Norfolk Public Schools
The cornerstone of a proudly diverse community

Information Technology Operations Plan

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MISSION STATEMENT

The Information Technology (IT) division's mission is to strategically develop, improve, sustain and promote an engaging, scalable, and secure network environment. IT is committed to providing excellent services and support through staff's collaborative efforts and the highest external partnerships level.

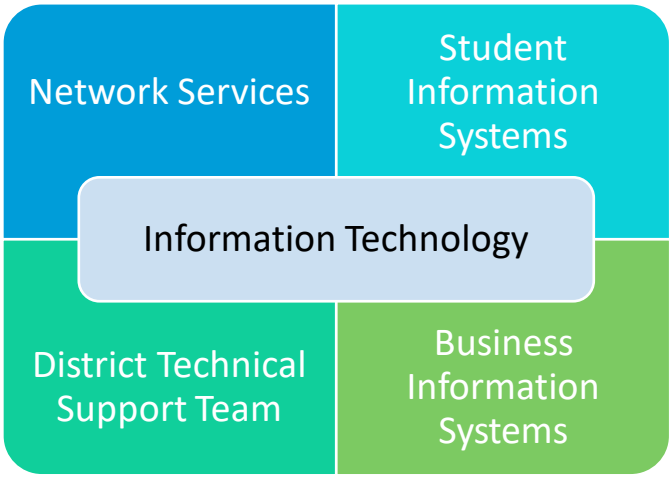
INTRODUCTION

Norfolk Public Schools (NPS) recognizes that technology is the backbone of all communications and operations of the division. Technology has grown and evolved at a rapid pace over the past few years. Many of the drastic shifts were due to the COVID-19 pandemic. The pandemic has altered the course and need of various techs in education. In most cases, the days of students sharing a desktop computer are the time of the past. NPS will ensure that all students and staff have a device as well as a robust support structure. As a result, NPS students, teachers, and staff can operate in-person, virtually, or a hybrid of both methods.

The IT department provides services and support by leveraging and supporting technology in the educational environment. Technology will be used to serve as a tool to develop, promote, improve, and sustain:

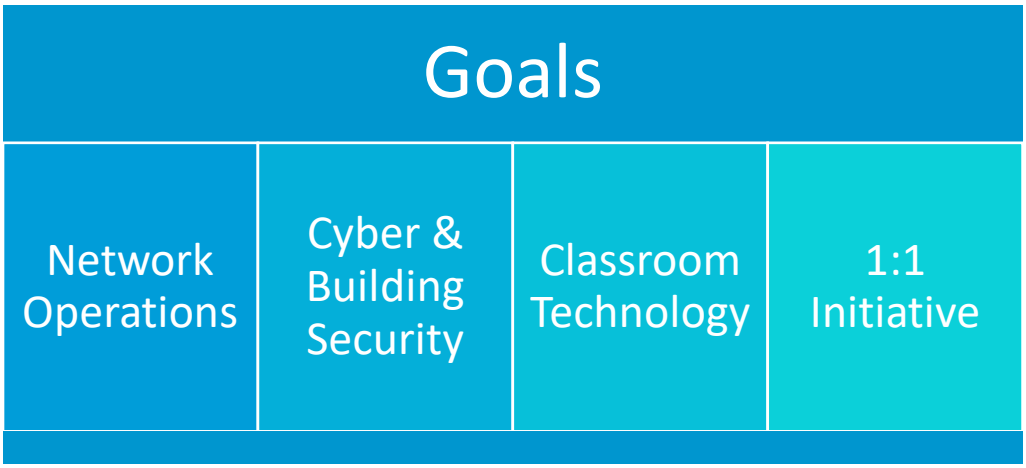
- Student engagement
- Collaboration
- Innovation
- Life-long Learners
- Preparation for college and the workforce

IT operates within four functional areas that include Network Services (NS), Student Information Systems (SIS), Business Information Systems (BIS), and the District Technical Support Team (DTST).



The SIS team manages Synergy. Synergy is a Student Informational Database System. It serves as the foundation of the enterprise-level Synergy Education Platform that provides all the data and process management functionality for a school division. The BIS group manages Munis which is the enterprise resource platform (ERP) system from Tyler Technologies. It is a database system that supports the division's business financials, procurement, human resources, payroll, and revenues. The NS team operates within PC-Tech, Desktop and Mobile Device Management, Server/Systems, Directory Services, Telecommunications, Network, and Cybersecurity. The four functional areas of IT are essential to strategically develop, improve, sustain and promote a scalable and secure large enterprise network environment.

Over the next three to five years, IT will emphasize increasing the accessibility and reliability of all critical systems and providing all students with a device. IT will improve the overall experiences of the virtual and in-person learning and business environment. IT and the security department will safeguard each school's continued strength and growth in cyber and building security. The division will move forward with the 1:1 technology initiative. All NPS students will have access to technology and instruction in traditional and virtual learning environments.



NETWORK OPERATIONS

CLOUD-HOSTED ENVIRONMENT

ADFS-AZURE, SYNERGY, AND MUNIS

The IT operations of NPS revolve around Active Directory Federal Services (ADFS), Synergy, and Munis. ADFS is a Single Sign-On solution developed by Microsoft. IT uses ADFS to administer all division user accounts. ADFS is used to authenticate with many applications supported by the district. Synergy is an Edupoint's *Student Information System* (SIS). IT uses Synergy to manage student registration, grading, transcripts, student test results, attendance, etc...

NPS uses Munis as an Enterprise Resource Platform, which contains all the division's core functions, including financials, procurement, HR, payroll, and revenues. The combination of ADFS, Synergy, and Munis is vital to NPS. If the Internet is offline, all students and staff will not be able to access Zoom, Canvas, and Synergy.

Moving ADFS, Synergy, and Munis into an externally hosted environment will increase security and reduce the impact of a cyberattack. The solutions will provide NPS the following:

- Reduction of hardware maintenance cost in the datacenter
- Improve the process of disaster recovery
- Consistent updates from the manufacturer
- Highest level of security
- Direct Server Systems and Programming Support

In a network shutdown or a natural disaster, the hosted solutions will increase NPS's ability to remain operational. In addition, given that students and staff have access to the Internet and the hosted solution, they will continue to have access to student learning, management, and financial platform resources. Hence, IT will move ADFS, Synergy, and Munis to a cloud solution. The solution will increase not only the level of security but also the level of access. As a result, NPS will remain operational in the event of a cyberattack or a network shutdown.

SYSTEMS - SERVERS

The division systems network includes three separate data centers designed for fault tolerance and redundancy to sustain server accessibility. The progression and advancement of technology now requires physical space in server areas. The IT department was able to consolidate the data centers from three to two. One of them being a shared colocation space by COX communication and the other in the NPS central administration building. Each school and auxiliary site has a dedicated server. NPS has a total of fifty-six network sites.

Essentially, each server has a lifespan of between 3 to 5 years. At the end of their life, they must be upgraded and replaced with the latest version. The table listed in *Appendix A* illustrates each server's year, age, and end of life within the respective school location. It also includes the auxiliary sites, central administration office, data center, and colocation data center. The years range from 2021 to 2025. Each of them has a purchased year listed. Within the “end of life” column, the servers listed in the year 2021 are at the end of their life expectancy. They are still covered under warranty and support. IT will begin to phase them out within the following year. IT will plan to align, upgrade, and replace the server within the respective end-of-life cycle dates.

LOCAL AND WIDE AREA NETWORK (LAN/WAN)

The entire network infrastructure of NPS consists of 56 network sites. Each school building and auxiliary location are connected over Cox Communication’s WAN. The schools’ LAN is built on

Cisco routers and switches. Some sites are still operating on Extreme networks, but the majority are on Cisco switches. The wireless portion of the network includes Cisco and Meru. More than half of the schools have been upgraded from Meru to Cisco. The overall goal is to standardize the network to all Cisco.

NETWORK SWITCHES

The backbone for each NPS network operates on Cisco routers and switches. Cisco is the worldwide leader in networking. They emphasize creating solutions on how people can connect, communicate, and collaborate. The schools utilize these switches to connect end-user devices, security cameras, IP phones, wireless access points, etc. to the network.

Like all technology, these switches have a life span. The life cycle for Cisco switches is five years. The manufacturer will continue to support the devices for the duration of the support contract but will no longer be sold. To sustain the district's network operation, the network must continuously be updated. The table illustrated in *Appendix B* states the costs and years of the end-of-life of the switches.

WIRELESS NETWORKS

The NPS wireless network has expanded from the wireless access points (AP) installed in the hallways of each school location to full building wireless. The hallway method of approach was designed simply to accommodate a few wireless devices. Today, we have over 35 thousand devices. IT designed a scalable wireless network to accommodate density to ensure that it can support the growing number of devices. All NPS classrooms can access the wireless network. However, the division has full-building wireless technology consisting of changes with new updates.

The old Meru wireless must be replaced with Cisco. Cisco is the new district standard for network optimization, consistency, wireless, and network security. The division's wireless controller and identity management system cannot fully use the advanced security features with 3rd party wireless manufacturers. Like all technology, wireless access points have a life span. The table illustrated in *Appendix C* states the costs and years of the end-of-life of the wireless APs.

TELECOMMUNICATION (VOIP)

The telecommunication or phone systems of NPS have evolved from the rotary dial-up system to voice over IP (Internet Protocol) or VOIP. The district's phone systems comprise of Samsung, 3com, Avaya, and CISCO. The 3com and Samsung are both over 15 years of age. The Avaya is close to 10 years. NPS's latest telecom technology is CISCO. More than half of the schools are on this system. To employ standards and advance Telcom features, the district must move

towards a complete CISCO communication environment. The table illustrated in *Appendix D* states the costs and years of the end-of-life of the district's VOIP systems at each building.

As the district supports telecommunications in a hybrid (work/remote) environment, the plan could evolve into a mixed solution of CISCO and Zoom. Zoom offers a flexible solution where staff can either be at their work location or from home. Additionally, should schools shut down because of power loss, network failure, or a pandemic issue, telecommunications can resume over a hotspot or home internet. IT will continue to assess the solution.

ONLINE VIRTUAL SUPPORT SYSTEM

Before the COVID-19 pandemic, the IT department provided technical services and support to all NPS students, teachers, and staff through email and phone. As the pandemic forced all schools to operate remotely, IT provided tech support for NPS users and students' families. This included a multitude of personal devices. As a result, the trouble calls have grown exponentially. As a solution, IT created a hybrid online virtual support system. The system has a centralized Microsoft SharePoint virtual learning support (VLS) website, Zoom Calling Center, and extended staff as a resource. The following steps are to expand the virtual learning support system to build a more robust, sustainable technical support structure.

