

FY 2007/08 Budget Decision Package WiMAX Town/Business Partnership Case

Description of Proposed Expenditure:

Provide Wireless Access for:

Muni/Private Partnership Model for The Wireless Networked City

Justification for Expenditure:

The Board of Director Goals,

Goal 2 “Foster Smart Development”,

Goal 7 “Invest in Town Infrastructure”

And Most significantly for this Proposal:

Goal 8 “Enhance Manchester Image as a Community of Choice”

- by developing for Manchester a Business Case as part of its “Marketing Plan” and a specific Request for Bid for attracting “New Quality Employer(s)” to bid on a partnership with The Town Of Manchester in the deployment of a WiMAX wireless network for use by the city and school district and for use by the winning commercial bidder for its use in bringing new wireless technology and its applications to the city.

The fundamentals of the business case to be developed involve:

- 1) **The Community’s Asset** - Using the Town’s geographically dispersed buildings connected by its city-wide municipal fiber optic network as a cost minimization factor for a “Business” wireless network.
- 2) **“Anchor Tenant” Concept** –Using newly emerging wireless technology (WiMAX) to drive the cost per square mile of wireless networking down and the wireless networking capacity up to a point where managing Manchester’s Wireless Network potential represents an attractive business opportunity for a commercial investor.
- 3) **Revenue Sharing** – The Business Partner investing in the deployment of a WiMAX network on the town infrastructure, both provides network service to the Town as an “Anchor Tenant” and also shares the profit from its enterprise with the city – this is key to determining the winning Business Partner Bid.
- 4) **Manchester’s Standards-based Technology Strategy**- Establish wireless digital standards for Manchester’s various analog radio frequency networks that will allow them to converge to digital forms and grow in coverage and functionality, while at the same time take advantage of the declining costs of digital equipment technology.

The above calls for aggressive planning for a Manchester Wireless Broadband Initiative in the form of a Muni/Private Partnership Model for The Wireless Networked City – important to this planning is the involvement of a citizen committee to guide and review the “Business Case” and to evaluate the opportunity costs to the community of not proceeding successfully with a valid Business Case.

Muni/Private Partnership Model for The Wireless Networked City

Consulting cost to Prepare RFP and Administer Business Case (using 70 page Minneapolis wireless city document scope).

Background --- Bill Beck, CIO Minneapolis recommend having a Project Manager as an internal person committed to the project and prepared to work with the community and policy makers. The consulting cost in Minneapolis for a technical consultant ("R Client" consulting practice) was \$160/hr for a ½ time engagement that ran for 2 years, costing a total of \$250,000. The Minneapolis project started in 2004 and the first two 1-mile-square competitive pilots begun in 2006.

This proposal for Manchester would follow several of the Minneapolis model approaches. This would be to start with of a Board of Directors oversight subcommittee with support from a Staff Team (1 Project Manager, 1 I/S Technical Staff Member, 1 Manchester Legal Council, and 1 financial analyst resource). Citizen Committee and RFP Creation Committees would be the operating entities with the help of the Staff Team.

The opportunity to use Manchester's FiberNet carries with it the requirement to be prepared with Legal Council on the Staff Team to properly represent the city's rights for use of its Communication Infrastructure.

The additional 2008-09 budget startup cost estimate for phase 0 and phase 1 (see Minneapolis Business Case) to reach the RFP publication deliverable including a Manchester Broadband Business Case Document would be the cost of a professional service contract Project Manager and Legal Council and the commitment of time by I/S Technical Staff and a financial consultant (either a Town's financial analyst resource or an added cost professional service consultant).

Estimate based upon Minneapolis model work already done and Manchester's experience with Wireless projects in the Downtown and cross-town projects.				
	2007-2008			
	Hourly Rate	Hours		
Professional Service Project Manager	100	391	\$39,063	Business Case, Community Benefits and RFP Publication
Financial Analyst	75	203	\$15,188	Financial Case development
Legal Counsel	150	113	\$16,875	DPUC Representation
Estimated Total based upon scaling the effort to 1/4 of Minneapolis			\$71,125	

The attached Scope of Consulting Service reflects the Professional Service Project Management line item above scaled down for the small CDBG-17 project for the Nathan Hale School area PAL community work. This CDBG-17 project can have many of the elements in it of the full scale Manchester-wide Business Case without going to the Case / Bid creation and execution stage of the full city-wide project scoped above. It illustrates, however, how a “Standards-based” technology solution can deliver an ever-increasing number of effects without repeating the overhead expenditure of starting proprietary, special purpose efforts.

