

Research Project Name: Charting the Course: Understanding the Interconnected Challenges in Rural Transportation Infrastructure Across Washington State
Recipient/Grant (Contract) Number: Florida A&M University; University of Washington Tacoma
Center Name: Rural Safe Efficient Advanced Transportation (R-SEAT) Center
Research Priority: Improving Mobility of People and Goods
Principal Investigator(s): Jeffrey Walter, Angela Kitali, Heather Dillons, and Panick Kalamabay
Project Partners: Washington State Department of Transportation (WSDOT)
Research Project Funding: \$98,258.19 (Federal request); \$49,130 (Non-Federal cost share)
Project Start and End Date: 9/1/2024 to 12/31/2025
Project Description: Rural transportation infrastructure plays a pivotal role in sustaining economic development, enhancing quality of life, and fostering social cohesion in remote areas. However, a myriad of interconnected challenges severely impedes its efficiency and accessibility, posing significant obstacles to regional growth and connectivity. Addressing these interconnected challenges demands a systems-aware approach that informs ways to integrate sustainable funding mechanisms, innovative technology solutions, and collaborative governance and policy frameworks. The proposed study uses a mixed-method participatory systems modeling approach to identify, map, and structurally analyze the factors influencing the sustainable and effective provision of rural transportation infrastructure in the state of Washington. The key research thrust rests on the need to map and structurally analyze the interconnected challenges impacting rural transportation infrastructure in Washington State. The related and overarching objectives of our research are: (1) identify the core transportation challenges impacting rural communities in Washington State, (2) map the interactions that exist between the challenges as an interconnected system, and (3) use this map of challenges to propose areas for future research and action that have the potential for cascading impacts.
US DOT Priorities: Improving Mobility of People and Goods, focusing on rural transportation.
Outputs: This study will produce a systems-based map visualizing the interconnected challenges affecting rural transportation infrastructure in Washington State, providing insights into their structural relationships. Additionally, it will generate policy recommendations, research priorities, and strategic action areas to support sustainable and effective rural transportation solutions.
Outcomes/Impacts: The successful implementation of this project is expected to yield the following outcomes: (1) research experiences for undergraduate students that build skills and knowledge about transportation careers, and the grand societal impact they can have as engineers, (2) elevating the voices of rural transportation stakeholders, (3) promotion of systems thinking in the rural transportation sector, and (4) identification on key leverage points for further research as well as actionable policy and practice towards more sustainable rural transportation systems.
Final Research Report: In progress