VLS - Website

The VLS is a website designed as a centralized HUB for all users who need NPS technology support. In addition, the site provides technical guides for students, parents/guardians, and staff within the areas related to a multitude of hardware and software-related troubles. Essentially, the Help-Desk has advanced from receiving Helpdesk ticket calls and emails to providing an advanced virtual online support system. The system served us well for the past year but required a more robust external website solution, Blackboard.

Blackboard will allow IT to employ a new public-facing site. The solution will no longer require external users to access NPS public technical support to log into the system. Unlike the limitations of the MS SharePoint solution, Blackboard gives IT a more flexible, visually engaging design option. The design will align with the division's public website layout, which will promote consistency. In a collaborative effort, IT and the Communications Web department will design a new virtual learning support website.

ZOOM Online Calling Center

The current calling center of the Help Desk is a hybrid online system. It consists of utilizing an Avaya VOIP and Zoom IP phone system. The Avaya system requires staff to be physically present in the building to answer the phones. The Zoom solution only requires that the user has access to the Internet on a mobile device. The problem with the hybrid solution is the consistency and flexibility of staff locations.

Because of the inconsistency and lack of flexibility, IT will utilize the hybrid approach but move toward an entirely online hosted VOIP calling center via Zoom. IT and Zoom will design a new fully online calling center for the Virtual Learning Support system in a collaborative effort. In addition, each IT support staff will be assigned a dedicated IP phone number.

Each NPS school building and auxiliary site will have the ability to call remotely from within the building or wherever operations will be held.

SolarWinds Help-Desk Ticket System

Application Programming Interfaces (APIs) integrate business processes, services, content, and data. Today there are more than 20,000 APIs listed in API online portal directories, with several hundred being added every month, and the trend is rising. In addition, only public APIs are listed in these directories. APIs enable existing application functions and data to be leveraged by other systems and applications. The data within the NPS database can be made available to other internal systems (i.e., legacy system integration). For example, SolarWinds Service Desk, our current Helpdesk system, has a public API to leverage local support vendor's integration in our Helpdesk Support System. NPS local support vendors such as ESI, ViCom, and ePlus could be integrated into the Helpdesk system.

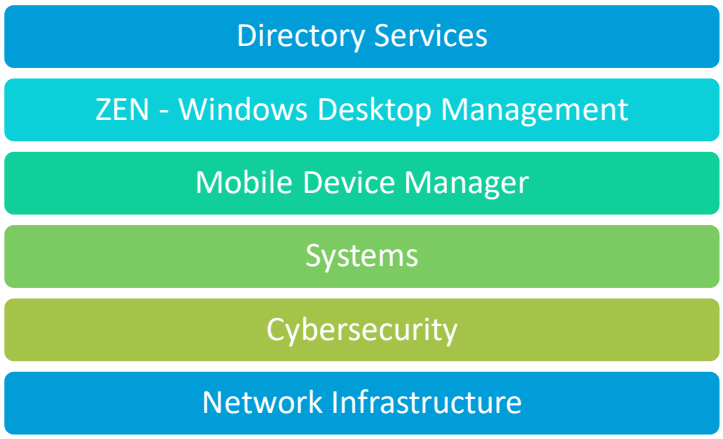
The API integration will give engineers the ability to follow up on referred tickets and their status. It will allow both systems to be transparent in perspective fields to better service our customers. For example, the integration of the new Asset Management System, TIPWeb-IT, will give IT the ability to append inventory data to a ticket would assist in getting that data to the vendor in a more efficient and streamlined method. Once integrated, IT will access, manage and work on Solarwinds Service Desk tickets directly from within the system to quickly resolve issues. The script of API integration vendors' actions is automatically registered in the incident record for accountability, auditing, and knowledge building upon working on a ticket.

In a collaborative and coordinated effort, the Network Engineer IIIs and vendors will employ the integration of the respective API to access specific fields between both party systems.

IT STAFF (REDUNDANCY)

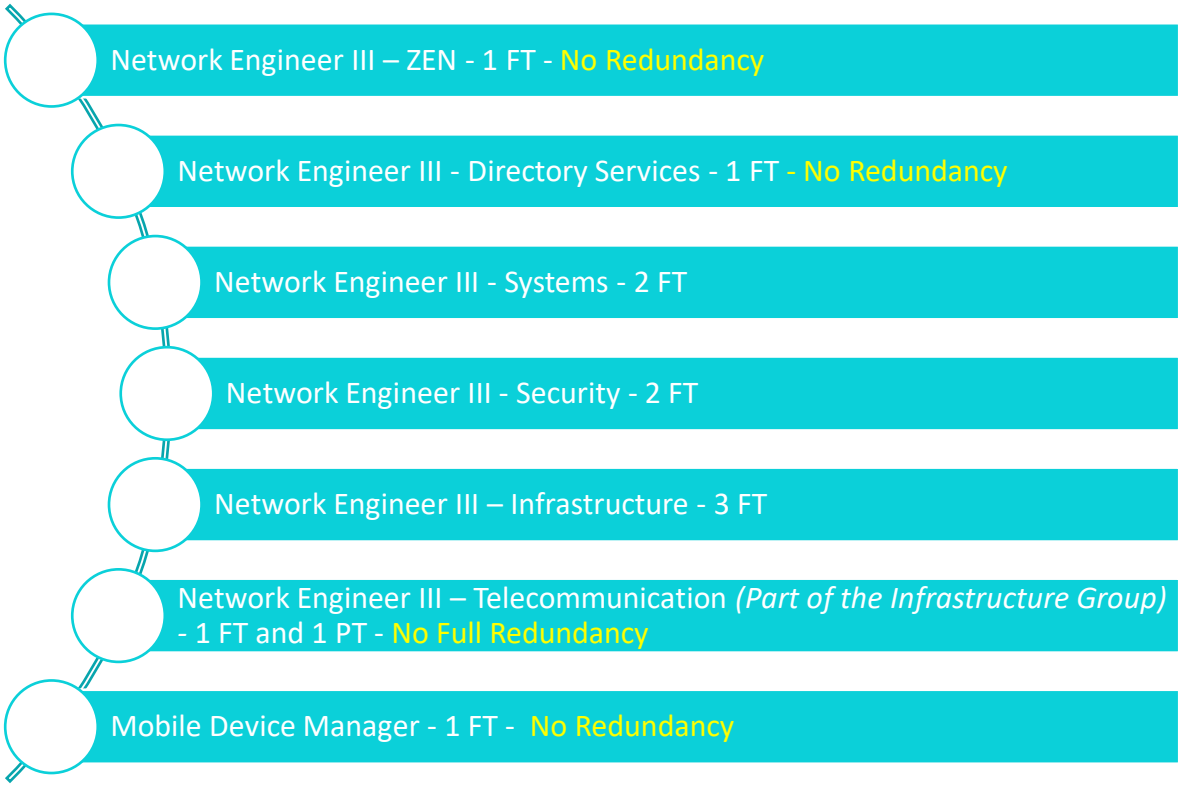
NETWORK SERVICES

The centralized support staff of the IT department is vital to the assurance of accessibility of sustaining to all essential and critical technology services of the division. The Network Services team consists of tier-III support staff. Tier III engineers manage the enterprise-level technology of the division. They are the backbone of all systems and networks, which involve the support the following areas:



Each area of support requires a specialized field of expertise within each respective responsibility of the position.

The **table below** illustrates the number of staff for each tier-III position.



From a human resource perspective, NS has 4-single points of failure. These positions include a directory services administrator, a centralized desktop manager, and a mobile device manager. All tier III level IT areas should have a minimum of two engineers for each support area to sustain operations should one person become sick or leave the division. Having a backup person as a resource, NS can promote extended hours of support between multiple engineers. The

additional support will also reduce stress and fatigue in situations that require long hours of work.

For the importance of quality and assurance that the entire network is fully operational, each Tier III position must have at least **two full-time** engineers to provide redundant coverage. The Network Engineer III positions in the areas of Zen, Directory Services, Telecommunications, and the Mobile Device Manager pose an issue if a staff member of the respective position is either out on leave or vacates the position. Presently, the IT department relies on outside IT management services to offset emergencies. Because of the growing reliance on technology, IT requires at least two for continuous coverage. The workloads are increasing. Hence, Network Services need **four** additional staff in the areas of:

- Network Engineer III - ZEN
- Network Engineer III - Directory Services
- Network Engineer III - Telecommunications
- Mobile Device Management

Fundamentally, IT needs an additional four Tier III engineers in ZEN, Directory Services, Telecommunications, and Mobile Device Management. The increase of tier III support will remove all single points of failure. The solution will also advance the level of security and support as well as reduce physical and mental stress and fatigue.

BSA – EPLUS CONSULTING

Like many other school districts, NPS finds it challenging to hire and maintain highly qualified network security engineers. The salary of a high-level network security engineer is significantly high. The alternative to hiring a high-cost engineer is to utilize resources of IT management services through ePlus.

NPS IT division partnered with ePlus to design, implement, and support the current telecommunications, systems, and infrastructure network. In addition, they provide high-level support and guidance to mitigate the potential ransomware cyber-attacks. ePlus could assist from all levels of support around the firewall, server, and hyper-converged technology security. IT plans to continue to use ePlus for high-level IT management services. These services provide the district assurance of an increased level of network infrastructure and network security support.

