



**MODERN TRANSPORT SYSTEM**

**STAG APPRAISAL**

**OVERVIEW**

## **CONTENTS**

EXECUTIVE SUMMARY and APPRAISAL SUMMARY TABLE

1. INTRODUCTION
2. IDENTIFYING OUTCOME AND SETTING OF OBJECTIVES
3. ANALYSIS OF EXISTING AND POTENTIAL PROBLEMS
4. OPTION GENERATION, SIFTING AND DEVELOPMENT
5. THE APPRAISAL PROCESS
6. ABERDEEN SUB AREA MODEL(ASAM)
7. ECONOMIC ACTIVITY AND LOCATION IMPACTS
8. CONCLUSIONS

APPENDICES

## APPENDICES

- A MTS Objectives
- B MTS Problems and Opportunities
- C Assessment of Objectives against Problems and Opportunities
- D MTS Options and Component Project Categories
- E Assessment of Categories against Objectives
- F Assessment of Categories against Problems and Opportunities
- G Category Assessment Summary and Deriving Options for Testing
- H Transport report
- I TEE report (included in Appendix H)
- J EALI report



## EXECUTIVE SUMMARY

Considerable effort has been expended over the last 4-5 years in developing an appropriate strategy to guide future transport investment and policy in north east Scotland. This work has particularly been focussed through the NESTRANS partnership of the two north east local authorities, Aberdeen City Council (ACC) & Aberdeenshire Council (AC), and Scottish Enterprise Grampian (SEG) and Aberdeen and Grampian Chamber of Commerce (AGCC) representing the private sector.

Stepping stones to a transport strategy have been the government's Sustainable Transport Study for Aberdeen commissioned from Oscar Faber and completed in 1998, and an appraisal of alternative regional transport strategies commissioned from Halcrow Fox by the NESTRANS partners and completed in 2000.

The conclusion reached by the local authorities and NESTRANS based on these studies was that an integrated and balanced strategy incorporating the proposed Western Peripheral Route was the most appropriate. This was supported by public consultation undertaken by the local authorities and the NESTRANS partners, the preferred integrated strategy, now known as the Modern Transport System (MTS) being detailed through the respective Councils' Local Transport Strategies submitted to the Scottish Executive in December 2000, and being reflected in the Aberdeen and Aberdeenshire Structure Plan approved by Scottish Ministers in December 2001.

Whilst recognising the credentials of this previous work it is necessary, in common with other transport projects, to appraise the strategy through the Scottish Executive's new STAG methodology. It was agreed with the Scottish Executive at the beginning of 2002 that only a Part 1 STAG would be required for the regional transport strategy. Individual projects within this strategy, eg the Western Peripheral Route, would however need to be subject to the full STAG appraisal.

The STAG methodology sets out a rigorous and logical process for project appraisal in which outcomes, objectives and problems to be resolved are established, options identified, and those options then assessed against the outcomes, objectives and problems, and in value for money terms.

Drawing from the previous studies by Oscar Faber, Halcrow Fox and the two councils the **outcome** for a regional transport strategy for the north east was summarised as being to:



“Deliver a Modern Transport System for the North East of Scotland which enables a more economically competitive, sustainable and socially inclusive society.”

To achieve this outcome a set of **objectives** were listed. These were grouped into the five criteria set by Government as the benchmarks against which proposals should be measured, namely environment, safety, economy, accessibility and integration. Two additional criteria of deliverability and acceptability were added.

Problems that the Modern Transport System would have to address were identified along with any potential opportunities arising. The **problems and opportunities** were assessed against the objectives to ensure that each problem had at least one objective that would relieve the problem.

**Options** for dealing with the problems and meeting the objectives were then developed. These ranged from a do minimum maintenance only option to public transport based options and road building options, extending to 12 potential options. This incorporated a number of options both with and without a Western Peripheral Route. This process was developed by grouping together schemes in transport categories. Choosing different combinations of categories generated the options for testing.

