



# **COMMISSION EVALUATION AND FEEDBACK REPORT**

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LAND-USE AND TRANSPORT INTEGRATION IN SCOTLAND

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## Executive Summary

The Land use and Transport Integration in Scotland (LATIS) Service is provided by the Technical Analysis Branch of Transport Scotland. It is one of Transport Scotland's tools used to ensure that transport investment is well focused and integrated with the wider policy environment. The service was rebranded in November 2008 and brings together the elements of what was previously known as the Transport Model for Scotland (TMfS) along with the Data Collection Commission (DCC).

The principal rationale for the LATIS service is to provide information for Transport Scotland to appraise land-use and transport policies and interventions which affect the trunk road and rail networks and to provide this information at a proportionate level of quality that is cost-effective and timely. To meet this purpose, the main objectives of the service are to provide a:

- Transport and Land use modelling capability
- User (customer) engagement programme
- Data collection capability

As part of Transport Scotland's commitment to improving the delivery of public services, this Report completes the Evaluation and is an input to the Feedback element of the Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback (ROAMEF) cycle recommended by HM Treasury.

The Service has been successful in the realisation of its rationale and delivering against the main objectives. Both within and outwith Transport Scotland, user feedback, rated the quality, timeliness and cost of the data and model, on average, as good to very good. Considering Transport Scotland in isolation, the costs of providing bespoke appraisal tools and data are broadly equal to the costs of providing the service. However, when the regional and local transport and planning authorities are included, the wider cost savings provided by the LATIS service to the transport planning community in Scotland are substantial.

Through continuous monitoring, a programme of annual reports and this evaluation report the following recommendations will be fed back into the next commission. These are:

- Use LATIS as a portal to all models that are linked in to the service.
- More competition within the service for all aspects of model development, application and data collection.
- An improved accounting system of costs to all users and benefits accrued.
- The modelling hierarchy approach has strengthened appraisal capabilities, but only where it is complete. Completion of the modelling hierarchy should continue in partnership with the regional and local planning and transport authorities.
- The rationale and objectives for Integrated Land-use and Transport modelling need to be better defined and the barriers to its use explored further before any further investment is made.
- TMfS07 should have an extended 'shelf-life' of around 6 to 7 years as a result of the recession (subject to no dramatic changes in the economy, population, etc). However, the future year model forecasts will still need to be updated at regular intervals.

# 1 Introduction

## Project Background

Transport Scotland's "Land-use And Transport Integration in Scotland" (LATIS) service supports Transport Scotland to ensure that transport investment is well focused and integrated with the wider policy environment.

It aims to serve the Scottish Government's overall Purpose, which is "to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth."

## Purpose and Objectives of Report

Transport Scotland is committed to improving its delivery of its public services. One aspect of this is that Transport Scotland undertakes an evaluation of the services it provides. This report evaluates the LATIS service in accordance with HM Treasury guidance<sup>1</sup> on Appraisal and Evaluation in Central Government (The Green Book).

This report looks back over the existing commissions to identify how the service has been able to deliver against its objectives through comparison of what has occurred against various counterfactual scenarios.

The outcomes of this report will feed back into setting the rationale and objectives of the next commission and in particular the optioneering on how best to deliver those when moving forward.

## Transport Scotland Contracts

Table 1.1 shows the roles and responsibilities of the various organisations involved in providing the LATIS service.

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<sup>1</sup> HM Treasury, THE GREEN BOOK: Appraisal and Evaluation in Central Government

**Table 1.1: LATIS Roles and Responsibilities**

<b>Role</b>	<b>Organisation</b>
Client	Transport Scotland
Transport Model Consultant	MVA Consultancy
Land use Modelling Consultant	David Simmonds Consultancy (as sub-consultant to MVA Consultancy)
Auditor	SIAS Limited and WSP Group
Data Collection Contractors	Amey, Colin Buchanan and Partners, and Count On Us
Steering Group	Scottish Government, Transport Scotland, Regional Transport Partnerships and Key Stakeholders
User Group	Open to all

The external providers, who receive payment from Transport Scotland for their role in delivering the LATIS Service, are procured through the following contracts:

- Transport Model for Scotland (TMfS) – MVA Consultancy and their sub-consultant David Simmonds Consultancy
- Data Collection Commission (DCC) – Amey, Colin Buchanan and Partners, Count On Us
- Transport and Traffic Advisor and Auditor (TTAA) – SIAS Limited and their sub-consultant WSP Group

The first two contracts (TMfS and DCC) are administered by the Technical Analysis Branch. The TTAA is administered by the MTRIPS Standards Branch.

The TMfS contract was awarded in August 2006 for a period of three years with the option for two additional one-year extensions; both of which have been taken up.

