



Project Number

BDV29-977-14

Project Manager

Rax Jung
Florida's Turnpike Enterprise

Principal Investigator

Albert Gan
Florida International University

Florida Department of Transportation Research

Updating and Improving Methodology for Prioritizing Highway Project Locations on the Strategic Intermodal System

May 2016

Current Situation

The Florida Department of Transportation (FDOT) District One developed the Congestion Management Process (CMP) in 2009 to prioritize low-cost, near-term highway improvements on the Strategic Intermodal System (SIS). The 2060 Florida Transportation Plan (FTP), the 2010 Highway Safety Manual (HSM), and a new emphasis on freight transportation for economic development provide an opportunity to improve the CMP. Advanced methods for identifying improvement locations and ranking projects have also become available.

Research Objectives

Florida International University researchers examined the existing performance measures and the project prioritization method in the CMP and updated them to better reflect the current conditions and strategic goals of FDOT. They also developed visual mapping tools for the CMP.

Project Activities

The researchers examined current practices in transportation project screening and decision making. They reviewed FDOT policy goals and objectives, particularly the Florida SIS Strategic Plan, the 2060 Florida Transportation Plan, the Florida Freight Mobility and Trade Plan, and FDOT's plan for implementation of advanced safety applications, including the HSM and SafetyAnalyst. Project prioritization practices at the state and local agencies across the country were surveyed.

At the core of the CMP's system for ranking projects is a scoring system based on selected performance measures. The researchers examined the current set of seven performance measures used in the CMP and selected two safety-related measures for replacement with more precise measures. They also updated the CMP to include automatic calculation of these new measures.

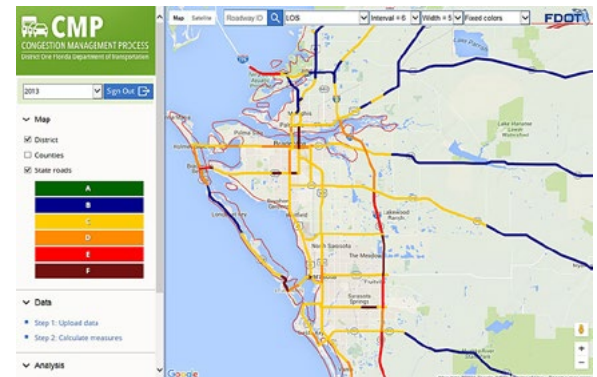
The researchers examined the prioritization method itself, i.e., how rankings are calculated from performance measures. In their survey of transportation departments across the country, they had found that most departments, including FDOT, use a simple weighted scoring method. Because the performance measures are not mathematically independent, assigning weights can be difficult. The researchers updated this process by adapting the Analytic Network Process (ANP), an advanced multi-criteria decision making technique that takes into account the interdependency of performance measures and weights them more justly.

The researchers incorporated the proposed changes into the CMP, added a visual interface, and prepared a user's manual, which is included in the final report.

Project Benefits

Better prioritization of highway projects is an important part of the continuing effort to make Florida's highways safer and more efficient.

For more information, please see dot.state.fl.us/research-center



The revised CMP system automates the process of prioritizing project locations for safety and capacity improvements.