Suggested Recommendations:

- 1) Support the formation of a Manchester Wireless Network Committee;
- 2) Retain a Professional Services Project Manager to create the Business Case, manage the Bid process and Participate in any DPUC submission requirements;
- 3) Approve Manchester Staff to provide support to the Committee and Project Manager for the creation of the WiMAX Business Case for the Committee and Bid process.

Appendices

- 1) Spruce Street's Nathan Hale to PAL and Police Substation Picture
- 2) Main Street to Police Substation Picture
- 3) WiFi Picture – Too Many Poles – WiMAX from the Buildings Is Better
- 4) Mechler - Independent Consultant WiMAX Project Management
- 5) Wireless Minneapolis – Municipal Broadband Initiative Business Case on the Web at:

http://www.ci.minneapolis.mn.us/wirelessminneapolis/MplsWireless_BusinessCase_V3.pdf

For the best possible print results, click the printer icon on the Live Search Maps page.

Police Sub station → Location result for

160 Spruce St, Manchester, CT 06040-5455

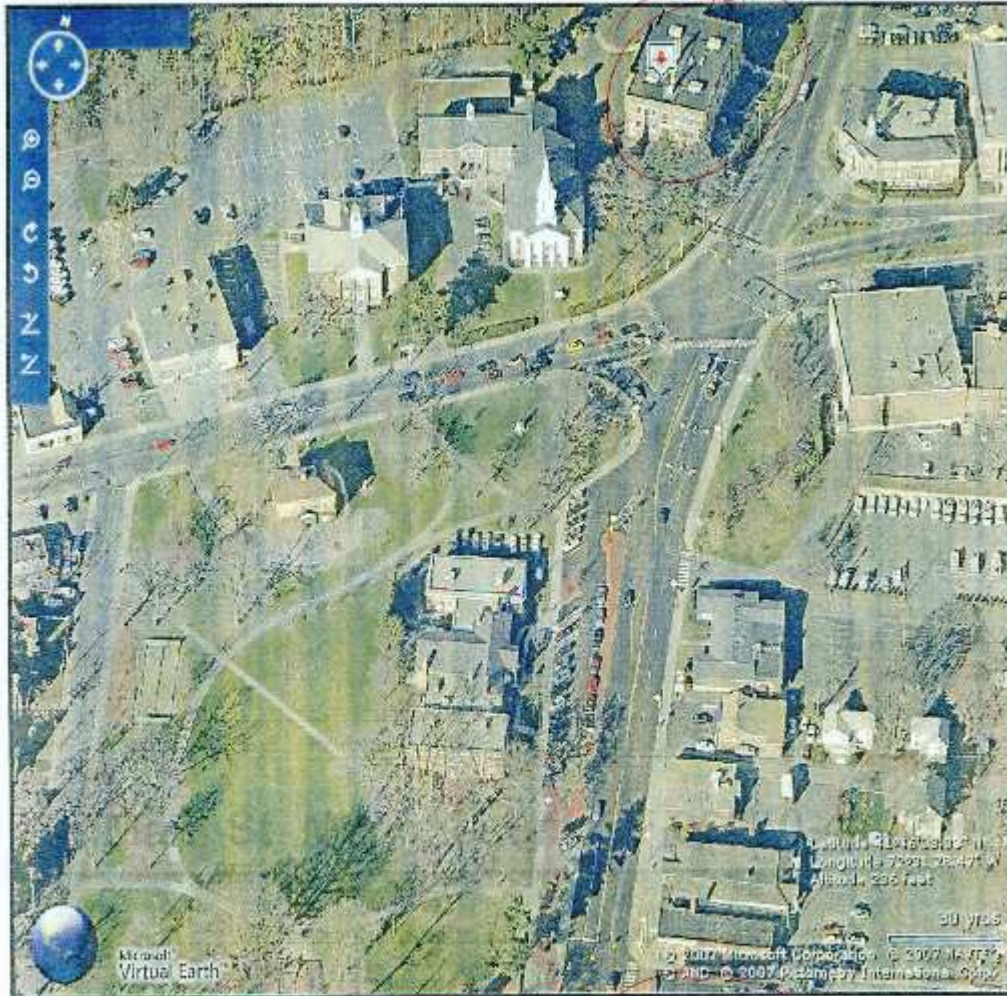




For the best possible print results, click the printer icon on the Live Search Maps page.

