PROJECT PROFILE

Title	**Developing a pavement cost model for the Irish National Road Network**
Contractor	TRL Limited/Open University
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Start date	Dec-08
End date	Nov-11
Status	On-going
Type of project	Research Fellowship: PhD (Thomas Buckland)
Cost	€137.0k
Project reference	NR/250/04 PO 6914

Description	The NRA is tasked under the Roads Act (1993) with securing 'the provision of a safe and efficient network of national roads'. As part of this process a pavement management system is being developed. This project aims to develop a bespoke pavement network level whole life value model for the development of value for money strategies for the Irish National Road network. The first phase of the project will produce a pavement cost model that will allow the NRA to obtain detailed estimates of the budgets that will be required to manage the network. The model will address the consequences of different budgets, objectives and the effect of any restrictions that they might have upon the network and will be consistent with accepted international practice. Initial development in phase one will include key requirements to enable 'quantifiable' items to be addressed by the cost model and will include, for example, developing condition deterioration rules, validating maintenance thresholds, treatment costs and durations.  **Deteriorated road pavement** This phase of the model development will link to the PMS being developed by the NRA. Following from phase one of the model development, the emphasis will then switch to researching further aspects that may not be easily quantifiable. New methodologies will be developed to enable these additional aspects to be considered within a model. Research within this second phase of development will include looking at the effects of climate change for example. Developments from phase two will be designed in the same modular format so that they can be added to the model output from phase one.
Objectives	The key objective is the development of agency cost and user cost models calibrated to reflect Irish conditions. Agency cost models will indicate the relationship between various maintenance and rehabilitation activity costs and selected pavement condition parameters. User cost models will include the estimation of the economic effects of traffic speed, road work delays and vehicle operating costs as a function of pavement condition and traffic volume.
Benefits	The research will enable the NRA to move from a "worst-first" approach based on the existing condition data only to a system that accounts for whole of life costing over the lifetime of the pavement network thus ensuring best value in terms of maintenance expenditure. This is in-line with the NRA's strategic objective of enabling procedures to be developed for the efficient and cost effective management of the national assets. The project will also yield Irish specific values for user costs, such as vehicle operating costs which can be used to update current values which are based on UK values.
Outputs	The project will provide cost models for the pavement management system currently being developed by the NRA. These models will allow the NRA to optimise the allocation of resources and present a financial argument to the department of transport and finance regarding the asset value of the network and the subsequent consumption of that asset depending on the available funding.