

Performance Indicators for assessing RAMS SHEEP performance

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Abstract

Bridge management strategies need to specify maintenance actions, which are required in order to keep a desired performance level. This paper presents the structure and basic ideas for the development of a guideline incorporating different aspects of bridge performance goals, which may vary according to technical, environmental, economic and social factors. Furthermore it discusses the need for agencies to measure bridge performance against objectives on structure and network level. The paper is based on activities in the COST Action TU 1406, which aims to bring together both research and practicing community in order to accelerate the establishment of a European guideline for bridge management.

Keywords: Bridge management strategies, performance level, -indicators, -goals, COST TU1406.

1 Introduction

Decisions and strategies for bridge management involve consideration of a number of technical aspects related to material and structural behaviour. In addition various aspects of the use and functionality of the structure will have to be taken into account. The management of transport infrastructures also has to keep up with societal and economic developments.

These various aspects may be formulated as performance indicators (PI). A large number of PI has been identified in a European screening. For some PIs, requirements or thresholds may exist for other PIs it is desired to minimise or maximise the effect.

Therefore bridge performance goals should be set as a multi-objective system, taking into account different aspects of bridge and network performance. Some of the performance indicators are related to components other are related to bridge structures or networks, for this reason the interaction between performance on these three levels has to be established. This includes also the robustness of the system/network to accommodate failure on the subordinate level.

The paper will describe a methodology which is developed as part of the COST Action TU 1406. The methodology include among other things Life Cycle Cost-consideration, Reliability, Availability, Maintainability and Safety (RAMS) concepts and the so-called SHEEP concept, which additionally to