CYBERSECURITY

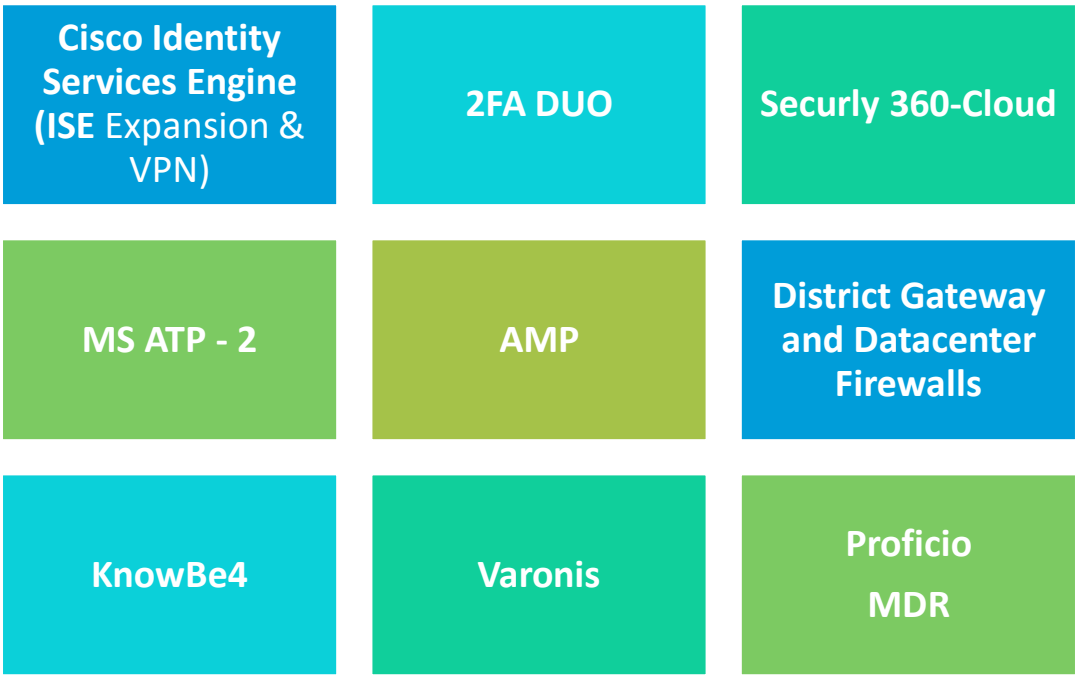
Cyberattacks are on the rise and will continue to grow as network technology progresses. K-12 school districts are incredibly vulnerable if specific security safeguard equipment and protocols are not set in place. Hackers can cause havoc in a network. NPS must increase security by utilizing multiple security applications to reduce the threat of a cyberattack. As stated earlier, the district's ADFS, Synergy, and Munis will be moved from local datacenters into a hosted

environment. The hosted solution will increase the level of security and reduce the impact of IT operations. IT will continuously improve the division's level of security and reduce the impact on school and business operations by implementing and sustaining a multitude of advanced network security parameters.

Reducing the vast number of vulnerabilities requires a growing number of safeguards and external resources. These precautions involve ISE, multifactor authentication, web content filtering, classroom monitoring, traffic monitoring, enterprise antivirus protection, firewalls, etc. Protecting the division's data and network involves assistance from high-level outside resources that specialize in cybersecurity. The district cannot afford to lose data, identities, money, or access control on any division's systems. IT can partner with companies such as Varonis and Proficio to safeguard the data and network.

The list below depicts the recommended sustainable network security safeguards and external resources to protect the division from ransomwares, malwares, data breaches, etc. Each security solution requires renewal funding to provide continuous support.

The solutions below illustrate the recommended adoptions and renewals.



CISCO IDENTITY SERVICES ENGINE – ISE

The district has a vast number of users. NPS has users that do not only include students, teachers, and staff but also outside resources and the Norfolk community. Cisco ISE is essential to govern who accesses the network from an internal and external perspective.

Cisco ISE is a security policy management platform that provides secure access to network resources. It is a security application that strengthens the advanced level of security for all NPS physical and wireless network connections. The expansion of ISE functions as a policy decision point and enables enterprises to ensure compliance, enhance infrastructure security, and streamline service operations. ISE allows enterprises to gather real-time contextual information from networks, users, and devices. The administrator can then use that information to make governance decisions by tying identity to various network elements, including access switches, wireless LAN controllers (WLCs), Virtual Private Network (VPN) gateways, and data center switches. Cisco ISE acts as the policy manager in the Cisco TrustSec solution and supports TrustSec software-defined segmentation. The illustration below describes the current and future status of NPS cybersecurity.

Present

- VPN Access
- Endpoint Posture Service

Future:

- Access control (ZeroTrust)
  - For vendor access onto our network through VPN
- Network Access for Guest (BYOD) for wired/wireless
  - Guest account management
- Streamlined device onboarding (Wired/Wireless)
  - Using Built-in AAA services
  - User Authentication and Authorization
- Cisco TrustSec / Group Based Policy
- Cloud-enabled security
  - Azure-AD integration
- Device administration access control and auditing

The expansion of ISE requires a one-time cost of $92,312.80. The current price for the district's VPN and Wireless port licenses equals to $61,000. The solution is for all local and wireless connections on the division's network.

MULTI-FACTOR AUTHENTICATION (MFA) & IDENTITY SERVICES

(CISCO DUO – for 2FA servers and VPN & ISE – APEX for VPN

Hackers typically hack accounts and networks through phishing emails or a computer user unsuspectingly visiting an infected website. These types of attacks allow hackers to gain access to and control user accounts. Hackers can lock a user out of their account by changing the password. The accounts could be an admin user account that has high-level access to critical systems. At that point, hackers can have full control of an organization's entire network. Employing an MFA and Identity Services solution will significantly reduce the risk of a security breach of such accounts.

MFA will identify users by validating two or more "factors" or characteristics that are unique to that user. Identity Services solution will automatically profile and posture connected devices to verify and validate the necessary security parameters are installed before connecting the network over VPN. Norfolk Public Schools' IT division will continue to employ Cisco's MFA DUO for all critical systems and Identity Services Engine (ISE) – APEX solution for all VPN user connections. Users will validate (approve or deny) the requested connection over the smartphone DUO app.

SECURLY 360 CLOUD

All users in the district browse on the Internet. To implement safe internet browsing, IT uses Securly to govern all-district internet activity. Securly is used as the division's web content filtering system. Currently, NPS uses the system to block unapproved sites. The goal within the 2021-2022 school year is to expand the features that grant parents and teachers the ability to monitor their children/students' Internet and desktop activity in a live session.

IT plans to adopt and utilize the Securly 360 Cloud technology to not only provide the district with a web content filtering system but also a true classroom and online monitoring system. The Securly 360 Cloud is a scalable, cloud-based web content filtering solution designed to monitor a multi-platform technology environment that includes Chromebooks, iPads, Macs, and Windows devices. In addition, it provides AI-based monitoring for cyberbullying, suicide, gun terms, and violence.

MICROSOFT ADVANCED THREAT PROTECTION (ATP – A2)

Verizon's 2018 data breach report stated that approximately 70 percent of cybersecurity breaches involve phishing (Varonis). Phishing is a cybercrime in which a target or targets are contacted by email, telephone, or text message by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking and credit card details, and passwords (KnowBe4). The hackers use the data to access accounts resulting in identity theft and or financial loss (KnowBe4). NPS currently employs Microsoft's (MS) ATP -A1 to scan and remove suspicious email attachments to protect users from malware, links, and phishing.

MS has strengthened its level of Office 365 email security through its ATP-2 option. Level 2 permits and increases the ability to retract phishing emails from all affected users in the NPS domain. This allows for retractions of unauthorized intruder messages masquerading as coming from an NPS user. MS ATP-2 gives IT the necessary tools to stop the spread of phishing emails and increase the overall network security. IT’s goal is leverage (Microsoft Advanced Threat Protection (ATP) – A2) in the division's Office 365 email system. IT will be able to better secure the network by being able to retract phishing emails from specific NPS users.

CISCO AMP

Endpoint Security (ES) is the practice of securing end-user devices such as desktops, laptops, and mobile devices from being exploited by malicious actors and campaigns. ES relates to antivirus software loaded on servers and computer devices. NPS uses MS's defender antivirus solution for endpoint security. The MS defender solution was viable at one point but is no longer recommended when strengthening Cybersecurity.

NPS network operates primarily in a Cisco ecosystem network environment. The antivirus best suited to protect a Cisco standard network is their advanced endpoint security solution. Cisco AMP provides network visibility and control to protect against highly sophisticated and targeted advanced malware. Cisco Amp is the security solution currently installed on NPS servers that quarantined the ransomware attack. All NPS devices must have this level of security to ensure the sustainability of IT operations.

AMP is installed in all NPS Microsoft Windows, iMac, and MacBook computers. The sustainability of the district's endpoint security of both servers and endpoint devices requires annual funding of $175,000. The table below illustrates the license cost of the end-user and the server separately as well as the total cost.

Product	Expires	Licenses	Total Price
Endpoint Protection – End User Devices (AMP)	6/30/22	16051	$145,000
Endpoint Protection – Servers (AMP)	7/31/22	1000	$25,000
Total			$175,000

Essentially, IT will need to sustain the AMP licensing to provide protections on all NPS end-user and server devices.

DATACENTER FIREWALLS

The three datacenters (DC) of the district are protected enterprise-level CISCO firewalls. The DC located in the administrative building has two firewalls that protect the local building's network and the district’s DMZ network. DMZ is a demilitarized zone that serves as a perimeter network that protects an organization's internal local-area network from untrusted traffic. To ensure the protection of these networks, these firewalls must be phased out before their end-of-life cycle.

The administration DC has two Cisco 4110 firewalls that will be reaching their end of life within the next couple of years. The last date of support is scheduled for January 31, 2027. The goal is to have these firewalls replaced in the next upcoming two years with the Cisco 4112. The estimated pricing per firewall is $75,131.99. For two DC, the price is **$150,263.98.** IT’s goal is to replace these firewalls before or within the 2022-2023 fiscal year.

KNOWBE4

Cybersecurity protection requires more than hardware and software solutions. It requires that all users become more aware of the "what to look for" when experiencing a malicious attack. Many of these occurrences transpire in an email and are difficult to spot or predict. Cybersecurity training is necessary to increase self-efficacy for emails, safe web browsing, etc.

To increase the level of understanding, IT will employ the KnowBe4 cybersecurity awareness program. KnowBe4 will automate the training by sending fake emails out to users. If the users are caught with the simulated attack, they will be directed to the training module related to the incident. Examples of the simulation are ransomware, social engineering, passwords, email spoofing, safe web browsing, etc. The Norfolk Public Schools' IT division will adopt and employ KnowBe4 awareness training solutions to increase cybersecurity awareness to all users. IT will track and report the level of progress of all division staff users.

VARONIS

Varonis provides a high level of access and data security. It leverages leading technologies to monitor and detect data transfers and improve file security for on-prem drives and Cloud storage with OneDrive and SharePoint. Varonis will allow us to better track where our data is moved and who has access to it. It can also be used to detect when PII data is shared or is in a less secure location than it should be. Because it monitors file movement, it can also automate warnings and detect traffic that is not considered normal business operations. Varonis is focused on the file traffic and permissions to data.

PROFICIO (MDR)

Proficio 24/7 is a management service that provides leading technologies that detect targeted attacks at the perimeter, endpoints, and cloud. It will allow us to detect adversarial actions better and provide enhanced visibility on events so we can detect and discover active threats, such as ransomware pre-cursor activities. Proficio will also help monitor, validate, investigate, and triage suspicious events during a 24/7 schedule. It will help to protect the network and data even when not during our regular business hours. Their primary focus is the network traffic and system actions.

