Oregon Broadband Advisory Council
Minutes
April 27, 2017

Attendees
Council Members: Commissioner Stephen Bloom, Joseph Franell, Wade Holmes, Lonny Macy, Representative Pam Marsh, Jeremy Pietzold, Dave Sabala, Bryan Adams attending for Michael Weidman, and Tom Worthy.

Staff: Christopher Tamarin, Business Oregon

Others: Todd Frimoth and Matt Hiefield, Beaverton Schools; Anne Goldenberg and Jenifer Lee, City of Portland; Nick Green, City of John Day; Steve Noel, FirstNet; Carrie Pipinich, Mid-Columbia Economic Development District; Matt Sayre, Technology Association of Oregon; David Soloos, State CIO Office; Rich Roach, AT&T.

Council Business
Joe Franell called the meeting to order and asked for guest introductions.

Joe welcomed new OBAC members Representative Pam Marsh appointed by Speaker of the House Tina Kotek and Jeremy Pietzold representing cities appointed by Governor Kate Brown. The bios of the new members are posted on the OBAC web site at www.broadband-oregon.org.

Minutes
Dave Sabala moved that the January 26, 2017, minutes be approved as distributed. Michael Weidman seconded the motion. The council passed the motion.

National Broadband Activity Updates
Chris Tamarin provided references on the following national broadband activity regarding infrastructure deployment, technology, market trends, public policy and illustrations of the value of broadband adoption and utilization since the council's last meeting.

Net Neutrality to be reviewed
Ajit Pai the new Chair of the Federal Communications Commission released a plan Wednesday for rolling back the commission's current rules on Net Neutrality. Pai opposed to the Net Neutrality rules when they were adopted with the position that "The more heavily you regulate something, the less of it you're likely to get."
Pai will begin seeking public feedback on the new plan, which calls for regulating ISPs more lightly under Title 1 of the Telecommunications Act of 1996 rather than the current Title 2 classification. The public will have an opportunity to comment on the proposed change of policy and rules.
http://www.chicagotribune.com/bluesky/technology/ct-fcc-net-neutrality-plan-wp-bsi-20170426-story.html

FCC review of broadband related regulations

Ajit Pai has also asked the commission's bureaus to identify FCC rules that are raising the costs of broadband infrastructure buildout with plans to eliminate those rules. He has indicated that broadband access and connectivity, particularly in rural areas, will be a priority under his chairmanship. Pai said he supports the President's vision for a major infrastructure upgrade bill and added that it should include broadband, but he said had some advice on how the broadband investments should be made. One is that the money should be administered through the FCC's Universal Service Fund. Secondly, Congress should include his proposal for Gigabit Opportunity Zones where tax incentives would be provided for ISPs to supply high-speed broadband in low-income neighborhoods.
http://www.broadcastingcable.com/news/washington/fccs-pai-begins-identifying-broadband-related-regs-cut/164100

FCC Broadband Deployment Advisory Committee (BDAC) Members Announced

Elizabeth Pierce, chief executive of Alaskan undersea cable company Quintillion Networks, will chair the Broadband Deployment Advisory Committee and the vice chair will be Kelleigh Cole, director of the Utah Broadband Outreach Center in the Utah economic development office. Service providers represented on the BDAC include AT&T Mobile, Comcast, Google Fiber, Rocket Fiber, Sprint, and TDS Telecom. Also represented are the Coeur d'Alene Tribe, Connected Nation Exchange, Crown Castle, the National Association of Regulatory Utility Commissioners, the National Exchange Carrier Association, the National Rural Electric Cooperative Association, utility company Southern Company, the Wireless Infrastructure Association and others. At least two manufacturers—ExteNet Systems and Mimosa Networks—also are represented on the committee. A complete list of BDAC members can be found in the FCC's April 6 News Release at
http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0406/DA-17-328A1.pdf

http://www.telecompetitor.com/fcc-broadband-deployment-advisory-committee-members-announced/

Regarding State-level broadband funding

In March, the state of New York awarded nearly $212 million in funding to bring broadband to parts of the state where service is not available today or is only available at low speeds. The broadband funding awarded went to 26 companies, including cable companies, municipal networks, and cooperatives, as well as to traditional telecom companies. Awards were made in phase two of the New NY Broadband Program. Funding recipients also must contribute some funding of their own, yielding total anticipated investment of more than $268 million.
http://www.telecompetitor.com/212-million-in-broadband-funding-awarded-to-26-carriers-including-fairpoint-frontier-and-tds/

