Information Technology Strategic Plan

06/01/2022
City of Tamarac
Information Technology Department

TAMARAC
The City For Your Life

Table of Contents

Introduction

The Information Technology Department is a strategic partner with all City Departments in the provision of high quality services to the citizens of Tamarac. In accordance with the City's Strategic Plan, we are committed to the best and efficient use of technology in support of the City's Vision, Mission and Strategic Goals.

Purpose

The purpose of the Information Technology Strategic Plan is to detail the City's plans for technology initiatives and funding needs for the next ten (10) years. Furthermore, it depicts how tightly technology is integrated into the work environment and provides direction for future replacements and improvements to continually enhance the services provided to the public.

Organization of the IT Strategic Plan

The Information Technology Strategic Plan is organized into the following sections: Operations, Hardware, Software, Vehicles and Funding Needs and Projections.

The Operations section provides information regarding the day-to-day operating expenses of the Information Technology Department. This section includes personnel, equipment and supplies and service contract information.

The Hardware section provides information relating to on-going technology replacement needs, including capital and non-capital items, along with future projects and initiatives. It includes a description of the technology currently in use, expected useful life of the equipment and the next expected replacement cycle, along with the projected cost of replacement.

The Software section provides information relating to on-going software replacements, including planned projects and purchases. Software maintenance contracts are excluded from this section, and instead further detailed in the Operations Section.

The Vehicles section details the planned replacement schedule for transportation used by the Information Technology Department for service calls, deliveries, etc….

The Funding Needs and Projections section details the costs of future initiatives and replacements, and depicts the funding needs of the Information Technology Department over the next ten (10) years.

Environment

Currently operating and maintaining one of the most modern municipal technology environments, the Information Technology Department supports user workstations, servers, AS/400 systems, municipal applications and a large variety of client-server software. It is the responsibility of the Information Technology Department to provide high quality, modern technology services to City departments, ultimately enhancing the quality of services to the public.

Major Technology

The City's technology is built around a private, wide area fiber optic network; VoIP-based telephone system; virtualized server environment; central storage area network (SAN); email system; municipal ERP software package; SCADA system and Geographic Information System (GIS). A fiber optic network is utilized to provide high-speed network connectivity to City facilities, allowing the City to take advantage of and utilize cost saving technologies.

Major Equipment

Behind the technology lies a large array of equipment and critical infrastructure. The Information Technology Department has engineered its network to use state-of-the-art Cisco switches, routers and firewalls, all connected by the City's fiber optic network, to effectively direct network traffic. A wireless system complements the fiber optic network and provides high-speed network access to remote City facilities that are not accessible by fiber optics. The City also uses an 800 MHz radio system to provide field communications as well as connection to over one hundred (100) locations in the City's SCADA system network. All equipment and operations are monitored from a Network Operations Center (NOC).

Future of Technology

The Information Technology Department performs an Environmental Scan on an annual basis. This involves considering the factors that will influence the direction and goals of the organization. It also includes consideration of both present and future factors that might affect the organization. An Environmental Scan helps to develop an understanding of the internal and external environment needed to determine whether the business needs of the organization are in sync with the availability and competency of the workforce.

The following outlines the future trends in technology while examining how the City currently operates, and the future direction it should take.

ERP Systems

Enterprise Resource Planning (ERP) Applications, such as accounting, payroll and human resources have been and will continue to be the core of information technology services.

Planned transition to next generation ERP systems will present major challenges in user training, user acceptance, data migration, service delivery and maintaining/supporting multiple systems/technologies for the next five years and beyond.

This is a natural course of such major changes and the organization must be prepared appropriately.

Similar efforts are already in place in neighboring communities and the transition experience is as described.

Cloud Computing

Hosting of software on vendors facilities that can be accessed from anywhere over an Internet connection. This model has become very popular as more and more systems became available in the Cloud.

The City is already taking advantage of offerings with the hosted website, cloud-based data backups / recovery, Microsoft Office 365, performance management system, hosted software applications such its online bids and tenders system, online recruitment system, etc….

There is great interest in this arena, with the adoption and migration fast increasing in recent years.

To build the Town of Southwest Ranches' systems in the cloud was a great experience for us that will help guide us moving forward.

Virtual City Hall / Citizen Portal

Considering the City's web site as a Virtual City Hall where all walk-in services are also available on-line have been the trademarks of progressive communities.

Personalization of Internet and Intranet sites into custom personalized portals has been gaining significant ground. The City's website now offers personalization where users can customize the content they see.

As more of the Internet traffic is now originating from mobile devices, presenting the website in the device appropriate formats has been critical.

In this regard, we have developed a new website and a new truly mobile app for Apple IOS and Google Android devices.

Smart City Initiatives

As the City constructs (or re-constructs) new facilities, the technology employed is a key and central focus. For example, in the recent construction of new fire stations, there are many devices that are now connected to the network (for remote control and monitoring), such as Fire Alerting Systems, HVAC systems, SCBA systems, Exhaust Control Systems, Generators, Fuel Tanks, etc…. The building is outfitted with network-based video surveillance and access control (via card reader) for almost every door, and uses video intercom systems at gates and entrances which utilize the City's VoIP telephone system. The City's "Smart Parks" are connected via high speed fiber connections, have full and reliable WiFi coverage, full video surveillance and access control (to all doors), remote control (over the network) of lighting and electrical outlets, smart irrigation systems, etc…. The City is dramatically embracing the IoT concept enabling efficiencies in many areas. Most recently, the City has been discussing "smart" technologies for use in water meter reading, water service, centralized HVAC and lighting control, street lights and sports lighting…and most interestingly "presence" detection so to help "count" usage of certain facilities and rooms, and to automatically turn/on lights when in use.

Field / Tablet / Portable Computing

Microsoft Windows 10 has brought the touch screen environment to business computing that resulted in a major change in the hardware specs. When our desktop/laptop leases expired in 2015 and 2016, we made a transition to a hybrid environment where most of the end users are now equipped with touch based devices with docking stations serving as desktops and mobile devices at the same time.

24/7 Customer Service

24/7 Customer service, on-line or live, is now expected for most reputable businesses, and customers will expect the same level of service from governments.

Call centers (central or distributed) equipped with the appropriate technologies in servicing customer needs are now expected more than a luxury.

Social Networking

Social networking of text, video and audio kind now has a prominent place in the business environment. Most local governments have been slower to adopt due to public records and retention requirements and staffing challenges.

Now that some of these issues have been resolved, even the smaller communities are utilizing such technologies for customer engagement, disseminating information and gathering feedback on a variety of issues.

Increased Disaster Recovery / Security Efforts

As threats on the security of personal information increase, a higher emphasis on disaster recovery, business continuity and data integrity is being placed.

Best practices are deployed in the City of Tamarac for infrastructure protection. This is an area that gets challenged on a daily basis. Further technology enhancements were made in 2017/2018 with the full move to cloud-based backups / recovery using Microsoft Data Protection Manager (DPM) and Microsoft Azure Gov.

Operations

Personnel Expenses

The Information Technology Department is currently comprised of nine (9) full-time staff members – five (5) of which are classified as Managerial/Professional Employees and three (3) of which are classified as General Employees.

Personnel Expenses depicts the overall staffing costs, including salary, overtime, payroll expenses, taxes, employee benefits, employee pensions and insurance costs. Given the continued introduction of and reliance on new technology, the staffing level is expected to increase over the next five (5) to ten (10) years. Furthermore, past experience has shown that personnel costs can be expected to increase by four (4) to ten (10) percent each year.

Operating Expenses

The Operating Expenses depict the ongoing costs for the Information Technology Department. Office expenses and computer parts are among the items included in Operating Expenses. In addition, items such as Internet access, telephone service, wireless phone service and pager service are also included.