BUILDING SECURITY

NPS school buildings and auxiliary sites have various technology that relates to security. The newer schools have relatively new tech, while many of the older schools do not. Through a collaborative effort between IT and NPS Security, the goal is to minimize potential security risks for our students, teachers, and staff at all NPS building locations. For the reassurance that physical technology aligns with all security governing protocols, IT will continue to work in

conjunction with not only the security department but also facilities management and third-party companies. Through these partnerships, IT is dedicated to providing a safe and secure environment that will help reduce crime, build trust, and enhance the quality of life for NPS.

For the past couple of years, the team has established the need to attain and sustain building security tech. The proposed technology includes a centralized and enterprise-level visitor and emergency management system, IP video surveillance camera system, network door access controls, telecommunication notification system, and the alignment of incident response as it relates to physical and Cybersecurity.

The illustration below gives a snapshot of the building security solutions.

Enterprise and Centralized Visitor and Emergency Management Systems

- Raptor (Enterprise): The district must move from local management to a centralized management platform.
  - While many schools require visitors to sign in at the front desk, 80% of schools still use pen and paper to track visitors. A visitor management system lets administrators know who is in the building, why they are there, and if they belong in the school.
  - Emerging technology in this space includes emergency management mobile applications that handle everything from emergency procedures and building plans to reunification.

Video Surveillance Security Camera System

- Milestone
- Axis Cameras
- Integrated with the network door access controls
- Aligning internal and external processes with NPS security/staff and emergency responders

Door Access Control (Network Capable)

- IP Network Integration

RAPTOR

The Enterprise and Centralized Visitor and Emergency Management System (ECVEMS), Raptor, is currently adopted and administered by the security department. It is software intended for school safety that enables schools to screen visitors, track volunteers, report on drills, respond to emergencies, and reunite families for emergency purposes. IT will help provide, install, and support the system. The ECVEMS is an initiative that requires all schools to receive training.

VIDEO SURVEILLANCE SECURITY CAMERA SYSTEM

NPS has different types of video surveillance security camera systems. The elementary schools (ES) have the old closed circuit coaxial analog system with a few cameras. The new ES has

newer camera solutions but is already in need of replacing due to the lack of vendor support and as well as the advanced features needed for security. All secondary schools other than Norview HS have an older hybrid/IP camera system in place. These systems are currently working but are at the end of their life expectancy. Because of the different camera systems throughout the division, the security, IT, and facilities departments struggle to support the camera technology.

IT will focus on moving all schools towards the Milestone video surveillance security camera system. The system is able to utilize the existing IP cameras in the building as well as provide the latest advanced features. Many of these features work in conjunction with door access controls and mass notification systems.

IT has successfully implemented the Milestone system at Norview HS. The school shared nothing but positive feedback. They are able to access the cameras and monitor various areas while being mobile. The designated staff is also able to monitor the building at a remote location. Overall, the solution is proven successful. More importantly, it is designed to be scalable.

Over the course of the next 3 to 5 years, IT's goal is to replace and install the new Milestone camera system. Please see *Appendix E* for years and the estimated cost of replacement for all schools.

DOOR ACCESS CONTROLS – CENTRALIZED SOLUTION

IT, Facilities, and the security department selected the enterprise level of AccessIT door access control licensing solution. Some schools have the local version of the solution. The goal is to move the division to an enterprise-level version that provides a centralized management and monitoring system for door access control. It will tie into MS active directory (AD), which allows for easier management of key cardholders. By being tied into AD, if a user is deactivated, their entry card will immediately be unusable. Because many schools are already using the local solution, the enterprise version will speed up the configuration of sites as AD will tell the system what sites and permissions a user is allowed to have based on the AD setup. Overall, the district will be prepared as facilities install the new AccessIT door access controls.

CLASSROOM TECHNOLOGY

NPS classrooms have various technologies that include but are not limited to windows desktops and laptops, Chromebooks, iPads, iMacs, smart projectors, headphones, and interactive flat panels (IFP). The mobile devices give students, teachers, and staff the ability to conduct teaching, student learning, and business operations in the traditional, hybrid, and-or virtual environment. Teachers and students are provided headphones to successfully participate in virtual meetings or classroom sessions. To fully support the all-educational environments, IT's goal is to provide all classrooms with an IFP, webcam, as well as to continuously provide teacher and student headphones.

INTERACTIVE FLAT PANELS (IFP)

The ongoing change in the educational landscape has created opportunities for educators to enhance the learning experience with better tools. The SMART IFP technology can help foster and maximize engagement both in and out of the classroom with interactive solutions created to improve student performance. To ensure that all classrooms have an IFP, NPS partnered with Vicom to assess each classroom in the district. Depending on the size and support structure of the designated wall mounting the IFP within the classroom, the room could need a 75" or 86". If the classroom does not have a wall strong enough to support the panel, a rollable IFP cart is needed for installation. The results are as follows:

- Total IFP needed to reach **100 percent**: 1527 (75") and 52 (86") = **1,579**
    - 1240 of these IFP's have already been ordered and are waiting for shipment and installation
- Total IFP still in order: 287 (75") and 52 (86") = **339**
- Total IFP Cart: 153

Please see Appendix F for details. The full assessment is broken down by each school location.

ONE TO ONE

STUDENT, TEACHER, STAFF DEVICE DISTRIBUTION

NPS technology has evolved over the past two decades. Each school has shifted from students and teachers sharing stationary desktops and mobile laptops computers to every NPS user needing a device 24/7 (School & Home). Prior to the pandemic, IT solely utilizes the state technology grant (STG) to purchase student devices. During COVID, like many schools nationwide, NPS was able to attain some financial assistance from the government Cares-Act funding. IT was able to purchase a vast number of Chromebooks. The district now has more than enough devices to accommodate each student, teacher, and staff.

The distribution will occur at the school level. Each student will be assigned the following:

- Chromebook or an iPad
- Device Protection: BumpArmor Case for Chromebooks or iPad Logic Case
- USB Headphone/Mic

The school staff must enter and align the device service tag number with the student information into Synergy to maintain inventory records. The student devices will follow the student within their grade levels in elementary, middle, and high schools. If a student is transferring from one school to another or out of the district, the device must be returned to the school that assigned the device (information found in Synergy).

Synergy is currently used to track student devices, but it is not a true asset inventory tracking system. To ensure that all devices in the division are tracked and sustainable, IT will move towards TIPWeb-IT for a robust asset management system designed for K-12. The solution will allow each school to audit and maintain all records of their devices. TIPWeb-IT is scalable and can grow with the district's needs.

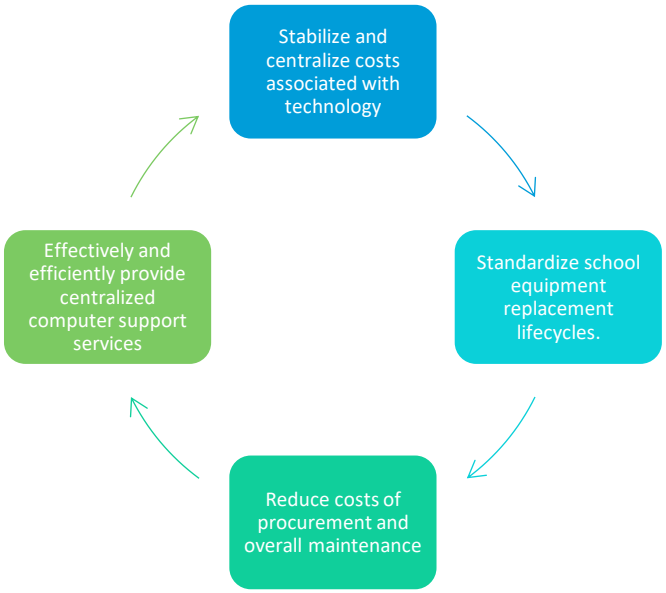
Essentially, the overall goal is to develop and utilize a sustainable, accountable, and scalable system where NPS can leverage an inventory system to maintain all technology assets of the division.

DEVICE LIFE-CYCLE

All technology must eventually be replaced at the end of its supported life span. The replacement and implementation of technology will occur in a planned, funded, and organized fashion for all academic and administrative areas. The primary goal of the device replacement plan is to ensure core technology is available to meet and align with the needs of teaching and learning as well as the necessary operations of NPS.

The plan will ensure that the one-to-one initiative continues, repeatedly for years to come. As technology grows at a rapid pace, the data and costs of devices will continuously change.

The **illustration below** illustrates the overall goal of the device life-cycle plan.



OPERATIONAL CYCLE

A five (5) year standard replacement schedule for computers, tablets, interactive devices, and high-volume printers is established by this plan. This schedule or cycle may be affected or altered by funding, technology evolution, and availability of technology warranty periods. In

conjunction with applicable departments, information technology is responsible for technology, design, vendor identification, proposal negotiations, centralized approval, and inventory/disposal timeliness. As required by the Information Technology Department and Norfolk Public Schools Security Policies, Procedure, and Guidelines, individuals are responsible for the immediate reporting of lost or stolen equipment. Additionally, individuals or departments may be required to fund the replacement value of equipment that has been lost, stolen, or damaged through negligence.

COMPONENTS INCLUDED

The following Norfolk Public Schools standard devices are covered and used by faculty, staff, and students to perform duties associated with the business operations and instructional activates of the School District.

The list of NPS supported devices are as follows:

Computer systems (Multi-Platform)

- PC Desktops
- Windows Laptops
- iPads
- MacBooks
- iMac
- Chromebooks

Interactive Devices

- Projectors
- Cameras and Mics as applicable for Distance Learning
- Interactive Flat Panels/TVs as applicable

High-volume printers

Laser Jet Desk Printers
High-Capacity Copiers

COMPONENTS – NOT INCLUDED

The following items are not covered under the general *Technology Replacement Plan*.

1. Non-District owned technology.

- Including outside agencies that utilize NPS as a purchasing agent

2. Specialized desktop printers or peripherals that operate outside the standard need
3. Consumable supplies (paper, toner, etc.)
4. Department procured components including keyboard, mouse, specialized monitors, or the third party supplied equipment
5. Specialized instructional equipment

RESPONSIBILITIES

The technology inventory system is utilized to drive the replacement schedule. Hardware identified as being at the end of the five (5) year cycle will be evaluated.

