

<b>Research Project Name:</b> Exploring Shared Micromobility as an Alternative Transportation Option: Opportunities and Challenges in U.S. Mid-sized Cities and Small Towns
<b>Recipient/Grant (Contract) Number:</b> Florida A&M University; University of Washington Tacoma
<b>Center Name:</b> Rural Safe, Efficient, and Advanced Transportation (R-SEAT) Center
<b>Research Priority:</b> Improving Mobility of People and Goods
<b>Principal Investigator(s):</b> Angela Kitali, Emmanuel Kidando, Jeff Walters, and Heather Dillon
<b>Project Partners:</b>
<b>Research Project Funding:</b> \$104,603.28 (Federal request); \$52,301.64 (Non-Federal cost share)
<b>Project Start and End Date:</b> 9/1/2023 to 12/31/2024
<p><b>Project Description:</b> With over half a billion trips taken in the United States (U.S.) since 2010, shared micromobility<sup>1</sup> has quickly developed as an alternative to private automobiles, providing safer, cheaper, and more accessible ways for people to get around<sup>2</sup>. In tandem with the surge in shared micromobility, there is an exponential increase in privately owned micromobility devices, particularly in electric-assist bicycles (e-bikes) and scooters<sup>3</sup>. Micromobility’s alignment with key objectives and policies of U.S. transportation agencies is evident, as it has the potential to capture a new market of active transportation users and connect people to transit. Several cities and towns across the U.S. are exploring shared micromobility as an alternative transportation option for trips that are too far to walk but too short to drive. Because micromobility is still a relatively new and emerging mobility option, most transportation agencies lack data-driven tools to measure the costs and benefits of shared micromobility systems. Agencies also lack guidance on integrating shared micromobility in the planning and designing of their transportation systems. Besides, micromobility is generally discussed with examples from major cities, with little to no discussion on the efficacy in mid-sized cities and small towns in rural areas. That is partly because micromobility modes thrive on high economies of density that rural areas lack.</p> <p>This research aims to study the usage patterns of shared micromobility in mid-sized and small cities. Specifically, we aim to answer the following questions: (1) Who is using shared micromobility, and for what kinds of trips? (2) What factors affect shared micromobility device ridership? (3) Is the shared micromobility system adequately serving mid-sized cities and small towns? (4) What factors affect the safety of micromobility device users?</p>
<p><sup>1</sup> The Federal Highway Administration defines micromobility as any small, low-speed, human- or electric-powered transportation devices, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.</p> <p><sup>2</sup> National Association of City Transportation Officials (NACTO). Half a Billion Trips on Shared Micromobility since 2010. 2022.</p> <p><sup>3</sup> Joint Transportation Committee. <i>Powered Micromobility Device Lending Libraries: Framework for a State Grant Program &amp; Characteristics of Successful Programs</i>. 2023.</p>
<b>US DOT Priorities:</b> This project aligns with the USDOT’s RD&T goals, focusing on safety and access. It addresses the objectives of a safe public, safe system, and expanding access. It shed light on the challenges and opportunities associated with integrating shared micromobility into transportation planning, particularly in mid-sized cities and small towns. The project will enhance the understanding of shared micromobility patterns in rural transportation contexts, promoting overall mobility improvements with a focus on safety and access. It emphasizes protecting rural communities, especially vulnerable populations, from safety risks (safe public), employing data-driven decision-making and comprehensive approaches for safety (safe system), and expanding affordable access to transportation opportunities (expanding access).
<b>Outputs:</b> The study produces generalizable insights for implementing micromobility in mid-sized cities and small towns—areas historically trailed larger urban centers in offering flexible alternatives to private vehicles. It presents a state-of-the-art review of deployment guidelines from domestic and international agencies, evaluates the adequacy and sustainability of shared micromobility, summarizes methodological approaches for analyzing usage patterns, and examines factors influencing the frequency and severity of user-related crashes. By comparing findings across major, mid-sized, and small jurisdictions, the report identifies the data types and collection methods (including survey instruments)

required to meet the study objectives, and details the statistical and machine-learning techniques applied to support the analysis.

We presented a part of our work during the 104th Annual Meeting of the Transportation Research Board, Washington, DC.

Ngereza, A. S., Kutela, B., Kalambay, P., Kitali, A., and Kidando, E. (2025). “Understanding Body Injury Patterns and Associated Severity of Micromobility Users Using Bayesian Networks and Text Mining,” Proceedings of the 104<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC.

**Outcomes/Impacts:** The proposed work directly contributes to the growing micromobility literature. Many studies to date have focused on large cities with extensive transportation networks and multiple micromobility vendors, while mid-size cities and small towns have received comparatively less attention. Notably, findings from large cities are not applicable in mid-size cities and small towns, considering the significant difference in transportation demands. Our project will help inform policy decisions in mid-sized cities and small towns seeking partnerships with private micromobility service providers.

**Final Research Report:** N/A