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18th November 2019

Dear Ms Fallon

I refer to your letter dated 22 October last (Ref: PAC32-I-1634) requesting further information following on from the NTA meeting with the Public Accounts Committee on 17 October.

I attach the further information requested and apologise for the delay in forwarding this information.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Anne Graham', is written over a horizontal line.

Anne Graham
Chief Executive

Item 1: A note clarifying what is meant by ‘value for money’ in relation to ongoing or future projects/investment, to include how this is measured, how it is calculated, what the inputs and outputs are, and whether carbon emissions are taken into account when calculating value for money

Response: As a public body NTA is obliged to treat public funds with care, and to ensure that the best possible value-for-money is obtained whenever public money is being spent or invested. In this regard, NTA must comply with the Public Spending Code published by the Department of Public Expenditure and Reform¹. The Public Spending Code is the set of rules and procedures that apply to ensure that these standards are upheld across the Irish public service. The core principles of the Public Spending Code can be simply described as “doing the right thing” and “doing it right”. In essence value for money is achieved when the correct project to address a particular need is implemented in the appropriate manner. For this reason, the value for money framework is concerned with evaluation throughout the lifecycle of a project. *Ex-ante* evaluation or appraisal ensures that the correct project is selected, while *in media res* and *ex-post evaluation* ensure the project is implemented correctly and that in operation the projected benefits are being achieved.

As required by the Public Spending Code, sectoral specific guidance is required and Sanctioning Authorities are required to put in place procedures to ensure compliance with the Public Spending Code. Within the transport sector the Department of transport Tourism and Sport has published the Common Appraisal Framework for Transport Projects and Programmes.² The DTTAS Common Appraisal Framework provides detailed guidance on what steps are required in the evaluation of projects and the core elements that should be considered in the appraisal of transport projects. The evaluation comprises three main elements, namely:

- Economic Analysis (generally using Cost Benefit Analysis)
- Financial Analysis (including Exchequer Cashflow analysis)
- Multi Criteria Analysis – The DTTAS Common Appraisal Framework prescribes 6 criteria for multi-criteria analysis: Economy, Safety, Environment, Accessibility and Social Inclusion, Integration and Physical Activity.

The economic analysis, financial analysis and multi-criteria analysis use both qualitative and quantities methodologies for determine the cost and benefits attributable to a project. In assessing value for money the results of the economic analysis, financial analysis and multi-criteria analysis are brought together to produce a Project Appraisal Balance Sheet. This informs the decision to proceed or otherwise with a project.

For transport projects the economic analysis comprises a number of components. Table 8 of the DTTAS Common Appraisal Framework provide details of the typical costs and benefits that would be considered for transport projects. In general, for transport project the costs are related to tangible items and the benefits are social benefits relating to benefits to users and wider economic benefits. In most common methodology for projecting benefits for transport projects in through the use of transport models. Depending on the scale and complexity of the project the scale and complexity of the transport models adopted will vary. For example a junction improvement scheme may use isolated junction modelling software whereas a large public transport intervention such as MetroLink would

¹ <https://publicspendingcode.per.gov.ie/>

² <https://assets.gov.ie/34326/6bb58b8fe9424bce9595f0a118fc334e.pdf>

use a regional multi-modal variable demand model³. NTA has developed a suite of Regional Models which are described in greater detail in response to Items 4 and 5.

Table 8: Examples of Typical Project Costs and Benefits

Typical costs arising in projects	Typical benefits arising in projects
Labour costs	Travel time savings
Investment costs e.g. construction costs, materials etc.	Reductions in vehicle operating costs
IT costs	Reductions in collisions
Fixed assets	Reduced environmental emissions
Equipment	Health and absenteeism benefits
Overheads	Lower operating and maintenance costs
Operating costs	Job creation
Maintenance costs	Travel time savings
Negative externalities (e.g. noise pollution, congestion, community severance, etc.) ⁵	Other positive externalities (ability to provide emergency services, increases in land use, etc.)

To apply monetary values to benefits such as value of time, vehicle operating costs, collisions and emissions the DTTAS Common Appraisal Framework specifies detailed parameters which must be used for the evaluation of transport projects. This ensures consistency across all projects.

In support of the Public Spending Code and DTTAS Common Appraisal Framework, NTA has published Project Management Guidelines which specify the deliverables necessary to progress a project through from initial inception to implementation and ultimately post project review. Currently the Project Management Guidelines are split to consider projects with a value up to €20m⁴ and projects with a value greater than €20m⁵. In support of the Project management Guidelines, NTA has also published Cost Management Guidelines⁶.

