BIL MarTREC Tier 1 UTC Project Request Form
Completed form should not exceed 2 pages
Return to Amy Shell at shell@uark.edu

Submission Date: March 14, 2024	
Lead Recipient/Grant Number: University of Arkansas / 69A3552348331	
Principal Investigator Institution: Jackson State University	
Center Name: Maritime Transportation Research and Education Center	
USDOT Research Priority: Preserving the Existing Transportation System	
Primary USDOT Strategic Goal: Economic Strength and Global Competitiveness	
Principal Investigator(s) with ORCID(s) and Contact Information: Dr. Berneece Herbert, (PI), Associate Professor & Chair; Urban & Regional Planning, Jackson State University; berneece.herbert@jsums.edu (https://orcid.org/0000-0003-4878-4580)	
Project Partners: One Voice and Eric Shanks, HRC, Former Executive Director, Cyprus Mandela, Inc.	
Project Type (*select drop down*): Education and Workforce Development	
Project Research Topic Type (*select drop down*): Maritime and Multimodal Supply Chain Management	
Transportation Modes Involved (*check all that apply*): ☒Waterway ☐Road ☐Rail ☐Pipeline ☐Other	
Research Project Funding: *Federal funding amount - $55,000; non-Federal funding amount - $27,500 Total funding amount - $82,500*	
Project Start and End Dates: 09/01/2024 to 08/30/2026.	
Project Title: Pathways for a Future-Ready Maritime Transportation Workforce	

Project Abstract (Brief Description): The maritime transportation sector faces ongoing challenges including renovating aging infrastructure, responding to climate change, keeping pace with new technologies, adapting to broad organizational changes, and meeting the growing demands of a global economy amidst enhanced national security threats. The industry faces persistent labor shortages of skilled personnel who are equipped to deal with these challenges. According to the Maritime Administration, over the prior 10 years, the sector has experienced a continuous decline in personnel due to a myriad of factors, such as retirements, career changes, and hiring and funding challenges. Statistics show that the gap for officer availability in the maritime industry widened to 9% globally in 2023, compared to a 5% shortfall in 2022. With the greying of the workforce, an excessive amount of institutional knowledge has been lost from Federal, State, and local maritime transportation departments, and within the private sector. The maritime industry operates in a challenging and unpredictable environment, making a trained and skilled workforce crucial for ensuring safe and efficient operations. Technology and innovation have emerged as beacons of hope amid these challenges. The current digital revolution, fueled by Artificial Intelligence (AI), has ushered in transformative possibilities for maritime operations such as the imminent arrival of Autonomous Vessels. However, the journey towards embracing AI faces hurdles, particularly in the need for a skilled workforce to support the seamless integration of AI technologies and industry operations. A diverse, multidisciplinary, and well-trained workforce is necessary to successfully respond to these developments. Workforce development is critical to attracting and retaining talented maritime industry employees. This proposal will outline a strategic approach to attract, train, and retain a skilled workforce capable of leveraging new technologies and ensuring the sector's continued growth and efficiency with a specific focus on minority workforce development. By fostering a diverse, knowledgeable, and adaptable workforce, the maritime industry can meet the demands of a global economy and maintain high standards of safety and security. The study, conducted in partnership with One Voice, Mississippi and Eric Shanks, HRC, former Executive Director for The Cypress Mandela Training Center, will explore

strategies to enhance workforce quality, promote economic resilience, and foster environmental sustainability with a focus on the Gulf Region. This study will also support the development of a proposal for the National Academy of Sciences Gulf Regional Program funding opportunity on Workforce Development for Energy Transition.

USDOT Priorities: *DOT's mission is "to deliver the world's leading transportation system, serving the American people and economy through the safe, efficient, sustainable, and equitable movement of people and goods". This project supports this mission by seeking to gain a deeper understanding of the current state of job quality in the maritime transportation industry, the factors that influence it, and the needs for the future workforce that will carry out DOT's mission. As the supply chain becomes more sophisticated and integrated, so must the maritime and supply chain workforce. The project engages in transformative research to make recommendations on building a future-ready workforce equipped to contribute to the economic and environmental resilience of the Gulf region.*

Outputs (results of the work performed): *Project outputs will include i) detailed analyses of the state of the maritime transportation industry workforce's current and future needs with a focus on the Gulf Region ii) recruitment strategies to enlist new minority talent and retain current employees; iii) a range of comprehensive training programs to equip the workforce with the skills needed to manage modern low carbon technologies; and iv)systems and best practices for preserving and transferring institutional knowledge within the workforce. The project will involve two key partners – Cypress Mandela, Inc., an expert NGO in workforce development, and One Voice Mississippi, another non-profit focusing on building community resilience and environmental sustainability.*

Outcomes/Impacts: *A comprehensive understanding of the current and future workforce needs specific to the maritime transportation industry in the Gulf Region will result in informed decision-making for workforce planning, resource allocation, and targeted interventions to address skill gaps and labor shortages. This analysis can guide policies and initiatives to ensure a resilient and sustainable maritime workforce. Effective recruitment methods tailored to attract diverse talent, including minorities, would result in increased diversity within the maritime workforce, leading to fresh perspectives, improved problem-solving, and enhanced innovation. Development of training modules covering low carbon technologies relevant to the maritime sector (e.g., energy-efficient vessel design, emissions reduction strategies, alternative fuels) can result in equipping the workforce with specialized skills to navigate the industry's transition toward sustainability. This can enhance operational efficiency, reduce environmental impact, and position the Gulf Region as a leader in green maritime practices. Documentation of critical institutional knowledge, including best practices, processes, and historical context, ensures knowledge continuity, efficiency, risk mitigation, and organization resilience.*

Technology Transfer Activities: *Maritime transportation is a complex system-of-systems through which people, technologies, and infrastructure interact. Imagining potential futures requires selecting robust and adaptive strategies to develop a future-ready workforce. For this project, technology transfer activities will consist of strategic alliances for data sharing and developing sustainable strategies with identified collaborators and other partners and scientific dissemination for sharing information with interested parties in government, industry, or academia through seminars and paper presentations*

Final Research Report: Upon completion of the project, a URL link to the 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: *Heather Nachtmann*　　　07.15.24