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STUDY OF THE VOLODARSKY DRAWBRIDGE ISSUES

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SUMMARY

The study addresses the issues and shortcomings of the Volodarsky drawbridge in Saint-Petersburg, Russia. During the inspection of the bridge structures, several major problems were identified. The main problem is the horizontal displacement of the end of the leaf during closing, as well as progressive cracks in the region of the rotation axis. In addition, the problem of excessive counterweight vibrations was discovered.

The purpose of the study is determination of causes of these issues, carrying out their analysis justification and developing of the recommendations for solving or preventing these problems in similar structures. The main research methods are on-site inspection and testing of bridge structures, mathematical modelling (of the whole span and individual components), modal analysis and direct dynamic analysis.

Keywords: *Bridge Engineering, Bridge Inspection, Drawbridges, Cracks, Dynamics, Dampers.*

1. INTRODUCTION

During the inspection of the Volodarsky drawing bridge across the Neva river in Saint-Petersburg, Russia (December, 2018) several significant problems requiring their research were revealed. This paper focuses on the study of these issues.

Volodarsky bridge is located in one of the busiest highways of the city. The modern structure, built in 1993, is a five-span bridge with longitudional scheme of 50.2 + 100.5 + 42.5 + 100.5 + 50.2 m. A movable span is located in the middle of the bridge (Fig. 1) [1].

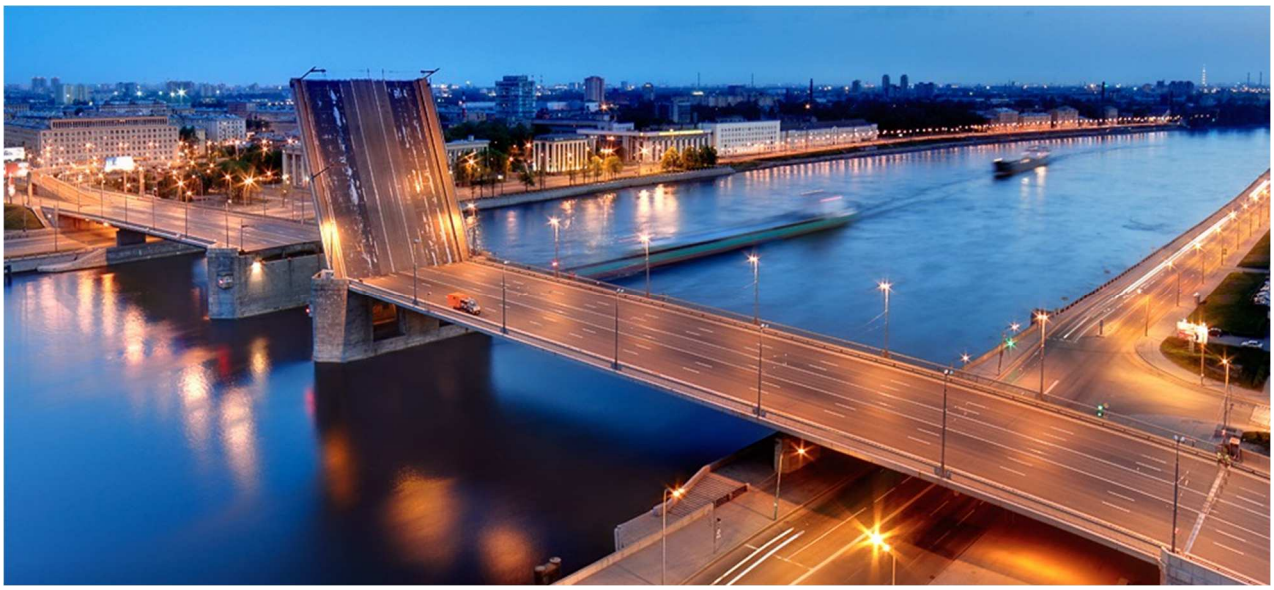

Fig. 1. *Volodarsky bridge. Overall view.*

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