

Valuing the Benefits of Highways Maintenance

Summary

The Department is pleased to announce the launch of the Highways Maintenance Appraisal Tool (HMAT).

This model provides a potentially significant step towards better understanding the full benefits of highways maintenance.

The Department would like to encourage local highways authorities to start using HMAT and would welcome feedback on its use.

Background

The 2012 Highways Maintenance Efficiency Programme (HMEP) Potholes Review included a recommendation that stated “[T]he Department for Transport should work in conjunction with local highway authorities to develop advice on determining economic costs and benefits.”¹

To fulfil this recommendation the Department for Transport (DfT) commissioned the Transport Research Laboratory (TRL) to develop a methodology and associated model that can value the benefits to wider society of highways maintenance spending on local roads. One of the project’s primary objectives has been to produce a model that can be used by local highway authorities making decisions on maintenance funding. This model has now been delivered: the Highways Maintenance Appraisal Toolkit (HMAT). This spreadsheet based model allows local highway authorities to assess the economic cost and benefits of their proposed asset management strategies and compare between different options.

The model has been designed in accordance with the latest DfT Transport Appraisal guidance (WebTAG), DfT 2014) and built around the HMEP (2012) lifecycle planning toolkit². It can be downloaded from the Department for Transport website. Accompanying the model is a user guide.

National-level application of HMAT

In addition to delivering the model, this research project also included testing and applying the tool for the national network of local highways. For this analysis readily available data was used to consider the value for money of different spending trajectories at a national level, combining the impacts on both direct maintenance costs and wider costs to road users and society.

¹ See Recommendation Four of HMEP (2012), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3995/pothole-review.pdf

² Highways Maintenance Efficiency Programme (HMEP), 2012. *Lifecycle planning toolkit incorporating default carriageway condition models: User guidance*. Sourced from <http://www.highwaysefficiency.org.uk/>.

The variance in, for example, local network types, local priorities and local asset management strategies means that this national level analysis can only be considered indicative. The project report published today describes derivation of HMAT and the national level analysis that has been carried out. The report describes the different approaches adopted and identifies potential improvements that could further reduce the uncertainty in the national level results.

Analyses at the national level showed that HMAT can estimate the direct and indirect costs associated with road maintenance. The behaviour of the model is consistent with expectations. While some effort was required to set up the model for the national network, this should be considerably easier for local highways authorities already familiar with use of the HMEP tool (or similar). The results of the analyses show potential benefits from reduced user costs by increasing the direct maintenance spend above the current budget limits.

National-level results

Compared with continued use of the current budget, a scenario of a temporarily increased budget provides a **benefit** in terms of reduced user costs of £2.70 (discounted) for each extra £1 spent on direct works costs. Reducing the budget for 5 years, resulted in a **reduction in benefits** of £2.90 for every £1 saved in direct costs.

These benefit cost ratios represent the value for changing funding levels at the margin (around current spending) rather than the value of the total spending as no such analysis was undertaken. The results also confirm that the marginal benefit of additional spending is lower at higher levels of spending. This was expected as usually the most pressing problems get addressed first and each additional project provides lower further benefits.

This finding reinforces and indeed strengthens the conclusions from earlier studies³ that investing in local highways maintenance can present high to very high value for money.

A further scenario demonstrates the use of targets in the model. This scenario includes an ambitious quality target for the network which required significant additional investment over ten year period. The network was then maintained at that target level over the remainder of the analysis period. The required funding exceeds current budgets by around two thirds in the initial period and by one third thereafter. Despite this significant additional funding required in that scenario, the extra benefits are 4.3 times greater than the increase in costs (discounted).

³ See for example the study on road maintenance for Scotland which concluded that “for every £1 reduction in road maintenance, there is a cost of £1.50 to the wider economy”, based on the ratio of reduced benefits to reduced expenditure from the analyses used.