

Making the Connection: Municipal Broadband Meets a Need in the Portland Metropolitan Area

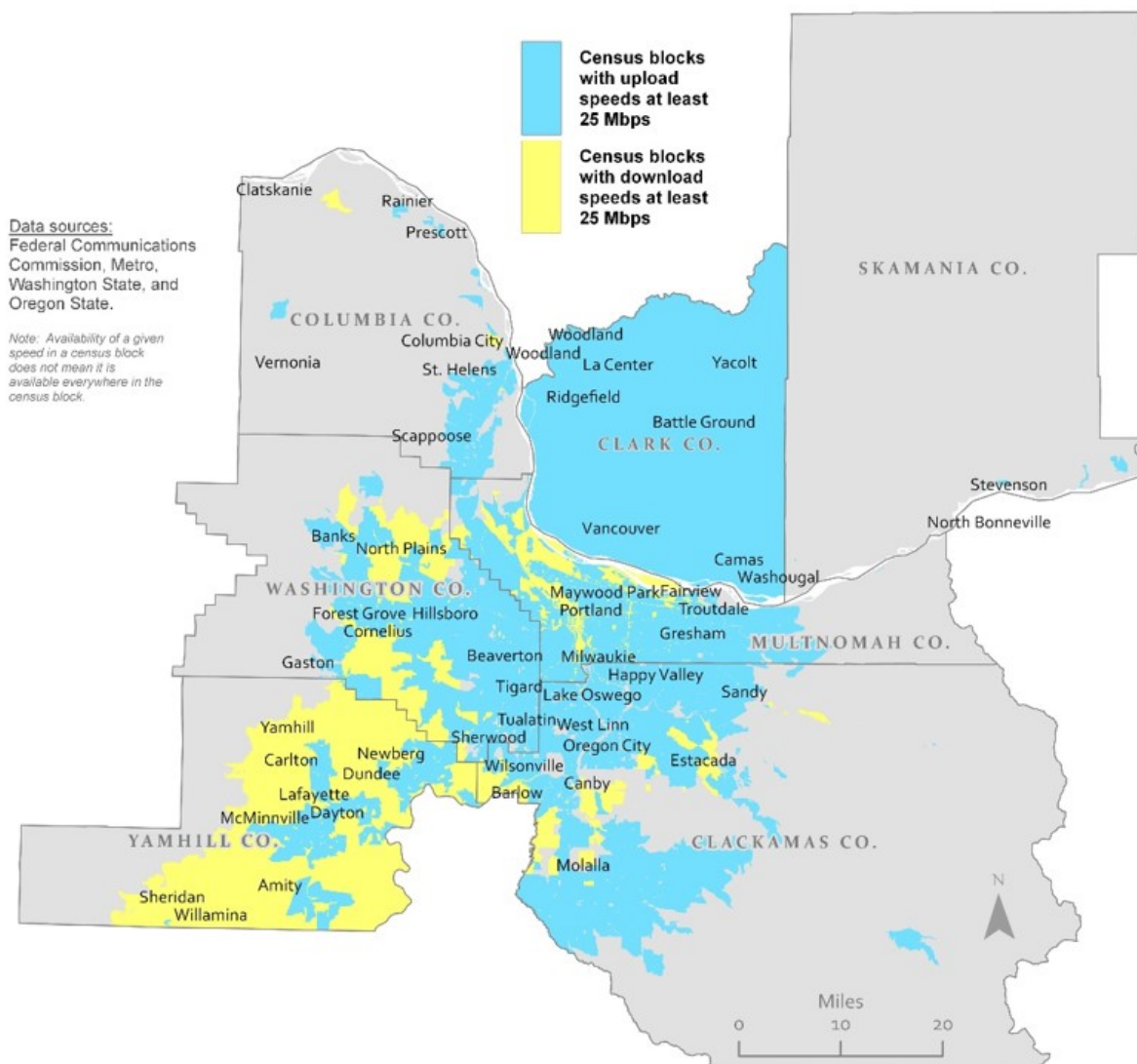
Internet access has become critical to participating in modern American society, yet the private market is no closer to serving low-income and rural Americans.

In May 2018, the City of Hillsboro announced it would go ahead with a publicly owned and operated, affordable, gigabit-speed Internet service for the entire city. Multnomah County Commissioners voted for a feasibility study of their own in June. The Port of Ridgefield, Washington, has big hopes for its own fiber optic project. Meanwhile, the city of Sandy, Oregon, has been running its own municipal broadband service for the last six years.

What's driving this wave? A big part of the answer is that Internet access has become critical to participating in modern American society, yet the private market is no closer to serving low-income and rural Americans. The recent repeal of net neutrality rules only threatens to widen the so-called "digital divide."

