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TechConnect RFP 2005-19
Dept. of Telecommunications and Information Services
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02/19/06

To the review panel:

Enclosed is the response to the TechConnect RFP 2005-19, submitted on behalf of Razortooth Communications, LLC. As a company actively engaged in bridging the Digital Divide every day, we truly believe that TechConnect can be much more than just a network. TechConnect should become the success story that all other technology inclusion initiatives use as a model. We believe strongly the City of San Francisco has the opportunity to place itself on the map as the technology leader of the Silicon Valley not for building the most advanced wireless network, but for being the first city in the Silicon Valley to have the vision to focus on developing the digital literacy of its citizenry. TechConnect presents a unique opportunity for San Francisco to act as a magnet for technology by becoming the most wired city in the Silicon Valley. This is just the first step. Razortooth Communications, LLC is proposing a set of initiatives centered around TechConnect to foster a technology-centric community based on inclusion, participation, and innovation. This is, after all, what San Francisco is all about, openly leading the nation in ideas.

As one of the few 100% Hispanic-owned technology companies in San Francisco, we represent both the challenges faced by the technologically disenfranchised as well as the possibilities available to those who can cross the divide. We look forward to openly sharing our ideas and collaborating all involved in the TechConnect RFP.

A handwritten signature in black ink, appearing to read "David J. Kordsmeier". The signature is written in a cursive style with a long horizontal line extending to the right.

Sincerely,

David J. Kordsmeier, President, Razortooth Communications, LLC
Encl.: Response to TechConnect RFP 2005-19



Executive Summary

San Francisco's TechConnect initiative has the primary goal as stated: "Ensure universal, affordable wireless broadband access for all San Franciscans, especially low-income and disadvantaged residents". The TechConnect initiative presents an opportunity to put San Francisco at the forefront of innovation that goes beyond creating a state of the art wireless network. San Francisco has the opportunity to set an example for the world by creating a society based on technology inclusion. Razortooth Communications, LLC will support the city in this effort through five initiatives:

- Launch a low-cost Wireless Co-op under the RedTAP brand, built with the support of the community and operated under community by-laws, operated under the financial sponsorship of RedTAP
- Launch a city-wide network of fixed-broadband Community Access Centres under the RedTAP brand to deliver for-pay technology services and support targeting children, teens, adults, and seniors, in English, Spanish, and other languages
- Launch a free technology training outreach initiative aimed at raising the level of digital literacy of all San Francisco citizens
- Propose and develop an open-source standard, WiFi Services Metadata Framework (WSMF) to standardize WiFi service discovery and foster a community of WiFi service developers building services on top of the TechConnect network
- Launch the San Francisco Internet Broadcast Network (SFIBN), the nation's first 24-7, community-based, open-access Internet broadcast network, for delivery of unique and original video and audio content and government communication as a free service over the TechConnect network and on the Internet

Through these initiatives, RedTAP supports TechConnect's primary stated goal to serve low-income and technologically disadvantaged residents. RedTAP recognizes that FREE Wireless by itself is a field of dreams that serves only the white-collar knowledge worker and the big corporate interests that would like to make money providing internet service. Without a real strategy to provide technologically underserved residents with WiFi enabled laptops or desktops, the disadvantaged will be further left behind. Such a strategy would have to involve a hardware manufacturer willing to subsidize or donate laptops to low-income residents. How would such a plan be administered? Who decides who gets the computers? Who is willing to give away computers? Who will train the recipients of low-cost computers? Who will maintain these computers and keep the virus free? Will low-income residents be willing to pay for a subsidized Internet connect AND a low-cost PC? RedTAP's solution delivers the promise of technology to the technologically disenfranchised on top of a viable network topology.



Community Wireless Broadband Network, Volume 2: Firm Qualifications

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Established in 2000, doing business in San Francisco since 2003.
Registered Limited Liability Company incorporated in California.
A 100% Hispanic-Owned business
Less than 10 employees

Management Overview:

- David J. Kordsmeier, President - David is a software engineer with over 15 years of tech industry experience at companies like SGI, Apple, Infoseek, and Sun Microsystems, Inc., focused primarily on end-to-end wireless architectures and server-side Java development. David has worked with standards bodies including OSGi and has commented on JSRs as part of the Java Community Process. David is a three-time presenter at JavaOne in San Francisco on the topic of telematics.
- Rene Valdiosera, Director of Sales and Business Development – Rene brings over six years of tech industry experience at LookSmart.com, running the Spanish language search directory for Mexico. Rene has spent a significant part of his career doing community outreach with both the Hispanic Chamber of Commerce and the Department of Elections. Rene has worked internationally with United Nations elections observers, working recently with the historic Ukrainian elections.
- Mahamat Guiagoussou, International Business Development – Mahamat brings over 15 years of tech industry experience through academia, and more recently the company that created the iPod OS, PIXO, and Sun Microsystems, Inc. Mahamat is a PhD candidate and is an expert in network management and mobile agent technology. Mahamat is currently exploring opportunities to expand business beyond US borders.
- Adriana Ocampo, Store Manager – Adriana is leading RedTAPs effort to deliver a high-quality, bilingual, customer experience.

RedTAP operates a retail Internet service provider in the Mission district of San Francisco, with four employees. RedTAP offers the only bilingual, Spanish-English for-

profit business in San Francisco with the primary focus of bringing low-income and immigrant communities online. RedTAP has succeeded in reaching customers that have been overlooked by media giants AOL and telco monopolies like SBC. RedTAP has ambitions to expand beyond the Mission district.

RedTAP brings two and a half years of operating experience in San Francisco providing Internet access to residents of the Mission district and beyond. RedTAP operates in a hyper-competitive market for selling Internet access to consumers. RedTAP serves hundreds of customers every week, going beyond access and venturing into fully bilingual offerings in both English and Spanish of web services and multimedia services. RedTAP's low cost offerings triggered something of a price war among local WISPs and cyber-café's. The result has been positive for consumers: lower prices. RedTAP understands the barriers that prevent low-income and tech-illiterate consumers from getting online. While RedTAP has not deployed a massively scalable wireless network yet, the company has delivered technology services on a daily basis and has done so in the most customer-oriented manner possible. The executive team individually carries the necessary experience of dealing with large scale deployments and delivering on-time and on-budget.

RedTAP also understands the technology required to deliver fixed broadband and secure wireless Internet. RedTAP is a big advocate of low-cost, open-source solutions, as open-source offers a cost savings that can be passed on to the consumer. RedTAP has worked extensively with Linux-based WiFi hotspot solutions based on inexpensive, off-the-shelf, Linksys WiFi routers. RedTAP sees the availability of high quality Linux-based Linksys WiFi routers as a positive development for WISPs and community-based WiFi projects.

