Broadband

Whatcom County Council Presentation
10/25/2022

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Agenda

1. What is Broadband?
2. Light (Fiber) vs. Other parts of the Spectrum
3. Parts of the Internet
4. How Did We Get Here? - History of the Federal Program
5. Local involvement – WA State Policy & WSBO Scoring Criteria
6. Port Solution
7. PUD's Role - Feasibility Study
8. GIS Mapping Tools
9. Questions

What is Broadband?

Federal

The term “broadband” or “broadband service” means it is a mass-market retail service by wire (or radio) that provides the capability to transmit data to and receive data from all or substantially all internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up internet access service.

Source: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf
Section 8.1(b) of title 47, Code of Federal Regulations

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What is Broadband?

Federal

The Broadband Equity, Access, and Deployment (BEAD) Program's principal focus is to deploy broadband service to unserved & underserved locations

Unserved = those without any broadband service at all or with broadband service offering speeds below 25 megabits per second (Mbps) downstream and 3 Mbps upstream.

Underserved = locations are those without broadband service offering speeds of 100 Mbps downstream and 20 Mbps upstream

Source: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

What is Broadband?

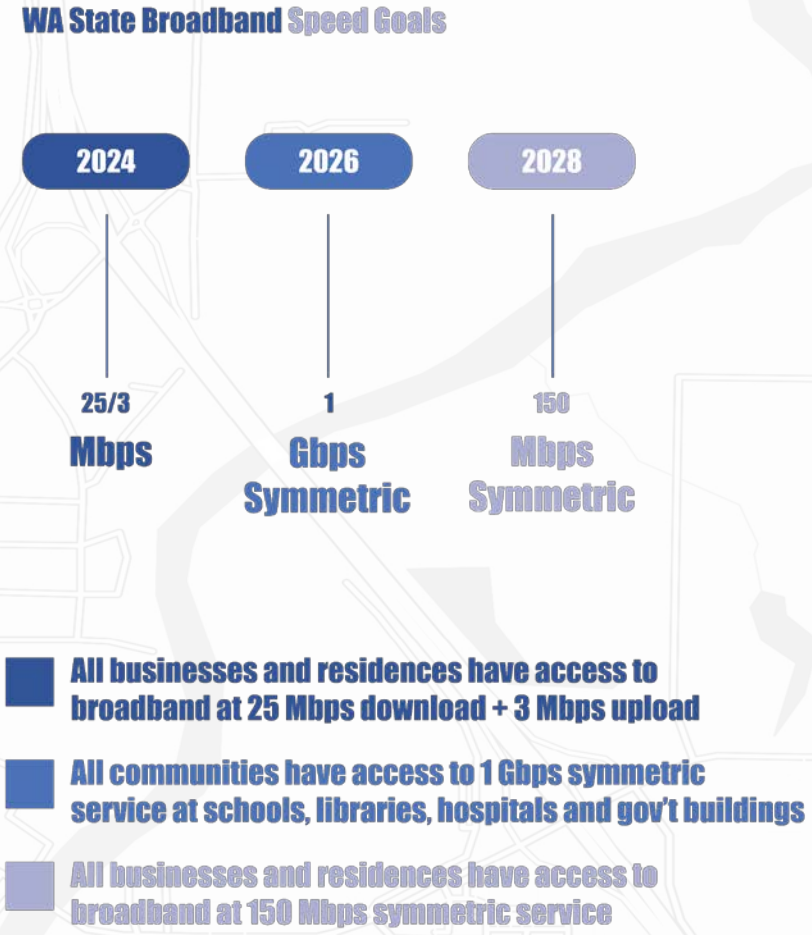
WA State

DSL was once the definition of broadband

Current WA State Broadband Speed Goals = 150/150 Symmetrical by 2028

In 10 years there will be a new definition

Source: WA State Broadband Office (WSBO) Speed Goals



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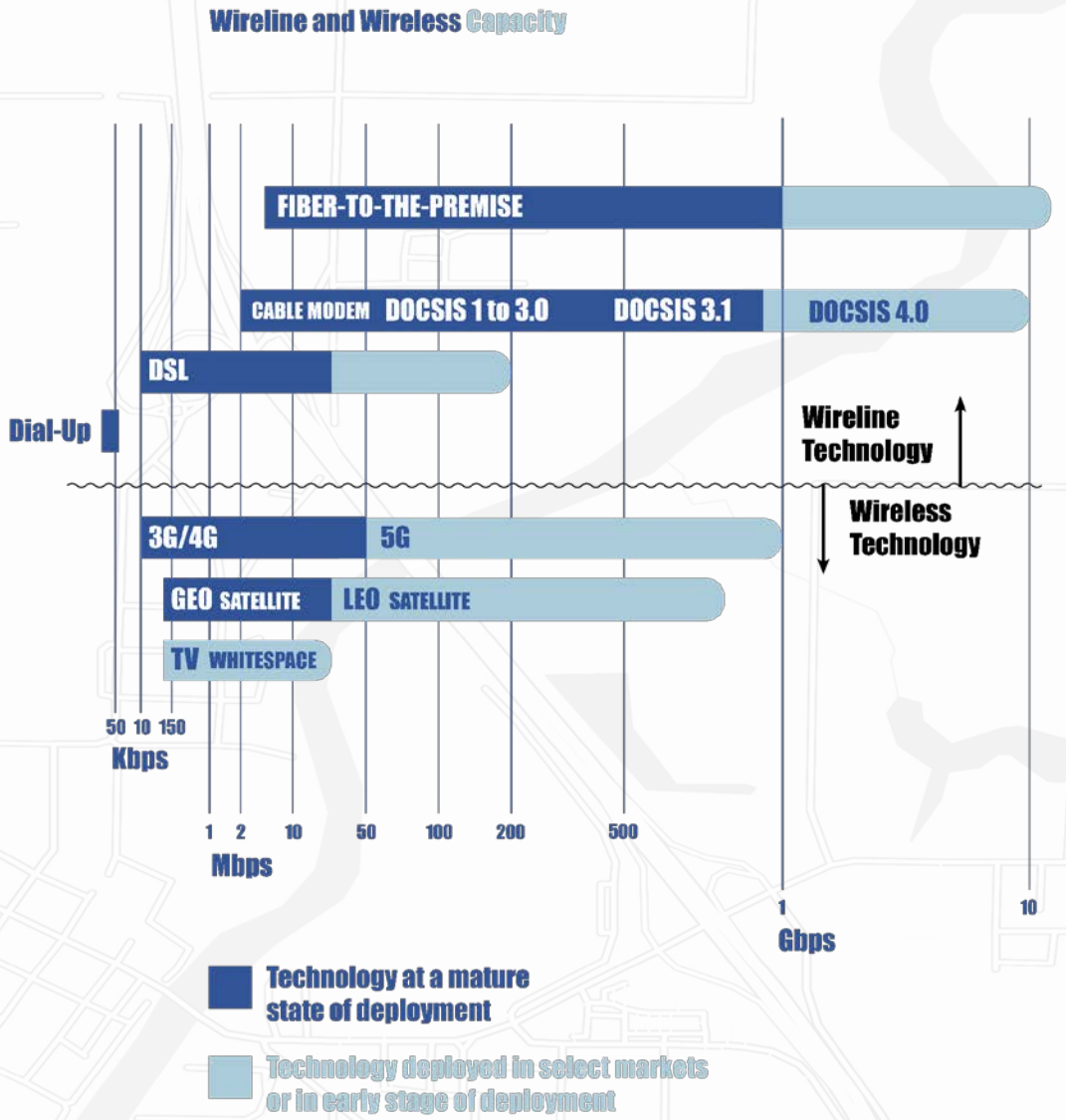
Light vs Other Parts of the Spectrum

- The frequency of the radiation sets an upper bound on transmission speed.
- 5G operates in the 2 to 43 Giga-Hertz (billion cycles per second)
- Light operates in the 400 to 800 Tera-Hertz (trillion cycles per second)
- A light wave can carry 5 orders of magnitude more information than a high frequency radio wave (10,000 times more).
- Light (laser) is coherent and needs a glass channel.
- Radio signal strength falls off with distance and does not have much energy to begin with.
- Light in glass signal strength falls of with distance as well, but not nearly as much.
- Atmospheric conditions and line of sight issues interfere with radio signals.
- Light in glass is subject to mechanical interruption.



