

**Project Number**

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Multiresolution Analysis of the Impacts of Complete Streets on Efficiency, Safety and Environment of Urban Corridors

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Current Situation

Complete Streets is a concept and growing collection of designs that make streets more accessible and safer for all road users, balancing the needs of vehicles, bicycles, and pedestrians. The Florida Department of Transportation (FDOT) has been a national leader in the adoption and implementation of Complete Streets designs for Florida communities. When Complete Streets projects are finished, they clearly demonstrate their advantages in terms of ease, access, and appearance – all qualitative measures that often lead to community satisfaction with the projects. However, less is known about the quantitative measures of Complete Streets, which are needed when considering future travel demand and operational changes as part of long-term planning efforts.

Research Objectives

Florida Atlantic University researchers developed multiresolution analysis methodologies to quantitatively assess the effectiveness and impact of Complete Street designs.

Project Activities

Development of the necessary quantitative performance measures requires examining traffic both as an aggregate flow (macroscopic resolution) and on a vehicle-by-vehicle basis (microscopic resolution). These levels are analyzed by different computer simulations. The researchers developed a methodology that brings both macroscopic and microscopic resolutions together to answer questions about long-term planning aspects of Complete Streets as well as operational strategies which may address specific needs of various road users. This allowed them to investigate costs and benefits of deploying Complete Streets in many types of situations.

Two road networks were selected as good candidates for testing the modeling methodology: the Salt Lake City, Utah, central business district and the Central Broward County. The Salt Lake City central business district had been previously studied by the researchers. They modeled the existing situation, a partial Complete Streets situation that included only signal priority for transit but no geometric changes, and a full Complete Streets situation which added lane reduction for private passenger cars. In this case, the partial situation improved safety and performance measures such as vehicle delays and travel times, but the full Complete Streets situation actually worsened these measures. Similar results were found in the Broward County study.

The researchers recommended that this work could be extended and generalized by expanding future studies to include long-term route choice and travel behavior changes that could arise from Complete Streets designs on one or more key corridors within a road network.

Project Benefits

The results of this project will advance implementation of more successful Complete Streets designs that provide both short-term and long-term improvements.

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



Complete Streets offers designs that make roads safer and more accessible for all road users.