Comcast is entering the mobile wireless market

Comcast is offering wireless service through a partnership with **Verizon**, along with its own 16 million WiFi hotspots. The service must be bundled with Comcast Internet service or one of the company's triple-play packages.
http://www.standard.net/Tech-Matters/2017/04/12/What-you-need-to-know-about-Comcast-s-new-phone-service

Cord cutting trend?
According to new market research from Parks Associates, 10% of U.S. broadband households are likely to cancel their wired broadband subscriptions in the next 12 months and move to wireless/mobile cellular and data services as their primary network connection. Younger consumers aged 25 to 34 are more likely to go completely mobile.
https://cdgportal.com/blog/index.php/2017/03/01/report-cord-cutting-for-broadband-is-real-as-wireless-broadband-improves/

Fiber to the home gigabit take rates
TDS Telecom reports that fiber take rates are exceeding expectations in the 28 markets where the company has deployed fiber to support broadband service at rates up to 1 Gbps. About 22% of TDS service addresses have broadband service over fiber available.
http://www.telecompetitor.com/cfo-tds-telecom-fiber-take-rates-exceed-expectations/

Verizon's plan for 5G
Verizon has announced 5G plans that include offering fixed wireless broadband service outside the company's traditional local service areas. Verizon currently has 5G fixed wireless technology testing underway in eleven trials across the country and plans to be able to launch service in 2018 using spectrum in the 28 GHz band. Verizon anticipates layering mobile service onto the fixed 5G infrastructure around 2020.
http://www.telecompetitor.com/verizon-cfo-ellis-shares-verizon-5g-roadmap-including-nationwide-fixed-5g-plans/

4G LTE will remain in service
Despite the coming deployment of 5G, use of 4G LTE will continue. Global 4G LTE subscribers now total 2 billion and will exceed 4 billion in 2022—the equivalent of more than 50% of the expected world population, according to a new forecast from ABI Research. LTE networks carry 67% of total mobile traffic worldwide today. That will rise to 82% in 2022. 5G LTE networks will account for just 13% at that time, ABI says.
https://cdgportal.com/blog/index.php/2017/03/22/4g-lte-subscribers-will-remain-king-for-some-time-even-with-5g/

In the broadband satellite arena
In March, Hughes Network Systems announced what it bills as "the first and only U.S. satellite Internet service to offer Federal Communications Commission (FCC) defined broadband speeds—25 Mbps download and 3 Mbps uploads—from coast to coast."

Going live in March, HughesNet Gen 5 began delivering 25 Mbps satellite broadband service available to consumers and businesses across the entire continental U.S. and parts of Alaska, the company says in a press release.

ViaSat offers a comparable service with speeds of up to 25 Mbps satellite broadband. ViaSat said it expects to offer satellite broadband services as fast as 100 Mbps, once its new generation satellite broadband platform, is up and running in 2019. ViaSat expects its three-satellite ViaSat 3 constellation to not only provide residential broadband service at speeds of 100 Mbps, but also support 4K ultra-high definition (UHD) video streaming.

Satellite industry start-up OneWeb has ambitious satellite broadband plans including launching a satellite constellation of 720 Low Earth Orbit satellites that are expected to provide global broadband coverage. OneWeb is backed by Softbank and Echostar. Hughes is an investor as well. They don't expect service to begin until 2022.
http://www.telecompetitor.com/hughesnet-claims-first-fcc-broadband-defined-25-mbps-satellite-broadband-service/

Future telco networks
Looking at the future, Telcos are likely to use a mixture of technologies—including fixed wireless, copper bonding and vectoring—to meet deployment requirements of phase two of the Connect America Fund (CAF). While fiber-to-the-home would be the most future-proof network upgrade, it is not seen as being cost-effective for CAF II deployments, at least not on a widespread basis.

Vectoring is noise cancellation technology that improves the bandwidth of copper broadband technologies such as VDSL2 when serving multiple customers over the same bundle of copper wiring. When used with VDSL2, vectoring can support speeds in the range of 100 Mbps over a single copper pair over distances of about 3,000 feet. Adtran is now approaching shipment of its 10 millionth vectoring port.