Emissions are taken into account in the evaluation of projects. The valuation of emissions does not just consider carbon but also converts other emissions such as nitrogen oxide into a carbon equivalent value. The Department of Public Expenditure and Reform recently completed an assessment on Valuing Greenhouse Gas Emissions in the Public Spending Code and a new Shadow Price of Carbon is now being applied (DPER Circular 0018/2019)⁷

³ <https://www.nationaltransport.ie/regional-transport-model/>

⁴ https://www.nationaltransport.ie/wp-content/uploads/2019/01/Project_Management_Guidelines_projects_up_to_20_million_in_value.pdf

⁵ https://www.nationaltransport.ie/wp-content/uploads/2019/01/project_management_guidelines1.pdf

⁶ https://www.nationaltransport.ie/wp-content/uploads/2012/03/cost_management_guidelines11.pdf

⁷ <https://assets.gov.ie/20001/35c13bbd055a4a09961a4ec59c93c798.pdf>

Item 2. A note on any possible fines for breaches of carbon targets, to include whether this is a factor in NTA medium to long-term planning;

Response:

At national level, the issues of fines for breaching of carbon targets is a matter for the Department of Climate Change, Communications and Environment. In this regard NTA are not in a position to comment on the possibility of fines relating to the failure to meet 2020 and 2030 emissions targets.

While the fines in relation to breaching carbon targets may not directly be accounted for in long term planning, aiding the transition to a low carbon economy through the provision of a low carbon emissions transport system is at the core of all of NTA medium and long-term planning. This is reflected in the NTA Statement of Strategy 2018-2022⁸ which outlines the mission vision and priorities of NTA as follows:

Vision: To provide high quality, accessible, sustainable transport connecting people across Ireland.

Mission: To deliver our vision we will..... 05Advance Ireland's transition to a low emissions transport system.

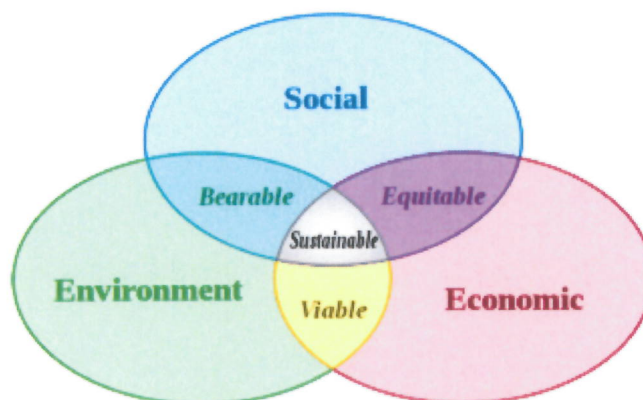
The priorities set out to achieve the mission and advance to a low emissions transport network adopt an Avoid Shift Improve⁹ approach in line with the United Nations Sustainable Development Goals. In this context NTA priorities seek to reduce need for travel through integrated planning of transport and land use (Avoid), promote travel by more sustainable modes (Shift) and finally, provide for low emission vehicles and improve the efficiency of the network to minimise the environmental impact of necessary travel (Improve).

⁸ https://www.nationaltransport.ie/wp-content/uploads/2019/01/NTA_Statement_of_Strategy_2018-2022_ENGLISH.pdf

⁹ <https://sustainabledevelopment.un.org/content/documents/2375Mobilizing%20Sustainable%20Transport.pdf>

Item 3. a note on any information or reports carried out or commissioned by the NTA in relation to an environmental value for money calculation;

Response: NTA has not commissioned any studies on the environmental value for money calculations. As identified in the NTA Statement of Strategy, NTA seeks to “*providesustainable transport connecting people across Ireland*”. In this regard NTA considers the three pillars of sustainability - economic, social and environment.



As outlined in response to Item 1, NTA in complying with the Public Spending Code seeks to ensure that environment considerations are adequately accounted for in the value for money evaluation process. This approach includes monetisation of quantifiable elements and qualitative assessment. In considering the environmental aspects NTA builds on the existing guidance with both the Public Spend Code and DTTAS Common Appraisal Framework using other research such as the NESC Cost Benefit Analysis, Environment and Climate Change (May 2018)¹⁰.

¹⁰ <https://www.nesc.ie/publications/cost-benefit-analysis-environment-and-climate-change/>

