

May 18, 2016

Mr. Jim Loter
Director of Digital Engagement
Department of Information Technology
City of Seattle
700 5th Ave, Suite 2700
Seattle, WA 98124-4709

Subject: Proposal to develop Wi-Fi strategy

Dear Jim:

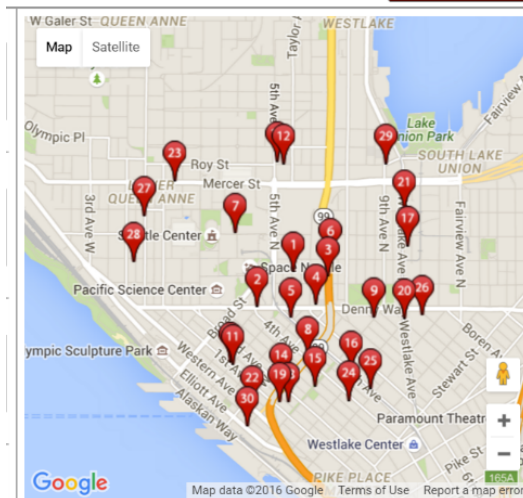
As we discussed, CTC will support the City in the development of a comprehensive strategic plan for deploying Wi-Fi and other wireless technologies as a tool for addressing Seattle's digital equity and digital inclusion needs.

We will develop a strategic plan that balances the City's two key project goals: The need to fill broadband gaps in neighborhoods where those gaps exist (either because of availability and affordability), and the need to develop a sustainable business model.

Addressing Seattle's digital equity and digital inclusion needs is a goal focused on citizens; developing a sustainable solution is a goal focused on the City and its potential partners, and the financial reality of paying for such an initiative.

Goal 1: Access

Lower-income residents of most cities face twin challenges with respect to access to broadband services. First, their neighborhoods may not feature free Wi-Fi service. Indeed, free public Wi-Fi service tends to develop organically in wealthier neighborhoods. The anecdotal "OpenWiFispots.com" identifies almost 350 free hotspots at coffee shops, restaurants, hotels, and other businesses across the City—including dozens in Queen Anne Hill:



Second, lower income neighborhoods frequently have less robust infrastructure and less robust broadband service competition, particularly in small business and commercial areas (cable infrastructure in particular is lacking in small business corridors, given cable's traditional residential, one-way video footprint). And this lack of service is compounded by affordability challenges. A robust broadband service frequently lies beyond the means of lower-income members of the community.

As a result, there exists enormous opportunity for the City to increase digital inclusion and equity by promoting or deploying Wi-Fi service in lower-income neighborhoods, where there are fewer coffee shops and restaurants offering Wi-Fi, and where home-based broadband may be unavailable or unaffordable. In this way, the City may be able to close the gap for members of the community who are most likely to find themselves on the wrong side of the digital divide.

We thus propose to analyze the potential for a citywide Wi-Fi solution, but we will focus in particular on identifying gaps and serving low-income neighborhoods and other areas where citizens' access to broadband may be low because of availability and affordability issues.

Goal 2: Sustainability

Sustainability is a critical concern. For example, while deploying targeted wireless hotspots may be a relatively affordable project (either for the City or a private partner), the hotspots may be quite costly to maintain over time. Wi-Fi equipment, especially installed outdoors, has only a three- to five-year lifespan; regular equipment replenishment over time can lead to significant long-term capital costs. Adequate backhaul requires access to fiber optics or robust microwave. And network operations and maintenance require the services of capable (and costly) network engineers).

In light of these two key goals, we will consult with the private sector and government entities to determine what projects and assets the City can leverage, and will seek to develop public-private

partnerships or other innovative approaches to developing a sustainable wireless network that can help close the City's digital divide.

Tasks

Following a day-long strategy session with the City's project team, we will perform a range of information-gathering, needs assessment, and strategic planning tasks, including (but not limited to) the following:

1. Identify lessons learned from the SeattleWiFi project

The City's experience operating a free wireless service, and its reasons for ending that pilot program in 2012, will provide important insight for this planning.¹

2. Research lessons learned and best practices worldwide

The "New Urban Mechanics" programs in Boston and Philadelphia are examples of the type of local government innovation we are seeing in the United States. Through our research and travels, though, we also recognize that much innovation in this field is occurring outside the U.S. We will research the best practices and lessons learned in terms of Wi-Fi and wireless deployments in urban and suburban environments nationwide and internationally.