Each category was assessed against the objectives and the problems. Once this had been completed a similar exercise was carried out using this assessment information to assess the options against the objectives and problems and hence against the governments key criteria.

This reduced the number of options from thirteen to two, a public transport option and an integrated transport option. The public transport option was based on improving public transport, both number and frequency of services. The integrated transport option reflects a balanced approach, improving public transport, building a Western Peripheral Route, Park and Ride and re-allocating road space in urban areas. Further work was then required to determine the benefits and disbenefits of each remaining option and how they compared to the Do Minimum and Reference cases.

This additional work, modelling and economic analysis, was carried out using the Aberdeen Sub Area Model (ASAM) of the Central Scotland Transport Model (CSTM). This required an extension to the CSTM, which was carried out by consultants on behalf of the Scottish Executive. Consultants were employed to assist in the development of the testing approach and the Scottish Executives model building consultants were employed to carry out the testing and interpretation of outputs.



This additional modelling is beyond a STAG Part 1 but of itself does not fully meet the requirements of a STAG Part 2. The Scottish Executive have indicated that given all the previous studies carried out on this subject they would be satisfied with this STAG part 1 ½ as proving the need for the chosen option.

The modelling work undertaken indicates that the integrated transport system provides greater benefits for the investment. The MTS option (including Central as the WPR option) has been modelled as providing a BCR of 4.7. This is greater than that PT option which has been modelled to provide a BCR of 0.03.

An Economic Impact and Location Analysis has been carried out by consultants which identifies considerable benefits mostly arising from the Western Peripheral Route.

Taking into account the analyses carried out, the modelling work, the EALI work and public perception it is concluded that the MTS provides the best alternative for transport in the North East of Scotland.

An appraisal summary table follows below.

## 1. INTRODUCTION

The North East of Scotland Transport Partnership (NESTRANS) is a public/private partnership made up of the Aberdeen City Council, Aberdeenshire Council, Scottish Enterprise Grampian and Aberdeen and Grampian Chamber of Commerce. NESTRANS is striving to develop an integrated transport strategy for the North East over a 12 year period from 1999 – 2011. This strategy and the package of transport improvements within it is known as the 'Modern Transport System' (MTS).

The proposed contents of the MTS were previously identified through the Government's Sustainable Transport Study undertaken by Oscar Faber and a consultancy study carried out for the NESTRANS partners by Halcrow Fox. The studies were also used in the development of both Councils' Local Transport Strategies.

In accordance with the Government's guidance however, NESTRANS began to assess a Modern Transport System for the North East following the methodology described in the Scottish Traffic Appraisal Guidance (STAG) manual.

During the appraisal process, the Scottish Executive confirmed that NESTRANS would not require to formally appraise alternative strategy options for the MTS, given the work that had previously been undertaken in the above mentioned studies. The Executive has however requested that a small number of strategy options continue to be looked at using the Aberdeen Sub Area Model (ASAM). Full Appraisal Summary Tables (AST's) are not however required. Alternatively, a basic assessment of the individual project categories, which would ultimately be combined into alternative test options, was undertaken against both the objectives and the problems. This was used to eliminate some of the previously identified test options to leave a couple for assessment using ASAM. The following chapters describe this work, namely:

- Chapter 2 – Identifying Outcome and Setting of Objectives
- Chapter 3 – Analysis of Existing and Potential Problems
- Chapter 4 – Option Generation, Sifting and Development
- Chapter 5 – The Appraisal Process
- Chapter 6 – Aberdeen Sub Area Model (ASAM)
- Chapter 7 – Economic Activity and Location Impacts
- Chapter 8 – Conclusions

## 2. IDENTIFYING OUTCOME AND SETTING OF OBJECTIVES

Reference is made to Appendix A, which describes the derivation process and lists the finalised objectives for the Modern Transport System (MTS). The objectives were developed in accordance with chapter 2 of the Scottish Transport Appraisal Guidance (STAG) document. Establishing objectives provides all parties with a clear indication of what is to be accomplished. They define the criteria against which any proposal can be assessed, allowing accountability throughout the appraisal process.