Network Deployment and Operating Costs

The following is a breakdown of the network deployment estimates:

5 X Linksys WRT54G Routers per/sq. Mile

San Francisco square mileage = 49 sq. miles

Cost of 1 Linksys WRT54G = \$50

$5 \times 49 \times \$50 = \$14,700$

Additional Costs associated with custom development of firmware for the WRT54G are zero. Owners will pick up this task.

Since our network is designed as a Wireless Co-op, the primary cost associated with network design and deployment will be reduced to a minimum as the Co-op members will take on primary roles and responsibilities in deployment.

Misc. Networking Equipment Cost \$10,000, including ruggedized casings for wireless access points, needed for outdoor equipment, and any other routers used at the hosting facility.

Total Estimated Deployment Cost: \$25,000

The following is a breakdown of monthly operating cost estimates:

Primary technical support and operations management will be handled by hotspot members.

SLA-backed Internet Service Bonded T1: \$3,000

Customer Service Personnel: \$2,100

Network Operations Personnel \$8K /month

Total:Estimated Operations Costs: \$13,100.

Financial Viability

Razortooth Communications, LLC is a privately funded and held company. For this reason, we do not release private information about the finances of our company. We are willing to provide information from our account regarding our income statement and balance sheet, but will only do so upon request and not as part of the public RFP response. The City of San Francisco should rest assured that Razortooth Communications, LLC has the financial resources to obtain the capital it needs to obtain funding resources needed to execute on this RFP response and meet any contractual obligations.



Community Wireless Broadband Network, Volume 3: Solution
Description

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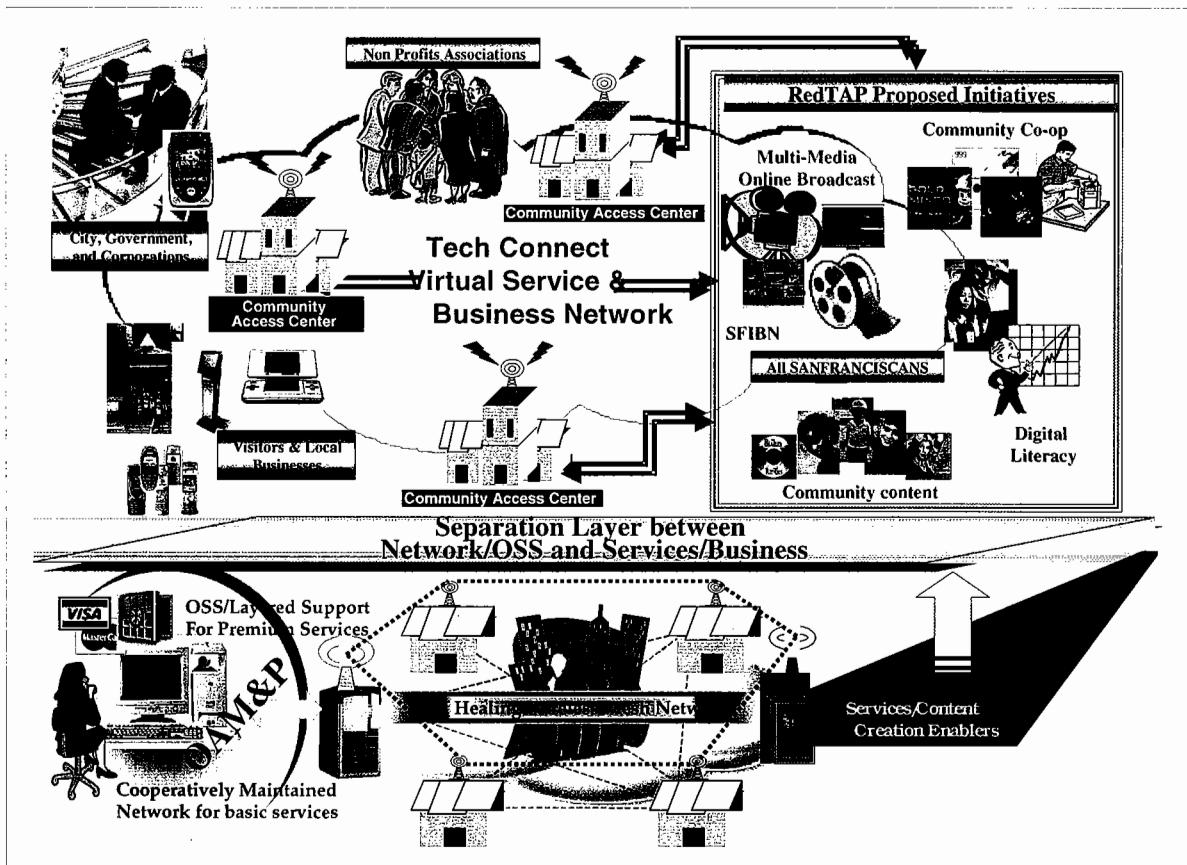
Solution Overview

Razortooth Communications, LLC through its RedTAP band offers the following Services and Solution Initiatives:

1. Launch a low-cost Wireless Co-op under the RedTAP brand, built with the support of the community and operated under community by-laws, and under the financial sponsorship of RedTAP
2. Launch a city-wide network of fixed-broadband Community Access Centers under the RedTAP brand to deliver for-pay technology services and support targeting children, teens, adults, and seniors, in English, Spanish, and other languages
3. Launch a free technology training outreach initiative aimed at raising the level of digital literacy of all San Francisco citizens
4. Propose and develop an open-source standard, WiFi Services Meta data Framework (WSMF) to standardize WiFi service discovery and foster a community of WiFi service developers building services on top of the TechConnect network
5. Launch the San Francisco Internet Broadcast Network (SFIBN), the nation's first 24-7, community-based, open-access Internet broadcast network, for delivery of unique and original video and audio content and government communication as a free service over the TechConnect network and on the Internet

Note: All initiatives will be rendered under the brand “Red Technology Access Point (RedTAP)”, the operating DBA name for Razortooth Communications, LLC. RedTAP would like the TechConnect review panel to consider each initiative individually. RedTAP sees itself as a partner to the City and feels that any of these initiatives will offer benefit for the public good.

The figure below in addition to depicting the above listed initiatives also illustrates the main components of the TechConnect projects. It positions the City not only as the project initiator but also as the main integrator and the enabler of the most unique and socially responsible wireless network in the Bay Area, in the US and also all over the world. By putting an emphasis on affordable access and digital literacy, the TechConnect initiatives will effectively allow San Francisco citizens to participate more effectively to the global economy thus contributing to the elimination of the digital divide.



