

Report to: **Partnership Board –Transport for the South East**

Date of meeting: **13 May 2024**

By: **Chief Officer, Transport for the South East**

Title of report: **Analytical Framework Updates**

Purpose of report: **To provide an update on Analytical Framework Development**

RECOMMENDATIONS:

The members of the Partnership Board are recommended to:

- (1) Note the progress with the development of the Analytical Framework;**
 - (2) Agree the updated route-map for the development of an analytical framework to support business cases and the delivery of the schemes within the Strategic Investment Plan (SIP).**
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1. Introduction

1.1 This report provides an update on the development of an analytical framework to support business cases and the delivery of the schemes within the Strategic Investment Plan (SIP).

2. Background

2.1 At their meeting on 23 January 2023 the Partnership Board, agreed a three-year route-map for developing the analytical framework. The route-map was based on a study with four main objectives:

- What is required to support delivery of the Strategic Investment Plan at pace;
- What local partners require in broader terms (e.g. LTP development, scheme business case development);
- The extent to which this would align with a Common Analytical Framework or require additional investment; and
- At what pace the framework can and should be developed.

2.2 The agreed three year route map set out a range of tasks to be completed between 2023/24 and 2025/26 in the development of the analytical framework. Over a year has passed since this route-map was endorsed by the board. Several prioritised tasks have progressed, and the route-map has also been further refined by incorporating findings from reviews of both data requirements and management, and the modelling capabilities and capacities within the region. This report provides an update to the analytical framework route-map.

2.3 This report updates the local analytical challenges based on the most recent review of modelling and data gaps. It outlines the objectives of the analytical

framework designed to address these challenges, presents the progress made so far on the analytical framework, and details revisions to the previous route-map.

3. South East Modelling and Data Gaps Review

3.1 The report presented at the 23 January 2023 board meeting described the analytical framework's "gaps" identified through workshops with TfSE staff, reviews of existing work, and analysis of tools for scheme and business case development for SIP interventions. These gaps, derived also from insights in the Delivery Action Plan, categorise into nine areas as shown in Table 1 below under the '2022/23 Analytical Gaps Review' column.

3.2 To ensure the route-map's continued relevance and its alignment with local challenges. TfSE's commissioned engagement with key stakeholders. This included representatives from eleven of our local transport authorities (LTA's), DfT analysts, and Transport for the North (TfN), to explore solutions meeting future needs and enhancing the efficiency of SIP and Local Transport Plan (LTP) scheme developments.

3.3 The engagements highlighted concerns regarding the dependency on external consultants for model development and maintenance. They also reaffirmed the necessity for a comprehensive suite of analytical tools to effectively support the SIP and local plans. LTAs generally access strategic highway models that need to be updated to reflect post-pandemic travel behaviour changes, as recommended by the latest TAG updates from DfT. Moreover, most current strategic models primarily focus on highways, often leaving public transport and active travel modes underrepresented.

3.4 Stakeholders suggested the role for TfSE should involve coordinating LTAs in their model development and enhancing TfSE's in-house modelling capabilities to support LTAs. Additionally, leveraging tools and data from the STB Common Analytical Framework (CAF) to improve consistency and efficiency in modelling efforts across the region, and promoting alternative modelling techniques, such as Activity Based Models, Land Use modelling for policy analysis, were desired.

3.5 Overall, the latest review confirmed the gaps identified in the previous study and revealed additional challenges. These include disparities in in-house modelling capabilities across the region and a widespread desire for upskilling to become more 'intelligent clients'. Table 1 below shows the updated eight main 'analytical gaps'.