Source: Illustration inspired by Benton Institute for Broadband & Society

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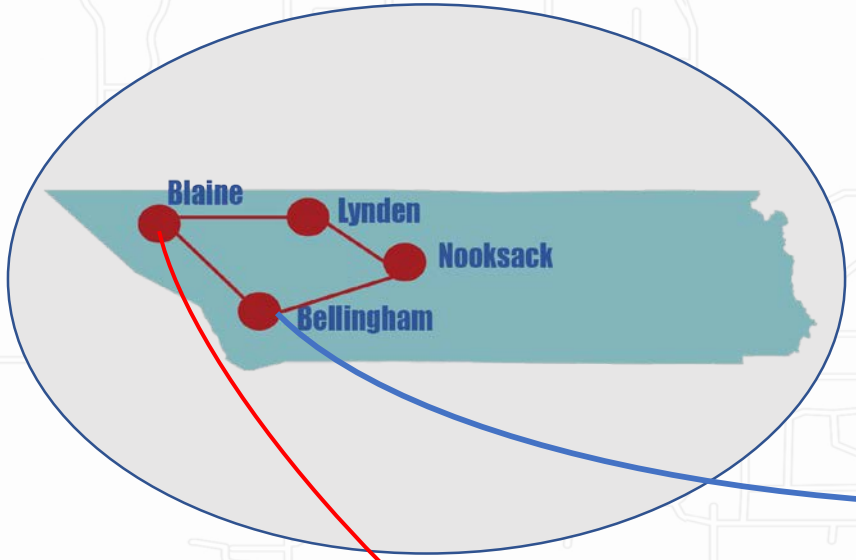
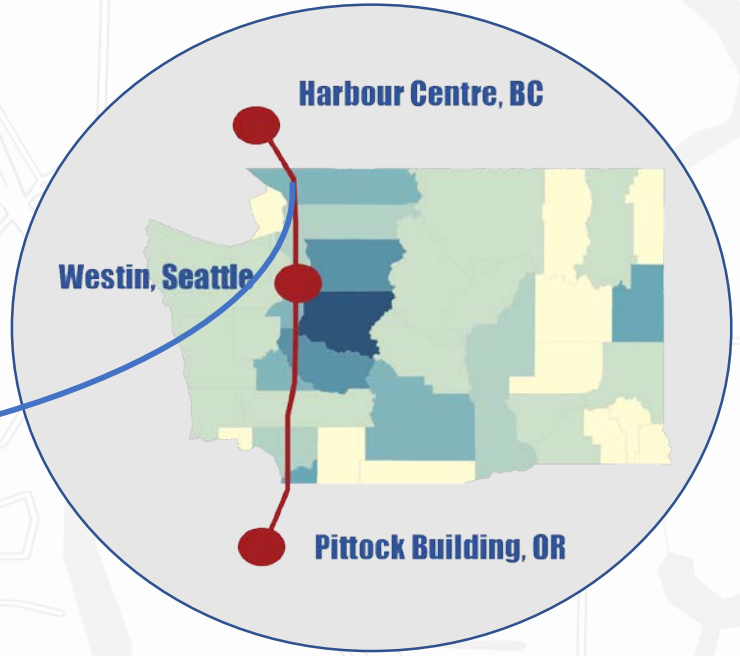
Parts of the Internet