Location result for

494 Main St, Manchester, CT 06040-4102



Hand Gider

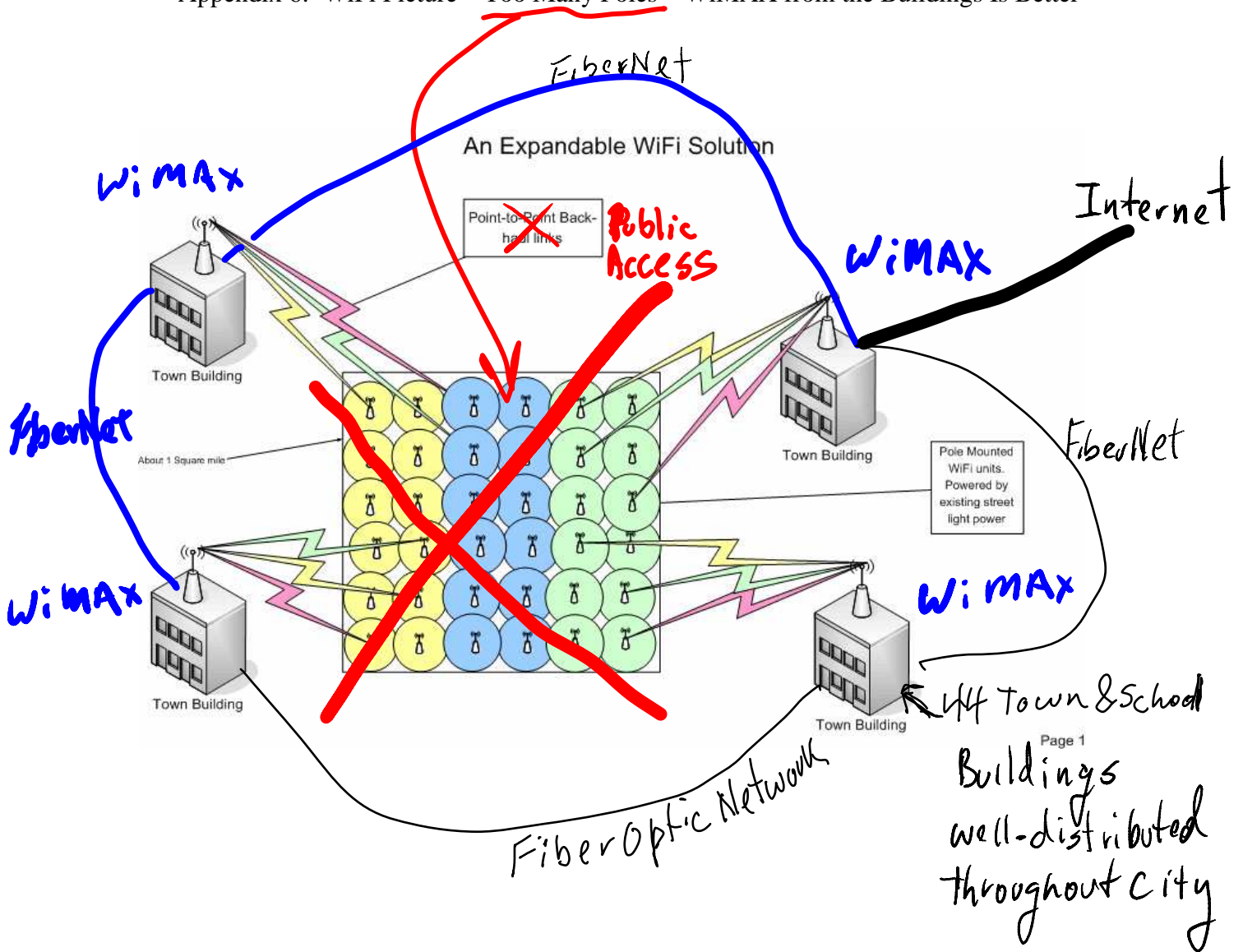
Police Substation

<http://maps.live.com/?FORM=MSNH&mkt=en-US&q=>

Handwritten note: *Handwritten*
12/7/2007

Handwritten initials: *TC*

Appendix 6: WiFi Picture – Too Many Poles – WiMAX from the Buildings Is Better



Page 1
All Town & School Buildings well-distributed throughout city

David H. Mechler
Independent Consultant – Information Systems and Technology
324 Rail Tree Hill Road
Woodbury, CT 06798
(203) 263-8248