Table 1: Analytical Gaps Review

	2022/23 Analytical Gaps Review	2023/24 Analytical Gaps Review
1	Local model data age	Urgency in model updates due to factors such as ageing model and the impacts of COVID-19
	Local model geography	
	Local model functionality	
2	LTAs have insufficient resource to progress projects	LTAs have insufficient resource to progress projects

	2022/23 Analytical Gaps Review	2023/24 Analytical Gaps Review
3	Forecasting the full impact of rail interventions	The need for improved tools for strategic priorities (e.g. active travel, public transport, new mobilities and decarbonisation)
	The need to quantify carbon reduction	
4	National Highways and local partner collaboration	Appraise collective impacts
5	NTEM often does not represent Local Plan aspirations	Data availability and quality
6	Consistency of approach to active travel demand forecasting	Model accuracy & consistency
7		The disparities of in-house modelling capabilities across the region and
8		The aspiration for skill development towards becoming a more 'intelligent client'

3.6 A data gaps survey conducted via an online questionnaire in January 2024 through the Regional Centre of Excellence identified the following key areas where LTA's seek support

- Current travel demand data
- Public transport usage figures
- Freight data
- Detailed active travel data
- Non-road traffic journey time data
- Locally sensitive forecasting factors, (surpassing NTEM's generalisation)

3.7 TfSE also commissioned support with developing a Data Management Plan. This workstream consisted of a review of our data management requirements and considered industry best practice and adherence to data management policies. Interviews were undertaken with key internal and external stakeholders to understand the type of data being processed and the data gaps of other organisations. This work stream is nearing completion, pending the final stakeholder interview.

3.8 The outcomes from this workstream will be used to develop a program of work which will result in a central system for storing data and modelling outputs, an increased geographic information system (GIS) capability, and a clear catalogue of data held, under what licence, and the terms under which it can be used and shared with partners. These three capability enhancements will enable better support our key local transport authority stakeholders.

4. Analytical Framework Route-Map Updates

4.1 In response to the previously identified challenges, the objectives of the analytical framework have been refined to better meet the needs and aspirations

across the region. The updated objectives are designed to be clear and actionable, ensuring they are accessible to all stakeholders. The refined objectives are:

Objective 1: Optimising Resources for LTA. We are committed to enabling LTAs to achieve more with their available resources. by introducing streamlined processes, promoting the sharing of resources, and leveraging innovative modelling techniques at regional level. The framework seeks to empower LTAs to advance projects, notwithstanding resource constraints.

Objective 2: Upgrading Strategic Tools. We intend to improve the tools at our disposal to better align with strategic priorities, including active travel, public transport, emerging transportation technologies, and efforts to reduce carbon emissions. Our focus is on making these tools more accessible and effective for planning and decision-making.

Objective 3: Comprehensive Evaluation of Impacts. In collaboration with strategic partners, we will develop a standard mechanism at regional level to assess the wide-ranging impacts of our projects. This includes environmental, social, and economic considerations, ensuring our decisions are well-informed and balanced.

Objective 4: Improving Data Management. High-quality, accessible data is the foundation of effective modelling and decision-making. We will implement robust data management practices to improve the collection, storage, and sharing of data, thereby enhancing the reliability of our models.

Objective 5: Ensuring Model Accuracy and Consistency. Consistency and accuracy in the models are crucial. We will continue to enhance in-house analytical capabilities to coordinate with and advise LTAs on the development of their local models. This will ensure their models align with the department's Transport Analysis Guidance (TAG) for accuracy and consistency.

Objective 6: Building Skills and Capabilities. Our aim is to bridge the gap in analytical skills across different regions by introducing knowledge-sharing activities and targeted training. This will include workshops and collaborative projects that enhance our collective expertise and support partners to become a more "intelligent client".