1. Affected users or departments will be notified and consulted to determine replacement needs, assessment, procurement, and scheduling.
2. New equipment will be inventoried, operations verified, training provided and implemented as needed.
3. Information Technology will ensure timeliness and accuracy of disposal of obsolete equipment.

Additional changes may be identified, including a significant shift in technology and security operations and competitiveness. Priorities and process adherence are based on funding availability. In addition, program changes requiring equipment modification will affect the standard process. All processes must follow Norfolk Public Schools' policies and those of the Information Technology Department, Information Security Policies, Procedure, and Guidelines.

ESTIMATED COSTS

Current Cost		**Yr 1**	**Cost Yr 1**	**Yr 2**	**Cost Yr 2**	**Yr 3**	**Cost Yr 3**	**Yr 4**	**Cost Yr 4**	**Yr 5**	**Cost Yr 5**
$ 265.00	**Chromebooks**	1025	$ 272,137.50	8271	$2,150,460	8271	$ 2,150,460	8271	$ 2,150,460	8271	$2,150,460
$ 1,200.00	**Laptops**	-	$	-	$		$	-	$	-	
$ 1,200.00	**MacBooks**	-	$	135	$ 121,500	135	$ 121,500	135	$121,500	135	$121,500
$ 400.00	**iPads**	125	$ 62,368.75	2082	$ 833,100	2082	$ 833,100	2082	$ 833,100	2082	$833,100
$ 1,500.00	**iMacs**	20	$ 30,000.00	-	$ -	-	$ -	20	$30,000.00	-	
$ 3,600.00	**IFP**	-	$ -	-	$ -	116	$417,600.00	277	$997,200.00	-	

	Total Cost		$364,506.25		$3,105,060		$3,522,660		$4,132,260		$3,105,060

Devices identified over the next five (5) years that will require replacement and the estimated cost of replacing them are included in the following Table. Cameras, student and teacher headphones for virtual distance learning are not included in these estimates. The total cost does not take into account the average State Technology Grant, which is approximately 1.2 million. The grant is not always a guaranteed funding source. Therefore, the data reflect current and projected numbers.

TECHNOLOGY ASSET-INVENTORY SYSTEM

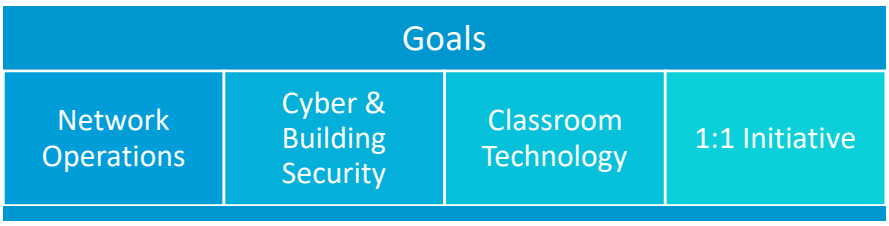
The district's Munis ERP system is used as the current inventory tracking system. A few years ago, Munis was a viable inventory solution for stationary technology devices. Today, all district technology must be tracked whether it is stationary or mobile due to mobile technology being assigned to staff and students.

Munis tracks the inventory based on the school and classroom location. SIS uses Synergy to track mobile devices such as iPads, Chromebooks, and Windows Laptops assigned to students. Using two separate database applications as an inventory is not sustainable to successfully manage the district technology assets. The system requires a certain level of technical input from all schools and multiple areas of IT.

TIPWEB-IT

The goal of IT is to move from an unstainable solution towards a true asset tracking system. TIPWeb-IT can utilize the sources of user and asset data entries from Munis and Synergy. The integration will provide centralized management and access, which creates consistency of data. The solution will allow each school and building to identify and report on details of individual assets, including change status, funding and purchase information, and more. Most importantly, TIPWeb-IT will maximize accountability across schools of the division.

5 YEAR PROJECTIONS



Goal	Technology Initiatives	YR 1 21-22	YR 2 22-23	YR 3 23-24	YR 4 24-25	YR5 25-26
NET-OPS	Critical Systems (Cloud Hosting) (Synergy, Munis, & ADFS) - Renewal	X	X	X	X	X
NET-OPS	Server Upgrades	X	X	X	X	X
NET-OPS	Network Switch Upgrades		X	X	X	X
NET-OPS	Wireless Network Upgrades	X	X	X	X	X
NET-OPS	Telecommunications: *Cisco VOIP & Zoom IP Phones*	X	X	X	X	X
NET-OPS	Raptor Funded by Security - Renewal	X	X	X	X	X
NET-OPS	Online Virtual Support system *Website – Calling Center – SolarWinds Help-Desk Ticket System*	X	X	X	X	X
NET-OPS	IT Staff Redundancy		X			
NET-OPS	BSA – Manage Services (Highest Level of Support-Renewal)	X	X	X	X	X
CYBER-SEC	CISCO Identity Services Engine Expansion (New & Renewal)	X	X	X	X	X
CYBER-SEC	2FA (Renewal)	X	X	X	X	X
CYBER-SEC	Securly 360 Cloud (Renewal)	X	X	X	X	X
CYBER-SEC	CISCO AMP (Rewewal)	X	X	X	X	X
CYBER-SEC	District Gateway & Datacenter Firewalls		X			
CYBER-SEC	KnowBe4	X	X	X	X	X
CYBER-SEC	Varonis		X	X	X	X

CYBER-SEC	Proficio – Managed Detection & Response (MDR)		X	X	X	X
BUILD-SEC	Raptor	X				X
BUILD-SEC	IP Video Surveillance Security Camera System		X	X	X	X
BUILD-SEC	Door Access Control – Enterprise Licensing		X	X	X	X
CLASS TECH	Interactive Flat Panels	X	X			
CLASS TECH	Web-Cams				X	
CLASS TECH	Student and Teacher Headphones				X	
CLASS TECH	Student Chromebook Protective Cases	X	X			
ONE TO ONE	Teacher and Student Device Distribution & Life Cycle	X	X	X	X	X
ASSET TRACKING SYSTEM	Division-Wide New Asset Tracking System - *TIPWEB-IT*	X	X	X	X	X

The projected 3 to 5 years costs for the technology initiatives pricing is listed in *Appendix G*.

CONCLUSION

NPS IT division has designed and implemented a technical support structure that is flexible, adaptable, and scalable multi-platform network environment. Over the course of the next 3 to 5 years, IT plans to increase resource accessibility and reliability for all division stakeholders. The overall arching goal is to move towards a cloud hosting environment for NPS critical systems, strengthen cyber and building security, and improve classroom tech. More importantly, IT plans to help bridge the digital divide by adopting the 1:1 initiative.

The plan will require approved funding for all items listed within the 3-to-5-year forecast. The projected *costs are subject to change* as the technology prices increase. IT does recognize that a limited budget could impact the adoption of some solutions. As the plan moves forward, IT will expand the culture of utilizing tech resources in virtual and in-person learning and business environment. IT will also provide all schools with a higher level of security. In essence, IT is committed to providing excellent services and support for all students, teachers, staff, and the community of Norfolk.

APPENDIX A – SYSTEMS SERVERS

THE TABLE BELOW REPRESENTS THE 3-TO-5-YEAR REPLACEMENT SCHEDULE FOR THE DIVISION.

Prices are subject to change

Go Back

SERVER REPLACEMENT SCHEDULE					
		Current Year	2021		
Code	**School**	**Purchase year of system**	**End of Life Year**	**End of Hardware Support**	**Cost Estimate**
001	GRANBY HIGH				
	esx-host-001	2017	2023	2025	$ 17,894.00
	CCTV-001	2015	2021	2023	$ 11,878.00
002	MAURY HIGH				
	esx-host-002	2017	2023	2025	$ 17,894.00
	CCTV-002	2015	2021	2023	$ 11,878.00
003	NORVIEW HIGH				
	esx-host-003	2017	2023	2025	$ 17,894.00
	Milestone-003	2019	2025	2027	$ 11,878.00
004	WASHINGTON HIGH				
	esx-host-004	2017	2023	2025	$ 17,894.00
	CCTV-004	2015	2021	2023	
005	LAKE TAYLOR HIGH				
	esx-host-005	2017	2023	2025	$ 17,894.00
	CCTV-005	2015	2021	2023	$ 11,878.00
006	AZALEA MIDDLE SCHOOL				
	esx-host-006	2019	2025	2027	$ 17,894.00
007	BLAIR MIDDLE SCHOOL				
	esx-host-007	2019	2025	2027	$ 17,894.00
008	JACOX ELEMENTARY				
	esx-host-008	2018	2024	2026	$ 17,894.00

010	SOUTHSIDE STEM ACAD CAMPOSTELL K-8				
	esx-host-010	2017	2023	2025	$ 17,894.00
	CCTV-010	2018	2024	2026	$ 11,878.00
011	NORTHSIDE MIDDLE SCHOOL				
	esx-host-011	2018	2024	2026	$ 17,894.00
012	NORVIEW MIDDLE SCHOOL				
	esx-host-012	2019	2025	2027	$ 17,894.00
013	ACAD. OF INTNAT'L STUDIES-RSMT				
	esx-host-013	2019	2025	2027	$ 17,894.00
014	RUFFNER MIDDLE SCHOOL				
	esx-host-014	2019	2025	2027	$ 17,894.00
015	WILLARD ELEMENTARY				
	esx-host-015	2018	2024	2026	$ 17,894.00
016	LAKE TAYLOR SCHOOL (3-8)				
	esx-host-016	2019	2025	2027	$ 17,894.00
017	ACAD FOR DISCOVERY AT LAKEWOOD 3-8				
	esx-host-017	2019	2025	2027	$ 17,894.00
018	TARRALLTON ELEMENTARY				
	esx-host-018	2018	2024	2026	$ 17,894.00
019	TIDEWATER PARK ELEMENTARY 3-5				
	esx-host-019	2018	2024	2026	$ 17,894.00
021	BAY VIEW ELEMENTARY				
	esx-host-021	2018	2024	2026	$ 17,894.00
023	CALCOTT ELEMENTARY				
	esx-host-023	2018	2024	2026	$ 17,894.00
025	RICHARD BOWLING ELEMENTARY				
	esx-host-025	2017	2023	2025	$ 17,894.00
	CCTV-025	2018	2024	2026	$ 11,878.00
026	CHESTERFIELD ACADEMY				
	esx-host-026	2017	2023	2025	$ 17,894.00
028	COLEMAN PLACE ELEMENTARY				
	esx-host-028	2017	2023	2025	$ 17,894.00
029	CROSSROADS ELEMENTARY K-8				
	esx-host-029	2017	2023	2025	$ 17,894.00

