road and rail links along the Sussex Coast
eii	Improve road and rail links for South Hampshire
eiii	Improve road and rail links for the Isle of Wight
f	Invest in improved accessibility in East Ken
g	Support development in the growth areas of Milton Keynes and Aylesbury and Ashford through transport infrastructure proposals
k	Manage and invest in transport to optimise capacity for Gatwick sub region
h	Develop road and rail links to improve inter and intra-regional connectivity
i	Improve and develop sustainable links to air/rail and sea gateways

3.3 National Objectives

The score against national objectives is derived from scores against each of the DfT's NATA objectives of:

- ◆ Environment;
- ◆ Safety;
- ◆ Accessibility; and
- ◆ Integration.

The fifth NATA objective of Economy was omitted because it is covered by the Value for Money dimension and several of the regional objectives.

These objectives (and their many associated sub-objectives as shown in Table 3-2) underpin the DfT's recommended approach to appraisal and therefore form the basis of the standard Appraisal Summary Tables (ASTs) for transport interventions produced for the DfT. The prioritisation process has therefore been set up to ensure that, wherever an AST exists for an intervention, it can be used directly to provide the score of compatibility against the national objectives.

Table 3-2: National Objectives and Sub-objectives

Objective	Sub-objective
Environment	Noise
	Air Quality
	Greenhouse Gases
	Landscape
	Townscape
	Heritage
	Biodiversity
	Water
	Physical Fitness
	Journey Ambience
Safety	Accidents
	Security
Accessibility	Option Values
	Severance
	Access to Transport System
Integration	Transport Interchange
	Land-Use Policy
	Other Gov Policies

The overall assessments provided in ASTs are in terms of a 7 point scale (ranging from large adverse through moderate and slight adverse to neutral and slight, moderate and large beneficial). These entries are converted into scores of between -3 (large adverse) and +3 (large beneficial) for use within the prioritisation process.

However, as discussed earlier, relatively few of the RTS interventions have an existing AST. A method was therefore required to provide scores for each of the remaining interventions against national objectives, to enable their positioning on the policy compatibility axis. The approach adopted has been to derive several series of assumptions relating the likely impact of interventions on the achievement of each of the NATA sub-objectives to their description in terms of the following key characteristics:

- ◆ Mode (i.e. road, rail, rail freight, LRT, bus, demand management, reallocation or multi modal);
- ◆ Intervention type (e.g. new road, road widening, bypass or junction improvement or new rail station, station upgrade, new line, line upgrade or service enhancements);
- ◆ Funding scale (large or small, with the break point at approximately £50 million);
- ◆ Whether the intervention physically extends beyond existing transport boundaries and whether it does so to a large or small degree;
- ◆ Impact on traffic (increases, reduces or neutral impact);
- ◆ Whether the intervention is located primarily in a urban or non urban area or covers both types of area.

For each sub-objective assumptions were made as to which of the characteristics listed would influence the nature of any given intervention's impacts. A series of assumptions was then derived as to the scale of impact interventions with varying combinations of the relevant characteristics would have. The assumptions made were based on existing evidence and ASTs combined with professional judgement and experience.

By way of illustration, Table 3-3 shows the assumptions made to determine intervention's impacts on greenhouse gas emissions. In this case the impact is assumed to vary according to the scale of the intervention, the nature of its impact on traffic and whether or not it is a road based intervention.

**Table 3-3: Example of assumptions –
 Impact of Interventions on Greenhouse Gases**

Funding Scale	Impact on Traffic	Road/ Demand Management Interventions	Non Road Interventions
L	Reduction	1	1
L	Neutral	0	0
L	Increase	-1	-1
S	Reduction	1	0.5
S	Neutral	0	0
S	Increase	-1	-0.5

For consistency with the AST assessments, each set of assumptions uses the same 7 point scale of impact (-3 to +3 i.e. large adverse to large beneficial). Appendix A provides full details of the assumptions used to relate interventions' impacts against each sub-objective. It is recognised that these assumptions are generalised and simplistic. However they are necessary to provide each intervention with a position on the cube. They are only intended to be temporary, used until data based on an intervention specific appraisal is made available by the intervention's promoter as development progresses.

3.4 Other regional strategies and documents

The prioritisation spreadsheet currently includes the capability to score each intervention in terms of its compatibility with the following regional strategies and documents in addition to the RTS:

- ◆ Regional Spatial Strategy;
- ◆ Regional Economic Strategy;
- ◆ Regional Housing Strategy;
- ◆ Integrated Regional Framework;
- ◆ Other regional strategies (including the Tourism Strategy for instance).

The process for scoring each intervention's performance against each of these strategies and documents is less detailed than the scoring against the RTS. For most of the documents, the spreadsheet allows a single score of 1,0 or -1 (contributes to, has a neutral impact on or acts counter to) for compatibility with the strategy. The Regional Spatial Strategy is the exception, with scope for up to 5 separate sub-objectives (which would each be scored -1, 0 or 1).

Providing a score for the compatibility of each intervention with each of these strategies and documents was beyond the scope of this commission. Therefore, as a default, each score for each intervention has been set to 1. These scores will need to be entered with greater accuracy before the prioritisation process is used in earnest.

3.5 Weightings

As the preceding paragraphs describe, each intervention is currently scored against 17 policies and 14 objectives from the RTS, 18 sub-objectives relating to the National Objectives and 5 other regional strategies/documents (with 5 sub-objectives for the RSS).

These various scores are combined through a series of weights to produce the overall score against policy compatibility which provides each intervention's position on the cube's axis.

The weights can be considered as divided between two levels:

- ◆ The relative weights given overall to each of the main strategy documents/ sets of objectives i.e.:
 - A Regional Transport Policies (currently 20% of total score);
 - B Regional Transport Objectives, incorporating Sub Regional Strategies (currently 10% of total score);
 - C National Objectives (currently 20% of total score);
 - D Regional Spatial Strategy (currently 0% of total score);
 - E Regional Economic Strategy (currently 10% of total score);
 - F Regional Housing Strategy (currently 10% of total score);
 - G IRF (currently 20% of total score);
 - H Other Regional Strategies/Documents (currently 10% of total score).

Summing these weights produces a total of 100%. Therefore an intervention scoring 100% against each of these documents/ sets of objectives would score 100% in policy compatibility.

- ◆ The relative weights given to each sub-objective within each of these main documents/ sets of objectives i.e.
 - A Each of the 17 regional transport policies – these are currently weighted equally and therefore each one contributes 1/17 of the overall contribution of Regional Transport Policies to overall policy compatibility;
 - B Each of the 14 regional transport objectives – these are currently weighted equally and therefore each one contributes 1/14 of the overall contribution of Regional Transport Objectives to overall policy compatibility;
 - C Each of the NATA objectives - these are currently weighted equally and therefore each one contributes 1/4 of the overall contribution of national objectives to overall policy compatibility. Each of the sub-objectives within each objective is also currently weighted equally. Therefore each one of the 10 Environment sub-objectives contributes 1/10 to the overall contribution of the Environment objective (and therefore $(1/10) \times (1/4)$ of the overall contribution of the national objectives);
 - D Each of the Regional Spatial Strategy objectives – these are currently weighted equally and therefore each one contributes 1/5 of the overall contribution of Regional Spatial Strategy to overall policy compatibility.

Appendix A summarises the weights applied to the various components of the policy compatibility score.

The prioritisation spreadsheet has been structured to ensure that these weights can be readily changed from this 'neutral' position to reflect political judgements as to the correct balance of weightings between components. For example, should it be necessary to reflect a more active 'manage first, invest later' strategy, this could be achieved by weighting more highly those policies and objectives relating to sustainability, particularly the environmental sub-objectives of 'landscape' and 'townscape' which will discriminate between interventions utilising existing infrastructure and those requiring new infrastructure.

4. Deliverability

4.1 The components

We have defined Deliverability as the product of Public Acceptability and of Funding Certainty. As discussed in Chapter 2, there was an initial intention to include third component representing the likelihood of obtaining the necessary planning approvals. However, following further consideration the study team concluded a) that the main barrier to obtaining planning approvals is Public Acceptability (or the lack of it, as manifested in objections at Public Inquiries), and b) that Funding Certainty is determined to a significant extent by planning approvals. Given these relationships it was felt that this third component was not required in its own right.

$$Deliverability = PublicAcceptability * FundingCertainty$$

As the relationship between Public Acceptability, Funding Certainty and the resulting Deliverability and is 'multiplicative', halving the score of either component will halve the overall Deliverability score. The two components are considered in greater detail below:

4.2 Public Acceptability

Initially we considered how this measure might be increased by intervention impacts which are broadly seen to be positive in terms of public sentiment. However, on reflection it was concluded that ultimately the deliverability of an intervention depends not on the views of the 'silent majority' who are either supportive or ambivalent but upon the depth and breadth of opposition to the intervention.

Consequently a measure of Public Acceptability between 0% and 100% was defined as:

$$PublicAcceptability = 1 - \sum_i (a_i * x_i)$$

where:

x_i is zero unless the i th potential trigger of public dissent is present in the impacts of the intervention, and;

a_i is a weight determined by the relative importance of the i th trigger of public dissent.

In all cases the weights a_i have initially been set to 20%. This assumed value may readily be revised, and indeed different weights may be applied to the different triggers should it be concluded that (say) adverse safety impacts are perceived more keenly than adverse environmental impacts.

We have defined the set of triggers, x , as:

Local adverse environmental impact – given by the worst adverse score on the AST against all environmental sub-objectives except ‘Noise’, ‘Air Quality’ and ‘Greenhouse Gases’⁹;

Increase in accidents – given by an adverse score against accidents on the AST¹⁰;

Increase in travel costs – an assumed input to the methodology, entered as part of the intervention data-entry process;

Damage to the local economy – present only if travel costs increase and deemed to have a greater impact (in public acceptability terms) in urban areas;

Regionally significant adverse environmental impact – given by the worst adverse score on the AST for the ‘Landscape’ and ‘Biodiversity’ sub-objectives, but only deemed to be present if the intervention is a physically large scheme which is largely outside existing infrastructure boundaries¹¹.

In all the above cases where AST data has been used, the trigger x_i has been normalised such that only a ‘large adverse’ impact has the maximum effect implied by the respective weight, a_i .

