

WARRENTON/
ASTORIA

MANZANITA (5)

NEDONNA
BEACH

PACIFIC CITY (3)

FLORENCE

BANDON

Hillsboro

OHSU

Portland
Portland State
University

State of
Oregon (EIS)

Oregon State
University

University
of Oregon

Newport

Corvallis

Salem

Eugene

Roseburg

Grants Pass

Medford

Ashland

Chemult

Bend

Prineville

Maupin

The Dalles

Boardman

Pendleton

La Grande

Baker City

IDAHO

Ontario

Vale

Burns

Boise

CALIFORNIA

NEVADA

10,000 ft

7,500

5,000

2,500

0



LINK
OREGON

Network Lighting Celebration and Second Annual Member Meeting

June 7, 2021

Today's presenters

Terrence Woods
CIO, State of Oregon

Dr. Danny Jacobs
President, OHSU (Keynote)

Rep. Pam Marsh
Oregon House of Representatives

Dr. Kristen Sheeran
Energy, Climate & Transportation Policy Advisor to the Governor

Dr. Colt Gill
Director, Oregon Department of Education

Joseph Franell
Chair, Oregon Broadband Advisory Council; President, Blue Mountain Network

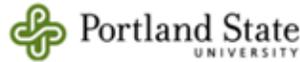
Dr. Doug Toomey
Director, Oregon Hazards Lab, University of Oregon

Dr. Robert Cowen
Director, Hatfield Marine Science Center, Oregon State University

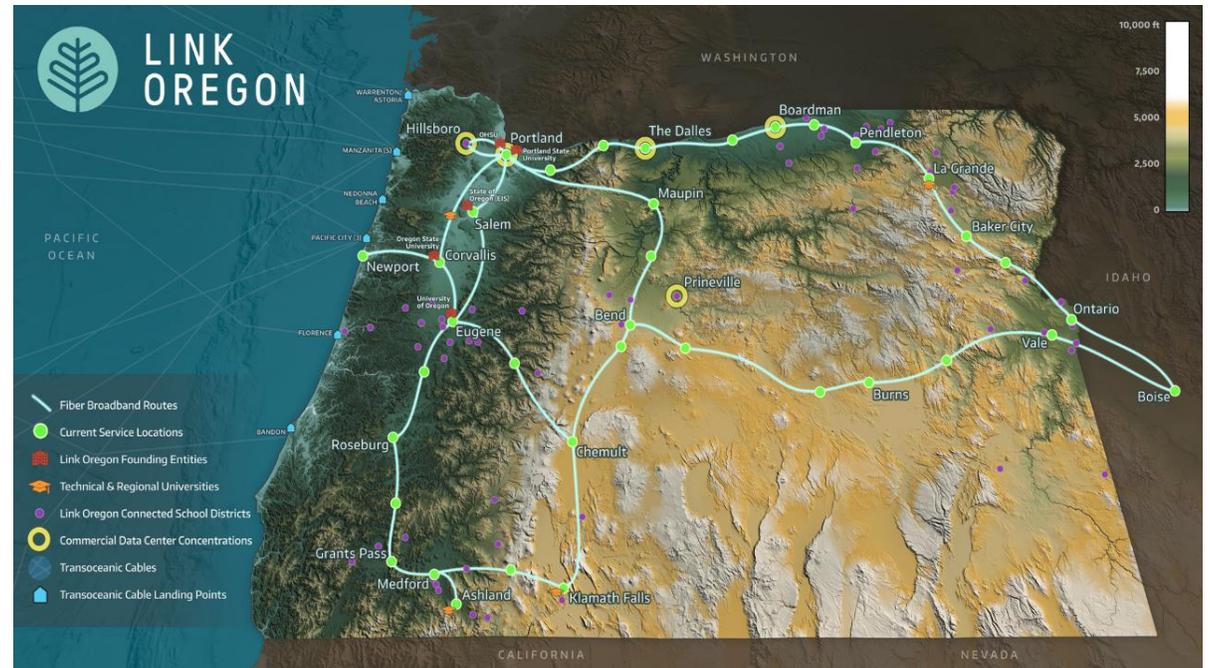
Dr. Steve Corbató
Executive Director, Link Oregon

