



The Day After

The role of Oregon's airports in the aftermath of the Cascadia Subduction Zone (CSZ) megathrust earthquake

HB 3058 Report - January 2024

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HB 3058

- Sponsored by Representative Paul Evans and passed in May 2023, the bill required ODAV to issue a report to the legislature by end of Dec. 2023.
- The report had the following requirements:
 - Focus on the role of airports after a CSZ megathrust earthquake.
 - Report on airport resiliency, rank airports, and offer an investment and funding strategy for the legislature to consider.
 - Consultation with state agencies and other stakeholders (15)
 - Six months to complete with no funding.



Oregon's system of airports

- # of public use airports

Coast (17)

Valley (10)

Portland (10)

Gorge (6)

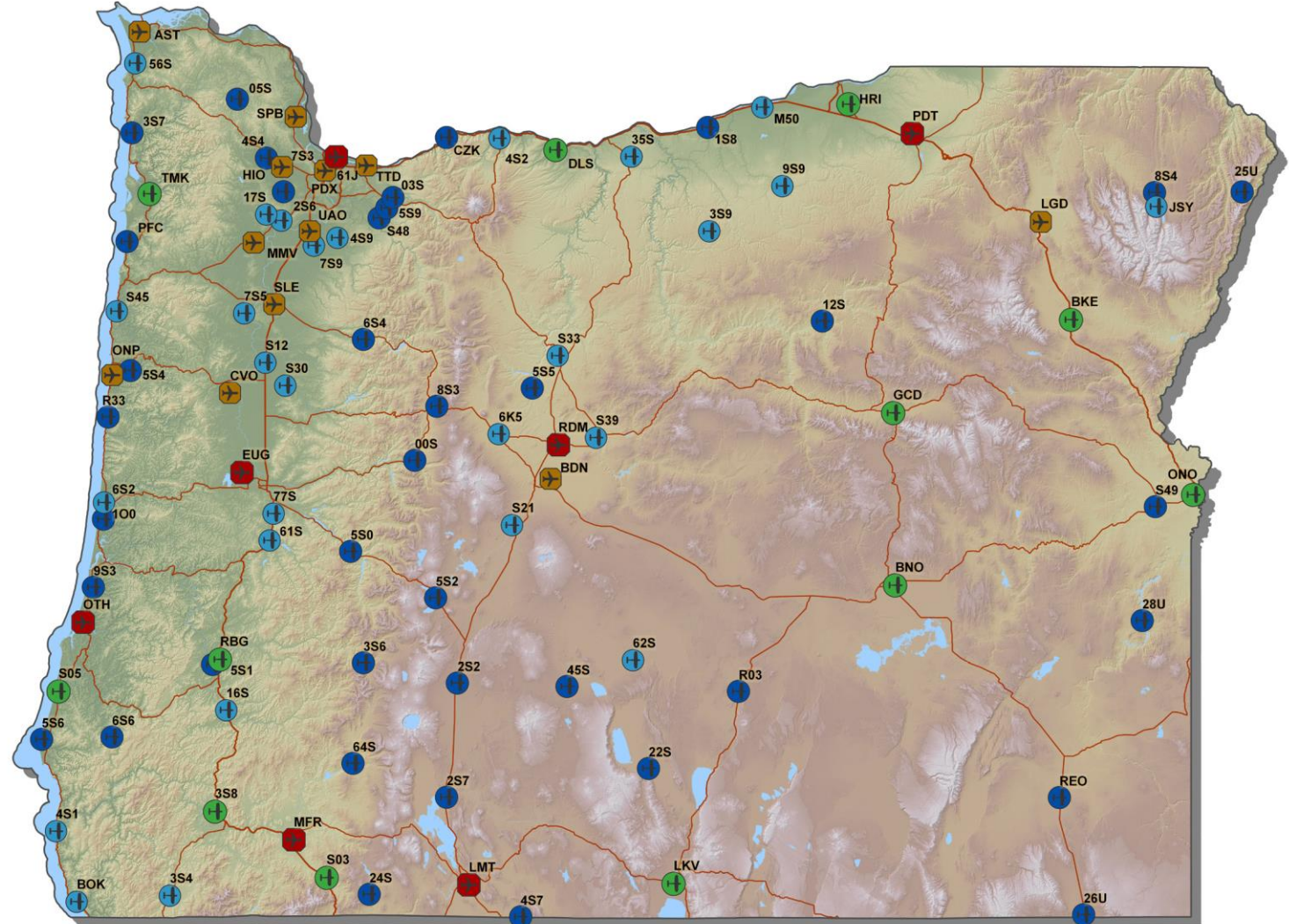
Central (7)

Southern (21)

Eastern (25)

- Airports with:

- Air ambulance bases (15)
- Based wildfire aircraft (11)
- Coast Guard stations (3)
- Control Tower (11)
- Commercial airline svc (7)
- Scheduled Air cargo (14)



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- **3.7 million** Oregonians live in the moderate to severe impact zones west of the Cascades.
- Multiple critical infrastructure systems will fail simultaneously. Restoration of services and infrastructure is expected to take months or years.
- Until the roads can be cleared and repaired, airports will be the only access for many affected communities.



