

Report on State Funding of Oregon Hazards Lab



UNIVERSITY OF
OREGON



- **Governor's 2018** Policy Agenda
 - Recommended \$12M **for statewide emergency warning system**
 - **August 2020** special session awarded \$7.5M for ShakeAlert and telemetry improvements
 - **February 2022** short session awarded \$4.5M for ALERTWildfire
- **Progress** and the **plan** ahead
- **Leveraging \$12M** state investment to create new opportunities for Oregon
- Expanding ALERTWildfire in Oregon is coupled with **statewide coordination**



STATE OF OREGON
Office of the Governor
KATE BROWN

Resiliency 2025: Improving Our Readiness for the Cascadia Earthquake and Tsunami

The Governor has directed the State Resilience Office to implement a statewide emergency warning system by 2023 that ties multi-hazard events: **earthquakes, wildland fires, landslides, and flooding events** into one alerting and monitoring system.

- The **urgency** of societal needs is building infrastructure to support **resilience monitoring** and **alerting**
- Success **requires collaboration** with regional stakeholders, policy makers, and public/private partners
- The resulting **infrastructure** and **social networks** better **serve the public** and provide a **just future**

The Really Big One



Earthquake & Tsunami, Japan

Shake!lert[™]

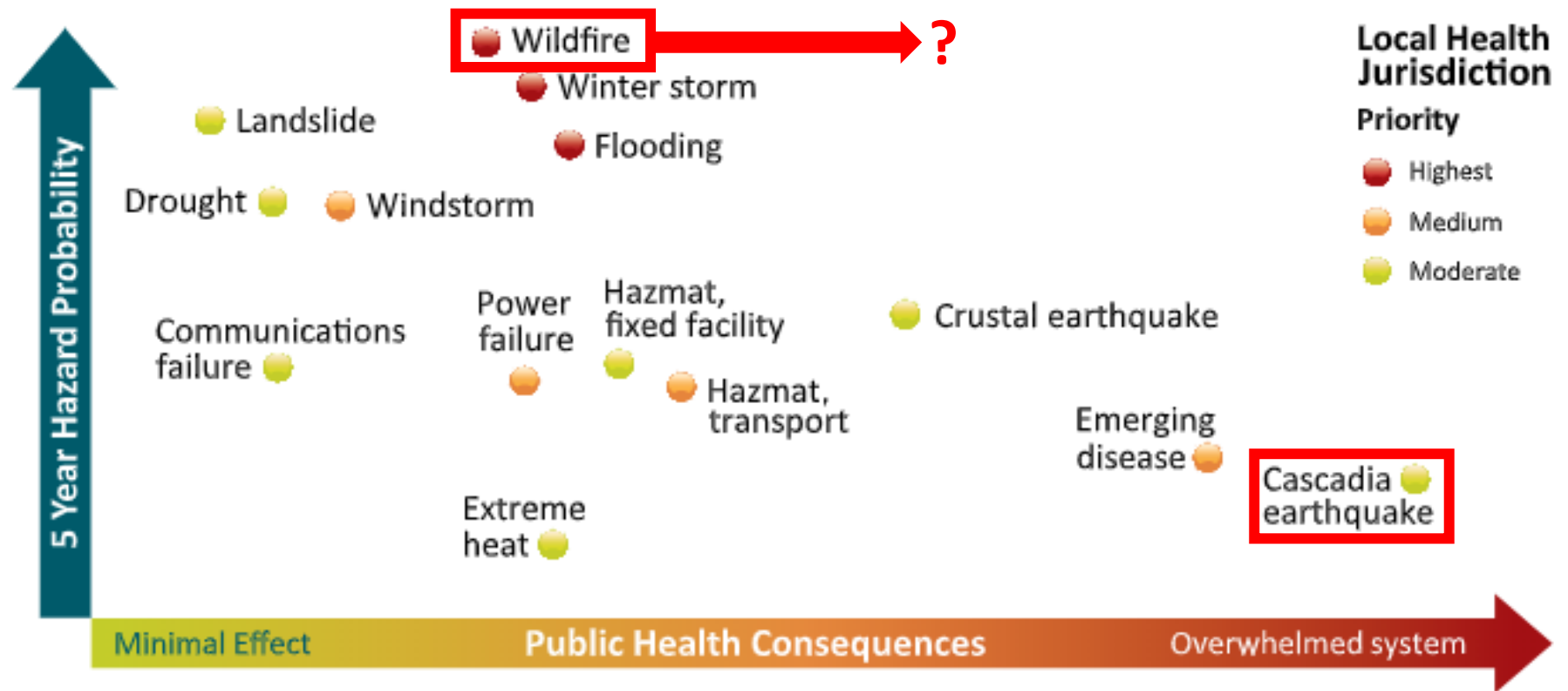
The Really Frequent Ones



Eagle Creek Wildfire, Cascades Locks, OR

ALERT  **ildfire**

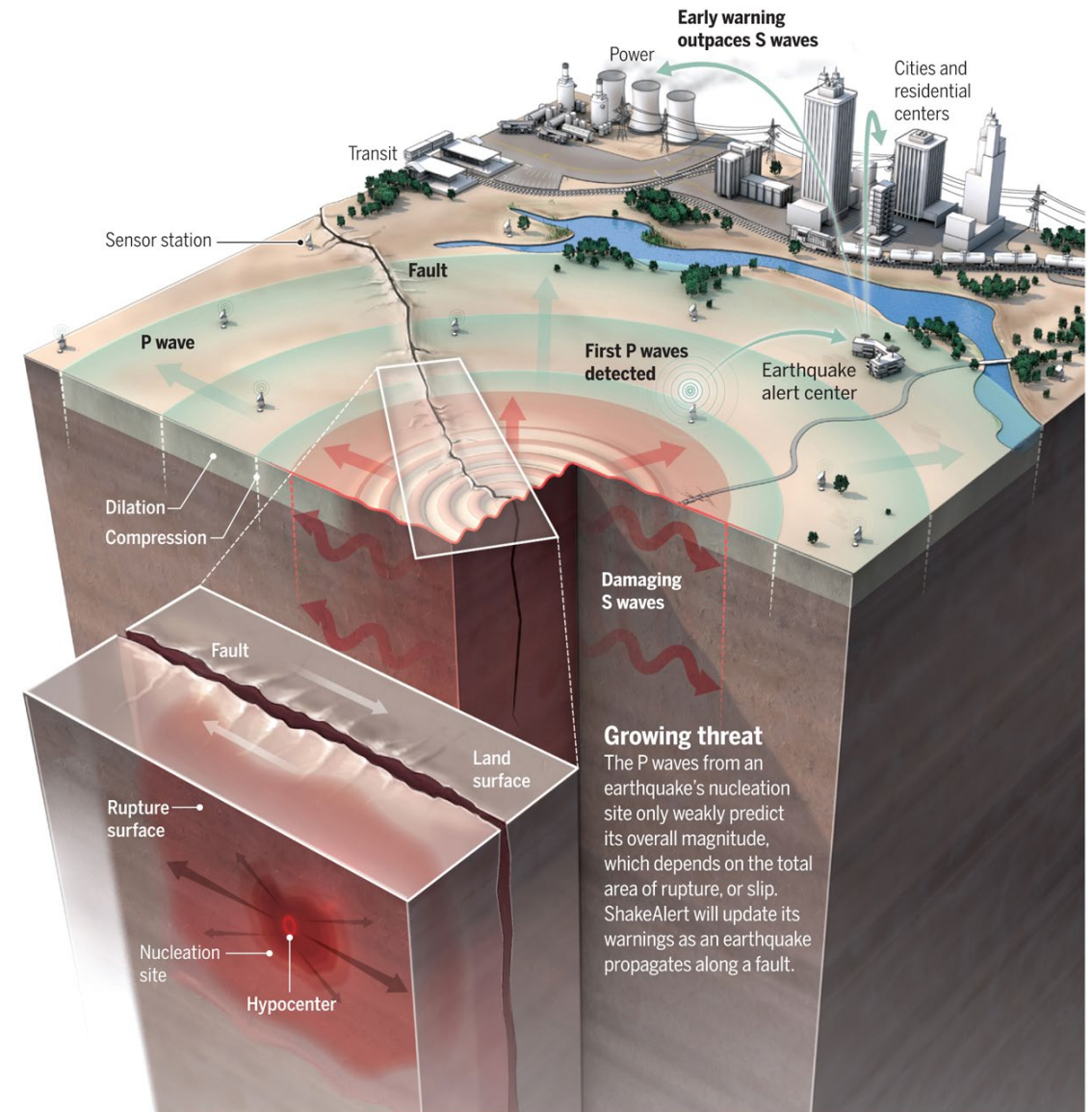
Figure 1 Oregon's Public Health Hazard Vulnerability Assessment (PH-HVA)