4.2 As noted in Section 3.4, the review of modelling capabilities and capacities in the region has further clarified the role of TfSE in terms of analytical functions. As depicted in the **Error! Reference source not found.** below, the framework is structured into five distinct layers. Each layer builds upon the previous one to create a comprehensive system. The column on the right outlines the role of TfSE in this framework:

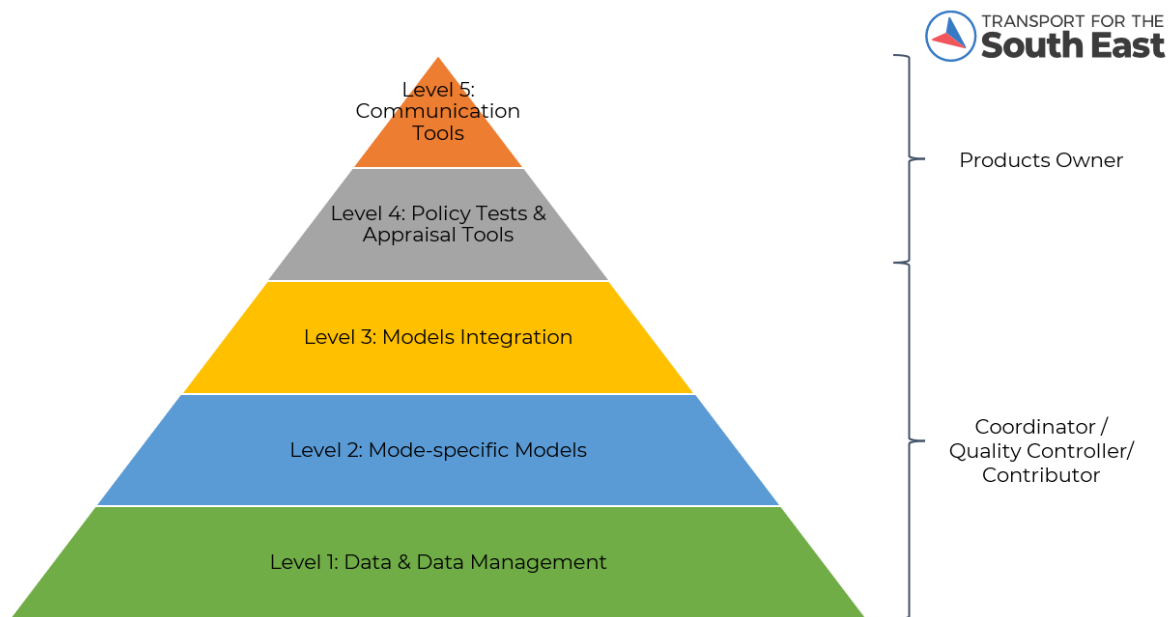


Figure 1: Structure of Analytical Framework

4.3 Level 1: Data and Data Management: This level forms the foundation of the framework, consists of observed data, a data management plan outlines the protocols for controlling and sharing this data to ensure its integrity and accessibility.

4.4 TfSE can play a pivotal role as a “**Contributor**” by supplementing data, particularly where common gaps are identified (e.g. travel demand data) or when an activity is deemed more suitably conducted at a regional level or above, such as freight movements. Building on the outcomes from the data management plan work referred to in Section 3.7, TfSE is developing a work program aimed at creating a centralised system for data storage and sharing, enhancing geographic information system (GIS) capabilities, and compiling a comprehensive catalogue of data and products, including licensing and terms of use.

4.5 Level 2: Mode-Specific Models: Based on the availability of data from Level 1, mode-specific models are developed to represent the current state of the network for the base year. These models are crucial for understanding current transportation dynamics.

4.6 Level 3: Integrated Tools for Advanced Analysis: This layer includes tools developed using advanced techniques, which utilise the outputs of the mode-specific models as inputs. These tools integrate different transport modes and are typically used to explore questions related to changes in travel mode or destination choices.

4.7 For Level 2 and Level 3, all LTAs have access to some form of models that fit their specific requirements and available resources. TfSE’s role in these two layers primarily involves coordination (**Coordinator**) and quality control (**Quality Controller**) functions, advising on the development of local models to support consistency and alignment with DfT’s Transport Appraisal Guidance (TAG).

