

PDX Resilient Runway Project



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Today's Topics

1. Port Response and Resilience Approach
2. Resilience Program Summary
3. FOCUS: Cost Benefit Analysis of the Resilient Runway Project by the National Institute of Building Sciences (NIBS)
4. Introduce the Portland State University Equity Analysis





Response & Resilience Approach

- Long-term
- Holistic (infrastructure, people, systems)
- Collaborative
- Adaptable

The Port's Resilience Program

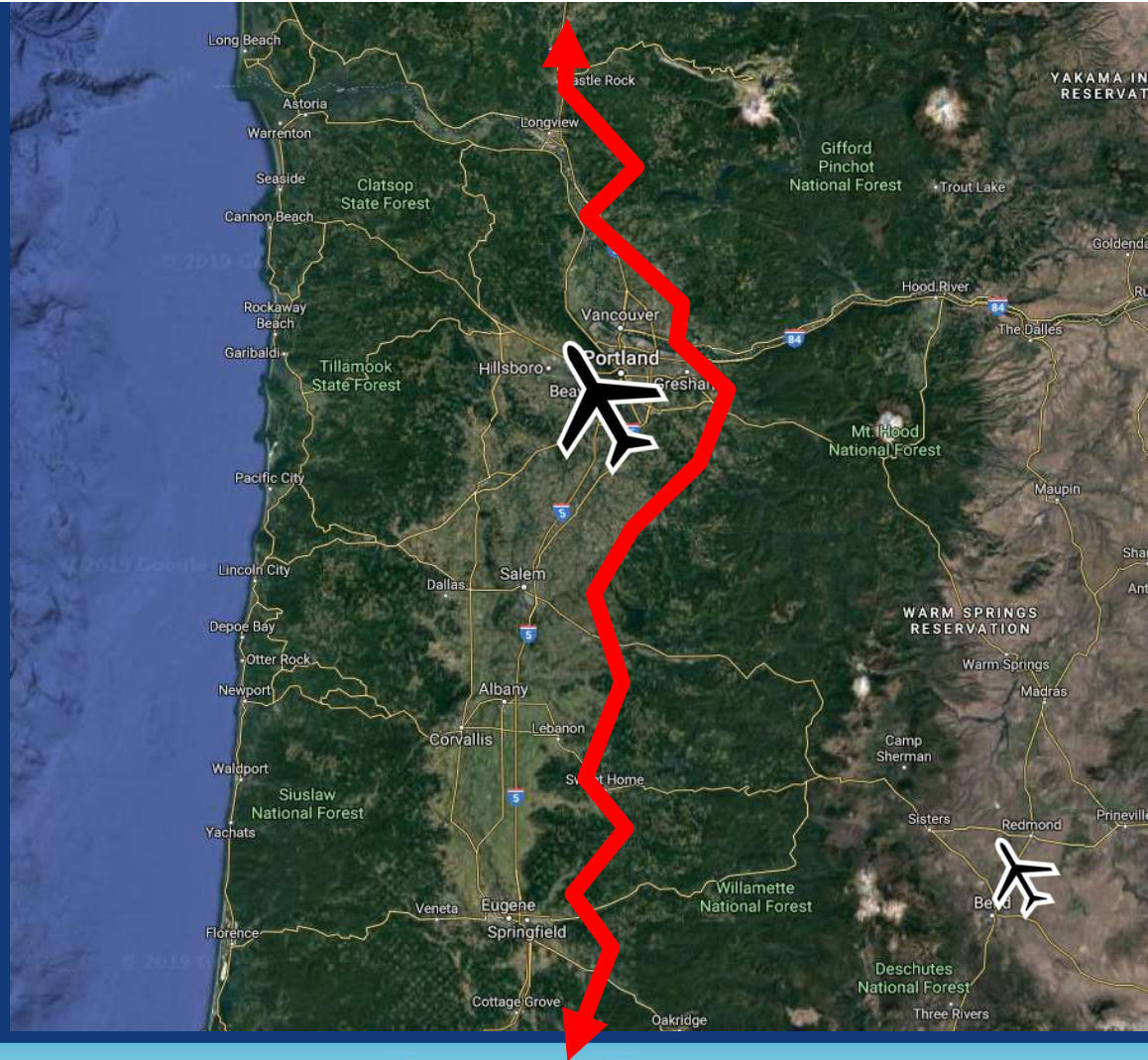
Purpose

- Reduce vulnerability to natural hazards
- Recover, adapt, return to operations

How?

