

**City of St. Louis Park
St. Louis Park, Minnesota**

**Request-for-Bid
For
Supply & Implementation of a
Wireless Broadband Network**

August 14, 2006

Bid Due Date: 1PM Friday September 22, 2006
No time extensions to the bid due date will be granted.

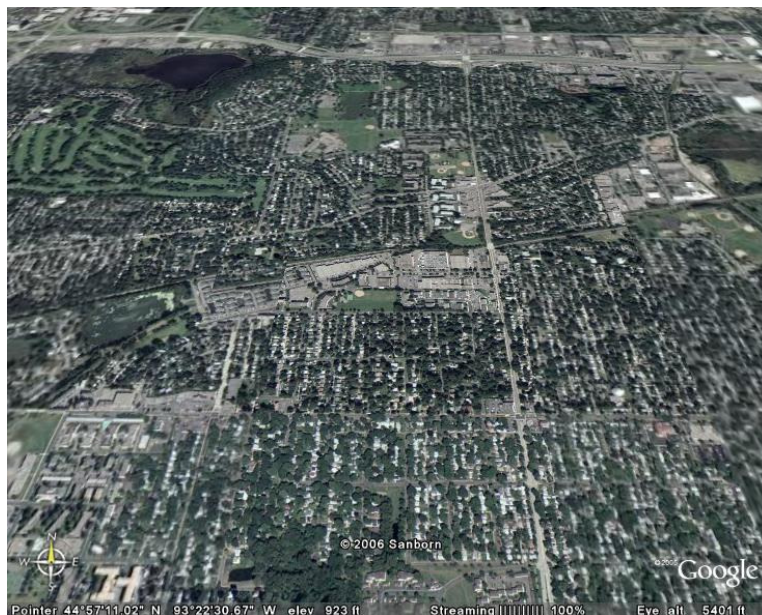


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Advertisement for Bids

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Appendices

- A. Pilot Project Findings (AppendixA.pdf)
- B. SLP Multi-Family Housing Addresses (AppendixB.pdf)
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- D. Existing Fiber Routes (AppendixD.pdf)
- E. SLP Citywide Wireless RFB Assets Map (AppendixE.pdf)
 - 1. Xcel Energy Street Light Pole Location
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- F. Xcel Energy WiFi Attachment Specification (Bidders shall contact Xcel Energy for additional details) (AppendixF.pdf)
- G. St Louis Park Land Use (AppendixG.pdf)
- H. Reference Form (AppendixH.doc)
- I. Response Forms (AppendixI.doc)
- J. Terms & Conditions (AppendixJ.pdf)
 - 1. General Contract Conditions
 - 2. Site Clean Up
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- K. City Bid Forms (AppendixK.pdf)

The Appendices are available for download at www.internetctc.com/ "Filename", where "filename is "AppendixA.pdf", "Appendixh.doc", etc. The file name for each Appendix is show in the above table of contents. For example, the link to Appendix A is www.internetCTC.com/AppendixA.pdf.

(Official Publication)

CITY OF ST. LOUIS PARK

ADVERTISEMENT FOR BIDS CATEGORY: MESHED WIRELESS BROADBAND NETWORK

NOTICE IS HEREBY GIVEN that the City Council of the City of St. Louis Park, Minnesota, will receive sealed bids in the City Hall until 1:00 p.m., Friday September 22, 2006, for a Wireless Broadband Network for a City-Wide Implementation.

All bids shall be on the proposal form supplied by the City and shall be in accordance with specifications for said project which are on file and available for inspection in the Department of Technology and Support Services, St. Louis Park City Hall, 5005 Minnetonka Boulevard, St. Louis Park, MN 55416;. Electronic copies of the specifications are also available upon request – contact Thomas Asp of Columbia Telecommunications Corporation, at tasp@internetctc.com.

Sealed Bids will only be accepted and receipted for by:

Office of the City Clerk
St. Louis Park City Hall, (3rd Floor)
5005 Minnetonka Boulevard
St. Louis Park, MN 55416

No bids shall be considered unless accompanied by a bid bond payable to the City of St. Louis Park for not less than five percent (5%) of the net bid price. No time extensions to the bid due date will be granted. Questions pertaining to this project should be directed by email to Thomas Asp, at tasp@internetctc.com.

Bids will be opened publicly by the City Manager and City Clerk or their designated representatives in the Community Room of City Hall on September 22, 2006 at 1:30 p.m. In evaluating the bids, the City Council may waive any minor irregularities or defects therein to the extent that waiving minor irregularities or defects does not materially prejudice other bidders. Further, the City Council reserves the right to reject any or all bids and to accept any bids deemed to be in the City's best interests.

Thomas K. Harmening
City Manager

Published in the St. Louis Park Sun-Sailor on August 17, 2006 and August 24, 2006.

1. Background and Purpose

The City of St. Louis Park Minnesota (St. Louis Park) seeks to enhance the community's quality of life by promoting the availability and affordability of mobile / portable broadband data connectivity. St. Louis Park views this service as one way to more effectively compete in the municipal market space; attract and retain a wide variety of residents, businesses, organizations, and visitors; and enhance the efficiency and effectiveness of municipal and educational services. Many of the creative ways in which anytime-anywhere access to the Internet will be used can only be imagined by those who are willing to experiment with this innovation.

1.1 Objectives

St. Louis Park seeks to enhance community development in the City by promoting the demand and affordability of broadband data connectivity. The city's vision to reach this objective includes, but is not limited to, the following:

- St. Louis Park is a connected community, where all people have an equal opportunity to participate in civic affairs through all means possible, at all times possible, in all places possible.

The goals to reach this objective include:

- Offer a broadband alternative priced to compete with dial-up services.
 - Residential Market (under \$25 per month, including the Customer Premises equipment (CPE)).
 - Small Business Market (under \$35 per month, including the CPE).
- Ensure that the broadband enterprise maintains a positive cash flow.
- Increase awareness of the benefits of high-speed access.
- Advance the community's connectivity options and initiate a "most-unwired city" campaign.
- Encourage new applications, such as telemedicine and distance learning.
- Enable applications and other public services to support expanded public safety-service initiatives (automatic meter reading, video monitoring, remote access, other).
- Recognize and support the benefits of high-speed mobile and portable connectivity via wireless technologies.

1.2 Pilot Project Results

St. Louis Park initiated a wireless pilot in April of 2006. The pilot project tested the assumptions presented in the business plan and is assisting in the community's decision regarding a city-wide implementation of a meshed wireless network. The report summarizing the pilot findings is contained in Appendix A.

1.3 Management Partner

To deliver retail services in the pilot project, St. Louis Park partnered with Unplugged Cities (UPC), a Minneapolis based Internet Service Provider (ISP). St. Louis Park is in negotiations with UPC for support of the city-wide implementation.

Activities that will be performed by the selected management partner include:

- Monitor and maintain the network software operations.
- Monitor and maintain the wireless network (to the customer computer) and access to the Internet.
- Set up and maintain subscriber accounts, including professional installations.
- Provide 24 x 7 help desk support.
- Provide troubleshooting for the subscriber.
- Perform subscriber and roamer authentication.

Activities that will be performed by St. Louis Park include:

- Provide its branding value.
- Provide a storefront, where people come to pick up their equipment (bridge, laptop card, instructions, etc.)
- Own and provide the wireless and fiber optic infrastructure and other selected public assets.
- Set pricing and other policies.

Discussions on which entity will perform the monthly billing are on-going.

1.4 St. Louis Park Background

St. Louis Park is a city in Hennepin County, Minnesota and a first-ring suburb of Minneapolis. As of the 2000 census, the city had a total population of 44,126. St. Louis Park is the birthplace and childhood home of movie directors Joel and Ethan Coen. Other notable former residents of St. Louis Park include New York Times columnist Thomas Friedman, author/satirist Al Franken, songwriter Dan Israel, guitarist Sharon Isbin, writer Pete Hautman.