ShakeAlert™

Earthquake Early Warning System

- **Public safety project** for west coast of North America
- State support will complete buildout of ShakeAlert by 2023 (including networking upgrades)
- **Public alerting** began March 11, 2021
- USGS currently provides ~\$1.8M/year to UO for support of system

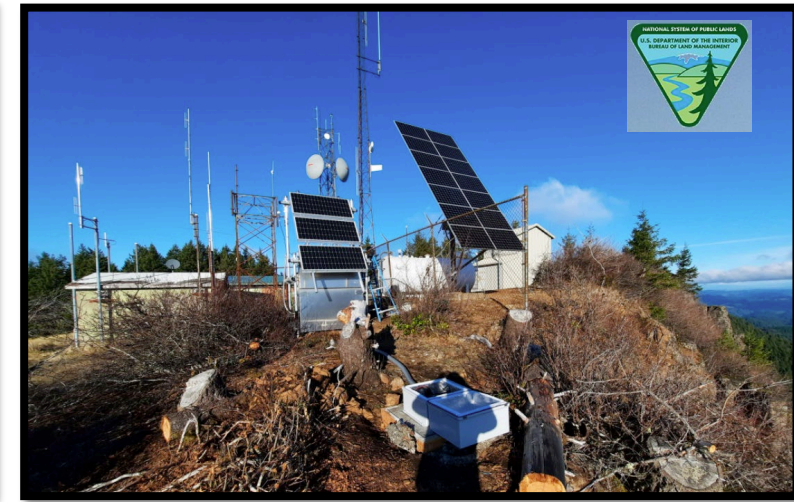


State Bond Project: Progress

- New UO project **personnel hired**
- Rapid progress on **shovel-ready sites**
- Seismic and telemetry site buildouts **establish and hone processes and procedures**
- Telemetry planning: **coordination is key** — social networking before IT
- Staging of **multiple contractors** well underway
- Bond project **accelerates** current and future work
- Complete station array by 2023 (250 seismic sites in OR)



UO rooftop microwave receive hub



Roman Nose: Collocated at **Douglas County** comms site, **BLM** land



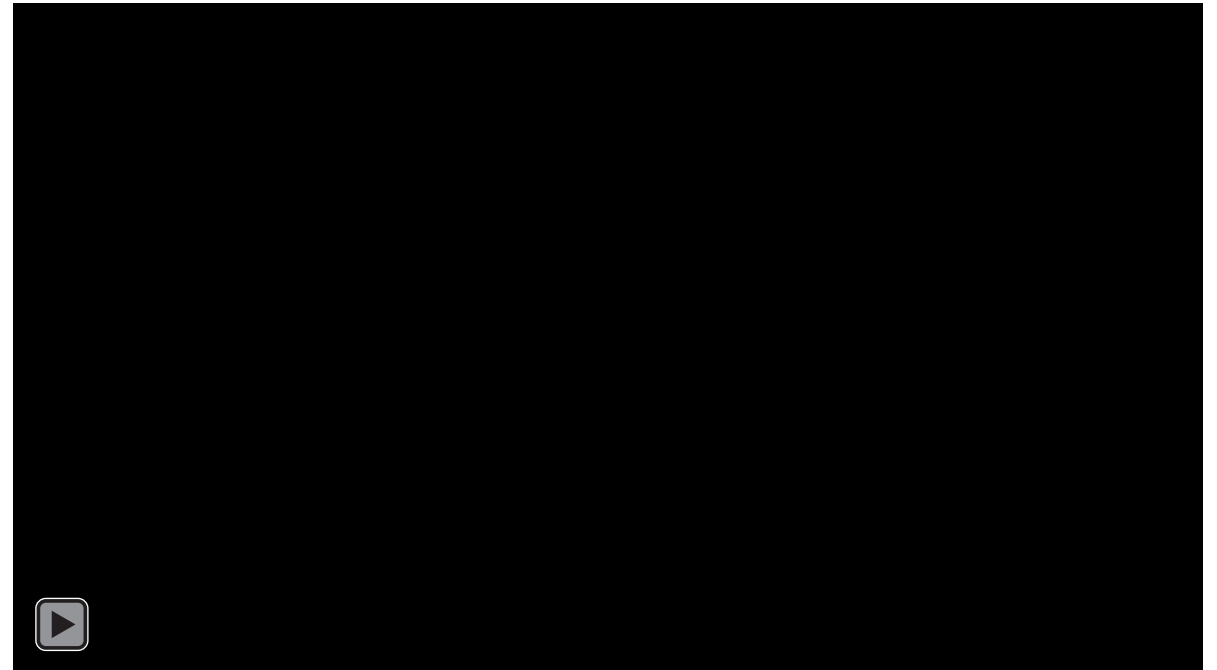
Buck Mountain **ODOT** hub: link between UO and **Lane County Sheriff's Office**



Euchre Mountain: Collocated at **ODOT-SRP** site, **state microwave**

ALERTWildfire: A unique wildfire detection and monitoring system

- Only camera system accessible by both **firefighters** and **public**
- **Firefighters:** Direct access to pan-tilt-zoom features, geolocation of fires, real-time information critical to response
- **Public:** Does not control cameras, but has real-time view of their risk
- **Distributed:** control via phone, laptop
- **Hardened:** for emergency and public access



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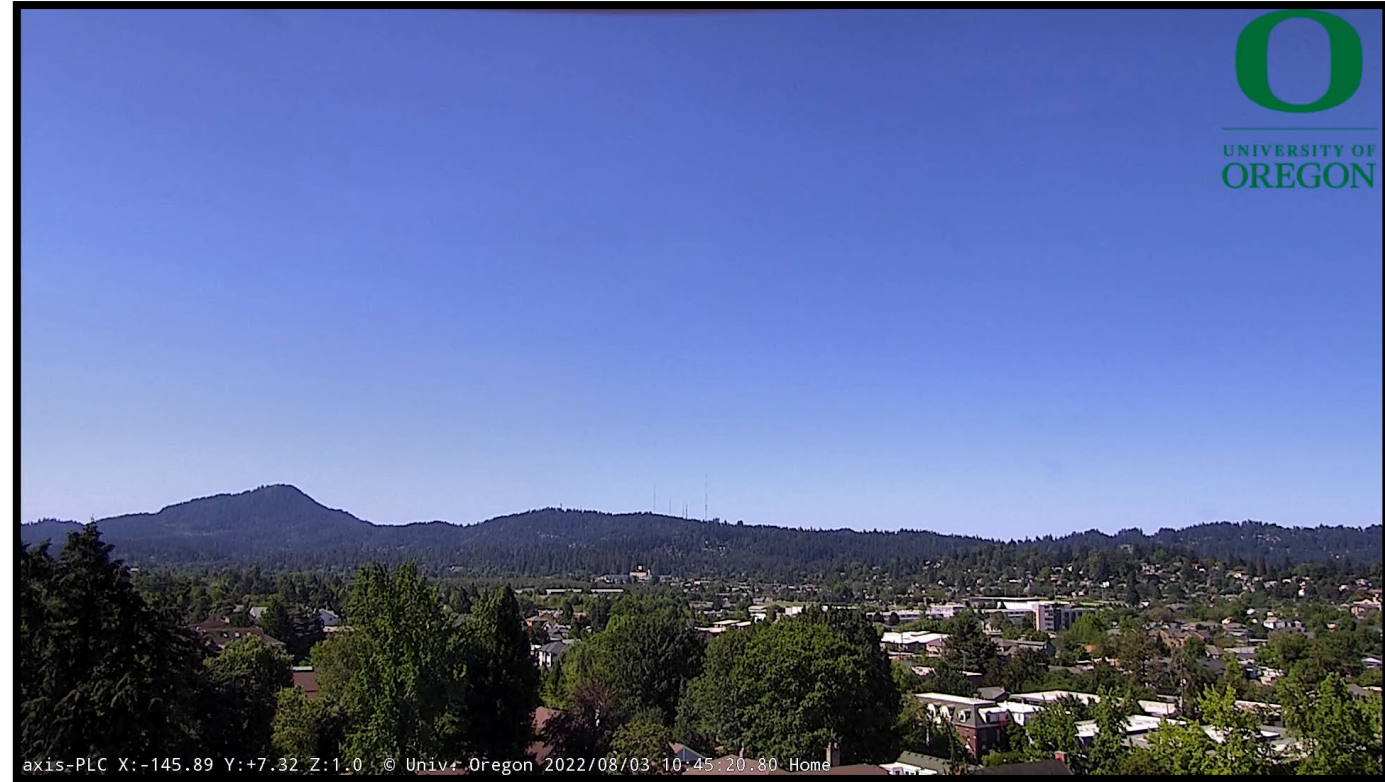