In less densely populated areas, where multiple customers cannot be served from the same high-speed aggregation node, bonding may be used. Bonding uses multiple copper pairs to boost the bandwidth that can be delivered over longer distances.

Another technology is G.Fast that can support speeds up to 1 Gbps, but G.fast requires high-speed backhaul to be brought to within 1,000 feet of customers it serves.
http://www.telecompetitor.com/adtran-connect-america-fund-broadband-technologies-will-be-a-mixed-bag/

Migrating the PSTN to IP
CenturyLink is transforming its central offices with next-generation virtual functionality for faster delivery of broadband services to its residential and business customers. The company announced in March that it is the first carrier to use its own virtualized Broadband Network Gateway (vBNG) to support broadband services using the Central Office Re-architected as a Datacenter (CORD) design. This key step in CenturyLink's efforts to virtualize its infrastructure within the central office is part of the company's commitment to have full global virtualization coverage in its IP core network by the end of 2019. Through CORD, CenturyLink is using software-defined networking (SDN) and network functions virtualization (NFV). A migration plan away from the circuit switched PSTN.
http://www.lightreading.com/services/broadband-services/centurylink-is-first-carrier-to-deliver-broadband-services-on-cord-platform/d/d-id/731458

The benefits of telehealth
Rural telehealth initiatives have the potential to generate substantial quantifiable and non-quantifiable benefits and could help bridge an existing gap between the quality of healthcare in rural and metro areas, according to a new report from NTCA—The Rural Broadband Association. Quantifiable rural telehealth benefits include potentially generating local

revenues for lab work and pharmacies as well as savings in travel costs, lost wages and hospital costs, the report states.

NTCA defines rural telehealth to as "the remote delivery of health care services and clinical information using telecommunications technology." Quantifiable annual benefits per medical facility include:
- Travel savings of $5,718
- Lost wages of $3,431
- Hospital cost savings of $20,841
- Increased local lab work revenues between $9,204 and $39,882
- Increased local pharmacy revenues between $2,319 and $6,239

Benefits that could not be quantified include improved outcomes, access to specialists, timeliness, comfort, and some provider benefits and transportation and hospital cost savings. http://www.telecompetitor.com/report-quantifies-rural-telehealth-benefits/

FirstNet selects AT&T
AT&T has been selected by the First Responder Network Authority (FirstNet) to build and manage the first broadband network dedicated to America's police, firefighters and emergency medical services (EMS). The FirstNet network will cover all 50 states, 5 U.S. territories and the District of Columbia, including rural communities and tribal lands in those states and territories. This significant public-private infrastructure investment is expected to create 10,000 U.S. jobs over the next two years from AT&T's work for FirstNet. The network buildout will begin later this year.
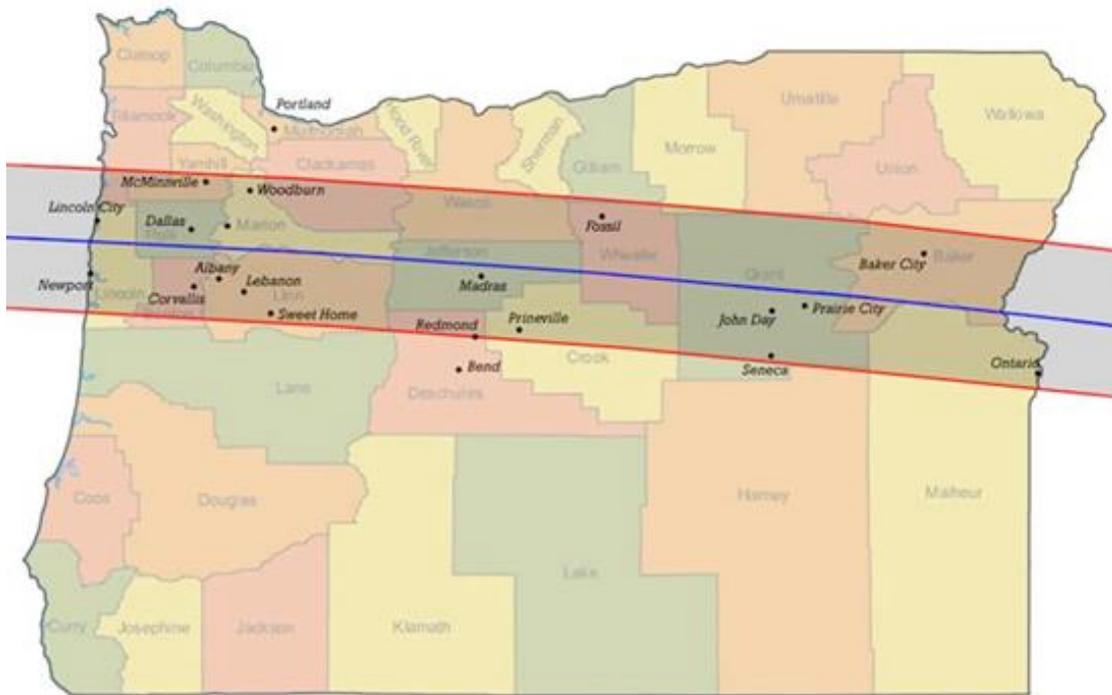http://about.att.com/story/firstnet_selects_att_to_build_network_supporting_first_responders.html