4.8 **Level 4: Policy and Appraisal Tools:** These tools are utilised to assess the impacts of various schemes, such as their ability to boost economic productivity or reduce carbon emissions, and

4.9 **Level 5: Communication Tools:** This level includes tools that facilitate the sharing and communication of insights derived from all other levels, ensuring that the findings are accessible and understandable to all stakeholders.

4.10 Tools in Level 4 and 5 are dependent on the data provided by one or multiple layers below. Therefore, they are more transferable than models, and it is also where most tools that have been developed under the CAF, such as the Decarbonisation Playbook and Electric Vehicle Charging Infrastructure Tool. TfSE will act as the “**Products Owner**”, responsible for developing and managing these tools. TfSE will work closely with other STBs under the CAF to ensure the tools are aligned with strategic priorities, and accessible for all stakeholders.

4.11 Appendix 1 provides the updated route-map, including tasks commissioned/completed in 2023/24 and updated plan for the next two years. For each task, the route-map sets out:

- A brief description of the tasks;
- If the task is in previous plan or additional;
- The analytical framework objective that each task addresses;
- The extent to which a task offers an opportunity for cross sub national transport body collaboration or pooling of resources;
- The indicative cost band per year for delivery of the task. The cost bands are the following
 - £ - less than £50,000
 - ££ - between £50,000 and £100,000
 - £££ - more than £100,000

4.12 Most tasks from the original 2022/23 plan have been retained and updated as necessary. The exception is MT1: Resource to improve the functionality of the analytical framework for promoting Mass Transit Projects, which has been replaced with research and the development of a public transport tool that goes beyond just covering Mass Transit. The main change is adding additional detail in the form of a number of new projects/tasks to the route-map to address the newly identified 'gaps' as listed in Section 3.

4.13 Delivery of the tasks within the routemap will be planned through the TfSE technical work programme but will be dependent on the level of grant funding received from DfT.

5. Conclusions

5.1 Board Members are recommended to note progress with the development of the analytical framework.

5.2 Board Members are also recommended to agree the proposed updated route-map for the development of the analytical framework.

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Appendix 1: Analytical Framework Development Route-Map

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
Level 1: Data & Data Management								
D01	Data Management Plan	A formal document that outlines how data will be organised, stored, preserved, and accessible in ways that protect the integrity of the data and comply with legal, regulatory, and ethical standards.	No, but essential foundation of the analytical framework	Objective 4: Improving Data Management Objective 5: Ensuring Model Accuracy and Consistency		£ Underway	£	
D02	DMP implementation: Data & Product Catalogue	A catalogue records all data and products that have been managed by TfSE, which will be made accessible to all LTAs through the Region Centre of Excellence platform	No, but essential foundation of the analytical framework	Objective 1: Optimising Resources for LTA Objective 4: Improving Data Management Objective 5: Ensuring Model Accuracy and Consistency		£ Underway		
D03	DMP implementation: Data Hub	A key feature of the CAF is the Data Hub. A large amount of the data used in transport modelling and appraisal comes from national (and therefore common) datasets. This includes open-source datasets produced by 3rd party public sector organisations including the Department for Transport and the Office of National Statistics. TfSE would contribute to the maintenance and updating of the data hub.	Yes, CA2	Objective 1: Optimising Resources for LTA Objective 4: Improving Data Management Objective 5: Ensuring Model Accuracy and Consistency	✓✓		£	££
D04	Developments-Log / Interventions-Log	A workstream which develops a live log of TfSE Local Plans and interventions.	No, but the project covers what was proposed in SD5: Local Plan Data	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts	✓✓	£ Underway	£	