Andrea Ballinger
CIO, Oregon State University

- Link Oregon is an Oregon non-profit consortium founded in 2019 by

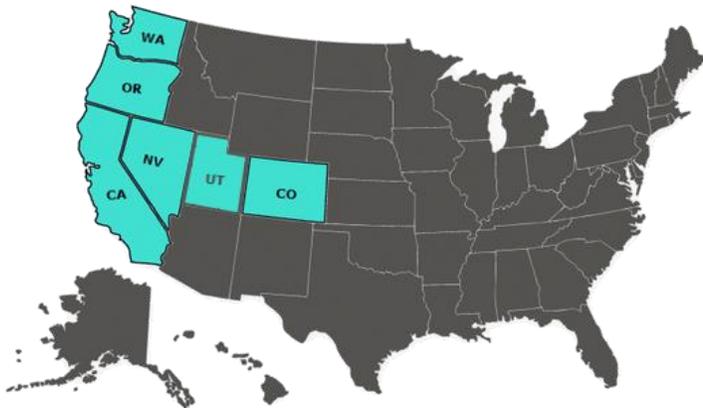


- Member-focused, middle-mile network provider with strategic board
- Uses dark fiber and other network assets to serve public and non-profit sectors
- Supports K-12 & higher education, healthcare, libraries, Tribes, state government, and other non-profits
- Provides Ethernet transport and Internet transit as primary services



Organizational Focus

- Works to raise Oregon's **public broadband capabilities and resiliency** to be on par with our peer networks in the West
- Promotes local **Internet Exchanges (IXes)** and serves as a **public-private partnership (P3)**
- Part of a **diverse broadband ecosystem** engaging education, healthcare, state & federal governments, Tribes, counties, communities, commercial telecoms, and technology providers



- Collaborates closely with **Oregon Broadband Office** in Business Oregon
 - Oregon has over 300 ISPs serving 4.2 million people dispersed across nearly 100,000 square miles
- Active member of **Western States Pact Broadband Alliance**
 - Convenes state broadband offices, state libraries, and state networks to share strategies and opportunities
 - Six collaborating states: California, Colorado, Nevada, Oregon, Utah, and Washington

- Oregon Legislature Emergency Board allocated **\$8.39 million** via Business Oregon last June
- Enabled accelerated **network backbone expansion** in eastern and southern Oregon
- Utilized nearly **2,000 route miles** of previously acquired, long-haul **dark fiber** assets
- Acquired assets from **5 long-haul telecoms** and **10 metro lateral providers** (telecoms & municipal networks)
- Deployed **Fujitsu** and **Arista** technologies
- **Augmented implementation team** with expert staff loaned from Link Oregon's founding partners
- **Achieved fiber and optical completion** with **50 service locations** statewide in May 2021
 - Pilot sites at Southern Oregon University (Ashland) and InterMountain ESD (Pendleton)
- Outsourcing network operations services to Indiana University **GlobalNOC**





Board of Directors

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Molly Thurston (*Ex officio*) **Secretary** / Executive Specialist, Link Oregon

Core Staff

Kevin Bohan Senior Network Engineer / Architect

Cynthia Brown Project & Process Manager

Steve Corbató Executive Director

Stephen Fromm Network Engineer

Richard Hicks Network Engineer

Tina Kirk Business Manager

Ann M. Marcus Communications Lead

Molly Thurston Executive Specialist

Member-assigned Project Staff

Ann Andrews EIS, State of Oregon

Ryan Bass PSU

Danna Blattmann OHSU

Robert Cesaro OHSU

Harvey Clawson OHSU

Michael Gromek EIS, State of Oregon

Katy Molloy Contractor

Andy Payne OHSU

Alex Sanchez PSU

Sandy Wood PSU Student

Network Implementation Contributors

Members

- Clackamas ESD
- Eastern Oregon University
- InterMountain ESD
- OHSU
- Oregon State University
 - Extension & Engagement
 - Hatfield Marine Science Ctr
- Portland State University
- Southern Oregon ESD
- Southern Oregon University
- State of Oregon
 - Enterprise Info. Services
 - HECC, ODE, Broadband Office
- University of Oregon
 - Network Startup Resource Ctr
 - Oregon Hazards Lab (OHAZ)