UC San Diego



State Project: Progress

- **February 2022** short session awarded \$4.5M for ALERTWildfire
- **UO provided loan** to jumpstart project prior to arrival of state funds
- Project benefits from prior telemetry planning
 - Nine sites built thus far
 - 35 sites is target number
- **Currently 28** sites total in Oregon
- Projected growth to **75+ sites by 2024**
- **Coordination with ODF**, other agencies, and development of charter leverages opportunities

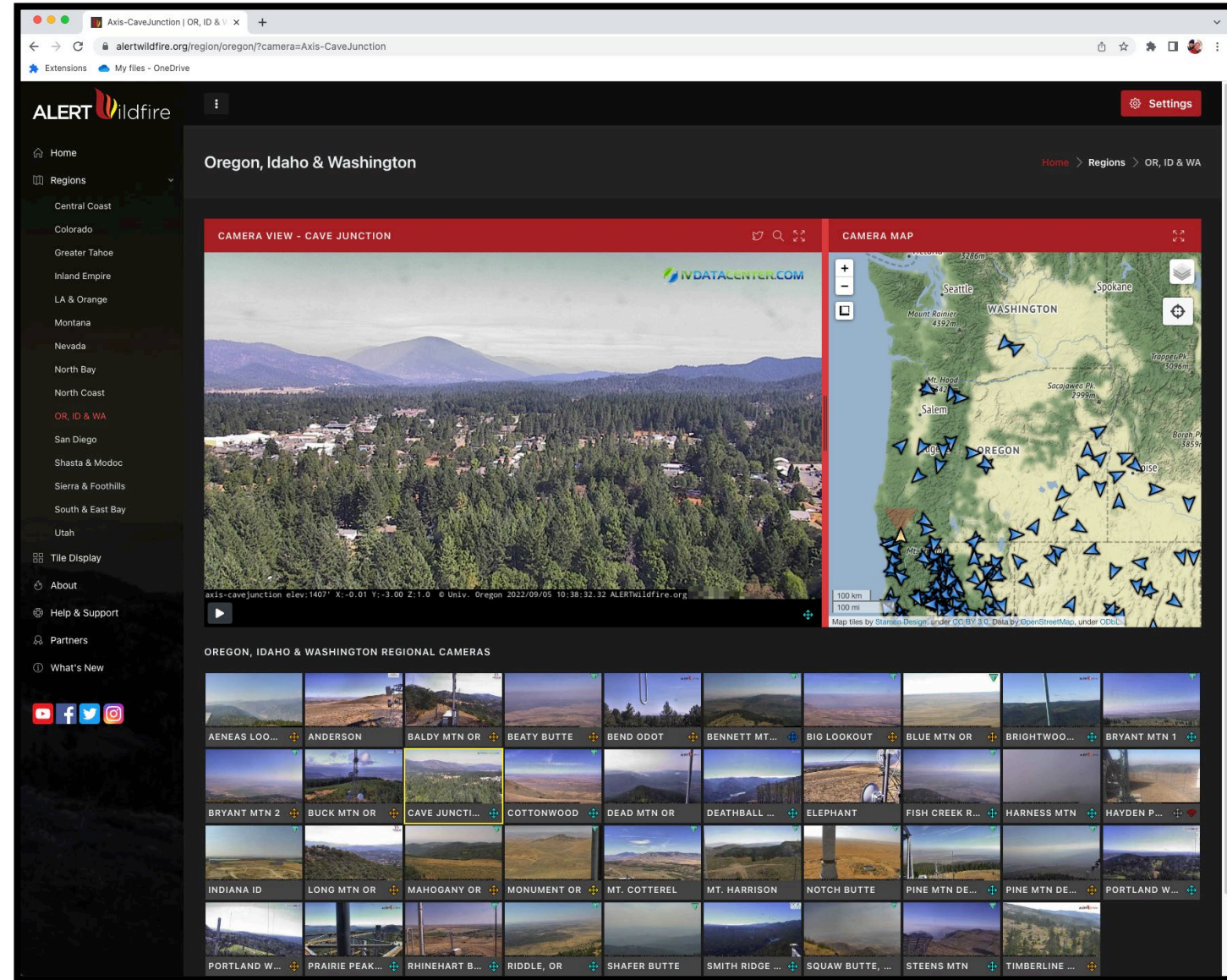
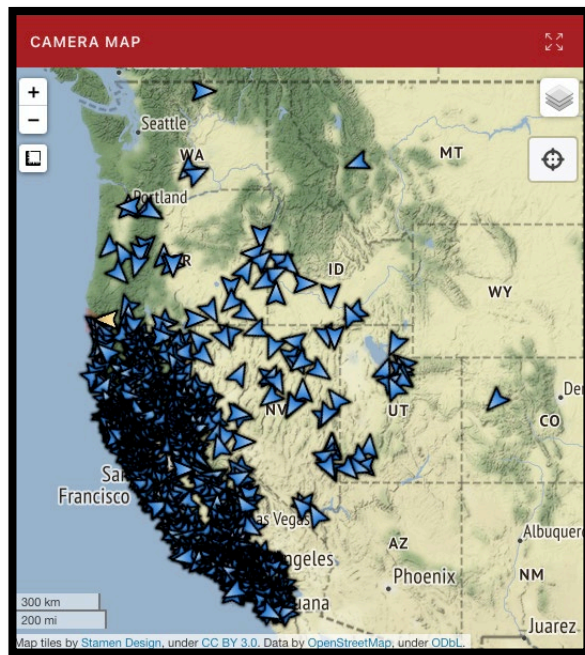


View of Eugene south hills from UO-hosted site.
Also, a data receive hub for regional hazards network

