Broadband USA Applications Database

Applicant Name: Cambridge Housing Authority

Project Title: CHA Sustainable Broadband

Project Type: Sustainable Adoption

_____Executive Summary_____

The Cambridge Housing Authority (CHA) houses low-income population in Cambridge, Massachusetts. Comprising nearly 10% of the city's population, the CHA's largely minority and immigrant households have been targeted for this project. About 30% of CHA's households have less than a high school education. Most residents lack the sophistication needed for maintaining a home computer.

Most low-income public housing residents (62%) at CHA do not have any type of Internet connection at their residences and not all of those that have Internet have Broadband connections. CHA's long-term goal is to provide all of its vulnerable underserved residents Broadband coverage without any charge within the first 3 years. In addition, CHA will provide a highly innovative low-cost "virtual computer" connected via a thin terminal at each residence and centrally managed and hosted using cloud computing infrastructure.

This long-term goal stems from a successful pilot program Cambridge Community Television (CCTV) headed with the City of Cambridge's IT department assistance to provide Wi-Fi to residents of one of CHA's developments (268 units). During this first round of BTOP funding, CHA would like to focus on three developments (576 units with 1,210 residents) as the second phase of this project. In the second round of funding CHA is hoping to expand this project to all 18 large public housing developments. By providing Broadband coverage, CHA strongly believes that its residents will benefit tremendously. These benefits are discussed in the Project Purpose (Q08) section. This project will create about 4 full time jobs via the Broadband implementation and training process. Both Cambridge Community Learning Center and CCTV is planning on hiring several part-time employees to assist in their training program that will be equivalent to 1 full time employee (FTE). CHA will hire one FTE to manage and trouble-shoot its Broadband Network and another to maintain its virtual servers.

Thin terminals: These devices optimize desktop expenditures, provide each household member to access their own secured "virtual" computer while only having one thin terminal in each household. Thus, each member of the household will have an age appropriate and personalized "virtual desktop". These desktops will be accessible not only from the thin client at home, but also from other computers at the school, library, community centers and from multiple houses of children in split families. These terminals will be centrally administered and kept up-to-date, thus increasing their availability and usefulness. These virtual terminals will be centrally hosted in a cloud computing framework based on VMWare ESX Servers that are able to load balance its space based on their memory utilization. A dedicated IT manager will be hired to manage these servers through its Computer Centers. This will

enable CHA to maintain, trouble-shoot, upgrade software and secure its network through one central location instead of having to go to each household. The VMware View software provides the ability to manage and upgrade large number of virtual desktops with minimum system administration overhead. Comparing to providing a desktop computer for each household, in addition to the savings in system adminstration,the energy savings per year would be 297,594kWatt hours and the carbon savings will be 491 Lbs tons per tree per year. The total cost of this equipment for phase 2 amounts to $1,209,090 ($671.72 per thin terminal). Compared to deploying desktop computers ($1,083 per desktop) thin terminals will be provide a saving of $740,881($411.60 per desktop). CHA is currently working on negotiating in-kind matches (donations) from VMWare, Inc. to further reduce the costs. VMware corporate executives (including the CTO of the Desktop Business Unit) are interested in working closely with CHA as we are exploring a novel use for managed desktops. To best of our knowledge such a solution has never been used to serve low income communities.

Broadband access: CHA is currently considering 3 vendors that offer different types of equipment to deploy the wireless network.

Vendor	Equip. Cost($)	Operating Cost ($) per year	Cost per resident per year($)
OpenAir Boston	78,442	8,995	24.09
Anaptyx	117,324	3,564	35.41
GreenPages	350,133	Not provided	96.50

Each has its own advantage. OpenAir Boston is a non-profit organization created by several volunteers with a mission to provide wireless services to underserved communities in the Boston area using OpenMesh equipment. Anaptyx uses Meraki equipment that provides wireless services. City of Cambridge utilized Meraki equipment and employed Anaptyx in deploying the CHA's first pilot program. GreenPages is currently managing CHA's internal office network and uses Aruba equipment to provide wireless services. Aruba is used worldwide by most commercial enterprises. CHA is working on obtaining in-kind matches through Aruba. After obtaining the optimum matches in-kind or through cash and considering the technology and experience CHA will determine which vendor is most viable. A dedicated Network Manger will be hired by the CHA Computer Center to manage the network. The total cost per resident per year for the entire service is $472.85. The Broadband connect alone only costs $35.41 per year per resident. However, without providing the thin terminals our residents will not be able to take advantage of the broadband services.

Based on the above plan CHA hopes to stimulate the economy through deploying Broadband access that will facilitate education, awareness, training, access, equipment and/or support in CHA's underserved vulnerable low-income population. At the end of the 3 years, CHA hopes to provide its households a rental discount to continue to pay for this service.