- Physical investments
- Operational adjustments (such as maintenance)
- Agreements and partnerships

Initial Focus: Seismic Resilience





Seismic Resilience *Working Objectives*

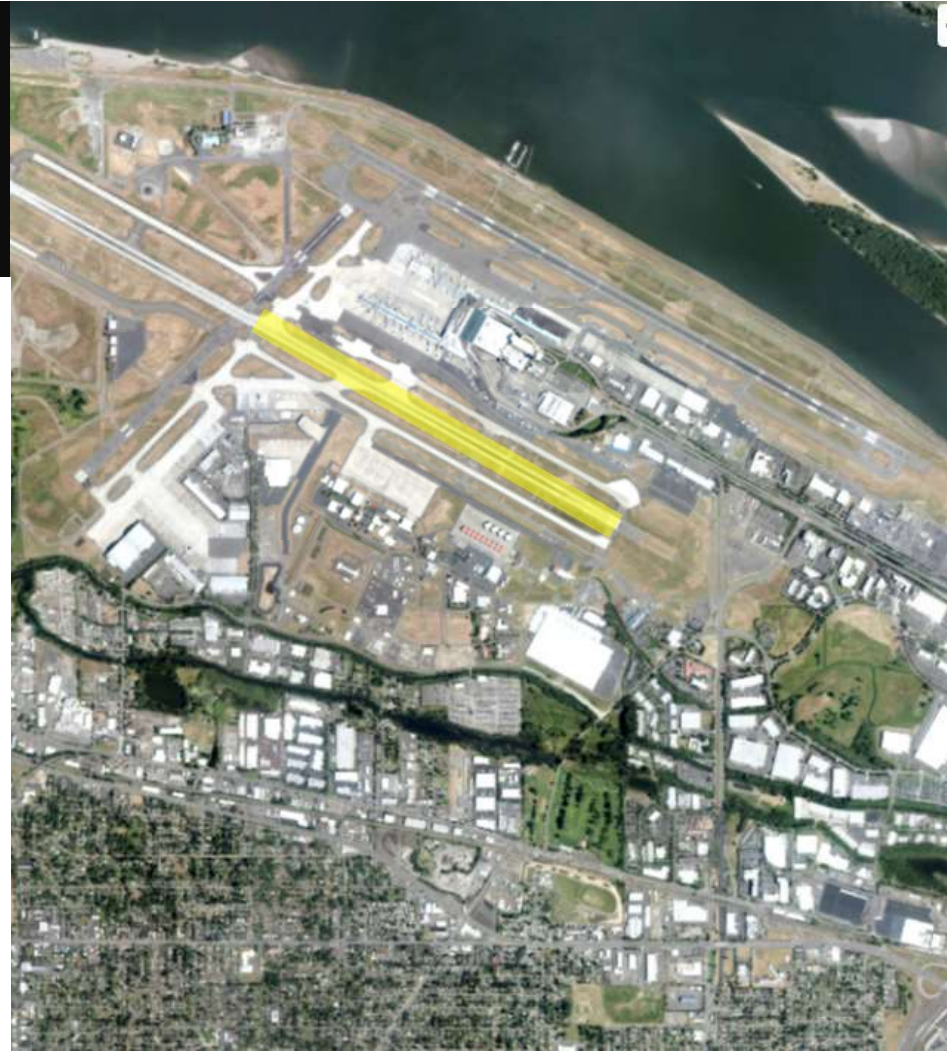
PDX has a resilient airfield that is ready to serve national, statewide, regional, and local response.

Terminal 6 supports marine cargo movement and is a critical site for statewide recovery.

Commercial air service at PDX is restored in a timely manner, driving regional and statewide economic, physical, and social recovery.