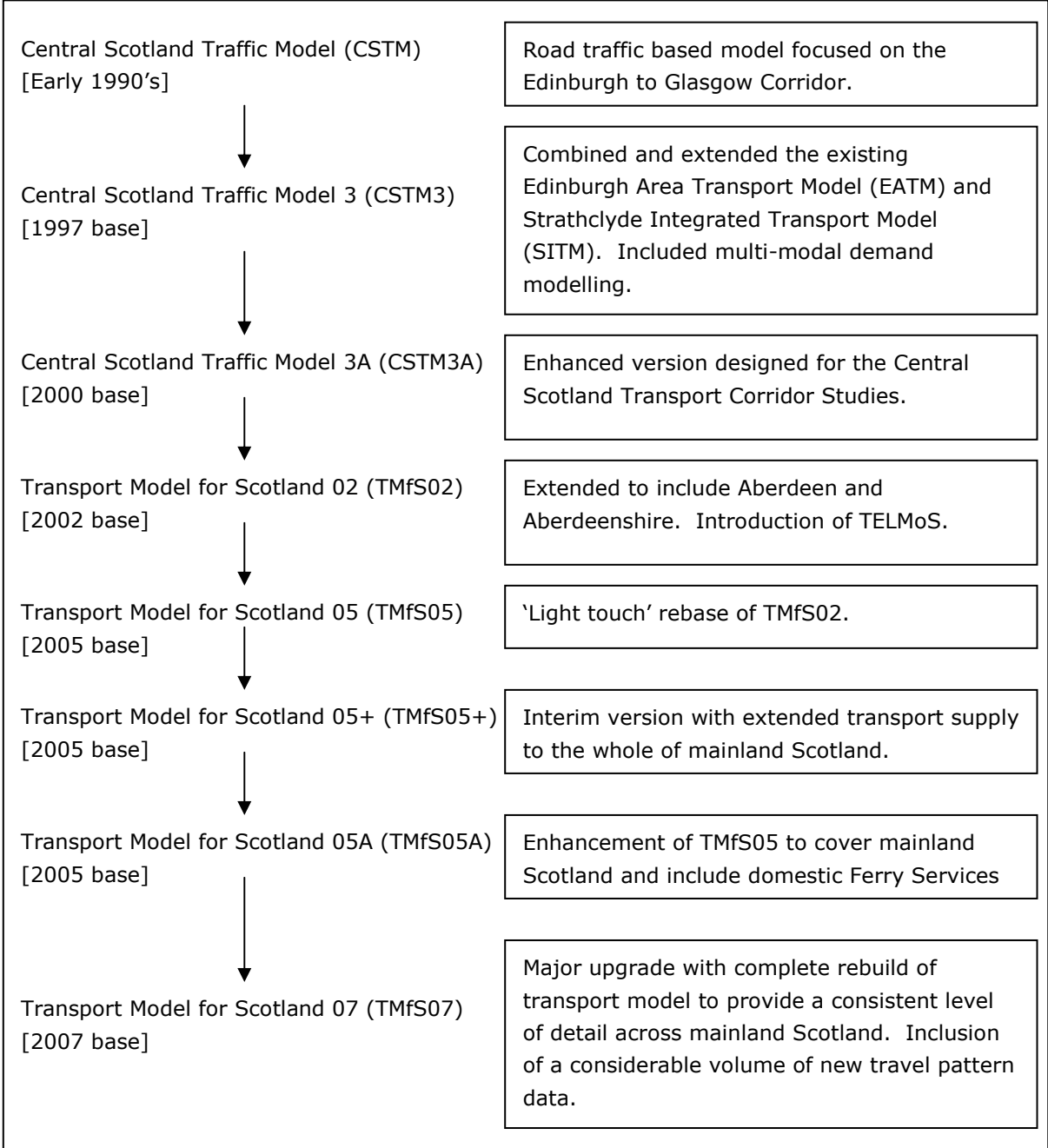
The DCC contract was awarded in September 2007 for a period of four years.

Both contracts are due to expire in autumn 2011.

# Modelling Timeline

To provide some context for what the current LATIS service provides, this section summarises how the current modelling tools have evolved. Underpinning the modelling is observed transport data which has been collected at all stages of development.

Figure 1.1: Development History of LATIS Modelling Suite





## 2 Meeting the Existing Commission Objectives

### TMfS Term Commission

The Term Commission for the Maintenance and Enhancement of the Transport Model for Scotland (TMfS Term Commission) was awarded using a Model F Services Agreement. The project brief included a wide range of objectives grouped under 4 themes:

- High Level Objectives
- Model Objectives
- User Engagement Objectives
- Project Management Objectives

A full list of the thirty-six objectives and a summary of the achievement made against each of them are provided in Appendix A.

Thirty-four of the objectives were either achieved or consciously not pursued following a review of their cost-effectiveness.

### Data Collection Commission

The Multiple Framework Agreement for the Collection and Collation of Transport Data (Data Collection Commission) is a reactive rather than proactive commission to collect data for Transport Scotland projects. Hence, the list of objectives for this commission is much shorter. The six objectives were generally achieved by all the framework consultants.

### 3 Establishment of Outturns for Evaluation

The principal rationale for the LATIS service is to provide information for Transport Scotland to appraise land-use and transport policies and interventions which affect the trunk road and rail networks and to provide this information at a proportionate level of quality that is cost-effective and timely. This information is typically provided by some form of model which is supported with observed data.

In providing such a framework of tools and data for its own uses, Transport Scotland recognises that the service can also provide benefits to other users within both the Scottish Government and the wider public and private sectors.

The outturns for evaluation need to be in a form that allow for a comparative appraisal against the counterfactual 'states of the world' or 'management decisions' (see Chapter 4). They also need to be constructed so they can be compared with actual outcomes for the current commission.

Thus, the main outturns of the LATIS service are considered to be the provision of:

- Tools suitable for the appraisal of transport and land-use policies and interventions affecting the Trunk Road and Rail networks.
- A data collection capability to support the tools used for appraisal.
- Support to non-Scottish Government bodies to undertake their own appraisal of land-use and transport policies and interventions using Transport Scotland's tools and data.

Each of these outturns is considered against service levels of quality, cost and time-scale as these are the three driving forces in the delivery of projects.

## 4 Counterfactual Scenarios

The counterfactuals comprise a set of plausible 'alternative states of the world' and 'alternative management decisions' against which actual outturns can be compared.

### **i. No Service**

The TMfS and Data Collection Commissions were not re-commissioned.

### **ii. No update to the national transport or land-use models**

The previous TMfS Commission developed TMfS05 and TELMoS05. These were a 'light touch' update to an earlier major upgrade of the models (TMfS02 and TELMoS02). Without an update to the national models it is unlikely that TS would have re-tendered the data collection commission.

### **iii. No hierarchy of modelling progressed.**

Whilst hierarchical modelling was taking place prior to the current commissions, this occurred on a case-by-case basis for specific projects (e.g. M74 Completion, M80 Steps to Hags). This commission has sought to work with regional and local transport authorities to create, where appropriate for Transport Scotland, either a second tier of generic transport models linked to the national model or to improve its links to existing sub-national transport models.

