

Integrated Monitoring System for Durability Assessment of Concrete Bridges

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Abstract text:

An ageing and deteriorating bridge stock presents the bridge owners with the growing challenge of maintaining the structures at a satisfactory level of safety, performance and aesthetic appearance within the allocated budgets. This task calls for optimized bridge management based on efficient methods of selecting technical and economical optimal maintenance and rehabilitation strategies. One of the crucial points in the assessment of the current condition and future development and performance. Selecting the optimal maintenance and rehabilitation strategy within the actual budget is a key point in bridge management for which an accurate assessment of performance and deterioration rate is necessary. For this assessment, the use of integrated monitoring system has several advantages compared to the traditional approach of scattered visual inspections combined with occasional on site testing with portable equipment and laboratory testing of collected samples. For this reason, attention is more focusing on the development of permanent integrated monitoring system for durability assessment of concrete bridges. It is estimated that with the implementation of such integrated monitoring systems, it should be possible to reduce the operating costs of inspections and maintenance by 25% and the operator of the structures will be able to take protective actions before damaging processes start. This paper indentifies the main bridge owner requirements to integrated monitoring systems and outlines how monitoring systems may be used for performance and deterioration rate assessment to establish a better basis for selecting the optimal maintenance and rehabilitation strategy.

Key Words:

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