

Submission Date: January 12, 2024
Lead Recipient/Grant Number: University of Arkansas / 69A3552348331
Principal Investigator Institution: Texas A&M Transportation Institute
Center Name: Maritime Transportation Research and Education Center
USDOT Research Priority: Preserving the Existing Transportation System
Primary USDOT Strategic Goal (<i>select drop down</i>): Climate and Sustainability
Principal Investigator(s) with ORCID(s) and Contact Information: Madhu Venugopal (ORCID ID 0000-0002-1816-5204) M-Venugopal@tti.tamu.edu , — 972-994-2213 C. James Kruse (ORCID ID 0000-0002-7519-161X)— j-kruse@tti.tamu.edu — 713-613-9210
Project Partners: N/A
Project Type (<i>select drop down</i>): Applied Research
Project Research Topic Type (<i>select drop down</i>): Maritime and Multimodal Supply Chain Management
Transportation Modes Involved (<i>check all that apply</i>): <input checked="" type="checkbox"/> Waterway <input type="checkbox"/> Road <input type="checkbox"/> Rail <input type="checkbox"/> Pipeline <input type="checkbox"/> Other
Research Project Funding: This will be a 2-phase project. Phase 1 will be performed using matching funds in the amount of \$60,000. Phase 2 will be conducted with MarTREC funds when Year 2 funding becomes available. That amount will be \$61,000. Phase 2 will not commence until funding is received.
Project Start and End Dates (Format month/day/year to month/day/year): Phase 1: 3/15/24 to 8/31/24. Phase 2 (provided funding is available): 9/1/24 to 8/31/25.
Project Title: Strategies for Potential Emissions Reductions for Commercial Maritime Vessels at Ports
Project Abstract (Brief Description): This project will research emission-reduction strategies and measures for commercial maritime vessels at ports and quantify their environmental benefits regarding emissions and fuel consumption. Using the Port of Houston as a case study, Phase 2 of the project will produce a baseline emissions inventory. Based on that inventory, Phase 2 of project will examine two potential actions the Port could consider: 1) Optimize ship traffic operations In the port area. 2) Adopt shore power and sustainable fuel sources and encourage innovative use of tugboats. The project will specifically pursue stakeholder engagement and technology transfer.
USDOT Priorities: <i>Describe how the project supports US DOT priorities and the RD&T strategic goals. Also describe how the project engages in breakthrough, advanced, or transformative research.</i> There is increasing pressure on ports and their tenants to actively pursue significant reductions in emissions. This project will quantify the potential effect of the strategies mentioned above and will look at how the method of implementation could affect port area emissions. This will promote better air quality and cleaner environment for the communities close to the port. This information will be transferable to other port areas.
Outputs (results of the work performed): <i>Describe what new research, technology, or process this research project is expected to produce or has produced. The outputs could include processes and methods; data, hardware, software and databases; invention disclosures, patent filings, inventions, etc. Also describe any new partnerships outside of the UTC consortium that may be established or have been established through the project.</i> There are 3 deliverables planned for this project: 1. Final Project Report documenting the work performed, methodologies, outcomes, and suggested next steps. 2. Briefing material in the form of a PowerPoint presentation 3. Paper for publication in a conference or scientific journal.

Outcomes/Impacts: Describe the application of the output and any changes this output has or will make to the transportation system, or its regulatory, legislative, or policy framework, including a description of products or patents, or a change in practice, or instances of research results informing policy decisions. Discuss how this research output will positively impact the transportation system in terms of safety, reliability, durability, costs, etc.

This project will allow the inland waterway industry to have a better understanding of its position in the labor market. It will also provide tools to make students and stakeholders aware of what is involved in working in this industry.

Technology Transfer Activities: Describe planned activities that will make research results available to potential users in a form that can be implemented, utilized, commercialized or otherwise applied. What percent of the budget

The PowerPoint will be made available through industry trade associations. Researchers will be available to make presentations as requested. The project team will prepare the paper intended for publication and submit to the appropriate journals or conferences. We plan to spend 20% of the budget on technology transfer activities.

Final Research Report: Upon completion of the project, provide a URL link to final report will be provided

Project Deliverables: PI agrees to submit all deliverables within 4 weeks after the project end date.

Data Management Plan (DMP): PI has reviewed and agrees to adhere to MarTREC DMP. Proposed project DMP must be attached to the submission email along with this form.

Center Director Approval Signature and Date:



02.12.24