4.3 Funding Certainty

Funding Certainty has been assumed to:

Increase over time – to reflect the additional opportunity for promoters to undertake the necessary appraisal work, obtain the necessary planning approvals and convince the funder(s);

Increase with intervention status – to reflect the fact that funding is least certain for an intervention with no objective appraisal information to support it and, in the limit, is completely certain for a committed and fully funded intervention;

Reduce with required funding scale – on the basis that funding for two small interventions will be easier to secure than that for one large intervention;

Vary with mode/sponsor – to reflect the current relatively uncertain nature of all rail industry sponsored interventions.

Table 4-1 brings the above variables together into a single set of assumptions for Funding Certainty. Again, these may readily be varied within the spreadsheet tool to determine the sensitivity of the prioritisation to each of these assumptions.

⁹ These omitted sub-objectives are measured using quantitative methods and are calculated on a net basis across an area and population. They therefore mask the scale of the ‘winners’ and ‘losers’ and cannot be used in the context proposed here.

¹⁰ Where an AST is not available the ‘accidents’ score is synthesised on the assumption that road accidents dominate.

¹¹ This measure was introduced to capture the effect of regional or national protesters which will be above and beyond the effect of any local adverse public opinion.

Table 4-1: Funding Certainty

Status	Funding Certainty			Additive adjustment to reflect small¹² intervention scale	Additive adjustment to reflect large intervention scale	Multiplicative adjustment for rail industry sponsored interventions
	< 2011	< 2016	> 2016			
Proposed for investigation	20%	30%	40%	10%	-10%	50%
Under investigation	40%	50%	60%	10%	-10%	50%
Further appraisal work needed	65%	70%	75%	5%	-5%	50%
Committed/further appraisal work needed	70%	75%	80%	5%	-5%	50%
Committed - Partners Committed	80%	85%	90%	0%	0%	50%
Committed - Partners Committed/Partly Funded	85%	90%	95%	0%	0%	75%
Committed - Partners Committed/Fully Funded	100%	100%	100%	0%	0%	100%
Underway/ Complete	100%	100%	100%			100%

It was suggested at the Regional Assembly's Transport Advisory Group¹³, that the increments in Funding Certainty as a function of Intervention Status should be greater at the final 'committed' stages than at the initial investigative stages. This change may readily be implemented if required. However it is unclear to the study team whether the change has been suggested as a reflection of the volume of additional work required to obtain funding or as a reflection of the *probability* of obtaining funding, which the Funding Certainty measure is intended to represent. Consequently the suggested revision has not been made at the time of this report.

¹² 'small' has been assumed to be <c.£50million, with 'large' being >c.£50m. The threshold has been chosen to allow distinction between on the one hand 'Local Network Management Schemes' and smaller schemes in the Highways Agency's Targeted Programme of Improvements (TPI), guided bus schemes and smaller rail schemes (all 'small'), and on the other hand larger TPI schemes, major rail infrastructure and LRT schemes (all 'large').

¹³ meeting of 9th November 2004.

5. Value for Money

5.1 Introduction

The Value for Money dimension of each intervention has been based solely on an assessment of its monetised costs/benefits. Four bandings have used consistent with central Government's classification:

- ◆ Poor value for money = Benefit:Cost Ratio (BCR) is less than 1;
- ◆ Low value for money = BCR is between 1 and 1.5;
- ◆ Medium value for money = BCR is between 1.5 and 2;
- ◆ High value for money = BCR is over 2.

Unlike the Policy Compatibility and Deliverability dimensions the use of the BCR measure means that the Value for Money dimension is an 'absolute' rather than relative scale in which the chosen cut-offs between different bands have a 'real' meaning. As an example, we know that 'Poor' Value for Money interventions do not cover their monetised costs within the appraisal period.

During the development work the values of the thresholds between bands were constrained to these standard public-sector definitions. This was largely due to the fact that the BCRs for those interventions without any appraisal data (the majority) had been synthesised (see below) as Poor, Low, Medium and High and the absolute values were therefore unknown and there was little to be gained in normalising or otherwise rescaling the dimension. However, in the fullness of time it may be appropriate to redefine the above thresholds, *if* it helps distinguish between interventions which otherwise would be clustered together in the same overall prioritisation rank.

5.2 Common Appraisal Standards

For those interventions where BCR values do exist there are a number of complications in bringing the BCR to a standard basis for the purposes of like-for-like comparison. These complications are:

- ◆ Difference in the time periods over which the benefits and costs of transport interventions are assumed to take place;
- ◆ Differences in appraisal periods;
- ◆ Differences in discount rates;
- ◆ Differences in appraisal standards.

Due to the predominance of appraisal data using the (now superseded) assumptions of a 30 year appraisal period and 6%p.a. discount rate, this has been used as the basis for comparison. In converting appraisal which use more recent appraisal assumptions we have assumed:

- ◆ 75% of costs are spread over the opening year and two preceding years;
- ◆ 25% of costs are spread over the remainder of the original appraisal period;
- ◆ benefits are spread equally over the original appraisal period.

Using these assumptions we have calculated BCR conversion factors of:

- ◆ 0.78 – to convert from a 3.5%p.a. 30 year appraisal to a 6%p.a. 30 year appraisal;
- ◆ 0.58 – to convert from a 3.5%/3.0%p.a. 60 year appraisal to a 6%p.a. 30 year appraisal.

We are aware that the latest economic appraisal measures involve a more sophisticated approach depending upon the breakdown of costs and benefits to the public and private sectors. This issue only applied in the case of four interventions (three of which were road schemes, typically with high BCRs) and, in the absence of further data, we have necessarily made the assumption that the change in BCR definition would not affect the interventions' classification along the Value for Money axis of the Regional Prioritisation Matrix.

Given that the prioritisation methodology has been configured to operate within three different implementation timeframes (see section 2.4), and that BCR calculations involve discounting for the effects of time, it might be expected that different BCR values should be calculated for every intervention, depending upon the implementation timeframe. However, the BCR is a ratio of two set of numbers (costs and benefits) both discounted over time by the same factors. Consequently, unless the implementation programme changes (in terms of the relationship between when costs are borne and benefits yielded) or unless the discount rate is forecast to change at some specified fixed point in the future¹⁴, the BCR should not change.

5.3 Where Value for Money is unknown

Of the 60 interventions introduced in Chapter 1, only 16 had BCR measures readily available. The remainder have been synthesised on the basis of the assumptions in Table 5-1.

These BCR assumptions have been made through a combination of judgement and evidence from those interventions for which relevant appraisal data is available. These assumptions may readily be altered within the Prioritisation spreadsheet but currently they are based on the following generalisations:

- ◆ Road schemes tend to have large time and/or accident cost savings and offer comparatively high value for money;
- ◆ Rail schemes typically show lower journey time and accident cost savings, particularly in relation to their very high capital costs and therefore offer low value for money;
- ◆ Recent experience with LRT schemes suggests a similar characterisation to that above for rail¹⁵;

¹⁴ The current appraisal regime assumes discount rates fall from 3.5% to 3.0%, 30 years into the appraisal period (i.e. not necessarily in 2034) such that the BCR should not alter if an intervention is delayed a year or brought forward a year.

¹⁵ In the cases of both rail and LRT schemes it is assumed that these would at least cover their costs, thereby avoiding a 'poor' value for money categorisation.

- ◆ Bus-based interventions also tend to offer comparatively modest benefits but their capital and running costs are also comparatively low; they have therefore been characterised as medium value for money;
- ◆ On the basis of the recent London Congestion Charging experience, fiscal demand management measures are assumed to cover their costs but otherwise yield a low value for money;
- ◆ Demand management using so-called “soft” measures such as the establishment of travel planning/car sharing clubs, or technology measures such as variable message signs are comparatively inexpensive such that any measurable benefits offer a high value for money;
- ◆ Measures which reallocate road space are liable to offer poor value for money due to increased highway journey times – pedestrianisation schemes in particular tend to be justified on environmental rather than economic grounds;
- ◆ All other interventions are assumed to offer a low value for money on the basis that they are unlikely to be promoted if they do not at least cover their own costs, but at the same time there is insufficient appraisal data with which to demonstrate a greater value for money.

Table 5-1: BCR Assumptions

Mode	Intervention Type	BCR Category
Road	New Link	High
Road	Widening	High
Road	Bypass	High
Road	New Junction	High
Road	Junction Imp	High
Rail	New Link	Low
Rail	Line Upgrade	Low
Rail	Service Enhancements	Low
Rail	Station	Low
Rail	Station Upgrade	Low
Rail Freight	Line Upgrade (Freight)	Low
Rail Freight	Freight connection	Low
LRT	New Link	Low
LRT	New System	Low
Bus	New Service	Medium
Bus	Service Enhancements	Medium
Bus	Guided Busway	Medium
Bus	Rapid Transit System	Medium
Bus	Priority Measures	Medium
Demand Management	Parking Charges	Low
Demand Management	RUC	Low
Demand Management	Soft Measures	High
Demand Management	VMS etc	High
Reallocation	Road:Bus	Poor
Reallocation	Road:Ped	Poor
Unknown	Unknown	Low

6. Prioritisation Results

6.1 Overall Results

The 60 interventions have been scored on each of three dimensions and then ranked overall. Table 6-1 shows the full set of results for each intervention in descending order of prioritisation rank.

Table 6-1: Prioritisation Results

Intervention	Policy Compatibility	Deliverability			Value for Money	Rank
		<2011	<2016	>2016		<2011
A) Travel Planning Centres in Regional Hubs	High	Medium	Medium	High	High	2
Strategic Bus and Coach Network	High	High	High	High	Medium	2
ORBIT Multi-Modal Study	High	Low	Medium	Medium	High	3
Fastrack Phase 2	High	Medium	Medium	High	Medium	3
Transport for Medway	High	Medium	Medium	High	Medium	3
Reading Bus Rapid Transit	High	Medium	Medium	High	Medium	3
A3 Hindhead Improvement	Low	High	High	High	High	3
SHRT: Fareham - Gosport	High	High	High	High	Low	3
Thameslink 2000	High	High	High	High	Low	3
Lower Thames Crossing	Low	High	High	High	High	3
South Coast Multi-Modal Study	High	Low	Low	Low	High	3
Thames Valley Multi-Modal Study	High	Low	Low	Low	High	3
Sub Regional Mobility Management Strategy	Medium	Low	Medium	High	High	4
A2 Bean Junction	Poor	High	High	High	High	4
M20 Junction 4 Improvement	Poor	High	High	High	High	4
A2 Bean to Cobham - Phase 2	Low	High	High	High	Medium	4
M40/A404 handy Cross Improvement	Poor	High	High	High	High	4
M4 J11 Improvement	Poor	High	High	High	High	4
A23 Handcross-Warnglid	Poor	High	High	High	High	4
M20 J10 Interim	Poor	High	High	High	High	4
M20 J10A	Poor	High	High	High	High	4
Crossrail	High	Low	Low	Low	Medium	4
M27 Improvements	Low	Low	Medium	High	High	5
Ryde Interchange	High	Medium	High	High	Poor	5
Gatwick Station	High	Low	Medium	Medium	Low	5

IMPORTANT DISCLAIMER: Table 6.1 of this report does not set out or reflect any agreed policy or any other official position of the South East England Regional Assembly. The purpose and intent of Table 6.1 is purely to demonstrate, at a technical level, the potential capabilities of the developed prioritisation methodology at this stage.

