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Assessment of the Mobility Energy Productivity (MEP) Metric for Transportation Applications in Florida

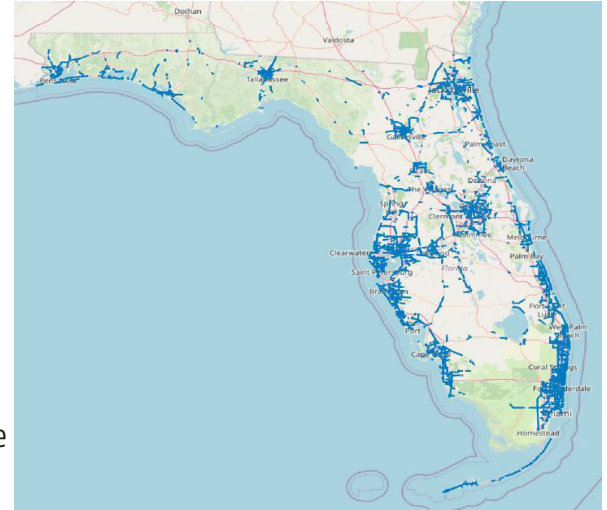
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Current Situation

The Florida Department of Transportation (FDOT) is investigating new performance measures that accurately reflect the effect the of implementation of major transportation planning efforts as well as new transportation solutions, such as micro-transit and investment into the use of alternative fuel vehicles.

Research Objectives

The objective of this project was to evaluate the effectiveness of the Mobility Energy Productivity (MEP) metric—a qualitative framework that assesses the quality of mobility in transportation systems when considering accessibility, energy consumption, and productivity—as a tool to provide additional performance measures to enhance decision-making in transportation planning, including infrastructure changes and new transit technologies.



A map of bike lanes in Florida from FDOT roadway characteristics inventory.

Project Activities

The Florida International University research team performed a literature review and then studied two main scenarios. In the first scenario, the project looked at bike infrastructure improvements. The analysis included enhancing biking facilities in a 2045 future-year condition scenario in South Florida to observe the impact on mobility and energy efficiency. In the second, the researchers reviewed electric transit projects, with a scenario that involved electrifying bus fleets to evaluate the effects on MEP scores. The study used multiple data inputs such as isochrones (used to identify the number of opportunities one can reach within specified travel time thresholds by a mode or combination of multiple modes), land use, population density, and energy intensity to perform these analyses.

Project Conclusions and Benefits

Findings suggest that the MEP metric is a valuable tool for evaluating transportation system improvements and their impact on mobility and sustainability. The project recommends future efforts to refine the MEP tool further, including enhancing its usability and expanding its data sources.

Overall, the study demonstrates that the MEP metric can effectively assist the transportation planning process, providing a quantitative basis for infrastructure investment and policy decisions.

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