



U.S. Department of Transportation
Federal Transit Administration



Galveston Island Transit, Tampa HART, and Houston METRO (Gulf Coast) Pilot Project

Gulf Coast Climate Change Adaptation Pilot Study

Agency Overview

Island Transit has served the citizens of Galveston since the mid-1960s and has a service area of over 27 square miles. Hillsborough Area Regional Transit (HART) provides transit service for Tampa and Hillsborough County and has a service area of over 1,000 square miles. The Metropolitan Transit Authority of Harris County (METRO) operates bus, light rail, bus rapid transit, and paratransit service in Houston and Harris and Fort Bend counties. Its service area encompasses 1,285 square miles, including over 30 miles of light rail. Many Gulf of Mexico coastal transit agencies and their constituents are especially vulnerable to natural hazards resulting from extreme heat, flooding, and high winds. Reducing the impacts of weather events and long-term climate change is a key goal for Gulf Coast transit agencies and the Federal Transit Administration (FTA).

Goals and Objectives

The purpose of the Gulf Coast study was twofold: to provide benefit to the three partner transit agencies (Island Transit, HART, and METRO) and to compile practical information for all Gulf Coast transit agencies.

Key Pilot Project Findings

This study addresses the information and strategy gap related to the expected impacts of climate change on transit agencies operating along the Gulf of Mexico by providing a description of climate impacts along the Gulf Coast, a conceptual framework for planning and adapting to climate change, and vulnerability matrix planning tools.

Climate change is occurring along the Gulf Coast, and Island Transit, HART, and METRO are successfully striving to implement adaptation strategies to minimize the impacts. An analysis of existing research regarding climatic trends in the Gulf Coast indicated that the temperature has increased by 2°F since 1970, with conservative estimates predicting an additional increase of 4.5°F by the 2080s; heavy rainfall events and droughts have increased and are expected to continue with longer dry days between rainfall events; damage from hurricanes has historically increased, with likely increases in future storm intensities; and sea levels have risen higher than the global average along the Gulf of Mexico coastline.

Gulf Coast agencies responded to a survey regarding climate impacts. Responses indicated that impacts of tropical storms and hurricanes are less frequent than extreme heat and flooding, but more severe; and that extreme heat and flooding occur most frequently and are likely to increase in the future.

To successfully manage the impacts of climate change, transit agencies must create a framework for decision-making that takes into account four major factors: exposure, vulnerability, resilience, and adaptation. Some of the obstacles that will arise when planning for climate change include, but are not limited to, an extraordinarily diverse and decentralized set of public and private actors; a common perception that climate change will happen very slowly over time and is thus ignored, even in long-range plans despite the fact that impacts are already occurring; and a high degree of uncertainty regarding climate change, which makes it difficult to accommodate the potential impacts through planning and design of transportation systems.

Gulf Coast transit agencies can adapt the eight-steps planning process from the New York Panel on Climate Change's "Adaptation Assessment Guidebook": 1) identify current and future climate hazards, 2) conduct inventory of transit assets, 3) characterize risk of climate change impacts, 4) develop initial adaptation strategies, 5) identify opportunities for coordination, 6) link strategies to organizational structures and activities, 7) prepare and implement adaptation plans, and 8) monitor and reassess.

Next Steps

Gulf Coast transit agencies can use the information in this report as a baseline guide to renew and improve planning for the impacts of finite weather events and long-term climate change. Climate change vulnerability planning and adaptation will increase agency staff capabilities, protect valuable assets, and improve rider safety.

About FTA's Climate Change Adaptation Pilot Program

FTA provided just over \$1 million in research funding for seven pilot projects (nine agencies) to conduct climate change adaptation assessments from 2011–2013. The main objective of the pilot projects is to advance the state of practice for adapting transit systems to the impacts of climate change. The selected projects assessed the vulnerability of transit agency assets and services to climate change hazards and developed initial adaptation strategies. The findings from the pilot projects can be applied to various size transit agencies nationwide in order to make systems more resilient and adaptable to future climatic hazards.

Project Information

FTA Report No. 0072

This research project was conducted by the Texas A&M Transportation Institute and Texas A&M University Galveston. For more information, contact Kimberly Gayle, Director, FTA Office of Policy Review and Development, at (202) 366-1429, kimberly.gayle@dot.gov. All research reports can be found at www.fta.dot.gov/research.