Intervention	Policy Compatibility	Deliverability			Value for Money	Rank
		<2011	<2016	>2016		<2011
Sheerness Branch Resignalling	Low	High	High	High	Low	5
East Kent Area Resignalling	Low	High	High	High	Low	5
Fastrack Phase 1*	Poor	High	High	High	Medium	5
A2/A282 Dartford Improvement	Poor	High	High	High	Medium	5
Heathrow/Great Western Rail Link	High	Low	Low	Low	Low	5
Southampton - West Midlands Upgrade	Medium	Medium	Medium	Medium	Low	5
Reading Station Renewal	High	Low	Low	Low	Low	5
Heathrow/Staines Rail Link (inc. Airtrack)	High	Low	Low	Low	Low	5
North Downs Line Upgrade	Medium	Medium	Medium	Medium	Low	5
Access to Hastings Multi-Modal	Low	High	High	High	Low	5
Milton Keynes Rapid Transit	Medium	Low	Medium	High	Low	6
A421 Buckingham to Milton Keynes Upgrade	Poor	Low	Medium	High	High	6
C) A20 Townwall St, Dover	Poor	Low	Medium	High	High	6
F1) Improve road access to Manston Airport, Kent	Poor	Low	Medium	High	High	6
Brighton-Main Line Investment	Medium	Low	Medium	Medium	Low	6
Oxford Station Renewal	Medium	Low	Low	Medium	Low	6
Output from A34 Corridor Study	Medium	Low	Low	Medium	Low	6
Increased Cross Channel Capacity	Low	Medium	Medium	High	Low	6
CTRL Domestic Services (Infrastructure)	Medium	Low	Low	Medium	Low	6
M1 J13 East West parkway and P&R	Medium	Low	Low	Medium	Low	6
Isle of Grain Rail Freight Improvement	Medium	Low	Low	Low	Low	6
A509 Newport Pagnell Bypass-M1 J14 D2	Poor	Low	Low	Low	High	6
East-West Rail Imps Ph 1 + Aylesbury Spur	Medium	Low	Low	Low	Low	6
D) Reinstatement of Lewes - Uckfield rail line	Medium	Low	Low	Low	Low	6
F2) Improve rail access to Manston Airport, Kent	Medium	Low	Low	Low	Low	6
G) CTRL Domestic parkway station, Maidstone	Medium	Low	Low	Low	Low	6
Southampton Tunnel Gauge Enhancements	Low	Low	Medium	Medium	Low	7
Thames Valley Park Station	Low	Low	Low	Medium	Low	7

IMPORTANT DISCLAIMER: Table 6.1 of this report does not set out or reflect any agreed policy or any other official position of the South East England Regional Assembly. The purpose and intent of Table 6.1 is purely to demonstrate, at a technical level, the potential capabilities of the developed prioritisation methodology at this stage.

Intervention	Policy Compatibility	Deliverability			Value for Money	Rank
		<2011	<2016	>2016		<2011
London-South Midlands Multi-Modal Study	Low	Medium	Medium	High	Poor	7
B) RUC, South Hampshire	Low	Low	Low	Medium	Low	7
H) RUC cordon, Reading	Low	Low	Low	Medium	Low	7
Rail Reconnection of Dover Docks	Low	Low	Low	Low	Low	7
Luton Airport to Milton Keynes Improvement	Low	Low	Low	Low	Low	7
Arun Valley Line Investment	Poor	Low	Medium	Medium	Low	8
E) Reallocate M25 inside lane between M4 & M23 to Coach/HOV	Poor	Low	Low	Medium	Poor	9

6.2 Commentary

It is interesting and reassuring to note that there is a mix of highway schemes, rail schemes, multi-modal packages and less conventional interventions at both the top of the table and at the bottom.

While additional columns for the Ranks to 2016 and beyond 2016 have not been included it should be assumed that these are either unchanged or, if the Deliverability score improves as shown by the middle set of columns in Table 6-1, the intervention as a whole improves a rank for the timescale concerned.

As part of the testing process a complete set of results was produced in which rail was not ‘penalised’ by the additional uncertainty factor within the Deliverability dimension. This did not alter the performance of rail interventions in terms of their Policy Compatibility and Value for Money. However, removing the rail uncertainty factor resulted in most rail interventions improving in terms of Deliverability and hence in terms of their overall rank. At the top of the table ‘CrossRail’ and ‘Thames Valley Multi-Modal Study’ improved to Rank 2 while ‘Gatwick Station’ improved to Rank 3. At the bottom of the table, ‘Thames Valley Park Station’ and ‘Southampton Tunnel Gauge Enhancements’ improved from Rank 7 to Rank 5, ‘Rail Connection of Dover Docks’ improved from Rank 7 to Rank 6, and ‘Arun Valley Line Investment’ from Rank 8 to Rank 6

IMPORTANT DISCLAIMER: Table 6.1 of this report does not set out or reflect any agreed policy or any other official position of the South East England Regional Assembly. The purpose and intent of Table 6.1 is purely to demonstrate, at a technical level, the potential capabilities of the developed prioritisation methodology at this stage.

6.3 Summary Statistics

Assumed thresholds for each dimension are presented in Table 6-2. The thresholds for Policy Compatibility and Deliverability¹⁶ were chosen solely to distribute as evenly as possible the number of interventions falling into each band. Consequently, neither set of thresholds has any absolute meaning.

Table 6-2: Assumed Thresholds

Dimension	Upper Threshold for		
	'Poor'	'Low'	'Medium'
Policy Compatibility	57%	61%	63%
Deliverability	N/A	30%	41%
Value for Money	BCR=1.0	BCR=1.5	BCR=2.0

The numbers of interventions appearing within each band of each dimension are presented in Table 6-3 and the number of interventions within each overall rank are presented in Table 6-4.

Table 6-3: Distribution of Scores

Dimension	No. of interventions falling within			
	'Poor'	'Low'	'Medium'	'High'
Policy Compatibility	15	15	14	16
Deliverability <2011	N/A	33	9	18
Deliverability <2016	N/A	22	19	19
Deliverability >2016	N/A	14	15	31
Value for Money	3	30	8	19

¹⁶ The Deliverability thresholds were chosen with respect to the medium term (<2016 time horizon).

Table 6-4: Distribution of Ranks

Rank	Timescale		
	<2011	<2016	>2016
1	0	0	1
2	2	3	6
3	10	10	7
4	10	12	15
5	13	15	16
6	16	12	11
7	7	7	3
8	1	0	1
9	1	1	0
Total	60	60	60

6.4 Sensitivity of Results

The results reported herein have been based on the assumptions and weights also reported in this document. It is important to note that the overall ranking will be more sensitive to some assumptions than to others.

Generally the assumptions and weights used affect only one of the three dimensions of the Regional Prioritisation Matrix. However, there are some aspects of the methodology such as the assumed ‘scale’ of the intervention which impact upon the scores for both Policy Compatibility and Deliverability. In general, however, it is fair to characterise the sensitivity of each dimension as follows:

- ◆ Policy Compatibility – subject to assumptions relating to very many policies and objectives and therefore relatively insensitive to any one assumption;
- ◆ Deliverability – subject to only a handful of assumptions relating to each of Public Acceptability and Funding Certainty and therefore relatively sensitive to each of these assumptions¹⁷;
- ◆ Value for Money – determined by a single BCR value, which itself may be an assumed value (depending upon the availability of appraisal data), the score is therefore directly dependent upon any assumptions made here.

The overall rank of an intervention will change whenever the score on any of these three dimensions crosses any of the thresholds cited in Table 6-2.

¹⁷ See sections 4.2 and 4.3, respectively, for a discussion of the assumptions concerned.

7. Recommendations

7.1 Introduction

It was agreed at the Regional Assembly's Transport Advisory Group of 9th November 2004 that the prioritisation methodology developed and reported herein is "fit for purpose". There remains to be considerable debate over the various assumptions and weights and there are several areas in which the spreadsheet tool developed as part of the study may usefully be applied and subsequently developed further. The following sections consider these issues, roughly in descending order of priority.

7.2 Short Term

Education

If the prioritisation methodology and associated tool are to be used constructively it is crucial that those involved understand what it can (and cannot) do and what assumptions underpin it. In this context it worth stressing:

- ◆ The methodology provides an overall rank but more importantly the position in the Regional Prioritisation Matrix informs where the potential weaknesses are;
- ◆ The overall scores/ranks are relative, not absolute, and provide a *starting* point for informed debate;
- ◆ The methodology is *not* one of appraisal;
- ◆ Where appraisal data is unavailable, requisite inputs are synthesised using rules of thumb and are not 'real';
- ◆ The methodology considers administrative, political and economic barriers to delivery but not technical issues¹⁸;
- ◆ The methodology cannot identify 'extreme' interventions where either: one or more of the benefits are so great that the opportunity cannot be missed, or; one or more of the costs are so great that they cannot be borne – these thresholds of extremity are political as much as technical judgements. (Relevant interventions should be identified at the appraisal stage and promoted accordingly);
- ◆ The methodology reflects the 'opportunity cost' of *not* implementing an intervention, only insofar as this is reflected in the appraisal BCR value;
- ◆ The methodology does not reflect synergies between interventions implemented together.

¹⁸ the assumption being that any scheme entering the RTS will be technically feasible and any technical difficulties known at the time of the appraisal will be reflected in a higher cost and a lower BCR than otherwise would be the case.