The picture can be viewed as composed of 4 areas:

1. The upper right corner depicts RedTAP proposed service oriented initiatives namely: free technology training program that will support digital literacy to all San Francisco residents irrespectively of their social class, community co-op to allow members of the cooperative to benefit from the resources, tools and facility built by the co-op, grass root SFO content publishing and distribution allowing community based creativity, participation and innovation, and finally a world class quality multi-media Internet broadcast infrastructure dedicated to support a broader visibility of the TechConnect initiatives, services, and content.
2. The Upper left corner depicts the two other major key users of the TechConnect infrastructure a part from regular citizens, namely San Francisco city employees, government Structures and Big Corporations. Visitors and local small business are also illustrated.
3. The Upper center depicts the main RedTAP proposal to the city of San Francisco (interconnected fixed-broadband Community Access Centers) composed of fixed nodes in order to provide an option to a specific segment of digitally disconnected. A virtual network supported by the interconnection of so-called Community Access Centers is offered to the truly disfranchised who can't afford

owning an access terminal. This will allow them to benefit from the TechConnect initiatives and offers. This virtual network can benefit to non-profitable NGO, San Francisco visitors, small business and variety of other TechConnect users.

4. The lower part of the picture illustrates the physical WiFi network proposed by RedTAP as a SELF-HEALING Wireless Mesh Network. An army of technical volunteers in the community co-op for which these activities provide intellectual rewards (learning and contributing to their community) and potential financial incentives will support the Basic free services. A multi-level support structure (as described in the RFP) to be deployed for the Premium Service is illustrated in the lower left corner of the picture. The right lower corner illustrates a service enabling structure involving all stakeholders and will be sponsored by the City in order to facilitate the creation of all community-based services, content creations and regulation and business development.

Initiative 1 – RedTAP WiFi Co-Op, a low-cost Wireless Co-op under the RedTAP brand, built with the support of the community and operated under community by-laws, operated under the financial sponsorship of RedTAP

The RedTAP WiFi Co-Op will build a community-based wireless network with the following charter:

- Achieve 90% coverage of the major population centers in San Francisco within 5 years of launch
- Run by the Co-op members
- Affordable enough to help bridge the digital divide (\$5/month)
- Free access on all government properties
- Co-exist with parallel emergency networks and work with government agencies to develop emergency support plans
- Operating costs and profits fall to RedTAP
- RedTAP will manage the Co-op as a permanent member of the Co-op board

RedTAP is proposing a unique business model, which will minimize the initial investment, allow rapid deployment, and ensure community support. RedTAP proposes the following for the Co-Op:

- Initially target SOMA, Embarcadero, the Mission, and City Hall
- Build out the network based on need
- Citizens of San Francisco as well as Co-Op members can pull together a petition with paying “sponsors” to have the network extended beyond the initial deployment
- Don't do the usual big budget marketing but instead focus on word-of-mouth viral marketing campaigns to grow the network
- Co-op members can elect to host a WiFi node at their site/home/location in exchange for free access, based on the need
- Co-op members will vote for Member-IT Ops team members, such that members will act as the primary first responders to network issues
- Rely heavily on network management tools to ensure a good throughput and a long uptime
- The Co-op will not utilize gimmicks, unfair contracts, or unfair bundling of services to force customers to take services they do not want or need, or can't understand.
- The Co-op will not share ANY private user information or anonymous demographic information with ANY outside vendor not affiliated with RedTAP.

Razortooth Communications, LLC proposes to operate the wireless cooperative under the RedTAP brand. This cooperative will act as a community-based service provider for Wireless Internet. The cooperative will operate as a federation of communities, each community with its own elected network operations personnel and leaders. Such an approach will encourage the development of affinity communities and will allow individuals to affiliate themselves with the TechConnect network through their neighborhood, their schools, or their community-civic organizations. The cooperative will be built on top of existing standards for 802.11b/g using best-of-breed open source technology and off-the-shelf wireless access points. Where outdoor access points are needed, access points will be placed in ruggedized casing to meet environmental operation requirements. The cooperative will manage growth and expansion to achieve coverage of 90% of the major population centers of San Francisco within five years. The

key driver for the cooperative is to support responsible use of city funds by creating a network that meets the needs of residents, achieves the majors goals of TechConnect, with low deployment costs in terms of time and money. The choice to use off-the-shelf wireless access points was a financial one. A \$50 consumer router can be converted into a \$600 router using open-source firmware updates. RedTAP sees this as the equivalent of using cheap 1U servers in a data center. If the equipment fails, it can readily be replaced for a nominal cost. Redundancy will be achieved using a special update to the DD-WRT firmware to incorporate JXTA technology to allow the network to self-heal. Where carrier-grade telco equipment is required, RedTAP will purchase this equipment as needed. RedTAP will operate its OSS on top of Nagios/Splunk. Further information on the RedTAP Wireless cooperative can be found in the Solution Detail in volume 3. FREE service will be provided on all City and Government owned property. Premium \$5/month service will be offered to cover user-members within the coverage area of the RedTAP WiFi Co-op.

RedTAP will implement a best-of-breed 802.11b/g solution based on open-standards and off-the-shelf components. This will help the WiFi co-op remain a low-cost solution universally affordable to most individuals. RedTAP plans to use a wireless mesh of LYNKSYS WRT54G routers running the DD-WRT firmware. The firmware is feature packed and supports the following:

- Access Restrictions
- Afterburner (AKA Speed booster)
- Chillispot
- Client Mode Wireless
- DNSMasq_as_DHCP_server
- Firewall
- Firewall Builder
- hotpot HTTP Redirect
- Using ipkg to install OpenWRT packages
- IPv6
- JFFS File System
- Kai Console Gaming
- NoCatSplash
- Port Forwarding
- PPTP Server Configuration
- HOW TO configure a WINDOWS BOX to make a VPN Connection to linksys
- Quality of Service (QoS)
- Samba File System
- Separate LAN and WLAN
- Setting up a Transparent Proxy Server using Squid
- SNMP
- SSH access from Internet
- Static DHCP
- Use switched ports outside the router
- Telnet/SSH and the Command Line
- Useful Scripts
- Vlan Configuration
- Use WAN port as a normal switched port

- WDS Linked router network
- Wireless Bridge
- Wake On Lan (WOL)

To ensure maximum coverage across the challenging terrain of San Francisco, RedTAP will deploy a JXTA-based mod on top of the DD-WRT platform to support self-healing networks and maximum redundancy and reliability. See References “DD-WRT” for more information on DD-WRT. See References “JXTA” for more information on JXTA.

OSS Support will be built on top of the Nagios/Splunk solution. This will give the RedTAP WiFi Co-op network ops team maximum visibility into issues and will ensure fast resolution of problems. See References “Nagios” for more information on the Nagios/Splunk solution.

