



Micromobility Analytics in Florida: Usage Patterns, Public Transit Synergies, and Crash Insights

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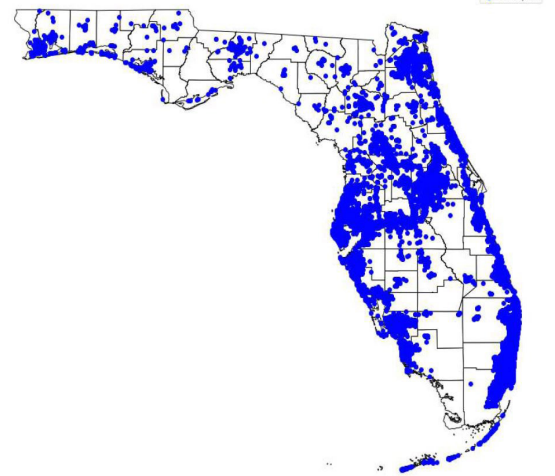
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Current Situation

Micromobility options, including shared bicycles and e-scooters, are increasingly popular in Florida and other parts of the United States. These modes of transportation are ideal for short trips and serve as vital connections to public transit systems. However, the State lacks a standardized framework to analyze micromobility usage, assess safety issues, and understand how these systems interact with public transit. This gap largely stems from limited data and the absence of established analytic practices.



Research Objectives

The primary objectives of the project were to analyze micromobility usage patterns and determine the factors influencing them, evaluate the relationship between micromobility and public transit with a focus on accessibility and ridership impacts, and examine crash data statewide to identify patterns, underlying causes, and street characteristics that contribute to non-motorist accidents.

This figure shows the spatial distribution of 24,420 micromobility-related crash events from Jan. 1, 2021, to Feb. 1, 2024. Most crashes occurred in coastal cities/counties such as Tampa and Miami and central Florida cities like Orlando and Gainesville where there were high levels of bike and scooter activity. It is straightforward to consolidate the correlation between high micromobility usage and crash frequency.

Project Activities

The research team collected and studied data from Jacksonville and Gainesville to uncover how micromobility services are used. This involved analyzing temporal and spatial trends, exploring connections to public transit, and investigating crash patterns. Special attention was given to high-risk locations and street features, such as the presence of bike lanes, which may influence safety outcomes.

The project also used advanced data analysis techniques to explore the correlation between micromobility usage and environmental factors, such as weather and time of day. The team conducted field observations and stakeholder interviews to supplement quantitative data, providing a comprehensive understanding of user behaviors, preferences, and challenges. The team also employed mapping tools to visualize usage and crash hotspots.

Project Conclusions and Benefits

Micromobility usage tends to peak during certain times and in specific neighborhoods. Although these systems enhance access to public transit, their overall impact on increasing ridership is limited. Additionally, higher levels of micromobility usage were linked to a greater likelihood of crashes, particularly on streets without infrastructure like bike lanes.

Based on these findings, the report offers actionable recommendations for improving micromobility systems. These include placing devices strategically, enhancing bike lane infrastructure, and optimizing management strategies. By adopting these measures, Florida can improve the safety, efficiency, and integration of micromobility systems with public transit. Ultimately, these changes aim to foster safer, more efficient transportation options across the state of Florida.

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