State Broadband Activity Updates
Chris Tamarin provided references on the following state broadband activity regarding infrastructure deployment, technology, market trends, public policy and illustrations of the value of broadband adoption and utilization since the last council meeting.

2017 solar eclipse hits Oregon
Oregon Office of Emergency Management has begun holding state agency total solar eclipse planning meetings. Planning will encompass communications, emergency medical services, fuel, human caused wildfire, transportation, and special events.

OEM is anticipating 1 million visitor vehicles for the event in the Path of Totality.

Solar Eclipse Path of Totality
(Map courtesy of Xavier Jubier/Eclipse2017.org)

The Eclipse will occur on Monday morning, August 21, 2017.

Cell service for Mitchell, Oregon
U.S. Sen. Ron Wyden's Office announced in a written statement that T-Mobile is bringing cellphone service to Mitchell this summer. "Cell service is a must for the health and well-being of rural Oregon residents and visitors, and I am glad that T-Mobile recognizes the need for dependable service that businesses and emergency providers can rely on in Mitchell, the gateway to Oregon's iconic Painted Hills National Monument," Wyden said in the statement. The senator also said while he is glad this will help Mitchell and Wheeler County, he is committed to finding ways to upgrade cell service and broadband throughout Oregon.
http://www.eastoregonian.com/eo/local-news/20170309/mitchell-gets-boost-to-cell-service

CenturyLink level 3 acquisition
Shareholders of CenturyLink and Level 3 have approved the $34 billion acquisition helping clear the way for closing of the transaction by the end of 3Q 2017. All required approvals, including state, federal, and international are expected in time to close the deal by September 30, said CenturyLink in a press release.

"The combination of CenturyLink and Level 3 will significantly improve our global network capabilities, creating a company with one of the most robust fiber networks in the world," said Glen F. Post, III, CEO and president of CenturyLink in the press release. "This expanded network should allow us to bring substantial operational and service benefits to our enterprise customers, as well as an enhanced customer experience."

The transaction will reshape CenturyLink significantly, making them one of the largest wholesale and enterprise focused carriers in the U.S., with a significant presence globally.

The company will retain the CenturyLink name and will continue to be headquartered in Monroe, La., with a major operational presence in Colorado.
http://www.telecompetitor.com/shareholder-approval-centurylink-level-3-deal-track-close-sept-30th/

Charter Communications to invest $25 billion in broadband
Charter Communications committed to invest $25 billion on broadband infrastructure and hire 20,000 new U.S. employees over the next four years. Charter is the nation's second-largest cable-TV and Internet provider. It serves roughly three-dozen Oregon communities, including Pendleton, La Grande, The Dalles, Brookings, Bandon, Coos Bay, Lincoln City, Astoria, Cannon Beach, Cottage Grove, Roseburg, Medford, Ashland, and Klamath Falls.
http://www.oregonlive.com/business/index.ssf/2017/03/charter_pledges_25b_broadband.html

Municipal broadband acquisition
Oregon-based PEAK Internet has acquired EPUD Internet Services and Eugene Free Net from Emerald People's Utility District (EPUD), a publicly owned power company serving Lane County, Oregon. This type of transaction involving the purchase of a publicly-owned broadband network is of growing interest. EPUD said it had "determined that being an Internet service provider doesn't fit with our core mission as a public power utility" and that PEAK Internet would be a better fit for that role.
http://www.telecompetitor.com/latest-municipal-broadband-acquisition-comes-from-peak-internet/

Fatbeam to access OneNeck IT solutions data center in Bend
Fatbeam, an Idaho company that has laid 40 miles of fiber-optic lines in Bend since 2015, signed a three-year contract to access the OneNeck IT Solutions data center in Bend.