Although minimal, Operating Expenses have generally increased over the years. The included projections show an approximate 3% increase per year on average.

Service and Maintenance Contracts

Software maintenance contracts provide for the ongoing support and maintenance of software packages. This includes the rights to future software enhancements or upgrades as well as technical support services. The City maintains maintenance contracts for the majority of its software in order to provide employees with the latest technology available, and also to obtain access to software technical support services when needed.

Hardware

Network

In the FY2015 fiscal year, the City replacing its entire network and telephone infrastructure, including all switches and routers, with new equipment from Cisco Systems. The network infrastructure is expected to have a useful life of ten (10) to fifteen (15) years, at such time when the equipment may begin to malfunction, or when newer, faster, and more efficient network equipment may become available.

Switches

Each City facility uses one or more network switches to provide basic network connectivity for servers, user workstations, printers, etc… to the Local Area Network (LAN) and to the WAN. Each network switch provides either eight (8), twenty-four (24) or forty-eight (48) network ports capable of operating at speeds of 10 Mbps, 100 Mbps and 1 Gbps. In addition, each network switch also supports one (1), two (2) or four (4) small form-factor pluggable + (SFP+) ports, in addition, which allow for the use of 10 Gbps single-mode fiber, 10 Gbps multi-mode fiber, or 10 Gbps Ethernet port modules. These modules are used to provide network connectivity to the fiber WAN, and also at times, are used to provide faster network connections for servers or other equipment when necessary.

The core of the network is located in the Network Operations Center (NOC). Currently, a Cisco Nexus 9372 and Cisco Nexus 3408 high performance, highly redundant switches are used to provide Layer 3 network routing services and high-speed connections to all servers. The switches feature redundant power supplies, redundant processors and supervisor modules, multiple 40 Gbps and 10 Gbps connections to all virtual environment hosts and servers to support all equipment located at the NOC. As the core switches will be designated End of Life by Cisco in July 2025, continued technical support and hardware replacement(s) will be unavailable thereafter. As such, and given its importance, the core network switch will be replaced during the FY2025 fiscal year.

The City currently uses Cisco's Catalyst line of switches consistently throughout its facilities for network access by users and other nodes. The primary Layer 3 switches provide Layer 3 network routing services and high-speed connections to Layer 2 switches and servers, and downstream access switches provide Layer 2 functionality. The switches provide for the ability to apply software upgrades as new features become available and also allow for ease of upgrade through inter-changeable SFP+ modules. The majority of the access switches will be designated End of Life by Cisco in July 2025; however, given their lesser importance, lower cost and the ease of obtaining replacements or refurbished products, they will not be replaced in FY2025. Based on

their expected useful life, all switching infrastructure (not including the core switch) will be replaced in the FY2025 fiscal year or thereafter.

Routers

As part of the last network upgrade / replacement, the City was able to eliminate many of the Plain Old Telephone Service (POTS) lines and Centrex telephone lines by transitioning to Primary Rate Interface (PRI) connections, realizing substantial cost savings. The City currently utilizes a Cisco Unified Communications System (Unified Communications Manager – previously called CallManager – , Unity Connection and Contact Center Express) to provide telephony services. Internal telephone calls traverse the City's data network using the switching infrastructure. To merge and transition telephone traffic from the internal data network to the outside Public Switched Telephone Network (PSTN), core routers and gateway routers are used.

Core routers provide for the interconnection of the phone system to the PSTN. The City utilizes three (3) standard Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) connections to send and receive telephone calls to and from the PSTN. The PRI connections exist in the core routers.

The City also has connected standard telephone lines (Centrex lines) to gateway routers using FXO cards, which provide for Survivable Remote Site Telephony (SRST). The gateway routers provide local connections for 911 calls (in order to correctly transmit phone and address information to the Public Safety Answering Point (PSAP)) and also act as a backup connection to the outside PSTN should failure of the network or PRIs occur.

In addition, both the core routers and the gateway routers contain FXS cards which allow for standard, analog phones or devices to connect and use the Voice Over Internet Protocol (VoIP) data network for placing and receiving telephone calls. This is primarily used for fax devices.

Lastly, a Layer 3 Cisco switch (for routing purposes) is used to connect the City's data network to the Motorola Canopy Wireless System and to the Motorola Radio System. The Canopy Wireless System provides wireless connectivity between City facilities and remote locations, and also provides backup network connectivity should connections through the primary fiber WAN fail.

The City currently uses Cisco-branded routers consistently throughout its facilities. These routers provide for the ability to apply software upgrades as new features become available and also allow for ease of upgrade through inter-changeable modules and slots.

As the core routers will be designated End of Life by Cisco in July 2016, continued technical support and hardware replacement(s) will be unavailable thereafter. As such, and given their importance, the core routers will be replaced during the FY2015 fiscal year.

The majority of the gateway routers will be designated End of Life by Cisco in July 2016; however, given their lesser importance, lower cost and the ease of obtaining replacements or refurbished products, they will not be replaced in FY2015. Based on their expected useful life, all routing infrastructure (not including the core routers) will be replaced in the FY2019 fiscal year.

Firewalls

A firewall is a device that is designed to block unauthorized access while permitting authorized communications. Most commonly, it is used to prevent unauthorized users (hackers) outside of the organization from accessing an organization's internal network over the Internet. It is normally placed between a protected network (i.e. the organization's private, internal network) and an unprotected network (i.e. the public Internet) and acts like a gate to protect assets, ensuring that nothing private goes out and nothing malicious comes in.

The City uses multiple firewalls to filter traffic between networks. The City's primary firewall sits between the internal network and the public Internet. It protects the City's computer systems from malicious hackers which would otherwise try to harm or cause damage to the City's information systems.

In various facilities such as the Recreation Center and Community Center, the City provides the public with Internet access either in computer rooms or via a wireless network. The City also maintains a firewall between the internal network and the aforementioned public Internet network. This secondary firewall protects the City's internal computer systems from any malicious intent by users on the public Internet network.

The City also maintains a private leased connection to Broward County. This connection allows the City to access services such as CAD, Fire reporting applications, etc…, which are provided by the County. Both the City and the County maintain firewalls at each end of the connection, which serve to protect their networks from unauthorized access and harm in both directions.

Lastly, the City has enabled a direct network connection to Broward County through the BSO District Office in Tamarac, in order to provide BSO officers with network access to security cameras in the City's parks. Both the City and the County maintain firewalls at each end of the connection, which serve to protect their networks from unauthorized access and harm in both directions.

In June 2015, the City replaced its primary firewall with a Cisco Adaptive Security Appliance (ASA), which provides both firewall capabilities and an intrusion protection system (IPS). The expected useful life of this appliance is seven (7) to ten (10) years. Advancements in perimeter and intrusion protection technologies and increases in Internet access speeds will determine the replacement timeline for this equipment. Much advancement continues to be made and is necessary in the fight to protect proprietary networks. In addition, the speed at which Internet access is available continues to leapfrog each year, and with that, Internet firewalls must be upgraded to take advantage of such increases. The City's primary firewall is planned for replacement during the FY2022 fiscal year; however, replacement may be advanced or delayed depending on available technologies.

In September 2009, a new Cisco ASA firewall was purchased to be used with the City's leased line connection to BSO, and in December 2010, a new Cisco ASA firewall was purchased to be used with the City's connection to Broward County. The firewall's expected useful life is seven (7) to ten (10) years. This firewall is planned for replacement during the FY2019 fiscal year; however, replacement may be advanced or delayed depending on available technologies.

In October 2016, the City replaced the firewall used for the public Internet network, with a Palo Alto virtual firewall appliance. This firewall is used to separate the internal network from the public Internet network. The next planned replacement will be during the FY2023 fiscal year; however, replacement may be advanced or delayed depending on available technologies.