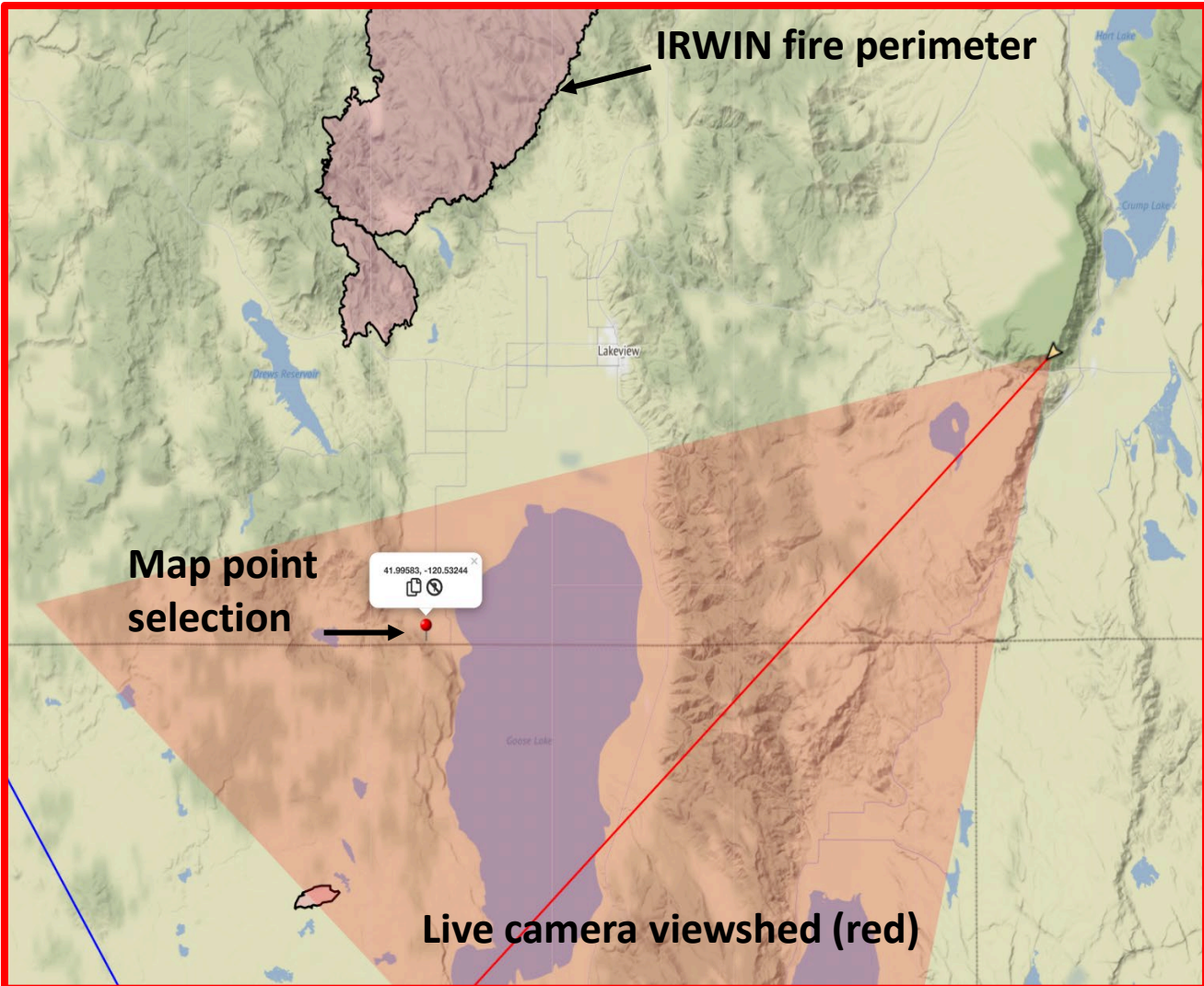
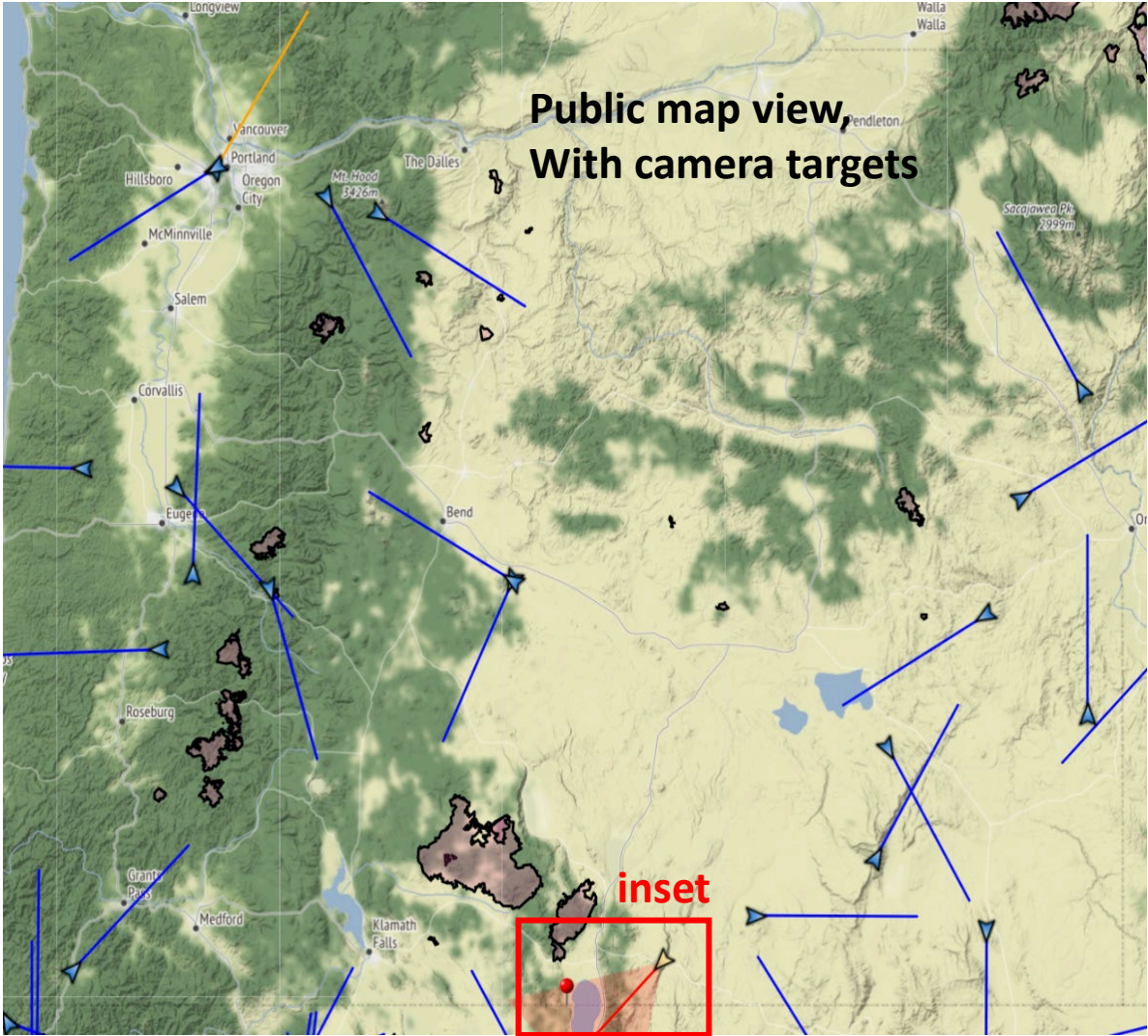
ALERTWildfire functionality: Public access

www.alertwildfire.org

- Present in 8 western States with over **1000 operational sites and growing**
- **Open and free access** to public focuses on issues of **equity** and social justice
- Saves lives through improved situational awareness

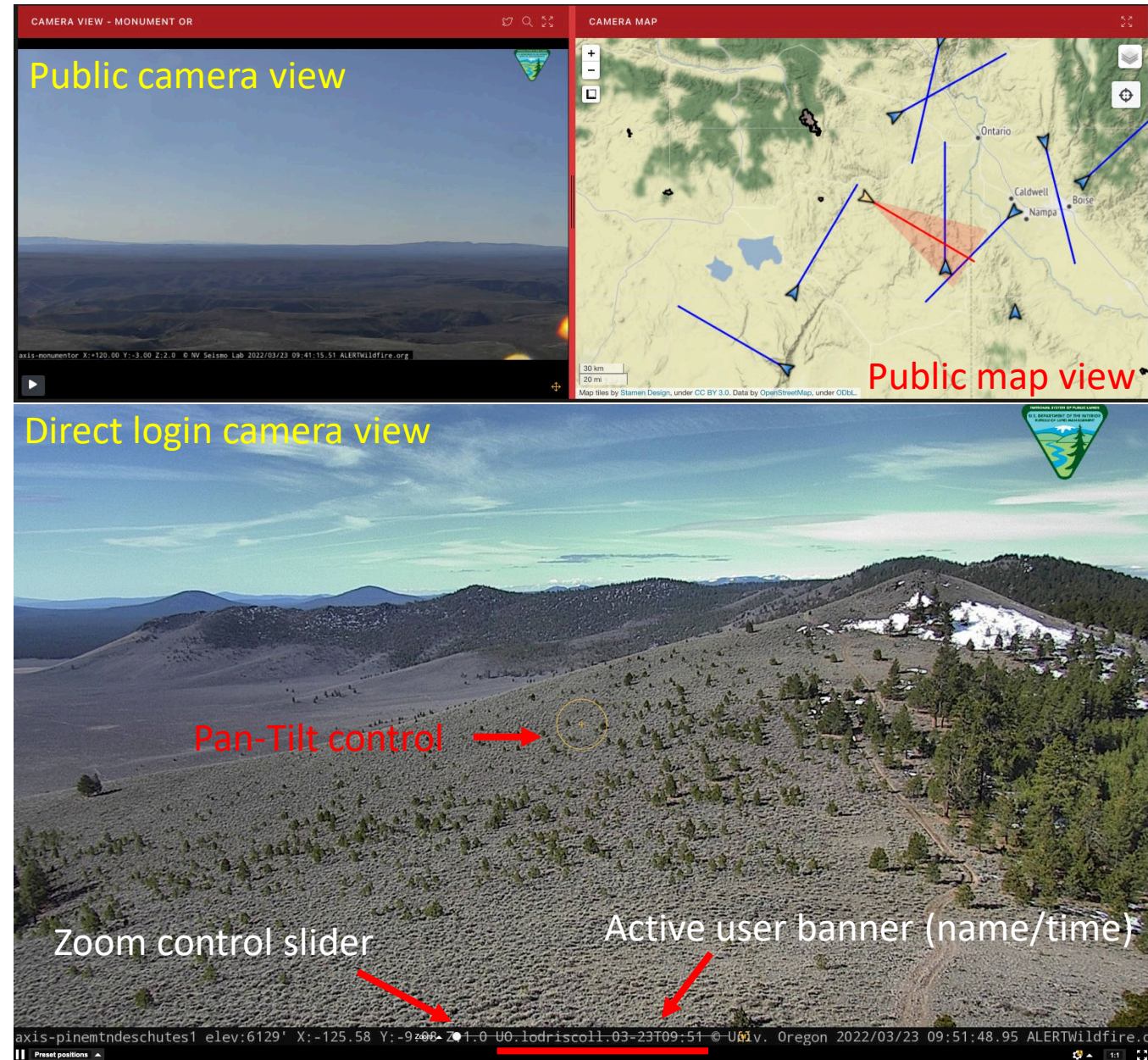


ALERTWildfire functionality: Public map features



ALERTWildfire functionality: Private login and control

- Credentials provided to **all responsible stakeholders** and **sponsors**
 - ODF, BLM, NFS, Fire Chiefs, emergency managers, etc.
 - Utilities, internet service providers
- **Uniform touch space** and functionality across 8 western US states **improves coordination between agencies**
- Uses extend beyond fire response, for example, evaluation of fuels, vegetation management, controlled burns, weather conditions





Benefits of linking ALERTWildfire and ShakeAlert programs

- **Hardens** data communications of **ShakeAlert**, improving state resiliency
- Wireless, IP-based high-speed backbone **supports a multi-hazards system**; not a one-off alerting/detection system
- **Leverage funding sources** that amplifies investments
- Pulls together technical and human resources within the state to **improve coordination** and response.