In addition to interviewing project leaders in other cities in the U.S., Asia, and Europe, we will explore the latest developments in Smart City and Internet of Things technologies and products. (We currently are conducting a similar, but less expansive, analysis for the City of Atlanta, so we expect to have economies of scale in our research and analysis.)

Our findings here will inform the preparation of a Request for Information (RFI).

3. Meet with City agencies and examine the feasibility of leveraging diverse City assets

Across the full range of City government agencies, there may be many initiatives, such as street furniture replacement, that could become part of an overall strategic plan for wireless technology deployment. Kiosks, bus shelters, street lights, benches—all are potential targets of opportunity for a coordinated wireless plan.

Just as New York City is converting former phone booths into gigabit Wi-Fi hotspots through its LinkNYC initiative,² and Boston is experimenting with Soofa solar-powered

¹ Mari Silbey, "Seattle ends free Wi-Fi," *ZDNet*, May 8, 2012, <http://www.zdnet.com/article/seattle-ends-free-wi-fi/>

² <https://www.link.nyc/>

benches that citizens can use to recharge their phones,³ we will look at existing City assets that can be leveraged to support a targeted or citywide wireless initiative.

We will meet with representatives of City agencies to identify such opportunities in the short-, medium-, and long-term. Our goal here, as throughout the engagement, will be to focus on digital inclusion outcomes, not simply an amenity Wi-Fi service.

4. Meet with County agencies

King County's fiber and wireless deployments for its RapidRide service⁴ are examples of the type of County program that might mesh with the City's wireless planning. We will meet with representatives of relevant County agencies, just as we do with the City's departments, to identify current programs, future plans, and potential areas of collaboration.

5. Meet with UW, non-profits, and community anchor institutions

UW, community anchor institutions, and Seattle's vibrant community of non-profit organizations will be important partners in the City's Digital Equity strategic planning. The United Way Puget Sound has already been identified as having complementary goals;⁵ with the City's help in identifying a list of entities, we will reach out to representatives to share the City's vision and identify projects and possibilities for collaboration.

6. Conduct outreach to private sector entities, wireless carriers, and Internet service providers (ISP), and prepare a Request for Information (RFI)

Recognizing that the private partners will likely play a key role in the City's long-term planning and operations, we will seek to engage with the private sector through both one-on-one outreach and a carefully crafted Request for Information (RFI). Our goal is to gather as much information and insight as possible about what the private sector may be interested in contributing to the City's plans, and to identify the widest possible range of qualified partners that share the City's vision and will share in the City's risk.

With an eye toward identifying potential private sector partners—for funding, technical assistance, in-kind donations, operational roles, or other innovative approaches—we will develop a list of Seattle's key private sector entities to contact. Our outreach meetings will serve a dual purpose of educating these companies about the City's digital equity

³ J.B. Wogan, "Boston Pilots Smart, Solar-Powered Benches," *GovTech*, September 11, 2015, <http://www.govtech.com/fs/Boston-Pilots-Smart-Solar-Powered-Benches.html>

⁴ <http://metro.kingcounty.gov/travel-options/bus/rapidride/>

⁵ "February 9, 2016 minutes – Seattle Community Technology Advisory Board," <http://ctab.seattle.gov/>

efforts and identifying potential partnership opportunities (either currently or in the future).

The wireless carriers operating in Seattle will be key stakeholders in the City's wireless plans. The industry-wide push to deploy distributed antenna system (DAS) and small cell networks represents a seemingly ripe opportunity for the City to guide carrier investment to lower-income neighborhoods, or to identify opportunities (in terms of technical feasibility and potential partnership agreements) for the carriers to support the City's Digital Equity efforts with wireless broadband access.

Both to identify the ISPs' expansion plans in the City and to register their potential opposition to the City's Wi-Fi initiatives, we will also reach out to the residential and commercial ISPs operating in Seattle. As with our engagement with the wireless carriers, we will be seeking to identify common ground for partnerships and cooperation.

7. Envision potential public-private partnerships

Drawing on the full spectrum of potential partners, stakeholders, and services that we develop in the previous tasks (and particularly through the RFI process), we will develop recommendations related to potential public-private partnerships that we believe the City should consider.

8. Examine feasibility of using the City's fiber to support Wi-Fi

As a foundational element of the technical aspects of our strategic planning, we will use our knowledge of the City's fiber assets to determine the ways in which that infrastructure can efficiently and cost-effectively provide backhaul for Wi-Fi or other wireless services.