Fiber Wide Area Network

As part of its original Franchise Agreement with Continental Cable, later with Comcast through its purchase of Continental Cable, the City has been provided with a fiber Wide Area Network (WAN) as part of the i-Net initiative at no cost. This fiber WAN provides all City facilities with high-speed network connectivity, and until recently, has provided large cost savings for the City.

In March 2009, the City's Franchise Agreement with Comcast expired, and was then transitioned to the State of Florida. This raised concerns for the future and potential costs of maintaining the service.

The fiber WAN is the most critical piece of the City's network infrastructure. Similar services from commercial telecom service providers would cost upwards of $300,000 or more per year.

In order to plan for the City's future needs and growth, a private, underground fiber Wide Area Network (WAN), owned and operated by the City, is planned for installation.

This will help the City avoid unplanned future recurring costs for such services and will also allow for a fault tolerant and better protected WAN.

The City's current fiber WAN, provided by Comcast, is located above ground with the fiber cables hanging on telephone poles. During hurricanes or other events, the fiber network cables are prone to breaking and causing network outages. By building a fiber WAN underground, the City would avoid such situations, allowing it to continue to provide necessary services at all times.

It should be noted that a fiber network provides for an excellent potential for growth. Should the speed of the network ever need to increase, it is easily upgradeable simply by replacing the lasers at each end of the cables which transmit the data via light.

A private, underground fiber network is anticipated to cost approximately $2.8 million. Due to its high start-up cost, the installation is expected to be financed over five (5) years, beginning in the FY2020 fiscal year. In addition to installation and finance costs, additional monies have also been budgeted for any unexpected maintenance or repair costs.

Telephone and Voicemail Systems

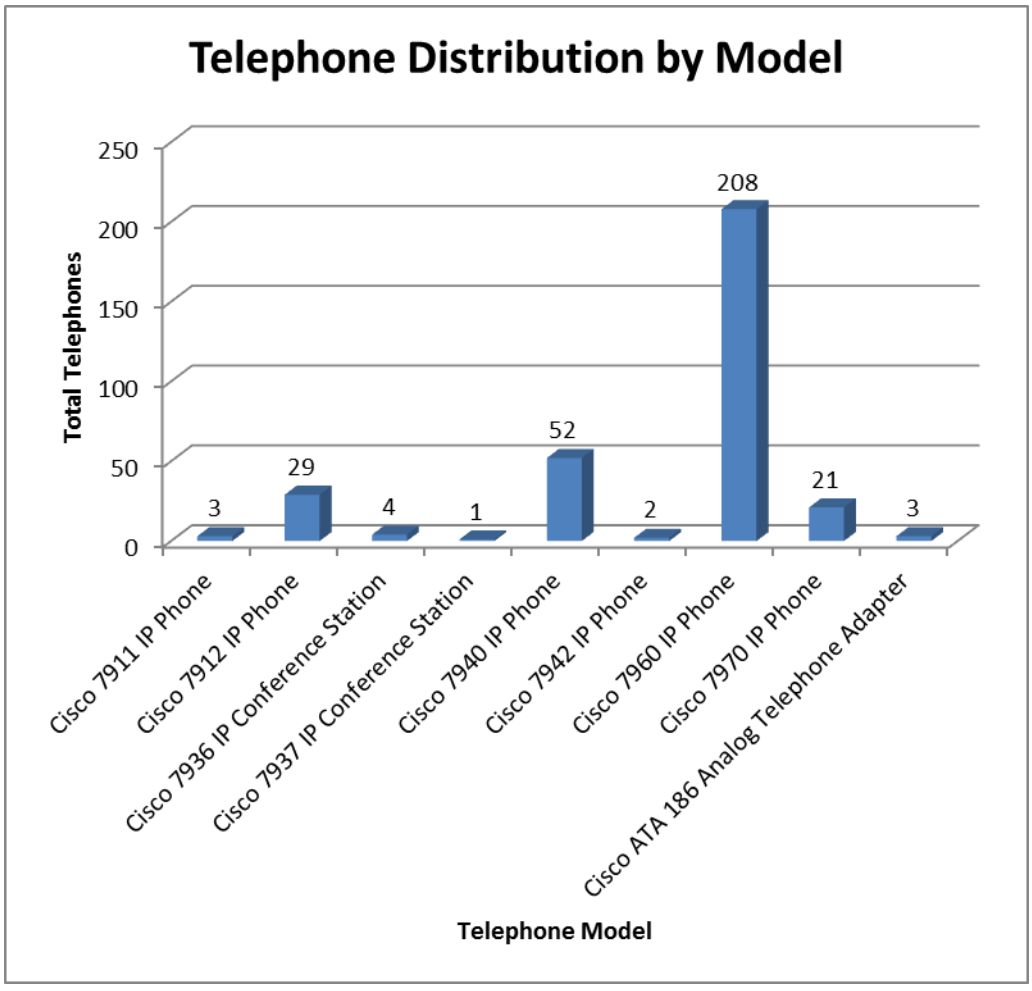
The City utilizes a Cisco Unified Communications System (UCS), providing both telephone and voicemail services to the City. In addition, and of most importance, it allows telephone calls to be sent and received over the City's existing data network, thereby allowing the City to realize substantial cost savings.

Telephones

Also resulting from the purchase of the City's new telephone system, all telephones were replaced with Cisco IP Phones. The City uses various models of Cisco IP Phones. The IP Phones connect to and utilize the City's data network (similar to a computer's connection) for communication.

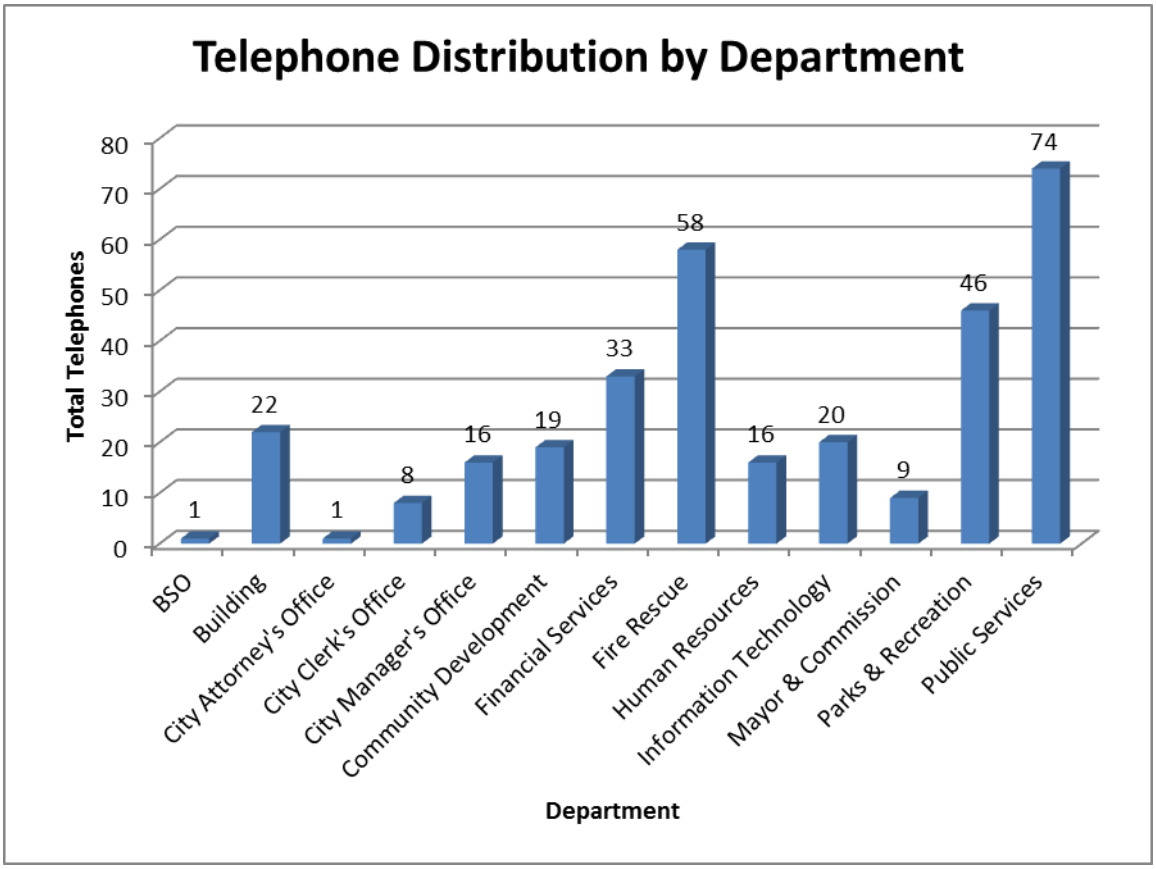
Overall, the City currently has three hundred and twenty-three (323) telephone devices in use. Of these devices, there are nine (9) different models, six (6) of which are telephones, two (2) of which are conference phones and the last model is an analog adapter which allows analog telephones (i.e. home telephones) and fax machines to connect to the IP phone system. The distribution of the telephone devices by model is as follows:

Phone Model	Total Phones
Cisco 7911 IP Phone	3
Cisco 7912 IP Phone	29
Cisco 7936 IP Conference Station	4
Cisco 7937 IP Conference Station	1
Cisco 7940 IP Phone	52
Cisco 7942 IP Phone	2
Cisco 7960 IP Phone	208
Cisco 7970 IP Phone	21
Cisco ATA 186 Analog Telephone Adapter	3



The distribution of telephones by department is as follows:

Department	Total Phones
BSO	1
Building	22
City Attorney's Office	1
City Clerk's Office	8
City Manager's Office	16
Community Development	19
Financial Services	33
Fire Rescue	58
Human Resources	16
Information Technology	20
Mayor & Commission	9
Parks & Recreation	46
Public Services	74



The existing telephones were originally purchased and installed in the FY2006 fiscal year. The City maintains SMARTnet technical support agreements with Cisco Systems which provide for software upgrades at no charge as they become available, and also provide for replacement equipment should any of the telephone devices malfunction. However, the majority of the Cisco IP Phones will reach End Of Life in FY2014; therefore, additional funds will be budgeted for replacement phones as needed.

The expected useful life of all telephone equipment is approximately ten (10) to fifteen (15) years. At such time, the telephone devices may begin to malfunction, and new features are expected to be available. All telephone devices are planned for replacement during the FY2019 and FY2020 fiscal years; however, replacement may be advanced or delayed depending on the technology available and the condition of the telephone devices. Along with their replacement, the City will again purchase five (5) year SMARTnet technical support agreements for all new equipment.

CallManager

Cisco's Unified Communications Manager (also known as CallManager) is a software-based telephone call processing system. Using Voice Over Internet Protocol (VoIP)

technology, the CallManager software allows calls to be sent and received over the City's existing data network. CallManager provides the services needed for the City's telephone and fax needs.

The City currently utilizes and maintains three (3) Cisco CallManager virtual servers, and two (2) Cisco UCS virtual environment hosts for the telephone system, in order to load balance telephone calls and also to provide for fault tolerance through redundancy. They are installed at City Hall and at the Network Operations Center.

The original Cisco CallManager system was installed in the FY2006 fiscal year, and was most recently replaced with a virtualized platform in FY2012, and then again in FY2017. The City maintains SMARTnet technical support agreements with Cisco Systems which provide for software upgrades at no charge as they become available. However, as new software upgrades are released, hardware requirements also increase, requiring faster and higher performing servers. In addition, assistance is needed from outside vendors to perform the software upgrades.

Software upgrades are performed only for major releases or when required by Cisco technical support. The last Cisco CallManager upgrades were performed in June 2016. The software applications/servers are setup in a virtual environment, with a host server located in the Network Operations Center and another in the City Hall Data Center.

The next expected upgrade of the Cisco CallManager system will take place in the FY2019 fiscal year.

Future software upgrades are expected every two (2) to three (3) years, and future hardware replacements are expected every five (5) to six (6) years.

Unity Connection

Cisco Unity Connection is a software-based voicemail and unified messaging system. Unity provides the City with voicemail and automated phone tree services, and also integrates with the City's email system.

The City currently utilizes and maintains two (2) Cisco Unity servers in order to load balance voicemail access and also to provide for fault tolerance through redundancy. One is installed at City Hall and the other at the Network Operations Center.

The existing Cisco Unity system was originally installed in the FY2006 fiscal year, and was most recently replaced with a virtualized platform in FY2012, and then again in FY2017. The City maintains SMARTnet technical support agreements with Cisco Systems which provide for software upgrades at no charge as they become available. However, as new software upgrades are released, hardware requirements also increase, requiring faster

and higher performing servers. In addition, assistance is needed from outside vendors to perform the software upgrades.

Software upgrades are performed only for major releases or when required by Cisco technical support. The last Cisco Unity Connection upgrades were performed in June 2016. The software applications/servers are setup in a virtual environment, with a host server located in the Network Operations Center and another in the City Hall Data Center.

The next expected upgrade of the Cisco Unity system will take place in the FY2019 fiscal year.

Future software upgrades are expected every two (2) to three (3) years, and future hardware replacements are expected every five (5) to six (6) years.

Radio System

The City operates an 800 MHz radio system for field communications and for its water treatment and distribution systems. The current radio system was purchased and installed in FY2009, replacing the prior radio system that had been in place since 1993, with only a partial update in 1999.

There are approximately two hundred (200) users of the radio system in Utilities, Public Works, Code Enforcement, Parks & Recreation and Building. The radio system serves as the primary means of communication during emergencies for the entire City. The same system is also utilized to centrally monitor and control about one hundred and twenty (120) remote sites in the water distribution system.

In April 2009, the City replaced its outdated radio system, including all antennas, repeaters, receivers, etc…, with a new system from Motorola. A wireless communications system was also installed as part of the system design in order to eliminate outdated analog telephone lines from AT&T, which provided connections between the various radio sites.

Given the City's experience with the prior radio system lasting for approximately sixteen (16) years before replacement, the expected useful life of the new radio system is anticipated to be fifteen (15) to twenty (20) years, although its future replacement is uncertain. Future advances in technology may render the use of a radio system in its current state obsolete, and instead provide for better, more efficient and more cost effective alternatives.

Motorola Canopy Wireless System

The City operates a water treatment and distribution system with facilities that are remotely monitored and controlled throughout the City. Two remote facilities, one at the Tamarac Sports

Complex and the other at Grants Plaza, are major components in the water treatment and distribution system.

Redundancy has always been built into all facets of the water treatment Supervisory Control and Data Acquisition (SCADA) system to prevent failure of these critical systems. To facilitate redundancy, the remote facilities were previously monitored and controlled both using the City's radio system and old generation analog telephone leased lines.

The redundant radio system and telephone leased line connections were sufficient to meet communication needs; however, AT&T (formerly BellSouth) began to discontinue the telephone leased lines, thus compromising the resiliency of the water treatment system, and presenting a need for a new communications link or system to connect the Water Treatment Plant with remote facilities.

Motorola Canopy Wireless is a wireless system which allows for wireless communications over a distance. It is capable of providing network connections to City locations that are not physically connected nor have access to the City's fiber Wide Area Network (WAN).