Slide used in JWMCC testimony, **May 2019**
We are realizing this vision in just 3 years

LEVERAGING FUNDING SOURCES: **FEDERAL**

- ShakeAlert
 - **USGS**; recurring line item; decadal scale
 - Sustains trained personnel
- ALERTWildfire
 - **DOI-BLM** Financial Assistantship Agreement
 - Five years, includes OR and WA
 - **USDA-FS** via bipartisan infrastructure bill
- Intersection of Broadband and Hazard mitigation
 - Historic investments in broadband
 - **NTIA NOFO**: Ziplify, ODOT, LinkOregon, OHAZ coordination
- **DHS** Science and Technology
 - Chemical air sensors for AI detection of wildfire — OHAZ testing sensors for DHS
 - An open platform attracts other opportunities and investments
- **Inflation Reduction Act**



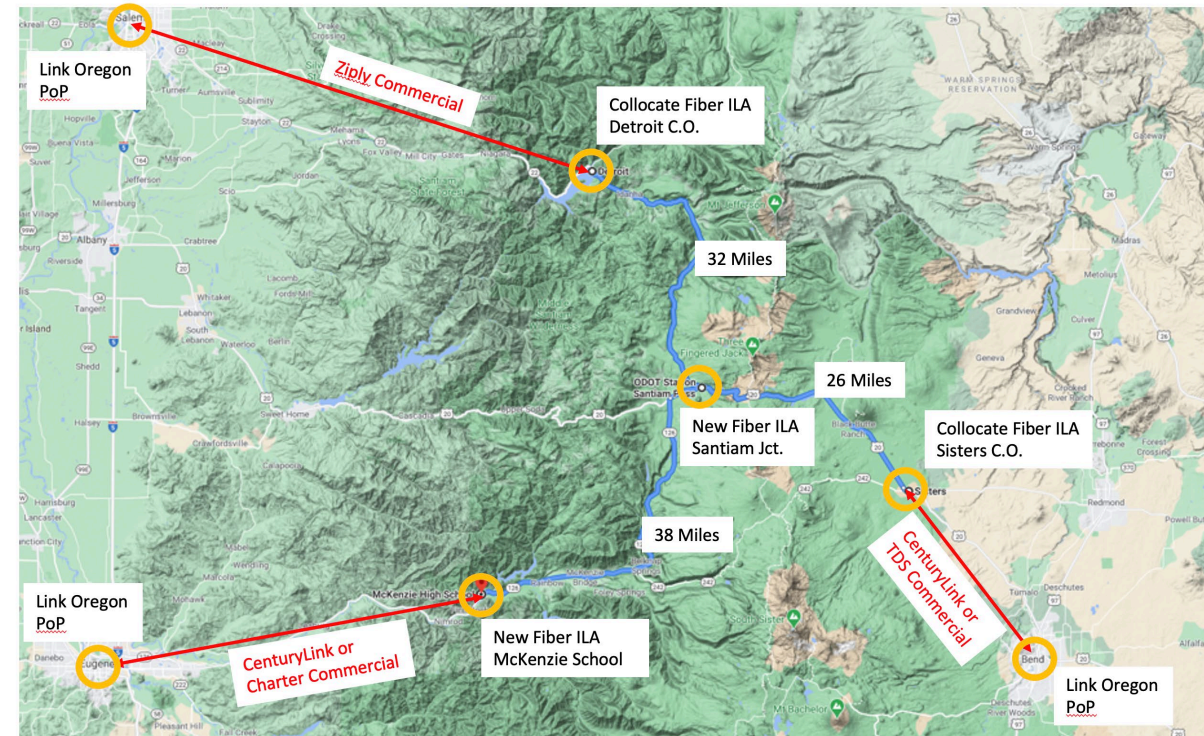
Beaty Butte: Remote SW Oregon site — BLM funded

LEVERAGING FUNDING SOURCES: **FEMA**

- In response to the 2020 wildfire season, **OHAZ proposed** several FEMA projects.
 - State funds leverage via match
- Willamette watershed emergency communications and multi-hazards alerting — **McKenzie and Santiam corridors**
 - Funded (~\$800K) — Scoping, planning feasibility study
 - Under development (~\$20M) — fiber, wireless, and hazards arrays
- **Rogue Valley Wildland-Urban Interface ALERT** Wildfire camera network
 - In review (\$1.8M)
 - Dozen+ cameras
 - AI Detection of fire starts (Alchera)
 - Connect to OR-Alert, local responders

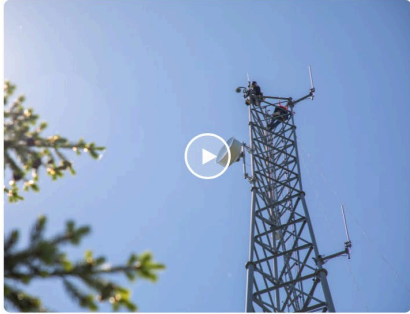
Build fiber where there isn't an existing commercial network. (96 Mi. of Backbone)

Commercial providers will be interested in asset trades for fiber diversity to complete paths.



LEVERAGING FUNDING SOURCES: UTILITIES

- **Investor-Owned Utilities**
 - Several IOUs owned by Berkshire Hathaway committed to ALERTWildfire
 - In CA (PacifiCorp)
 - In Utah (Rocky Mountain Power)
 - In Oregon, SOW and scoping underway (PacifiCorp)
- **Public Utilities**
 - Consumer Power
 - EWEB
 - Meetings with NWPPA
- **Shovel-ready solutions** now available
 - Variety of IOUs feed progress with increasing request for information



New camera atop EWEB tower will bolster wildfire early detection capabilities

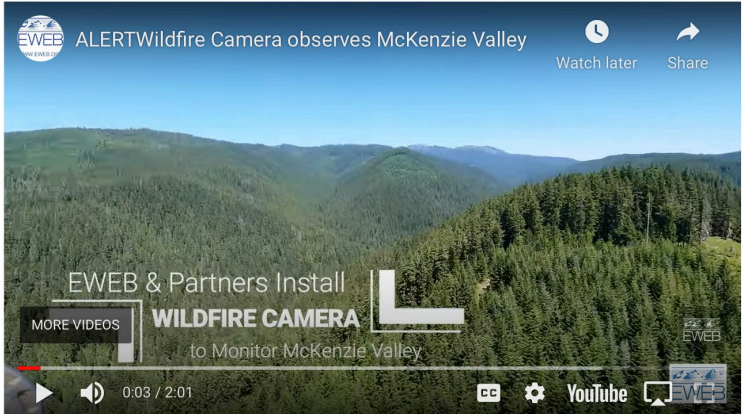
06/28/2022

A new digital fire lookout tower will soon be able to spot small fires before they threaten communities and infrastructure in the upper McKenzie River Valley, thanks to a new ALERTWildfire camera installed Monday on a communications tower owned and operated by EWEB.

The camera, which is mounted on an EWEB communications tower that provides radio communication for EWEB's Carmen-Smith hydroelectric project, will provide a live feed viewable by anyone at www.alertwildfire.org. This is the first ALERTWildfire camera in the area impacted by the 2020 Holiday Farm Fire.

ALERTWildfire is a project led by three universities, including the [Oregon Hazards Lab](#) at the University of Oregon, to provide cameras in wildlands that can help firefighters discover, monitor and contain wildfires. The first ALERTWildfire camera was installed in 2013 in Nevada, and the project now has more than 1,000 cameras across the American West.

