



Improving Airport Resilience to Climate Change & Severe Weather



Scammon Bay, Alaska



Pohnpei International Airport,
Federal States of Micronesia



Continental United States

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Background and Project Need

Climate change threatens airport operations and resiliency in numerous ways. For example, some coastal airport regions are experiencing chronic “sunny day,” or tidal, flooding. Permafrost collapse in Alaska has led to an airport relocation. Rising sea levels threaten the viability of coastal airports from the continental United States to Micronesia.

National Plan of Integrated Airport Systems (NPIAS) airports need comprehensive infrastructure plans and guidance from the Office of Airports to address near- and longer-term climate risks. Existing practices do not adequately account for and prioritize resilience, which is crucial to maintaining community access to safe and efficient air transportation for passengers and cargo.

The Federal Aviation Administration (FAA) and the Department of Transportation’s (DOT) Volpe Center initiated a project to address these challenges in September 2021. Research is expected to continue over the next five years.

Objectives to Address the Resilience Gap

The initiative will assist FAA and airport operators to better incorporate resilience analysis and prioritization into airport project planning and funding. Through this research, FAA will:

- Execute case studies to identify best practices and gaps in current resiliency and infrastructure planning processes.
- Develop a Resilience Analysis Framework that will assist airports and their consultants with conducting repeatable and effective resilience assessments during typical master planning processes.
- Address framework criteria – over varying timescales and scenarios – for projected impacts on pavement, drainage, and electrical systems performance.
- Assist FAA with prioritizing resiliency investments.

FAA will use the data gathered to identify best practices and solutions, and uncover priorities and opportunities related to climate change adaptation. Sources will include case studies, a comprehensive review of existing planning tools and policy, and input from stakeholders such as airports and trade associations.

The data will inform both site-specific decisions, such as whether and when a facility should be improved or even relocated, as well as broader FAA policy. Such policies need to integrate safety and accessibility considerations, sustainability, engineering standards, financial assistance, and best practices for conduct of local resilience studies as part of routine master plan activities. The framework will also develop criteria to foster energy resiliency with airport power supply systems, supporting FAA’s initiative to improve reliability and efficiency of airport power supply to prevent power disruptions.

Targeted Outcomes

Key outcomes will be an improved ability by airports and FAA to:

1. Identify the risks in airport systems due to climate change and severe weather; and
2. Differentiate between essential and nonessential recommendations to prioritize future investments that will improve resilience.