January 1, 2024 earthquake, Japan

Response and recovery airports and aircraft

- After the earthquake, surface transportation linked across the Cascades and through the Columbia River Gorge are expected to experience significant and crippling damage. Waterways will likely be blocked by downed bridges and debris.
- For most of western Oregon, the only access will be by air. While helicopters will play a major role in the response, only **5%** of the US aviation fleet are helicopters. The other **95%** are fixed wing aircraft that require a runway.
- Oregon has 97 public-use airports
 - 17 Coastal 16 Valley 9 Portland
 - 6 Gorge 7 Central 21 Southern
 - 20 Eastern



Lessons learned from the past ten years

- The Oregon Resilience Plan (2013) lists 28 airports “with the potential to maintain or quickly restore operational functions after a major earthquake.”
- Albany, Aurora, Bandon, Brookings, Cape Blanco, Corvallis, Cottage Grove, Creswell, Eugene, Florence, Gleneden Beach (Siletz Bay), Grants Pass, Hillsboro, Independence, Klamath Falls, Lebanon, McMinnville, Medford, Myrtle Creek, Newport, Portland Heliport, PDX, Redmond, Roseburg, Salem, Scappoose, Tillamook, and Troutdale.
- Many of these are on the coast, or in the Willamette Valley.
- Today (2023) we believe 25 airports will be quickly operational (1-3 days) after the earthquake
- Arlington, Baker City, Bend, Boardman, Burns, Chiloquin, Christmas Valley, Condon, Enterprise, Hermiston, John Day, Joseph, Klamath Falls, La Grande, Lakeview, Madras, Malin, McDermitt, Ontario, Pendleton, Prineville, Redmond, Sisters, Sun River, Wasco
- All are in central & eastern Oregon

Airports will be the lifeline

- 10M people live in the moderate to severe impact zone west of the Cascades, including 3.7M Oregonians.
- Airports will play a critical role until surface links and maritime links can be restored.
- Airports will need specialized equipment, and most cannot afford to acquire equipment with their limited budgets.
- Federal transportation grants do not cover resiliency equipment or pavement.



Airport Operational recovery

- For airports to reopen, they will need at least one functional runway. This means runways and parallel/stub taxiways must:
 - Be smooth and free of debris
 - Have cracks, holes and lips of no greater than 3" wide or deep
 - Be clear of obstructions
 - Have pavement markings that are clear, accurate and visible under daytime visual flight rule conditions
 - Have proof rolling to verify strength and stability after suspected liquefaction or submergence
- Airports must have a way to communicate with aircraft



Surigao runway earthquake damage

Estimated reopening time

1-3 days (25)

Central and eastern Oregon airports

Within one month (11)

Aurora, Cape Blanco, Eugene, Independence, McMinnville, Medford, Newport, Hillsboro, Portland International*, Salem, Tillamook

Within three months (8)

Albany, Brookings, Corvallis, Creswell, Hood River, Troutdale, Scappoose, The Dalles

Within 6-12 months (19)

More than 1 year (24)

*Depending on status of runway hardening.



Priorities

- Fuel storage
- Communications
- Pavement
- Water and sanitation
- Lighting



Oregon's Achilles Heel - Fuel

- Most aircraft rely on petroleum fuels to operate.
- 90% of Oregon's petroleum fuel is stored and distributed via the Critical Energy Infrastructure (CEI) Hub in Portland (which is expected to sustain major damage during the CSZ earthquake).
- Oregon's airports have a combined storage of 4.1M gallons of aviation fuels, with **90%** of it stored at airports in western Oregon (and 70% of that is stored at one airport -PDX).



Portland Int'l Airport

Pavement

- Currently, no US airport has a runway capable of remaining intact during a megathrust earthquake.
- PDX is in the design phase of a project to harden the south runway.
- The current estimated cost to harden half of the south runway is \$200-\$300M.
- Without a usable runway, Oregon's airports will be limited to rotor-wings only. Without a usable helipad or apron, even the rotor-wings may not be able to land (strength, stability, debris)
- Oregon needs to harden at least 4 runways in western Oregon, and at least one helipad at each airport.