November 27, 2007

Mr. Jack McCoy
Chief Information Officer
Town of Manchester
41 Center Street
Manchester, CT 06045

Dear Mr. McCoy,

This letter documents my agreement to provide professional consulting and project management services to the Town of Manchester during the forthcoming months in support of the “Neighborhood WiMAX Community Development Block Grant (CDBG) Project” that we have discussed recently.

Permit me to clarify my understanding of the project in the following paragraphs that reflect the explanation and scope you provided me in our recent conversations:

The Town of Manchester wishes to implement WiMAX connectivity between a yet-to-be-installed Ethernet LAN in the old Spruce Street Firehouse and the existing Town-owned FiberNet. Initially this will be a point-to-point wireless, 802.16-compliant (as opposed to a “WiFi” 802.11-compliant) connection between a WiMAX Subscriber Station (known as a WiMAX Substation) located on the Firehouse LAN and a WiMAX Base Station located in a Town facility which already has wired FiberNet connectivity (specifically, within Nathan Hale School across Spruce Street from the Firehouse). Access to the FiberNet will thus be afforded to all of the nodes (i.e., computers and printers) on the Ethernet LAN within the Spruce Street Firehouse. Additionally, WiMAX Subscriber Station equipment may be installed at the Manchester Police Department substation located on Main Street several blocks from the Nathan Hale School facility. This will afford to a number of existing computers on a LAN in the police substation a wireless connection to the FiberNet (thus making accessible such applications as telephony and CAD/RMS) that would otherwise be cost-prohibitive if implemented by installing fiber-optic cable along the streets between the police substation and the school facility.

This initial effort in the context of the CDBG project will seek to validate the interoperability of two independent vendors’ claims to offer 802.16-compliant *standards-based* WiMAX products, operating in a *fixed*-subscriber station environment. If the CDBG project is successful--and if further funding is available--a separate project

subsequently will be initiated to specify, and vendor bids will be solicited for, the “Phase 0” effort to implement WiMAX connectivity to the FiberNet over a one-square-mile area of the Town of Manchester, in a *fixed and mobile* subscriber station environment. Furthermore, subsequent to the Phase 0 project (and again subject to funding availability) a “Phase 1” project will be executed to implement the WiMAX connectivity to the FiberNet over an even wider area of the Town.

I understand the CDBG Project to comprise (a) the gathering and reviewing of vendor-provided and other available WiMAX product information for both fixed and mobile substations, (b) the subsequent use of the former in the preparation of a Bid Specification for a fixed substation configuration, (c) the subsequent publication of a Request for Bid based on the aforementioned Specification to elicit responses from qualified WiMAX equipment vendors and service providers, (d) the adjudication of vendor responses, (e) the selection of *two* vendors capable of demonstrating WiMAX interoperability, and (f) the management of the project to implement, test, and validate the concept of WiMAX in a fixed-substation configuration.

In the attachment to this letter I have detailed a breakdown of the CDBG Project into Major Activities and Tasks within Activities. I understand that the effort involved will be carried out in part by members of your Information System technical staff. My role will be primarily that of Project Manager and author of much of the pertinent documentation.

My initial estimate for the effort required on my part to manage and execute the tasks outlined is approximately 300 hours. This estimate may be revised upon mutual review.

My rate for professional services is 100 dollars (\$100.00) per hour and will be billed on a bi-weekly basis. This hourly rate prevails for such short-term projects as the CDBG-related effort. Should my services be required for the subsequent (and likely longer-term) Phase 0 and/or Phase 1 WiMAX projects, I will be happy to consider offering the Town of Manchester a discounted hourly rate.

I look forward to the opportunity to be of service to the Town of Manchester.

