



**Project Requirements Form USDOT
CREATE UTC Contract Number 69A3552348330**

Center Lead: Texas State University; University of Puerto Rico – Mayagüez

Research Project Name: Capacity Building and Workforce Development for Coastal Transportation Infrastructure Subjected to Multi-hazards: Phase II (UPRM)

Improving the Durability and Extending the Life of Transportation Infrastructure

Principal Investigators:

Dr. Alberto M. Figueroa Medina, Email: alberto.figueroa3@upr.edu, 0000-0002-2635-4988

Prof. Ismael Pagán Trinidad, Email: ismael.pagan@upr.edu, 0000-0001-8513-7855;

Dr. Carla López del Puerto, Email: carla.lopezdelpuerto@upr.edu, 0000-0002-0334-7208.

Project Partners:

Puerto Rico Local Technical Assistance Program (LTAP) Center, the UPRM Coastal Resilience Center (CRC), the RISE-UP initiative at UPRM, and the Municipality of Isabela.

Research Project Funding:

Federal: \$ 58,646

Match: \$ 49,846 (UPRM)

Project Start Date: 09/01/2024

Project End Date: 08/31/2025

Project Description: This project aims to develop a decision-making tool to assess and enhance the durability of transportation corridors in coastal communities, crucial for supporting the blue economy. By focusing on the specific needs of these communities, the research will address the challenges posed by natural hazards and the importance of durable infrastructure in fostering economic growth. The initiative also seeks to advance transportation workforce development by integrating blue and green economy principles, emphasizing the need for collaboration among stakeholders, and providing education on designing infrastructure that withstands natural disasters. The project will identify key lessons and recommendations to help educators engage with this critical engineering field, ultimately driving regional economic growth and improving coastal transportation infrastructure durability..

US DOT Priorities: According to CREATE Thrust 4 Pathways to Blue Economy Transportation Careers, this thrust will develop practical, evidence-based frameworks to promote blue economy transportation careers. It is anticipated that the research outcomes will be adaptable to other transportation sectors. Such activities will also support US DOT Challenges of Preserving the Existing Transportation System, Improving the Mobility of People and Goods, and Promoting Safety.

Outputs: This project will engage in technology transfer activities through partnerships with the Puerto Rico Local Technical Assistance Program (LTAP) Center, the UPRM Coastal Resilience Center (CRC), and the RISE-UP initiative at UPRM. The collaboration aims to enhance transportation durability by developing evidence-based solutions, facilitating workforce development, and integrating research into educational curricula. Key strategies include the creation of an Interactive Learning Hub (IL-HUB) to centralize project materials, an annual CREATE-UPRM symposium for knowledge dissemination and networking, the development of case studies on coastal community challenges, and the publication of findings in peer-reviewed proceedings. These efforts will strengthen partnerships, foster capacity building, and contribute to more informed decision-making in coastal infrastructure durability.

Outcomes/Impacts: The project outcome includes identifying key factors impacting transportation durability in coastal communities through an extensive literature review and demographic data analysis, which will highlight disparities in transportation access. By conducting interviews with community members, local leaders, and stakeholders, along with



Project Requirements Form USDOT

CREATE UTC Contract Number 69A3552348330

Center Lead: Texas State University; University of Puerto Rico – Mayagüez

GIS mapping, the project will provide a detailed understanding of the challenges faced in transportation services within these regions. Additionally, the development of a case study in a selected coastal community in Puerto Rico will lead to the creation of a robust framework that assesses blue economy goals through the lens of transportation durability. As a result, the project is expected to make a significant contribution to advancing the understanding and implementation of transportation durability in coastal communities, aligning with the broader goals of supporting a sustainable blue economy.

Final Research Report: URL to final Report will be provided upon completion.