	CCTV-029	2015	2021	2023	$ 11,878.00
030	BERKLEY-CAMPOSTELLA ECC				
	esx-host-030	2018	2024	2026	$ 17,894.00
031	ST. HELENA ELEMENTARY				
	esx-host-031	2018	2024	2026	$ 17,894.00
034	GRANBY ELEMENTARY				
	esx-host-034	2017	2023	2025	$ 17,894.00
035	GHENT ELEMENTARY K-8				
	esx-host-035	2017	2023	2025	$ 17,894.00
036	INGLESIDE ELEMENTARY				
	esx-host-036	2017	2023	2025	$ 17,894.00
037	SEWELLS POINT ELEMENTARY				
	esx-host-037	2017	2023	2025	$ 17,894.00
040	LARCHMONT ELEMENTARY				
	esx-host-040	2018	2024	2026	$ 17,894.00
	CCTV-040	2018	2024	2026	$ 11,878.00
042	LARRYMORE ELEMENTARY				
	esx-host-042	2017	2023	2025	$ 17,894.00
044	OCEAN VIEW ELEMENTARY				
	esx-host-044	2017	2023	2025	$ 17,894.00
	CCTV-044	2018	2024	2026	$ 11,878.00
045	LINDENWOOD ELEMENTARY				
	esx-host-045	2017	2023	2025	$ 17,894.00
046	LITTLE CREEK ELEMENTARY				
	esx-host-046	2018	2024	2026	$ 17,894.00
050	MONROE ELEMENTARY				
	esx-host-050	2017	2023	2025	$ 17,894.00
051	NORVIEW ELEMENTARY				
	esx-host-051	2017	2023	2025	$ 17,894.00
053	OCEANAIR ELEMENTARY				
	esx-host-053	2018	2024	2026	$ 17,894.00
056	SHERWOOD FOREST ELEMENTARY				
	esx-host-056	2018	2024	2026	$ 17,894.00
059	SUBURBAN PARK ELEMENTARY				

	esx-host-059	2017	2023	2025	$ 17,894.00
060	TAYLOR ELEMENTARY				
	esx-host-060	2017	2023	2025	$ 17,894.00
061	TANNERS CREEK ELEMENTARY				
	esx-host-061	2017	2023	2025	$ 17,894.00
065	P B YOUNG SR ELEMENTARY PreK-2				
	esx-host-065	2018	2024	2026	$ 17,894.00
068	FAIRLAWN ELEMENTARY K-2				
	esx-host-068	2017	2023	2025	$ 17,894.00
071	EASTON PRESCHOOL				
	esx-host-071	2019	2025	2027	$ 17,894.00
084	FACILITY MGMT				
	esx-host-084	2018	2024	2026	$ 17,894.00
096	NORFOLK TECHNICAL CENTER				
	esx-host-096	2018	2024	2026	$ 17,894.00
106	WILLOUGHBY ECC				
	esx-host-106	2017	2023	2025	$ 17,894.00
107	CAMP YOUNG				
	esx-host-107	2017	2023	2025	$ 17,894.00
115	CAMP ALLEN ELEMENTARY				
	esx-host-115	2017	2023	2025	$ 17,894.00
	CCTV-115	2019	2025	2027	$ 11,878.00
124	TRANSPORTATION				
	esx-host-124	2019	2025	2027	$ 17,894.00
192	MADISON ALTERNATIVE CENTER				
	esx-host-192	2019	2025	2027	$ 17,894.00
193	NET ACAD				
	esx-host-193	2019	2025	2027	$ 17,894.00
189	CENTRAL ADMIN				
	DD2500 -36TB	2015	2021	2023	$ 49,588.83
	DD2500 -21TB	2015	2021	2023	$ 49,588.83
	DD6300 -34TB (2)	2016	2022	2024	$ 99,177.65
	ESMC	2016	2022	2024	$ 17,894.00
	ESMC-DB	2016	2022	2024	$ 17,894.00

	ESMC-Servers	2016	2022	2024	$ 17,894.00
	finhr-vmhost-1-000	2015	2021	2023	$ 17,894.00
	finhr-vmhost-2-000	2015	2021	2023	$ 17,894.00
	finhr-vmhost-3-000	2015	2021	2023	$ 17,894.00
	Veeam-000	2019	2025	2027	$ 17,894.00
	ad-1-000	2016	2022	2024	$ 17,894.00
	HPX-000	2019	2025	2027	$ 751,900.00
199	COLO				
	HPX-199	2019	2025	2027	$ 387,000.00
	VXRAIL-199	2015	2021	2023	$ 427,900.00
	esx-1-196	2015	2021	2023	$ 17,894.00
	esx-2-196	2015	2021	2023	$ 17,894.00
	esx-3-196	2015	2021	2023	$ 17,894.00
				Total Five Year Cost	$ 868,582.00

APPENDIX B – NETWORK SWITCHES

THE TABLE BELOW REPRESENTS THE 3-TO-5-YEAR REPLACEMENT SCHEDULE FOR THE DIVISION.

Prices are subject to change

Go Back

School Name	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing
High School								
BTW	2024/Cisco	**$260,567.00**	2025/Cisco		2026/Cisco		2027/Cisco	
Granby	2024/Cisco	**$275,079.00**	2025/Cisco		2026/Cisco		2027/Cisco	
Lake Taylor	2024/Cisco	**$245,497.00**	2025/Cisco		2026/Cisco		2027/Cisco	
Maury	2024/Cisco	**$234,844.00**	2025/Cisco		2026/Cisco		2027/Cisco	
Norview	2024/Cisco	**$258,734.00**	2025/Cisco		2026/Cisco		2027/Cisco	
Middle School								
Azalea Garden	2024/Cisco		2025/Cisco	**$109,217.00**	2026/Cisco		2027/Cisco	
Blair	2024/Cisco		2025/Cisco	**$345,905.00**	2026/Cisco		2027/Cisco	
Lakewood	2024/Cisco		2025/Cisco	**$139,755.00**	2026/Cisco		2027/Cisco	
Lake Taylor	2024/Cisco		2025/Cisco	**$120,905.00**	2026/Cisco		2027/Cisco	
Northside	2024/Cisco		2025/Cisco	**$135,866.00**	2026/Cisco		2027/Cisco	
Norview	2024/Cisco		2025/Cisco	**$122,520.00**	2026/Cisco		2027/Cisco	
Rosemont	2024/Cisco		2025/Cisco	**$114,417.00**	2026/Cisco		2027/Cisco	
Ruffner	2024/Cisco		2025/Cisco	**$137,499.00**	2026/Cisco		2027/Cisco	
Elementary School								
Bayview	2024/Cisco		2025/Cisco		2026/Cisco	**$95,417.00**	2027/Cisco	
Calcott	2024/Cisco		2025/Cisco		2026/Cisco	**$82,736.00**	2027/Cisco	
Campostella	2024/Cisco		2025/Cisco		2026/Cisco	**$100,000.00**	2027/Cisco	
Camp Allen	2024/Cisco		2025/Cisco		2026/Cisco	**$100,000.00**	2027/Cisco	
Chesterfield	2024/Cisco		2025/Cisco		2026/Cisco	**$83,518.00**	2027/Cisco	
Coleman Place	2024/Cisco		2025/Cisco		2026/Cisco	**$165,249.00**	2027/Cisco	
Crossroads	2024/Cisco		2025/Cisco		2026/Cisco	**$138,698.00**	2027/Cisco	
Fairlawn	2024/Cisco		2025/Cisco		2026/Cisco	**$73,195.00**	2027/Cisco	
Ghent	2024/Cisco		2025/Cisco		2026/Cisco	**$85,736.00**	2027/Cisco	

Granby	2024/Cisco		2025/Cisco		2026/Cisco	**$95,381.00**	2027/Cisco	
Ingleside	2024/Cisco		2025/Cisco		2026/Cisco	**$87,192.00**	2027/Cisco	
Jacox	2024/Cisco		2025/Cisco		2026/Cisco	**$158,935.00**	2027/Cisco	
Larchmont	2024/Cisco		2025/Cisco		2026/Cisco	**$100,000.00**	2027/Cisco	
Larrymore	2024/Cisco		2025/Cisco		2026/Cisco	**$87,802.00**	2027/Cisco	
Lindenwood	2024/Cisco		2025/Cisco		2026/Cisco	**$92,673.00**	2027/Cisco	
Little Creek	2024/Cisco		2025/Cisco		2026/Cisco	**$125,160.00**	2027/Cisco	
Monroe	2024/Cisco		2025/Cisco		2026/Cisco	**$136,698.00**	2027/Cisco	
Norview	2024/Cisco		2025/Cisco		2026/Cisco	**$77,088.00**	2027/Cisco	
Ocean View	2024/Cisco		2025/Cisco		2026/Cisco	**$100,000.00**	2027/Cisco	
Ocean Air	2024/Cisco		2025/Cisco		2026/Cisco	**$193,843.00**	2027/Cisco	
Richard Bowling	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$100,000.00**
ST. Helena	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$66,919.00**
Sewells Point	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$84,468.00**
Sherwood Forest	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$84,468.00**
Suburban Park	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$76,682.00**
Tanners Creek	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$90,319.00**
Tarrallton	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$59,267.00**
Tidewater Park	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$68,005.00**
W.H. Taylor	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$68,807.00**
Willard	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$83,839.00**
Willoughby	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$57,226.00**
Young Park	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$69,289.00**
Auxiliary								
Berkley Campostella	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$56,255.00**
Camp Young	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$60,000.00**
CAB	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**need pricing**
Easton	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$33,197.00**
Grandy Villiage	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**need pricing**
Madison	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**$99,385.00**
NDC	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	**need pricing**

NTC	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	$158,454.00
School Plant	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	need pricing
Transportation	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	need pricing
Total Pricing	2024	$1,274,721.00	2025	$1,226,084.00	2026	$2,179,321.00	2027	$1,316,580.00

APPENDIX C – WIRELESS ACCESS POINTS

THE TABLE BELOW REPRESENTS THE 3-TO-5-YEAR REPLACEMENT SCHEDULE FOR THE DIVISION.