Service Pricing

- Basic – FREE access will be provided on all City, State, and Federal property. Web-based and Co-op community-based support included.
- Premium - \$5/month gives co-op membership and access to the RedTAP WiFi Co-op network coverage areas in the city. Web-based and Co-op community-based support included. A 1-800 support line will be available 9-5, 7 days a week to reach technical support. After-hours support can be escalated to the co-op network management team.

Business Terms

To support the WiFi Co-op initiative, RedTAP asks for the City of San Francisco to work closely to support planning, zoning, and building requirements that will need to be met to deploy the wireless hardware. RedTAP seeks to work with City demographics experts to effectively build out its initial network in the primary population centers. RedTAP seeks \$25,000 in seed funding to support the deployment of the network and acquisition of required hardware. RedTAP will seek to operate the Wireless Cooperative independently of the City of San Francisco following the deployment of the network and will not seek future funding. RedTAP believes it can operate a profitable venture and should be able to expand using cash flow from operations of the wireless cooperative. RedTAP proposes to operate the network for no less than 5 years under contractual obligation to the City of San Francisco, with an option to renew for an additional five years. RedTAP believes the network will need to adapt to changing technology and network noise introduced on the 802.11b/g network. This may require additional investment over time and RedTAP is committed to deliver a high level of service and adapt to a changing environment.

Initiative 2 - RedTAP, a citywide network of fixed-broadband Community Access Centers

RedTAP envisions itself participating primarily in solutions for two major requirements proposed in the TechConnect RFC/I. For TechConnect's first stated goal: "Ensure universal, affordable wireless broadband access for all San Franciscans, especially low-income and disadvantaged residents", RedTAP will offer fixed-broadband access to low-income and low-tech residential consumers through its retail locations in San Francisco. Each store would provide the following technology services:

- Internet Access on 12 available Mac/Windows/Linux computers
- WiFi hotspot
- B/W Laser Printer
- Color Inkjet Printer
- Scanner
- VOIP Calling Services
- WebCams
- Complete software suites on each computer including an office productivity suite, web browsers (Firefox, Mozilla, IE), IM (MSN, AOL, Yahoo), Free VOIP client (Skype)
- One Mac computer will be set aside as a "premium graphic design workstation" and will provide a complete software suite for graphic design, which will include the Adobe , the Macromedia Studio Suite, and Quark
- Legal Music download
- Available on-site, bilingual technical support from the RedTAP customer service team
- Resume service (for English and Spanish speakers)
- Free email account
- Free web hosting for self publishing
- Free blog space for self publishing

RedTAP offers these services at a competitive price and low enough cost to attract consumers from all income levels. RedTAP already works with non-profits to offer Internet access at a subsidized price for consumers who cannot afford the services.

In addition to technology services, RedTAP will offer services targeting small businesses and micro businesses:

- Website hosting through partners
- E-commerce hosting through partners
- Craigslist & Ebay ad-placement for low-tech businesses and individuals
- Pay-per-email (RedTAP can send an email for you if you don't know how)
- FAX machine
- Copy machine
- Translation from Spanish->English and English->Spanish
- Graphic Design outsourcing for small projects: fliers, brochures, business cards, logos
- Search engine placement
- Document creation and maintenance (fee-based)

Business Terms

To support deployment of RedTAP's fixed broadband solution, RedTAP seeks seed

funding of \$70,000 per each new store location to allow RedTAP to expand its presence into neighborhoods throughout San Francisco. The City and RedTAP will negotiate on the seed funding available and the number of stores required to serve low income and technologically challenged communities. The proceeds for each store will go to costs associated with setting up a new store, including renovation, acquisition of low cost hardware, software, and any City-related planning and zoning expenses. RedTAP would also seek expedited support from the City through any zoning, planning, and building requirements. RedTAP strives to operate as an independent technology company and will not seek long-term funding from the City of San Francisco, though it recognizes that resources for expansion are an issue for a small business like itself. RedTAP proposes a 5 year term to build and operate a number of new RedTAP store locations as agreed to with the City of San Francisco. Beyond this term, RedTAP believes both the City and the company will have fulfilled its obligation to the contract and the community will continue to receive the on-going benefit of having RedTAP stores in the neighborhood.

Initiative 3 – RedTAP U, a free technology training outreach initiative aimed at raising the level of digital literacy of all San Francisco citizens

A key component to addressing the needs of low-income and tech-illiterate consumers is to offer training to customers to introduce technology and show them how to use technology effectively so they can participate in the information age. In partnership with local non-profit and government organizations, RedTAP will offer bilingual training for the following:

- Computers 101
- Internet 101
- Mac 101
- Windows 101
- Linux 101

RedTAP recognizes there are numerous non-profit and government organization already providing similar training opportunities. Rather than duplicate this effort, RedTAP will partner with one or more of these organizations to provide the training. RedTAP will make its space available a certain number of hours each month specifically for training and will offer it to its training partners. Where there is a gap in what the non-profit sector is doing, RedTAP can offer training in specific areas of need. RedTAP has already established itself as a trustworthy expert that customers don't feel intimidated by, and the positive image in the community can support outreach efforts. In some cases, it may be appropriate to charge a nominal fee to consumers in order to ensure services are fully utilized and not wasted.

RedTAP has the capacity to deliver training services in English, Spanish, French, Arabic, Hindi, and Russian.

Business Terms

RedTAP seeks to work closely with the Mayor's office and the City CTO/CIO to develop curriculum for this initiative. RedTAP would also like to consult with City demographic experts to define the languages used to deliver training. RedTAP will also seek a subsidy of \$10 per customer who receives training in one of the technology areas defined in RedTAP's solution. RedTAP believes the City should offer incentives for socially responsible business to target services toward tech-illiterate residents. RedTAP's efforts to train consumers with a basic level of required skills for the information age will go a long way in increasing the skills of individuals in San Francisco and will raise earning potential for these individuals. RedTAP would like the city to identify public venues available for free that can be used to host technology training activities. RedTAP will agree to a five year term to deliver technology training and will cover the basic set of skills agreed upon with the City of San Francisco. During this time RedTAP will continue a joint marketing effort with the City of San Francisco doing technology inclusion outreach. At the end of the term, RedTAP would like to turn over the role of technology training to partner non-profit organizations and will make its course material

freely available under open-source license.