## 5 Comparisons of Actual and Counterfactual Outturns

The outturns for comparison (from Chapter 3) are:

- Tools suitable for the appraisal of transport and land-use policies and interventions affecting the Trunk Road and Rail networks.
- A data collection capability to support the tools used for appraisal.
- Support to non-Scottish Government bodies to undertake their own appraisal of land-use and transport policies and interventions using Transport Scotland's tools and data.

For the comparisons in the following tables, these are summarised in the headers as Transport Scotland Appraisal Tools; Data Collection and External Support. Each outturn is considered against the metrics of quality, cost-effectiveness and timescale.

The actual outturn of the service is summarised in section 5.1. The following four sections (5.2 to 5.4) look at the counterfactual options outlined in Chapter 4.

The main sources of quantitative information for this chapter are the Annual Reports; these are published on the LATIS website ([www.latis.org.uk](http://www.latis.org.uk)).

## 5.1 Actual Outturn

This section contains a brief synopsis of the current LATIS service. An in-depth review of the LATIS service is provided in the Annual Reports on the LATIS website ([www.latis.org.uk](http://www.latis.org.uk)).

Outturn	Quality
<p><b>Transport Scotland Appraisal Tools</b></p>	<p>The main appraisal tools maintained and or developed are the Transport Model for Scotland (TMfS), the Transport and Economic Land-use Model of Scotland (TELMoS), and the Forth Replacement Crossing Model (FRCM). In addition to these models, TS has supported the development of the SEStran Regional Transport Model (which now incorporates the FRCM) and the Moray Firth Transport Model (MFTM). All these models have been subject to an independent audit. Of those audits which are complete, the models have been built with due skill and care, making best use of the available data sources.</p> <p>Of the 81 projects (policies, strategies, land-use plans or schemes) appraised either fully or partly by LATIS, between Sept '06 to Aug '09, 22 were commissioned by Transport Scotland. The LATIS team actively sought feedback from users (ref. Appendix C for the questions asked).</p> <p>The number of returned feedback forms for TS projects is too small to be conclusive (although the returns for TS projects were positive). For the 81 projects, 16 feedback forms were returned (20% return). Hence, the following discussion on the feedback in terms of the quality of the tools is based on all users rather than Transport Scotland alone.</p> <p>On a scale of Poor 1 to 5 Excellent, both the model and data (depending on what was used) achieved an average score of 4.</p> <p>Despite the availability of land-use and transport interaction modelling (TELMoS) for nearly 8 years, this is still little used.</p> <p>The national models are designed for the appraisal of major transport and land-use policies and interventions at the Strategic Business Case stage. As interventions, in particular, move through to delivery, more detailed models are generally needed for both the business case and design. The incomplete coverage of 2<sup>nd</sup> tier / regional models is sometimes leading to the use of the national models outwith their intended operational scope due to the absence of any other modelling capability.</p>

<p><b>Data Collection</b></p>	<p>LATIS draws on a number of datasets collected by external bodies at a UK-wide and Scotland-wide level. The intensive use of these data can identify errors which are fed back to the data collectors. Most notably for LATIS this involved identifying errors in the National Rail Travel Survey (NRTS).</p> <p>All roadside interviews undertaken in Scotland have a core of consistent questions. These have been updated to include new questions on freight traffic.</p> <p>The main customer of the DCC is the TS Concessionary Fares team. They consider the quality to be suitable for their needs.</p> <p>The DCC has also provided for a rapid response to data requirements such as the Forth Replacement Crossing and Ferries Review.</p> <p>The LATIS website shows the locations of data collected and collated by the service.</p> <p>A review of the Key Performance Indicators for surveys has highlighted some areas that could be improved where surveys take place on less busy parts of the Trunk Road network.</p> <p>The use of temporary Automatic Traffic Counters should be included in the fixed price element.</p> <p>The database of observed transport data is managed by the model consultant. This reduces complexity in managing the data but does limit access to the data and incurs costs for simply data queries by the client.</p>
<p><b>User Support</b></p>	<p>In addition to Transport Scotland projects, the LATIS service has been involved in 59 other projects between Sept '06 and Aug '09. As noted above, the User feedback return rate was 20%. On a scale of very dissatisfied 1 to 5 very satisfied, the overall performance of the Service achieved an average score of 4.</p> <p>In addition to the model development team, four consultancies have received training in the use of one or more of the models developed.</p> <p>The LATIS team typically present at two to three conferences a year along with one or two user groups. The absence of external technical criticism of the modelling approach adopted by the service implies a sound methodology.</p>

Outturn	Cost
<b>Transport Scotland Appraisal Tools</b>	<p>The costs below are based on the costs of model development, support, audit and miscellaneous tasks for the financial years from 2006 to 2011.</p> <p>06/07 = £500,000 (est. for Sept 06 to Mar 07).</p> <p>07/08 = £850,000 (est. based on 9 months of data)</p> <p>08/09 = £1,250,000</p> <p>09/10 = £600,000</p> <p>10/11 = £250,000 (estimate)</p> <p>2011 = £150,000 (est. for Apr 11 to Aug 11)</p> <p><b>Total = £3.6 million</b></p>
<b>Data Collection</b>	<p>The Data Collection Commission was procured using the OJEU restricted method. The fee estimates for the three successful bidders varied by less than 4%. The costs of the unsuccessful bid were around 30% higher than the average bid.</p> <p>The narrow variance in the successful fee bids indicate that the brief was suitably specified, sufficient bids were received and the costs were good value.</p> <p>The successful bidders are entitled to apply for a rate increase in line with ASHE.</p> <p>Since the procurement of the DCC, anecdotal evidence from data collection undertaken outwith the DCC indicates that data collection costs have fallen significantly.</p> <p>A recent change to the layout of how the DCC contractors set out their fee bid for concessionary fares has yielded reduced costs.</p> <p>The TS Concessionary Fares team originally had their own in-house survey teams. Whilst costs of using the DCC are slightly higher, this is offset with the flexibility available in the service and the ability to scale up or down the number of surveys at very short notice.</p>
<b>User Support</b>	<p>The LATIS Service does not seek to recoup any costs of running the service in providing access to the models and data. However, the time taken by MVA to provide data, training, support or a bureau modelling service is charged to the user at Transport Scotland's commission rates.</p> <p>Nonetheless, there is a cost to TS in delivering the external support and customer engagement. The current invoicing regime does not allow TS to identify what this cost is.</p> <p>The feedback from users on the costs using a scale of strongly disagree 1 to 5 strongly agree, the value of using the service had an average score of 4.</p>