"Early detection, especially in remote areas with steep terrain, is important for both emergency responders and the public, so they have time to make plans to stay out of harm's way," said Jeannine Parisi, EWEB's resiliency manager. "That's why we're working with the University of Oregon to provide the kind of long-distance visibility that any community member can access and quickly report if they see a wildfire."



LEVERAGING IN-KIND SOURCES: PARTNERSHIPS & COORDINATION


- OR-Alert
 - Issue timely and informative alerts, warnings and notifications
 - ShakeAlert/ALERTWildfire
- Link Oregon
 - High-speed Fiber Broadband for Oregon's Public and Non-profit Sectors
- ODOT — IGA for site access
- State Radio Project
- Wireless internet service providers (WISPs)
- Councils of Government
- Fire Districts
- Growing list of partners, e.g., Hood River community, Curry County, ...



IMPROVING COORDINATION & RESPONSE: **SB762 AND HB5202**



Legislative actions are the main catalyst for improved coordination

 UNIVERSITY OF OREGON

02/25/2022

Joint Committee on Ways & Means
900 Court St. NE
Salem, Oregon 97301


RE: Statewide Wildfire Camera Coordination


Co-Chairs Steiner Hayward, Sanchez, and Members of the Committee,

The State of Oregon has experienced increasingly extreme fire seasons with devastating impacts, both rural and urban. In response, Oregon has shown a commitment to mitigation and response strategies with the passage of recent policies and funding over the past several years. As we continue to discuss policies and consider investment strategies, statewide coordination for fire detection cameras are essential components to the mitigation efforts.

The Oregon Department of Forestry (ODF) and University of Oregon are working together on a coordinated statewide approach to camera coverage to provide critical monitoring of Oregon's vast and diverse landscape, from our Southern Oregon forests to our wheat fields in Umatilla County. ODF operates a camera system that currently covers ODF jurisdictions as well as neighboring federal partner and WUI lands (roughly one-third of the state). That leaves a significant portion of federal, state, county, private, urban, WUI and other lands in need of coverage. Deployment of ALERTWildfire in conjunction with ODF's system to achieve a shared goal of reliable, transparent, and efficient monitoring and response is paramount for the sake of fire resiliency in Oregon.

The Oregon Department of Forestry and University of Oregon are committed to coordination and are dedicated partners with a shared goal of statewide coordination. As Oregon moves forward on wildfire mitigation and prevention through policy and investments, we stand ready to work for all of Oregon.


Cal Mukumoto
State Forester
Oregon Department of Forestry

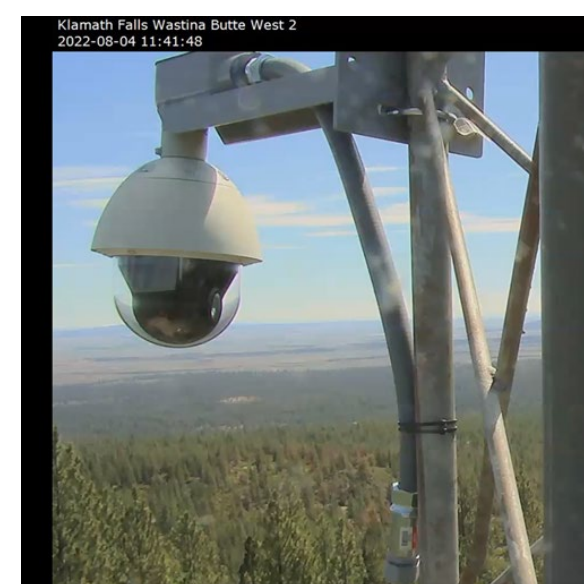

Doug Toomey
Director, Oregon Hazards Lab
University of Oregon

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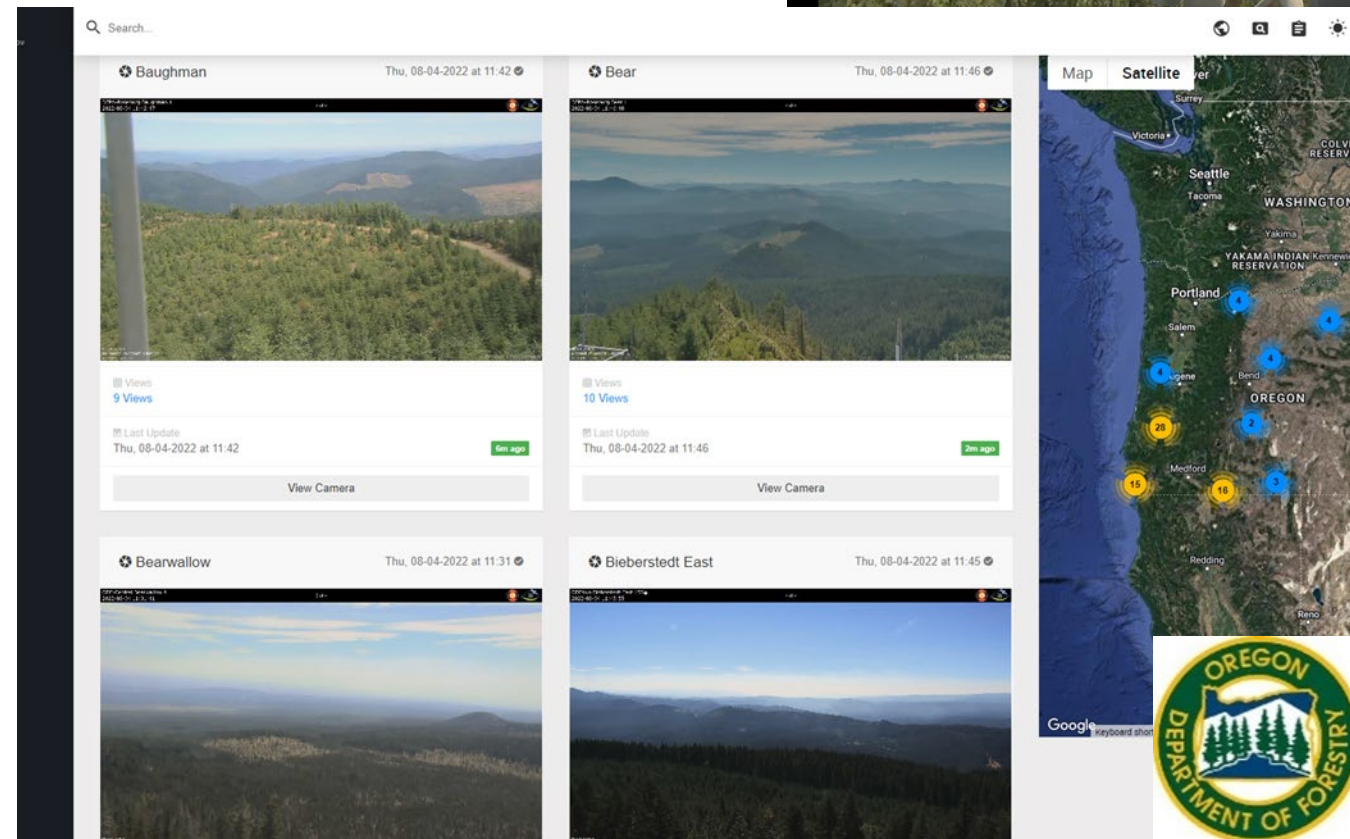

Doug Toomey
Director, Oregon Hazards Lab
University of Oregon

ENVIROVISION SOLUTIONS FORESTWATCH SYSTEM



- Comparable to the ALERTWildfire platform
- Piloted by Douglas Forest Protective Association since 2006
- Adopted by Oregon Dept. of Forestry in SW Oregon in 2013
- Adopted in Eastern Oregon in 2019
- 16 years of effective use

- ✓ Currently 85 cameras on 63 mountaintop sites (5 of these cameras are SB762 funded)
- ✓ Features pan-tilt-zoom, geo-location, smoke alert system
- ✓ Camera system controls available to camera operators, initial attack dispatchers and fire managers
- ✓ Access to camera imagery via credentialed access to fire service and emergency responders
- ✓ Distributed via phone, laptop, tablet



EVS FOREST WATCH

Tied directly to detection monitoring and initial attack response

- 5 Detection Centers
 - Douglas FPA (Roseburg)
 - ODF Southwest Oregon (Medford)
 - ODF Klamath-Lake (Lakeview)
 - ODF Central Oregon (Redmond)
 - ODF Northeast Oregon (La Grande)
- System alerts and geo-locates – tied to the FireWeb service
- All detection centers are co-located in initial attack dispatch centers
- A FLIR camera is being piloted in Douglas FPA for night detection
- Last year caught 25% of fires within the system viewshed as the initial detection
- An effective tool in the detection toolbox