Public Sector Partners

- City of Portland
- City of Sandy (SandyNet)
- Clackamas County (CBX)
- Indiana University (Global NOC)
- Lane Council of Gov'ts. (WIX)
- NOAA (N-Wave)
- Oregon Dept. of Education
- Q-Life (Columbia Gorge)

Non-profit Affiliates

- CENIC (California)
- Internet2
- IRON (Idaho)
- NWAX
- PNWGP (Washington)
- SHLB
- TAO
- The Quilt
- UETN (Utah)

Equipment Manufacturers

- Arista Networks
- Fujitsu Network Communications

Professional Services

- Axiom Recovery
- Black Helterline LLP
- CompuNet, Inc.
- Fiber Channels, Inc.
- Legacy Fiber Optics
- Structured
- University of Washington Oceanography

Lateral Fiber & Colocation Providers

- Blue Mountain Networks
- Douglas FastNet
- Fatbeam
- Flexential
- Pittock Block
- TDS OneNeck
- Windwave
- Ziplly Fiber

Long Haul Fiber Providers

- Hunter Communications
- Lumen
- PEAK/Pioneer
- TDS BendBroadband
- Zayo

Partial financial support through Business Oregon

“Think big and swing for the fences!” — Rep. Pam Marsh, April 2020

- We are at a **pivotal moment** in our national broadband development
 - Unprecedented federal and state funding in the pipeline to address deficiencies revealed during pandemic
 - Analogous to rural electrification (1930s) and Interstate Highway System development (1950s)
 - Entities in Oregon's broadband ecosystem need to collaborate and to work aggressively to address challenge
- As a non-profit, middle-mile network, Link Oregon is ***not* a common carrier** and ***does not* provide last-mile service** to residences or businesses
- Link Oregon ***does***
 - Serve as **anchor tenant** through aggregation of community anchor institutions
 - Partner with **providers making broadband investments** in rural and urban communities
 - Enter into public-private partnerships for **extension of middle-mile** fiber networks
 - Support **local exchange** of Internet traffic
 - Provide **resilient connectivity** for eastern and southern Oregon
 - Collaborate with local **broadband action teams** and **Oregon Broadband Office**
 - Help assess **new technologies** (wireless, low-orbit satellite) and **use cases**

What's next for us?

- **Network operationalization**
 - Remote support arrangements, initial service delivery, member and legacy network transition
- **Member engagement and development**
- **State broadband expansion engagement**
 - Working to collaborate on community, Tribal, and statewide proposals for federal/state broadband funding
 - Advocacy for sustainable broadband architecture and long-term broadband mapping & analytics
- **Planning for next phase of our network expansion**
 - Oregon Coast (US 101) – Astoria-Brookings
 - Additional communities in eastern Oregon – Lakeview, Prineville, Mitchell, John Day, and Enterprise
 - Collaboration with CENIC – extending connections across southern Oregon and northern California
- **New service development**
 - eduroam wireless network roaming pilot with higher education members, ODE, HECC, and Linn-Benton-Lincoln ESD
 - Last-mile wireless networking working group



LINK
OREGON

THANK YOU!



LINK
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info@linkoregon.org



LINK OREGON



PACIFIC OCEAN

WASHINGTON

IDAHO

CALIFORNIA

NEVADA

- Fiber Broadband Routes
- Current Service Locations
- Link Oregon Founding Entities
- Technical & Regional Universities
- Link Oregon Connected School Districts
- Commercial Data Center Concentrations
- Transoceanic Cables
- Transoceanic Cable Landing Points