<b>Outturn</b>	<b>Timescale</b>
<b>Transport Scotland Appraisal Tools</b>	<p>The availability of the national models and collated data allows for the rapid testing of major interventions in a matter of days or weeks. Bespoke transport model development for intervention appraisal is typically around 4 to 6 months* although this can be less for broad policy appraisal with little or no geographical disaggregation.</p> <p>* Final delivery of the model can take even longer depending on the need for surveys, model testing and audit.</p>
<b>Data Collection</b>	<p>The DCC arrangements avoid delay in the appointment of a survey contractor. This may occur where there is a need to respond quickly to a new situation.</p> <p>For major projects, the availability of the DCC removes the need to incorporate a data collection capability into the contract and the additional complexity this may bring in managing that service.</p>
<b>User Support</b>	<p>The rapid availability of historic observed and current forecast modelled data is often the starting point for projects originating outwith TS.</p> <p>The feedback from users on the timescales for delivery using a scale of strongly disagree 1 to 5 strongly agree, the value of using the service had an average score of 4.</p>

### **Summary and Feedback**

The current LATIS service has been successful in meeting its rationale and main objectives.

Feedback from users is almost all positive across the three themes of quality, cost and timescale.

TELMoS has been maintained and updated during the term of the commission but is still little used nor understood. It is the TELMoS outputs that most often raise questions about the applicability or suitability of LATIS to serve a particular purpose. The model is very dependant on data sets and when these data are not available due to the cost of collecting it, some basic assumptions have to be made which potentially compromise the robustness of the outputs. If the land-use modelling functionality is to be further developed it will be important to understand the reasons for the lack of application (e.g. costs, lack of deliverable product, unsuitable outputs, etc.)



In the absence of more detailed 'regional models', the application of TMfS07 to the appraisal and design of some projects has highlighted the need to support the development of 2<sup>nd</sup> tier / regional models. The existing 2<sup>nd</sup> tier / regional models have been developed in partnership with regional or local transport authorities.

Instructions to external suppliers on invoicing could be improved to make the evaluation of the service more straightforward. Costs incurred by Transport Scotland and all external services are dealt with by invoicing each party directly. Hence, calculating the overall costs is time-consuming. A template for monthly charges to all users of the LATIS service should be developed for future commissions.

The Data Collection Commission has provided a resource across Transport Scotland to provide both a rapid response to data needs (e.g. Forth Replacement Crossing and Ferries Review) and for the longer term changes to the Concessionary Fares survey programme as well as providing its core role of collecting data for the national models. The annual option for changes to fees using ASHE should be reconsidered to take account of the possibility of technological changes in data collection methods leading to falling costs. This should be tied in to more internal competition within the commission for major projects.

Lessons from the application of the current Data Collection commission that need to be included in any future commission are:

- Inclusion of temporary Automatic Traffic Counters as a fixed price element
- A review of Key Performance Indicators to better reflect the disparate nature of Scotland's transport infrastructure (e.g. roads with low traffic flows).
- Standardised fee bid tables.

The collation and processing of observed transport data is undertaken by the model commission holder. As the data is held by the commission holder, simple data queries are unnecessarily complex to undertake by Transport Scotland and there is a cost involved each time a query on the data is made. Options for managing the data within Transport Scotland are being investigated and any future commission needs to be more flexible when it comes to the management/storage and accessibility of data.

## 5.2 Counterfactual i. No Service

Outturn	Quality
<b>Transport Scotland Appraisal Tools</b>	<p>In the absence of the national models, bespoke tools would have been developed for many or all of the applications (though no doubt some re-use of models would be possible) and TMfS05 would have been available from the previous commission. Whilst the quality of the models would probably be as good, there would be a lack of consistency about dealing with the wider background changes in travel demand particularly in relation to planning data. Whilst appraisal using bespoke tools would be internally consistent, it would be difficult to make comparisons across different projects. This was highlighted in the 'Carbon Account for Transport' where the sum of the contribution of individual schemes was significantly different to their net contribution when calculated in TMfS.</p> <p>The LATIS service collates Planning Policy inputs biennially for all of Scotland; the latest collection took place in 2010. Conversely, the only other source of national planning data is the DfT's TEMPRO database which for Scotland is currently based on <b>2003</b> web and paper based available information. As land-use is the primary driver of the demand for travel, the use of out-of-date information could compromise the robustness of the appraisal.</p>
<b>Data Collection</b>	<p>In general, data collection would have been as good quality. The service though has brought consistency and flexibility to the collection of roadside interview data and the introduction of new questions about freight movements that may not have been as straightforward without a common resource.</p>
<b>User Support</b>	<p>External users would see the same quality impacts as Transport Scotland (see Transport Scotland Appraisal Tools box above).</p>
Outturn	Cost
<b>Transport Scotland Appraisal Tools</b>	<p>To the end of April 2009, it has been estimated that the cost of developing bespoke models for TS applications would have been about £2 million. Projecting forward to the end of the commission, this is assumed to be around £3.5 million. However, TMfS05 (from the previous commission) would have been usable for some of these applications which would reduce this figure.</p>