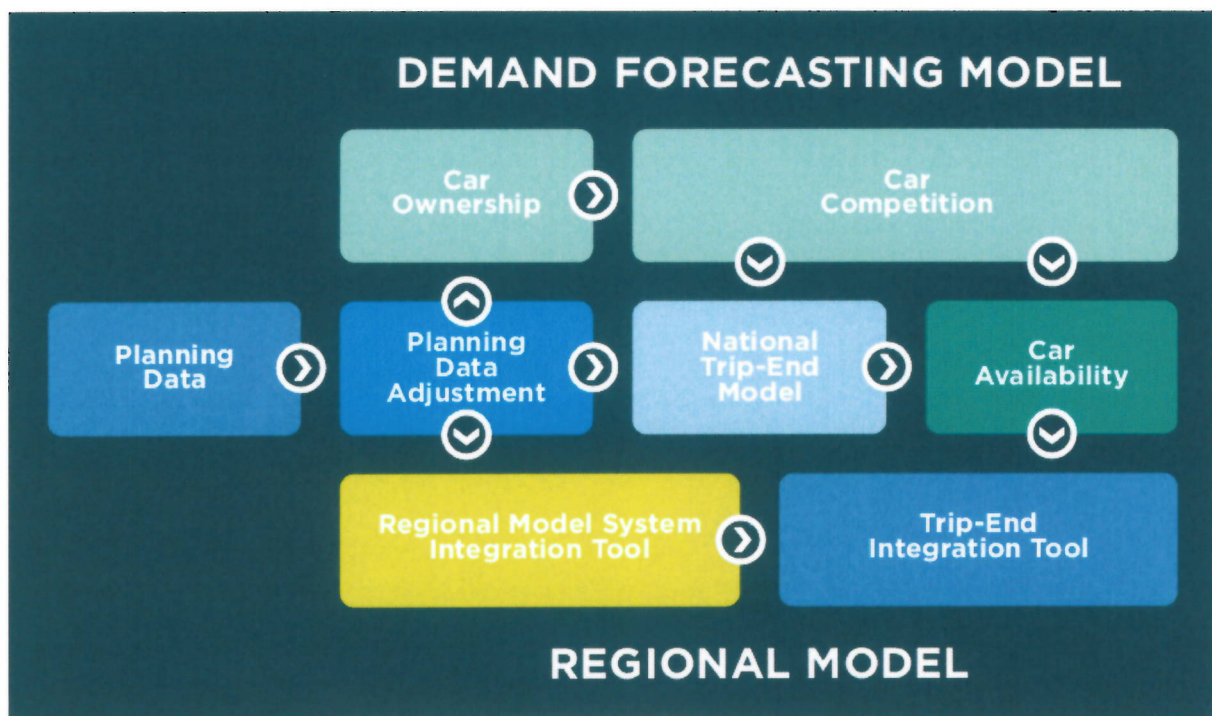
Item 4. An outline of the models used in terms of calculating future demand for transport;

Response:

The Regional Modelling System¹¹ (RMS) is a suite of tools that is used to forecast future transport demand. The RMS is made up of 3 main components: National Demand Forecasting Model¹² (NDFM), 5 Regional Multi-Modal Models¹³ (RMMS) (focused on Dublin¹⁴, Cork¹⁵, Limerick¹⁶, Galway¹⁷, and Waterford¹⁸) and a suite of Appraisal Tools¹⁹.

The RMS is built using an extensive range of data including the CSO Census, the NTA National Household Travel Survey and traffic surveys covering all modes. This data is used as to estimate the travel choices that the population makes each day.

The NDFM estimates of the total quantity of daily travel demand produced by, and attracted to, each of the 18,488 Census Small Areas in Ireland. The NTA National Household Travel Survey is the primary data source for the NDFM. The main components of the model are outlined in the diagram below:



¹¹ <https://www.nationaltransport.ie/regional-transport-model/>

¹² <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/ndfm/>

¹³ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/rmms/>

¹⁴ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/regional-model-structure/erm/>

¹⁵ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/regional-model-structure/swrm/>

¹⁶ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/regional-model-structure/mwr/>

¹⁷ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/regional-model-structure/wrm/>

¹⁸ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/regional-model-structure/serm/>

¹⁹ <https://www.nationaltransport.ie/regional-transport-model/regional-model-overview/appraisal-tools/>

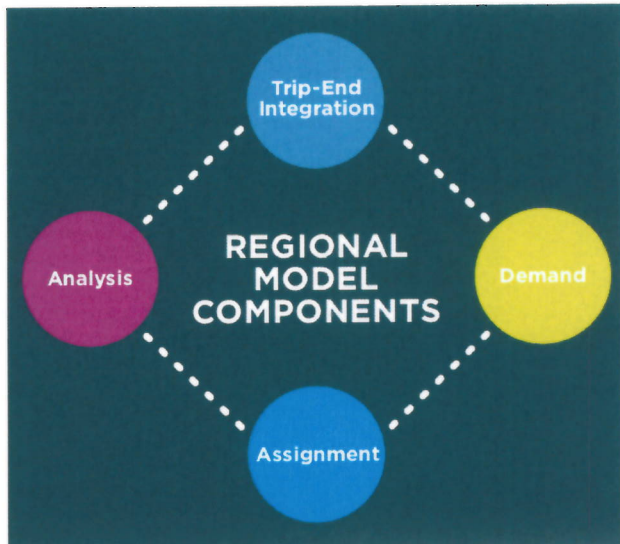


Figure 1: RMMS Processes

Each of the 5 Regional Multi-Modal Models (RMMS) have the same structure. There are four main processes in the RMMS Figure 1. These are the Trip-end Integration Tool, the Demand module, the Assignment module and the Analysis module.