OneNeck is operated by TDS Telecom, based in Madison, Wisconsin, and the owner of BendBroadband. Its Bend data center has a Tier III certification from the Uptime Institute, which means almost every system it houses is redundant and guaranteed to keep equipment running in the event of a disaster, according to TDS. Fatbeam, which targets communities with populations of 150,000 or fewer, is in 32 markets in Washington, Idaho, Wyoming, Montana, and Oregon.
http://www.bendbulletin.com/business/5214519-151/broadband-company-to-access-bend-data-center

Fiber optics facilities in Lakeview
In March, the Lakeview City Council approved a non-exclusive franchise agreement for LS Networks to access public rights of way for constructing, operating and maintaining of fiber optics facilities in Lakeview. The expansion of fiber has been sought for some time, in the wake of multiple service outages as well as a high-demand for increased bandwidth within the region.
http://www.heraldandnews.com/news/local_news/lakeview-council-approve-solar-broadband-agreements/article_ad25aeb2-7f00-5af1-9aaf-0e61f210fd01.html

Fiber optics facilities in Eugene
The city of Eugene, the Eugene Water and Electric Board (EWEB), and the Lane Council of Governments (LCOG), with support from the Technology Association of Oregon (TAO), are moving forward with construction of the publicly owned fiber network that will connect about 120 downtown Eugene buildings to world-class internet. This economic development project builds on the success of a two-year pilot, which brought fiber to seven downtown buildings. The pilot demonstrated the benefits of the publicly owned fiber network, partnered with private providers. Beginning in March, the city of Eugene will take construction orders from downtown building owners. Construction of the downtown network will begin in the spring and is expected to last 18 months. http://www.military-technologies.net/2017/02/27/high-speed-fiber-internet-lights-up-in-downtown-eugene/

Presentations

Eugene Fiber Project
Matt Sayre of the Technology Association of Oregon (TAO) www.techoregon.org/ and EUGnet http://eugnet.org/ provided an update on the downtown fiber infrastructure project ongoing in the city of Eugene. Matt noted that In Lane county there are 418 tech companies with tech employment expected to grow by 28% over the next 10 years translating to about 2,000 new jobs. Tech is the fastest growing sector in Lane County and it also pays the most on average, $74,000 per year. There are more than 200 job openings today.

Matt said that this project builds on decades of fiber projects in the southern Willamette valley and a long-term focus on meeting the telecommunications needs of the area. The vision for this project is to establish Eugene as one of the best places in the country for Internet Access, and to realize a host of resulting economic development benefits.

Four entities; the city of Eugene, Lane Council of Governments, and the Eugene Water and Electric Board with support from TAO came together and conducted a pilot project with excellent results.

EUGNET COMMUNITY TEAM
Helping the community realize it's vision to be one of the best places in the country for internet access.

CITY OF EUGENE · TECHNOLOGY ASSOCIATION OF OREGON · LANE COUNCIL OF GOVERNMENTS · EUGENE WATER AND ELECTRIC BOARD

The group is using an Open Access model that enables government to make long-term investments in infrastructure and put the private sector in the innovators seat on a level playing field through a public-private partnership to deliver fiber-based broadband services to

the downtown business core. Matt noted that the open access model is very effective if you are optimizing for economic prosperity.

Based on the success of the pilot, the project's coverage area has been expanded. It is now called EUGNet and it's the largest open access fiber network in Oregon. There are now six ISP's participating, competing for customers and driving innovation. Two of the ISPs are offering 10 gigabit service. Prices for commercial gigabit are down to $79 per month and $59 per month for residential service.

In March Eugene was named a Mozilla Gigabit City, joining Austin, Chattanooga, Kansas City, and Lafayette. Mozilla is providing funding and partnerships to cultivate innovation that leverages this broadband infrastructure.