<b>Data Collection</b>	<p>There would have been increased costs in commissioning surveys through the running of competition for each task and the absence of a national model would probably necessitate more data collection.</p> <p>There is anecdotal evidence on a significant fall in data collection costs over the term of the commission.</p> <p>The concessionary fares team would have had to undertake an OJEU tendering procedure for their needs if they had made the same choice to cease their in-house surveying capabilities.</p>
<b>User Support</b>	<p>To the end of April 2009, it has been estimated that the cost of developing bespoke models for non-TS applications would have been about £2.6 million. Projecting forward to the end of the commission, this could be assumed to be around £4.4 million.</p> <p>If TMfS05 (from the previous commission) had been made available to external parties though, this figure would be lower.</p>
<b>Outturn</b>	<b>Timescale</b>
<b>Transport Scotland Appraisal Tools</b>	<p>Models of the scale required where TMfS can be used will typically take 4 to 6 months to develop [see section 5.1], not including procurement time, suitable windows for data collection, model testing and audit.</p>
<b>Data Collection</b>	<p>The absence of the commission would have led to some delays in procuring surveys to allow for tendering of each task. Most surveys though are commissioned in sufficient time that this would not have been a problem.</p>
<b>User Support</b>	<p>External users would see the same timescales impacts as Transport Scotland (see Transport Scotland Appraisal Tools box above).</p>

## Summary and Feedback

This counterfactual of “No Service” demonstrates that the LATIS Service has delivered benefits across all aspects of quality, cost and timescale.

Considering all users of the LATIS service; in theory, models for the land-use or transport policy and intervention appraisal could have been developed for either the same cost or quality as that spent by the LATIS commission. However, for the same cost, the quality would have been considerably reduced and conversely for the same quality, costs would have been considerably increased. In the absence of the LATIS

service, it would simply not have been possible to respond as quickly to both TS and external client needs as has been achieved.

The costs to Transport Scotland of the current commission [section 5.1 Outturn cost of Appraisal Tools] are broadly equal to the costs of not having the commission [section 5.2 Outturn cost of Appraisal Tools]. However, the use of the different models demonstrates that a significant proportion of the benefits from developing the national models occurs downstream of the actual model development through the consistency provided as well as the benefits to timescales which arise in having a model available. In the wider context of Public Bodies outwith Transport Scotland, they accrue considerable savings from the LATIS service compared to developing bespoke models [section 5.2 Outturn cost of User Support].

The brief for the Data Collection Commission was developed with the inherent assumption that costs would increase or at best remain static. Anecdotal evidence on technological advances and out-sourcing of manual tasks such as video analysis to countries such as India has led to a sharp drop in data collection costs. Any brief for any future external data collection methods (and for modelling too) should take account of technological or staffing methods that can result in falling costs.

### 5.3 Counterfactual ii. No update to the national transport or land-use models

<b>Outturn</b>	<b>Quality</b>
<b>Transport Scotland Appraisal Tools</b>	Many of the early applications to the service were using TMfS05 or TMfS05A. These would have continued. The STPR would have had to develop bespoke solutions for those areas outwith the modelled area (i.e. Highlands and Moray). By the end of this commission i.e. 2011, TMfS05 would have been at the end of its shelf-life. The land-use model would have been particularly out-of-date. Many of the audit findings of TMfS05 would not have been addressed.
<b>Data Collection</b>	With no updates to the national models, it is unlikely that the DCC would have been tendered. This may have had a minor negative impact on the consistency and flexibility of approach offered through this commission, although cost and quality benefits may have been achieved.
<b>User Support</b>	External users would see the same quality impacts as Transport Scotland (see Transport Scotland Appraisal Tools box above).
<b>Outturn</b>	<b>Cost</b>
<b>Transport Scotland Appraisal Tools</b>	Within the span of this commission, cost savings would have been made for Transport Scotland but TMfS05 would now be virtually unusable. If a national model is still considered necessary there would possibly be some cost savings (anecdotally there has been a reduction in consultant charge-out rates) but this has to be off-set against higher data collection costs (more of the data would be too aged to be robust).
<b>Data Collection</b>	No impact
<b>User Support</b>	External users would see the same cost impacts as Transport Scotland (see Transport Scotland Appraisal Tools box above).
<b>Outturn</b>	<b>Timescale</b>
<b>Transport Scotland Appraisal Tools</b>	There would have been an increased timescale for many projects to undertake the necessary additional modelling and appraisal. This would have delayed either advice to Ministers or decision making.

<b>Data Collection</b>	With no data collection commission, there would have been increased timescales in procuring data for projects. There have been three significant users of the data collection commission outwith the LATIS team. These are TS Concessionary Fares, TS Replacement Forth Crossing team and what was Transport Directorate Ferries Team. Each of these teams may have needed to undertake their own procurement exercises.
<b>User Support</b>	External users would see the same timescale impacts as Transport Scotland (see Transport Scotland Appraisal Tools box above).

## Summary and Feedback

Whilst considerable cost-savings would have been made by not updating the national models, it should be borne in mind that TMfS05 was only a 'light touch' update. Without any updates to the national models, TMfS05 would only have had a shelf-life of around 2 years. This would have left Transport Scotland unable to respond in as timely and cost-effective manner to the requests detailed in the annual reports [ref. [www.latis.org.uk/publications/reports.html](http://www.latis.org.uk/publications/reports.html)].

Depending on the quality of the model development, data inputs and purposes to which it will be used, a transport and land-use models will typically have a shelf-life of around 3 to 5 years. This time interval is also dependant on external factors such as the rate of traffic growth and build-out of land allocations. Historically, there is a strong correlation between high economic growth, traffic growth and land-use development.

The development of TMfS07 and TELMoS07 was a major update to the national models and has shifted the focus of the model to high level policy and strategy appraisal rather than scheme appraisal. Coupled with the recession that has led to static levels of traffic demand and very little development, the current national models should be usable for 7 to 8 years (i.e. 2014/15) subject to no unusual changes in travel behaviour.

