Great Falls Public Schools

Information Technology Plan

2016 – 2021

Great Falls Public Schools
1100 4th Street South
Great Falls, Montana 59405

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Introduction

Technology is a tool that supports our overall mission to successfully educate students to navigate their future. For students today, technology is an extension of their life so it is essential that GFPS transform how students learn and provide enriching opportunities to enhance learning in a fair and equitable manner. Technology that engages students and promotes collaboration, critical thinking skills, and multi-dimensional problem solving, leads to greater academic success and achievement. To support that vision, teachers and staff must also be engaged in technology. Providing professional development coupled with onsite support and efficient and effective resources that are "always on" and fully available are paramount to making student achievement a realization. At GFPS, our primary objective is to prepare our students to be college, career and citizenship ready in adapting and using technology for life.

This five year technology plan encompasses key components to make integration of technology within the classroom a reality and success.

This plan was unanimously approved by the GFPS School Board on September 26, 2016.

Text marked in red indicates objectives that cannot be met unless a Technology Levy increase or other source of funding is incurred.

Evaluation

This plan will be reviewed and evaluated on an annual basis. Accomplishments and revisions will be reported to the School Board within an annual Technology Report.

Stakeholders

Who will be impacted by the plan?

- Students
- Teachers, Administrators, and Staff
- Parents
- Community
- Local Businesses, Higher Education, and Military

GFPS Technology Mission & Vision Statements

Vision: "Engaging, collaborative, transformative technology for all students."

Mission: "We strategically use technology to promote greater academic success and achievement."

Belief statements:

- Technology is a tool that supports our mission to successfully educate students to navigate their future.
- Technology is an extension of students' current reality.
- Technology engages students and promotes collaboration.
- Technology facilitates critical thinking skills and multi-dimensional problem solving.
- Effective, efficient use of technology is a partnership with students, staff, teachers, and resources to augment learning in a fair and equitable manner.
- Effective, efficient use of technology prepares our students to be college, career, and citizenship ready in adapting and using technology for life.

Committee Members

Technology Advisory Committee

• Bob McGregor	Data Supervisor	District Offices
• Brad Barringer	Principal	North Middle School
• Charlene Ammons	Elementary Technology Coach	District Offices
• Chris Olszewski	Director of Curriculum	District Offices
• Dale Lambert	Director of Student Services	District Offices
• Dan Sibert	Technology Architect	Little Russell
• Geff Habel	Associate Principal	Great Falls High School
• Greg Clement	Student Advocate	East Middle School
• Jamie Williams	Librarian	CMR High School
• Jana Mora	High School Technology Coach	District Offices
• Jon Konen	Principal	Lincoln Elementary
• Ruth Uecker	Elementary Assistant Superintendent	District Offices
• Sandy Schroeder	Administrative Assistant	Meadowlark Elementary
• Sanna Beerman	Occupational Therapist	Paris Gibson
• Seth Flaten	Teacher	Sunnyside Elementary
• Susan Quinn	Technology Coach	District Offices
• Tom Hering	IT Director	District Offices
• Tom Moore	Secondary Assistant Superintendent	District Offices

Community Technology Advisory Committee

• Wayne Fehres	VP, Director of App Development	DA Davidson
• Greg Davis	Network Control Center Supervisor	Malmstrom AFB
• Dan Spiller	Service Desk Tech Lead	University of Great Falls
• Dave Bonilla	IT Director	Great Falls College MSU
• Jon Barrow	IT Applications Director	Benefis Health System
• John Frisbee	Network Administrator	Benefis Health System
• Amie Thompson	Editor	Great Falls Tribune
• Delisa Protsman	Education Director	MT Farmers Union
• John Bolton	Architect	CTA Architect
• Brion Torgerson	CEO	Togerson's LLC
• Dan Rooney	General Manager	ADF International
• Todd Feist	Loenbro	Chief Technology Officer
• Jamie McGraw	College & Career Coordinator	GFPS
• Susan Quinn	Technology Coach	GFPS

