Transportation Consortium of South Central States

Promoting Economic Development in the Baton Rouge Area, LA: Improving the Performance of the Transportation System through Supply-Oriented, Demand-Oriented and Economic Measures for Mitigating Traffic Congestion

Key Points

Project Number:
17ITSLSU09

Start Date:
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End Date:
11/08/2018

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Oklahoma State University

Funds Requested to UTC:
$104,996

Funding Source(s):
Tran-SET
Oklahoma State University
Louisiana State University
Louisiana Transportation Research Center (LTRC)

Total Project Cost:
$211,096

Brief Project Description

This project aims to perform network analysis to identify the extent of and identify solutions to the congestion problem in the Baton Rouge area with the focus on the I-10 Mississippi Bridge.

Problem Statement

According to the Texas A&M Transportation Institute's (TTI) "2015 Annual Mobility Scoreboard" and the Baton Rouge Area Capital Region Industry for Sustainable Infrastructure Solutions (CRISIS), the Baton Rouge area has been suffering from severe traffic congestion that threatens the economic development in the area. Baton Rouge is listed as the third worst for moderate- average-sized urban areas in the category of average commuter annual traffic delay. The I-10 Mississippi River Bridge, Highway 70, Highway 22, and Highway 30 are example facilities/locations suffering from severe breakdowns that expand to the surrounding streets and intersections and extend over prolonged periods. Solving such an acute congestion problem is challenging especially that capacity expansion is an expensive solution. For instance, a recent study showed that a new Mississippi bridge could significantly solve the current bridge's congestion problem; however, such bridge will cost around $1 billion. Thus, other solutions related to Active Traffic Management (ATM) and the application of Intelligent Transportation Systems (ITS) are of a dire need to be investigated. As such, this study aims to perform network analysis to identify the extent of and identify solutions to the congestion problem at the I-10 Mississippi River Bridge. Based on that, the research team will (a) identify potential supply oriented and demand-oriented solutions in each problematic location, and (b) investigate the anticipated benefits from each solution.

Objective

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This project aims to perform network analysis to identify the extent of the congestion problem in the Baton Rouge area with the focus on the I-10 Mississippi Bridge. The proposed project is an applied research aiming to deploy the state-of-the-art counter measures to solve the existing yet not-well-defined congestion problem at the bridge; therefore, the specific research objectives are to:

- Identify the major data sources in the study area
- Compile existing data from critically congested locations at the I-10 Mississippi Bridge;
- Quantify the magnitude and extent of the congestion problem at the bridge;
- Develop a simulation model for the bridge and the surrounding roadway network;
- Identify potential solutions to address the congestion problem at the bridge; and
- Investigate the effectiveness of each solution using the simulation model.

Intended Implementation of Research

The proposed project is expected to produce implementable solutions, procedures and recommendations for mitigating congestion and improving transportation system performance in the Baton Rouge area.

Anticipated Impacts/Benefits of Implementation

The proposed research will help advance our understanding of the scope, causes and implications of the congestion problem in the Baton Rouge area, as well as the supply-oriented and demand-oriented counter measures to mitigate congestion and improve transportation system performance. The research will contribute to achieving the U.S. DOT goals and broader impacts of improving mobility reducing congestion, promoting safety, preserving the environment and preserving the existing transportation system set forth in the DOT's draft report "Beyond Traffic 20145: Trends and Choices."

Weblinks:

- Tran-SET's website(http://transet.lsu.edu/completed-research/)
- TRB's Research in Progress (RIP) database (https://rip.trb.org/View/1466906)