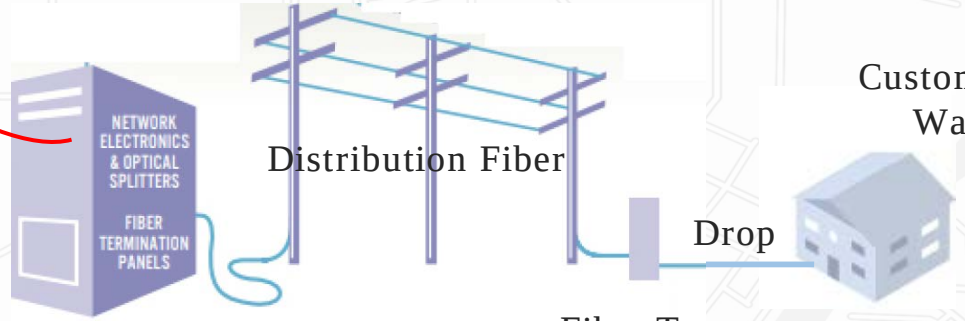
Middle Mile



Long Haul



Last Mile



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How Did We Get Here?

1980's – An Era of Deregulation

Initially, the telecommunications industry in the US ran as a monopoly under the Bell Telephone/AT&T

- In 1984, the US deregulates long distance telecommunication resulting in the breakup of Bell Telephone/AT&T
- Deregulation's intent is to provide greater competition in a given market

How Did We Get Here?

1996 Telecommunications Act

1990's – the federal government continues to deregulate the telecom industry

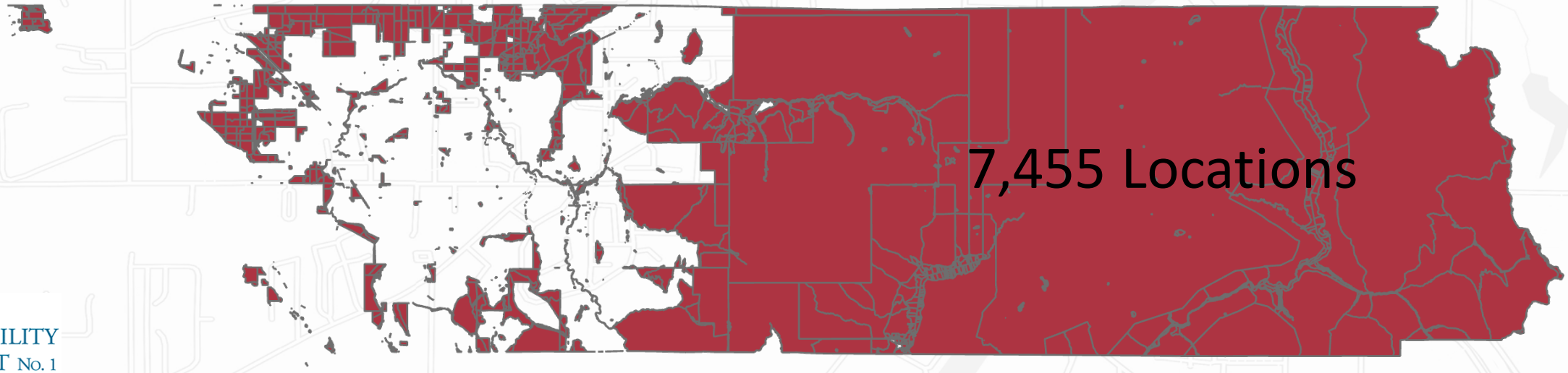
- Subsidies for rural markets were left in place. These have slowly been eroded as the 1996 telecom act has never been revised
- While still in good shape these markets will need infrastructure to keep their market territories viable in the future
- There is no profit left in being an Incumbent Local Exchange Carrier on a large level. (Frontier, sold regional assets to Ziply Fiber)

How Did We Get Here?

Private Investment

Legacy Telecom has not kept up with the changing economy and technology in most geographic areas.

The private sector has a higher and better use of capital in competitive markets – not investing in rural Whatcom County



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How Did We Get Here?