Initiative 4 - Propose and develop an open-source standard, WiFi Services Meta data Framework (WSMF) to standardize WiFi service discovery and foster a community of WiFi service developers building services on top of the TechConnect network

RedTAP sees value in a widespread deployment of residential nomadic WiFi services. By widespread, the company sees the need by residential consumers as being able to have wireless access where they work, live, and play. We propose to form a wireless cooperative that is built and base-on community support. The business model is the following. Roll out a wireless mesh network where people live, work, and play. Target populations where large numbers of tech-savvy and white-collar information take residence. Offer a simple WiFi mesh that covers the area of residence, and the surrounding neighborhood. Users pay by month, a cost of around \$5-\$10 per month, and are granted access to the existing WiFi cooperative network. The network will be built using off-the-shelf WiFi Linksys routers, reflashed with firmware from SVEASOFT. These routers support very sophisticated features; including captive portals and wireless mesh networking. In order to build out the network, the cooperative planners will solicit customers to host WiFi routers in their home or work. Redundancy will be built into this process by selecting multiple hotspot “hosts” in the same area. In essence, it will be the participants in the cooperative who will build out the network, not the city and not any single vendor. RedTAP will provide the coordination, will take payment for services rendered, and will use part of the proceeds to support marketing efforts to expand the cooperative. Where RedTAP can’t adequately offer coverage in a particular neighborhood, the company will seek support from the city to offer permits for the company to setup outdoor WiFi routers and hook into city power, or set up solar panels to operate the routers. Residents outside of the cooperative coverage area will have the opportunity to petition the cooperative with a minimum number of required pledges to sign up for the service. Once this minimum threshold has been met, the cooperative will focus efforts on rolling out the service in the new service area. RedTAP sees the WiFi Cooperative as continuation of the San Francisco way of doing things. This approach allows the City of San Francisco to avoid playing the role of ISP and avoids conflict of interest caused by competing directly with ISPs and telcos, and enhances the opportunity for consumer choice. The consumer-driven development of the cooperative will allow the network to be built to serve the locations where customers work, live, and play. In the end, it should be the consumer that wins, and not just big business.

The final component to RedTAP's solution lies with WiFi services. There are currently a number of issues around the deployment and use of WiFi services:

- No way to verify the authenticity of a hotspot (who runs the hotspot?)
- No way to discover services available at a hotspot
- No way to lookup the rules or terms of use for a particular hotspot
- No way to find the exact location of a hotspot or its service area
- No way to central repository for hotspot meta data
- No services available beyond Internet access

RedTAP feels that current WiFi hotspots are essentially “naked” and don’t offer much value to the consumer beyond Internet access. RedTAP believes there is a huge

opportunity to foster development of services that target specific hotspots.

A hotspot service should be comprised of:

- An operator (who owns/runs the service)
- Certification (is the service owned/run by the entity that claims to be operating it)
- Service name
- Service Description
- Service delivery platforms (web, wap, etc.)
- Software Requirements
- Hardware Requirements
- Cost, if any
- Localization support available?
- User Interface (via web, custom client app)
- Supporting downloads (for latest client bits, for example)
- Physical Location (map, street address)
- Geo-spacial Location (GPS Coordinates)
- Internet Location (web address)

A WiFi hotspot, to be useful, should contain some minimum set of services. RedTAP would like to investigate what this minimum set of services should be and develop a standard with community input. Some examples of WiFi services might be:

- A captive portal operating inside of City Hall, listing all major services and agencies in City Hall, with an IM/presence service showing all City Hall employees
- A print-via-the web service available in the library, able to route print jobs to printers in the main branch of the library
- Music download portal available at Amoeba Records featuring tracks from local bands
- A Map Service at a city gas station that allows the user to print directions and pick them up inside the service station for \$0.50

Services can vary in scope and availability, but the key is that these are services that don't need to be or should not be hosted on the Internet, as they are only relevant to a particular hotspot. To develop a vibrant market for WiFi services, RedTAP proposes the development of the WiFi Services Meta data Framework (WSMF) as an open-source standard for allowing aggregation of hotspot information. RedTAP will propose the standard, manage the project via java.net, and will create Java APIs and a reference implementation. The WSMF will address the issues described above surrounding WiFi services deployment. RedTAP hopes to create an open standard for a server based on the WSMF, which will offer a minimum set of WiFi services available at every hotspot. With a vibrant market for WiFi services, San Francisco can lead the way in technology in a meaningful way that supports business, consumers, and government.

Business Terms

To support the development of the WiFi Services Meta data Framework, RedTAP seeks input from the City CIO/CTO and other participants in the solution. In exchange for developing the protocol and reference implementation, RedTAP asks the City of San

Francisco to include deployment of the WSMF in the final solution specification and require hotspots to utilize the WSMF as part of services offered. RedTAP will welcome offers by other solution participants to contribute engineering resources to the reference implementation of the WSMF. RedTAP seeks a five year commitment by the City to include the WSMF in its specification for TechConnect and that the City should commit to deploy an agreed-upon set of services using the WSMF. Beyond the five year term RedTAP believes there should be sufficient industry interest to ratify the WSMF as a W3C or IETF standard.

Initiative 5 - Launch the San Francisco Internet Broadcast Network (SFIBN), the nation's first 24-7, community-based, open-access Internet broadcast network, for delivery of unique and original video and audio content and government communication as a free service over the TechConnect network and on the Internet

San Francisco is to California what California is to the USA. San Francisco is the lifeblood of California. What we San Franciscans think and do sets the pace for the rest of the state. And so goes California, so goes the nation. The point should be clear. San Francisco is a leader for the rest of the nation. RedTAP would like for San Francisco to take the lead to push the boundaries for Internet broadcasting forward by helping to co-sponsor the development of the San Francisco Internet Broadcast Network (SFIBN). This network will operate and broadcast 24-7, pushing original content over the TechConnect network to citizens of San Francisco as well as over the Internet. At a time when big-media is increasingly trying to control content (see References - "Customary Historic Use"), prosecute artists (see References - "RIAA goes after mash-ups"), and consolidate media ownership, San Francisco can help innovators like RedTAP push open Internet broadcasting over the public Internet.

