

## APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2016.** Please include this application form with electronic entry.

### PROGRAM INFORMATION

County: York County

Program Title: Digital Mobility for Seniors

Program Category: Information Technology

### CONTACT INFORMATION

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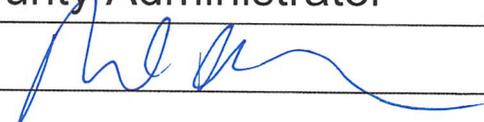
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### SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: Neil Morgan

Title: County Administrator

Signature: 

# Digital Mobility for Seniors

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## **OVERVIEW**

Senior citizens in York County have long relied upon the local senior center to join friends in traditional activities such as crafts, group exercise classes, special interest activities, and special events. However, our seniors live in today's modern technological world and want to actively embrace it. In an effort to support our elderly digital citizens, York County has launched an extremely successful "Bring Your Own Device" initiative at the Senior Center of York. Although it is seemingly an unusual location, Wi-Fi support now allows our seniors to explore the internet and complete tasks such as submitting their taxes online or performing genealogical research while visiting the Center. Without the use of technology, these same tasks could take hours instead of minutes. Our senior citizens embrace an active, challenging lifestyle of constantly learning and participating in their community. Instead of being limited to using shared computers in the computer lab, they now have the freedom to utilize any device they are comfortable using.

## SUMMARY

York County's Senior Center has long been a community facility where seniors can join friends in exercise classes, line dancing, painting, drawing, quilting, and sewing, as well as special interest activities such as bridge, canasta, and Mah Jongg. Seniors also enjoy a variety of cultural and health-related programs, monthly birthday parties, and many other special events. As technology has become a part of everyday life for the average citizen, the need for online services for email, education, and research have become apparent at the Senior Center. The Center had a computer classroom with stationary PCs which served this need for many years; however, many of the citizens now have tablets and other wireless devices they would like to use when they visit the Senior Center. In addition, several of the programs that the center wanted to host, like the mobile tax assistance program to file tax returns, required wireless internet access. Much like other demographic groups, our senior citizens have increasingly incorporated technology into their everyday lives. Without Wi-Fi support, seniors were limited to spending their computer time in the Center's computer lab, either for ongoing classes or during the week for their own personal use. With Wi-Fi support, seniors are now able to spend time online anywhere in the Center using their own familiar devices.

## SOLUTION

The Senior Center of York strives to be a community center for senior citizens where they can partake in social activities, and can enjoy assistance and education with many services. The primary redesign of the Senior Center network began in the fall of 2015 and was implemented during the first two months of 2016.

In order to bring the Senior Center into the modern age of technology and implement a BYOD solution, there needed to be an increase in the available bandwidth at the Center. Formerly, the Senior Center had an ultra-secure, two megabytes per second (2Mbps) coaxial connection that was being fully

utilized. The limited amount of bandwidth led to complaints of slow internet speeds and poor quality in the sound of the VoIP phone system. This also meant that IT personnel would occasionally be dispatched to the Center for issues that ended up being related to the limited amount of bandwidth available.

Funding constraints removed the option of just increasing the bandwidth of our existing circuit. One of the challenges faced when upgrading the bandwidth of the network was to ensure the quality of service (QoS) to the VoIP phone system. Quality of service allows the prioritization of certain network traffic (data, video streaming, phone, etc.) over other network traffic to provide reliable communication with no decrease in the quality of the traffic being prioritized.

York County looked into upgrading to a higher bandwidth circuit. The next available circuit that ensured quality of service was a fiber optic connection. Installing fiber would cost the county a one-time fee between \$2,000 and \$5,000. The fiber solution would also cost a monthly fee of approximately \$610, amounting to \$7,320 a year, which was not a viable option.

An alternative solution was to purchase a 15Mbps/s cable internet business connection to use for internet traffic, while keeping the existing 2Mbps/s (QoS) circuit for our secure VoIP phone and computer system. This solution would cost the county \$95 a month for a business circuit, a \$100 installation fee, and \$260 a month for the existing circuit. This option came to an annual cost of \$4,260. And so, the annual cost of this solution versus the fiber optic solution would save the county approximately \$3,060 dollars each year.

In order to keep maintenance costs low and maximize uptime, the network needed a robust security solution and the ability for every aspect to be maintained remotely. The first layer of security is an access control list on the business circuit, which only allows York County government IT computers to remotely manage it. The outside world only sees the Senior Center as one static IP address. Having only one IP to connect to for remotely managing devices can be a problem. A second security layer was

added to address this issue, called “port forwarding,” to remotely manage the devices at the Center. Port forwarding allows you to specify a port with the external address allowing you to connect to multiple devices through the same external IP address, each one simply being a different port. Port forwarding was implemented by using non-default management ports to access the devices remotely. Doing this makes it harder for potential hackers to identify which service is using an open port, resulting in improved security.