A STATEWIDE SOLUTION

Oregon Wildfire Detection Camera Interoperability Committee

Established at the request of the Governor's Office

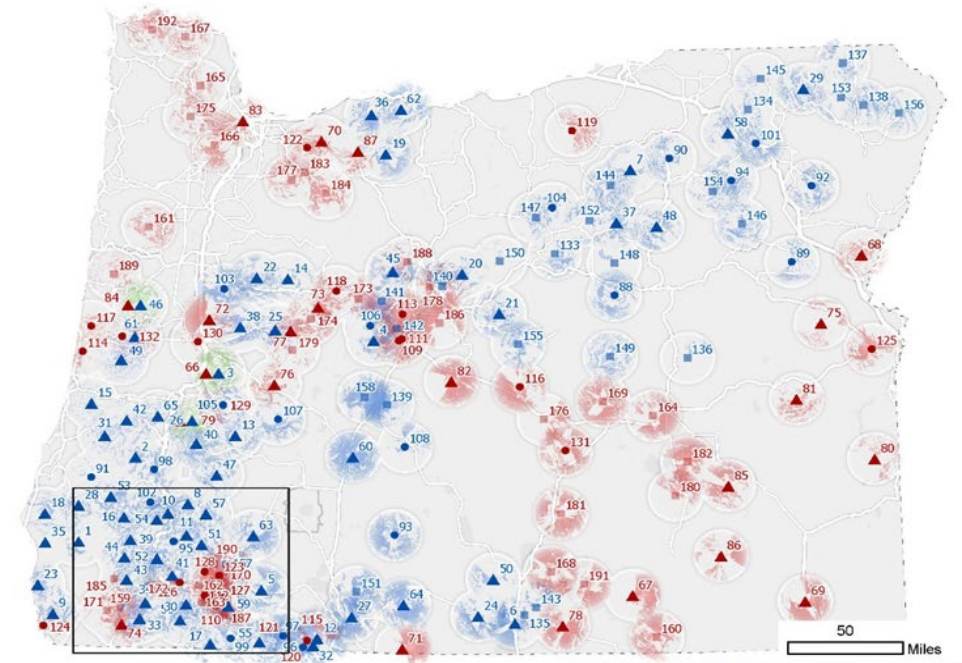
Oregon Hazard Lab and Oregon Dept of Forestry co-chair

Focused on collaboration in

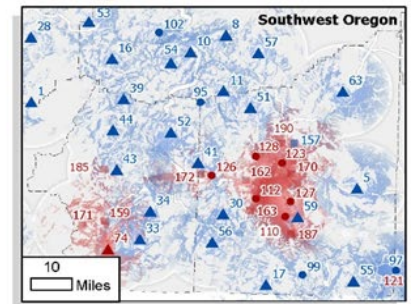
- Policy
- Technology
- Funding
- Interagency relationships

Recent efforts include

- Cooperative planning, site locating and permitting
- Shared media and legislative communication
- Joint discovery and solution-based efforts towards data sharing, data integration, shared monitoring & response
- Collaborative reporting and mapping



Operational (1-87)		Planned Through July 2023 (88-132)		Future (133-192)	
1 Sackinob	35 Round Bay	88 Alsea Mts	99 Alsea Mts	133 Baldy	145
2 Neugrove	36 Round Bay	89 Neugrove	100 Neugrove	134 Black Mt	146
3 Bear Mts	37 Round Bay	90 Bear Mts	101 Bear Mts	135 Clatsop	147
4 Anderson Butte	38 Round Bay	91 Anderson Butte	102 Anderson Butte	136 Clatsop Butte	148
5 Silver Butte	39 Silver Butte	92 Silver Butte	103 Silver Butte	137 Courteney Butte	149
6 Silver Butte	40 Silver Butte	93 Silver Butte	104 Silver Butte	138 Elk Mts	150
7 Silver Butte	41 Silver Butte	94 Silver Butte	105 Silver Butte	139 Elk Mts	151
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Future Cont.

- 193 Silver Butte
- 194 Silver Butte
- 195 Silver Butte
- 196 Silver Butte
- 197 Silver Butte
- 198 Silver Butte
- 199 Silver Butte
- 200 Silver Butte

EnviroVision Solutions Sites

- Operational (Blue Triangle)
- Planned Through July 2023 (Red Triangle)
- Future (Red Circle)

Alert Wildfire Site

- Operational (Red Triangle)
- Planned Through July 2023 (Red Circle)
- Future (Red Square)

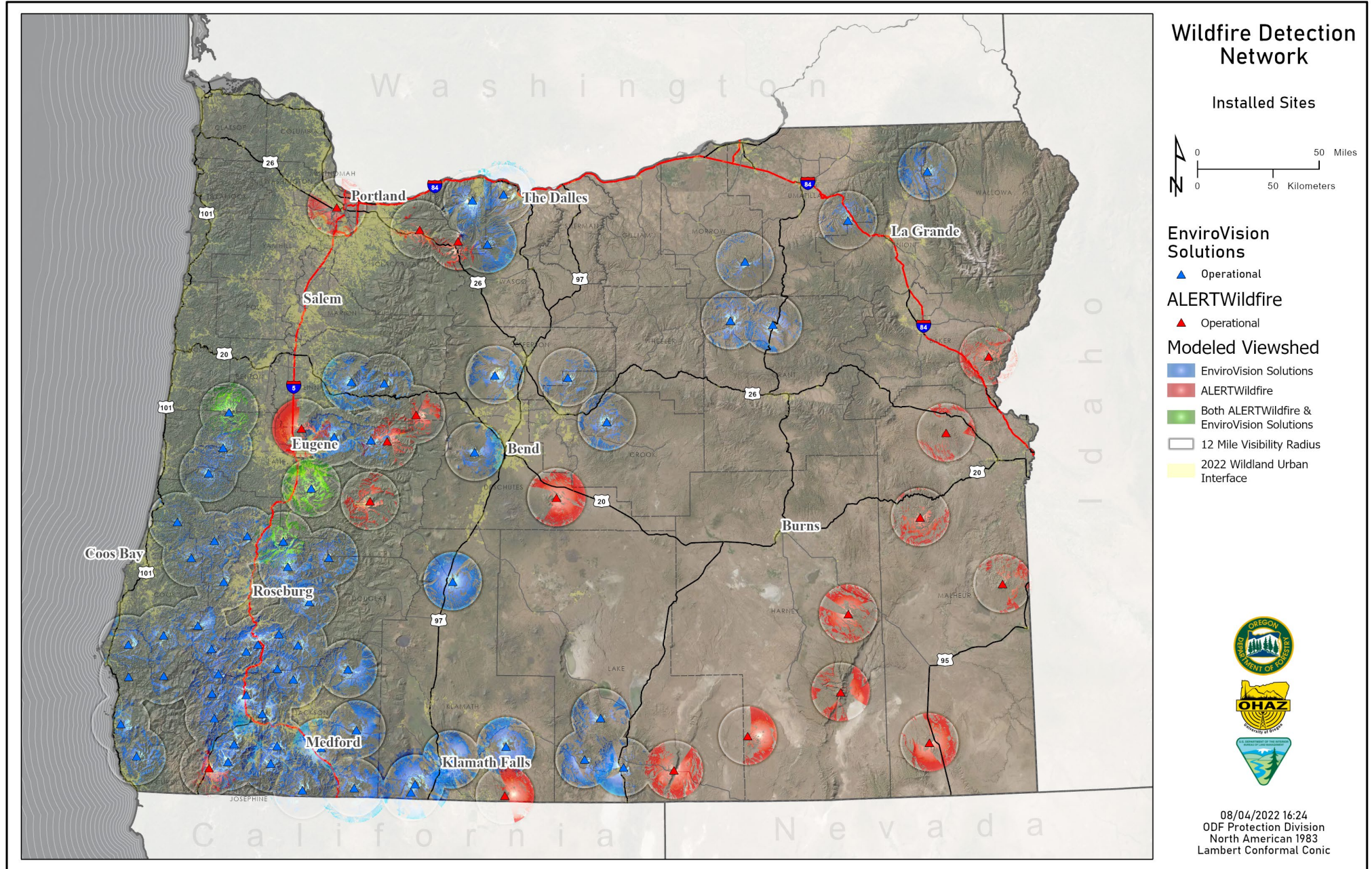
Modeled Viewshed

- EnviroVision Solutions (Light Blue)
- ALERTWildfire (Dark Blue)
- Both ALERTWildfire & EnviroVision Solutions (Green)
- 12 Mile Visibility Radius (Dashed Line)

