

Monitoring of the Vienna Erdberger Bridge

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Summary

The guarantee of reliability and road safety of civil engineering structures is an important task within the building industry so that bearing structures can be safely used as long as possible even on condition of increasing traffic loads. There are specific standards and codes for the monitoring and control of civil engineering structures, in particular for bridges. Certain monitoring technologies based on the most different models have been elaborated in the past. In the last couple of years however they have developed especially procedures centered on the recording of vibration response, still the acceptance from part of the practitioners was but limited. Experience has proven that these procedures needed a major change in order for the technologies to be applied more often. The present report presents details on the benefit of monitoring for bridge maintenance based on the example of the Vienna Erdberger Bridge.

Keywords: Monitoring, Measurements, Structural Condition, Bridge Assessment

1. Introduction

The Austrian Guide and Regulation for the road traffic RVS 13.03.11 (monitoring, control and inspection of structures) [1] is dedicated to the technical constructive monitoring of road bridges and similar structures in terms of their reliability (structural safety, serviceability, durability) and road traffic safety.

Apart from conventional bridge control, more and more measurements and monitoring concepts for structures have been carried out in the last years meant at giving information on the way the condition of bearing structures changes with the passing of time and at supporting bridge investigation by means of recording objective data. Still, these technologies did not reach in Austria in the past the desired degree of application as they tried to position them primarily on the basis of vibration measurements with only few sensors. This approach however could not find any acceptance with bridge owners as influences, like temperature, on the resonance frequency are far greater than the influences of damage.

Recent experience has shown that monitoring concepts need specific change if they are to be used more often. In this context three assumptions have been elaborated which are specifically followed with monitoring projects and are shown in chapter 2.