Area

The City of St Louis Park has a total land area of 10.8 sq miles. A detail of land use is provided in Appendix G.

Population

There are approximately 44,126 people residing in 20,811 housing units.

- Approximately 1/3rd of the housing units (7,851) are in multi-dwelling units (MDU's).
- The list of MDU's is included in Appendix B and C.
- The summary of all housing units is included in Appendix G.

There are 20,811 households out of which 22.0% have children under the age of 18 living with them, 39.3% are married couples living together, 8.6% have a female householder with no husband present, and 49.2% are non-families. 37.9% of all households are made up of individuals and 10.4% have someone living alone who is 65 years of age or older.

In the city the population is 18.8% under the age of 18, 8.7% from 18 to 24, 37.7% from 25 to 44, 20.2% from 45 to 64, and 14.7% who are 65 years of age or older. The median age is 36 years. For every 100 females there are 90.3 males. For every 100 females age 18 and over, there are 87.3 males.

Income

The median income for a household in the city is \$49,260, and the median income for a family is \$63,182. Males have a median income of \$40,561 versus \$32,447 for females. The per capita income for the city is \$28,970. 5.2% of the population and 3.0% of families are below the poverty line. Out of the total population, 5.2% of those under the age of 18 and 6.7% of those 65 and older are living below the poverty line.

Education

St. Louis Park is home to seven public schools making up Independent School District 283, as well as several private schools including Benilde-St. Margaret's School and the Talmud Torah of Minneapolis. The public school system serves 4,200 K-12 students. St. Louis Park is the only school district in Minnesota in which every public school has been recognized as a Blue Ribbon School of Excellence by the U.S. Department of Education.

Form of Government

St. Louis Park operates under the Council/Manager form of government. An elected City Council sets the policy and overall direction for St. Louis Park. Then city workers, under the direction of a professional city manager carry out council decisions and provide day-to-day city services. The city manager is accountable to the City Council.

St. Louis Park is a home rule charter city. Minnesota has two basic types of cities - home rule and statutory - which influence cities' organization and powers. The difference is the type of enabling legislation from which the municipality gains its authority. Home rule cities obtain their powers from a locally enacted home rule charter which is essentially a city constitution. Statutory cities get their powers from Chapter 412 of Minnesota Statutes.

Home rule charter cities can exercise any powers in their locally adopted charters as long as there is no conflict with state law. Conversely, charter provisions can specifically restrict the powers of a city. Consequently, voters in home rule cities have more control over their city's powers.

City Council

St. Louis Park voters elect the mayor and six (two at-large and four ward) City Council members to four-year terms. The mayor and at-large council members represent all residents; the ward council members are primarily responsible for representing their ward constituents. During public meetings, these civic leaders make decisions about policies and programs by determining what the community can afford and judging what is best for the community's present and future well-being.

1.5 Internet Offering

St. Louis Park's planned Internet service offers a low-cost, broadband connection for residences and small businesses. The service shall be delivered via a wireless broadband network (see Section 2 and 3 for additional information). Features of the planned service shall include:

- Uses standards based (802.11 b/g) Customer Premises Equipment (CPE).
 - Uses a high power (200mW) CPE with gain antenna as a standard.
 - Supports Power over Ethernet (PoE)
 - Supports optional outdoor antenna where needed for reliable access to the wireless network.
 - Supports migration plan to future standards.

- Minimizes truck rolls required to activate new customers and support of existing customers.
- Identifies high-use customers, traffic caused by infected PC's, etc. via network monitoring tools.
- Supports tiered services.
 - Higher data rates and lower data rates with tiered pricing
 - Multiple accounts
 - Static IP address
 - Roamer traffic
 - One-time visitors (hourly and daily based rates)
 - Email forwarding services

St. Louis Park anticipates a solid customer take rate. The estimated number of customers is based upon market research, feedback from the community, and experiences with similar municipal offerings. The anticipated numbers of customers are:

Table 1: Anticipated Customers

| <u>Customer Type</u> | <u>End of Year 1</u> |
|----------------------|--------------------------|
| Residential | 6,700 |
| Small Business | <u>300</u> |
| Totals | <u><u>7,000</u></u> |

St. Louis Park expects that over 2,500 customers will be activated in the first two months of operation. This is based upon the pilot participation and the pre-registrations.

1.6 Partnership with St. Louis Park Schools

In addition to the City and private partner(s), another potential pivotal member of the team is St. Louis Park Schools (ISD# 283). City and District staffs have discussed the following advantages that could potentially be provided by the School District:

- Ability to organize collection and distribution of PC's to help bridge the digital divide (a wireless high-speed Internet service is much more useful when people have a device to connect to it)
- Availability of fiber optic network to use as wireless backbone throughout City
- Providing a connection to families with children
- Marketing the service to families using Schools' branding value
- Technical assistance (perhaps via Community Education) to assist people with useful Internet applications
- Sharing on some basis in any gains or losses from operation of a wireless service

1.7 Request-for-Bid Purpose

The purpose of this RFB is to gather information and pricing on wireless networks that will support the above objectives and to allow St. Louis Park to evaluate cost and performance information from qualified wireless network vendors and integrators. Following the evaluation of

responses, St. Louis Park may select one or more wireless network vendors/integrators to negotiate terms of a city-wide implementation.

Bidders responding to this RFB accept that all RFB processes and all transactions with project related service providers are conducted in compliance with applicable law and St. Louis Park Charter provisions.

1.8 Approvals

Any decision to purchase and implement the wireless broadband network is dependent upon a project plan approved by the St. Louis Park City Council. As a result of responses to this RFB, St. Louis Park may decide to continue/expand the pilot, pursue implementation, place plans on hold, or cancel plans to provide broadband Internet service.

2. Responsibilities

2.1 St. Louis Park

2.1.1 Fiber Access

St. Louis Park will arrange for access to existing fiber routes (see Appendix D)

2.1.2 Pole attachments

Approximately ½ of the street lights in St. Louis Park are owned by the city, the remaining are owned by Xcel Energy. The majority of utility poles are owned by Xcel Energy.

- St. Louis Park has a pole attachment agreement with Xcel Energy. St. Louis Park is responsible for pole attachment fees, energy charges and required insurance.
- St. Louis Park will grant access to its street lights. However St Louis Park street lights are ganged switched, while Xcel Energy's are on individual photocells.

2.2 Bidder

2.2.1 Exceptions to RFB Requirements

Bidders responding to this RFB accept that all RFB processes and all transactions with project related service providers are conducted in compliance with applicable law and St. Louis Park Charter provisions.

Propose the best you and your technology can support relative to each of the requirements. Bidders must clearly state and identify any and all exceptions and clarifications to the requirements listed in this RFB.

2.2.2 Network Design and Performance

The bidder shall provide firm pricing for the specified wireless network. The successful bidder shall be responsible for successful performance, as specified in this RFB, from CPE to each wireless access point (WAP or AP), AP to AP, Gateway to fiber, and fiber to City Hall head end during the specified warranty period.

- The existing fiber routes are included in Appendix D.
- Any required re-wiring of street lights are the responsibility of the bidder.

2.2.3 Knowledge Transfer

The successful bidder shall be responsible to work with the management partner and St. Louis Park for successful knowledge transfer to enable the management partner to assume responsibility for CPE to AP, AP to AP, Gateway to fiber, fiber to City Hall head end performance following warranty period.

2.2.4 Coordination with Management Partner

The successful bidder shall work with and coordinate implementation, integration, and testing with the designated management partner.

2.2.5 Implementation

The successful bidder shall be responsible for coordination, scheduling, sequencing, and installation of all AP's, gateways, fiber extensions, and appurtenances.

2.2.6 Pole Attachments

The successful bidder shall be responsible to coordinate with Xcel Energy and other entities in obtaining approvals for pole attachments and power access. The successful bidder shall create a successful working relationship with Xcel Energy.