The SFIBN will have the following charter:

- Open Access by the community – The SFIBN will always provide a free forum for public discourse, government accountability, and access for political candidates
- Provide high-quality content to create a viable alternative to mainstream media
- Operate 24-7 – The Internet is 24-7 and for SFIBN to be viable, it must broadcast continuously
- Share – All content will be licensed under Creative Commons to provide a mix of royalty free and licensable content (see References - "Creative Commons")
- Support artists – The SFIBN will create a fund for production of original content developed by San Francisco-based talent
- San Francisco as the center for digital media – The SFIBN will actively promote San Francisco through online film festivals as THE center of digital media
- Targeted Content Channels – Kids Channel, Comedy Channel, Movie Channel, News Channel, Government Health Care Channel, etc.
- Co-development of content with the City of San Francisco – As part of the TechConnect initiative, the SFIBN will broadcast TechConnect Service News on a repeating loop as a primary communication mechanism between the providers of the TechConnect services and citizens of San Francisco. The SFIBN would also seek to work closely with the Mayor's office to hold weekly pod casts and open up additional broadcasting opportunities for City Hall

The long-term benefits for the City of San Francisco to back the SFIBN are the following:

- Ensure there is a primary communication channel regarding TechConnect and the citizens of San Francisco
- Increase the profile of San Francisco as a digital media hub
- Give San Francisco citizens a voice to communicate to The City and beyond
- Offer San Francisco residents a viable alternative to expensive cable media and satellite media services

- Offer the City of San Francisco the technical expertise needed to manage digital communication in the fast moving world of the Internet

Business Terms

RedTAP seeks cooperation from the City of San Francisco on jointly developing content. RedTAP would also like to receive 100 square feet of space in San Francisco to be set aside for building a public access Media Lab. RedTAP seeks a five year contract to will s the cost of equipment for the lab but would like the city to offer this space for up to five years. Beyond the five years, the City has the option to continue the partnership with the SFIBN through a new operating agreement.

References

1. **“Customary Historic Use”** - <http://arstechnica.com/news.ars/post/20060121-6025.html>
2. **“RIAA goes after mash-ups”** - http://viprhealthcare.typepad.com/mashup_of_the_week_podcas/2005/11/riaa_go_away.html
3. **“Creative Commons”** - <http://creativecommons.org/>
4. **“DD-WRT”** - [http://wrt-wiki.bsr-clan.de/index.php?title=DD-WRT_Docu_\(EN\)](http://wrt-wiki.bsr-clan.de/index.php?title=DD-WRT_Docu_(EN))
5. **“JXTA”** - <http://www.jxta.org>
6. **“Nagios”** - <http://www.nagios.org/about/>
7. **“Splunk”** - <http://www.splunk.com/>



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Appendix A – Standard Forms

Standard forms will be submitted on behalf of Razortooth Communications, LLC via USPS mail. Copies of the appropriate forms should be available via the associated government office, or by contacting Razortooth Communications, LLC and will be delivered upon request.



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Appendix B – Specifications Matrix

As explained in Section 3.2, Proposers shall complete the following matrix with respect to their proposals and shall provide the completed matrix in Volume 3 of their proposals. Please note that the descriptions provided in the Specification Summary column are only abbreviated summaries. In completing this matrix, Proposers should refer to the full statement of the specification in the applicable subsection of Section 2. The information provided in the Priority column is to assist Proposers in understanding the relative priority levels the City attaches to each specification. For each specification, Proposers shall identify whether their proposals are either fully compliant, partially compliant, or not compliant with the specification. The far right column provides an opportunity for Proposers to provide additional detail or comments.

Appendix B- Specifications Matrix

Razortooth Communications, LLC is proposing to build both a wireless network and the supporting eco-system required to support long-term digital inclusion initiatives required to bring all San Francisco citizens into the Information Age. Razortooth Communications, LLC proposes to operate a wireless cooperative under the RedTAP brand. This cooperative will act as a community-based service provider for Wireless Internet. The cooperative will operate as a federation of communities, each community with its own elected network operations personnel and leaders. Such an approach will encourage the development of affinity communities and will allow individuals to affiliate themselves with the TechConnect network through their neighborhood, their schools, or their community-civic organizations. The cooperative will be built on top of existing standards for 802.11b/g using best-of-breed open source technology and off-the-shelf wireless access points. Where outdoor access points are needed, access points will be placed in ruggedized casing to meet environmental operation requirements. The cooperative will manage growth and expansion to achieve coverage of 90% of the major population centers of San Francisco within five years. The key driver for the cooperative is to support responsible use of city funds by creating a network that meets the needs of residents, achieves the majors goals of TechConnect, with low deployment costs in terms of time and money. The choice to use off-the-shelf wireless access points was a financial one. A \$50 consumer router can be converted into a \$600 router using open-source firmware updates. RedTAP sees this as the equivalent of using cheap IU servers in a data center. If the equipment fails, it can readily be replaced for a nominal cost. Redundancy will be achieved using a special update to the DD-WRT firmware to incorporate JXTA technology to allow the network to self-heal. Where carrier-grade telco equipment is required, RedTAP will purchase this equipment as needed. RedTAP will operate its OSS on top of Nagios/Splunk. Further information on the RedTAP Wireless cooperative can be found in the Solution Detail in volume 3. FREE service will be provided on all City and Government owned property. Premium \$5/month service will be offered to cover user-members within the coverage area of the RedTAP WiFi Co-op.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.1(a)	Network designed, deployed, operated, maintained and upgraded at no cost to the City	HIGH	X			Added value services and Applications are provided by Rasortooth Communications, LLC doing business as RedTAP
2.1(b)	Network supports a free level of service ("Basic Service")	HIGH	X			Free services can be delivered to City owned properties, libraries, government building, schools and so forth through interconnected RedTAP and potential partners.
2.1(c)	Network supports various Premium Services as defined in Section 2.5	HIGH	X			Premium service are supported for urban districts where subscribers live and/or works
2.1(d)	Network supports Open Access for Premium Services	HIGH	X			Competitive prices will be offered.
2.1(e)	Network is operated in a neutral manner that ensures consumers are entitled to the benefits described in 2.1(e)	HIGH	X			No impedements to QoS will be introduced when the network is shared with roaming consumers coming from a competitor's network, and this company will operate ethically to allow competition to flourish.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.1(f)	Proposer compensates the City for the use of its assets	HIGH				N/A. TBD. If select, RedTAP will work with the City to ensure all government property is wired for FREE Internet access. RedTAP would like to negotiate for rent-free access to government land so that it can deliver FREE Internet service to users on government property.
2.2(a)	Proposer indicates an initial contract term, no less than five (5) years and no more than ten (10) years. Proposer indicates desired option periods. Total does not exceed eighteen (18) years	HIGH	X			Initial contract term for five years from the proposed network launch date, with an the city and the company having the option to renew the agreement for an additional five years.
2.3(a)	Wireless Internet access provided throughout the entire City and County of San Francisco.	HIGH		X		RedTAP will build community based network in addition to wiring city own properties focusing on major populated areas. The goal is to reach the 90% required coverage in 5 years through a co-op managed build-out.
2.3(b)	Outdoor coverage provided for Basic and Premium Services for a minimum of 95% of all areas of the City	HIGH		X		See comments in 2.3(a).
2.3(c)	Indoor, Perimeter Room coverage provided for Basic and Premium Services for the ground and second floors of a minimum of 90% of all buildings throughout the City	HIGH		X		See comments in 2.3(a).