The objectives were derived to achieve the following stated outcome:

**To deliver a Modern Transport System for the North East of Scotland which enables a more economically competitive, sustainable and socially inclusive society.**

In setting objectives for the Modern Transport System, previously established objectives from existing policy documents related to transport were considered. The sources included European, UK, Scottish, Regional and Local documents and are listed in pages 5-7 of Appendix A. The objectives from these documents were grouped under the 5 Government criteria headings of Safety, Economy, Environment, Accessibility and Integration and a further 2 overarching principles for the MTS of Deliverability and Acceptability and Participation. Then, using the range of objectives gathered from the various sources and listed under each criteria, a set of overall MTS objectives were derived. The finalised list of MTS objectives is listed in Appendix A from page 77 onwards.

### 3. ANALYSIS OF EXISTING AND POTENTIAL PROBLEMS

The problems being experienced in the North East of Scotland that the MTS is intended to resolve were identified in accordance with chapter 3 of the Scottish Transport Appraisal Guidance (STAG) document. Reference is made to Appendix B, which gives a general overview and summary list of the finalised headline problems.

The problems have been considered under the seven category headings used in the preparation of MTS objectives, namely: Acceptability, Deliverability, Environment, Safety, Economy, Integration and Accessibility. This will allow comparison between the objectives and problems to ensure all problems are addressed by the objectives and allow ease of reference in the subsequent analysis process. In developing the problems it was also considered necessary to introduce a further 'North East Specific' category to highlight the problems that are specific to this area.

Appendix B contains an overview of the issues considered within each of the categories and the finalised headline problems. A further table gives a descriptive analysis of the problems perceived to exist in the North East within each category and it is from this analysis that the headline problem summaries were derived. The table also provides references to the available information that was used in identifying the problems and also in support of the claim that there is problem. This back up information is taken from a range of sources, including policy documents, census data, traffic survey information, accident statistics, bus travel information and air quality data and is held on file, if required for verification.

Once the MTS problems were identified, an assessment was carried out to ensure that the MTS objectives (discussed in chapter 1) addressed all of the problems. Appendix C shows the appraisal framework used to relate the objectives to the problems. A decision was made as to whether satisfaction of each objective would have neutral, no, positive or negative impact on each problem. Comments are provided where any objectives were considered to have a potential impact on a problem. This assessment showed that, although the problems and objectives had been derived independently, every objective addressed (had positive impact against) at least one problem and were all therefore required. The objectives were also shown to be sufficient, in that all problems were addressed by at least one objective. No further consideration of the objectives was therefore deemed necessary.

#### 4. OPTION GENERATION, SIFTING AND DEVELOPMENT

Possible schemes for inclusion within the MTS were grouped under the following project category headings of:

Existing Infrastructure Maintenance	Pedestrian Priorities
Western Peripheral Route	Crossrail
Strategic Roads	Mass Transit
Urban Roads	Strategic Rail
Car Park Construction	Harbours
Bus Priorities	Airports
Park & Ride	Freight
Cycling	Public Transport Enhancements

The make up of each of the above categories is detailed in Appendix D along with their statement of purpose, describing the elements brought to the MTS by each category. The categories were then grouped in various combinations to produce 12 alternative options for testing from a 'do minimum' through to an 'all projects' option. The 12 options derived are also shown in Appendix D.

## 5. THE APPRAISAL PROCESS

During ongoing consultation with the Scottish Executive, regarding the appraisal of the MTS, it was agreed that sufficient analysis had been undertaken in previous studies to justify the components of the MTS. Completion of the part 1 and 2 Appraisal Summary Tables was not therefore required. The Executive has however requested that a small number of strategy options be assessed using the Aberdeen Sub Area Model (ASAM). In order to identify some preferred options from the various alternatives outlined in chapter 4, the following basic appraisal process was undertaken.