Some of these problems are as difficult for municipalities to address as for private companies: providing broadband to rural areas is expensive, and it represents only a small part of the work happening in the Portland metro area. But for urban areas, the technology and the financing are essentially solved

problems. The question is political-philosophical: Are local governments ready to treat the Internet as a public utility, and will telecommunications companies wage war on the idea here as they have elsewhere in the country?



Source: Federal Communication Commission, Metro, Washington State and Oregon State

Hillsboro

By the time Hillsboro greenlighted broadband, it had already successfully built out a fiber optic network that connected city offices and stepped up its cooperation with the local

school district. In the meantime, the FCC dropped net neutrality from its standards, giving urgency to the conversation about information access. "We are in the information age," said Greg Mont, Internet services director at the City of Hillsboro, "and future thriving communities are going to need access to consume and to share information."

In recent years, other developments have made city administrators more confident in taking on this project. "We saw some success in [Colorado] and other areas around the country that were starting their implementation at the time," said Mont. The city of Longmont, Colorado, had projected that 36 percent of potential subscribers would take up its municipal broadband service, but the city actually arrived at 51 percent in short order.

One key opportunity for Hillsboro is the fact that it is has a very cost-effective place to start laying fiber: South Hillsboro, a 1,400-acre planned community in its beginning stages of construction. The new district will include a mixed-use town center, a smaller village center, about eight thousand homes, and 333 acres of parks, trails, and natural areas. The development will provide prime opportunities to install conduits for fiber optic cable at little extra cost, in trenches that have already been dug for electric and sewer lines.



SandNet utility workers Chris Krieger and Peter Light install a new connection for a residential customer

The other area at the front of the line is in Southwest Hillsboro. Low-income residents there have the lowest connectivity rates in the city, according to a recent Brookings Institution analysis of FCC data. This same area has been designated an “Opportunity Zone” under the Trump administration’s new federal aid distribution scheme.

Exactly how affordable the service will be is still in question. The city’s rough estimates of subscriber fees are \$50 a month for residential service and \$70 or more for business customers. Low-income customers will pay around \$10 a month. However, after its current seven-year funding plan, the city intends to cover operating costs with subscriber revenue.

For the first seven years, the project will be funded using

Gain Share revenue: a portion of the extra state personal income tax revenue generated when local governments offer tax deals to job-producing companies through the Strategic Investment Program. Hillsboro and Washington County together receive \$16 million in Gain Share a year. The projected cost of building Hillsboro's new network is an annual \$4 million.



Fiber optic cables in the SandyNet data center. Each yellow cable can support up to thirty-two households. In the background: Greg Brewster, Assistant IT Director at the City of Sandy.

Municipal Broadband

Why should the city be the entity that invests in expensive fiber optic cable installations? One answer is that the municipality has a funding advantage: It isn't expected to turn a profit, and it doesn't have shareholders that expect

immediate returns. "A national carrier will want a return on investment within forty months," said Duke Dexter, program coordinator at the Clackamas Broadband Exchange (CBX). "But a municipality can take that same exact cost and spread it out over ten, maybe even up to twenty years."

A city that has a proven record of delivering services to residents also meets a certain amount of positivity right off the bat. Mont said that he had seen overwhelming enthusiasm from Hillsboro residents. "Every time I meet with somebody they show me where their house is and ask when we're going to get there," said Mont.

Patrick Preston, Hillsboro's public affairs manager, was participating in the phone conversation. "I've not heard anybody argue against having the option of affordable high speed Internet access," he said. "I don't know what argument they would make."



Leaders of Municipal Broadband PDX. From left: Roberta Phillips-Robbins, Michael Hanna, Noah Fontes, Colin Nederkoorn.

SandyNet

The city of Sandy, Oregon went that route in 2015, when it started installing a fiber optic network for municipal broadband. The result – ing service, called SandyNet, has signed up 66 percent of its potential customers within city limits.

The major construction phase did bring growing pains. Joe Knapp, Sandy’s IT direc – tor, spent nine months fielding angry phone calls about torn-up yards or other disrup – tions. “I just had to remind myself every morning that I know, in my

heart of hearts, that what we're doing is going to benefit this community for the next century," he said. (Confirming his belief, SandyNet is now signing up customers who had publicly declared in protest that they would never subscribe to the service.)

The percentage of potential customers who subscribe is called a "take rate" in the telecom industry. Sandy had estimated an initial take rate of 35 percent. Reality: 50 percent. Compared to larger cable companies, that was remarkable. Soon after the service went online, Knapp shared his story at a telecommunications conference and had telephone company executives coming up to him afterwards asking how SandyNet had managed to pull it off.

One reason Sandy's take rate was so high is the same reason that Sandy's city council felt driven to become Internet service providers, first with DSL in 2003 and now with fiber: there was very little else available. Even City Hall couldn't get a DSL line installed.