The Motorola Canopy Wireless System not only allows the City to provide a network connection to remote water treatment facilities, but provides many added benefits as well. In addition to providing the primary and redundant connection for the SCADA system, this high-speed network connection allows for the placement of security cameras, telephones, etc… at remote sites. Furthermore, the system has also been used to provide secondary, backup network connections to all City facilities. It will function as a disaster recovery measure during any emergency which might otherwise inhibit network communications.

The expected useful life of the Motorola Canopy Wireless System is ten (10) years. At such time, technological advances may make available other systems or alternatives which may yet provide faster and more reliable communications.

Communication Tower Infrastructure

A Communication Tower is a monopole tower constructed as a free standing structure or in association with a building, other permanent structure or equipment, containing one or more antennas intended for transmitting and/or receiving television, AM/FM radio, digital, microwave, cellular, telephone, or similar forms of electronic communication. The City uses communication towers to provide facilities to host equipment for cellular communication companies and for the City's 800 MHz radio system.

Cell Towers

The City currently hosts cell tower sites at the following five (5) locations: City Hall, Tamarac Park, the Tamarac Sports Complex, the Water Treatment Plant and at the

Tamarac Jewish Center. With the exception of the City Hall Cell Tower Site, all others are inspected and maintained by a cellular carrier.

Following EIA/TIA-222-F standards, the City contracts with an outside vendor for the ground level and above ground level tower inspection of the City Hall Cell Tower Site. The inspection includes wind loading, twist, sway and structural fatigue. All tests are performed in accordance with EIA/TIA-222-F and regional standards, and a written report is prepared for each inspection. Inspections are conducted every five (5) years. The inspection also includes the creation of a photographic report and provides recommendations for needed repairs and maintenance.

The last inspection for the City Hall Cell Tower Site was conducted in August 2015. The next planned inspection will be conducted in October 2020.

Radio Tower

The City maintains a radio tower at City Hall, which hosts antennas for the City's 800MHz radio system and also Broward County's radio system.

Following EIA/TIA-222-F standards, the City contracts with an outside vendor for the ground level and above ground level tower inspection of the City Hall Radio Tower. The inspection includes wind loading, twist, sway and structural fatigue. All tests are performed in accordance with EIA/TIA-222-F and regional standards, and a written report is prepared for each inspection. Inspections are conducted every five (5) years. The inspection also includes the creation of a photographic report and provides recommendations for needed repairs and maintenance.

The last inspection for the City Hall Radio Tower was conducted in October 2015. The next planned inspection will be conducted in October 2020.

Servers

The City of Tamarac is currently operating one hundred and forty (140) servers for the automation of various business functions such as providing printing and file sharing services; email, network security and network monitoring services; support for web and e-government applications, etc….

Eight (8) of the servers provide telephone system services and are discussed in the Telephone System and Voicemail System section of the IT Strategic Plan, and two (2) of the servers are AS/400 devices, providing for the City's HTE enterprise applications services, and are covered in the AS/400 sub-section of the Servers section of the IT Strategic Plan.

For reference, desktop computers performing server-related functions (such as IT-PCConsole1, IT-PCConsole2, IT-PCConsole3 and IT-PCConsole4) have not been included in the Servers section,

but are instead included within the Desktop Computers / Laptops section of the IT Strategic Plan.

Virtualization

Since the advent of virtualization technology, the City has consolidated the majority of the servers into a lesser number of physical servers (hosts). While the hardware is being consolidated, virtualization technology provides independent processing power for each of our systems. As the hardware resources are better utilized, energy consumption and the overall carbon footprint will also be reduced.

As a result of the implementation of virtualization technology, approximately 135 servers are virtualized in the new virtual environment. The remaining physical servers are unable to be virtualized due to software incompatibilities, hardware requirements or other physical connectivity needs.

The implementation of virtualization technology required twelve (12) servers / hosts with increased performance capabilities, which were purchased in FY2017. The expected useful life of the servers is six (6) years, thereby requiring their replacement in FY2023.

Should additional virtual servers or performance enhancements be needed, additional physical servers may also be required in the future to meet these needs.

Network Servers

Of the City's one hundred and forty (140) servers, five (5) servers are unable to be virtualized. Of these, three (3) are standard, Windows-based network servers, and the remaining two (2) servers are the City's IBM AS/400 servers.

The expected useful life of the network servers is six (6) years.

AS/400

The City currently relies upon Central Square Technologies to provide enterprise applications for municipal functions such as GMBA, payroll, building permits, code enforcement, work orders, etc…. As these enterprise applications are integral and key to the City's operations, two (2) IBM AS/400 iSeries midrange computers are used to host production and test environments.

The AS/400 used in the production environment was purchased in FY2013. It provides access to the live data and applications used by the City. The expected useful life of the server is six (6) years. Based on a minimal increase in performance needs over the past years, the City has been able to continue utilization of the same server by increasing its storage space as required by software upgrades. However, given the continued

increased in the cost for maintenance and support, the increased storage utilization, as well as the delay in the introduction of / migration to the Central Square Technologies ONESolution product, the Production AS/400 will be decommissioned in approx. FY2023.

The AS/400 used in the test environment was purchased in FY2013. It provides separate facilities for testing any software upgrades or patches in an isolated environment which will have no effect on the City's live data, before the software upgrades or patches are applied to the production system. Furthermore, it allows for City staff to perform calculations for permit fees, etc… before actual permits are entered in the live production system. The expected useful life of the server is six (6) years. Based a minimal increase in performance needs over the past years, the City has been able to continue utilization of the same server without the need for any hardware upgrades or replacement. However, given the continued increased in the cost for maintenance and support, the increased storage utilization, as well as the delay in the introduction of / migration to the Central Square Technologies ONESolution product, the Test AS/400 will be decommissioned in FY2023.

When the City migrates to Central Square Technologies' ONESolution software, the replacement of the AS/400 servers will be eliminated. The City is currently in the process of upgrading Central Square Technologies' NaviLine software to its new ONESolution enterprise application suite. The new application suite is now Windows-based, and no longer requires the use of an AS/400 platform, thereby eliminating the need for AS/400 servers upon complete transition. In their place, the new software will be capable of running on Windows-based virtual servers using the City's virtualization technology.

Desktop Computers / Laptops

The City uses desktop computers and laptops to meet various business needs ranging from a standard user's workstation to kiosks to mobile data units in City vehicles. Overall, the City currently has three hundred and eighty-seven (387) computers in use, two hundred and eighty-four (284) of which are desktop computers and one hundred and three (103) are laptops.

Desktop Computers

Of the total two hundred and eighty-four (284) desktop computers, there are three (3) different models currently in service. The distribution of the desktop models by their year of purchase is as follows:

Desktop Computer Model	Qty	Fiscal Year Purchased
Dell OptiPlex GX790	78	2012
Lenovo ThinkCentre M700	200	2017
Lenovo ThinkPad P70	6	2017

Based upon an expected useful life of three (3) years, the majority of the desktop computers, which were leased in FY2017, would require replacement in FY2020.

Laptops

Of the total one hundred and three (3) laptop computers, there are two (2) different models currently in service. The distribution of the laptop models by their year of purchase is as follows:

Laptop Computer Model	Qty	Fiscal Year Purchased
Lenovo ThinkPad X1 Yoga 2nd	100	2017
Lenovo ThinkPad T410	3	2017

Based upon an expected useful life of three (3) years, the majority of the desktop computers, which were leased in FY2017, would require replacement in FY2020.

Storage Area Network

A Storage Area Network (SAN) is an architecture that allows network servers to attach to and use a centralized pool of disk storage and tape backup libraries. The City currently uses an EqualLogic iSCSI SAN.

