Abstract:

The City of Seattle has released an updated report on building out a Fiber-to-the-Premises (FTTP) Internet utility in Seattle[1]. The report, authored by Columbia Telecommunications Corporation (CTC), finds that in today's broadband landscape, City investment in a data-only network is feasible and may meet the City's "long-term strategic vision of ubiquitous access and competition." The study recommended a future broadband utility focused on providing a data only service at a minimum of 1 Gigabit per second (Gbps) symmetrical.

Costs to build the utility vary depending on financing, from $440 million if financed upfront through a property tax, to $660 million using General Obligation bonds. The low-cost option could be financed with a 5-year property tax increase of 6/10ths of a cent for every thousand dollars of assessed value, or approximately $22 a month for a house worth $450,000. This would enable the utility to offer 1 Gbps service to homes in Seattle for $45 a month. Centurylink currently charges $130-$150 a month for the equivalent service in some neighborhoods.

Technological Brief:

As a quick definition of terms, 1 Gigabit per second is equivalent to 1,000 Megabits per second. Fiber provides a symmetrical connection, which means that data would download and upload at the same speed. Current cable and DSL service often offers downloads of one speed, and considerably slower uploads at a different speed. Downloading is useful when moving content to your computer (i.e. streaming Netflix, downloading MP3s), while uploading is useful when sharing content (i.e. by music and video producers, artists, etc.) Symmetrical connections allow for fast two-way connections, necessary for applications like video production, videoconferencing or more complex telemedicine.

Recommendations:

[1] The full 194 page report is available online at http://www.seattle.gov/Documents/Departments/Broadband/2016-6SeattleReport-Final.pdf

The study began with six recommendations as to how the City of Seattle might achieve its broadband goals, particularly through a municipal delivery model.

Retain Ownership of Assets:

The report stressed the need for the City to retain ownership of infrastructure, whether through a municipal delivery model or in any future public/private partnerships.

Develop an Application Demonstration Center:

In order to showcase the innovation potential of providing low-cost 1 Gbps Internet service, the study recommended reaching out to local businesses and industries that would benefit "as they could be powerful allies in demonstrating the capacity of the network and what it truly means to have 1 Gbps service." This includes local health care providers, software and application developers, large tech-centric companies, and smaller Seattle-based businesses and co-ops.

Develop a focused Pilot Project:

In order to better understand the costs and risks associated with this venture, the City would benefit from initiating neighborhood pilot projects. These projects would provide both a learning opportunity for the City as well as a demonstration of the City's capability to run an Internet utility. Additional information about three pilot projects is included on Page 4.

Work with Seattle City Light:

Seattle City Light would make a powerful partner and ally in this deployment. As just one example, working with Seattle City Light would reduce the overall cost of construction by $130 million by allowing the utility to build portions of its fiber network in shared power space.

Collaborate with other City Departments:

Cooperation among departments in the deployment of the fiber network will provide multiple opportunities to lower costs and find mutual benefits. Telecommunications savings realized internally by one department could help offset some portion of the utility's upfront costs.

Consider Potential Public-Private Partnerships:

Partnerships need not preclude the municipal delivery model, as "the City has absolute authority at this point to determine what type of partnership it aims to participate in, and it can negotiate the terms."

<u>Popularity Among Seattle Residents:</u>

CTC surveyed Seattle residents to assess the viability of creating an Internet utility[2]. They found:

- Over 80% of respondents indicated that Internet is essential.

[2] Of 3,750 randomly-selected respondents, 833 replied. Margin of error ±3.4 percent.

- Only 30% indicated that Internet is affordable.
- 65% said they wanted the City to build out a public network.
- 43% wanted the City to build the network and offer services directly to the public.
- The average monthly Internet bill is $56 and 28% of respondents pay over $70.
- 47% of respondents indicated a willingness to pay $75 a month for a 1Gbps.
- 85% would subscribe to a 1Gbps network if the price was $55 a month.

Current Market Situation:

CTC found that "many of the City of Seattle's businesses and residents have access only to marginal communications infrastructure and have limited choice in service providers, which potentially results in stifled technological innovation and substandard service when compared to other leading cities and nations in Europe and Asia".

They identify the cause of this problem: a "market structure with well-entrenched incumbents that have few incentives to offer enhanced data services." Current Internet Service Providers face little competition and have no incentive to upgrade services or lower prices.

Comcast currently offers up to 150 Mbps (download) service in Seattle, with no plans for major upgrades. Centurylink has begun rolling out FTTP gigabit services in two neighborhoods and has reached 22,000 customers, providing service for $130-$150 a month. While this does not address the underlying issues with market structure, it is a significant step toward a more connected City. Wave broadband has announced a pilot to provide FTTP to approximately 600 customers in Eastlake.

CTC Considered Three Financing Models:

Revenue Bonds:

Previous studies had suggested that revenue bonds tied only to the future proceeds of the utility could be used to finance the network. The total costs to build out the infrastructure and pay interest on bonds ranges from $504 to $660 million dollars. In this model subscribers would be charged $75 a month for 1Gbps FTTP. In order to pay back the bonds, the utility would need a business and residential take rate of 41%. This number excludes multiple dwelling units. As a point of comparison, Chattanooga's take rate is 33%.

This study found bonds backed solely by the future revenues from subscribers to the network to be too risky. Incumbent Internet Service Providers (ISPs) could potentially lower their prices in order to compete with the utility and undercut the revenues necessary to pay back the bond in full. If this were to occur the utility would be unable to pay back the principal and interest owed on the bond.

General Obligation Bonds:

General Obligation Bonds were also looked at to fund the network. This would guarantee the bond repayment with the City's general fund if the utility ran a deficit. This financing method potentially puts City services at risk.