WA State Policy

- In 2000, PUDs and rural Ports were granted the authority to help bridge the digital divide by providing wholesale telecommunications services.
- March 22, 2018 - Governor Jay Inslee signs House Bill 2664 extending existing telecommunications authority to all ports in the State of Washington
- 2021 – HB1336 authority for public entities to provide retail services

Port began working with State in 2018
PUD joined Port effort in 2021

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Port Solution

Fiber Infrastructure Model

- Own and lease physical infrastructure
- Open Access/Carrier Neutral
- Competitive wholesale pricing
- Responsive to market demand

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Port Solution

Objective of Building Broadband Infrastructure

Telecommunications service providers win because they have access to new markets and customers without building costly infrastructure

Communities, including local businesses win because they gain access to high speed broadband sooner than they would if the Port were not involved. And, because the fiber is open access, consumers may get a choice of providers, allowing for competition that improves service and reduces costs for residential and business customers

Taxpayers win because it establishes a financially-sustainable infrastructure maintenance and improvement model and produces real outcomes through a more competitive marketplace

Funding

- 2009 – Broadband Technology Opportunities Program (BTOP)
- 2018 - Community Economic Revitalization Board (CERB)
  - Broadband Planning grants & Middle Mile construction grants/loans
- 2019 – WA forms State Broadband Office (WSBO)
  - Establishes a competitive broadband grant/loan program administered by Public Works Board

Pandemic!

- Federal and State funding immediately focus on deployment to homes
- Legacy Federal funding programs are rerouted to new rules allowing public infrastructure to take precedence with new rule making
- May 2022 - President Biden wants to connect everyone in America to affordable, reliable high-speed internet. The Bipartisan Infrastructure Law provides $65 billion in funding to help achieve that goal.

How can publics best leverage the private sector networks is key

WSBO Round 1
Threshold

Eligible applicants – ***Local governments***, tribal nations, nonprofits, nonprofit cooperatives, and multi-party entities consisting of public entities, or public entities and private entities. (Capital Budget)

WSBO Round 1

Priorities and Considerations - Scoring

Last mile connections – Up to 40 Points

100/100 Mbps Speeds – Up to 20 Points

Community Anchor Institutions (CAIs) to be served with 1 Gig – Up to 15 Points

Addresses lack of broadband, unreliable service – Up to 15 points

Regional partners approach – 5 points

Public / Private funding contribution from partnering ISP – 5 points

PUD's Role

- Provide Technical Support to Port Grant writing and administration
- Provide analysis (such as on issues of digital equity) to Port and other interested parties
- Provide project specific analysis for public third parties where appropriate
- Provide leadership assistance on joint Port/PUD Broadband Steering Committee (created through an ILA)

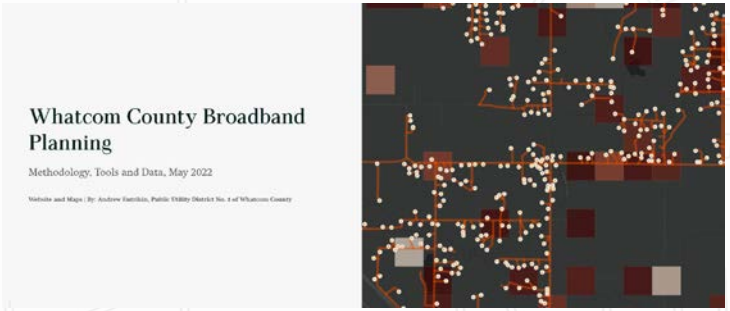
Feasibility Study

- Study conducted by PUD through consultants hired on a CERB Grant
- Created to look at a public entity serving unserved/underserved areas in the County by a publicly-owned retail (lit) ISP ***or*** with a publicly-owned open access dark fiber (dark) wholesale leasing model
- Assumes the capital investment will be 100% grant funded (best possible financial start and outcome)
- Initial rough draft presented to the Broadband Steering Committee on October 24.
- Final draft will be presented to the PUD Commission in November and the Port Commission as appropriate.

PUD Broadband Mapping Tools

PUD Public Facing Interactive Tools

- Measuring Whatcom County Broadband Availability
- PUD Methodology
- Measuring Digital Equity and Inclusion



https://tinyurl.com/4xxbsn5k

https://tinyurl.com/27svyn2c

https://tinyurl.com/3ptjmrxj

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Source: https://www.pudwhatcom.org/broadband-update-open-house-survey-mapping/

Questions?

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