



RESEARCH PROJECT CAPSULE [18-4GT]

May 2018

TECHNOLOGY TRANSFER PROGRAM

Geotechnical Asset Management for Louisiana

JUST THE FACTS:

Start Date:
May 1, 2018

Duration:
18 months

End Date:
October 31, 2019

Funding:
TT-Fed/TT-Reg

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Sponsored jointly by the Louisiana
Department of Transportation and
Development and Louisiana State
University

POINTS OF INTEREST:

*Problem Addressed / Objective of
Research / Methodology Used
Implementation Potential*

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PROBLEM

An overall goal of transportation asset management (TAM) is to keep transportation corridors open to allow the flow of commerce. The main purpose of geotechnical asset management (GAM) is to reinforce that goal. If a geotechnical asset affects traffic in a negative way (e.g., a slope failure causing road blockage), the corridor is affected.

In general, geotechnical assets include bridge approach embankments, slopes, retaining walls, and other elements. Knowledge of an asset's component materials and their design life will lead to the asset's overall effectiveness. Documentation of this knowledge will aid in proactive planning and decision-making for maintaining, repairing, or replacing these structures as they each reach their design life.

OBJECTIVE

The objectives of this research are to: review state and federal efforts regarding geotechnical asset management; determine local compatibility issues and existing Louisiana systems; develop database parameters for storing geotechnical asset information; identify logical steps toward full implementation; recommend strategies for implementation; and document the research effort.

METHODOLOGY

After reviewing existing state and federal efforts regarding geotechnical asset management, DOTD policies and other asset management programs/computer systems will be assessed to determine applicability for implementing Louisiana's geotechnical asset database. Consideration of DOTD staff experience with road and bridge asset management programs will be an important part of this task. The researchers will work closely with DOTD Section 42, Maintenance Systems Management to coordinate any district efforts.

Best practices will indicate which parameters should be included in Louisiana's geotechnical asset management system. The database will contain many fields including location and dimensional elements (height width, GPS location, etc.), and component descriptions (wall type, age, anchor



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type for corrosion rates, etc.). After the database structure is created, low-hanging fruit will be compiled first, focusing on interstate and high ADT projects. Location information will be utilized to connect to a GIS interface. Collected fields (as available) will allow for functional rating, analysis, and determination of risk level and repair priority. The research will identify and recommend evaluation methods for the department.

The development and implementation of a geotechnical asset management system will result in a method to manage problematic locations and implement repair in a timely manner. The system will also help preserve the past, so designers can plan for the future.

IMPLEMENTATION POTENTIAL

Findings from this project will result in tools that can be used to inventory Louisiana's geotechnical assets and information regarding their age, location, composition, and condition. This data can be used for decisions regarding where and how to allocate limited financial resources.



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