- A listing of Xcel Energy street light locations is included in Appendix E-1.
- A listing of St. Louis Park street light locations is included in Appendix E-2.
- A listing of St. Louis Park Water Towers (potential antenna mounting sites) is included in Appendix E-3.

2.2.7 Permits

The successful bidder shall be responsible for applying for and acquiring any and all permits and other permissions to install AP's, gateways, and fiber extensions. This would include but not be limited to Xcel Energy, city, county, state and rail road permits that would be required to complete construction. The successful bidder is required to comply with all permit requirements and pay for the permit costs.

- Please note that the City of St. Louis Park has an existing pole attachment agreement with Xcel Energy.
- Please see Appendix F for a general Xcel Energy attachment specification. Bidders shall contact Xcel Energy for additional details.
- The Xcel Energy contact is:
Tom Breuckman
Xcel Energy
Manager, Facility Attachments
Xcel Energy
825 Rice Street
St. Paul, MN 55117

651 229-2224
tom.breuckman@xcelenergy.com

2.2.8 Job Site Foreman

Bidders must supply a job site foreman that will manage the project and installation. Bidders must supply the job site foreman's credentials and qualifications in the bid.

2.2.9 Implementation Plan, Documentation & Training

As part of the bid, Bidders must supply a detailed implementation plan with the project outline, project dates, any St Louis Park requirements or provided material/services, number of personnel on-site, testing plan, design documentation, training material on equipment and system operation, etc. Upon completion of construction, the selected bidder must provide as-built documentation.

Prior to implementation of retail services, the selected bidder will provide 3 days of on-site training of their network management system, system trouble shooting, and other operations. Bidder shall supply all materials for the training session.

2.2.10 Fiber Design

The fiber design should discuss how fiber can be expanded to residences and businesses. Particular attention is to be made to ensure expansion capabilities to business locations for potential all-fiber based Internet service. Examples of consideration include adding spare conduit or duct, and increasing fiber counts (without substantially increasing cost).

2.2.11 Patents

The bidder must guarantee to insure St. Louis Park against any possible loss or expense by reasons of adverse claims under patents upon the use of the materials provided by the Bidder. The successful Bidder must agree that St. Louis Park shall not be disturbed in the use of such material by litigation based upon such adverse claims, and to that end, the successful Bidder must agree to defend, at his own expense, any and all suits or proceedings that be instituted against St. Louis Park for the infringement or alleged infringement of any patents by the use of any said material, providing that such infringement shall consist in the use by St. Louis Park, in the regular course of operation, of said materials or parts thereof, provided St. Louis Park be not in default in its payments, therefore, and gives to the successful Bidder immediate notice in writing of the successful Bidder to do so.

2.2.12 Qualifications and Experience

St. Louis Park is requesting responses from wireless broadband network vendors who are qualified to implement a City-wide wireless network. Respondents must have the following qualifications:

- Demonstrated experience in the design, installation, and maintenance of, and training for the proposed system. Experience with installation in North America is preferred.
- Sufficient qualified and experienced engineering, design, installation and service personnel to satisfy any engineering or service problem that may arise during the installation, warranty, and maintenance periods.
- References showing previous implementations of proposed retail, public safety and public service systems (see section 4.10 and Appendix H for further details on reference requirements).
 - Please tell us briefly about any implementations that your company has performed for public safety organizations using the above-described product lines.
 - Please tell us about your company's experience in providing systems integration services (i.e., delivering a total solution involving both hardware and software). Is any of this experience particular to the public safety market? If so, provide some examples and briefly describe the scope of your systems integration effort.
 - How many subscribers are supported on the system?
 - How many "retail" models have been supported? How many of these are with municipalities without a municipal electric system?
 - Please tell us about any experience with multi-network integration (e.g., using roaming middleware products to provide connectivity via different types of wireless data networks).

- Please tell us about your company's experience in providing turnkey services and ancillary equipment (i.e., facilities/physical plant, power, and related services).
- Please tell us about any strategic business relationships, alliances, or partnerships that pertain to or enhance your system's integration capabilities.

2.2.13 Site-Visit and Pre-Bid Meeting

All bidders must conduct a site visit to St. Louis Park and attend the pre-bid meeting prior to the submission of bids. The pre-bid meeting is scheduled for September 7, 2006 at 2 PM at the St. Louis Park City Hall in the Council Chambers.

2.2.14 Coverage Maps

All bidders must provide coverage maps, including AP, gateway, and fiber routes. Maps are to be provided in paper and electronically in AutoCAD and Adobe PDF format.

3. Requirements

St. Louis Park has determined a set of principal requirements for wireless broadband network equipment and solution providers.

- St. Louis Park has not selected a preferred wireless broadband network technology and vendor.
- St. Louis Park is receptive to a range of vendor technologies, including other network types and frequencies, provided the bid complies with technical requirements in Sections 1.5, 2, and 3 and respondent clearly indicates the materials and software required to deliver exceptional performance.

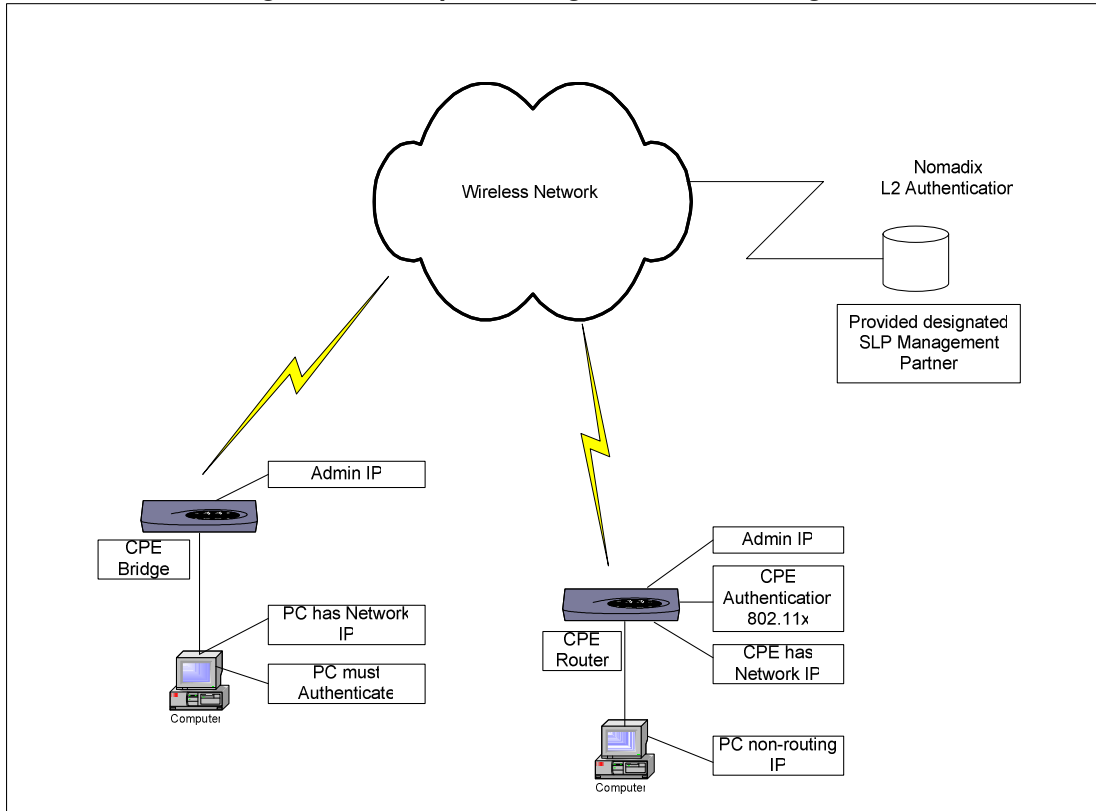
St. Louis Park expects the wireless broadband network to provide significant benefits and value for the citizens and businesses of St. Louis Park, Minnesota.