Each of the categories detailed in chapter 3 was assessed against the MTS objectives and problems described in chapters 1 and 2. The appraisal tables for the assessment of each category against the objectives and problems are contained in Appendices E and F respectively. Given that this assessment could in some circumstances be seen to be a subjective opinion, individual comments were prepared to explain how the performance of each category against the objectives and the problems had been considered. Overall comments are also given to summarise each category's performance.

Based upon the comments, the level to which each category had met each of the objectives and problems was then graded between '- 3' negative impact to '+3' positive impact with zero given for neutral or no impact. Using the individual gradings within each category, a grading was then derived for the overall impact on the 5 Government criteria, namely Environment, Safety, Economy, Integration and Accessibility and also the further North East Specific criteria for problems. The ratings against the Government criteria were then considered in conjunction with the additional ratings for acceptability and deliverability to give final overall gradings for the impact of each category against the objectives and problems. Summaries of the numerical gradings, containing the overall impact on Government Criteria and on the objectives or problems as a whole, are also contained at the back of Appendices E and F respectively.

The next stage was to complete an overall category assessment summary. This looked at the individual summary comments and gradings for the problems and the objectives and combined the two. The resultant single final overall summary comment and grading for each category is contained in Appendix G.

The overall gradings given to each category were then used to reduce the 12 options, identified for testing in chapter 3 and listed in Appendix D, to a more manageable number for further more detailed analysis. The reasoning behind the decision to progress or eliminate each of the options is also described in Appendix G. It was recommended that the revised test 5A and



test 10 options along with a possible revised test 10A, pending results of the prior two tests, should now be carried forward for analysis using ASAM. This testing has been completed.

Traffic analysis and the economic analysis show that the MTS option provides greater benefits overall than the PT option.

## **6. ABERDEEN SUB AREA MODEL(ASAM)**

Two options were taken forward for further assessment using the ASAM model provided by the Scottish Executive. The two options identified for this further analysis were those that performed best against the objectives and problems. These two tests were the integrated package of measures and the public transport based option.

Both tests were coded into the ASAM model. The two Council's in-house team, taking advice from consultants Steer Davies Gleave, carried this out. This was supervised by the Scottish Executives consultants MVA, who carried out the testing and produced the output reports.

This output has been summarised in two reports, a transport report and a TEE report. These reports are produced in Appendices H & I respectively.



## **7. ECONOMIC ACTIVITY AND LOCATION IMPACTS**

Consultants Steer Davies Gleave were employed to carry out an EALI assessment. This report is attached as Appendix J.

## 8. CONCLUSIONS

This STAG assessment has been conducted to show which set of measures would best meet the transport needs of the North East of Scotland over the next 15 years. This has been carried out at the strategic level, identifying the best strategy for achievement of the stated objectives. Individual STAG assessments of the main components of the strategy will be required to fully assess the scheme specific aspects of each component.

The appraisal process has shown that the integrated package of measures performs better than the other options when assessed against the objectives and problems. This is the package of measures that has become known as the Modern Transport System.

The MTS is a balanced package of measures, boosting public transport and encouraging cycling and walking for the shorter journeys. It includes air, sea and rail freight improvements involving private investment. It also includes the Western Peripheral Route, which amongst other things, is intended to remove traffic from unsuitable routes to permit re-allocations of road space to further improve public transport.

In a part 1 level assessment, the MTS and a public transport based strategy performed better against the objectives and identified problems. These options were further tested to part 2 level using ASAM.

The MTS strategy provides good value for money. The benefit/Cost ratio assessed from use of the ASAM model provided by the Scottish Executive is 4.7. The BCR for the PT option is 0.03.

The integrated package of measures (MTS) provides the greatest reduction in traffic congestion.

Providing good value for money, providing a good measure of traffic congestion relief, improving public transport, complying best with the stated objectives, having broad support from the North East public, the MTS has been proven as the best transport package of measures for the North East of Scotland.