

West Gate Bridge Strengthening Project - Ongoing Operation and Maintenance Strategies

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Summary

The West Gate Bridge lies at the heart of Melbourne's and Victoria's transportation network, providing the only major East-West crossing of the Yarra River estuary, and connecting the surrounding urban and state freeways. As a result, it sees in excess of 170,000 vehicles per day, and its continued operation and uninterrupted availability is vital to both the local and wider economy.

The recently completed strengthening and refurbishment project included both a review of the approach to operation and maintenance, and provision for the crossing's future care in a way that accommodates the age and current condition of the bridge. This review gave rise to a combination of new works to facilitate ongoing operation and maintenance, the implementation of maintenance reducing strengthening schemes, and an updating of inspection and maintenance procedures. Major works undertaken along with the strengthening project included an upgrade of the electrical system, installation of a Freeway Management System and replacement of street lighting. A host of other issues were addressed including remediation of the Demag expansion joints and the roller bearings, settlement of the approach embankments, maintenance of the pavement on the steel deck, fire-fighting systems, internal and external steel protective treatment, the approach to routine maintenance and inspection intervals and implementation of state-of-the-art bridge management and monitoring systems. In keeping with all major steel bridges of this type and age, the management of weld defects, corrosion and other issues presents a significant task. Of particular interest is the strategy for inspection and maintenance of external portions of the steel bridge over the river which cannot be accessed from below.

All of these issues will be addressed in this paper which presents the strategies for economic and efficient ongoing operation and maintenance of this vital transport asset. The benefits are manifold to both those who depend upon the bridge for their transport needs and for those who are charged with its care. The result is not only a technocratic response to urban congestion but a human one.

Keywords: West Gate Bridge, Maintenance, Operations, Inspection Procedures.

1. Introduction

The West Gate Bridge (WGB) is an important link in Victoria's road network and ongoing maintenance of the structure is critical to ensure it will continue to operate without interruption from lengthy closures. The recent strengthening project was an opportunity for the operations and maintenance strategies to be reviewed and updated, due to the wealth of knowledge and experience of Engineers involved on the project.

The following paper presents how operations and maintenance activities were dealt with before and during the strengthening works, as well as actions taken to improve the future maintenance activities and inspections on the bridge, and design solutions adopted to minimize the need for future maintenance. The final suite of documents, systems and strategies that have been left with VicRoads at the conclusion of the strengthening project will enable operations and maintenance activities to be conducted efficiently and economically, and provide a guide for management of other structures within the VicRoads bridge stock. Information about the project is given by