Review of assumptions

Before applying the prioritisation tool ‘in anger’ the assumptions underpinning it should be reviewed and agreed by the key stakeholders. These assumptions have been introduced in this report and are listed in the appendices. They can be summarised as:

- ◆ Assumed weights with which to combine Policy Compatibility scores;
- ◆ Assumed weights for the triggers which reduce Public Acceptability;
- ◆ Table of Funding Certainty probabilities and their adjustment factors;
- ◆ Rules of thumb used to synthesise appraisal data where none is available.

It is perfectly valid and indeed likely that different stakeholders will have different views on assumptions as these reflect value judgements that will vary according to the varying importance stakeholders attach to, for instance, policy objectives.

In reviewing the assumptions it is of note that, in terms of individual input variables, the overall rank is most sensitive to the BCR. It is also relatively sensitive to the assumptions underpinning the Funding Certainty and Public Acceptability components of Deliverability, but is relatively insensitive to the Policy Compatibility scores and assumptions, given the sheer number of inputs to this dimension.

Prioritisation Tool Demonstrations

The spreadsheet prioritisation tool developed as part of this study may readily be used by stakeholders, or on their behalf, in order to ‘tease out’ their value judgements and allow them to understand the consequences of changing assumptions.

If similar prioritisation approaches are to be developed by other regions and delivery agencies and endorsed by the Department for Transport there are strong grounds for active promotion of the methodology to all concerned.

Scoring against policies and objectives

While scores against RTS policies have been taken from the RTS and scores against RTS objectives incorporating sub-regional strategies have been addressed explicitly as part of this study, the scores against other regional policy documents are currently set at 1.0 (i.e. fully compliant). This explains why the Policy Compatibility scores all lie in the range 50%-100% rather than 0%-100%. In order to further differentiate between the Policy Compatibility of different interventions these scores need to be generated by someone familiar with the regional policy documents and with access to basic data about the location and nature of the different interventions.

National Interventions

The methodology has been developed using the current interventions listed in the RTS. However, the methodology is one of *regional* prioritisation while some of the major infrastructure schemes in the RTS may be considered to be of *national* importance. These interventions need to be identified and agreed with the relevant intervention sponsors and removed from the final priority list presented in the RTS. In this way potential conflict between national and regional priorities may be reduced.

However, we see value in retaining such national interventions within the regional prioritisation process if only to understand the priority given to these interventions by the RPB, and accepting that the same interventions may also have been considered by other regions which might give them more or less priority.

Appraisal Data

The preceding task will be easier to address, the more appraisal data that is available. Indeed, the process of synthesis using rules of thumb would be unnecessary if adequate appraisal data were to be available. Consequently there are several benefits to collating as much appraisal data as is currently readily available, and incorporating this into the prioritisation methodology. As part of the development study a considerable body of information has been collated (and is summarised in the relevant worksheets of the prioritisation spreadsheet). Given the short timescale in which the current study has been undertaken, it is likely that more useful data could be collated, even in the short term.

7.3 Medium Term

Appraisal Data

Maintaining the prioritisation tool will involve a continuing process of appraisal data collation and incorporation/updating of this within the spreadsheet. However, a key finding of this study is that the majority of interventions at the early stages of the planning process have *no* appraisal data. This makes objective comparison between interventions considerably more difficult than it ought to be and requires a considerable number of assumptions to be made. The assumptions documented herein attempt to be realistic but inevitably err on the cautious side in terms of the benefits that might be achievable. It is therefore in the interest of the intervention promoter to provide some form of appraisal data, preferably in the form of a NATA-style Appraisal Summary Table, as early as is practicable.

In supplying appraisal data, the intervention promoter will also be able to demonstrate that appraisal work has been undertaken, thereby increasing the intervention's score on the Deliverability dimension. This early appraisal must be in the interests of all concerned: as well as demonstrating the benefits of good interventions, it should highlight the inadequacies of poor interventions and allow them to be 'dropped' without wasting further resources discussing and prioritising them.

Phasing and Budgeting

As was mentioned in Chapter 2 of this report, the prioritisation methodology may also help in the phasing of interventions. Interventions which are more certain should be pursued first, other things being equal. However, as soon as reliable budgets are known there is the opportunity to 'tune' the prioritisation tool to provide appropriate priorities for the timeframe over which the budget is known.

Suppose there is sufficient budget to fund 15 interventions by 2011. Table 6-4 suggests that 12 interventions are Rank 3 or above and 23 interventions are Rank 4 or above. The thresholds along each dimension may be relaxed slightly until three of

the interventions initially in Rank 4 jump into Rank 3. The three interventions are in some sense the 'best' of those initially in Rank 4 and should be implemented ahead of the rest, if sufficient budget is available. Of course the situation is complicated somewhat by the varying costs of the interventions, but providing the costs are known and can be summed and compared with the budget, the principle remains that the prioritisation tool may be 'tuned' to provide useful results for any given budget.

7.4 Long Term

Appraisal Data

The need for new appraisal data for newly proposed interventions and updated appraisal data for interventions already in the planning process will remain an ongoing requirement as long as interventions need to be prioritised. If a formal prioritisation methodology is to be adopted an associated longer term aim should be the automated provision of new and revised appraisal data, perhaps through the use of a shared internet-based portal through which the Assembly and its stakeholders could enter and edit the relevant intervention characteristics and appraisal data.

Revising Appraisal Standards

As appraisal standards change it is likely that the prioritisation spreadsheet tool would need editing. At its simplest this might involve converting all existing BCR data to a new appraisal period or discount rate. Should the composition or structure of the standard NATA-based Appraisal Summary Table be revised, this would require a wholesale revision of the spreadsheet tool, even though the essence of the prioritisation methodology using a 3-dimensional matrix would be unchanged.

Non-Transport Interventions

The approach to prioritising expenditure on the basis of scores in a combination of dimensions is one which could readily be applied to any situation in which there are many demands for scarce resources. The approach is likely to be most valid in a public-sector context where monetised benefits are not the sole or main determinant of performance. In the public-sector context the dimensions of policy compatibility, deliverability and value for money appear intuitively sensible, irrespective of whether the resulting expenditure addresses transport, health, education or other needs.

In general terms the challenge in applying this approach to non-transport interventions is in formulating

- a) the policy compatibility dimension to reflect an agreed set of policies and objectives, whether they be at local, regional or national level;
- b) the deliverability dimension to reflect the realities of funding in the sector concerned;
- c) a monetised benefit:cost ratio where appropriate.

The value for money criterion may be more relevant in some contexts than in others. In justifying health education expenditure, for instance, it is reasonable to attempt to

quantify the monetary impacts of particular interventions – for instance the cost saving of *not* treating lung cancer patients against the marketing costs of an anti-smoking campaign. However in other cases it may not be possible to calculate a meaningful monetised benefit:cost ratio. Consider for instance the establishment of designated areas such as Sites of Special Scientific Interest or Conservation Areas – the benefits of these designations are not readily expressed in a monetised form and cannot therefore be compared with the costs of establishing them¹⁹.

As an example, the following paragraphs consider how the prioritisation methodology might be tailored for application to infrastructure measures in the areas of Housing and Water.

Prioritisation of Housing and Water infrastructure measures

First considering **Policy Compatibility**, it should be relatively straightforward to collate relevant policies and objectives from central Government and the relevant sections of the Regional Plan, and then to derive a list of typical compatible and incompatible interventions for each, in the same manner as tabulated in Appendix A for compatibility of transport interventions with the RTS objectives (incorporating sub-regional strategies). Again the weighting of scores against these various policies and objectives will need to reflect political judgement as much as technical judgement.

In terms of **Deliverability**, the two components of public acceptability and funding certainty would be equally applicable to Housing and Water interventions as for Transport interventions. Within ‘public acceptability’, there are likely to be relatively few triggers of public dissent in both cases, particularly in the case of Water where much (but by no means all) infrastructure is liable to be hidden. However in both cases the *scale* of dissent, when it is triggered, may be greater than in the Transport context: people who object to a new road nearby are likely to be more vehemently against a housing scheme or sewerage works on their doorstep – at least a new road would typically improve their accessibility while more houses (and hence cars) will tend to reduce it. In the worst case a new Water scheme might involve the flooding of an area in order to create a reservoir and in this case the scale of any dissent is likely to be considerable. Consequently one would expect fewer than the five triggers discussed in Chapter 4, but with each one detracting in excess of 20% from the public acceptability score. For both Housing and Water, the triggers which detract from public acceptability might include:

- ◆ Adverse environmental (landscape/townscape) impact;
- ◆ Adverse impact on travel costs (particular for Housing interventions);
- ◆ Adverse impacts on the local economy;
- ◆ Loss of land (through for instance flooding, in the case of Water interventions).

The second component of Deliverability, funding certainty, could be modelled very closely on that for Transport, as documented in Chapter 4. The factor for rail-industry sponsored interventions would clearly not be relevant in the context of Housing or Water interventions. However, the notions of (a) certainty increasing with scheme

¹⁹ costs might include the costs of constraints which such land-use designations place upon industry. While it may be possible to monetise the costs, the resulting benefits may not be readily calculated.

status and (b) the likelihood of obtaining the necessary funding/planning consents increasing with the duration of time available, remain valid. Additionally the relative attractiveness of two small interventions over one large one is likely to remain a valid issue, as reflected in the additional factor for intervention scale which we have reflected herein in the funding certainty assumptions for Transport interventions.

Finally, in the contexts of Housing and Water the **Value for Money** dimension may not be wholly appropriate, as discussed more generally above. In both cases the direct costs to the public sector of designating land for Housing or Water purposes may be small, with all land/construction/site costs borne by private sector organisations. The direct benefits are unlikely to be readily calculated except in cases where the intervention involves a direct replacement, for instance, where the running costs of old pipework and pumping facilities may be reduced by updating the infrastructure. Given these problems of economic appraisal it may be reasonable to remove the Value for Money dimension completely.

Part of the reason why Value for Money may not be an appropriate dimension for the prioritisation of Housing and Water interventions is that proposals for such interventions may arise not out of a need to save public sector money but out of policy imperatives. As an example, U.K. citizens can reasonably expect their water supplies to be of good quality and if they are not then intervention is required, almost irrespective of cost. There is an analogy here with the 'extreme' Transport interventions discussed in this report: some interventions cannot be implemented due to an intolerable adverse impact while others cannot fail to be implemented due to their benefits (in one or more respects) being so large that they cannot be ignored. The prioritisation methodology does not readily identify these 'extreme' interventions and this represents a weakness when considering how it might be applied to Housing and Water interventions.