Prices are subject to change

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School Name	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing
	High School											
BTW	2022/Cisco	$177,367.98	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Granby	2022/Cisco	-	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	$180,000.00
Lake Taylor	2022/Cisco	$192,812.06	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Maury	2022/Cisco	$226,762.06	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Norview	2022/Cisco	-	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	$180,000.00
	Middle School											
Azalea Garden	2022/Cisco	$121,898.45	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Blair	2022/Cisco	$228,980.11	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Lakewood	2022/Cisco	$137,481.30	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Lake Taylor	2022/Cisco	-	2023/Cisco	$100,000.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Northside	2022/Cisco	-	2023/Cisco	$72,000.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Norview	2022/Cisco	-	2023/Cisco	$147,598.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Rosemont	2022/Cisco	-	2023/Cisco	$157,587.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Ruffner	2022/Cisco	-	2023/Cisco	$66,331.01	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e

	Elementary School											
Bayview	2022/Cisco	$93,615.67	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Calcott	2022/Cisco	-	2023/Cisco		2024/Cisco	$109,046.00	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Campostella	2022/Cisco	-	2023/Cisco		2024/Cisco	$90,000.00	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Camp Allen	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	$36,000.00
Chesterfield	2022/Cisco	-	2023/Cisco		2024/Cisco	$47,833.00	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Coleman Place	2022/Cisco	$119,345.09	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Crossroads	2022/Cisco	$134,420.04	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Fairlawn	2022/Cisco	-	2023/Cisco		2024/Cisco	$37,102.00	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Ghent	2022/Cisco	$49,362.63	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Granby	2022/Cisco	-	2023/Cisco		2024/Cisco	$105,213.00	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Ingleside	2022/Cisco	-	2023/Cisco		2024/Cisco	$83,433.82	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Jacox	2022/Cisco	-	2023/Cisco		2024/Cisco	$128,714.64	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Larchmont	2022/Cisco	-	2023/Cisco		2024/Cisco	$60,000.00	2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Larrymore	2022/Cisco	$85,194.28	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Lindenwood	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$92,195.38	2026/Cisco		2027/Cisco	wifi-6e
Little Creek	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$72,788.00	2026/Cisco		2027/Cisco	wifi-6e
Monroe	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$94,259.00	2026/Cisco		2027/Cisco	wifi-6e
Norview	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$50,568.00	2026/Cisco		2027/Cisco	wifi-6e
Ocean View	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$60,000.00	2026/Cisco		2027/Cisco	wifi-6e
Ocean Air	2022/Cisco	$89,946.37	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Richard Bowling	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$60,000.00	2026/Cisco		2027/Cisco	wifi-6e
ST. Helena	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco	$36,884.00	2026/Cisco		2027/Cisco	wifi-6e
Sewells Point	2022/Cisco	$78,172.59	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Sherwood Forest	2022/Cisco	$92,353.12	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Suburban Park	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco	$44,411.00	2027/Cisco	wifi-6e
Tanners Creek	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco	$115,718.00	2027/Cisco	wifi-6e
Tarrallton	2022/Cisco	$59,424.72	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Tidewater Park	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco	$39,982.00	2027/Cisco	wifi-6e
W.H. Taylor	2022/Cisco	$67,277.36	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Willard	2022/Cisco	$85,417.04	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Willoughby	2022/Cisco	$45,838.55	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Young Park	2022/Cisco	-	2023/Cisco		2024/Cisco		2025/Cisco		2026/Cisco	$41,279.00	2027/Cisco	wifi-6e

	Auxiliary											
Berkley Campostella	2022/Cisco	-	2023/Cisco	$36,000.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Camp Young	2022/Cisco	-	2023/Cisco	$36,000.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
CAB	2022/Cisco	-	2023/Cisco	need pricing	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Easton	2022/Cisco	$42,376.42	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Grandy Villiage	2022/Cisco	$12,397.37	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Madison	2022/Cisco	$67,703.69	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
NDC	2022/Cisco	-	2023/Cisco	need pricing	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
NTC	2022/Cisco	$115,049.36	2023/Cisco	-	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
School Plant	2022/Cisco	-	2023/Cisco	need pricing	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Transportation	2022/Cisco	-	2023/Cisco	need pricing	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	wifi-6e
Cisco Controller Upgrade (C9800-80-K9)	2022/Cisco		2023/Cisco	$358,230.00	2024/Cisco		2025/Cisco		2026/Cisco		2027/Cisco	
Total Pricing	2022	$2,323,196.26	2023	$973,746.01	2024	$661,342.46	2025	$466,694.38	2026	$241,390.00	2027	$396,000.00

APPENDIX D – TELECOMMUNICATIONS (CISCO VOIP)

THE TABLE BELOW REPRESENTS THE 3-TO-5-YEAR PHONE REPLACEMENT SCHEDULE FOR THE DIVISION.
Prices are subject to change

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School Name	Year/Model	Pricing	Year/Model	Pricing	Year/Model	Pricing
High School						
BTW	2022/Cisco		2023/Cisco		2024/Cisco	$74,386.78
Granby	2022/Cisco	2021 refresh	2023/Cisco		2024/Cisco	
Lake Taylor	2022/Cisco		2023/Cisco		2024/Cisco	$63,658.53
Maury	2022/Cisco		2023/Cisco		2024/Cisco	$90,632.92
Norview	2022/Cisco		2023/Cisco		2024/Cisco	
Middle School						
Azalea Garden	2022/Cisco		2023/Cisco		2024/Cisco	
Blair	2022/Cisco		2023/Cisco		2024/Cisco	
Lakewood	2022/Cisco		2023/Cisco		2024/Cisco	
Lake Taylor	2022/Cisco		2023/Cisco		2024/Cisco	
Northside	2022/Cisco		2023/Cisco		2024/Cisco	$50,220.09
Norview	2022/Cisco		2023/Cisco		2024/Cisco	
Rosemont	2022/Cisco		2023/Cisco		2024/Cisco	$83,259.53
Ruffner	2022/Cisco		2023/Cisco		2024/Cisco	$56,984.61
Elementary School						
Bayview	2022/Cisco		2023/Cisco		2024/Cisco	$45,057.96
Calcott	2022/Cisco		2023/Cisco		2024/Cisco	$41,059.05
Campostella	2022/Cisco		2023/Cisco		2024/Cisco	
Camp Allen	2022/Cisco		2023/Cisco		2024/Cisco	
Chesterfield	2022/Cisco	$42,527.40	2023/Cisco		2024/Cisco	
Coleman Place	2022/Cisco		2023/Cisco		2024/Cisco	
Crossroads	2022/Cisco		2023/Cisco		2024/Cisco	$56,241.23
Fairlawn	2022/Cisco		2023/Cisco		2024/Cisco	

Ghent	2022/Cisco		2023/Cisco	$35,494.90	2024/Cisco	
Granby	2022/Cisco		2023/Cisco		2024/Cisco	$42,527.40
Ingleside	2022/Cisco		2023/Cisco		2024/Cisco	$37,298.98
Jacox	2022/Cisco		2023/Cisco		2024/Cisco	
Larchmont	2022/Cisco		2023/Cisco		2024/Cisco	
Larrymore	2022/Cisco		2023/Cisco		2024/Cisco	
Lindenwood	2022/Cisco		2023/Cisco		2024/Cisco	$37,298.98
Little Creek	2022/Cisco		2023/Cisco		2024/Cisco	
Monroe	2022/Cisco		2023/Cisco		2024/Cisco	$41,208.55
Norview	2022/Cisco		2023/Cisco	$37,298.98	2024/Cisco	
Ocean View	2022/Cisco		2023/Cisco		2024/Cisco	
Ocean Air	2022/Cisco		2023/Cisco		2024/Cisco	$41,693.95
Richard Bowling	2022/Cisco		2023/Cisco		2024/Cisco	
ST. Helena	2022/Cisco		2023/Cisco	$37,298.98	2024/Cisco	
Sewells Point	2022/Cisco		2023/Cisco		2024/Cisco	$42,051.05
Sherwood Forest	2022/Cisco		2023/Cisco		2024/Cisco	$40,224.42
Suburban Park	2022/Cisco		2023/Cisco		2024/Cisco	
Tanners Creek	2022/Cisco		2023/Cisco		2024/Cisco	$43,512.46
Tarrallton	2022/Cisco		2023/Cisco		2024/Cisco	$42,527.25
Tidewater Park	2022/Cisco		2023/Cisco		2024/Cisco	
W.H. Taylor	2022/Cisco		2023/Cisco		2024/Cisco	$40,224.42
Willard	2022/Cisco		2023/Cisco		2024/Cisco	
Willoughby	2022/Cisco		2023/Cisco		2024/Cisco	$40,224.42
Young Park	2022/Cisco		2023/Cisco		2024/Cisco	$40,172.23
Auxiliary						
Berkley Campostella	2022/Cisco		2023/Cisco		2024/Cisco	$40,224.42
Camp Young	2022/Cisco		2023/Cisco		2024/Cisco	$24,948.41
CAB	2022/Cisco		2023/Cisco		2024/Cisco	$221,560.78
Easton	2022/Cisco		2023/Cisco		2024/Cisco	$39,225.53
Grandy Villiage	2022/Cisco		2023/Cisco		2024/Cisco	
Madison	2022/Cisco	$40,073.92	2023/Cisco		2024/Cisco	

NDC	2022/Cisco		2023/Cisco		2024/Cisco	
NTC	2022/Cisco		2023/Cisco		2024/Cisco	
School Plant	2022/Cisco		2023/Cisco		2024/Cisco	
Transportation	2022/Cisco		2023/Cisco		2024/Cisco	$52,992.49
Total Pricing	2022	$82,601.32	2023	$110,092.86	2024	$1,429,416.44

APPENDIX E – SECURITY CAMERAS

THE TABLE BELOW REPRESENTS THE 3-TO-5-YEAR REPLACEMENT SCHEDULE FOR THE DIVISION.

Prices are subject to change

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YEAR 1 – PHASE 1	**HIGH SCHOOLS**	**$524,717.67**
YEAR 2 – PHASE 2	**MIDDLE SCHOOLS**	**$894,079.08**
YEAR 3 – PHASE 3	**ELEMENTARY SCHOOLS**	**$2,147,237.40**
AUXILARY SITES	**IN THE PROGRESS OF ASSESSING**	
TOTAL		**$3,625,325,91 (HS, MS, AND ES)**

Appendix F – SMART Interactive Flat Panels

THE TABLE BELOW REPRESENTS IFP ASSESSMENT FOR THE DIVISION.