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.3(d)	Indoor, Perimeter Room coverage provided for Basic and Premium Services above the second floor for 90% of all residential and commercial buildings throughout the City	MEDIUM		X		See comments in 2.3(c). Since the Co-op will be member operated, the impetus will be on members to ensure coverage for themselves and for the communities they represent.
2.3(e)	Indoor, Interior Room coverage provided for Basic and Premium Services for 90% of all buildings throughout the City	MEDIUM		X		See comments in 2.3(d).
2.4(a)	Network supports concurrent usage by residents, businesses, institutions, government agencies and anyone else in the City	HIGH	X			The co-op will work closely with City planners to ensure the QoS allocation meets city requirements to balance needs of residents, business, and government. Additional planning will need to take place to support emergency contingency planning to allow the Co-op to hand over control of access to the network to emergency responders if needed.
2.4(b)	Network supports the logical segmentation of different "domains" of users (e.g. secure access by City agency personnel, secure and/or open access for public users, residential users, business users)	HIGH	X			Yes. If selected, will work closely with the City to understand the requirements for segmentation and which domains are desired.
2.4(c)	Network supports the ability to prioritize traffic for municipal use in cases of emergency or as required by the City	HIGH	X			See comments 2.4 (d). RedTAP doesn't recommend the City plan to rely on unlicensed spectrum offered by 802.11b/g services to deliver emergency services. This should only be done as a last resort in a Katrina or 9/11 disaster type scenario.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.5(a)	Network Operator provides access to its wireless broadband Internet access transport services to multiple unaffiliated Service Providers	HIGH	X			Yes, competitor/operators will be allowe to use the network offered as part of the RedTAP WiFi Co-op. The City will need to set out contractual terms for ensuring the roaming agreements exist and are recipricoral between all service providers.
2.5(b)	When unauthenticated user is redirected to a Capture Portal on the Network, the user has option to choose between multiple Service Providers and service plans	HIGH	X			Yes, roaming between competitors will be allowed. Our captive portal will be able to authenticate users from other service providers. The City will need to set out contractual terms for ensuring the roaming agreements exist and are recipricoral between all service providers.
2.5(c)	Network supports unilateral, inbound roaming relationships	MEDIUM	X			See comments 2.5(a).
2.5(d)	Network supports unilateral, outbound roaming relationships	MEDIUM	X			See comments 2.5(a).
2.5(e)	Network Operator, and/or any Service Provider affiliated with the Network Operator, may also provide retail-branded Premium Services over the Network	MEDIUM	X			See comments 2.5(a).
2.6(a)	Network provides a Fixed Broadband Premium Service, supporting 802.11 b/g devices at a best-effort minimum 1 Mbps symmetric data transmission rate, a dynamic IP address and other Core ISP Services	HIGH	X			Network will utilize QoS management and SLA-backed Internet point-of-access to unsure best-effort 1Mbps service.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.6(b)	Network provides a Nomadic Broadband Premium Service, supporting 802.11 b/g devices at a best-effort minimum 1 Mbps symmetric data transmission rate, a dynamic IP address and other Core ISP Services	HIGH	X			See comments 2.6(a).
2.6(c)	Network provides a Portable Broadband Premium Service, supporting 802.11 b/g devices at a best-effort minimum 1 Mbps symmetric data transmission rate, a dynamic IP address and other Core ISP Services. Session-level connectivity maintained for in-motion subscribers at a minimum speed of 30 MPH	HIGH	X			See comments 2.6(a).
2.6(d)	Network provides a Fixed Broadband Premium Service at a guaranteed minimum 3 Mbps symmetric data transmission rate (e.g. a wireless T-1 alternative)	HIGH				Premium service users will receive best effort 3Mbps and OSS support systems will include network alarms to notify network management team if traffic drops below acceptable threshold.
2.6(e)	Network Operator allows Service Providers to provision Premium Services on a monthly, weekly and daily basis	MEDIUM	X			Yes, we will support provisioning of Premium Services on a monthly, weekly and daily basis

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.6(f)	Payment methods for all Premium Services include credit and debit card. Other methods exist for users who do not have the ability to pay with credit or debit cards (e.g. pre-paid vouchers, top-off cards)	HIGH	X			Yes, we will support credit card, debit, and paypal. Additionally, RedTAP, through its retail store locations, will allow cash payment for services. This is a huge plus for proponents of digital inclusion who want to serve constituents who do not have a credit card or debit card. We will explore new payment methods as they become available.
2.6(g)	Expected costs of any required CPE for each coverage Specification stated in Section 2.3 and who will be responsible for CPE costs during the provisioning process is provided	HIGH	X			Because of the organizational structure of the RedTAP WiFi Co-op, the co-op members will financially support the network build-out. RedTAP will own the cost of network operations, any core network equipment, and any costs associated with the provisioning of new service. This will be spelled out very clearly when new members sign up for service.
2.7(a)	Estimated rates are defined for any Premium Services to be marketed to Service Providers by the Network Operator, for all services in Section 2.6. Services and Provisioning. Rates, terms and conditions for Service Providers not affiliated with the Network Operator are as favorable as those provided to the Network Operator and any affiliated Service Providers	HIGH	X			Yes, the company will operate ethically and will not do anything to hinder contractual obligations required by the city or between service providers to inhibit competition. Rates for network sharing will be favourable and should not inhibit competition.
2.7(b)	Estimated rates are defined for any Premium Services to be marketed to the public by the Network Operator	HIGH	X			Yes, rate will be \$5 month. Cost is low enough that we don't need to offer daily rates or annual rates.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.8(a)	Network includes a wireless Access Tier that supports connectivity from 802.11b/g devices through the City	HIGH	X			We will standardize on 802.11b/g. Support for other technologies will be explored in the future.
2.8(b)	Network includes a fixed wireless point-to-multipoint solution as a Backhaul Tier for aggregating Wi-Fi traffic from the Access Tier	HIGH	X			Yes, we will use an SLA backed connection to deliver service over the WiFi network.
2.8(c)	Network includes a fixed wireless point-to-point solution, using licensed or leased spectrum, as a Distribution Tier for aggregating traffic from the Backhaul Tier back to an Internet POP	HIGH			X	No, the network topology will not be developed around use of licensed spectrum.
2.8(d)	Network traffic is aggregated back to a high-speed Internet backbone service at a POP, which supports layer-three network transit for Service Providers	HIGH	X			Yes, see comments 2.8(b).

