

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

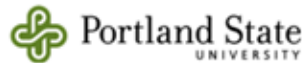
**Dr. Robert Cowen**  
Director, Hatfield Marine Science Center, Oregon State University

**Dr. Steve Corbató**  
Executive Director, Link Oregon

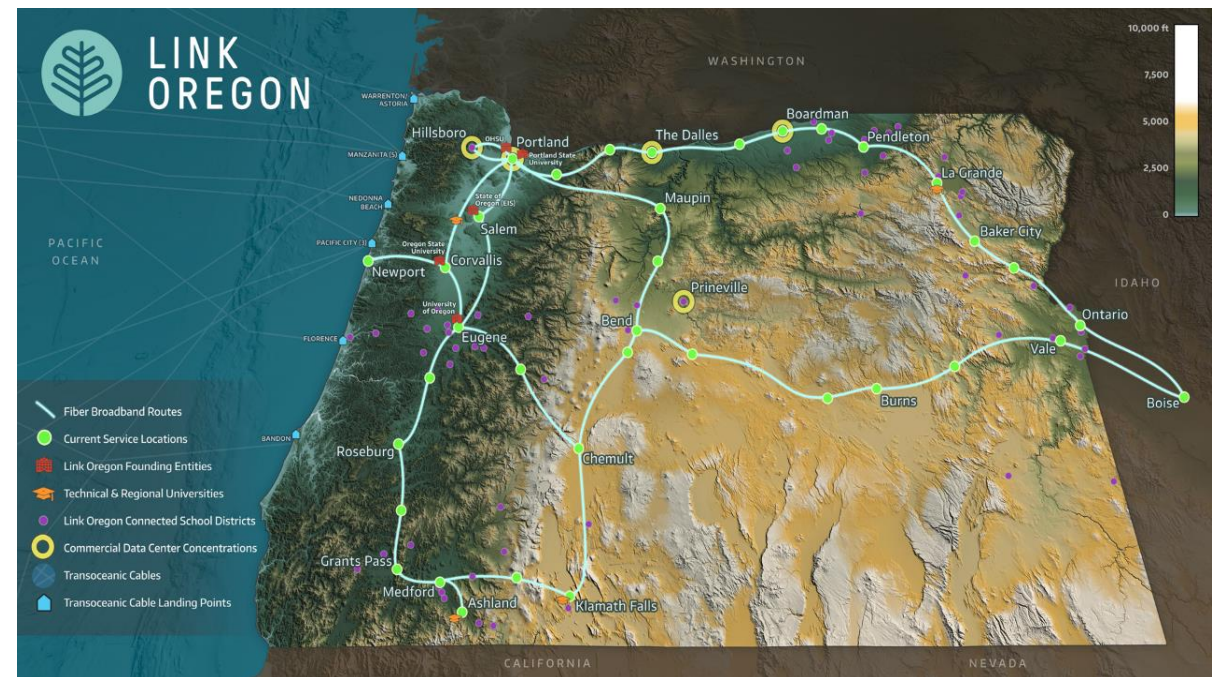
**Andrea Ballinger**  
CIO, Oregon State University

# Organizational Overview

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

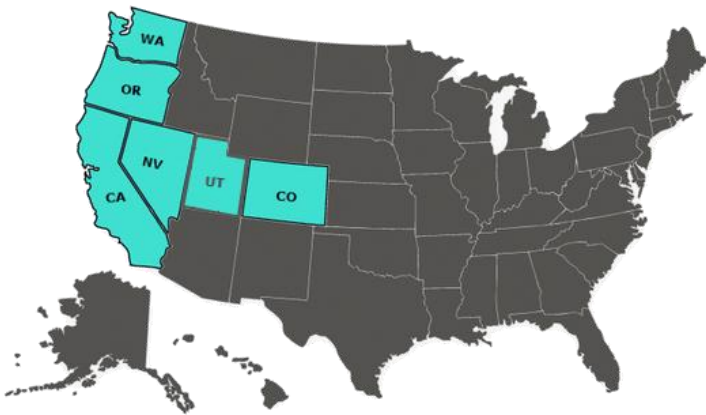


- Member-focused, middle-mile network provider with strategic board
- Uses dark fiber and other network assets to serve public and non-profit sectors
- Supports K-12 & higher education, healthcare, libraries, Tribes, state government, and other non-profits
- Provides Ethernet transport and Internet transit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

# 2020 CARES Act Funding Recipient in Oregon

- 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

**Terrence Woods** **Chair** / State CIO, Enterprise Information Services, State of Oregon

**Andrea Ballinger** **Vice Chair** / Vice Provost IT & CIO, Oregon State University

**Jessie Minton** **Treasurer** / Vice Provost IT & CIO, University of Oregon

**Bridget Barnes** Vice President IT & CIO, OHSU

**Kurtis Danka** State CTO, EIS, State of Oregon

**Kirk Kelly** **Past Chair** / Vice President IT & CIO, Portland State University

**Stuart Long** CIO, Cascade Technology Alliance and Northwest Regional ESD

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

**Peter Tamayo** CIO, Oregon Department of Education

**Steve Corbató** (*Ex officio*) Executive Director, Link Oregon

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

# Network Implementation Team

## Core Staff

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**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

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**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

# Support for Rural and Urban Broadband Development

- 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



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# THANK YOU!



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# LINK OREGON



- 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

