Creating the future of transport

Developing a pavement value model for the Irish National network

Objectives

- To develop a pavement network level whole life cost model that will allow the National Roads Authority (NRA), Ireland to estimate the budgets required to manage their network.
- Identify 'value' elements and develop methodologies to include them into a whole life cost model, resulting in a pavement network level whole life value model.

NRA Network

- Primary Network: 2,500km
- Secondary Network: 2,500km
- Significant proportion of asset is single-carriageway legacy network

Whole life costing

Whole life costing aims to consider every cost in the assessment of investment options for an asset, product or service starting at inception through to disposal at the end of life.

For road pavements this commonly consists of:

- Construction costs – initial construction costs, including design and consequential costs
- Maintenance costs – future costs of maintenance based on the initial choice
- User costs –a combination of delays, vehicle operating costs and accident costs

Whole life value

Whole life value is defined as the optimum combination of whole life cost and quality; it aims to balance the needs and requirements of stakeholders and whole life costs.
In addition to the economic aspects, it aims to consider value parameters related to environmental and social impacts.

Value parameters

Value parameters chosen for inclusion are:

- Noise
- Carbon footprint

Consideration was also given to:

- Cultural heritage
- Water quality
- Biodiversity

Future challenges

In developing methodologies for a whole life value modeling framework, future research aspects will include:

- How can discounting be applied to carbon?
- Carbon has a value but how can that be included in a comparison with other monetary costs?
- Noise has documented costs associated with it. However, how does willingness-to-pay represent the needs of a road authority or road users?

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