STATEWIDE DETECTION CAMERAS:

Combined mapping:
EVS ForestWatch
and ALERTWildfire

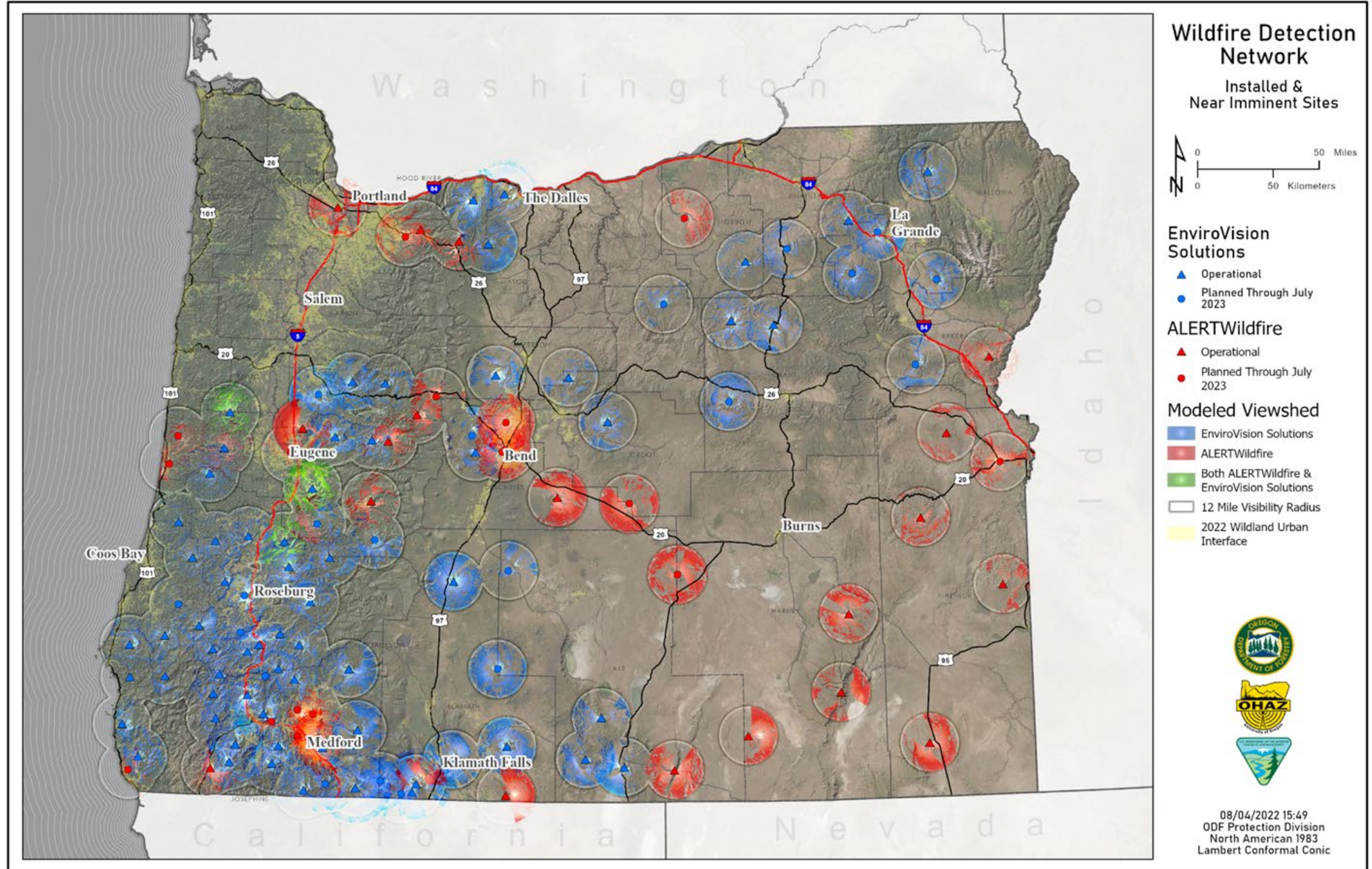
➤ Currently
operational sites



STATEWIDE DETECTION CAMERAS:

Combined mapping:
EVS ForestWatch
and ALERTWildfire

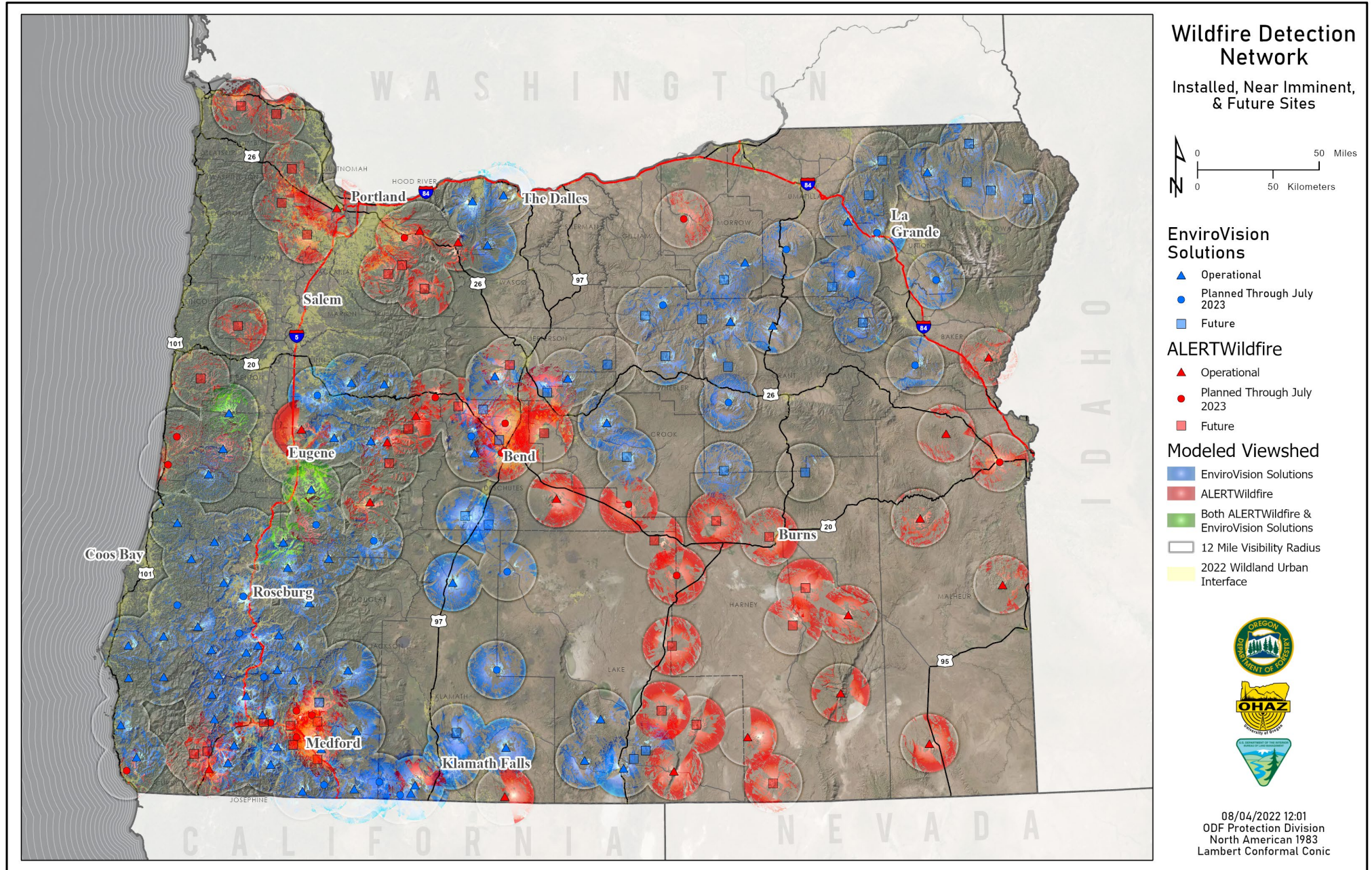
- Currently operational sites
- Planned through June 2023




STATEWIDE DETECTION CAMERAS:

Combined mapping:
EVS ForestWatch
and ALERTWildfire

- Currently operational sites
- planned through June 2023
- Future sites





PRESENTATION FOR THE
JOINT LEGISLATIVE COMMITTEE ON INFORMATION MANAGEMENT AND TECHNOLOGY
SEPTEMBER 23, 2022