

Rural Safe Efficient Advanced Transportation (R-SEAT) Center

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, and Heather Dillon
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 5/31/2026
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 the integration of 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 focuses on mapping and structurally analyzing the interconnected challenges affecting 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*:
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

* Section left blank until USDOT's new priorities and RD&T strategic goals are available in Spring 2026.