9. Research the state of the art in Wi-Fi and wireless technologies

Based on responses to the City's RFI and our knowledge of the state-of-the-art in wireless technologies, we will help the City understand the available options for meeting its Wi-Fi goals. We will focus not just on technological capabilities (i.e., the ability of a solution to meet end users' needs), but also on user experience (e.g., the ability of a technology to deliver a consistent experience with regard to connection, authentication, and so on) and on operating costs, product lifecycles, and other issues related to the long-term financial sustainability of the City's efforts.

10. Develop a high-level financial and technical approach to fill the City's broadband gaps

We will then develop a strategy including technical and financial parameters for provision of Wi-Fi service. Our strategy will include recommendations on proposed technical standards and user experience requirements (based on the results of the previous task).

In terms of the geographic parameters of a network deployment, we will take a particular focus on lower-income areas of the City and other neighborhoods where the City has identified affordability or availability gaps. To the extent that the City has previously identified such target areas, we will recommend locations for priority deployment; as an alternative, we will offer recommendations and guidance to the City on how to prioritize a phased deployment. In this task, we will balance the City's two primary goals—access and sustainability.

11. Provide guidance and recommendations related to neutral-host DAS

Given the nexus among fiber, wireless, and neutral-host DAS (distributed antenna system) networks, especially for a municipal operator, we will evaluate the City's options for deploying or supporting the deployment of neutral-host DAS networks in conjunction with a Wi-Fi project. Our deliverable will include an assessment of the current and anticipated future state of DAS, and recommendations for the City's approach to DAS.

12. Recommend outreach and engagement tactics for promoting Wi-Fi use

Drawing on our client experience and best practices we have observed, we will offer suggestions for raising public awareness prior to and in conjunction with the implementation of a public Wi-Fi network. We will focus on specific steps the City can take to promote citizen engagement and use of the network—so that the deployment has the best possible chance of achieving its goals of enabling access.

Deliverables

In addition to the interim deliverables (the RFI and analysis of the responses), our final deliverable for this scope of work will be a 10-year strategic and business plan that seeks to maximize the potential benefits of Wi-Fi and other wireless technologies for digital inclusion. Our recommendations will represent a targeted effort. In an ideal environment, the City would be able to come close to citywide availability—but, given the financial and technical aspects of Wi-Fi and other wireless technologies, we recognize that a targeted deployment will likely be more realistic.

Our strategic planning will seek to capitalize on existing and planned infrastructure and programs in the City, including:

- City initiatives
- Seattle City Light initiatives
- County and regional initiatives
- Private sector activities
- Non-profit initiatives

- Commercial wireless initiatives
- Potential public–private partnerships

Our recommendations will focus on balancing the City’s digital equity goals and the need to minimize the City’s risks over time. To that end, the business plan will focus on sustainability. While both the broadband market and wireless technologies have changed even over the past five years—making Wi-Fi more feasible as a means of addressing digital equity issues—the economics of Wi-Fi deployment and operations require a business plan with realistic assumptions around costs and funding.

We will deliver an electronic draft of our project report, incorporate the City’s feedback, and deliver a final version of the report. We will be prepared to present the report and our recommendations to the City Council and the Community Technology Advisory Board, and will be available to support the City with its next steps in implementing the plan.

Timeline

We propose to perform the tasks described above over a six-month period, beginning with a project strategy session immediately after July 4th.

We will conduct very intensive field work, project discovery, and analysis during the summer months (with an understanding that many of our potential sources will not be reachable, and that the discovery will thus require additional time to complete).

We will also write the RFI over the summer, with a goal of releasing it in the first week of September if that timing works for the City. We would recommend having the RFI on the street for a minimum of six weeks. Both the timing of the release and the duration of the response period reflect our understanding of the nature of this RFI. We will be asking respondents for a high degree of creativity, innovation, and idea generation. If we publish the RFI over the summer (when many people are on vacation), we are not likely to get the best possible responses. Similarly, we believe a six-week response period is the minimum needed to allow respondents to develop their approaches.

Any field work that we cannot complete over the summer will be performed in September, while the RFI is on the street. We would expect to receive all RFI responses by mid-October, and to complete our analysis of those responses within two weeks.

Over the month of November, we will prepare a draft of our project report for the City’s review. Based on the City’s feedback, we will finalize the report in early to mid-December. We anticipate completing the project by the end of the calendar year.