The City of St. Louis Park's geographic and building landscape may present challenges for a city-wide wireless broadband network. The terrain is rolling and has a heavy density of mature broadleaf trees. A large percentage of houses within St. Louis Park cannot be seen from aerial photos due to the tree canopy (see Google Earth for an example).

St. Louis Park has completed an assessment of the viability for implementing a city-wide wireless broadband network that supports multiple applications. The primary offerings are broadband Internet for residential and small business end-users, and public safety-service applications such as mobile data terminals and video surveillance.

A logical diagram of the proposed network is shown in Figure 3-1.

Figure 3-1: Proposed Logical Network Diagram

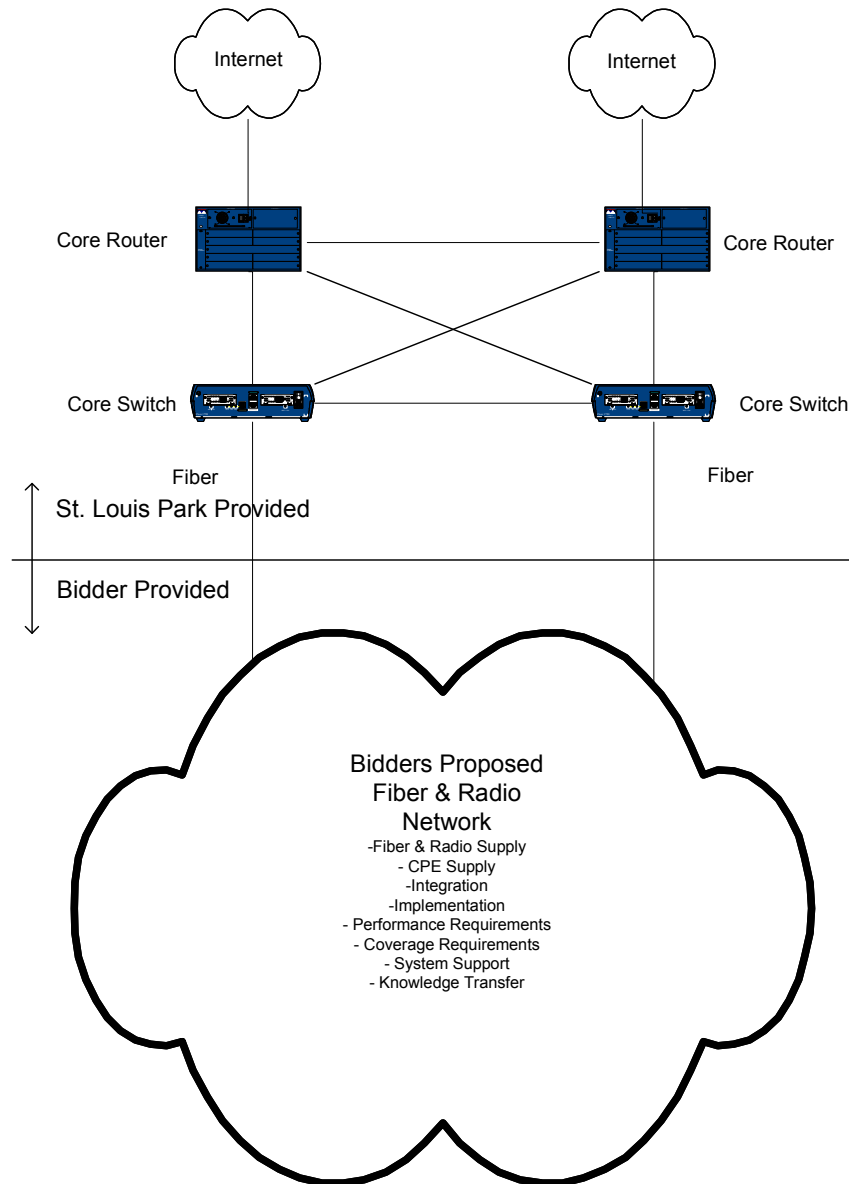


As shown in Figure 3-1, the network needs to support either router or bridge based CPE's. The Bidder shall design and price its network for a standard CPE configuration using the router. The network shall also support legacy Bridge based CPE's deployed as part of the pilot. Furthermore, it is expected that the network will be able to support "roaming" customer laptops that act as a bridge while roaming in St. Louis Park.

In addition, St. Louis Park will not be able to have complete control over the CPE's; therefore prevention of unauthorized peer-to-peer traffic cannot solely rely of the features of the CPE.

A diagram of the Bidder Provided Equipment and St. Louis Park provided equipment is shown in Figure 3-2 (Existing fiber routes are shown in Appendix D).

Figure 3-2: Demarcation Points



3.1 General Requirements

3.1.1 Tiered Service Support

The wireless network must support tiered services ranging from 128 kbps symmetrical to 3 Mbps symmetrical (or greater).

- Please provide one or more approaches of how you will guarantee system performance and service coverage. Please note that St. Louis Park itself reserves the right to select among any alternatives that the Bidder proposes.
 - At minimum the bidder-supplied elements of the network must support symmetrical speeds of :
 - 128 kbps (100% coverage),

- 256 kbps (100% coverage), and
 - 1 Mbps (100% coverage),
- We desire the bidder-supplied elements of the network to support symmetrical speeds of :
 - 2 Mbps (90% coverage),
 - 2.5 Mbps (90% coverage), and
 - 3 Mbps (80% coverage).

Please comment if the above is obtainable and if not what coverage is anticipated.

- Coverage requirements must be based on geographic area, not population or customer residences.
 - The network shall provide sufficient coverage where no more than 10% of customers will require a higher power CPE or external antenna to obtain 1 Mbps symmetrical throughput

3.1.2 Supported Services

The Bidder must demonstrate that its system will support mobile municipal uses (including secured VPN access), inside residences and businesses ranging from single-family through multiple dwelling units (MDUs) (apartments, condominiums, etc.), including stand-alone and multiple occupancy business building uses, and external uses such as in parks. Note that St. Louis Park has over 2,000 businesses, and one-third of its 20,000 residences are MDUs. Please describe how your solution supports the above services.

- The Bidder-supplied network must have sufficient capacity to support symmetrical throughput of 1 Mbps with at least 60% of all households and businesses in St. Louis Park subscribing to the service (i.e. deliver service to 13,687 single family to fourplex households and businesses; 60% of the total 22,811). This is assuming an overall wireless network (Defined as CPE to edge of core switch- Figure 3-2) capacity overscription of 10 times for residential users (i.e. no more than 10 subscribers per actual end-to-end network throughput) and 10 times capacity oversubscription for business users.
 - The Bidder must provide a complete technical description of this capability.
 - The Bidder must describe its use of guaranteed minimum data rates, including use of prioritization mechanisms.
- The preferred network must reliably support commercial Internet based VoIP solutions such as (but not limited to) Vonage, Packet 8, Lingo, Velocity, and Skype. In order to reliably support VoIP within the wireless network (Defined as CPE to edge of core switch- Figure 3-2), the service shall provide end-to-end (core switch to CPE and CPE to core switch) latency not to exceed 10 ms (5 ms on average) and jitter not to exceed 10 ms (1 ms on average) 99.9% of the time (averaged monthly). The Bidder must provide a complete technical description of this capability.
- The network shall provide sufficient coverage where no more than 10% of customers will require a higher power CPE or external antenna to obtain 1 Mbps symmetrical throughput. Please provide technical specifications for CPE or antenna proposed to provide this functionality.\
- Please see Section 3.2, for further description of municipal uses, performance, and CPE configurations.

3.1.2.1 Potential Retail Customers

The make-up of potential customers includes:

- 15,800 households in single family living units or MDU's less than 90 units

- 3,200 households in MDU's ranging from 90 to 300 units
- 1,600 households in MDU's greater than 300 units
- 2,000 businesses, of which 1,800 have less than 50 employees

A listing of MDU's is contained in Appendix B and C.

