





**Project Requirements Form USDOT**  
**CREATE UTC Contract Number 69A3552348330**  
**Center Lead: Texas State University; Texas State University**

**US DOT Priorities:** The project aligns closely with Priority Area D by directly addressing the goal of enhancing resilience to natural disasters, specifically coastal hazards, by assessing the impact of these events on pavement conditions in Houston's coastal areas. Understanding how coastal hazards affect infrastructure, such as pavements, aligns with the priority of preparing transportation systems to withstand and recover from disasters. The project also aligns with multiple USDOT strategic goals. The research aims to optimize infrastructure resilience by evaluating changes in pavement conditions pre- and post-coastal hazards. By utilizing network analysis to inform maintenance decisions and treatment allocation, the project supports the USDOT's strategic goal of ensuring robust and resilient infrastructure systems. The project emphasizes equitable response measures by using data-driven analyses to inform maintenance decisions. The research outcomes can aid in allocating resources effectively, ensuring fair and equitable treatment of transportation infrastructure across diverse communities affected by coastal hazards. Using the automated data collection equipment and conducting comprehensive pavement condition assessments, the project aligns with the USDOT's goal of fostering innovation and employing data-driven approaches to improve decision-making in transportation infrastructure management.

**Outputs:** Overall, this research will comprehensively assess pre- and post-coastal hazard pavement conditions in Houston using Statistical data analysis models, data processing methods, and advanced pavement condition analysis models, such as outlier reduction, normality check, bootstrapping normalization, probability density function (PDF), cumulative distribution function (CDF), etc. Through network pavement condition analysis, the study seeks to offer valuable insights for informed pavement maintenance decisions during natural hazards. The study aims to contribute strategies prioritizing fair response measures, quicker responses, and increased resilience for Houston's coastal infrastructure, benefiting vulnerable communities facing recurring coastal hazards.

**Outcomes/Impacts:** The project involves the application of advanced pavement condition analysis models in pavement evaluation, specifically tailored to the environmental characteristics of coastal areas. This aligns with the US DOT Strategic Goal to promote innovation in transportation to improve safety, mobility, and economic competitiveness.

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