ISLAND SECURITY POLICY INSTITUTE
Honolulu, Hawai'i — Worldwide — ispiglobal.com

ASSESSMENT REPORT ISPI-HI-06 · Emergency Preparedness & Supply Chain Security · May 2026

Hawaii's Infrastructure Deficit: Aging Systems, Island Vulnerability, and the Resilience Investment Required

Author: Warren Pulley, Founder & Executive Director, Island Security Policy Institute
Date: May 2026 · **Document:** ISPI-HI-06 · **Domain:** Emergency Preparedness & Supply Chain Security

EXECUTIVE SUMMARY

Hawaii's infrastructure — roads, water systems, port facilities, utilities, and telecommunications — reflects decades of deferred maintenance compounded by the geographic isolation that makes infrastructure replacement exponentially more expensive than comparable investments on the mainland. The infrastructure deficit creates specific vulnerabilities that ISPI's research identifies as island-unique: port infrastructure damage that stops the supply chain with no alternative; utility failure that cannot be bridged by grid interconnection with neighboring jurisdictions; telecommunications failure that degrades emergency response simultaneously with the emergency itself. This assessment examines Hawaii's infrastructure deficit through the lens of island emergency resilience.

KEY FINDINGS

- Hawaii's per-unit infrastructure construction cost is 30% or more above mainland equivalent costs — reflecting material, equipment, and labor costs that island geographic isolation makes structurally elevated.
- Port infrastructure resilience is Hawaii's highest-consequence infrastructure vulnerability — a major port disruption stops the supply chain entirely, with retail shortages documented within 48 hours of a 2018 Sand Island terminal fire.
- Hawaii's aging water infrastructure across neighbor islands represents both a daily service quality problem and a major emergency response capacity problem — water system failure during a wildfire produces the same compound vulnerability that Lahaina documented.
- Telecommunications infrastructure in Hawaii is concentrated in ways that create single-point-of-failure vulnerability — a condition that the Lahaina emergency demonstrated has direct public safety consequences.
- The November 2026 RISE bonds measure would create a new financing mechanism for resilient infrastructure investment — with direct implications for both housing supply and emergency preparedness infrastructure.

Why Island Infrastructure Failure Is Categorically Different

When a bridge fails in a continental community, traffic reroutes. When a water main breaks, neighboring utilities provide emergency supply. When a telecommunications tower goes down, neighboring infrastructure covers the gap. Island infrastructure failure does not have these safety valves.

When Honolulu's primary commercial port is disrupted, there is no alternative port to receive cargo. When a neighbor island water system fails, there is no regional water network to draw from. When an island telecommunications network degrades, there is no neighboring network to provide backup coverage.

This categorical difference — infrastructure failure with no geographic redundancy — is what ISPI means by island infrastructure vulnerability. It is not a matter of degree relative to continental infrastructure failure. It is a structural difference that requires a different framework for assessing risk and investing in resilience.

Port Infrastructure: The Highest-Consequence Vulnerability

Hawaii's commercial ports are the supply chain. Not the beginning of the supply chain, not a critical node in the supply chain — the supply chain itself. A sustained disruption of Honolulu's primary commercial port does not redirect cargo. It stops cargo.

ISPI's supply chain security research documents the cascade: port disruption within hours produces distribution center depletion within 24-48 hours; retail shortages in perishables within 48 hours; pharmaceutical supply constraints within days; and critical goods unavailability within a week to ten days depending on pre-existing inventory levels.

Port infrastructure investment — physical hardening, backup power, redundant loading systems, secondary staging areas — is not a quality-of-life investment. It is an emergency resilience investment with direct public safety implications.

Water Infrastructure and Wildfire Response Capacity

The Lahaina wildfire produced documentation of water system inadequacy during a major wildfire event — with fire hydrant pressure failures documented in the emergency response record. Hawaii's aging water infrastructure across neighbor islands represents both a service quality problem and a wildfire response capacity problem that the post-Lahaina policy conversation has not adequately addressed.

Water system infrastructure investment — pipe replacement, pressure system upgrades, emergency reservoir capacity — is simultaneously a housing infrastructure investment, a daily service quality investment, and a wildfire response capacity investment.

POLICY RECOMMENDATIONS

1. Prioritize port infrastructure resilience investment — physical hardening, backup systems, secondary staging capacity — as the single highest-consequence infrastructure vulnerability in Hawaii's emergency resilience framework.

2. Conduct an independent assessment of Hawaii's water infrastructure resilience for wildfire response specifically — establishing the investment requirements to prevent the hydrant pressure failures documented in the Lahaina emergency record.

3. Support passage of the November 2026 RISE bonds constitutional amendment as a structural financing mechanism for resilient infrastructure investment across Hawaii counties.

4. Develop a Hawaii Infrastructure Resilience Investment Plan that explicitly addresses island-unique vulnerability conditions — port singularity, utility isolation, telecommunications concentration — rather than adapting continental infrastructure resilience frameworks.

5. Establish minimum infrastructure resilience standards for Hawaii port, water, and telecommunications systems that account for island supply chain singularity conditions.

Island Security Policy Institute · ispiglobal.com · ISPIGlobal@proton.me · (808) 999-0544
501(c)(3) Nonprofit · SAM.gov Registered · NAICS 541720 · DUNS: 14-490-0399
Honolulu, Hawaii · Nonpartisan · Independent · Practitioner-Led Research