A listing of land use in St. Louis Park is shown in Appendix G.

3.1.2.2 Residential Coverage

Geographic coverage must be continuous to all Single Dwelling Units (SDU) households and all MDU's of less than 300 units via AP's located on the outside of the building. The proposed cost of the network must include these identified MDU's.

- At minimum the bidders supplied elements of the network need to support networks needs to support symmetrical speeds of :
 - 128 kbps (100% coverage),
 - 256 kbps (100% coverage),
 - 1 Mbps (100% coverage),
 - 2 Mbps (90% coverage), 2.5 Mbps (90% coverage), and
 - 3 Mbps (80% coverage).

MDU's of 300 units or greater are not part of this RFB. However, please describe how you would approach providing services in MDU's of 300 units or greater.

3.1.2.3 Business Coverage

Geographic coverage must be continuous to all businesses having less than 50 employees. A listing of these locations and addresses may be obtained at www.infousa.com.

3.1.2.4 Mobile Data Users

Please describe your company's involvement in producing mobile data products/systems/networks that conform to 802.11, 802.16 and 802.20. Please include existing, under development, and future plans (e.g., product development and/or announcement milestones) as you see fit.

- How are these mobile data products/systems/networks affected by multi-path and what means are used to counter such effects?
- Are these systems able to handle fast handoff of client connections between AP's (at what maximum speed can the device be moving and how long does the handoff take)?

3.1.2.5 Roamer Traffic

Network must support roamer traffic, with off-the-shelf PDA's, laptops, and other 802.11 b/g compliant devices with a minimum transmit power of 50 mW able to roam if traveling on the streets.

3.1.3 Scalability

Solution must be able to provide the specified level of service to St. Louis Park's entire 10.9 sq. mile geographic area.

3.1.4 Reliability

The Bidder-supplied wireless network, including Bidder-specified CPEs, when connected properly, must deliver 99.9% availability (averaged monthly) with a Bit-Error-Rate (BER) of no more than 10^{-9} within the coverage area.

3.1.5 Workmanship and Materials

Unless otherwise specified, all materials for the city-wide implementation shall be new and both workmanship and materials shall be of good quality. All equipment must be factory-made, not a prototype.

3.1.6 Fault Tolerance and Redundancy.

The selected Bidder shall provide automatic fail-over protection at multiple levels of the radio portion of the network. The Bidder shall describe the fail-over capabilities of its proposed hardware and software in the proposed configuration.

3.1.7 Centralized Management Control.

The selected Bidder shall provide central management and control over the network. The Bidder shall describe hardware, software and staffing proposed to provide central management control.

3.1.8 Mobility.

The designed network shall allow subscribers to directly access the network with their internal laptop WiFi transceiver (802.11 b/g) or other 802.11 b/g device. One possibility under consideration by the City is that users without City-provided CPEs shall reach a login page and be able to access the network as a guest and pay electronically for the service.

3.1.9 Radio Network Maintenance Agreement

The Bidder shall propose an annual maintenance agreement for the wireless network. The minimum agreement shall include:

- 24x7 help desk support for CPE, Management Platform, and all related radio equipment.
- Firmware upgrades.
- Management Platform upgrades.

3.2 Public Safety Requirements

3.2.1 Priority

The network shall be designed to enable public safety-service applications to receive priority over retail Internet traffic.

3.2.2 Bandwidth

The network shall support a minimum of 2 Mbps throughput to devices located in vehicles with an external antenna, and at least 1 Mbps throughput to an outdoor laptop having greater than a 50 mW transmit power.

3.2.3 Frequency

The Bidder may design its network so that public safety-service applications may reside on same frequency as retail traffic; however, the Bidder must be able to demonstrate that sharing frequencies will not cause degradation of public safety traffic, relative to use of dedicated 4.9 GHz frequencies for public safety-service applications.

3.2.4 VPN capability must be available at any frequency used (The management partner will be setting up the required VPN'S)

3.3 Interference

3.3.1 AP to AP Backhaul

The Bidder shall demonstrate in its submittal that AP-to-AP backhaul of traffic will not interfere with AP-to-CPE communication or limit available bandwidth from AP-to-CPE data communication.

3.3.2 Interference resilient

Network and management tools must offer protection against local environmental disrupters and resiliency for interference.

- The Bidder shall describe in its submittal how interference with other 802.11 b/g devices and other 2.4 GHz transmissions is to be mitigated and managed and provide examples of successful management and mitigation in other systems.

3.4 CPE Options

3.4.1 Standard Configuration

The Bidder shall describe a standard configuration with a minimum of 200mW transmit power, with a 7dBi gain antenna.

As options the Bidder shall provide a description and pricing for a 400mW indoor CPE, an external housing for the standard CPE, and a 200mW external CPE. As indicated in the pricing instructions (Section 4.14), all CPE pricing shall be based upon an initial order of 1,000 standard CPE's with additional lot orders of 100. Optional CPE's are to be priced with lot orders of 50.

3.4.2 External Antenna Support

The Bidder shall describe how it would provide an external antenna connection for range extender antenna attachment.

3.4.3 Remote Management

The Bidder shall describe the extent and manner in which the network shall be SNMP remote manageable.

- The Bidder shall describe the extent and manner in which the network shall be remote or automated firmware upgradeable.
- The network must have the ability to perform remote nuttcp throughput test without end user intervention.

3.4.4 Certification

Bidder must certify that the proposed standard CPE and all CPE options shall perform with proposed network, and shall demonstrate how the proposed network (including CPE) will provide the user with a reliable (99.9% availability averaged monthly) service.

3.5 Warranty

The successful Bidder must warrant, maintain and replace wireless network and CPE components or equipment that become defective for a minimum of 2 years from the completion date at no additional charge to the City of St. Louis Park. This warranty must include all components and labor.

All changes made by the contractor during maintenance or warranty repair must be documented to the City of St. Louis Park and its designated representative and maintained in a service logbook located at the city.

The Contractor must also provide all warranties from the manufacturer for equipment and materials.

Please see Appendix J, section 63 for additional details.

3.6 Network Architecture

Driven by standardization, widespread vendor adoption and ease of use, St. Louis Park seeks to implement a wireless broadband network that supports residential and business users with minimal complexity and associated client costs. With this intent, the network shall work seamlessly with IEEE-standard client software and hardware.

The wireless network shall use 4.9 GHz equipment or a Virtual Private Network (VPN) using 802.11 b/g standard components for public safety-service applications.

Other key factors are ease and cost of deployment, scalability, network access points, network node-to-node interface and range, interface compatibility with 802.11b/g standards, and interference management with 802.11 b/g and other systems.

3.6.1 Routing Protocol

The Bidder shall describe how its proposed routing protocol shall automatically re-evaluate active path selection multiple times per second, maintaining maximum throughput.

3.6.2 Routing Overhead

The Bidder shall describe how the proposed wireless network routing overhead shall remain constant at less than 5% of available network bandwidth, independent of network size and number of devices.

3.6.3 Roaming Access

The system shall support roaming between AP's without significant data or connectivity interruption.

3.6.4 VLAN Support

The system shall support at least 40 virtual LANs (VLANs) and 16 SSID's. The system shall support VLAN tags based on SSID (this is to support police, fire, private city VLAN's, etc).

3.6.5 Data Prioritization

The system shall support data prioritization based on TCP/UDP port number, and IP address range.

3.6.6 Remote Management

The equipment shall be remotely manageable, and firmware upgradeable through a centralized management software console.

3.6.7 Firmware Images

The equipment shall support dual firmware images for safe roll back if upgrade fails.

3.6.8 Self-Healing

The system shall self-heal in the event of unit failure or wireless link degradation. This capability shall not require manual intervention.

