

# City of Seattle

## Seattle Wi-Fi Evaluation Report

October 2006

### Summary

The City of Seattle launched a free pilot wi-fi service called Seattle Wi-Fi in May of 2005 in the University District and Columbia City business districts, City Hall, and four downtown parks (Victor Steinbrueck, Occidental, Westlake, and Freeway). The University of Washington is providing Internet service with a five year commitment. The Rainier Valley and UDistrict Chambers of Commerce, Columbia City Business Association, Homesight and Atlantic Street Center have each committed a small contribution towards marketing and maintenance costs.

The goals of the pilot project have been:

1. Enhance business revenues and district economic viability by
  - a. Attracting more customers and increasing purchases
  - b. Using the online portal to market local products and services
2. Increase productivity and sustainability of small businesses by lowering connectivity costs and easing access to Internet resources
3. Increase the use of Seattle.gov, the city's web site.
4. Learn what's required to operate municipal wi-fi
5. Encourage greater use and safety in the parks.

While not a primary goal, there was also interest in whether the service would provide an option for residents who might not be able to afford high bandwidth Internet service. For the University of Washington, an additional goal was to provide off-campus access to information for students, staff and others associated with the university.

### **Evaluation methodology**

In August, 2006, we conducted a two week online survey of users and also interviewed businesses in the two neighborhood business districts (Columbia City and University District). Nine non-users were also surveyed for their perspective on the impact of the service. System user statistics from January through August 2006 were also compiled. Due to the design of the system, the four parks and City Hall lobby are treated as one hotspot with combined data.

### **Who is using Seattle Wi-Fi?**

From January through October, 12,000 unique users were served, with over 1,000 first-time users added every month. October averaged 191 users per day, with greatest use (58%) in the University District, which is also the area of broadest coverage. Columbia City represented 17% of users and 26% were Parks/City Hall users.

Based on our user survey, approximately 49% of these are customers in businesses, 28% are home users, 13% are business owners or employees and 10% are other types of users such as students or tourists. There are a large number of one-time users. Columbia City was more likely to have repeat users. Just under half come from outside the wi-fi area's zip code.

### **Business Impact**

Seattle Wi-Fi has clearly added a valued service to the business districts. One-quarter of businesses surveyed have seen a positive impact on revenues and customer numbers. The impact on revenue has been greatest in Columbia City (36%) where there was the least amount of wi-fi previously provided and the greatest amount of marketing. The majority of businesses responded that they either saw no difference or were not sure. The wi-fi zone has also become a marketing tool for area realtors and businesses.

Seattle Wi-Fi was used by employees and business owners, but provided access primarily as a service for customers. For most businesses, it has complemented but not replaced other Internet connections. For a few, it is their only access. With only one exception, Seattle Wi-Fi is viewed as positive for the districts. It is not viewed as a significant competitor to those who already had wi-fi, and is seen as overall beneficial to the district.

### **Customer perspective: Seattle Wi-Fi businesses are destination locations**

For wi-fi users, Seattle Wi-Fi was definitely a contributing factor to their visiting the business district and specific businesses. Two-thirds said yes when asked whether Seattle Wi-Fi contributed to their coming to the area today. Three-quarters said that Seattle Wi-Fi encouraged them to go into a business in the area.

### **Digital Inclusion and Wi-fi Literacy**

Seattle Wi-Fi did improve bandwidth for a number of users, some who had no other access. Two digital inclusion issues have been identified: access to equipment and technology literacy. This project has not addressed the issue of equipment haves and have-nots. Some small businesses knew nothing about wi-fi and it hindered their ability to use it themselves or market its use to customers. The project did result in some education and an environment where users shared their technical knowledge with others.

### **Seattle Wi-Fi saves time, gas and road congestion**

Over half the users in the survey (53.3%) answered that the presence of Seattle Wi-Fi had saved them driving. An additional 23 users (10.3%) said that it will save them driving in the future now that they know about Seattle Wi-Fi

### **Web Portal Content: Interest in local content and room for improvement**

Almost two-thirds of users surveyed wanted local event information, followed by a business directory, local product and services, and government information. The UDistrict Chamber of Commerce began to develop its portal and sold some ads for it. Overall the use of the starting pages for local content is underdeveloped.

### **Seattle Wi-Fi increased the use of Seattle.gov**

There were 10,494 page views of the seattle.gov home page as a result of Seattle Wi-Fi in the first eight months of 2006.

### **Value of Seattle Wi-Fi**

Almost 95% of user respondents felt that it was valuable to have wi-fi provided by the city in their area. (81% said very valuable and 13.6% said somewhat valuable).

Support from businesses, users and even non-users was strongly in favor of continuing Seattle Wi-Fi, even from those businesses who did not perceive it as having increased their customers or revenue. Ninety percent (90%) of businesses said yes to continue Seattle Wi-Fi. Of the online user respondents, there was an almost unanimous response that users would like to see the service continue, with 98.5% saying yes. Two-thirds of non-users surveyed also said Seattle Wi-Fi is very valuable to the business district.

### **Costs**

2006 operating costs are approximately \$160,000. We estimate 2007 operating costs to be \$100,000.

### **Technical Overview and Challenges:**

The system is providing 802.11 b and g through a non-mesh system, chosen for cost and because of the corridor design. Access points are strung on light poles. A fiber optic backbone connects Columbia City, the UDistrict and City Hall. Other sites and part of the UDistrict are connected to the network by a point to point 802.11a system.

Our survey showed most users are satisfied with the service, especially newer users. However, wi-fi coverage, like any radio signal, doesn't transmit well through walls or even foliage. Interference is a significant issue. Fiber to Columbia City and replacement of other equipment, as well as ongoing maintenance, improved system reliability, though it is not perfect. Quality interior coverage often requires customer premise equipment (indoor repeaters). It is critical to address user expectations about the quality of coverage. In the two business districts, just over half expected interior business coverage. We successfully tested and our vendor recently started sales of interior repeaters to businesses.

Security, bandwidth capacity and management needs are likely to grow. People do try to hack the system and use large amounts of bandwidth, especially for online game playing. The current system needs some upgrading for monitoring and security.