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
			Update and wider	Objective 4: Improving Data Management Objective 5: Ensuring Model Accuracy and Consistency				
D05	Data Gaps: Rail Demand	Filling the rail demand data gap as identified in the data gap survey	No, but identified through CoE	Objective 4: Improving Data Management		£ Underway	£	£
D06	Data Gaps: Journey Time	Filling the journey time data gap as identified in the data gap survey	No, but identified through CoE	Objective 4: Improving Data Management			£	£
D07	Data Gaps: Travel Survey Data	Filling the travel behaviour data gap as identified in the data gap survey	No, but identified through CoE	Objective 4: Improving Data Management	✓		£	££
D08	Data Gaps: Travel Demand Data	Filling the travel demand data gap as identified in the data gap survey	No, but identified through CoE	Objective 1: Optimising Resources for LTA Objective 4: Improving Data Management Objective 5: Ensuring Model Accuracy and Consistency	✓✓		£	££
Level 2: Mode-Specific Models								
M01	Northern Rail Modelling System (NoRMS) Proof of Concept	NoRMS is the rail model developed for Transport for the North. It has been used to assess the impacts of Northern Powerhouse Rail. There is a suggestion that this modelling system could be developed to enable assessment of rail schemes in other sub-national transport bodies. To understand the feasibility of this proposal the functionality of the model could be tested with other schemes in the Transport for the North area which are more similar in scale to the interventions proposed in TfSE's Strategic Investment Plan.	Yes, CA3	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools	✓✓	£ Underway		

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
M02	Rail Model	This includes MOIRA (rail demand forecasting tool) as well as developing appropriate, bespoke analytical tools to fully capture the intended benefits of each rail project. The output will help to make the case for scheme being included on Network Rail's Rail Network Enhancement Pipeline (RNEP)	Yes, R1	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts	✓		££	£££
M03	Bus Data & Modelling	A Study on the availability of bus data and cost-effective strategies for bus modelling	No, but an identified capability gap from the review of regional modelling capabilities	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts	✓		£	
M04	South East Regional Transport Model (SERTM) Enhancement	Adding details such as zones, non-SRN links to National Highways' regional model - SERTM, to assess the benefits of highway interventions, and provide inputs to the Level 4 & 5 tools	Yes, H1, H2, H3	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts Objective 5: Ensuring Model Accuracy and Consistency	✓	££ Underway	£	£
M05	Active Travel Model	The main barrier to more consistent and robust demand forecasting of active travel schemes is the cost of data collection. Funding would go towards researching more cost effective approaches to more consistent data collection relating to active mode demand.	Yes, AT3	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts Objective 5: Ensuring Model Accuracy and Consistency			£	££

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
M06	Freight Data & Modelling	A Study on the availability of freight data and cost-effective strategies for freight modelling	No, but an identified capability gap from the review of regional modelling capabilities	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 5: Ensuring Model Accuracy and Consistency	✓✓	£ Underway	£	£
Level 3: Models Integration								
M07	Extending rail model to a full Public Transport model	Extending the rail model functionality to cover both rail and buses	No, but essential to make the case for intervention in public transport	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts	✓			££
M08	Variable Demand Model	A models' integration component that can be used to model changes in travel behaviour, such as travel mode and destination choices	No, but essential to make the case for intervention aimed at encouraging changes in travel behaviour	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts Objective 5: Ensuring Model Accuracy and Consistency	✓✓		£	££
M09	Travel Demand Forecasting	Travel demand forecasting to reflect TfSE Local Plans growth levels	No, but an identified capability gap from the review of regional modelling capabilities	Objective 1: Optimising Resources for LTA Objective 3: Comprehensive Evaluation of Impacts Objective 5: Ensuring Model Accuracy and Consistency	✓✓		£	££

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
M10	SEELUM Improvements	Step improvements to the land use and transport integration model - SEELUM, to make it robust for supporting SOBC.	Yes, SD3	Objective 1: Optimising Resources for LTA Objective 3: Upgrading Strategic Tools Objective 5: Comprehensive Evaluation of Impacts	✓✓	£ Complete	£	£
M11	SEELUM Wider Economic Benefits Tool	Increase functionality of SEELUM to allow it to forecast DfT compliant wider economic benefits.	Yes, SD1	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts		£ Complete		
M12	SEELUM Carbon Emissions Inventory	This increases the functionality of SEELUM enabling it to dynamically forecast the carbon emissions resulting from the location and density of new development stimulated by transport intervention. This gives a more complete picture of the carbons emissions of transport investment.	Yes, SD4	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts		£ Complete		
M13	Analytical framework application to support SOBC development	Applying the models developed under the analytical framework to support schemes delivery	Yes, SD2	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools Objective 3: Comprehensive Evaluation of Impacts			£	££