While this section has briefly touched on some of the issues relating to Housing and Water interventions, these issues may be explored further by those expert in these or any other sectors. The techniques adopted for this prioritisation study and documented herein are likely to provide a valuable insight to those concerned.

7.5 Recommendations for further development

Methodological Developments

Apart from the aforementioned short term review of assumptions and weights the prioritisation methodology may best be advanced by considering some of the shortcomings listed above under "Education". As an example, it would be possible to set thresholds above or below which an intervention would be regarded as a 'must have' or 'must drop' intervention. Such thresholds would need agreeing by all concerned but, even once these are set, they will not remove the problem of contentious interventions with both extreme costs *and* benefits.

Likewise it may be possible to consider synergies between interventions. This would be useful in informing the development of an order of implementation which the

current approach does not directly address. However, such a development may be fraught with difficulties²⁰.

Perhaps the most worthwhile methodological development would be the review and development of how intervention scale is dealt with. It has been suggested that an intervention with many different beneficial impacts will be prioritised ahead of another with a few very major benefits. There is some truth in this although the use of the 7-point scale commonly used on ASTs means that a single large benefit (score +3) may be equated with three slight benefits (score +1 each), providing any weights are defined as equal. However, where an intervention has many slight beneficial impacts but only one very large adverse impact it is possible that it may be prioritised at too high a level. Partly, this issue may be addressed by improved consistency in the scoring of impacts on the AST – this being an action for intervention promoters rather than those responsible for prioritising. However, there may be scope to address this issue better in the prioritisation methodology and its associated tool.

Prioritisation Tool Developments

It would be comparatively straightforward to improve the spreadsheet tool such that it may readily be used and interpreted by those not directly involved in the development study. Such changes might include:

- ◆ Protection of all cells except those controlling weights and assumptions;
- ◆ Graphical User Interface to guide users to the correct input and output arrays;
- ◆ Automated generation of results/summary reports.

²⁰ Consider for instance where interventions A and B implemented separately are 'priorities' but A and B implemented together are not.

Appendix A – Policy Compatibility Assumptions

RTS Objective	Keywords	Compatible schemes	Incompatible schemes
<p>a) <i>“To facilitate urban renaissance and foster social inclusion by rebalancing the structure use of the transport system. In particular by bringing forward measures that encourage modal shift and significantly improve the attractiveness of local public transport services.”</i></p>	<ul style="list-style-type: none"> • Regeneration • Modal shift • Attractiveness of public transport • Social inclusion 	<ul style="list-style-type: none"> • Improve access to urban areas • Reduce journey times/costs for public transport users • <i>Restrict private car use</i> • Provide public transport links to development areas. • <i>Encourage brownfield development</i> • May include public transport infrastructure (e.g. LRT, busways, etc.) • <i>May include traffic management schemes</i> 	<ul style="list-style-type: none"> • Reduce journey times/costs for car users • <i>Increase car use</i> • Encourage development in rural areas/urban fringe • <i>May include highway schemes which increase capacity, particularly for local traffic in urban areas</i>
<p>b) <i>“To reduce the wider environmental, health and community impact associated with the transport system by bringing forward measures to positively manage the transport system in ways that reduce our dependence on the private car.”</i></p>	<ul style="list-style-type: none"> • Reduced car dependence • Improved public health • Environmental benefit 	<ul style="list-style-type: none"> • <i>Improve the environment</i> • Reduce journey times/costs for public transport users. • Restrict private car use • Improve attractiveness of walking/cycling (e.g.reduce severance) • May include public transport infrastructure • <i>May include traffic management schemes</i> 	<ul style="list-style-type: none"> • <i>Impose significant adverse environmental impact</i> • Reduce journey times/costs for car users • Increase car use • Inhibit opportunities to increase walking and cycling (e.g. by increasing severance) • <i>May include highway schemes which increase capacity, particularly in urban areas</i>
<p>c) <i>“To improve transport infrastructure within and to the Thames Gateway to maximise regeneration potential and encourage economic development.”</i></p>	<ul style="list-style-type: none"> • Economy • Thames Gateway 	<p><i>Within Thames Gateway or approaching corridors:</i></p> <ul style="list-style-type: none"> • <i>Improve access by any/all modes for passengers or freight</i> • <i>Reduce journey times/costs by any/all modes for passengers or freight</i> • Improve links to core road network • Improve links to sub-region’s key 	<p><i>Within Thames Gateway and approaching corridors:</i></p> <ul style="list-style-type: none"> • <i>Increase journey times/costs by any/all modes for passengers or freight</i>

RTS Objective	Keywords	Compatible schemes	Incompatible schemes
		ports/airports/rail stations <ul style="list-style-type: none"> • May include public transport <i>and/or</i> highway infrastructure 	<ul style="list-style-type: none"> • <i>May include local or area-wide demand management schemes (e.g. road pricing, parking restraint, etc.) unless offset by reduced journey times</i>
d) <i>“To improve strategic road and rail links within and to the Western Policy Area to maintain economic success.”</i>	<ul style="list-style-type: none"> • Western Policy Area • Road links • Rail links • Economy 	<i>Within Western Policy Area or approaching corridors:</i> <ul style="list-style-type: none"> • <i>Reduce strategic journey times/costs by road/rail for passengers or freight</i> • <i>May include major rail and/or highway infrastructure</i> 	<i>Within Western Policy Area or approaching corridors:</i> <ul style="list-style-type: none"> • <i>Increase strategic journey times/ costs by road or rail for passengers or freight</i> • <i>May include area-wide demand management schemes (e.g. road pricing) unless offset by reduced journey times</i>
e) <i>“To improve road and rail links along the South Coast to improve spatial connectivity and realise economic opportunities to reduce disparities within the region.”</i>	<ul style="list-style-type: none"> • South Coast Area • Road links • Rail links • Economy • Connectivity 	<i>Within South Coast Area:</i> <ul style="list-style-type: none"> • <i>Reduce strategic east-west journey times/costs by road/rail for passengers or freight</i> • <i>May include major rail and/or highway infrastructure</i> 	<i>Within South Coast Area:</i> <ul style="list-style-type: none"> • <i>Increase strategic east-west journey times/costs by road or rail for passengers or freight</i> • <i>May include area-wide demand management schemes (e.g. road pricing) unless offset by reduced journey times</i>
f) <i>“To support economic development in East Kent through investment in improved accessibility.”</i>	<ul style="list-style-type: none"> • East Kent area • Accessibility • Economy 	<i>Within East Kent or approaching corridors:</i> <ul style="list-style-type: none"> • <i>Improve access by any/all modes for passengers or freight</i> • <i>Reduce journey times/costs by any/all modes for passengers or freight</i> • <i>Improve links to core road network</i> • <i>Improve links to sub-region’s key ports/airports/rail stations</i> • <i>May include public transport and/or highway infrastructure</i> 	<i>Within East Kent and approaching corridors:</i> <ul style="list-style-type: none"> • <i>Increase journey times/costs by any/all modes for passengers or freight</i> • <i>May include local or area-wide demand management schemes (e.g. road pricing, parking restraint, etc.) unless offset by reduced journey times</i>

RTS Objective	Keywords	Compatible schemes	Incompatible schemes
<p>g) <i>“To take forward transport infrastructure proposals required to support development in the growth areas of Milton Keynes and Aylesbury, and Ashford.”</i></p>	<ul style="list-style-type: none"> • Milton Keynes, Aylesbury or Ashford • Support development 	<p><i>Within Milton Keynes, Aylesbury or Ashford:</i></p> <ul style="list-style-type: none"> • <i>Improve access by any/all modes for passengers or freight, commensurate with local demographic growth</i> • <i>May include public transport and/or highway infrastructure</i> 	<p><i>Within Milton Keynes, Aylesbury or Ashford:</i></p> <ul style="list-style-type: none"> • <i>May include local or area-wide schemes which reduce overall capacity through, for instance, parking restraint, pedestrianisation or traffic management</i>
<p>h) <i>“To develop road and rail links that improve inter and intra-regional connectivity.”</i></p>	<ul style="list-style-type: none"> • Connectivity 	<ul style="list-style-type: none"> • <i>Reduce strategic journey times/costs by road/rail for passengers or freight</i> • <i>May include major rail and/or highway infrastructure</i> 	<ul style="list-style-type: none"> • <i>Increase strategic journey times/ costs by road or rail for passengers or freight</i> • <i>May include area-wide demand management schemes (e.g. road pricing) unless offset by reduced journey times</i>
<p>i) <i>“To improve and develop more sustainable transport connections to the region’s key ports, airports and international rail stations as a basis for the enhancement of its gateway function to Europe and the rest of the world.”</i></p>	<ul style="list-style-type: none"> • Sustainable connections • Ports, airports and rail stations • International links 	<p><i>For access to ports, airports and international rail facilities:</i></p> <ul style="list-style-type: none"> • <i>Improve attractiveness of public transport through reduced journey times/costs, increased service levels and improved interchange facilities</i> • <i>Promote innovative arrangements to investigate travel options and purchase tickets (e.g. through ticketing)</i> • <i>Increase attractiveness of rail-based freight</i> 	<p><i>For access to ports, airports and international rail facilities:</i></p> <ul style="list-style-type: none"> • <i>Reduce journey times/costs by road for passengers or freight</i> • <i>Increase road capacity for passengers or freight</i> • <i>Increase car parking capacity</i>

Weights used for the derivation of scores in the Regional Prioritisation Matrix

Compatibility with Regional Objectives

Measure

Sub-Weight Overall Weight

Compatibility with Other Regional Strategies (excluding RTS)

Regional Spatial Strategy		
		0%
a	20%	0%
b	20%	0%
c	20%	0%
d	20%	0%
e	20%	0%

IRF	20%
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Economic	10%
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Housing	10%
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Other e.g. Tourism	10%
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Compatibility with RTS Objectives (incorporating Sub-Regional Strategies)

Within which:

		10%
a) Urban renaissance	7.14%	0.7%
b) Reduced dependence on car	7.14%	0.7%
c) Thames Gateway infrastructure	7.14%	0.7%
di) Links to Central Oxfordshire	7.14%	0.7%
dii) Links to Western Corridor/ Blackwater Valley	7.14%	0.7%
diii) Links to London Fringe	7.14%	0.7%
ei) Links along Sussex Coast	7.14%	0.7%
eii) Links for South Hampshire	7.14%	0.7%
ei) Links for Isle of Wight	7.14%	0.7%
f) East Kent economic development	7.14%	0.7%
g) Support growth in Milton Keynes/Aylesbury/Ashford	7.14%	0.7%
h) Road/rail inter/intra-regional connectivity	7.14%	0.7%
i) Sustainable links to air/sea/rail gateways	7.14%	0.7%
j) manage and invest in transport to optimise capacity for Gatwick	7.14%	0.7%