3.6.9 Automatic Failover

The system shall provide automatic fail-over protection at multiple levels, including at the wireless link and the connection to the wired network (automatic gateway fail over). In its response, the Bidder shall describe which components have fail-over protection and describe its operation.

3.6.10 Encryption

The system shall encrypt any control and management algorithms and protocols using strong encryption, such as AES.

3.6.11 Architecture

Use of fiber backhaul from gateways/concentrators is preferred over wireless solutions. The successful bidder shall connect data backhaul of at least 100Mbps from each fiber optic gateway/concentrator to the wireless network.

- Please describe how your proposed overall network architecture solution will achieve the specified ubiquitous coverage:
- What type of architecture does your system support? (i.e. Mesh, Smart Antenna, Access Point, etc.)
- Does your system support interoperability with IEEE standard networking protocols? If so which ones? (i.e. 802.11b/g)
- What frequencies, media, and standards shall be used to connect
 - CPE and AP?
 - AP to AP?
 - AP to gateway (concentrator)?
 - Gateway to headend?
- What types of deployment capabilities are supported (i.e., how is the network provisioned and installed)?
- What is your strategy for adopting 802.16 standard protocols into your solution for new and existing customers?

3.6.12 Peer-to-Peer Communication

The network shall prohibit all unauthorized peer-to-peer communication. This applies to ALL subscribers, roamers, or others that may receive a wireless signal. The network must block usage by parties who are not authorized and properly authenticated users. Because the network must be able to support legacy equipment and direct connection by 802.11 ready devices, simply requiring that users use a specific CPE is only a partial solution to the problem and eliminates the network's ability to provide a required service. The Bidder shall describe and propose a complete solution.

3.7 Network Management System

The proposed solution must offer a range of management and monitoring tools for day-to-day operations and troubleshooting.

3.7.1 SNMP Compliance

The network management application shall be compliant with industry standard Simple Network Management Protocol (SNMP).

3.7.2 Batch Configuration

The network management application shall enable batch configuration and remote storage of configuration profiles.

3.7.3 Real-Time Display

The network management application shall offer a real-time display of network status and connectivity in a graphical display.

3.7.4 Analysis Reports

The network management application shall offer performance analysis reports. Required reports include, but are not limited to: node to node link quality, poor node to node SNR and signal strength, high noise routers, poor client SNR and signal, client report for routers visited (aka: hopping report), air time consumption/utilization

3.7.5 Notification

The network management application shall allow email and SMS notification that is configurable on an event, alarm and alarm threshold. The system shall allow the administrator to pre-configure email or SMS notification to multiple recipients.

3.7.6 NMS Users

The network management system (NMS) shall allow for up to 15 simultaneous users (or at least 3 bare minimum).

3.7.7 Performance Statistics

The network management system shall store performance statistics and event logs in a user-exportable format (such as a relational database, or Excel spread sheet). This is requirement very important for sorting, and comparing data.

3.7.8 Platform

Please specify what platforms your NMS may operate on. Preferences will be given to ability to operate on a variety of platforms, including Linux.

3.7.9 AP Management

The network management system must be able to manage at least 500 Access Points on a single server.

3.7.10 Approach

Please describe your approach to network management.

- What network management tool do you use to manage the devices that are part of your product/system offering (proprietary, HPOpenView, etc.)?
- Describe briefly your approach to modification of operating parameters in mobile/field user devices, base-station/access-point devices, routers/switches, etc.
- Describe briefly your approach to the delivery of software upgrades to mobile/field user devices, base-station/access-point devices, routers/switches, etc.
- Describe briefly your approach to remote monitoring and diagnostics of mobile/field user devices, base-station/access-point devices, routers/switches, etc.

3.8 Network Control

Any and all standards-compliant CPE devices shall have the capability to authenticate and encrypt to and from the network. The Bidder shall propose an 802.1x authentication methodology, and a standards based means of passing encryption keys to the CPE devices. The recommended CPE should support EAP and as many of the EAP extensions to meet the authentication and encryption requirements of this RFB. In addition, the devices proposed for CPE and AP functions should support WPA-enterprise, and WPA2-enterprise.

A further requirement is bandwidth management at the edge. Through the use of 802.1x and RADIUS reply attributes the Vendor's AP selection must be able to accept 802.1x authentication, receive RADIUS attributes for security and bandwidth, and be capable of processing user traffic based on those attributes with respect to security and Quality of Service.

The AP may support a number of bandwidth shaping techniques. At a minimum, the AP shall be able to manage bandwidth by throttling customer connections to a specific bit rate.

- Please describe your implementation plan to meet these requirements.

3.9 Carrier-Grade Coverage and Resiliency

Network reliability is an essential requirement for the applications that will depend on this network. St. Louis Park recognizes that meshed wireless transmissions are prone to temporary localized interference that is unpredictable in nature. The proposed solution shall include network-layer resiliency and self-healing features that enable the technical architects to design a network to St. Louis Park's required level of system availability.

3.9.1 Features

Please describe how your proposed network solution will support carrier-grade coverage and resiliency incorporating the following characteristics:

- Network must support multiple data paths. How does the system support multiple data paths?
- Network must have auto-recovery. How does the system recover from failures?
- How does the system support minimum QoS parameters for IP traffic, and what are these parameters?
- Does every AP (i.e. network device) require backhaul? Please provide a sample network diagram with backhauls identified.
- When new AP's are added, how are they provisioned into the network?

3.9.2 Coverage Performance

- How do you predict, measure, and evaluate coverage performance?
- What criteria are used?
- What conditions are used or assumptions made?
- How is data throughput factored into this approach?
- How does your selected modem technology and error detection/correction scheme affect coverage limits?
- What do you consider an acceptable bit-error-rate (BER) for mobile data transmissions in public safety?

3.9.3 Network Connections

- Please describe your approach to network connectivity (on the terrestrial side) and message switching/routing.
- How do you support tiered services such as:
 - Quality of Service (QoS) for VoIP and other interactive services.
 - Different bandwidth for different users.
 - Capacity limits in a given time (month, week, day)
 - Static IP address
 - Roaming into other systems
- How is channel contention managed? How robust is it?
- Please describe the approach to error detection and correction, including advantages/disadvantages of the chosen method.
- Describe the data rate vs. throughput performance and the scenarios under which throughput is determined.
- Does your system offer scalable/tiered data rates for deteriorating signal conditions?
- Describe how site switching decisions are made and how the actual site handoff occurs when necessary for load balancing, roaming, and coverage optimization.

3.10 Hardware Specifications

St. Louis Park must consider the durability of equipment that will be exposed to the elements. It is essential for the network equipment to be certified for outdoor installation and to be accompanied with the hardware necessary to be mounted on external structures such as buildings or lampposts. In addition,

3.10.1 Temperature Ratings

All outdoor equipment must be rated from -30° F to +139° F, non-condensing.

3.10.2 Battery Back Up

- Must have a battery backup option available for all AP's.
- All gateways or data concentrators to include battery backup.

3.10.3 Access Point AC Power

The AP equipment shall offer a variety of power input options, including the ability to tap street light NEMA photo-electric control at 90-480VAC 50/60 Hz single and split-phase ANSI/IEEE C62.41 category C3 integrated branch circuit protection.

3.10.4 Shock & Vibration

The equipment shall be shock and vibration resistant to at least ETSI 300-19-2-4 spec T41.E class 4M3.

3.10.5 AP Receive Sensitivity

The equipment shall offer receiver sensitivity of -100 dBm or better on the client access radio at a data rate of 1 Mbps, and -95 dBm or better at 6 Mbps.

3.10.6 AP Transmit Power

The equipment must be capable of transmitting with the maximum power allowed by FCC Part 15 rules of 36dBm.

3.10.7 AP & Gateway Power Output

The equipment must supply variable PoE voltage sourcing to power fiber media converters.