In FY2017, the City replaced its aging Dell EqualLogic Storage Area Network (SAN) with a new, state-of-the-art Dell EqualLogic SAN. Functioning as the new primary storage for the City's virtual environment, the iSCSI SAN provides approximately 112 TB of storage that is used for both virtual servers and user data. The expected useful life of the EqualLogic SAN would typically be five (5) years, at such time when the storage space would be expected to be exhausted, and additional space would be required; however, given the large increase in the number of software applications in use and servers required to run those applications, as well as the expected introduction of a centralized video surveillance system, the required storage space needed has increased exponentially.

Devices are presently attached to the Storage Area Network using multiple, combined (dedicated) network connections, which allow for high-speed communication and transfer of backup data to backup devices. All SAN devices use standard network connections to two (2), redundant, Cisco Nexus switches.

The City's current primary SAN is expected to be replaced in FY2022. Although past experience has shown the SAN as having to be replaced every three (3) to four (4) years, the new Dell EqualLogic SAN is expected to have at minimum a useful life of five (5) years.

Peripherals

Peripherals are external devices connected to computer systems which provide additional functionality or services. The City uses peripheral devices for many purposes including printers, scanners, projectors, etc....

Printers

Network-enabled, workgroup printers and personal printers are used throughout the City to provide users with both black and white and color printing capabilities.

There are approximately seventy-four (74) network printers, fifty-five (55) personal printers, twelve (12) receipt printers, five (5) photo id printers, three (3) large format plotters/printers and two (2) special printers (for greenbar printing and inspection notice printing) supported by the Information Technology Department. The majority of printers were replaced in FY2012.

Past experience has shown that network and personal printer hardware and components remain operational without malfunction for at least seven (7) to ten (10) years after purchase, with minor repairs in the interim. Receipt printers have shown to last for at least five (5) years, and photo id printers have shown to last for at least five (5) years, prior to requiring replacement. However, new enhancements and features may arise, along with compatibility issues, necessitating the purchase of replacement printers.

Based on their expected, useful service life as previously described, network printers would not need to be replaced until the FY2022 fiscal year. Moreover, rather than replacing all network and personal printers in the same year, replacements will be spread out over three (3) years in order to meet the varying replacement cycles.

KVM

A KVM switch is a hardware device that allows a single keyboard, video (monitor) and mouse to be used with a number of computers, allowing a single user to interact with all of the computers (one at a time).

Network Operations Center

The City's Network Operations Center houses the majority of the City's servers and equipment. Rather than attach a separate keyboard, mouse and monitor to each server, a KVM device is used which allows a single keyboard, mouse and monitor to be connected to all servers. The KVM currently in use was purchased from Blackbox during the FY2009 fiscal year.

A limit on the number of years that a KVM maintenance contract may be renewed is not imposed by Blackbox. Therefore, the maintenance contract for

the Blackbox ServSwitch Octet KVM system and components may be renewed indefinitely.

Past experience has shown that KVM hardware and components remain operational without malfunction for at least six (6) to seven (7) years after purchase. However, new enhancements and features may arise, along with compatibility issues, necessitating the purchase of a replacement KVM system.

Based on an expected, useful service life of seven (7) years, KVM equipment would not need to be replaced until the FY2018 fiscal year.

Furthermore, the expected virtualization of servers will reduce the capacity needed for any future KVM purchases, and therefore reduce the total cost of replacement.

City Hall IT Data Center

The IT Data Center located in City Hall houses redundant telephone servers and network infrastructure servers. Rather than attach a separate keyboard, mouse and monitor to each server, a KVM device is used which allows a single keyboard, mouse and monitor to be connected to all servers. The KVM currently in use was purchased from Blackbox during the FY2012 fiscal year.

A limit on the number of years that a KVM maintenance contract may be renewed is not imposed by Blackbox. Therefore, the maintenance contract for the Blackbox ServSwitch Octet KVM system and components may be renewed indefinitely.

Past experience has shown that KVM hardware and components remain operational without malfunction for at least six (6) to seven (7) years after purchase. However, new enhancements and features may arise, along with compatibility issues, necessitating the purchase of a replacement KVM system.

Based on an expected, useful service life of seven (7) years, KVM equipment would not need to be replaced until the FY2018 fiscal year.

Fire Station 15 IT Data Center

The IT Data Center located in Fire Station 15 houses redundant telephone servers and network infrastructure servers. Rather than attach a separate keyboard, mouse and monitor to each server, a KVM device is used which allows a single keyboard, mouse and monitor to be connected to all servers. The KVM currently in use was purchased from Blackbox during the FY2012 fiscal year.

A limit on the number of years that a KVM maintenance contract may be renewed is not imposed by Blackbox. Therefore, the maintenance contract for the Blackbox ServSwitch Octet KVM system and components may be renewed indefinitely.

Past experience has shown that KVM hardware and components remain operational without malfunction for at least six (6) to seven (7) years after purchase. However, new enhancements and features may arise, along with compatibility issues, necessitating the purchase of a replacement KVM system.

Based on an expected, useful service life of seven (7) years, KVM equipment would not need to be replaced until the FY2018 fiscal year.

Wireless Access Points

In computer networking, a wireless access point (WAP) is a device that allows wired communication devices to connect to a wireless network using Wi-Fi, Bluetooth or related standards. The WAP usually connects to a router or switch, and can relay data between the wired devices (such as computers or printers) and wireless devices on the network. The City uses WAPs to provide wireless network connectivity to laptops and other mobile devices throughout City facilities.

Linksys Wireless Access Points

The majority of the City's wireless network utilizes Ubiquiti Networks Wireless Access Points (WAPs), providing both Wireless G and Wireless N capabilities to mobile users and to the public. At present, Wireless-N is the most current and fastest wireless networking standard available.

Currently in use are forty-eight (48) WAPs, with the majority having been installed in FY2014, and the most recent installed in FY2017. With a few exceptions, all are of the approximately same make and model.

In order to improve wireless coverage and service, additional WAPs have been installed in the City Hall and the Community Center in FY2014.

Past experience has shown that Wireless Access Points remain operational without malfunction for at least six (6) to seven (7) years after purchase. However, as technology changes and improves, providing for new devices with the capability to provide faster wireless networking speeds and new features, compatibility issues also arise, necessitating the purchase of replacement wireless networking equipment.

Although having an expected, useful life of six (6) to seven (7) years, the Ubiquiti Networks Wireless Access Points (WAPs) have remained operational. The majority replacement is scheduled for the FY2020 fiscal year.

Projectors

A projector is a device used to display video, images or computer data on a screen or other flat surface. There are approximately nineteen (19) projectors in use within City facilities.

Past experience has shown that projectors remain operational without malfunction for at least six (6) to seven (7) years after purchase. Technology also has not advanced very rapidly with projectors.

Based on an expected, useful life of six (6) to seven (7) years, projector replacement will be spread out over the years starting in FY2013.

Scanners

A scanner is a device that captures images from photographic prints, posters, magazine pages, and similar sources for computer editing and display. Scanners come in hand-held, feed-in, and flatbed types and for scanning black-and-white only, or color. Very high resolution scanners are used for scanning for high-resolution printing, but lower resolution scanners are adequate for capturing images for computer display.