## 5.4 Counterfactual iii. No hierarchy of modelling progressed

Outturn	Quality
<b>Transport Scotland Appraisal Tools</b>	<p>In theory, the absence of a modelling hierarchy should not have any impact on quality as projects would develop tools of sufficient quality for their needs. However, limitations on cost, but predominantly timescale to answer questions are likely to have led to compromises on the quality of appraisal where more detailed modelling is required. Within this commission, the most notable projects needing more detailed modelling than that possible with the national model are the Forth Replacement Crossing and A96 Inverness to Nairn Stage 2 assessment. The LATIS service developed the Forth Replacement Crossing Model and supported The Highland Council with the development of the Moray Firth Transport Model. Whilst these models could have been developed outwith the modelling hierarchy, to be developed at the same cost, they would have had to compromise on their quality particularly in relation to travel demand originating and destinating outwith the model area but passing through.</p> <p>Engagement with the commissioning client also ensures that the model is developed such that it can be used by other parties. This ensures that Transport Scotland can use the model for its own purposes without any contractual conflict.</p>
<b>Data Collection</b>	<p>No impact.</p>
<b>User Support</b>	<p>Without TS taking an active role in promoting a hierarchical approach, some external models may have been developed independently of the national model. In such cases, the approaches to dealing with travel demand from outwith the model area would have been variable.</p> <p>Through promoting the national models and User Groups, Transport Scotland has a high profile among the land-use and transport planning profession in Scotland. Our involvement in 2<sup>nd</sup> tier / regional modelling provides opportunities to ensure their availability is widely known.</p> <p>The main areas for which 2<sup>nd</sup> tier modelling is absent are those covered by TACTRAN and SWESTRANS as well as the Glasgow/Edinburgh corridor. Within these areas, the major need for modelling has come from the Dundee, Perth, Angus and North Fife Strategic Development Planning Authority (TAYplan) and the EGIP team. Feedback from TAYplan emphasised the need for more detailed modelling than that available within the national model (TMfS).</p>
Outturn	Cost
<b>Transport</b>	<p>Through support and investment in the development of the regional models within a hierarchy, Transport Scotland has access to these more</p>

<b>Scotland Appraisal Tools</b>	detailed models which are audited, robust and consistent with the national models. Without this, major schemes such as the A96 DMRB Stage 2 assessment would have had to develop a new model as part of the project.
<b>Data Collection</b>	Transport Scotland has used the Data Collection Commission to support the development of regional models. Without the promotion of a hierarchy of models, it is likely that additional data would have needed to be collected for stand-alone models (or to accept lower quality).
<b>User Support</b>	The promotion of hierarchical modelling should yield overall cost savings as travel demand originating and destinating outwith the model area but passing through can be sourced from the national model.
<b>Outturn</b>	<b>Timescales</b>
<b>Transport Scotland Appraisal Tools</b>	See Cost: appraisal tools. The lead-in time for developing more detailed appraisal tools can be up to 9 months depending on when data collection can be undertaken.
<b>Data Collection</b>	No impact.
<b>User Support</b>	The availability of the national models for the travel demand outwith the model area should ultimately reduce timescales for the development of robust future year models and any ongoing maintenance of the models.

## Summary and Feedback

The advantages of the partnership approach in the models is the greater involvement of the relevant regional or local bodies in the specification of the product, and reduced costs to Transport Scotland for the model development. Involvement in the model specification for the Moray Firth Transport Model and SEStran Regional Model has ensured that they can be used by Transport Scotland as and when required and their strengths and weaknesses are known in advance.

The disadvantages are linked to the advantages in that the model specification may not be as suitable for the appraisal of Transport Scotland's interventions as desired and there is less control over the model's future with regards to the maintenance, development and integration with the national model.



The rebranding of the commission from TMfS to LATIS emphasised that the service was far more than just the model to include data and user engagement. From this change, the service now includes the SEStran Regional Model as part of the 'family' of models. Without prejudice on ownership of models, it would be sensible to use LATIS as a portal to all models that are linked in to the service. As a result of including the SEStran Regional Model into the LATIS service, SEStran have been invited to, and have taken, a place on the LATIS Steering Group. As the service continues to develop, so will the Steering Group. The Steering Group should periodically review its own structure and function.

As a result of planning reform, Transport Scotland has, as a Key Agency, an enhanced involvement in the development of Strategic and Local Development Plans. The absence of a regional model for the area covered by TAYplan and the subsequent use of TMfS as the only alternative, reinforces the need to promote the development of appropriate 2<sup>nd</sup> tier / regional models to cover the major populated areas of Scotland.

For studies which need to consider the interaction on the networks between Glasgow and Edinburgh, TMfS07 is currently the only tool available. The level of granularity within TMfS07 is such that it is often not appropriate to use it to answer project specific questions. TMfS05 had a greater level of granularity but lower quality of travel demand (than TMfS07) which is sometimes called upon, however it is not being maintained to the same degree. Any future commission needs to consider whether this is appropriate.

## 6 Summary

The LATIS Service has been successful in meeting its rationale and delivering against the main objectives. Considering Transport Scotland in isolation, the costs of providing the service are broadly equivalent to undertaking bespoke modelling on a project by project basis. When the regional and local transport and planning authorities are included though, the additional savings accrued by these organisations are substantial.

Hence, whilst delivering the same quality of service to all users could be achieved through other means but this would cost substantially more. Delivery at the same cost as LATIS could only be achieved by either undertaking far less appraisal (and ultimately delivering less) or with substantial compromises in quality. It is not considered that any alternative approach would be able to deliver within the rapid timescales that the LATIS service can achieve.

Through continuous monitoring, a programme of annual reports and this evaluation report there are a number of lessons that should be fed back into the next commission.