Sincerely yours,

David H. Mechler

Attachment

Attachment 1 - Neighborhood WiMAX CDBG Project

Major Activities

1. Identify *regulated* Municipal, Public Safety, and Educational radio frequencies for potential use in the context of a Town of Manchester WiMAX system.
2. Prepare an FCC application and obtain license for use of a *regulated* frequency (or frequencies) for potential use in the context of a Town of Manchester WiMAX system.
3. Prepare and publish a Request for Information (RFI) document seeking technical information from potential equipment vendors and service providers to determine what WiMAX equipment is currently available for both Fixed and Mobile Subscriber Station applications. Information must be sought on the use of both regulated and unregulated radio frequencies for the WiMAX communications links.
4. Review RFI vendor/provider responses and interpret the information provided.
5. Conduct further research on WiMAX product availability and capabilities as needed.
6. Develop Ethernet LAN design, equipment specification, and implementation plan for Spruce Street Firehouse (and for Main Street Police Substation, if necessary).

Assumption: Required equipment not already on hand will be purchased off the State of Connecticut Bid Schedule, thus requiring no preparation and publication of a stand-alone Specification document and/or competitive Request for Quote.

7. Develop specification and physical mounting plan for WiMAX antenna and Subscriber Station LAN connection at Spruce Street Firehouse and the Main Street Police Substation.
8. Develop specification and physical mounting plan for WiMAX antenna and Base Station connection to FiberNet at Nathan Hale School.
9. Develop specification and implementation plan for upgraded Gigabit Ethernet Switch for FiberNet node at Nathan Hale School.

Assumption: Required equipment not already on hand will be purchased off either the State of Connecticut Bid Schedule or the Alcatel Telephony Bid Schedule for the Town of Manchester, thus requiring no preparation

and publication of a stand-alone Specification document and/or competitive Request for Quote.

10. Prepare a detailed Bid Specification document for the WiMAX system covered by the CDBG Project (i.e., comprising LAN-connected WiMAX Subscriber Stations at the Firehouse on Spruce Street and the Police Substation on Main Street, a FiberNet-connected Base Station at Nathan Hale School, and all related Antenna equipment for these locations).
11. Prepare and publish a Request for Bid (RFB) document, based on the aforementioned Bid Specification, covering the implementation of the WiMAX Connectivity CDBG project.
12. Review and analyze RFB vendor responses.
13. Select winning vendors and award a two-vendor contract connecting the WiMAX Subscriber Stations at Spruce Street Firehouse and Main Street Police Substation to the WiMAX Base Station at Nathan Hale School.
14. Execute the project to implement the WiMAX CDBG System.

Tasks within Activities

1. Identify *regulated* Municipal, Public Safety, and Educational radio frequencies for potential use in the context of a Town of Manchester WiMAX system.
 - Review I.S. staff past research into this matter. (e.g., Michael Shekman's Webcam Project)
 - Solicit pertinent information from existing Town of Manchester users of regulated spectrum (e.g., Fire, Police, Public Works, and School District).
 - Review other pertinent information sources.
 - Gain consensus among I.S. staff, and Police/Fire/PW/BoE personnel regarding frequency selection.
 -
2. Prepare an FCC application and obtain license for use of a *regulated* frequency (or frequencies) for potential use in the context of a Town of Manchester WiMAX system.
 - Research application process and obtain appropriate application form(s), etc.
 - Complete and submit application.

-
- 3. Prepare and publish a Request for Information (RFI) document seeking technical information from potential equipment vendors and service providers to determine what WiMAX equipment is currently available for both Fixed and Mobile Subscriber Station applications. Information must be sought on the use of both regulated and unregulated radio frequencies for the WiMAX communications links.
 - Write RFI.
 - Review RFI with I.S. and Purchasing personnel.
 - Acquire sign-off on (i.e., confirmed acceptability of) completed RFI document.
 - Determine target list for RFI distribution.
 - Post RFI to Town of Manchester website and/or distribute physical RFI documents as appropriate.
-
- 4. Review RFI vendor/provider responses and interpret the information provided.
 - Read each response document.
 - Review information received with I.S. staff.
 - Assess whether additional information needed.
-
- 5. Conduct further research on WiMAX product availability and capabilities as needed.
 - Call vendors as appropriate.
 - Conduct Internet information search(es) as appropriate.
 - Attend industry conference in local or New England area.
-

6. Develop Ethernet LAN design, equipment specification, and implementation plan for Spruce Street Firehouse (and for Main Street Police Substation, if necessary).