FirstNet update
Steve Noel and Oregon Statewide Interoperability Coordinator David Soloos of the state CIO's Office and FirstNet Single Point of Contact (SPOC) provided an update on developments related to FirstNet. FirstNet is intended to provide emergency responders with the first nationwide, high-speed network dedicated to public safety. It will begin operation as a broadband wireless interoperable data network, and will not be a replacement for Land Mobile Radio for voice.

In 2016, FirstNet issued a Request for Proposal for the national network. The RFP is in its final phase and FirstNet is working through a vendor protest. Once resolved, FirstNet will be announcing the winning vendor/partner to build the national network, hopefully within a few weeks, and will be submitting a state service plan to Governor Brown for a decision within 90 days to opt in or out of the network. If Oregon opts out, it will be required to provide its own wireless broadband interoperable public safety network that will meet FirstNet's specifications. The State Interoperability Executive Council (SIEC) will provide recommendations to the Governor.

Also, Oregon will be participating in a multi-state broadband public safety network RFI to be released this spring with Idaho to gather additional information on broadband wireless public safety networks.

FirstNet information may be found at www.firstnet.gov and at https://www.oregon.gov/SIEC/Pages/FirstNet_Ore.aspx

Mobile wireless congress
Wade Holmes provided a briefing on the international Mobile Wireless Congress that he attended in Barcelona. The conference had 108,000 attendees representing 208 countries and 2,300 companies.

The conference focused on system efficiencies through
  • Better use of existing fiber assets through adaptive modulation and self-organizing technology (SON)
  • More efficient use of existing spectrum, virtualized APNs, security
  • Increased densification using small cells, distributed and adaptive networks

- Higher speeds using the same base technology, massive improvements in capacity and speed
- A willingness to accept defects, given they are predictable and manageable

Network efficiencies will help to achieve sustainability by
- Extending the life of existing assets: how to survive 40+% CAGR and control costs, manage the network, stay in business
- Reusing existing fiber to serve small cells, density
- Using existing allocations and augmenting with GPRS, 3.5 GHz, and 28GHz frequency bands

Wade expects to see less new fiber builds, more utilization of existing dark fiber assets, and continuing industry consolidation. He also observed that the network architecture favors highly mature, urban markets, and he expects that rural markets and smaller independent operators may see a growing funding and talent gap.

Wade proposed that OBAC should consider how Oregon might bridge the funding, talent and operations gap for smaller operators going forward and if there are opportunities to make higher use of existing fiber assets for public good.
https://www.mobileworldcongress.com/

Work Session
Meeting schedule
Chris Tamarin reported that the Thursday, May 25 meeting of OBAC in Pendleton will be on the Blue Mountain Community College campus, in the Board Room in Pioneer Hall. The meeting will run from 10:00 AM to 1:00 PM.

The September council meeting will be held in Portland at a location to be determined on Thursday, September 14.

2017 legislative session
Chris Tamarin reported on the status of introduced broadband related Bills and Resolutions that have been introduced to date. The complete report will be posted on the OBAC web site under this meeting date.
http://www.orinfrastructure.org/Infrastructure-Programs/Telecommunications/OBAC/2017meetings.php

The council will continue to follow the progress of broadband related legislation in this session and promote the reports to the Legislative Assembly as information resources.

Eastern Oregon Cascadia Earthquake Preparedness Summit
Joe Franell noted that this summit will focus on the impacts of a major Cascadia earthquake event on Eastern Oregon and what the region should do to prepare. The Summit will be held on May 12 in Pendleton, hosted by Blue Mountain Community College with the participation of OBAC. Joe Franell will be the Master of Ceremonies. Chris Tamarin will be a speaker and session moderator.

2017 OBAC Agenda

OBAC discussed strategies for outreach on the content of the 2016 report. Chris Tamarin will explore organizing a Tier 1 Peering Summit tentatively scheduled to be held in Portland on September 14 to discuss the value and benefits of having Tier 1 Peering in Oregon and strategies to make it happen.

Public Input

No input.

Meeting Schedule

The April 2017 meeting of the Oregon Broadband Advisory Council was held at the Local Government Center in Salem. The next meeting will be on Thursday, May 25 in Pendleton on the Blue Mountain Community College campus, in the Board Room in Pioneer Hall.2017 meeting information will be posted on the council web site www.broadband-oregon.org.

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