RTS Policy Compatibility

		20%
<i>Within which:</i>		
T1	5.88%	1%
T2	5.88%	1%
T3	5.88%	1%
T4	5.88%	1%
T5	5.88%	1%
T6	5.88%	1%
T7	5.88%	1%
T8	5.88%	1%
T9	5.88%	1%
T10	5.88%	1%
T11	5.88%	1%
T12	5.88%	1%
T13	5.88%	1%
T14	5.88%	1%
T15	5.88%	1%
T16	5.88%	1%
T18	5.88%	1%

Government Objectives

		20%
<i>Within which:</i>		
Environment	25%	5%
<i>Within which:</i>		
Noise	10%	1%
Air Quality	10%	1%
Greenhouse Gases	10%	1%
Landscape	10%	1%
Townscape	10%	1%
Heritage	10%	1%
Biodiversity	10%	1%
Water	10%	1%
Physical Fitness	10%	1%
Journey Ambience	10%	1%
Safety	25%	5%
<i>Within which:</i>		
Accidents	50%	3%
Security	50%	3%
Accessibility	25%	5%
<i>Within which:</i>		
Option Values	33%	1.7%
Severance	33%	1.7%
Access to Transport System	33%	1.7%
Integration	25%	5.0%
<i>Within which:</i>		
Transport Interchange	33%	1.7%
Land-Use Policy	33%	1.7%
Other Gov Policies	33%	1.7%

Assumptions used to Populate Government Objectives

NB	+	Beneficial
	-	Adverse
7 point scale (-3 to =3) used where practical		

Government Objectives

1a) Traffic Impacts on Environment - Noise & Local Air Quality

Funding Scale	Impact on Traffic	Non Urban	Urban	Reference	Road/ Dem Man		PT	Reallocation	
					Rd/Dem M - non bypass	Bypass	PT	Road:Bus	Road:Ped
L	Red	N	Y	L_Red_N_Y	3	3	1	0	3
L	Red	Y	N	L_Red_Y_N	1	3	0.5	0	0
L	Red	Y	Y	L_Red_Y_Y	3	3	1	0	3
L	Neut	N	Y	L_Neut_N_Y	0	3	0	0	2
L	Neut	Y	N	L_Neut_Y_N	0	3	0	0	0
L	Neut	Y	Y	L_Neut_Y_Y	0	3	0	0	2
L	Inc	N	Y	L_Inc_N_Y	-3	3	-1	0	1
L	Inc	Y	N	L_Inc_Y_N	-1	3	-0.5	0	0
L	Inc	Y	Y	L_Inc_Y_Y	-3	3	-1	0	1
S	Red	N	Y	S_Red_N_Y	1	1	0.5	0	2
S	Red	Y	N	S_Red_Y_N	0.5	1	0	0	0
S	Red	Y	Y	S_Red_Y_Y	1	1	0.5	0	2
S	Neut	N	Y	S_Neut_N_Y	0	1	0	0	1
S	Neut	Y	N	S_Neut_Y_N	0	1	0	0	0
S	Neut	Y	Y	S_Neut_Y_Y	0	1	0	0	1
S	Inc	N	Y	S_Inc_N_Y	-1	1	-0.5	0	0.5
S	Inc	Y	N	S_Inc_Y_N	-0.5	1	0	0	0
S	Inc	Y	Y	S_Inc_Y_Y	-1	1	-0.5	0	0.5

Very unlikely

Assumptions

For non bypass schemes

Increased traffic causes increases in emissions and noise
 Decreased traffic causes reduced emissions and noise
 Large road schemes generate large impacts in urban area, more moderate in non-urban
 Small road schemes generate small impacts in urban areas
 PT schemes have more limited impact on emissions & noise (based on available ASTs)
 Reallocating road space to bus has no impact on noise & air quality
 Reallocating road space to pedestrians reduces noise & air quality impacts by routing traffic away from central areas

For bypass schemes

Whatever the overall impact on traffic, the net impact will be to shift traffic from populated to less populated areas thus mitigating the impact of noise and air quality.

1b) Traffic Impacts on Environment - Greenhouse Gases

Funding Scale	Impact on Traffic	Reference	Road/ Dem Man	Non Road
L	Red	L_Red	1	1
L	Neut	L_Neut	0	0
L	Inc	L_Inc	-1	-1
S	Red	S_Red	1	0.5
S	Neut	S_Neut	0	0
S	Inc	S_Inc	-1	-0.5

Assumptions

Increased traffic causes increases in emissions and noise
 Decreased traffic causes reduced emissions and noise
 Large schemes generate moderate impacts, available ASTs suggest rarely large
 Small schemes generate small impacts

Assumptions used to Populate Government Objectives

NB	+	Beneficial
	-	Adverse
7 point scale (-3 to =3) used where practical		

Government Objectives

2) Impact on Physical Environment

Mode	Extends Beyond Boundaries - New Infrastructure - Large	Extends Beyond Boundaries - New Infrastructure/Development - Small	Non Urban	Urban	Ref	Other/All schemes					Widening					Bypass										
						Other/All schemes_Landscape		Other/All schemes_Townscape		Other/All schemes_Heritage	Other/All schemes_Biodiversity	Other/All schemes_Water	Widening_Landscape		Widening_Townscape		Widening_Heritage	Widening_Biodiversity	Widening_Water	Bypass_Landscape		Bypass_Townscape		Bypass_Heritage	Bypass_Biodiversity	Bypass_Water
						Landscape	Townscape	Heritage	Biodiversity	Water	Landscape	Townscape	Heritage	Biodiversity	Water	Landscape	Townscape	Heritage	Biodiversity	Water	Landscape	Townscape	Heritage	Biodiversity	Water	
Road	Y	N	Y	N	Road_Y,N,Y,N	-2	0	-1	-2	0	-1	0	-0.5	0	-2	1	0	-2	0	0	0					
Road	Y	N	Y	Y	Road_Y,N,N,Y	0	-2	-2	0	0	-1	-1	0	0	0	-2	-2	-2	0	0	0					
Road	Y	N	Y	Y	Road_Y,N,Y,Y	-2	-2	-2	-2	0	-1	-1	-1	0	-2	-1	-1	-2	0	0	0					
Road	N	Y	Y	N	Road_N,Y,N,Y	-1	0	0	-1	0	-0.5	0	-0.5	0	-1	0	0	-1	0	-1	0					
Road	N	Y	N	Y	Road_N,Y,N,Y	0	-1	-1	0	0	0	-0.5	-0.5	0	-1	-1	-1	0	0	0	0					
Road	N	N	Y	N	Road_N,N,Y,N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Road	N	N	N	Y	Road_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Road	N	N	Y	Y	Road_N,N,Y,Y	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	Y	N	Y	N	Rail/Rail Freight_Y,N,Y,N	-2	0	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	Y	N	Y	Y	Rail/Rail Freight_Y,N,N,Y	0	-2	-2	0	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	N	Y	Y	N	Rail/Rail Freight_N,Y,N,Y	-1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	N	Y	N	Y	Rail/Rail Freight_N,N,Y,N	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	N	Y	Y	N	Rail/Rail Freight_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	N	N	N	Y	Rail/Rail Freight_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Rail/Rail Freight	N	N	Y	Y	Rail/Rail Freight_N,N,Y,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	Y	N	Y	N	LRT_Y,N,Y,N	-2	0	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	Y	N	N	Y	LRT_Y,N,N,Y	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	Y	N	Y	Y	LRT_Y,N,Y,Y	-2	1	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	N	Y	N	Y	LRT_N,Y,N,Y	-1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	N	Y	N	Y	LRT_N,Y,N,Y	0	-0.5	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	N	N	Y	N	LRT_N,N,Y,N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	N	N	N	Y	LRT_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
LRT	N	N	Y	Y	LRT_N,N,Y,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	Y	N	Y	N	Bus_Y,N,Y,N	-1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	Y	N	N	Y	Bus_Y,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	Y	N	Y	Y	Bus_Y,N,Y,Y	-1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	N	Y	Y	N	Bus_N,Y,N,Y	-1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	N	Y	N	Y	Bus_N,N,Y,N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	N	N	Y	N	Bus_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	N	N	N	Y	Bus_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Bus	N	Y	Y	Y	Bus_N,N,Y,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Dem Man/ Reallocation	N	N	Y	Y	Dem Man/ Reallocation_N,N,Y,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Dem Man/ Reallocation	N	N	N	Y	Dem Man/ Reallocation_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Dem Man/ Reallocation	N	N	N	Y	Dem Man/ Reallocation_N,N,N,Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

Mode	Mode Category
Road	Road
Rail	Rail/Rail Freight
Rail Freight	Rail/Rail Freight
LRT	LRT
Bus	Bus
Dem Man	Dem Man/ Reallocation
Reallocation	Dem Man/ Reallocation
Unknown	Unknown
Multi Modal Rail	Multi Modal Rail
Multi Modal	Multi Modal

Assumptions:
 Landscape & biodiversity = primarily non urban issues
 Townscape & heritage = primarily urban issues, but large non urban schemes may impact on heritage due to possible impact on archaeological sites
 Bypasses bring townscape (and limited heritage) benefits by routing traffic away from urban areas
 Larger scale schemes will have greater impacts
 Bus based PT has very limited impact on townscape & heritage (based on ASTs)
 Is not possible to generalise wrt Water - ASTs available suggest varies considerably (depending on groundwater reserves etc)

Assumptions used to Populate Government Objectives

NB	+	Beneficial
	-	Adverse
7 point scale (-3 to =3) used where practical		

Government Objectives

3) Impact on Physical Fitness

Mode	Scheme	Lookup	Impact
Road	All	Road	-1
Reallocation	Road:Bus	Road:Bus	0
Reallocation	Road:Ped	Road:Ped	1
Rail	All	Rail	1
Rail Freight	All	Rail Freight	0
LRT	All	LRT	2
Bus	All	Bus	2
Dem Man	All	Dem Man	1