Property Taxes:

Finally, they looked into financing the network outright by raising the capital in advance rather than borrowing the funds. CTC's model had the city come up with $440 million in advance through a property tax. This model would charge residents $45 a month for 1Gbps FTTP, with a break even take rate of 41%.

The residential survey did not include $45 as a potential price, although as a reference point 85% of residents indicated willingness to subscribe to a 1Gbps utility for $55 a month. Chattanooga's successful public utility currently charges $70 a month for 1Gbps.

Pilot Projects:

CTC designed three pilot projects that could be implemented for less than $5 million dollars. This amount covers the capital cost of building the infrastructure as well as operational expenses for a 12-24 month period. The three recommended neighborhood projects were:

The Central District:

- Encompassing 1,388 addresses, the Mann and Madrona Elementary Schools, a U.S. Post Office and a Young Women's Christian Association.
- Capital Cost: $2.9 million

North Beacon Hill:

- Encompassing 1,260 addresses, one large medical facility, and Beacon Hill International School.
- Capital Cost: $2.9 million.

Queen Anne:

- Encompassing 493 addresses, Queen Ann High School and John Hay Elementary School
- Capital Cost: $1.4 million.

Maps of the three pilot projects are included at the end of this report.

About Upgrade Seattle:

Upgrade Seattle is a grassroots group of Seattleites working to establish a city-owned Internet utility. We are community organizers, artists, tech workers, and students. Our goal is equity. We want to expand Internet access to all Seattle residents while improving speeds and lowering prices.

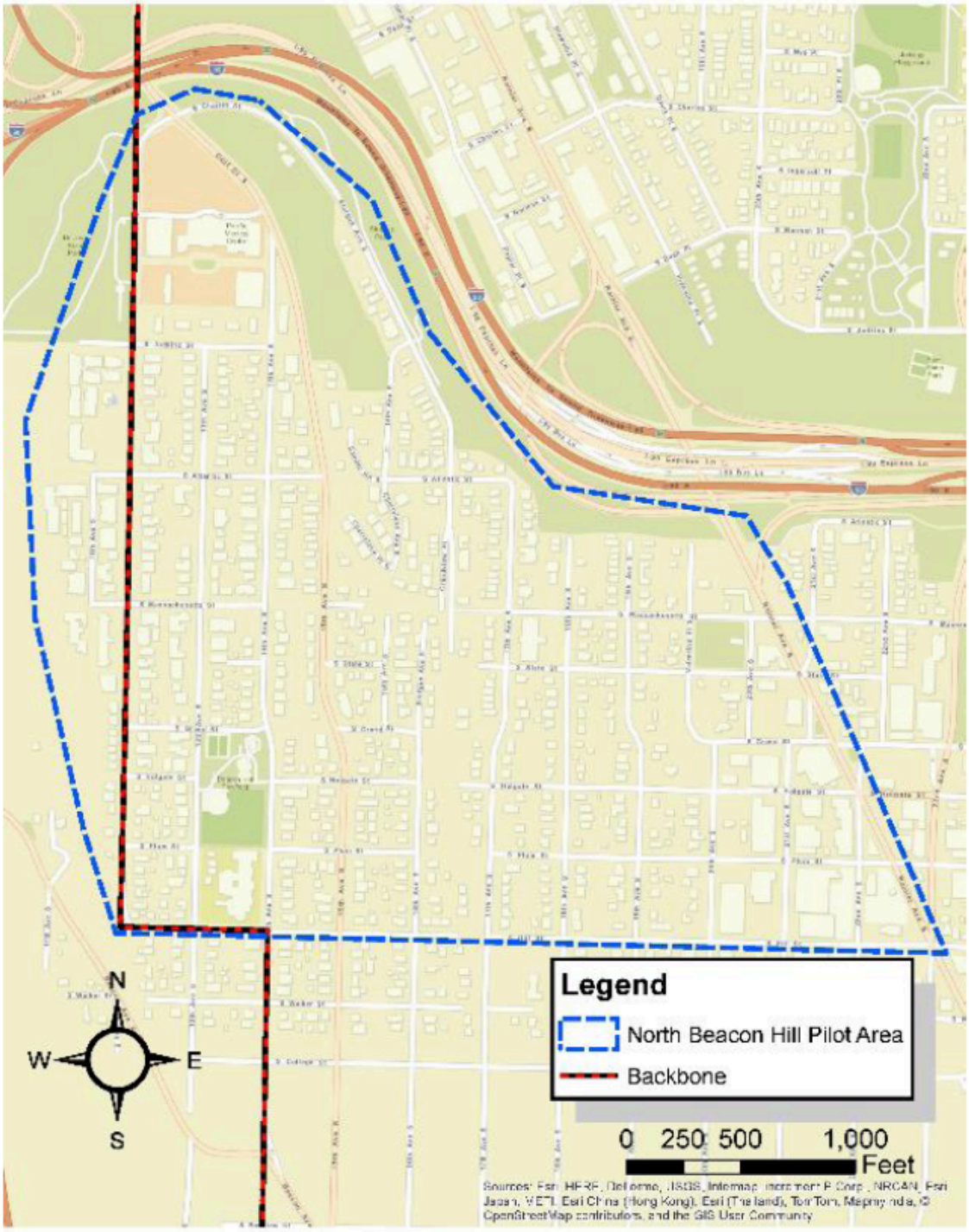
Contact Information:

For questions about the report or Upgrade Seattle's goals, contact Devin Glaser at DevinGlaser@gmail.com or phone (206-683-1635).

Appendix A:
Pilot Project Maps

Central District Pilot Area:

North Beacon Hill Pilot Area:



Queen Anne Pilot Area: