City of Milwaukee

INTERDEPARTMENTAL CORRESPONDENCE
LEGISLATIVE REFERENCE BUREAU

# M E M O

**To:** Randy Gschwind, DOA-ITMD

**From:** Amy E. Hefter, Legislative Research Analyst

**Date:** 12/6/2005

**Subject:** Wireless network projects in various municipalities

The following is in response to your request for information regarding wireless fidelity (Wi-Fi) network proposals, projects and agreements. Cities researched were New York (NY), Los Angeles (CA), Philadelphia (PA), San Francisco (CA), Seattle (WA), Portland (OR), Cleveland (OH), Atlanta (GA), Minneapolis (MN), Anaheim (CA), Corpus Christi (TX), Madison (WI), Tempe (AZ), Allegany County (MD), Mountain View (CA), Rio Rancho (NM), Chaska (MN) and Grand Haven (MI). The following information is organized in descending order by the size of population in each municipality.

**New York, NY**
Population: 8,008,278

The City of New York currently receives $21 million annually for leasing space on light poles, traffic lights and other city-owned properties to competing wireless companies. At this time the city has no plans for a public Wi-Fi network; instead it is relying on the private sector to provide Wi-Fi access to residents. The City of New York is researching Wi-Fi uses for government applications. In a report to Mayor Michael R. Bloomberg, submitted March 2005, "Telecommunications and Economic Development in New York City: A Plan for Action" prepared by the New York City Economic Development Corporation, the New York City Department of Information Technology and Telecommunications and the New York City Department of Small Business Services suggested the City of New York provide guidance and information to business improvement districts and other neighborhood organizations interested in establishing local wireless broadband networks.

The New York City Council is planning to hold a hearing December 12, 2005, on broadband access. It will discuss a proposal to create a task force to study how affordable broadband access can be made available to New York City residents. Roughly 60% of residents do not have a broadband connection. The aim of the proposed law is to

create a needed dialogue between the administration and the City Council on how to make broadband available to all citizens.

**Los Angeles (CA)**
Population: 3,694,820

The City of Los Angeles Information Technology Agency issued a request for information (RFI), February 2005, on the subject of leasing antenna space on city assets by telecom providers. Similar to New York City's project, the RFI is a concerted effort to explore enhanced network coverage and capacity from private sector operators as well as the potential for Wi-Fi centers.

The Mayor's Wi-Fi and Beyond Executive Advisory Panel submitted a report, "Fast & Easy: The Future of Wi-Fi & Beyond", in April of this year. The panel's recommendation included suggesting the City of Los Angeles help finance a public/private partnership for the deployment of a citywide Wi-Fi network. The City of Los Angeles has not issued a request for proposals on a citywide Wi-Fi network; the city comprises an area of 465 square miles.

**Philadelphia (PA)**
Population: 1,517,550

Wireless Philadelphia is a nonprofit corporation incorporated March 2005 to develop a public/private partnership to achieve wireless access throughout the City of Philadelphia, a coverage area of 135 square miles. A request for proposals was issued in the same month for construction, management and maintenance of a municipal wireless network covering commercial buildings, public spaces and residences in the city. Philadelphia Wireless entered into final contract negotiations with Earthlink to construct the network on Oct. 3, 2005, with a 60-day negotiation period.

No tax dollars will be used to fund the building of Wi-Fi infrastructure. The new wireless mesh network serving the entire city is based on current Wi-Fi 802.11b standards with a service speed of 1 megabit per second to download information. It is expected to be operational by the 4th quarter of 2006. Estimated cost to provide wireless access citywide is between $7 to $10 million. Other areas of the agreement include an open network with wholesale access, access to City poles and other assets is assumed, and the City will be the anchor tenant and buy services from network.

Earthlink will help Wireless Philadelphia promote "digital inclusion" by offering Philadelphia residents discounted Internet access at approximately $10 per month; the City will determine eligibility. For other residential subscribers to the network, retail rates are estimated to be under $20 per month. Free Wi-Fi access will be available in some public places and parks in the City. Wireless Philadelphia will share profits, which it will use to subsidize low-cost services.

Earthlink will finance, build, and manage the wireless network, and provide revenue-sharing fees and support to Wireless Philadelphia. A 15-square-mile area will be constructed initially. When that phase is completed, Wireless Philadelphia and Earthlink will begin building out the remainder of the City wireless network.

**San Francisco (CA)**
Population: 776,733

In August 2005 the City of San Francisco issued a request for information and comments (RFI/C) from commercial vendors, service providers, non-profit organizations, community groups and other interested parties for the deployment of a wireless broadband network throughout the city. The City received 26 RFI/C responses in early October 2005. Respondents included Google, Inc. and MetroFi.

Google's proposal included building a wireless network for free for the city and providing 300-Kbps of services at no charge to users. Google expects to recoup its costs through advertising sales and premium service with speeds. MetroFi's proposal would include free service at 1-Mbps at no cost to the city with premium service with more security, costumer service and no advertising for about $20 a month.

San Francisco officials have not indicated what type of business model they prefer. Officials have indicated their goal is free citywide service, 46.7 square miles, to residents and a turnkey operator that would control the network.

**Seattle (WA)**
Population: 563,374

In May 2005, the 12-member Broadband and Telecommunications Task Force submitted a report to the Seattle City Council. The task force recommended that the city of Seattle develop a fiber-optic network in the next 10-years that connects homes, businesses and public agencies with high speed Internet that is 5 times faster than is currently available.

On May 18, 2005, a 5-year pilot Wi-Fi program was launched with free access to residents and visitors. The program cost $115,000. This price includes $65,000 in equipment, paid for by the Seattle Department of Information Technology and the Office of Economic Development. Internet service is provided by Pacific Northwest Gigapop.

Wi-Fi network access is available in 6 pilot areas, 2 neighborhoods and 4 parks. The city is responsible for maintenance while Internet access is funded through partnerships with the University of Washington in the U District neighborhood and HomeSight and Atlantic Street Center in Columbia City neighborhood. In October 2005, the Columbia City neighborhood Wi-Fi zone was temporarily shut down, due to difficulties in deploying the network.

The city of Seattle, an area of 83.9 square miles, has no plans to deploy a citywide Wi-Fi network at this time.

## Portland (OR)

Population: 529,121

In September 2005, the City of Portland issued a request for proposals (RFP) for a citywide wireless network. Proposals were due October 31, 2005, and the city received 7 bids. The following companies submitted bids: Earthlink, MetroFi, MobilePro, US Internet, Winfield Wireless and VeriLAN. The city hopes to select a provider by mid-December 2005.

Portland is looking for a wireless service provider that will establish, own and operate a citywide Wi-Fi/WiMAX network. The provider must open the network to other service providers wholesale and also offer broadband wireless Internet access to residential customers, schools, government agencies, outdoor venues, businesses, and visitors.

The provider will have access to assets of the city, the Portland Public Schools and the Tri-County Metropolitan Transportation District of Oregon (TriMet) for installation of equipment. These 3 entities are also the anchor tenants. The city and TriMet want to use the network for mobile data access. The city estimates its mobile data access requirements could reach 500 accounts over the next 3 to 5 years; for TriMet the number is 750 accounts. The city did not leverage its own fiber optic network.

The city of Portland, a coverage area of 130 square miles, wants the network up and running between 12 and 24 months of the start of the project.

## Cleveland (OH)

Population: 478,403

OneCleveland is a non-profit provider of community-based ultra broadband networking services to educational, governmental, research, arts, cultural, nonprofit and healthcare organizations in Cleveland. OneCleveland operates a fiber network ring that covers much of the city of Cleveland and many of its surrounding suburbs. OneCleveland offers no direct Internet connectivity to businesses or individuals. It is considering a Wi-Fi network, but so far no requests for proposals have been issued.

## Atlanta (GA)

Population: 416, 474

PurDigital Media (A Biltmore Communications Company) was awarded a contract by the city of Atlanta to launch a citywide Wi-Fi network, Atlanta FastPass. June 2005 was the official launch of Atlanta Fastpass, a system that integrates both public and private sector Wi-Fi zones and hotspots into one common platform.

The city of Atlanta gets a percentage of revenue, higher revenue if the system is accessed from city property than from a private location. Atlanta Fastpass rates: 1 hour/$1.95, 24 hours/$7.95, weekly/$18.95 and monthly/$29.95. Access is free to Georgia State

University faculty, staff and students. Initial coverage is not citywide Atlanta hopes to have citywide coverage within 3 years, an area of 180 square miles.

**Minneapolis (MN)**
Population: 383,618

On April 13, 2005, the City of Minneapolis issued a request for proposals (RFP) to implement and operate a citywide, 59 square-mile, fixed and mobile broadband services network. The RFP deadline was July 17, 2005. Earthlink and US Internet were chosen as finalists; each company will create a pilot hot-zone in Minneapolis at a location where 8 to 10 applications can be tested thoroughly. The city expects to award the contract in January 2006; a full system could be operating by late 2007 or early 2008. The city is using a consultant, James Farstad, on this project.

Earthlink would offer 1-magabit speeds for uplinks and downloads. US Internet proposes speeds of 1 to 3 megabits. The winning bidder assumes the upfront cost of the network estimated to be as much as $20 million. The network will be privately owned and managed. Residents would be able to buy broadband access of 1 million to 2 million bits per second for $18 to $24 a month.

Initial deployment is to meet the institutional needs of city government, and enhancing city service delivery is top priority. The city will use the network for public safety and building inspection. As the city of Minneapolis will be the anchor tenant, it will provide much of the cash flow initially.

**Anaheim (CA)**
Population: 328,014

In January 2005, the city of Anaheim issued a nationwide request for proposals for a public-private citywide, 50 square-mile, wireless broadband franchise. On October 26, 2005, Earthlink was awarded a 20-year franchise agreement.

Earthlink will pay Anaheim a pole fee, the cost of consumed electricity and a lease payment for fiber connections used. The city will be allowed access to the Earthlink network at a discounted rate in order to enhance service delivery and to create redundancy for the city's own wireless network. Network will be open access, and competing providers can offer their services to consumers. Citizens will be offered access at competitive rates.

**Corpus Christi (TX)**
Population: 277,454

The city of Corpus Christi currently provides free access in a limited area. In October 2004 the city started providing the public with a walled garden Internet access throughout 2 square miles of the downtown coverage area. In January 2005, the city signed a MOU with Intel; the agreement will bring free hardware, software and other equipment. Since

January 2005, Intel has given $110,000 in cash to the city. Other companies donated hardware, software and labor.

Corpus Christi is planning a 2-phase project. Phase 1 of the Wi-Fi network currently provides over 300 Wi-Fi access (802.11b) locations that span over 20 square miles of the city. Average density of coverage is now 12 to 16 access devices per square mile. The city is installing Tropos 5110 Wi-Fi cells, which use mesh networking technology; 1-year of maintenance is $600,000. Corpus Christi set aside $1 million to purchase Wi-Fi equipment; to save money city traffic signal technicians installed the MetroMesh routers. Corpus Christi is also utilizing Pronto Network's carrier-class OSS solution which support VLANs that enable the network to be separated for public and private use.

Corpus Christi will need $6 million to finish the network; project leaders are hoping the City Council will approve $6 million in capital improvements. Phase 2 will expand coverage to all 147 square miles of the city, plus upgrade network to provide faster access (802.11g, an increase from 11Mb to 54 Mb). The city plans to charge an affordable rate to cover ongoing implementation and support costs. The city plans to partner with Internet service providers to deliver a host of revenue generating services over the Wi-Fi network. 10 companies responded to a "call for providers" June 2005.

The Wi-Fi network will be funded by the city, with a primary goal of bringing Wi-Fi connectivity to government operations. The city is seeking relationships with entities that can undertake the tasks that it is not able to perform, such as marketing, pricing and revenue generation. Dr. Costis Toregas, of Public Technology, Inc. is a consultant to Corpus Christi's Wi-Fi initiative.

**Madison (WI)**
Population: 208,054

In December 2004, the city of Madison issued a request for proposals for a citywide Wi-Fi network with a deadline of January 24, 2005. AOL was awarded the contract but withdrew from negotiations in August 2005.

In October 2005, an agreement was reached with CellNet; unlike the AOL deal, the Cellnet agreement calls for Cellnet to build the network. The company will then sell wholesale access to any willing Internet service provider, which will then sell the service directly to customers. Cellnet will build a 9 square mile network of wireless transmitters centered on Capitol Square and then expand west to cover the university and student-dense neighborhoods, with possible further expansion to the rest of the city, 64 square miles.

The contracts dictating the terms of the project are between Cellnet, its partners and Madison Gas and Electric, which is allowing access to its power poles. The city of Madison is largely a third-party facilitator. The agreement includes charges of $8, $10 and $14 per pole per month for city-owned pole attachments, 100 free Wi-Fi accounts as well as a splash page and "walled garden" with up to 50 free web sites. No taxpayer

dollars are being used. Internet service providers will probably charge between $18 and $25 a month for residential access.

## Tempe (AZ)

Population: 158,625

On April 21, 2005 the city of Tempe awarded a 5-year contract for citywide Wi-Fi services to MobilePro Corporation. The award is contingent upon Council approval of the final lease agreement. The agreement is renewable for 2 additional 5-year terms. MobilePro has partnered with StrixSystems and Limelight Networks to build and support the wireless network. NeoReach Wireless is the vendor (a subsidiary of MobilePro); the company is operating under the WazTempe brand name.

The city of Tempe is not putting any money into the system but is giving NeoReach Wireless access to its light poles and city buildings. The system will consist of about 400 antennas in a citywide coverage area of 40-square miles. Deployment will be completed in 5 phases, with all work being finished by February 2006. When completed Internet service providers will be able to lease space on the network at wholesale rates.

Any Wi-Fi enabled device can access the WazTempe network "landing page" free of charge. Access to city of Tempe services and Arizona State University services will also be available from the landing page free of charge. This free access is being offered as part of the agreement with MobilePro and Tempe. The agreement between Tempe and MobilePro also allows for the creation of a municipal network deployed on the same infrastructure as the Public network. The second "virtual" network will be used by municipal workers for police, fire, water, traffic and development services. There are no payments made to MobilePro for use of the network by municipal employees while on the job. The municipal network negotiated in the lease agreement will provide a future backbone for communication devices that utilize frequencies set aside by the Office of Homeland Security (4.9 GHz).

The wireless network will offer services to residents and visitors at the following rates: $29.95 monthly (setup/waived), $19.95 weekly (setup/waived), $7.97 daily (setup/$0.95) and $3.95 hourly (setup/$0.95). The Wi-Fi network being deployed is also voiceover Internet protocol (VoIP) capable.

As part of the agreement, Tempe agrees to grant limited use of the city street light infrastructure and existing fiber backhaul locations for MobilePro to deploy its network. The Tempe public wireless network will be a proof of concept and a showcase for MobilePro, StrixSystems and their partners.

## Allegany County (MD)

Population: 74,930

The Allegany county government formed a partnership with the public library system, board of education and the city of Cumberland to bring schools, libraries and government

buildings online. In 1994, the partnership launched AllCoNet one of the earliest applications of wireless Ethernet technology. AllCoNet is an IP-based, high-speed private network, connecting 85 county facilities and 4,000 workstations on a tree configuration to microwave tower sites throughout the region. In 2000, the partnership started researching AllCoNet 2, a wireless network available to residents and businesses.

AllCoNet 2 will cover an area exceeding 550 square miles. The cost of the project is estimated at $2,900,000. The partnership is acting as a passive network owner (as well as its own carrier); it is not crowding out the market for Internet service providers (ISPs) and can offer low wholesale prices to ISPs. Once completed AllCoNet 2 will provide Internet access to approximately 85% of residents, 95% of businesses, and 100% of government offices and industrial parks in Allegany county.

The county plans to partner with local ISPs in the area, which will in turn provide Internet access. AllCoNet 2 was built using both 6 GHz licensed frequency bands for a point-to-point ring around the network, as well as unlicensed frequency bands for point-to-multipoint connections. It is based on "wireless fiber" carrier class microwave technology-7 node wireless implementation of a dual SONET ring (480 Mbps), 7 expansion nodes ranging from DS3 to OC12 capacity, 14 node 360 degree coverage for small business/residential access, 14 node 360 degree coverage for redundant business access and VLAN/VPN protection.

**Mountain View (CA)**
Population 70,708

Mountain View city leaders had not issued a formal request for proposals for companies to compete. Google, Inc. approached Mountain View with a proposal to provide citywide Wi-Fi access, a coverage area of 12 square miles. The Wi-Fi network will provide no cost service to homes and businesses by extending service to exterior of buildings. In order for Wi-Fi users to get a stronger signal on the interior of buildings, they will have to purchase Costumer Premise Equipment. Units are available from local retailers in the range of $50-$100.

Mountain View will receive $12,600 per year for 300 to 400 street light attachments or $36 per streetlight/pole. The agreement will have a 5-year term with 2 optional 5-year extensions. Google, Inc. will deploy and own the system. In the event Google, Inc. or the City terminates the agreement, the City has the right to purchase the Wi-Fi system to either operate directly or contract with a third party. The wireless system proposed is an open system that will allow users to log into any Internet service provider they currently access. The agreement does allow Google, Inc. in the future to charge a fee for enhanced services. The proposed Wi-Fi network is developed based on the 802.11 standards and works in the unlicensed 2.4 GHz spectrum.

**Rio Rancho (NM)**
Population: 51,765

In October 2004 the City of Rio Rancho entered into a 25-year license agreement with Azulstar Networks. The citywide Wi-Fi network will have a coverage area of 103 square miles. The deployment plan is up to Azulstar Network. The network will be privately owned.

The city receives revenues in exchange for use of city communication towers and light poles. Rio Ranco makes no money on the company's first $100,000 in monthly adjusted gross revenues. But over $100,000 and under $300,000, the city collects 3%. The licensing fee increases to 5% when the company's monthly adjusted gross revenue exceeds $300,000 and 7% for revenues over $500,000.

Residential rates are $19.95 per month for 256K service and $39.95 per month for 1.5M/300K service. The network is also providing voiceover Internet protocol (VoIP) service, which is priced separately.

**Chaska (MN)**
Population: 17,449

On November 1, 2004 the city of Chaska launched its own Wi-Fi network. The city owned Chaska.net charges $16 per month for residential access (1Mbps symmetrical).

The network uses 200 Wi-Fi cells from Tropos Networks to cover 16 square miles of the city. It cost the city $800,000 to build, with approximately $600,000 for the mesh network and $100,000 for the fiber (the private sector donated services).

As of February 2005, Chaska.net had 2,000 subscribers.

**Grand Haven (MI)**
Population: 11,168

In February 2004, Ottawa Wireless was granted a 5-year non-exclusive license to install, operate and maintain the network on public utility poles and on the city's Board of Light & Power's stack on Harbor Island. The city gets 5% of Ottawa Wireless's revenues every 3 months. Azulstar Networks (a division of Ottawa Wireless) is the vendor. Coverage is citywide (6 square miles) and 15 miles into Lake Michigan. The network was launched July 2004.

The Grand Haven network uses a single fiber connection that is spread across the city and surrounding waterways via several hundred Wi-Fi (802.11a,b,g) Provim radios. The radios are strategically located upon the city's infrastructure. The network supports a seamless mobility up to 55mph, Quality of Service (QoS) for VoIP and heightened security via Wi-Fi Protected Access as well as multiple VPN offerings

Basic residential service costs $19.99 a month for 256 Kbps connection. Ottawa Wireless also provides voiceover Internet protocol (VoIP) service; residential service starts at $20 per month.

I hope this information will prove useful to you. Please feel free to contact me at x2290 with any questions for further data.

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