

عنوان مقاله:

Rehabilitation and Retrofication of Iranian Bridges; Lessons Learned from the I-35W (Minneapolis) Bridge Collapse

محل انتشار:

سومین کنفرانس بین المللی مدیریت جامع بحران در حوادث غیرمترقبه طبیعی (سال: 1386)

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خلاصه مقاله:

Regular inspection of bridges to safeguard their secure structural performance is an issue of paramount importance in the area of integrated bridge management. Structural failure of bridges can bring about enormous amount of fatal casualties and economic loss due to the unique function of bridges in passing the traffic over rivers, flood ways, and reducing of traffic jam in congested urban and rural crossings. Additionally, maintaining the functionality of bridges becomes extremely crucial both in the course and aftermath of natural disasters when rescue and relief operations need to take place at the highest speed possible. As addressed in this paper, the catastrophic collapse of I-35W Bridge in Minnesota, the U.S.A, was an artifact of neglecting the results of inspections and technical reports on the bridge's structural vulnerability. Recent studies on possible structural deficiency due to fatigue cracking failed to initiate rehabilitation and/or retrofication of the bridge. The paper outlines how this technological disaster expedited the process of inspection, rehabilitation, and retrofication of American bridges and triggered conducting of more accurate cost estimation as well as cost/benefit analysis of such projects. More interestingly, an overall evaluation of various types of urban and rural bridges of Iran is performed based on the experience and information gained from the I-35W Bridge collapse, analysis of the recent statistics on the Iranian bridges, and average cost of rehabilitation and reconstruction of bridges. As a final point, an estimation of total potential budget needed for retrofication of Iranian bridges is given utilizing information from a number of undergoing bridge retrofication projects

کلمات کلیدی:

Bridge inspection; Fatigue; I-35W Bridge; Rehabilitation; Retrofication; Structural deficiency; Urban/Rural bridges; Vulnerability

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