

# HNL Airport Pavement Instrumentation

**Client:**

Kaikor Construction, Inc.

University of Hawaii

Hawaii Department of  
Transportation

**Location:**

Honolulu, HI

**Value Provided:**

- Development of Instrumentation Specification for HIDOT
- Provided Geocomp Pavement sensors
- Design and installation of remote, solar powered data collection system with triggered camera
- Training to University of Hawaii in system operation and data collection

## Background & Project Challenges

The Honolulu Airport is undergoing a major construction effort to resurface existing taxiways. As part of that effort, the resurfacing method of cold-planing (the controlled removal of the surface layer of existing pavement) is being evaluated. This requires the removal of existing flexible (asphalt) pavement to a depth of three inches and replacement with a new asphalt wearing course surface layer. The Hawaii Department of Transportation (DOT) wants to evaluate the performance of this method by measuring structural response to airplane loading and various aircraft wheel configurations.



## Geocomp Role & Accomplishments

During the early stages of preparing construction bid documents, Geocomp worked with the Hawaii DOT to develop project-specific Instrumentation Specifications, which outlined specific type pavement sensors, data collection requirements, and a triggered camera to capture aircraft wheel configurations to correlate with the measured data.

The monitoring system implemented by Geocomp includes:

- 56 Geocomp Asphalt Strain Gages to measure pavement strains under aircraft wheel loads in existing cold-planed surface and new surface layer;
- 2 Geocomp temperature trees to measure temperature gradients in existing cold-planed surface and new surface layer;
- Stand-alone, solar powered, remotely accessed data acquisition system that can be triggered for data collection based on sensor response or airplane presence;
- Triggered, low-light camera system to document type of aircraft and wheel configuration to correlate with measured data.

A 100% success rate was achieved for the installation of Asphalt Strain Gages. In addition, a system operation training was provide to the University of Hawaii, who will collect and analyze the data over the next several years.

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