Virtual Local Area Networks (VLANs) were also implemented, which add a third layer of security by separating the internet traffic from the rest of the Senior Center and York County networks. This had the added benefit of allowing all networks to use the same physical switch and avoid additional hardware costs. Firewalls were also implemented and configured on the workstations to add a third layer of security for the Center’s communal PCs to block any malicious traffic from compromising the Center’s lab computers.

Finally, a solution for a self-sustaining network was implemented with the use of a power controller, which constantly monitors the connection to the internet. The power controller will reboot the router if it cannot reach the internet for 5 minutes. Similar to a home internet connection, most of the service outages can simply be resolved by restarting the local router. The implementation of this device frees up staff from having to drive out to a remote site for easy fixes to reboot the router, reducing downtime as well as saving time and money for the County.

The increased bandwidth on the Senior Center’s internet allowed us to implement Wi-Fi. The addition of Wi-Fi has had a profound impact on the services provided by the Center. Whereas before, the Center relied only on its small lab of 10 workstations for training or surfing the web, there is now expanded internet access that enables patrons to use their personal devices to access the internet throughout the entire facility. This will no doubt have the ripple effect of encouraging others to buy their own devices

as they observe their friends at the Center now using them and see how useful smart phones, tablets, and laptops can be. Furthermore, Wi-Fi has been a huge help to the free tax assistance program offered at the Senior Center because of its convenience, reliability, and efficiency in assisting the tax representatives to better prepare, file, and complete patron tax paperwork.

The efficiency of computer service has been greatly increased at the Senior Center as well. The longtime computer instructor in the Center's lab is ecstatic over the marked difference in speed now enjoyed by senior patrons enrolled in computer classes there. And finally, the vital issue of security has also been addressed and vastly improved through this initiative at the Center.

## **COST**

The cost of implementing a Bring Your Own Device initiative, which often includes Mobile Device Management (MDM) and many other traditional security systems, can often be extremely expensive. York County's approach at its Senior Center of York allowed a low cost solution by modifying existing equipment and circuits, while still providing top rate security through creative implementation. The cost for the new circuit added a yearly \$1,140 fee, which is almost one-third of the existing circuit and provides seniors seven times the speed dedicated to them. While the power controller costs around \$150, the County had an existing unit from a prior project that was able to be used at no cost. Industry best practice is to reboot a cable router once a month, which equates to dozens of high-cost IT man-hours a year. In addition, this resolves most Internet Service Provider (ISP) firmware updates that result in the system being unusable until it is rebooted. The implementation of VLANs over separate physical switches saved an additional one-time cost of \$1,745 plus yearly maintenance.

## RESULTS

The effect this initiative has had on York County's Senior Center in only two months has been tremendous. The Senior Center's staff members and computer lab students now enjoy improved efficiency through the dramatic increase in internet speed available to them. In addition, seniors now enjoy a high quality and reliable VoIP phone system and new and improved services at the Center that were not possible on the old network.

New services that rely on this open wireless connection are being provided at the Center, such as a mobile tax company that helps seniors fill out tax returns and submits them electronically while on site. Another program is Hunt for History, where patrons collaborate with the Yorktown Historical Society in pursuing their genealogy, family history, and military records. However, the biggest difference is that many seniors have enthusiastically embraced the Bring Your Own Device concept by bringing their own tablets and smartphones rather than using the provided standard PCs. They no longer have to learn computer concepts in a static lab environment and then try to implement them on their devices at home. They can simply bring in their own tablets, laptops, and smartphones running whatever operating system they want, in order to learn on the device they feel most comfortable using.

This was also done with a minimal budget and without sacrificing the security of the Senior Center's or York County's network. The self-reliant solution that was implemented at the Center allows the network to fix itself for common issues without the need for IT staff to be called and sent out to reboot a router. Before the network redesign, there were complaints about slow internet speeds and poor phone quality. Since the redesign has been in place, there have been zero complaints from the Senior Center's staff or seniors relating to the network or phone system.

## WORTHINESS

All too often, completely redesigning a network with a limited budget leads to cutting corners in order to meet the end goal. York County was not only able to redesign an old network with limited funds, but it was also able to accomplish the task without cutting corners. The new network is more secure than the original, while also providing a better quality internet experience for our seniors and staff members, both in the often-used Computer Lab and with the increase in the use of personal devices. The new design is also saving York County money by being a self-reliant network, reducing the County man hours spent driving to the location for simple fixes such as rebooting a router. The redesign has increased the quality and number of services that the Senior Center will now be able to provide to its senior patrons, all while working within a limited budget. We feel that this innovative solution to the York County Senior Center's digital mobility needs can serve as model for other local governments as they strive to meet the needs of their own constituents.