3.10.8 AP & Gateway Mounting

The equipment must be mountable on the light arm 2 feet from the light head, and meet all other Xcel Energy's pole mounting requirements (separate attachment). In most cases it is NOT acceptable to mount the radio directly to the side of a metal or wood pole due to RF shadowing effect. Experience in the pilot and other cities has shown it is very important to mount the radio as far out on the light mast arm as the utility will allow.

3.10.9 UL Certification

What UL certifications do the AP's, Gateways, and CPE's have? Preference is given to UL certified solutions.

3.10.10 Wind Survivability

What is the wind survivability rating?

3.10.11 Salt Corrosion

Is the unit certified for Salt corrosion? If so, which certification?

3.10.12 FCC Certifications

What FCC certifications do the AP's, Gateways, and CPE's have?

3.10.13 Power Usage

What is the power usage of the AP's, Gateways, and CPE's?

3.10.14 Weight

What is the weight of each AP, Gateway, and CPE?

3.11 Network Security

Securing 802.11b/g wireless networks is a serious concern. Numerous observers have highlighted the potential vulnerabilities of standard 802.11b/g wireless networks. It is essential that the solution closely follow the strongest industry recommendations for securing wireless networks.

3.11.1 Requirements

Please describe how your proposed solution will employ the following industry security requirements and guidelines:

- **Multi-layered** — Use multiple security mechanisms at several network layers to provide high levels of protection.
- **Time-tested and proven**—Use security techniques that are well known and trusted.
- **Open, standards-based**— Integrate elements that have undergone extensive scrutiny by the security community and can offer users a strong degree of confidence in their implementation.
- **Upgradeable** —Because new security threats often emerge, any architecture must be upgradeable to eliminate future security holes (includes 802.11i).

The task of securing wireless networks can be divided into five challenges:

- Network access control through authentication—Wireless network security begins with prohibiting access by unauthorized wireless devices.
- Protection of wireless clients from other malicious wireless clients— Wireless clients must be protected both for their own sake and to prevent a permitted client from being used for access by an unauthorized client.
- Secure end-to-end transmission of sensitive data via support of Virtual Private Networks (VPN)—Because malicious users can sniff the airwaves, some data traffic traveling over the wireless network must be shielded from eavesdroppers by a strong encryption algorithm.

- Secure network configuration and management — to prohibit sophisticated hacking; it should not be possible for anyone but authorized network operators to alter the operation of network elements or the network's path selection protocol.

3.11.2 Characteristics

Describe your network management and security capabilities addressing the following characteristics:

- Does your system support a system management tool? If so please explain capabilities.
- How much network overhead is required to manage the network?
- Does your system support standard SNMP connectivity?
- Does the system support SSID suppression?
- Does your system support MAC address filtering?
- Does your system support the use of standard VPNs?

3.11.3 Data Packets

Please describe or illustrate the composition of your network over-the-air data packets. A packet is defined herein as comprised of overhead (header/addressing, error correction, other overhead, etc.) and application payload data.

- Are the packets of fixed or variable length? What is the size of the fixed packets? What is the minimum and maximum size of your variable packets?
- What is the size of each of the data blocks that comprise your packets and what function do they represent?
- What is the relative position of the data blocks within your packets?
- Does the structure of your packets employ any type of overhead/payload data interleaving? If so, please describe briefly.
- Does your product/system offering provide over-the-air compression as a standard or optional feature? If so, please describe briefly.

3.11.4 Security and Encryption.

- Other than data encryption, what over-the-air methods (frequency hopping, VPN, etc. do you employ to enhance data security? Please describe briefly.
- What authentication methods do you offer as standard and optional in your base-station/access-point devices? In your mobile/field user devices? Please describe briefly.
- What over-the-air encryption algorithms and level of encryption do you provide as standard and optional in your product/system offering?

- What LAN-side encryption algorithms and level of encryption do you provide as standard and optional in your product/system offering?
- How is the encryption key loaded into your product/system offering (physically, over-the-air re-keying, other, etc.?) And how is it changed (manually at the discretion of system manager, automatically at pre-determined intervals, other, etc.)?

4. Response Submittal Instructions

4.1 Filing of Bids

An Intent-to-Bid notice is due on August 28, 2006. Please email Thomas Asp at tasp@internetctc.com indicating your intention to bid on this RFP.

The following format is required for your bid to the City of St. Louis Park. We have included a word document in Appendix I, which outlines the required responses in Sections 2.2 and 3. Please keep the section numbers as listed.

- A. Bond requirements. (Section 4.4 & 4.5)
- B. Insurance documents. (Appendix J, Section 10)
- C. City Bid Forms (Appendix K)
- D. Executive Summary (In 5 pages or less please describe the advantages of your proposal relative to the goals of the City of St. Louis Park)
- E. Responsibilities (point-to-point response to all items in section 2.2 – keep section numbers identical to all items in section 2.2)
- F. Requirements (point-to-point response to all items in section 3 – keep section numbers identical to all items in Section 3)
- G. Coverage (Provide map of proposed coverage including AP and gateway locations)
- H. Pricing (Section 4.14)
- I. Financial Statements (Section 4.12)
- J. References (Sections 4.10 & Appendix H)

Additional system descriptions, product literature and other information should be placed after the responses to all the questions. A Table of Contents with page numbers and divider tabs are required.

Respondents are to submit in a sealed package three (3) paper responses and an electronic version (.pdf or word format) to:

Office of the City Clerk
City of St. Louis Park
St. Louis Park City Hall (3rd Floor)
5005 Minnetonka Blvd.
St. Louis Park, MN 55416-2216

In addition, submit one (1) paper response and an electronic version (.pdf or word format) directly to:

Thomas Asp
Columbia Telecommunications Corporation
5550 Sterrett Place
Columbia, Maryland 21004
410.964.5700
tasp@internetCTC.com

All responses should be clearly marked "Bid for City of St. Louis Park Wireless Broadband Network". All responses are to be received by St. Louis Park prior to **1:00 PM on Friday September 22, 2006.**

Proposal bond/security must be attached in a sealed envelope to the outside of your bid package. If the proposal bond/security envelope is not properly attached, St. Louis Park reserves the right to open and consider the bid or not, at its discretion.

Bids received after 1:00 PM, Friday, September 22, 2006, will not be considered. It will be the sole responsibility of the bidder to have their responses delivered to the City of St. Louis Park before the closing hour and date.

4.2 Questions

Any questions on the Specification need to be submitted electronically prior to September 13, 2006. All questions must be issued by email and directed to the attention of Thomas Asp, Columbia Telecommunications Corporation at tasp@internetCTC.com.

4.3 Proprietary Information

Any proprietary information contained in the response should be so indicated.

4.4 Bidders Bond/Security

No bids will be considered unless sealed and accompanied by bid bond or certified check payable to the City of St. Louis Park in the amount of at least five percent (5%) of the project bid.

4.5 Contractor's Bond

Each Contractor must furnish performance and labor and material payment bonds on the City's approved forms, which are attached, each in the amount of 100% of the contract amount. The bonds are to be executed by an acceptable surety company or companies authorized to execute such in the State of Minnesota, and be written in favor of the City. These bonds must be executed within 15 days after the City notifies the Contractor that it has been awarded the contract and must remain in force throughout the life of the contract and its warranty period.

The Contractor must require the Attorney-in-Fact who executed the required bonds to attach a current copy of his power of attorney indicating the monetary limit of such power.

4.6 Contract Documents

The Contract Documents include the Advertisement for Bids, all Addenda issued prior to receipt of bids, Proposal, General Contract Conditions, Specifications, Contract Bonds, all Appendices in the form attached hereto as and hereby made a part hereof, all plans and drawings, and any Change Orders issued in accordance with section 45 of the General Contract Conditions (see Appendix J). The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.

4.7 Rejection of Bids

Bids may be rejected if they show any omission, alteration of form, additions not called for, conditional bids or alternate bids not specified or irregularities of any kind.