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.8(e)	Network supports fault tolerance mechanisms to mitigate and/or eliminate single points of failure and ensure high reliability. Network support reliability levels of 99.9% for the Access Tier and 99.999% for the Backhaul Tier, Distribution Tier and POP	HIGH		X		Yes, we will use of custom self-healing technologies built on top of our wireless access points. This technology will use JXTA and we will build this capability into a custom version of DD-WRT. This will support a self-healing wireless mesh network. This will ensure maximum coverage and will support our efforts to work around San Francisco. OSS support will be layered on top of our network using a combination of SNMP, JMX, and Nagios/Splunk. The RedTAP WiFi Co-op won't be able to achieve 5 nines because it uses off-the-shelf network hardware to achieve cost efficiency. RedTAP will ensure that key parts of its core network are reliable and will build a contingency plan to enable a skeleton network to survive a catastrophic event like 9/11 or Katrina.
2.8(f)	Network is easily scaled and upgraded in a modular fashion to support additional subscribers, new applications and new requirements, in order to meet evolving user demands	HIGH	X			Within the limit of the 802.11 b/g standards.
2.8(g)	All outdoor network equipment complies with IP56/NEMA4 dust and water ingress ratings, withstands ambient temperature ranges of -40 C to +50 C and adheres to all other applicable local ordinances	HIGH				N/A. The RedTAP WiFi co-op will attempt to build out 90% of its network using indoor sites for placing access points.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.8(h)	Initial and/or future ability defined for solution to provide, integrate with, coexist with or complement 4.9 GHz wireless public safety technology that may be of value to the City's public safety agencies	HIGH		X		Will coexist with 4.9 Ghz wireless network providers. RedTAP is interested in working with other respondents to ensure that our network complement each other.
2.8(i)	Network supports backup power for all network equipment sufficient to ensure continuous operation during a loss of electrical power	MEDIUM		X		Backup power will be provided for critical Network Elements in each district with higher density areas and in emergency context.
2.9(a)	Tier 1 Support for Basic Access Service is provided by the Network Operator for issues related to connectivity problems and service interruption or degradation	HIGH	X			Core of the support come from elected engineers from the membership bodies of the WI-FI cooperative.
2.9(b)	Tier 1 Support for all Premium Services is required of all Service Providers	HIGH	X			Core of the support come from elected engineers from the membership bodies of the WI-FI cooperative.
2.9(c)	Tier 2 Support is provided by the Network Operator for all Service Providers	HIGH	X			Tier 2 support will be provided by the RedTAP network operations support team.
2.9(d)	Tier 3 Support shall be provided by the Network Operator for all Service Providers	HIGH	X			Tier 3 support will be provided by the RedTAP network operations support team.
2.10(a)	Physical security is provided for all critical network equipment components via secured facilities	HIGH	X			All sensitive equipment will be hosted in secure hosting facilities.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.10(b)	Mechanisms are provided to prevent or mitigate the risk of hackers, spammers, denial of service and other forms of malicious attacks on or through the network	HIGH	X			RedTAP will use firewalls, security best practices, and network OSS to prevent attacks, and then catch breaches when they occur.
2.10(c)	No client software that is specific to the Network Operator or Service Provider(s) is required on PCs, laptops or other mobile devices in order to use the network	MEDIUM	X			No client software will be required. No ad-ware or spy-ware will be used. Users will be free to access the Internet unhampered by ad-driven business models or pop-up-ads.
2.10(d)	Support for Media Access Control ("MAC") address filtering	MEDIUM	X			Standard per DD-WRT wireless access point firmware.
2.10(e)	Support for Wired Equivalent Privacy ("WEP") encryption, including both 64 and 128 bit keys	HIGH	X			Standard per DD-WRT wireless access point firmware.
2.10(f)	Support for Temporal Key Integrity Protocol ("TKIP") encryption	HIGH	X			Standard per DD-WRT wireless access point firmware.
2.10(g)	Support for Advanced Encryption Standard ("AES") encryption	HIGH	X			Standard per DD-WRT wireless access point firmware.
2.10(h)	Support for Wi-Fi Protected Access ("WPA")	HIGH	X			Standard per DD-WRT wireless access point firmware.
2.10(i)	Support for 802.1x authentication using Extensible Authentication Protocol ("EAP") and Remote Authentication Dial-In User Service ("RADIUS")	HIGH	X			Standard per DD-WRT wireless access point firmware.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.10(j)	Support for the suppression of Extended Service Set Identifier ("ESSID") broadcasts	HIGH				TBD
2.10(k)	Support for multiple ESSIDs and the ability to map ESSIDs individually to Virtual LANs ("VLANs")	HIGH				TBD
2.10(l)	Support for filtering of traffic based on Internet Protocol ("IP") addresses, subnets and Transmission Control Protocol ("TCP") ports	MEDIUM	X			Standard per DD-WRT wireless access point firmware.
2.10(m)	Support for VPN tunneling using Internet Protocol Security ("IPSec")	HIGH	X			Standard per DD-WRT wireless access point firmware.
2.10(n)	Support for encryption of all control and network management traffic	MEDIUM	X			Standard per DD-WRT wireless access point firmware.
2.11(a)	Proposers provide a copy of any and all privacy policies they will apply to users of any Basic and Premium Service provided by the Network Operator and any affiliated Service Providers.	HIGH	X			Available upon request. RedTAP will not share any private customer information, usage information, or demographic information of customers, to 3 rd parties not affiliated with RedTAP or the direct operation support of the RedTAP WiFi network.
2.11(b)	Proposers certify that each privacy policy complies with all applicable federal and state laws.	HIGH	X			Yes, privacy policy will comply with state, local, and federal regulations, in addition to complying with the common-sense ethics.
2.11(c)	Proposers identify how each policy is communicated to users on the Network and how users' acceptance of the policy is obtained	HIGH	X			Privacy policies will be distributed electronically during network access in the capture portal, as well as being made available online.

Spec. No.	Specification Summary	Priority	Fully Compliant	Partially Compliant	Not Compliant	Detail and/or Comments
2.11(d)	Proposers explain any privacy policy that it requires for unaffiliated Service Providers	HIGH				N/A – RedTAP will not share private information with unaffiliated third parties service providers
2.12(a)	Proposal elaborates on how solution supports digital inclusion goals.	HIGH	X			Please review Solution Description in Volume 3. RedTAP very clearly calls out digital inclusion initiatives for: <ul style="list-style-type: none"> • essential technology skills training • community broadcasting • low-cost community-operated WiFi Co-op • low-cost fixed access Internet through community-based technology centers
2.12(b)	Proposal identifies assumed roles of the City in its approach.	HIGH	X			RedTAP clearly sees the city as a partner. RedTAP is taking the approach that it can and will pursue its initiatives described in the Solution Description Volume 3 with or without the City. Any solution proposed should be able to survive with or without the City's financial support.



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Appendix C – Agreement for Professional Services (Form P-500)

The Agreement for Professional Services follows the standard form provided in the RFP. In an effort to conserve paper, a copy of this form will be made available upon request.