- TELMoS has been maintained and updated during the term of the commission but is still little used. Reasons for the lack of application should be explored further as part of setting the rationale and objectives for the future of LATIS.
- Instructions to external suppliers on invoicing could be improved to make the evaluation of the service more straightforward. A template for monthly charges to all users of the LATIS service should be developed for future commissions.
- Anecdotally, technological developments in data collection have both resulted in significant reductions in costs. The current annual option for changes to fees using ASHE should be reviewed. This should be tied in to more internal competition within the commission for major projects. Improvements can also be made to include additional fixed price elements, standardised fee bid tables and Key Performance Indicators.
- All requests for data or model interrogation have to be passed to the commission consultant. A commission with more than one consultant may reduce the costs associated with applications although the necessary overlap in data inputs to the various models may have created different challenges in managing the models.

- The rebranding of the commission from TMfS to LATIS emphasised that the service was far more than just the model to include data and user engagement. Without prejudice on ownership of models, it would be sensible to use LATIS as a portal to all models that are linked in to the service.
- Engage with and support where possible 2<sup>nd</sup> tier / regional model development and maintenance. These models are important to Transport Scotland's role as a Key Agency in the development of Strategic and Local Development Plans. Where appropriate, It also allows Transport Scotland's consultants to use these models for intervention appraisal.

## Appendix A: TMfS Commission Objectives

### High level objectives

1. Maintain the base existing Transport Model for Scotland (TMfS) and any current derivative versions and support existing users. **Achieved.**
2. Develop and undertake a programme of extension and enhancement of the Transport Model for Scotland to reflect current requirements. **Achieved.**
3. Maintain the updated/enhanced version of the Transport Model for Scotland, and any subsequent derivative versions. **Achieved.**
4. To maintain and develop the TMfS website that also incorporates the Scottish Transport Database. **Achieved – now hosted at [www.latis.org.uk](http://www.latis.org.uk).**
5. To maintain the TELMoS land-use/transport integration module that forms an integral part of TMfS. **Achieved.**
6. Consider the robust representation of the other public transport modes, particularly air and ferry services operating in the Highlands and Islands. **Engagement with the air and ferry teams identified data requirements. Not pursued largely due to high cost compared to benefits available.**
7. Consider the development of the facility to robustly model the potential demand for Multiple Occupancy Vehicle (High Occupancy Vehicle) travel modes, to allow for the appraisal of dedicated Multiple Occupancy Vehicle lanes. **Research undertaken on parameters for appraisal and published on LATIS website. Can be undertaken as a separate procedure.**
8. Provide consistency with other modelling platforms, for example (SITM) and NMF, to inform regional and national transport issues. **The LATIS and SITM teams ensure that all data is shared. Whilst no progress has been made on integration with NMF, comparisons have been undertaken to understand differences in results. Integration between models has been more successful with the recent sub-regional Forth Replacement Crossing Model, SEStran Regional Model (subsumed the Forth Replacement Crossing Model), and the Moray Firth Transport Model.**
9. Capture the remainder of Scotland's transport network in sufficient detail to reasonably reflect travel patterns and the demand for travel in these areas. **Achieved.**
10. Consider the use of new additional data sources in the development and enhancement of TMfS, including for example public transport data from the National Concessionary Fares scheme. **New data sources have been included such as 2001 Census and the National Rail Travel Survey. The Concessionary Fare data was analysed but at the time was not in a state that could be used.**
11. Give advice/assistance as required, in undertaking any additional transport modelling activities identified by Transport Scotland. **Achieved.**

### Model objectives

1. Ensure that the tools and expertise are available to allow robust analysis of any major transport schemes being developed within Scotland. **Achieved.**
2. Innovative and stable methods to improve the function and use of the model. **Achieved.**
3. Work in parallel with Transport Scotland's Data Collection Consultants on the collection of transport data, and incorporate SRTDb data where appropriate. **Achieved.**
4. Extend the degree and area of reliability of public transport modelling beyond the substantive data input for the general geographic triangle between Edinburgh, Glasgow and Stirling. **Achieved.**
5. General data updates to the model, and for extension of the model coverage from both a highway and public transport perspective. **Achieved.**
6. May be a future need to disaggregate journey purpose or vehicle type, and to

- accommodate future travel modes such as guided bus, light rail. The Tolling Version of the model may also need to be fine-tuned to accommodate policy changes with regard to the implementation of congestion charging. **Not required during this commission.**
7. Assessment of the appropriateness or otherwise of the inclusion of weekend peaks. **Considered and rejected due to due to very high cost compared to benefits available.**
  8. Suggestions will be sought on ways to reduce run times, in terms of software and hardware improvements, and possible model refinements. **Improvements achieved.**
  9. Calibration and validation of the model will be required following any major amendments, and on a scheduled basis, to maintain the credibility of the model usage. **Achieved.**
  10. Recommendations on the use of any further surveys including for example household surveys and/or stated preference surveys will be required. **Received but not pursued.**
  11. Refinement and innovation will be sought to improve the visual impacts of presentations, particularly for environmental indicators, along with links to existing environmental analysis programmes. **Achieved.**
  12. Liaison between the Consultant and the Data Collection Consultants in the preparation of an appropriate work programme. **Achieved.**
  13. A two-weekly meeting will be held between Term Consultant and Auditor, monitored by Transport Scotland, in addition to the normal audit procedures. **Not required.**

### **User Engagement objectives**

1. A TMfS user rating exercise to be captured and recorded. **Achieved.**
2. Liaison with Local Authorities will be required in the two-way exchange of data and information. **Achieved.**
3. Support and liaison with the established TMfS User Group shall be maintained, particularly for the imparting of knowledge related to the extension and enhancements of the model. **Achieved.**
4. Where the consultant provides services to other organisations working in partnership with Transport Scotland, charges to those organisations will be levied based on the person-hour rates or survey fees quoted in the Model 'F' Agreement, direct to the organisations involved as appropriate. **Achieved.**
5. Liaison will be required with a number of external bodies, including consultants working on separate studies, utilising TMfS and its variations. **Achieved.**
6. Develop and formally instigate a TMfS user rating exercise to capture and record user feedback on TMfS use and outputs against initial aspirations. **Achieved.**
7. Develop and instigate a risk assessment process to ensure those seeking TMfS outputs clearly understand the appropriate degree of confidence inherent in the model outputs. **Achieved.**