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
Level 4: Policy Tests & Appraisal Tools								
T01	Prioritisation Tool	A tool to support decision-making processes in terms of prioritisation of almost 300 interventions within its remit. With this, the framework does not make decisions.	Yes, as part of TfSE technical programme	Objective 3: Comprehensive Evaluation of Impacts		£ Complete		
T02	Mode Propensity Tool	A digital tool enables the assessment of the most appropriate mode or modes of travel in a specific location, based on the travel needs of the population and the ability of modes to support those needs.	Yes, as part of TfSE technical programme	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools		£ Underway		
T03	Mobility Hub Tool	Tool to support progressing mobility hub projects.	Yes, as a part of TfSE technical programme	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools			£	
T04	Decarbonisation Playbook	Development of an embedded carbon tool in Year 1 and development of carbon trade-off tools (e.g. UDM Lite) in Year 2 and Year 3.	Yes, CA1	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools	✓✓	£ Underway	£	£
T05	Electric Vehicle Charging Infrastructure Tool	Tool to forecasting EV charging demand and potential locations for charging points	Yes, as part of TfSE technical programme	Objective 1: Optimising Resources for LTA Objective 2: Upgrading Strategic Tools	✓✓	£ Underway	£	

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
Level 5: Communication Tools								
T06	Data Visualisation & Sharing	A data visualisation & sharing platform	Yes, as part of TfSE technical programme	Objective 1: Optimising Resources for LTA Objective 4: Improving Data Management Objective 5: Ensuring Model Accuracy and Consistency	✓✓	£ Underway	£	£
General								
M01	Maintenance of analytical framework	Contribute to framework management	Yes, SR3			£	£	£
M02	SE Transport Modelling & Appraisal Working Group	Establishing a transport modelling and appraisal forum to offer a platform for TfSE and its partners to discuss analytical issues and opportunities related to modelling and appraisals	No, but an identified capability gap from the review of regional modelling capabilities	Objective 1: Optimising Resources for LTA Objective 5: Ensuring Model Accuracy and Consistency Objective 6: Building Skills and Capabilities			£	£
M03	Licences	High level assumption for costs related to software licences	Yes, SR2			£	£	£
M04	Additional TfSE staff resource	Support for management and delivery of increased workload	Yes, SR1			£	££	££
M05	Resource for feasibility studies / business case developments to SOBC for promotion of non-SRN interventions	Funding provided to Local Highways Authorities to develop non-SRN interventions. Funding assumption is based on progressing highest priority projects from Delivery Action Plan Triage.	Yes, H4	Objective 1: Optimising Resources for LTA		£££ Underway	£££	£££

ID	Projects	Description	If the task is in original plan	Objectives Addressed	Opportunity for cross STB collaboration or pooling of resources	2023/24	2024/25	2025/26
M06	Resource for feasibility studies / business case to SOBC for promotion of Mass Transit Projects	Funding provided to Local Highways Authorities to develop Mass Transit interventions. Funding assumption is based on progressing highest priority projects from Delivery Action Plan Triage.	Yes, MT2	Objective 1: Optimising Resources for LTA		£££ Underway	£££	£££

*✓ = Small opportunity: The concept is applicable, but the tool requires modifications to be utilised in the TfSE region; ✓✓ = Good opportunity: The tool is nearly ready for direct transfer to TfSE.

*£ = less than £50,000; ££ = between £50,000 and £100,000; £££ = more than £100,000