<p>Assumptions: Road schemes encourage car use & so decline in walking/cycling Non road schemes encourage increased walking/ cycling to access the alternative modes & so increase physical fitness Bus/LRT/Rapid Transit are more likely to increase walk-access trips than rail Demand management will reduce car use but doesn't actively promote PT use</p>
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4) Impact on Accidents

Road	Scheme Type	Scale	Ref	Accidents
Road	New Link	S	New Link_S	1
	New Link	L	New Link_L	2
Road	Widening	S	Widening_S	1
	Widening	L	Widening_L	2
Road	Bypass	S	Bypass_S	1
	Bypass	L	Bypass_L	2
Road	New Junction	S	New Junction_S	-0.5
	New Junction	L	New Junction_L	-1
Road	Junction Imp	S	Junction Imp_S	1
	Junction Imp	L	Junction Imp_L	2
Reallocation	Scheme Type			
Reallocation	Road:Bus	S	Road:Bus_S	-1
Reallocation	Road:Ped	S	Road:Ped_S	1
Non Road	Traffic Impact			
Non Road	Inc	S	Inc_S	0
	Inc	L	Inc_L	-1
Non Road	Neut	S	Neut_S	0
	Neut	L	Neut_L	0
Non Road	Red	S	Red_S	0
	Red	L	Red_L	1

Assumptions:

On basis of available ASTs - road schemes tend to bring higher design standard roads & so reduce accidents despite increasing traffic
 High proportion of accidents occur at junctions so new junctions bring slight accident increases
 Traffic changes where infrastructure is unimproved have greater impact

4) Impact on Severance

Mode	Type	Extends Beyond Boundaries - New Infrastructure - Large	Non Urban	Urban	Reference	Impact
Road	New Link	Y	Y	Y	New Link_Y_Y_Y	-2
Road	New Link	Y	N	Y	New Link_Y_N_Y	-2
Road	New Link	Y	Y	N	New Link_Y_Y_N	-1
Road	New Link	N	Y	Y	New Link_N_Y_Y	0
Road	New Link	N	N	Y	New Link_N_N_Y	0
Road	New Link	N	Y	N	New Link_N_Y_N	0
Road	Widening	Y	Y	Y	Widening_Y_Y_Y	-0.5
Road	Widening	Y	N	Y	Widening_Y_N_Y	-0.5
Road	Widening	Y	Y	N	Widening_Y_Y_N	0
Road	Widening	N	Y	Y	Widening_N_Y_Y	0
Road	Widening	N	N	Y	Widening_N_N_Y	0
Road	Widening	N	Y	N	Widening_N_Y_N	0
Road	New Junction	Y	Y	Y	New Junction_Y_Y_Y	0
Road	New Junction	Y	N	Y	New Junction_Y_N_Y	0
Road	New Junction	Y	Y	N	New Junction_Y_Y_N	0
Road	New Junction	N	Y	Y	New Junction_N_Y_Y	0
Road	New Junction	N	N	Y	New Junction_N_N_Y	0
Road	New Junction	N	Y	N	New Junction_N_Y_N	0
Road	Junction Imp	Y	Y	Y	Junction Imp_Y_Y_Y	0
Road	Junction Imp	Y	N	Y	Junction Imp_Y_N_Y	0
Road	Junction Imp	Y	Y	N	Junction Imp_Y_Y_N	0
Road	Junction Imp	N	Y	Y	Junction Imp_N_Y_Y	0
Road	Junction Imp	N	N	Y	Junction Imp_N_N_Y	0
Road	Junction Imp	N	Y	N	Junction Imp_N_Y_N	0
Road	Bypass	Y	Y	Y	Bypass_Y_Y_Y	2
Road	Bypass	Y	N	Y	Bypass_Y_N_Y	3
Road	Bypass	Y	Y	N	Bypass_Y_Y_N	3
Road	Bypass	N	Y	Y	Bypass_N_Y_Y	2
Road	Bypass	N	N	Y	Bypass_N_N_Y	3
Road	Bypass	N	Y	N	Bypass_N_Y_N	3
Reallocation	Road:Ped	N	N	Y	Road:Ped_N_N_Y	3
Reallocation	Road:Bus	N	Y	Y	Road:Bus_N_Y_Y	0
Reallocation	Road:Bus	N	N	Y	Road:Bus_N_N_Y	0
Reallocation	Road:Bus	N	Y	N	Road:Bus_N_Y_N	0
Rail		Y	Y	Y	Rail_Y_Y_Y	-2
Rail		Y	N	Y	Rail_Y_N_Y	-2
Rail		Y	Y	N	Rail_Y_Y_N	-1
Rail		N	Y	Y	Rail_N_Y_Y	0

Not Possible

	Rail		N	N	Y	Rail_N_N_Y	0
	Rail		N	Y	N	Rail_N_Y_N	0
	Rail Freight		Y	Y	Y	Rail Freight_Y_Y_Y	-2
	Rail Freight		Y	N	Y	Rail Freight_Y_N_Y	-2
	Rail Freight		Y	Y	N	Rail Freight_Y_Y_N	-1
	Rail Freight		N	Y	Y	Rail Freight_N_Y_Y	0
	Rail Freight		N	N	Y	Rail Freight_N_N_Y	0
	Rail Freight		N	Y	N	Rail Freight_N_Y_N	0
	LRT		Y	Y	Y	LRT_Y_Y_Y	-1
	LRT		Y	N	Y	LRT_Y_N_Y	-1
	LRT		Y	Y	N	LRT_Y_Y_N	-0.5
	LRT		N	Y	Y	LRT_N_Y_Y	0
	LRT		N	N	Y	LRT_N_N_Y	0
	LRT		N	Y	N	LRT_N_Y_N	0
	Bus		Y	Y	Y	Bus_Y_Y_Y	-0.5
	Bus		Y	N	Y	Bus_Y_N_Y	-0.5
	Bus		Y	Y	N	Bus_Y_Y_N	0
	Bus		N	Y	Y	Bus_N_Y_Y	0
	Bus		N	N	Y	Bus_N_N_Y	0
	Bus		N	Y	N	Bus_N_Y_N	0
	Dem Man		Y	Y	Y	Dem Man_Y_Y_Y	0
	Dem Man		Y	N	Y	Dem Man_Y_N_Y	0
	Dem Man		Y	Y	N	Dem Man_Y_Y_N	0
	Dem Man		N	Y	Y	Dem Man_N_Y_Y	0
	Dem Man		N	N	Y	Dem Man_N_N_Y	0
	Dem Man		N	Y	N	Dem Man_N_Y_N	0

Assumption

New large infrastructure schemes will increase severance except bypasses which will significantly reduce severance (by moving traffic from more to less populated areas).

Severance impacts are more pronounced in urban areas than non urban (higher density of population to be affected)

Bus based schemes have less severance impact than LRT which in turn have less than Rail & Road

Reallocating road space from highway to pedestrian reduces severance

Assumptions used to Populate Government Objectives

NB	+	Beneficial
	-	Adverse
7 point scale (-3 to =3) used where practical		

Government Objectives

5) Impact on Journey Ambience, Security, Option Values, Accessibility, Interchange

Mode	Type	Lookup	Journey Ambience	Security	Option Values	Accessibility	Interchange
Road	All	Road	1	0	0	0	0
Dem Man	All	Dem Man	0	0	0	0	0
Reallocation	Road:Bus	Road:Bus	0	0	0	0	0
Reallocation	Road:Ped	Road:Ped	0	0	0	0	0
PT	Service Enhancements	Service Enhancements	2	0	0	0	0
PT	Station	Station	2	0	2	3	2
PT	Station Upgrade	Station Upgrade	1	2	0	0	1
PT	New Link	New Link	2	0	2	2	1
PT	Line Upgrade	Line Upgrade	1	0	0	0	0
PT	Freight Connection	Freight Connection	0	0	0	0	0
PT	Line Upgrade (Freight)	Line Upgrade (Freight)	0	0	0	0	0
PT	Guided Busway	Guided Busway	2	0	2	2	1
PT	Rapid Transit System	Rapid Transit System	2	0	3	3	2
PT	New Service	New Service	2	0	2	2	1
PT	Priority Measures	Priority Measures	2	0	0	0	0
PT	New System	New System	2	0	3	3	2

Assumptions

Journey Ambience and Option Values impacts largely assumed to be moderate for PT schemes scoring (2) where relevant except where full new systems are provided. Journey Ambience impacts assumed to be slight for Road schemes, scoring (1)

Access to transport system is greatly improved by new access points - ports, stations bus stops, etc. (3) and less-so by new PT routes and services (2)

Transport integration may be improved moderately by new access points - ports, stations bus stops, etc. (2) and less-so by new PT routes and services (1)

Moderate improvement to security assumed where static PT facilities are improved (2)

6) Impacts on Landuse & Other Government Policy

Currently assumed to be	2	i.e. moderate positive impact, by definition if part of RTS
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7) Impacts on the Economy

BCR adjustment made to convert schemes appraised at 3.5%/3.0% discount rate 30 year appraisal period to 6% discount rate, 30 year appraisal period 0.78
BCR adjustment made to convert schemes appraised at 3.5%/3.0% discount rate 60 year appraisal period to 6% discount rate, 30 year appraisal period 0.58
Assumptions 25% of costs is borne in each of years -1, 0 and 1 Remaining 25% of costs is spread evenly (in absolute spend terms) over years 2 to 30(60) inc. Benefits are spread evenly over years 1 to 30(60) inc

Appendix B – Deliverability Assumptions

Weights used for the derivation of scores in the Regional Prioritisation Matrix

Deliverability

Measure	Sub-Weight	Overall Weight
Public Acceptance		Proportional
<i>Detractors from which are adverse impacts on:</i>		
Local Environment	20%	
Safety	20%	
Journey Cost	20%	
Local Economy	20%	
Wider Environment	20%	

Funding Certainty	Which is a function of:	Proportional
Scheme Status & Time Scale	<2011	20% Proposed for investigation
		40% Under investigation
		65% Further appraisal work needed
		70% Committed/further appraisal work needed
		80% Committed - Partners Committed
		85% Committed - Partners Committed/Partly Funded
	<2016	100% Committed - Partners Committed/Fully Funded
		100% Underway/ Complete
		30% Proposed for investigation
		50% Under investigation
		70% Further appraisal work needed
		75% Committed/further appraisal work needed
	>2016	85% Committed - Partners Committed
		90% Committed - Partners Committed/Partly Funded
		100% Committed - Partners Committed/Fully Funded
		100% Underway/ Complete
		40% Proposed for investigation
		60% Under investigation
		75% Further appraisal work needed
		80% Committed/further appraisal work needed
		90% Committed - Partners Committed
		95% Committed - Partners Committed/Partly Funded
		100% Committed - Partners Committed/Fully Funded
		100% Underway/ Complete