Resilient Runway Project

1. Feasibility analysis and 30% design (Oregon State University and GRI)
2. Cost-benefit assessment (National Institute of Building Sciences)
3. Equity analysis - Fall 2021 (Portland State University – in process)
4. Seek funding to complete engineering (from 30% to 90%)





National Institute of
BUILDING SCIENCES™
Innovative Solutions for the Built Environment

NATURAL HAZARD MITIGATION SAVES: PDX CASE STUDY

About NIBS

NIBS is America's Congressionally chartered non-profit, non-governmental organization bringing together representatives of government, the professions, industry, labor and consumer interests to focus on the identification and resolution of problems and potential problems that hamper the construction of safe, affordable structures for housing, commerce and industry throughout the United States.



A wide-ranging team of experts



Porter, PI, engineering



Yuan,
project management

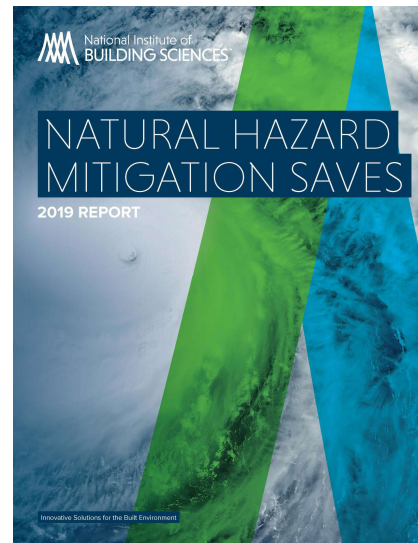
Independent peer
review



Santos, business interruption



Rose & Wei, income equity



Cauffman



Harryman



Dashti



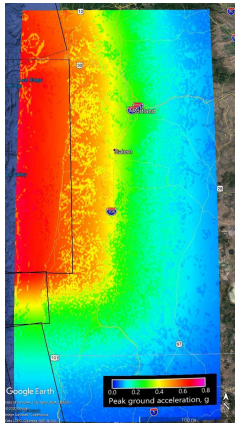
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Resilient Runway Benefit-Cost Analysis

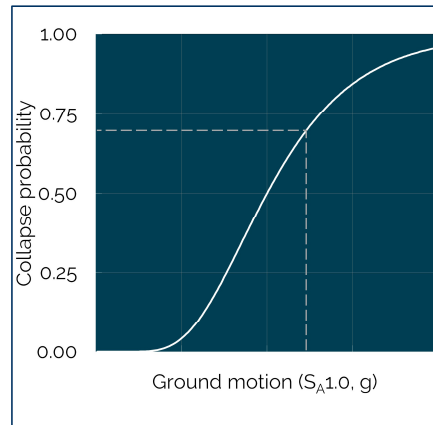
Assets



Hazard



Vulnerability



Damage



Loss



Repair costs
Life-safety impacts
Loss of function...

Account for probabilities, get present value of future loss $PV(L)$

$$\text{Benefit} = PV(L_{\text{as-is}}) - PV(L_{\text{mitigated}})$$

$$\text{BCR} = \sum(\text{Benefit categories}) \div \text{Cost}$$

A resilient runway at PDX saves over 50:1

BENEFIT-COST RATIO

FOR EVERY \$1
SPENT ON THE
PDX RUNWAY,
APPROXIMATELY
\$50 WILL BE
SAVED.



Benefit >\$7 B



Saves lives: medevac worth \$460 million in health and medical benefits



Speeds return to homes and workplaces: \$5.7 billion saved when experts arrive to help people return to 600,000 safe buildings



Avoids business interruption: protects \$1.2 billion in regional, US economy reliant on PDX



Reduces repair cost: \$4 million in avoiding predictable runway damage

Portland State University Equity Analysis (on-going)

1. **Demographic analysis of job loss and business interruption impacts (builds on NIBS' analysis)**
2. **Qualitative study to create an in-depth understanding of most affected communities**
3. **Moves beyond basic demographic dataset information through interviews and focus groups (following PSU School of Social work methods and practices)**



Questions?

- Alex Howard, Port of Portland – alexandra.howard@portofportland.com
- Ann Gravatt, Port of Portland – ann.gravatt@portofportland.com
- NIBS Mitigation Saves: PDX Report – <https://www.nibs.org/projects/PDXreport>