



Project Number

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Estimation of System Performance and Technology Impacts to Support Future Year Planning

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Current Situation

Transportation structures, from two-lane rural roads to the largest bridges, are built with decades of service in mind. The challenge for transportation planners is to place and design these structures to anticipate Florida's continuing growth – growth which is expected to bring more people to expanding metropolitan areas, creating higher traffic volumes. Planners and engineers must also take into account changes that are being introduced to transportation by new technologies that, for example, monitor traffic flows or allow vehicles to communicate with each other or with infrastructure. Autonomous and connected vehicles are right around the corner; ride-sharing services like Uber and Lyft are already here. Transportation professionals must have tools that allow them to offer funding agencies the best balance of efficiency and economy.



Data collected at intersections can be used in real time with advanced technologies to improve traffic efficiency and safety for all road users.

Research Objectives

Florida International University researchers developed a plan for extending the Florida Intelligent Transportation System Evaluation Tool (FITSEVAL) with measurements and forecasting abilities that take advantage of state-of-the-art models, methods, and data from multiple sources to incorporate emerging technologies. This update primarily corrects previous limitations and includes new techniques for assessing autonomous and connected vehicle impacts.

Project Activities

The Intelligent Transportation System (ITS) is an established traffic management process of monitoring, managing, and informing drivers about real-time traffic conditions. Through sensors, cameras, and other devices, ITS delivers data that can be used to provide information to emergency services, law enforcement, and the general public about slowdowns or detours and much more. ITS has added new possibilities for transportation planners and engineers to optimize roadway capacity and user awareness. The FITSEVAL software has been developed over several years to help assess how different ITS options can improve the performance of roadways. Additionally, FITSEVAL helps designers compare alternatives and shows how possible alternatives meet specific requirements for safety, mobility, reliability, emissions, and costs.

The researchers examined how business processes of transportation agencies at the state and regional levels can expect to benefit from the FITSEVAL-based approach developed in the project. They also examined the impact of new technologies on the FITSEVAL design process and provided guidance for designers to include these new technologies in their design alternatives.

Project Benefits

This project will help transportation planners and engineers in Florida decide how and where to engage advanced technologies to maintain the safety, mobility, and efficiency of Florida's roadway network.

For more information, please see www.fdot.gov/research/.