SandyNet also prides itself on providing good service to the community. Knapp commented: "I tell our customers all the time, 'It's very likely that I'll bump into you at the grocery store, or if you have a problem and you're unhappy with the service that you get from us, you can come to a city council meeting and talk directly to my controlling board.'"

The SandyNet fiber project was entirely funded by a \$7.5 million revenue bond. Knapp wishes the city had borrowed more money. So many customers signed up that SandyNet has borrowed twice from other city funds just to keep building. "We didn't anticipate hitting 50 percent take rate until year five, and

we're only in year four right now," he said.

SandyNet cost modeling built in small rate increases every five years, mainly to account for inflation. Eventually, Sandy's city council intends to move to a service model similar to water and sewer, where the price of the service is more directly tied to projected costs of building and maintaining the network.

Sandy has received dozens of inquiries from other cities interested in doing something similar. Knapp reminds them that Sandy started off with ten years of running a DSLbased ISP. Thirty percent of residents were already using that service when Sandy started investigating fiber to the home. "For a community to start from zero, I think, is a little bit of a harder reach for a council," he said.



Official van parked outside SandyNet's office in a former high school building.

Clackamas

SandyNet's service relies on a fiber optic backbone built by Clackamas County using an Obama-era economic recovery grant. Dexter said the county had recognized major gaps in its connectivity. "In small communi - ties like Molalla, Estacada, Colton, and even the city of Sandy, everyone has some form of co-op or cable company, but they weren't integrated," he said. "It really lacked continu - ity from one region to the next."

So the CBX was created with Dexter at the helm. It spent 2010 through 2013 building 180 miles of fiber backbone through both urban and rural areas. This was dark fiber- not associated with a service, but available for service providers to use if they chose.

CBX is funded entirely by leasing its fiber to other entities, and Dexter said it has never run in the red. The majority of users are pub - lic institutions like the Clackamas Educational Service District, which now uses the CBX network to provide Internet to all public schools in the county. Colton School District had previously cobbled together \$10,000 worth of 100 Mbps service from four or five different telephone companies every month. Through Clackamas Educational Service District, it is now paying \$255 a month for 1 GB service. Altogether, the county's schools are saving around \$750,000 each year.

The county had presumed that commercial providers would be a

larger proportion of the users, but right now they account for only 10 to 15 percent of connections. Dexter speculated that was mostly because companies like to possess their own network; it offers more control and it pays off over time. But commercial providers also, he thinks, held back out of spite: till then, public institutions had been anchor tenants for commercial providers.

LS Networks, a commercial ISP serving government and educational customers, did decide to lease fiber from CBX. "The benefit to us is improved access," said Bryan Adams, director of sales and marketing. LS owns much of the fiber in its three-state service area, but leasing more allows it to expand without heavy upfront capital expenditure.

Multnomah County

LS Networks is headquartered in the Pittock Block, a hundred-year-old building in downtown Portland that evolved into a fiber optic hub for the region in the 1990s. In the basement, fiber optic trunk lines channel most of the Internet traffic in Oregon. On the top floor, every first and third Tuesday of the month, Colin Nederkoorn takes a break from running tech company Customer.io to host a meeting of the Municipal Broadband PDX campaign at his office.

On one sunny Tuesday evening in October 2018, the meeting had five participants: Nederkoorn; Michael Hanna, co-founder of the coalition; Noah Fontes, a software engineer at Puppet; and Roberta Phillip-Robbins, former executive director of MRG. Julia DeGraw, a recent candidate for Portland City Council, joined by phone. The meeting focused on progress on the most recent municipal broadband initiative: a \$250,000 feasibility

study announced by Multnomah County in June.

Getting the county to sign off on the study is the first success by Portland's municipal broadband coalition. The name of its recently formed 501(c)4 nonprofit, Municipal Broadband Coalition of America, reveals larger ambitions. "The only way we're going to build out our fiber optic infrastructure in the United States is bottom-up," said Hanna. "It's not going to come from the top."

In this, he sees a "100-year echo" of the same municipal socialism that led to public water and electric utilities in cities across the country. Portland bought out its privately owned water company in 1886. "We're going to do the same thing for our digital infrastructure and our renewable energy grid that we did one-hundred years ago," said Hanna. "Broadband is actually the low-hanging fruit."

If Multnomah County does invest in public broadband, it would be the biggest urban area in the United States to take this on. "As a county of this size, we would be a real leader in developing a system like this," said Commissioner Sharon Meieran, who first proposed the feasibility study.

Internet access is the type of broadly felt, high-impact issue that interests Meieran. "One of my other priorities is mental health, and I see that as somewhat analogous," she said. "That's something that transcends any of our different departments or programs or services."