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SCHOOL	# SMART 75" IFP'S NEEDED TO SEE SCHOOL MAPS FOR LOCATIONS	# SMART 86" IFP'S NEEDED TO SEE MAPS FOR LOCATIONS	CARTS NEEDED	CART LOCATIONS	NOTES
Academy for Discovery at Lakewood	54	4	1	Cafeteria	CART FOR 86" IN CAFETERIA

Academy of International Studies at Rosemont	49	1	1	Auditorium 86"	CART FOR 86" IN AUDITORIUM USED FOR MUSIC & BAND
Azalea Gardens Middle School	54	0	3	Mobiles	CARTS FOR MOBILE CLASSROOMS
Bay View Elementary School	41	1	1	Multipurpose	CART FOR 86" MultiPurpose
Berkley / Campostella Early Childhood Education Center	21	0	0	NA	
Blair Middle School	88	2	1	Media Ctr	CART FOR 1 86" Media Ctr;
Booker T. Washington High School	14	1	1	Cafeteria	CART FOR 86" IN CAFETERIA
Camp Allen Elementary School	42	1	1	Cafeteria	CART FOR 86" IN CAFETERIA
Camp Young	8	1	1	Cafeteria	CART FOR 86" IN CAFETERIA
Chesterfield Academy	29	1	11	Auditorium; mobiles	CART FOR 86" AUDITORIUM; 10 FOR MOBILES
Coleman Place Elementary School	42	2	2	Cafeteria; Media Ctr	CARTS FOR 86" in CAFETERIA & MEDIA CTR
Crossroads School	37	2	3	Choral rm; Media Ctr; Cafeteria	CARTS FOR 86" IN MEDIA CTR & CAFETERIA; CHORAL ROOM 75"
Fairlawn Elementary School	21	1	1	Cafeteria	CART FOR 86" IN CAFETERIA
Ghent School	34	2	34	Media Ctr; Art Rm; Media Ctr; Mobiles	CARTS FOR ALL CLASSROOMS DUE TO FALSE WALLS & 3 MOBILES & 75" Art; 86" Media Ctr; 86 Cafeteria
Granby Elementary School	24	1	1	Auditorium	CART FOR 86" AUDITORIUM
Granby High School	82	0	0	NA	

Grandy Village	4		4		2 Rooms are responsibility of Chesterfield ES, and a conf rm and science rm belong to NPS
Ingleside Elementary School	18	1	6	MEDIA CTR; MOBILES	1 CART FOR 86" IN MEDIA CTR; REST FOR MOBILES
Jacox Elementary School	9	1	5	Cafeteria; mobiles	1 CART FOR 86" 4 FOR MOBILES
James Monroe Elementary School	3	1	1	Cafeteria	CART FOR 86" CAFETERIA
Lake Taylor High School	32	2	3	Auditorium; lecture room 420	2 CART FOR 86" 1 FOR 75"
Lake Taylor School	35	1	1	Auditorium	CART FOR 86" AUDITORIUM
Larchmont Elementary School	46	0	0	NA	
Larrymore Elementary School	2	0	0	NA	
Lindenwood Elementary School	0	0	2	For 2 IFP's school has onsite	CARTS FOR EXTRA 75" IFP'S SCHOOL PRESENTLY OWNS
Little Creek Elementary School	30	1	7	Auditorium; Mobiles	CART FOR 86" AUDITORIUM; REST FOR MOBILES
Madison Alternative Center	22	1	1	Cafeteria	CART FOR 86" IN CAFETERIA
Mary Calcott Elementary School	29	2	2	Cafeteria & Multipurpose	CARTS FOR 86" IN CAFETERIA & MULTIPURPOSE
Maury High School	64	1	1	Media Ctr	CART FOR 86" IN MEDIA CTR
Norfolk Technical Center	15	0	2		CARTS FOR GREENHOUSE & LIBRARY: VERIFY
Northside Middle School	12	4	4	Library; Auditorium; Band; Cafeteria	CARTS FOR 86" CAFETERIA; LIBRARY; AUDITORIUM; BAND

Norview Elementary School	17	1	3	Cafetorium & Mobiles	CARTS FOR 86" CAFETERIA; REST FOR MOBILES
Norview High School	92	2	5	Large Forum; Media Ctr; SPED Rms	1 CART FOR 86" LECTURE/FORUM RM REST FOR SPED ROOMS
Norview Middle School	10	1	1	Auditorium	CART FOR 86". SOME ROOMS THAT HAVE CLEAR TOUCH PANELS WILL NOT GET SMART IFP'S AT THIS TIME
Ocean View Elementary School	47	0	0	NA	
Oceanair Elementary School	34	1	9	Multipurpose Rm; Mobiles	1 CART FOR 86" MULTIPURPOSE RM & REST FOR MOBILES
P. B. Young Sr. Elementary School	4	0	2	Mobiles	CARTS FOR 2 MOBILES & 75"
Richard Bowling Elementary School	50	0	0	NA	
Ruffner Academy	35	0	1	Rm 105	CART FOR 75 IN ROOM 105
Sewells Point Elementary School	0	1	1	Multipurpose/Cafeteria	CART FOR 86" IN MLTIPUPROSE/CAFETERIA
Sherwood Forest Elementary School	29	2	7	Mobiles; Medica Ctr; Cafeteria; Auditorium	4 CARTS FOR MOBILES; 1 FOR MEDIA 75"; 1 FOR CAFETERIA 86"; 1 FOR AUDITORIUM 86"
Southside STEM Academy at Campostella	72	0	0	NA	
St. Helena Elementary School	0	1	1	Cafetorium	CART FOR 86" IN CAFETORIUM
Suburban Park Elementary School	21	1	2	Cafeteria & Mobile	CART FOR 75" MOBILE & 86" CAFETERIA
Tanners Creek Elementary School	44	1	1	Cafeteria	CART FOR 86" CAFETERIA

Tarrallton Elementary School	30	1	5	Cafeteria & Mobiles	1 FOR 86" IN CAFETERIA REST FOR MOBILES
Tidewater Park Elementary School	21	1	7	Cafeteria & Mobiles	CARTS FOR 6 MOBILES & 86" IN CAFETERIA
W. H. Taylor Elementary School	26	1	2	Media Ctr Rm 147	MEDIA CTR 75" & CART; 86" RM 147
Willard Elementary School	24	1	3	Multipurpose rm; Art rm; rm 30	CART FOR 86" MULTIPURPOSE RM; RM 30 & MEDIA CTR 75"
Willoughby Elementary School	10	2	2	Cafeteria & Music/Auditorium	CART FOR 86" IN CAFETERIA & MUSIC/AUDITORIUM. MEDIA CTR RECEIVED 2 75" IFP'S
TOTALS IFP'S NEEDED TO BE PURCHASED	**1527**	**52**	**153**		
IFP'S 75" ALREADY ORDERED	**620**	**0**	**0**		
TOTAL STILL NEEDED TO BE PURCHASED/ORDERED	**907**	**52**	**153**		
THE TOTAL TAKES INTO ACCOUNT PREVIOUSLY INSTALLED IFP'S AT VARIOUS SCHOOLS AND THE 217 TITLE 1 IFP'S PREVIOUSLY PURCHASED AND TO BE INSTALLED AT VARIOUS TITLE 1 SCHOOLS					

Appendix G – Technology Initiatives – 3 to 5 Yr Projected Costs

THE TABLE BELOW REPRESENTS 3 TO 5 YR PROJECTED COSTS FOR THE DIVISION.

Prices are subject to change

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Goal	Technology Initiatives	YR 1 21-22	YR 2 22-23	YR 3 23-24	YR 4 24-25	YR525-26
NET-OPS	Critical Systems (Cloud Hosting) - Renewal					
	Synergy	~60,000	~61,500	~61,500	~61,500	~61,500
	Munis	~155,000	~155,000	~155,000	~155,000	~155,000
	ADFS	~16,968	~16,968	~16,968	~16,968	~16,968
NET-OPS	Server Upgrades	~13,000	~191,750	~191,750	~191,750	~191,750
NET-OPS	Network Switch Upgrades	~0	~240,000	~240,000	~240,000	~240,000
NET-OPS	Wireless Network Upgrades	~480,000	~240,000	~240,000	~240,000	~240,000
NET-OPS	Telecommunications: *Cisco VOIP & Zoom IP Phones*	~440,000	~440,000	~440,000	~440,000	~440,000
NET-OPS	Raptor – Funded by Security Dep	-	-	-	-	-
NET-OPS	Online Virtual Support system *Website – Calling Center – SolarWinds Help-Desk Ticket System*	~14,000	~14,700	~15,400	~16,100	~16,800
NET-OPS	IT Staff Redundancy	-	X	-	-	-
NET-OPS	BSA – Manage Services (Highest Level of Support-Renewal)	~60,000	~60,000	~60,000	~60,000	~60,000
CYBER-SEC	CISCO Identity Services Engine	~$92,312.80	~61,000	~61,000	~61,000	~61,000

	Expansion (New & Renewal) (1st year – One Time cost for needed VMs) + Existing Licensing					
CYBER-SEC	2FA (Renewal)	~4,000	~4,250	~4,500	~4,750	~5,000
CYBER-SEC	Securly 360 Cloud (Renewal)	~150,000	~150,000	~150,000	~150,000	~150,000
CYBER-SEC	MS ATP 2 (Renewal) – Included in Office 365	~85,000	~86,000	~87,000	~88,000	~89,000
CYBER-SEC	CISCO AMP (Rewewal)	~175,000	~175,000	~175,000	~175,000	~175,000
CYBER-SEC	District Gateway & Datacenter Firewalls	~150,263.98	~0	~0	~0	~0
CYBER-SEC	KnowBe4	~22,400	~22,400	~22,400	~22,400	~22,400
CYBER-SEC	Varonis	-	~160,000	~160,000	~160,000	~160,000
CYBER-SEC	Proficio (MDR)	-	~145,000	~145,000	~145,000	~145,000
BUILD-SEC	IP Video Surveillance Security Camera System		~500,000	~500,000	~500,000	~500,000
BUILD-SEC	Door Access Control	-	~80,000	~80,000	~80,000	~80,000
CLASS TECH	Interactive Flat Panels	~2,056,352	~1,573,859.39	-	-	-
CLASS TECH	Webcams (teachers already have them) May need more due to breakage	-	-	-	~56,250	-
CLASS TECH	Student and Teacher Headphones	Surveying	-	-	~708,000	-
CLASS TECH	Student Chromebook Protective Cases	Surveying	-	-	-	-
ONE TO ONE	Teacher and Student Device Distribution & Life Cycle (STG NPS-Portion) + Additional may be needed	~175,200	~175,200	~175,200	~175,200	~175,200
ASSET TRACKING SYSTEM	Division-Wide New Asset Tracking System - *TIPWEB-IT*	~47,500	~49,000	~50,300	~52,000	~53,500