The Trip-end Integration Tool converts 24hr travel demand output from the NDFM into the correct form for each region. The Analysis module produces a range of standard outputs for the assessment of schemes, e.g. mode shares, journey times, traffic and passenger flows on road and public transport.

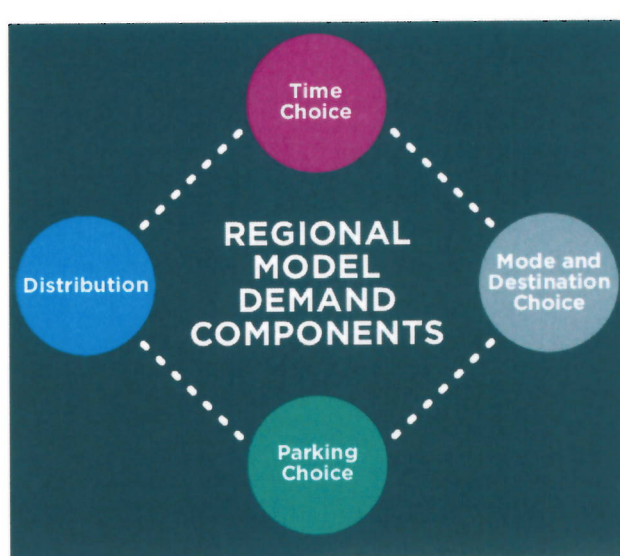


Figure 2: Demand Module

The Demand module (Figure 2) works in tandem with the Assignment module (Figure 3). The Demand module determines when, where and by which mode a person travels. The travel demand is split into five time periods (AM (07-10), LT (10-13), SR (13-16), PM (16-19) and OP (19-07)), allocated a destination and then assigned to a mode of transport. These choices are primarily based on the cost of travel. However, in areas where parking is limited an additional restriction is introduced via the Parking Choice Module.

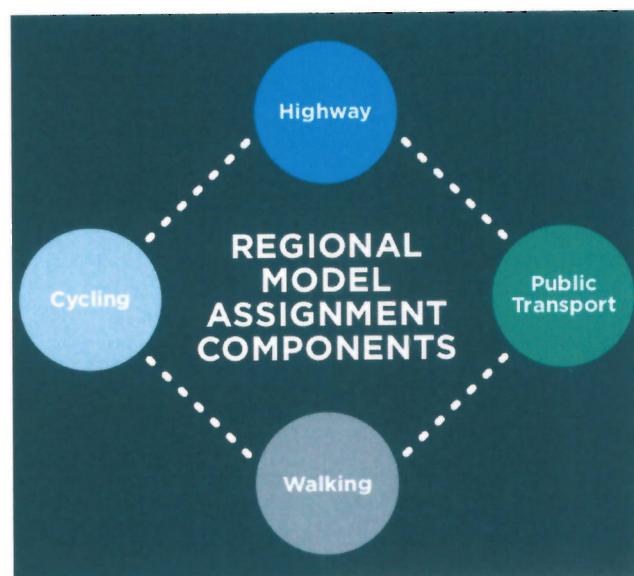


Figure 3: Assignment Module

As discussed above the cost of travel is the key determinate of the choices that travels make. The Assignment Module is takes the demand for each mode and time period from the Demand module and routes it through the appropriate transport network. There are four networks one for each of the main modes of travel. These are Highway, Public Transport, Walking and Cycling.

Item 5. A note on the assumptions of behaviour used when modelling projected demand, with particular reference to the regional cities of Cork, Limerick, Galway, and Waterford;

Response:

The National Demand Forecasting Model estimates the 24hr weekday passenger travel demand for the whole country. The basis for the model is the NTA National Household Travel Survey²⁰. This is a diary survey in which respondents record their daily trip, personal details and their household characteristics. Using appropriate statistical methods, the rate of trip making is estimated for a range of journey purposes and person types, e.g. Home to work trip for part time females. The regional variation in travel demand is captured in the socioeconomic characteristics of the area. This information comes from the CSO Census. In addition, the mode and destination choice for each region is driven by the characteristics of the transport networks in that region as well as the geographical spread of jobs, education places etc.

²⁰ https://www.nationaltransport.ie/wp-content/uploads/2019/01/National_Household_Travel_Survey_2017_Report_-_December_2018.pdf

Item 6. a note clarifying whether the NTA employs an environmental economist.

Response: NTA does not directly employ an environmental economist. However, through the consultancy framework agreements that NTA has procured, access to economist specialising in assessment of environmental issues is available.