



<b>Research Project Name:</b> Autonomous Electric Ferries (Autoferry) - Low Carbon Connectors
<b>Recipient/Grant (Contract) Number:</b> Florida A&M University; University of Washington Tacoma
<b>Center Name:</b> Rural Safe Efficient Advanced Transportation (R-SEAT) Center
<b>Research Priority:</b> Improving Mobility of People and Goods
<b>Principal Investigator(s):</b> Heather Dillon, Jeff Walters, and Angela Kitali
<b>Project Partners:</b> WAV-C - Washington Autonomous Vehicle Cluster, Maritime focus; Numurus - Company focused on Autonomous Hardware and Software <a href="https://numurus.com/">https://numurus.com/</a> ; Future Marine Inc.
<b>Research Project Funding:</b> \$93,670 (Federal request); \$46,518 (Non-Federal cost share)
<b>Project Start and End Date:</b> 9/1/2023 to 12/31/2024
<p><b>Project Description:</b> Island and peninsula communities in Puget Sound are often isolated from regional cities like Seattle and Tacoma due to an extensive transit time by road. Regional ferry systems are large and expensive to operate, limiting the number of service times and access points. Most of the ferries only operate between larger regional towns and major cities, isolating smaller communities that often lack bus services as well.</p> <p>Autonomous electric ferries offer a unique low-carbon option to better connect rural communities in the region. For example, the residents of Anderson Island and Ketron Island in the south Puget Sound region are served by one ferry that connects them to the mainland. For Ketron Island, the ferry runs only four times per day and was out of service entirely for several days recently while the ferry was repaired. On the nearby peninsula, the community of Longbranch is accessible by road, but travel requires more than an hour by car for residents to reach services. Several tribal communities are included in these isolated areas.</p> <p>An autonomous passenger ferry would operate like an elevator, where passengers on one side press a button to summon the ferry. While the ferry is not in use, it charges at the dock in preparation for the call. The ferry could transport passengers and bikes, creating a new alternative to traditional car-centric communities. The Seattle-Tacoma area has 23.8 million passengers on ferries per year, which could be shifted to low-carbon electric ferries over time.</p>
<p><b>US DOT Priorities:</b> The Autonomous Electric Ferries project, focusing on low-carbon connectors, aligns with the USDOT's RD&amp;T goals in climate sustainability and economic strength and global competitiveness. The project will address economic strength through system reliability (travel time reliability) and connectivity, emphasizing the need to empower rural communities and expand access. It contributes to climate and sustainability goals by proposing autonomous electric ferries to connect isolated islands and rural communities, especially around Seattle-Tacoma, alleviating mobility constraints for people and goods. The project will identify different factors to consider when assessing the mobility of people and goods in isolated islands and rural communities.</p>
<p><b>Outputs:</b> The successful implementation of this project yielded the following outcomes:</p> <ol style="list-style-type: none"> <li>1. Research experiences for undergraduate research students that build skills and knowledge about transportation careers.</li> <li>2. Reduced transportation-related costs and improved economic opportunities for low-income residents.</li> <li>3. Promotion of more sustainable transportation systems within the region.</li> </ol>
<p><b>Outcomes/Impacts:</b> The overall objective of this project is to support the development of small, electric, low-carbon ferries that connect communities in the Salish Sea. Supporting the development of an autonomous ferry network creates access for rural communities in the region. This project focused on three objectives:</p> <ol style="list-style-type: none"> <li>1. Extend our analysis of possible ferry routes and docking locations to include weather and tidal data. This builds on work to map existing possible docks.</li> <li>2. Develop prototypes and docking procedures for autonomous operation of the ferries. Our project partners report this is a key area of need from the research community.</li> </ol>



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Build deeper partnerships with regional groups and stakeholders that support the development of the autonomous ferry network.

**Final Research Report:** N/A