### **Project Management objectives**

1. Statement of progress shall be given to the Steering Group at regular three-monthly progress meetings. **Achieved.**
2. Monthly progress meetings will be held. **Achieved.**
3. The consultants shall advise the Project Manager immediately if they judge that the progress of any aspect of the contract will fall short in a way that is likely to be prejudicial to the timely achievement of the specified/agreed outputs and timetable. **Usually achieved.**
4. Prepare a minute of each steering group and progress meeting and circulate a copy to the Project Manager, and any other appropriate staff identified, within two weeks of the meeting. **Usually achieved.**
5. Reports: Inception Report, Enhancement Report, End of Term Report. **Achieved.**

## Appendix B: Data Collection Commission Objectives

1. Establish and maintain a close working relationship with the TEAR Team, the TMfS Consultants, and third parties or stakeholders who may be involved. **Achieved.**
2. Continuously improve the ease, speed and clarity of communications. **Achieved.**
3. As far as reasonably possible, ensure the transport data is accurate, meets the requirements of the Task Order, and is of a suitably high quality. **Usually achieved.**
4. Surveys carried out in accordance with the relevant advice and guidance. **Achieved.**
5. Undertake appropriate range, sense, error and logic checks on the data supplied. **Achieved.**
6. Produce Annual and End of Term Reports. **Annual Reports provided where requested. End of Term not reached.**

## Appendix C: User Feedback Questions

A complete version of this form can be found at [www.latis.org.uk](http://www.latis.org.uk)

- Q1 Please provide a brief description of what LATIS and/or its data was used for?
- If you did not obtain the full model, please go to Q3a
- Q2a How well did the model meet your needs? Scale of: Not Met at all 1 to 5 Fully Met
- Q2b How easy was the model to use? Scale of: Very Difficult 1 to 5 Very Easy
- Q3a How well did the data provided meet your needs? Scale of: Not Met at all 1 to 5 Fully Met
- Q3b Was the data delivered in a format that was easy to understand? Scale of: Very Difficult 1 to 5 Very Easy
- Q3c The cost of deliverables was money well spent (if applicable). Scale of: Strongly Disagree 1 to 5 Strongly Agree
- Q4 How satisfied were you with the application of TMfS for your purpose? Scale of: Very Dissatisfied 1 to 5 Very Satisfied
- Q5 Please detail any suggestions you may have for improvements to the model?
- Q6a Did you seek advice on the use of the model from the outset from the LATIS Support Team?
- Q6b If yes, please provide details of the type and level of advice received.
- Q7a Project Manager/LATIS User Liaison was easily accessible at all times. Scale of: Strongly Disagree 1 to 5 Strongly Agree
- Q7b How well did the LATIS Support Team keep you informed about progress? Scale of: Insufficient 1 to 5 Appropriate
- Q7c How innovative was the Project Manager/LATIS User Liaison in dealing with difficulties? Scale of: Not at all 1 to 5 Very innovative
- Q7d How proactive was the Project Manager/LATIS User Liaison in dealing with difficulties? Scale of: Not at all 1 to 5 Very proactive
- Q7e How quickly were enquiries and requests dealt with? Scale of: Very slowly 1 to 5 Very promptly
- Q7f How efficiently were enquiries and requests dealt with? Scale of: Very inefficiently 1 to 5 Very efficiently
- Q7g The Project Manager/LATIS User Liaison demonstrated a 'can do' attitude. Scale of: Strongly Disagree 1 to 5 Strongly Agree
- Q7h Overall, how willing do you think the LATIS Support Team was to consult and offer advice during the project? Scale of: Very unwilling 1 to 5 Very willing
- Q7i How responsive was the LATIS Support Team to new ideas developed by the model user (where applicable)? Scale of: Very unresponsive 1 to 5 Very responsive
- Q7j How willing was the LATIS Support Team to listen to the views of the model user? Scale of: Strongly Disagree 1 to 5 Strongly Agree
- Q8a To what extent were the needs and requirements of the project understood and subsequently met by the LATIS Support Team? Scale of: Not at all 1 to 5 Fully met
- Q8b How would you rate the technical quality of the LATIS Support Team's work? Scale of: Very poor 1 to 5 Very high

- Q9a Deliverables were produced on time and to specification. Scale of: Strongly Disagree 1 to 5 Strongly Agree
- Q9b How would you rate the technical content of deliverables? Scale of: Very poor 1 to 5 Very high
- Q9c How would you rate the structure, language and style of deliverables? Scale of: Very poor 1 to 5 Very high
- Q10 How satisfied were you with the performance of the LATIS Support Team? Scale of: Very dissatisfied 1 to 5 Very satisfied
- Q11 Please detail any recommendations you may have for ways in which the LATIS Support Team could improve its performance?
- Q12a How efficient was Transport Scotland's procurement process for LATIS? Scale of: Very inefficient 1 to 5 Very efficient
- Q12b How active a role did Transport Scotland assume in the project? Scale of: Very inactive 1 to 5 Very active
- Q12c How useful a role did Transport Scotland fulfil in the project? Scale of: Very inefficient 1 to 5 Very efficient
- Q13a How satisfied were you with the performance of Transport Scotland? Scale of: Very dissatisfied 1 to 5 Very satisfied
- Q13b Please explain your answer to Q13a
- Q14 Do you have any recommendations as to how Transport Scotland could improve its performance in relation to LATIS?
- Q15 Please provide an overall assessment of the experience of using the LATIS service. Scale of: Very dissatisfied 1 to 5 Very satisfied