Research Project

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Capsule

Technology Transfer Program

LTRC

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Proof Loading Closed Timber Bridges

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LTRC

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Problem

Approximately 150 off-system (local government owned) bridges in Louisiana are currently closed. The load-carrying capacity of bridges is conservatively based on an inspector's qualitative rating and quantitative results from a computer analysis of the structure. When a bridge is judged unable to safely carry three-ton truck loads, it must be closed. Closed off-system bridges may pose problems to local travelers since local governments often lack the money needed to repair or replace their structures.

Objectives

The primary objective of this research is to develop a strategy for proof loading closed off-system timber bridges in Louisiana. Using proof loads and safety factors developed according to recently accepted AASHTO procedures, it may be possible to demonstrate that a closed timber structure can safely carry three tons (a heavily loaded pickup truck), in which case it could be reopened.

Description

Reviews of pertinent literature related to problems of inspecting, rating, and proof loading timber bridges will be conducted. Acceptable load levels and the process of load application in addition to appropriate deflection measurements used to predict a safe three-ton load capacity of a timber bridge will be determined.

Researchers will validate the proof loading methodology by field implementation at several closed timber bridge sites, document the research effort, and make recommendations in a final report.

Implementation Potential

If field implementation indicates that proof loading holds promise for safe reopening of closed timber bridges, DOTD could develop a proof loading program to enable local bridge owners to temporarily reopen these bridges until funding is available to permanently repair or replace the structures.

Proof loading may provide an added benefit to DOTD; it may be used to justify raising the load posting level on some bridges.

While not intended as a solution to the problems posed by lack of bridge repair/replacement funding, proof loading closed bridges offers the potential for local residents to continue to use a bridge while working toward a permanent repair/replacement solution.