Assumption: Required equipment not already on hand will be purchased off either the State of Connecticut Bid Schedule or the Alcatel Telephony Bid Schedule for the Town of Manchester, thus requiring no preparation and publication of a stand-alone Specification document and/or competitive Request for Quote.

- Determine number and type of users to be supported and resultant device count.
- Assess network cabling and power wiring requirements.
- Determine router/switch/hub configuration and requirements.
- Prepare design and component requirements documentation.
- Project-manage the LAN/WiMAX implementation by I.S. staff resources and vendors at Firehouse and Police Substation.
-

7. Develop specification and physical mounting plan for WiMAX antenna and Subscriber Station LAN connection at Spruce Street Firehouse and the Main Street Police Substation.

- Determine practical location for antenna and WiMAX Subscriber Station access point(s).
-

8. Develop specification and physical mounting plan for WiMAX antenna and Base Station connection to FiberNet at Nathan Hale School.

- Determine practical location for antenna and WiMAX Base Station access point.
- Assess number of Subscriber Stations to be supported.
-

9. Develop specification and implementation plan for upgraded Gigabit Ethernet Switch for FiberNet node at Nathan Hale School.

Assumption: Required equipment not already on hand will be purchased off either the State of Connecticut Bid Schedule or the Alcatel Telephony Bid Schedule for the Town of Manchester, thus requiring no preparation and publication of a stand-alone Specification document and/or competitive Request for Quote.

- Determine incremental traffic impact of WiMAX-connected Subscriber Stations in Firehouse, Police Substation, and/or possible mobile locations.
 -
10. Prepare a detailed Bid Specification document for the WiMAX system covered by the CDBG Project (i.e., comprising LAN-connected WiMAX Subscriber Stations in *fixed* locations at the Firehouse on Spruce Street and the Police Substation on Main Street, a FiberNet-connected Base Station at Nathan Hale School, and all related Antenna equipment for these locations).
- Determine scope specifications for concept validation project.
 - Review scope and subsequent iterations with I.S. staff.
 - Prepare initial draft of Bid specification document.
 - Review initial draft and subsequent iterations with I.S. staff.
 - Acquire sign-off on (i.e., confirmed acceptability of) completed Bid Specification document.
 -
11. Prepare and publish a Request for Bid (RFB) document, based on the aforementioned Bid Specification, covering the implementation of the WiMAX Connectivity CDBG project.
- Write RFB.
 - Review initial RFB and subsequent iterations with I.S. and Purchasing personnel.
 - Acquire sign-off on (i.e., confirmed acceptability of) completed RFB document.
 - Post RFB to Town of Manchester website and/or distribute physical RFB documents as appropriate.
 - Conduct bidder review meeting.

- Review and refine vendor comments and questions.
 - Publish RFB update(s) as appropriate.
 -
12. Review and analyze RFB vendor responses.
- Read each vendor response document.
 - Review information received with I.S. staff.
 - Assess whether additional information needed from any/all vendors.
 - Acquire additional information.
 - Prepare mechanism for comparison and relative rating of of vendor responses.
 - Review vendors' merits with I.S. staff.
 -
13. Select winning vendors and award a two-vendor contract connecting the WiMAX Subscriber Stations at Spruce Street Firehouse and Main Street Police Substation to the WiMAX Base Station at Nathan Hale School.
- Prepare "short list" of respondents.
 - Conduct meeting(s) with vendors on short list.
 - Review vendors' merits with I.S. staff.
 - Make final selection of vendor(s) for implementation of WiMAX CDBG system.
 - Project-manage, with I.S. and General Services management, the contract signing by all parties.
 -
14. Execute the project to implement the WiMAX CDBG System.
- Prepare project plan and timeline for vendor(s') and I.S. staff's CDBG Project activities.

- Conduct meetings with vendor(s) as needed.
- Oversee staging of equipment prior to installation.
- Oversee and assure timely installation of non-vendor Firehouse and Police Substation LAN equipment.
- Oversee and assure timely installation of vendors' WiMAX equipment (i.e., network devices and antennas) at all sites.
- Prepare plan for acceptance testing of installed WiMAX CDBG system.
- Execute acceptance testing of installed WiMAX CDBG system.
- Review installation process with I.S. staff as appropriate.
- Review acceptance testing process with I.S. staff as appropriate.
- Acquire sign-off on (i.e., confirmed acceptability of) WiMAX CDBG System.
-