In December 2012, three (3) Canon high-speed scanners were purchased for the Accounts Payable Division in the Financial Services Department in order to provide for an efficient method of storing receipts, invoices, etc… electronically. In November 2011, three (3) Canon high-speed scanners were purchased to replace the previous scanners used by the City Clerk's office for document imaging. In July 2013, a Canon high-speed scanner and a ColorTrac scanner were purchased for Building in order to scan building plans for use with the Electronic Plan Review (EPR) system. The expected useful life of a high-speed scanner is seven (7) to ten (10) years. After this time, replacement is required as there is a greater potential for hardware malfunction, and in addition, technological advancements typically will have provided for a significant increase in speed and performance. The expected replacement of the three (3) high-speed scanners in Financial Services will take place during the FY2020 fiscal year, or thereafter. The expected replacement of the three (3) high-speed scanners in the City Clerk's Office will take place during the FY2019 fiscal year or thereafter. The expected replacement of the two (2) scanners in Building will take place during the FY2021 fiscal year, or thereafter.

Credit Card Readers

A credit card reader is a USB or serial device that attaches to a computer, allowing a cashier to swipe a payment card (i.e. credit card or debit card) and read the information contained on the magnetic stripe, for use in processing payments.

The City uses credit card readers in multiple facilities in processing of payments for utility bills, recreational fees, etc…. There are eleven (11) credit card readers currently in use.

The expected useful life of a credit card reader is five (5) years. After this time, replacement may be required due to changes in software requirements and interoperability. The expected replacement of the eleven (11) credit card readers will take place during the FY2018 fiscal year, or thereafter, and during the FY2022 fiscal year or thereafter.

Power and HVAC Infrastructure

The growing complexity of IT environments, from wiring closets and server rooms to data centers of all sizes, has increased the need for reliable power distribution. Eliminating power management issues is essential for IT and Facilities managers to maintain system availability of increasing higher density equipment. Furthermore, heat loads on wiring closets, server rooms and data centers have also risen in recent years due to added hardware and the deployment of new technologies such as VoIP and Power over Ethernet. It is important to provide adequate heating, ventilation and air conditioning in order to properly control the temperature and air flow.

Network Operations Center

In 2008, the City constructed a new Network Operations Center in the Public Services Complex to house the Information Technology Department and to provide a larger facility for network equipment and servers. The facility functions as the core of the network, providing server and network operations.

APC InfraStruXure

APC's InfraStruXure products fully integrate power, cooling, rack, management, security and services. This architecture allows for the selection of standardized components to create a solution through modular and mobile configurations. The City utilizes APC InfraStruXure network racks, UPS devices, power distribution and management devices and cooling units in its Network Operations Center.

UPS BATTERIES

A robust and high-capacity Uninterruptable Power Supply (UPS) from APC was installed in the Network Operations Center as part of the APC InfraStruXure, in order to provide battery backup power to network switches, routers and servers.

The expected life for the UPS is approximately ten (10) to fifteen (15) years; however, UPS batteries require replacement every four (4) to five (5) years.

UPS batteries will need to be replaced in FY2021. The UPS unit, itself, will not require replacement until FY2024.

PRIMARY A/C UNIT

In 2008, the City constructed a new Network Operations Center in the Public Services Complex to house the Information Technology Department and to provide a larger facility for network equipment and servers. An APC InRow Direct Expansion Cooling Unit was installed in the Network Operations Center as part of the APC InfraStruXure, in order to cool the equipment heat load, prevent hot air recirculation and to provide humidity control.

The expected life for the cooling unit is approximately ten (10) years, requiring replacement in the FY2019 fiscal year.

Secondary A/C Unit

In 2008, the City constructed a new Network Operations Center in the Public Services Complex to house the Information Technology Department and to provide a larger facility for network equipment and servers. In addition to the primary APC cooling unit, a smaller, secondary A/C unit was installed. The secondary A/C unit functions as a backup cooling unit should the primary unit fail.

The expected life for the cooling unit is approximately ten (10) years, requiring replacement in the FY2019 fiscal year.

City Hall IT Data Center

The IT Data Center in City Hall is a remote facility which houses the network core for City Hall and provides redundancy for services which are critical to operations.

UPS Batteries

A more robust and higher-capacity APC, Uninterruptable Power Supply (UPS) device was installed in the City Hall IT Data Center in early 2011, in order to provide battery backup power to network switches, routers and servers.

The expected life for a UPS is approximately seven (7) to ten (10) years; however, UPS batteries are required to be replaced every three (3) to four (4) years.

IT Data Closets

Each City facility houses at least one remote IT Data Closet. A Data Closet serves as a connection point for all computer equipment within the facility, providing switching capabilities and a central point for connection to the City's Wide Area Network (WAN).

UPS Batteries

APC rack-mount, Uninterruptable Power Supply (UPS) devices are installed in all IT Data Closets, in order to provide battery backup power to network switches and routers.

There are twenty (20) UPS devices installed in IT Data Closets throughout the City.

The expected life for a UPS is approximately seven (7) to ten (10) years; however, UPS batteries are required to be replaced every three (3) to four (4) years. As UPS devices begin to show signs of malfunction, they are replaced as needed.

Motorola Radio System

The City operates an 800 MHz radio system for field communications and for its water treatment and distribution systems. The current radio system was purchased and installed in FY2009, replacing the prior radio system that had been in place since 1993, with only a partial update in 1999.

There are a total of four (4) radio sites within the City. The primary site for channels 1, 2 and 3 is located at City Hall, with remote receiver sites at the Ramada Plaza Hotel and the Spectrum Building. The primary site for channel 4 is located at the Water Treatment Plant.

UPS Batteries

APC rack-mount, Uninterruptable Power Supply (UPS) devices, equipped with remote monitoring modules, were installed at all radio system sites in early 2009 as part of the City's 800 MHz radio system replacement, in order to

provide battery backup power to the radio system equipment and the Canopy Wireless Systems.

There are a total of five (5) UPS devices installed. Two (2) UPS devices are located in the City Hall Cell Tower telecommunications building, one (1) UPS device is located in the Water Treatment Plan Cell Tower telecommunications building, and one (1) UPS device is located in the radio equipment cabinet at the Ramada Plaza Hotel and the Spectrum Building.

Due to equipment failure, the UPS device at the Ramada Plaza Hotel was replaced in October 2011.

The normal, expected life for a UPS is approximately seven (7) to ten (10) years, and, UPS batteries are normally required to be replaced every three (3) to four (4) years. However, given that the UPS devices for the radio system are physically located in adverse environments, and subject to extreme temperatures, their lifespan is expected to be shorter than normal.

With the exception of the UPS device at the Ramada Plaza Hotel, whose replacement cycle will differ due to its more recent replacement, the UPS devices are expected to require replacement batteries in FY2013. Beginning in FY2016, the UPS devices, themselves, will require replacement.

Audio Visual Equipment

Audio Visual (A/V) equipment is used for many purposes within the City, however mainly providing sound system and presentation capabilities for meetings.

Portable A/V system

A portable Audio Visual (A/V) system is used by the Information Technology Department to provide sound system capabilities at meetings and special events. The portability of the unit allows for the sound system to be easily setup as needed in various locations within the City.

The City currently has two portable A/V systems, for use at different types of events. A larger, portable unit has been in operation since FY2000. Its primary use is for conferences or meetings where each attendee requires the use of a table-top microphone. A new, compact unit was purchased in FY2011, for use at smaller events where a full conference setup is not required. Repairs and replacement parts were recently installed in the larger, portable unit in FY2012, extending its useful life.

Based on an expected useful life of ten (10) years, the smaller, compact portable A/V system will need to be replaced during the FY2021 fiscal year. The larger, portable A/V

system will not be replaced, and has been phased out of service (although still available if needed).

Commission Chambers

In 2013, the City contracted with the vendor AVI-SPL to install a new Audio Visual (A/V) system in the City Hall Commission Chambers. The system included a sound system and microphones, audio and video mixers, stereo, DVD and CD players, an audio paging system, an overhead display and projection screen, system control units and a Crestron remote control.