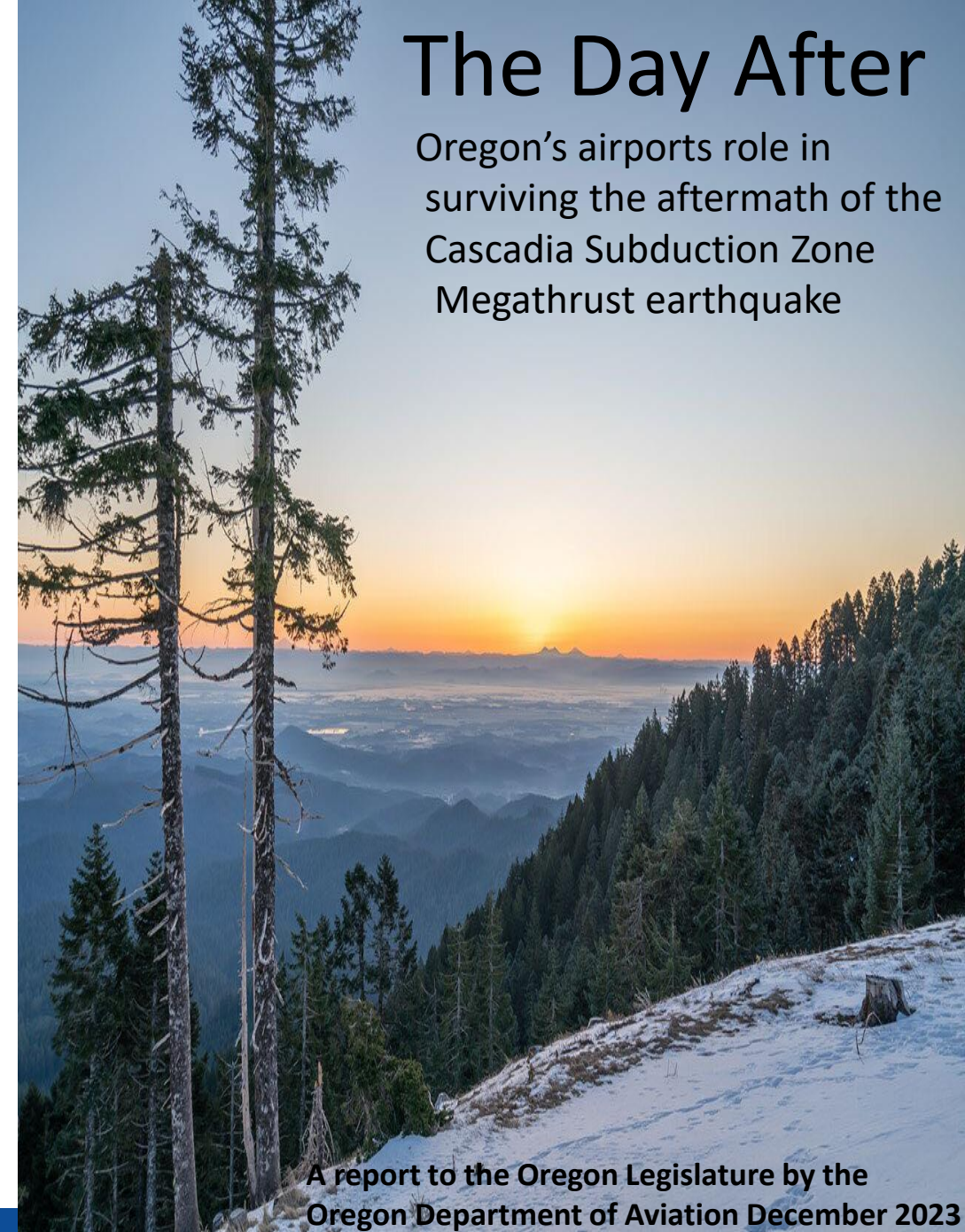


Investment Strategy

- Resiliency equipment or construction are not currently eligible for federal transportation funding
- State aviation grant funds are very limited (about \$2M/year, used for federal grant match, some resiliency and economic development)
- State general funds used for OEM's SPIRE program (grants for first responder equipment)
- State general funds requested for the proposed pilot program called SARA grant program

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Oregon's airports role in surviving the aftermath of the Cascadia Subduction Zone Megathrust earthquake



SARA grant program

- Statewide Airport Resiliency Assistance
- Patterned after state OEM's SPIRE grant program
- Administered by ODAV or OEM
- Grant applications reviewed and ranked by a committee of emergency management experts
- Approved by the State Aviation Board
- Two-year pilot program, funded at \$10M/year for two years
- Annual report to the Legislature



What equipment would it would fund?

- Generators
- Sweepers
- Communications (COWs)
- UAS (drones)
- Forklifts
- Loaders
- Fuel storage
- Message Boards
- Communications (Unicom and CTAF)
- Water storage and purification
- Portable lighting
- Aircraft traffic control (ground)



Summary

- In emergency preparedness, there is the ‘rule of three’. You can survive:
 - Three minutes without oxygen
 - Three days without water
 - Three weeks without food
- **3.7M** Oregonians live in the moderate to severe impact zone. Most of them will survive the 5-7 minutes of shaking, **but will they survive the aftermath?**
- An investment in airport resiliency may save the lives of millions of Oregonians and will play an integral role in rebuilding our state in the aftermath of the CSZ megathrust earthquake.



QUESTIONS?