4.8 Disqualification of Bidders

More than one proposal for the same project from an individual, firm, partnership or corporation under the same or different names will not be considered. Evidence that any bidder is interested in more than one proposal for the same work will cause rejection of all such bids. Collusion between the bidders will be considered sufficient cause for the rejection of all bids so affected.

Failure on the part of any bidder to carry out previous contracts satisfactorily or his/her lack of the experience or equipment necessary for the satisfactory completion of the work may be deemed sufficient cause for his/her disqualification

4.9 Inclusion of Contractor Response to Request for Bid

The final written contract will include as contractual obligations the contractor's proposal and all representations, warranties and commitments in the proposal.

4.10 References

Bidders must supply references using the form provided in Appendix H. The forms are to be completed by your reference and emailed to Thomas Asp, tasp@internetctc.com prior to the proposal due date. A minimum of four references must be supplied from similar sized projects.

4.11 Prior Experience and Company Profile

Bidders must supply the City of St. Louis Park with a company profile, outlining related prior experience in comparable or greater size projects. Please provide a summary of key staff who will be assigned to this specific project (managers, technicians, engineers, other) along with their qualifications.

4.12 Financial Statements

Bidders must supply complete financial statements prepared in accordance with generally accepted accounting principles or other comprehensive basis of accounting. At minimum, the financial statements shall contain footnotes and shall be compiled by a certified public accountant as to date not more than sixty (60) days prior to date of the opening of bids which shall set forth outstanding assets and liabilities in reasonable detail. The bidder shall also furnish a list of work of similar nature performed with dates of completion thereof. The bidder shall also furnish any other additional information relative to financial responsibility and competence to do the work as may be requested by the City prior to acceptance of any proposal. The City reserves the right to reject any bid where the available evidence of information does not satisfy the City that the bidder is qualified to carry out properly the terms of the proposed Contract.

4.13 Right to Accept/Reject Bids

The City of St. Louis Park reserves the right to accept or reject any or all, or any part of any bids, to waive any informalities and to accept any proposal deemed to be in the best interest and or most favorable to the City of St. Louis Park. This includes the right to not proceed with the project for any reason as determined in the discretion of the City Council.

4.14 Pricing

All pricing provided in this Specification must be valid through September, 2007.

Contractor represents and warrants that any and all prices for products and services, now or subsequently specified in the contract are as low as and no higher than prices that Contractor has

charged or intends to charge customers other than City for the same or similar products and services of the same or equivalent quantity and quality for delivery or performance during the same periods of time. If during the term of the contract Contractor reduces any or all prices charged to any or all customers other than the City for the same or similar products or services specified, Contractor must make equal or equivalent reduction in corresponding prices for said specified products or services. Contractor also represents and warrants that any and all prices set forth in this contract do not and will not violate any existing federal, state or municipal law or regulation concerning price discrimination and/or price fixing. Contractor agrees to indemnify, exonerate, and hold City harmless from any such violation now and throughout the term of this contract.

Prices quoted are not subject to increase throughout the contract period unless specifically allowed by these specifications.

4.14.1 Sales Tax

Material provided under this RFB may or may not be subject to Minnesota sales tax. Given this, to allow comparison of proposed pricing **do not include sales tax in the Bid.**

4.14.2 Pricing Detail and Ceilings

All bidders must supply a complete detailed document outlining all quantities and unit pricing of equipment/components, project management, engineering, installation, training, integration required for this project.

The decision of whether or not to proceed with a city-wide implementation is dependant upon several parameters, including implementation costs. The following is a not to exceed summary of the implementation costs. If bids come in higher, it is unlikely that the City Council will approve a city-wide implementation. If bids are lower, the probability of approval increases.

- The standard CPE (200mW with a 7dBi antenna) shall not exceed \$100 with an initial order quantity of 1,000, and follow-up orders of 100 units each. Optional CPE's are to be priced with lot orders of 50.
- The total network implementation including installation, integration, training, testing, system verification, all AP's, gateways, media converters, spare equipment, and other network hardware shall not exceed \$1,700,000.
- The total cost to install, supply, and integrate the backhaul fiber (Gateway to City Hall) shall not exceed \$1,100,000. If radio hardware is used in-lieu of fiber for some locations, the cost is applied to this budget at a 1 to 4 ratio. For example a \$100,000 expenditure on radio backhaul, reduces the overall backhaul budget by \$400,000.

Please see Section 2 and Figure 3-2 for further details on the demarcation points and bidders responsibilities.

4.14.3 Freight

All materials shall be F.O.B. St. Louis Park, Minnesota. Delivery shall be at 5005 Minnetonka Blvd, St. Louis Park, Minnesota.

4.14.4 Payment Schedule

Refer to General Conditions section in Appendix J on Application for Payments, Partial Payments, Payments Withheld, Final Payment & Changes in the Work for rules regarding Contractor Payments.

4.14.5 Maintenance Agreement

The initial network implementation cost shall include the first two years of any and all maintenance agreements. Maintenance agreements year three and after shall not exceed \$50,000 per year.

4.14.6 Escalation

All hardware and software unit pricing shall remain valid for at least 2 years. If at any time during this period pricing is reduced, the reductions shall be extended to St. Louis Park.

If any price quoted is subject to **escalation, the terms must be clearly stated.** Escalation will not be allowed beyond the promised shipping date and must be substantiated in writing.

4.15 Schedule

The following is the schedule of events listed in the order of occurrence, showing the major milestones from issuance of the Bid to the contract award:

Milestone Dates:

- RFP Released –August 14, 2006
- Intent to Bid Forms – August 28, 2006
- Prebid Meeting – September 7, 2006, 2 PM
- Close Vendor Questions –September 13, 2006
- Receive Bid Responses-September 22, 2006, 1 PM
- Conduct Vendor Presentations & Site Visits (As needed)
- Provide Recommendations to City Council-October 16, 2006
- Award Bid – October 16, 2006
- Complete Contract – October 30, 2006
- Began System Implementation – November 1, 2006
- Complete System Implementation & Integration – May 30, 2007

St. Louis Park reserves the right to change the schedule of events, as it deems necessary. In the event of a major date change, or other bid related updates, St. Louis Park will notify all known respondents.

4.16 St. Louis Park Vendor Selection

Following St. Louis Park's review of the responses, they may (but not limited to):

- Select a vendor based upon the responses– then negotiate the price, scope, and functionality with selected vendor,
- Seek other solutions, or
- Defer or cancel implementation plans.

St. Louis Park will select the vendor based upon a variety of factors including:

- Equipment specifications
- Network design and performance
- Vendor experience and references
- Design and configuration of network
- Installation support

- Integration support
- Hardware and implementation pricing

Although important, selection of the vendor will not be based solely on price. A lead vendor will be selected based upon the responses to this Bid, and which response will best meet St. Louis Park's goals and objectives.

4.17 Inspection

The City of St. Louis Park Council, staff, or its authorized representatives, reserves the right to inspect any of the material at the factory, during the course of manufacture, to see that specifications are being complied with in the manufacture of such material.

4.18 Errors in Bid

Bidders or authorized agents are expected to examine the specifications and Bid sheets carefully. Failure to do so will be at the Bidder's own risk, and they cannot secure relief on the plea of error in the Bid. In the case of an error in the extension of price, the unit price will govern.

4.19 Delivery Time

The proposer shall state time necessary between receipt of an order and delivery of material.

4.20 Information to Accompany Bid

The bidder must submit complete information concerning the material proposed on.

4.21 Approval of Equipment

When the phrase "or equal" is used in any part of the specifications, and the proposer desires to use equipment different from the name specified, they must supply descriptive literature of the equipment they propose to furnish.

4.22 Minor Irregularities

St. Louis Park reserves the right to waive minor irregularities or minor errors in any Bid, if it appears to St. Louis Park that such irregularities or errors were made through inadvertence. Any such irregularities or errors so waived must be corrected on the Form of Bid in which they occur prior to the acceptance by St. Louis Park.