Scale	Additive Factor to Reflect Small Scale	Additive Factor to Reflect Large Scale		
	10%	-10%		
			10% Under investigation	-10% Under investigation
			5% Further appraisal work needed	-5% Further appraisal work needed
			5% Committed/further appraisal work needed	-5% Committed/further appraisal work needed
			0% Committed - Partners Committed	0% Committed - Partners Committed
			0% Committed - Partners Committed/Partly Funded	0% Committed - Partners Committed/Partly Funded
	0% Committed - Partners Committed/Fully Funded	0% Committed - Partners Committed/Fully Funded		
	0% Underway/ Complete	0% Underway/ Complete		

Mode/Sponsor	Multiplicative Factor to Reflect altered likelihood for a Rail Scheme
	50% Proposed for investigation
	50% Under investigation
	50% Further appraisal work needed
	50% Committed/further appraisal work needed
	50% Committed - Partners Committed
	75% Committed - Partners Committed/Partly Funded
	100% Committed - Partners Committed/Fully Funded
	100% Underway/ Complete

Assumptions used to Populate Public Acceptability Matrix

NB	+	Beneficial
	-	Adverse
7 point scale (-3 to =3) used where practical		

1) Environment

Local Environment - Minimum of the 0 and the scores for Landscape, Townscape, Heritage, Biodiversity & Water

Wider Environment - For Large Infrastructure only - Minimum of 0 and the scores for Landscape & Biodiversity

Assumptions

Only large schemes will have sufficiently large scale impact to stimulate reaction beyond local area

Landscape & biodiversity are the key motivators of wider public action

NB Noise/Air Quality scores not good basis for public acceptability because are average of all impacts (so hide winners & losers)

The physical environment scores meanwhile are a good basis for gauging public reaction

2) Safety

Minimum of 0 and the AST score for accidents

3) Journey Cost

-2 or 0, based on categorisation of scheme as increasing journey cost or not

4) Local Economy

Non Urban	Urban	Involves increased journey cost?	Ref	Impact
N	Y	Y	N_Y_Y	-2
Y	Y	Y	Y_Y_Y	-2
Y	Y	N	Y_Y_N	0
Y	N	N	Y_N_N	0
N	Y	N	N_Y_N	0
Y	N	Y	Y_N_Y	-1
NA	NA	Y	NA_NA_Y	-1
NA	NA	N	NA_NA_N	0

Assumptions

Only urban schemes journey costs will stimulate protests about local economic damage.

Effects, in public acceptability terms, will be greatest in urban areas (score -2) than elsewhere (score -1) due to greater concentration of both businesses and residents

Assumptions used to Populate Public Acceptability Matrix (and Government Objectives compatibility)

Scheme Scale

Large= >£50m; Small= <£50m

Type of Scheme	Scale
Road - Motorway widening	L
Road - new strategic link	L
Rail - significant new infrastructure	L
LRT - significant new infrastructure	L
Guided Bus network	L
Any Mode - involving tunnelling	L
Road - new local link	S
Road - bypass	S
Road - improvements	S
Rail - minor new infrastructure	S
Rail - freight facility	S
Rail - new station	S
LRT - minor new infrastructure	S
Guided Bus (single corridor)	S
Bus - conventional bus infrastructure	S
PT - infrastructure improvements	S
PT - service improvements	S

Evidence:	
£500m	Leeds Supertram - 28km network
£180m	Nottingham Express Transit - Gov. funding for Line 1 only
£150m	M2 widening - junction 1 to 4
£86m	Cambridge Guided Bus - single (but long) line from Huntingdon
£72m	Oxford GTE - compact Guided Bus network
£59m	Bingley Relief Road - complex bypass scheme
£5m	Targeted Programme of Improvements - lower threshold for TPI road schemes
£5m	Manchester Metrolink Phase 1 improvements - stop access/safety improvements
£2m	New station - typical new rural station
£1m	New siding - cost for track work and signalling <1km

Funding Certainty

Status	Score			Additive adjustment to reflect small scheme scale	Additive adjustment to reflect large scheme scale	Multiplicative adjustment for rail industry sponsored schemes
	<2011	<2016	>2016			
No Scheme	0%	0%	0%	0%	0%	0%
Proposed for investigation	20%	30%	40%	10%	-10%	50%
Under investigation	40%	50%	60%	10%	-10%	50%
Further appraisal work needed	65%	70%	75%	5%	-5%	50%
Committed/further appraisal work needed	70%	75%	80%	5%	-5%	50%
Committed - Partners Committed	80%	85%	90%	0%	0%	50%
Committed - Partners Committed/Partly Funded	85%	90%	95%	0%	0%	75%
Committed - Partners Committed/Fully Funded	100%	100%	100%	0%	0%	100%
Underway/ Complete	100%	100%	100%	0%	0%	0%

Assumptions:

Funding certainty for uncommitted schemes increases with the time available to implement

...by 5 percentage points per 5 year increment or twice this if not already appraised

Funding certainty for fully committed schemes does not change with the time available to implement

Small schemes proposed or under investigation are more certain to gain funding than large such schemes

...by 20 percentage points

Small schemes undergoing further appraisal work are more certain to gain funding than equivalent large

...by 10 percentage points

Once partners are committed, funding certainty does not vary with scheme size

All fully committed and funded schemes have 100% funding certainty

Rail schemes are 50% as likely to gain funding as other schemes until they are partly funded at which point the relative likelihood becomes 75% of other schemes

This crudely reflects current uncertainty in the rail industry

Appendix C – Value for Money Assumptions

Value for Money Assumptions

BCR

Mode	Scheme Type	Reference	BCR Category	Lookup Val
Road	New Link	<i>Road_New Link</i>	High	6
	Road Widening	<i>Road_Widening</i>	High	6
	Road Bypass	<i>Road_Bypass</i>	High	6
	Road New Junction	<i>Road_New Junction</i>	High	6
	Road Junction Imp	<i>Road_Junction Imp</i>	High	6
Rail	New Link	<i>Rail_New Link</i>	Low	1.25
	Rail Line Upgrade	<i>Rail_Line Upgrade</i>	Low	1.25
	Rail Service Enhancements	<i>Rail_Service Enhancements</i>	Low	1.25
	Rail Station	<i>Rail_Station</i>	Low	1.25
	Rail Station Upgrade	<i>Rail_Station Upgrade</i>	Low	1.25
Rail Freight	Line Upgrade (Freight)	<i>Rail Freight_Line Upgrade (Freight)</i>	Low	1.25
	Rail Freight Freight connection	<i>Rail Freight_Freight connection</i>	Low	1.25
LRT	New Link	<i>LRT_New Link</i>	Low	1.25
	LRT New System	<i>LRT_New System</i>	Low	1.25
Bus	New Service	<i>Bus_New Service</i>	Medium	1.75
	Bus Service Enhancements	<i>Bus_Service Enhancements</i>	Medium	1.75
	Bus Guided Busway	<i>Bus_Guided Busway</i>	Medium	1.75
	Bus Rapid Transit System	<i>Bus_Rapid Transit System</i>	Medium	1.75
	Bus Priority Measures	<i>Bus_Priority Measures</i>	Medium	1.75
Dem Man	Parking Charges	<i>Dem Man_Parking Charges</i>	Low	1.25
	Dem Man RUC	<i>Dem Man_RUC</i>	Low	1.25
	Dem Man Soft Measures	<i>Dem Man_Soft Measures</i>	High	6
	Dem Man VMS etc	<i>Dem Man_VMS etc</i>	High	6
Reallocation	Road:Bus	<i>Reallocation_Road:Bus</i>	Poor	0.5
	Reallocation Road:Ped	<i>Reallocation_Road:Ped</i>	Poor	0.5
Unknown	Unknown	<i>Unknown_Unknown</i>	Low	1.25

Value to use in lookups. NB values are indicative only - for use in calculations

Poor	0.5
Low	1.25
Medium	1.75
High	6

Value for Money Assumptions (Evidence)

Assumptions From BCREvidence.xls			
A) ROAD			
			Source
	Bypass	3.2	Average of Schemes Listed in LTT Review of current costs & BCRs for HA TPI schemes in August 26th Edition 2004
	Junct Imp	5.6	
	Widening	4.0	
	New Link	2.0	
B) RAIL			
			Source
	Train Service Improvements		SOCOMMS, Rail Strategy Report
		0	1.01
		0	1.25
		0	1.03
	New Stations		1.56
	Station Refurbishment		1.09
C) LRT			
			Source
	Brighton LRT	1.13	SOCOMMS: Brighton Area Plan
	SHRT	1.10	Hampshire County Council
	Plus evidence from recent Government comments (especially on rising costs) & NAO report in April 2004 "Improving public transport in England through Light Rail"		
D) BUS			
			Source
	A23: City centre north to	1.34	SOCOMMS: Brighton Area Plan
	A270: city centre to Faln	1.54	
	A259 east: city centre to	1.57	
	A259 west: city centre tc	1.62	
	Total	1.54	
E) DEMAND MANAGEMENT			
			Source
RUC/ Charging	"Well designed local charging schemes in the more congested urban areas would provide very significant benefits in their own right...." Plus London's experience -scheme is about covering its own costs		LTT, 29 July 2004, P15 Quoting DfT Road Pricing Feasibility Study, July 2004 But NB distance based schemes more expensive & more difficult to implement successfully and several of the modelled tests had very slight positive NPVs
VMS	Relatively low cost to implement & in urban areas "TRL have estimated that if only 2% of drivers follow the guidance provided [by Car Park Information Systems] the system pays for itself within 4 years of implementation		TRL report 220 - review of potential benefits of Road Transport Telemetrics - 1996 Quoted in DfT Traffic Advisory Leaflet ITS 2/03
Soft Measures	" every £1 spent on well-designed soft measures could bring about £10 of benefit in reduced congestion alone...."		pvi, Smarter Choices: Changing the Way We Travel Cairns, Sloman, Newson, Anable, Kirkbride & Goodwin for DfT 2004
F) REALLOCATION			
	Assumption		
	Although low cost, NPV likely to be low or negative due to time losses experienced by highway users		

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