

PROJECT

Development of a bridge network life-cycle cost model

Funding: National (Ireland)

Duration: Oct 2009 - Sep 2012

Status: Complete with results



Background & policy context:

As bridges progress through their initial design lives and as volumes of traffic continue to increase, bridge maintenance and management have become of increasing concern to governments/state agencies worldwide who are responsible for the upkeep of this aging resource. In 2001, the EIRSPAN Bridge Management System was introduced in Ireland to help the National Roads Authority (NRA) coordinate and integrate activities such as bridge inspection, repairs, and rehabilitation work in order to ensure optimal management of the nations road structure stock. As yet, however, whole-life costing is only available on a bridge by bridge basis and not on a network level. Therefore in 2009, the NRA launched a research initiative with the intention of developing a Bridge Network Life-Cycle Cost Model which would tie in with EIRSPAN and help the NRA better manage their maintenance strategies.

Objectives:

The objective of the research is to develop an optimisation model for the whole-life management of bridges, taking consideration of needs such as maintenance, repair, and strengthening as well as the rate of deterioration. The model will be developed in conjunction with the NRA's EIRSPAN bridge management system, taking account of developments in this field elsewhere, but will be specific to the EIRSPAN database in terms of bridge population (age, type, condition, etc).

Other funding sources: National Roads Authority

Organisation: Trinity College Dublin

Key Results:

The project developed an optimisation model, enabling bridge-specific structural interventions to be undertaken at a time that will offer optimal value against expenditure on a network level. This will ensure that bridge maintenance is more cost-effective and therefore the service life of these infrastructure assets can be extended.

STRIA Roadmaps: Network and traffic management systems, Infrastructure

Transport mode: Multimodal transport

Transport policies: Societal/Economic issues