The expected useful life of the system is ten (10) to fifteen (15) years. Funding for repairs and/or replacement is budgeted during the FY2023 fiscal year (for both the City Hall Commission Chambers and Conference Room 105).

Conference Room 105

In 2013, the City contracted with the vendor AVI-SPL to install a new Audio Visual (A/V) system in City Hall Conference Room 105. The system included a sound system and microphones, audio and video mixers, stereo, DVD and CD players, an audio paging system, an overhead display and projection screen, system control units and a Crestron remote control.

The expected useful life of the system is ten (10) to fifteen (15) years. Funding for repairs and/or replacement is budgeted during the FY2023 fiscal year (for both the City Hall Commission Chambers and Conference Room 105).

Tamarac Community Center Ballroom

In 2017, the City installed a new Audio Visual (A/V) system in the Tamarac Community Center Ballroom. The system included a sound system and microphones, audio and video mixers, stereo, DVD and CD player and a projection system.

The expected useful life of the system is ten (10) to fifteen (15) years. The entire audio visual system is expected to be replaced during the FY2027 fiscal year.

Time Clocks

The City uses time clocks to collect employee time and attendance data. Time clocks have been installed in eight (8) locations within City facilities and interface with the City's access control system allowing employees to clock in and out using their City ID badges.

The expected useful life of the time clocks is seven (7) to ten (10) years. After this time, replacement is required as there is a greater potential for hardware malfunction, and in

addition, technological advancements typically will have provided for more efficient methods of capturing attendance data. The most recent replacement of the eight (8) time clocks took place during the FY2012 fiscal year. Their next expected replacement will be in the FY2020 fiscal year, or thereafter.

Software

Microsoft Enterprise Agreement

The City of Tamarac uses Microsoft technology for many purposes, such as in computer operating systems (i.e. Windows 10, Windows Server), for office and email productivity (i.e. Microsoft Office 365), for database services (i.e. Microsoft SQL), for web services (Microsoft SharePoint), etc… In order to allow for the City's Information Technology infrastructure to adapt and grow with the organization's evolving needs, and for the City to continue to implement technology as an enabler, encouraging productivity and efficiency, the City entered into a Microsoft Enterprise Agreement. The Enterprise Agreement provides the City with access to the latest Microsoft software versions.

A Microsoft Enterprise Agreement offers a perpetual and subscription license model for software licensing of Microsoft products, allowing an organization to standardize on the latest Microsoft technology at substantial savings. Rather than to continually purchase full software licenses each time an upgrade is needed, Microsoft Enterprise Licensing allowed the City to purchase the licenses once, and thereafter only purchase Software Assurance at a much lower cost. Over the course of a ten (10) year period, the expected savings by use of a Microsoft Enterprise Agreement is $268,000. The Enterprise Volume Licensing Program not only provides significant savings, but also provides many other benefits as well. These benefits include a predictable payment over the course of the agreement allowing for simplified budgetary planning, access to training and e-learning tools, improved disaster recovery capabilities and the ability to obtain technical assistance from Microsoft 24x7.

The Microsoft Enterprise Agreement allows the Information Technology Department to meet its strategic objectives, which include the following:

- Upgrade the desktop O/S software
- Upgrade the server O/S software
- Utilizing Microsoft Office 365
- Upgrade the database server

The City entered into an Enterprise Licensing Agreement with Microsoft during the FY2011 fiscal year. The initial agreement lasted for three (3) years and included both licensing costs as well as Software Assurance costs. After the three (3) year term expired, upon renewal, the City now only pays for Software Assurance costs and not licensing fees, and continues to renew every three (3) years.

Central Square Technologies NaviLine / ONESolution

To provide reliable information to be used in management decision-making and also to manage local governmental functions, the City uses Central Square Technologies' public administration suite of applications called NaviLine. This highly integrated solution suite supports the spectrum of local and regional public sector functions, from community services to public works. The City began using HTE NaviLine in 1995. The following components are currently in use:

- Community Development
  - Building Permits, Business Licenses, Code Enforcement, Land/Parcel Management and Planning & Engineering
- Financial Management
  - GMBA (General Ledger) and Extended Reporting
- Human Resource Management
  - Payroll/Personnel and Human Resources
- Infrastructure Management
  - Asset Management, Fleet Management, Project Management (part of GMBA) and Work Orders/Facility Management
- Purchasing/Inventory Management
  - Purchasing, Inventory and Accounts Payable (part of Purchasing/Inventory and GMBA)
- Revenue Management
  - Accounts Receivable, Cash Receipts and Grant Management (part of GMBA)
- Utility Management
  - Customer Information Systems

What once was the latest technology has now become old and outdated. After fifteen+ (15+) years of use, Sungard Public Sector has now released a new software package called ONESolution. The new software uses the latest technology available and provides a more familiar, easier to use interface.

In order to take advantage of the new software package, the City has planned to migrate to ONESolution during the FY2014 fiscal year. Funds will be budgeted for migration, training and future maintenance fees in the FY2014 budget. For all years thereafter, the City will resume annual maintenance fee payments. The expected useful life of the new ONESolution software package is ten (10) to fifteen (15) years.

Digital Recording System

A digital recording system provides a method to electronically record all sounds and discussion from any meeting. It provides a concrete audio record of what takes place. With the advent of digital recording equipment, it is no longer necessary to record to tape cassette, but instead it is now possible to record to USB Flash Drives or to a computer as an audio file. The City utilizes a digital recording system to easily record and store the audio records for City Commission meetings and various board and committee meetings.

In December 2004, the City originally purchased digital recording software and equipment from the company ForTheRecord. However, the software was difficult to use and experienced many problems, causing much resistance to its use.

Later, in January 2010, the City purchased Digital Court Reporting software and equipment from BIS Digital as a replacement to the former system. The new software has proven very user friendly and has experienced great acceptance. The software is used extensively to record City Commission, board and committee meetings.

The expected useful life of the digital recording system software is five (5) to ten (10) years. At such time, technological advances may make available other systems or alternatives which may yet provide faster, more reliable and even easier to use software or equipment. The next planned replacements of the digital recording system software was during the FY2015 and FY2020 fiscal years; however, replacement has been delayed depending upon future needs and technological advancements.

Geographic Information System (GIS)

A Geographic Information System (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. GIS allows us to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts. A GIS helps to answer questions and solve problems by looking at data in a way that is quickly understood and easily shared.

The City uses a Geographic Information System (GIS) to capture, store, analyze, manage, and present data that is linked to locations. In simplest terms, GIS is the merging of cartography, statistical analysis, and database technology. GIS systems are used in cartography, remote sensing, land surveying, public utility management, geography, urban planning, emergency management, navigation, aerial video, and localized search engines.

Combined with address and other data from the City's ERP software and utilizing ArcGIS software from the vendor ESRI, the City is able to graphically represent Commission districts, water lines, property lines, etc… on a map of the City.

The GIS program has been managed by the Department of Community Development until FY2011, when program management was transitioned to the Information Technology Department. Working together with personnel in the Utilities Department, IT and Utilities are able to assist City staff with any requests for maps and data. Funding for the GIS program is provided by Utilities.

Vehicles

The Information Technology Department requires the use of vehicles to travel to City facilities for maintenance, repairs, end user support etc…, as well as to transport equipment between locations.

A 2001 Ford E250 Cargo Van and a 2005 Ford Explorer are utilized in the delivery of Information Technology services.

The expected useful service life is based upon many factors, which includes mileage, repair costs, condition, etc….

Replacements for both vehicles are scheduled for FY2018.

Funding Needs and Projections

The purpose of the Information Technology Strategic Plan is to detail the City's technology needs and plans for the next ten (10) years. Based on the current technology in use throughout the City, its expected useful life and planned replacement cycles, the following pages show the funding needs and projections for that period.