Regional Bridge Data Extraction and Integration Based on Historical Detection Reports

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Abstract

This study firstly analyses the information source of individual bridge condition evaluation, then expand the analysis from individual bridge to regional bridge-group evaluation, and formulate integration rules for regional inspection, monitoring, traffic volume, and drawings. The integrated data from multi-source information are stored and expressed in the logical form of "route-bridge-component". After data cleaning, a road network database is established, the integrated data is mined for features, and then a comprehensive network level evaluation of regional bridge groups is carried out. The proposed information integration and data mining method and application model can effectively reveal the common characteristics and degradation laws of bridge groups in the road network and can be used for regional bridge network-level assessment.

Keywords: regional bridges; network-level evaluation; information integration; short and medium span bridges.

1 Introduction

Regular inspection of bridges is a sufficient basis for bridge technical evaluation, and it is also a relatively direct and complete record of bridge status. The monitoring of critical bridges supplements regional bridge status information. The existing bridge evaluation system is essentially a "one bridge, one file" single evaluation method, and the data obtained from a single bridge can only be used to evaluate and improve the bridge. On the one hand, the potential laws and value of the data are greatly wasted; on the other hand, the