But it wasn't on her radar until the grassroots activists came to call. "I'd never heard of municipal broadband, to be

honest," she said. "I was approached by someone from Municipal Broadband PDX who came to my office to talk about it. And it's like a light bulb went off."

The Opposition

In October, the City of Portland was conspicuously absent from the list of Multnomah County municipalities that had voted to contribute to the feasibility study. Gresham, Troutdale, Fairview, and Wood Village had already committed.

MBCOA's steering committee considered possible explanations: Was someone in the mayor's office trying to avoid a repeat of the Google Fiber debacle two years before? Was the Portland Business Alliance (PBA) lobbying against municipal broadband? Comcast, CenturyLink, and AT&T all have representatives on the PBA's board.

"Is this the beginning of telcos trying to interfere?" wondered Nederkoorn.

"That's what we don't know," answered Hanna.

The PBA did make a statement at the time of the vote, questioning whether the county should consider investing in broadband infrastructure "at a time when the top priority for Multnomah County residents clearly is addressing the community's housing and homelessness crisis." And Comcast did register its disapproval when Hillsboro City Council voted to go ahead with its broadband plan. Tim Goodman, government affairs lead at Comcast, wrote the mayor of Hillsboro a letter

defending its speeds and prices and asking for more face time.

Looking at the lead-up to successful municipal broadband efforts in similarly sized cities, it's a little surprising that there hasn't been more opposition here. The Longmont project passed despite \$300,000 in opposition spending by the Colorado Cable Telecommunications Association and allies. The CCTA put \$816,000 against a similar ballot initiative in Fort Collins. In Chattanooga, Tennessee, Comcast sued the Electric Power Board to prevent it from building its own network.

Asked for thoughts on the subject, Comcast spokesperson Amy Keiter wrote: "The city of Hillsboro and most of the Portland metro area is deeply penetrated with top tier broadband providers—probably one of the best-served metro areas in the country. There is not a sensible argument for why another broadband network is needed in Hillsboro, or Multnomah County, particularly at the expense of taxpayers."

In fact, there is. In Southwest Hillsboro, only 20 to 40 percent of residents have broadband access. Throughout the metro area, the availability of broadband doesn't lead directly to high subscription rates.

"We've talked with another school district in Oregon," Mont said, "where they recently equipped all of their students with laptops to take home and use for homework and they found a significant portion of their students don't have Internet connectivity and couldn't use the laptops at home. So it was definitely one of those things where we're trying to fill an important gap."

Sidebar: The Nuts and Bolts of Broadband

Washington

Opposition to municipal broadband isn't merely reactive: in twenty states, it's preemptive. This isn't a widely advertised fact; Jennifer Redman, a Master of Urban Studies candidate at Portland State University, learned it only after starting research for her thesis on municipal broadband, despite a twenty-year career in IT. "The fact that state legislatures would pass laws essentially written by the ISPs and telecom industries to prevent municipalities from building their own fiber infrastructure was very surprising to me," she said. "I don't think the control private telcos have over state broadband policy is widely known by constituents affected by those statutes."

Washington state law allows public utility districts to build broadband infrastructure and lease it, but explicitly prevents them from offering Internet services themselves. Ports have the opposite restriction: they can offer their own service, but are only allowed to lease access to one ISP at a time. Until March 2018, only very low-density rural ports were permitted to sell fiber access.

The legislature amended the law under pressure from, among others, the port of Ridgefield in northern Clark County, which plans to build twenty-four miles of fiber around the "Discovery Corridor," the stretch of I-5 between Washington State University Vancouver and a new casino built by the Cowlitz Tribe in Ridgefield. One day Ridgefield hopes to fill in the space with biotech firms and other sources of skilled jobs. But similar efforts on the part of, say, the City of

Vancouver are banned.

Rural Access

Ports aside, how this technology will manage to reach and serve residents of truly rural communities is still an open question. LS Networks— which is owned by five rural Oregon electric cooperatives and the Coquille Indian Tribe—is one of the providers deliberately serving rural areas, and even it has trouble justifying building fiber out to small-town residents. Its successes came through creative deal-making and government support, such as the public-private partnership that recently combined \$100,000 from LS Networks with a larger state grant to install fiber in the city of Maupin.

Electric cooperatives have a long history of providing services where it seems impossible. They began as a New Deal project, with farmers using federal loans to build their own grids all across the United States. Some evolved naturally to providing high-speed Internet access as well. As of December 2016, there were eighty-seven cooperatives offering residential gigabit service, out of around nine hundred total.

“I think broadband should be treated like a utility,” said Dexter. “I think that the city of Sandy and the city of Hillsboro are making good choices to ensure connectivity and bandwidth for their communities for years to come, and I think it’s only going to pay dividends in the future for them. I would love to see different counties do the same thing not only in their urban areas, but also in their rural areas.”

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