Student Technology Advisory Committee

• Gavyn Brubaker	CMR High School
• Ryan Johnson	Great Falls High School

Goals-Objectives Summary

Goals	Objectives
1. Implement Technology Curriculum Standards	1.1 Digital Citizenship 1.2 Technology Operations and Concepts 1.3 Critical Thinking, Problem Solving, and Decision Making 1.4 Research and Information Fluency 1.5 Creativity and Innovation 1.6 Communication and Collaboration 1.10 Professional Development – "Unpacking Technology Standards" 1.20 Computer Science course development
2. Develop and underscore Technology Professional Development	2.1 District Directed Technology Training 2.2 Google/Microsoft certified Educators 2.3 New technology and pilot projects 2.4 Course catalog of Technology PIR Classes
3. Hardware & Software selection, approval, and use	3.1 All hardware and software purchasing coordinated through Information Technology 3.2 Google vs Microsoft Applications 3.3 Process to submit requests for Web 2.0, Chromebook, and iPad apps 3.4 Purchase Medical Documentation software 3.5 Re-energize Intranet page on SharePoint 3.6 Standardize Microsoft products to common version
4. Infrastructure upgrades for performance, reliability, redundancy, security, and safety	4.1 Network switch replacement and standardization 4.2 Wireless Access Point replacement and standardization 4.3 Internet Bandwidth monitoring and evaluation 4.4 WAN Bandwidth monitoring and evaluation 4.5 Building MDF & IDF cabinet rebuilds and isolation 4.6 Building MDF Uninterrupted Power Sources 4.7 Building MDF to IDF Single Mode fiber connectivity 4.8 Phone system replacement – Voice Over IP 4.9 Expand video surveillance at Elementary Schools 4.10 Infrastructure redundancy for maximum up time
5. Ubiquitous access	5.1 Fixed lab use and design for instructional space 5.2 Mobile lab for classroom use – 2:1 student to device ratio 5.3 Equitable level of technology across the District 5.4 Research options for equitable access from home
6. Hardware maintenance to enable reliable and sustainable fleet of equipment	6.1 Refresh schedule – minimum specs, age, and warranty 6.2 Achieve 5 year hardware replacement cycle 6.3 Sustainability model for grants and foundation awards

7. Support structure to facilitate consistent and uninterrupted processes and operations	7.1 IT support structure and processes 7.2 Technology Coaches support structure and processes 7.3 Technology Teacher Team support structure and processes
8. Security/Privacy to protect student data	8.1 Designate Security/Privacy Official 8.2 Security assessment and remediation process 8.3 Web 2.0 and device application Privacy Policy process 8.4 Annual Security/Privacy awareness training
9. Budget funding to support technology plan	9.1 Technology Levy increase 9.2 State Legislature funding 9.3 Grants and Foundations

Goal 1. Implement Technology Curriculum Standards

Objective 1.1 Digital Citizenship

Digital Citizenship focuses on the safe, legal, and responsible use of both information and technology, by addressing the issues of safety when navigating on the Internet, cyberbullying, and the use of copyrighted material. This standard is integrated across all technology standards, as well as providing opportunities for explicit direct instruction.

Objective 1.2 Technology Operations and Concepts

Technology Operations and Concepts recognizes the need for a strategic, scaffolded approach to developing proficiency with technology in various settings. Students will learn basic navigation skills, formatting and organizing procedures, basic troubleshooting protocols, the use of peripheral equipment, and the application of software programs before progressing to higher levels of implementation as they transfer knowledge to new technologies and gain independence in selectively using the best tool for a given task. This standard will also naturally integrate with the other technology standards, but will require explicit direct instruction to allow students to reach proficiency.

Objective 1.3 Critical Thinking, Problem Solving, and Decision Making

Critical Thinking, Problem Solving, and Decision Making challenges students to higher levels of thinking and application by developing quality questions and conducting critical analysis of problems in search of solutions.

Objective 1.4 Research and Information Fluency

Research and Information Fluency, requires students to determine a plan, effectively search for and evaluate applicable information, collect and analyze data, and summarize their findings.

Objective 1.5 Creativity and Innovation

Creativity and Innovation supports students' creative thinking and inspiration through the use of technology. Students will not only create new products, projects, and models, but they will also utilize simulations, identify trends, and predict outcomes based on identified trends to support their thinking and creating of new ideas.

Objective 1.6 Communication and Collaboration

Communication and Collaboration lays the foundation for students to effectively share and receive information beyond the classroom walls. As students gather information to produce an original work or solve a problem, they will learn how to interact, connect, create, and publish as a team, while reaching out to experts and

the global community to inform their thinking, communicate their conclusions, and respectfully learn from others.

Objective 1.10 Professional Development – "Unpacking Technology Standards"

A crucial element in the implementation of Technology Curriculum Standards is professional development for staff. An introduction or "unpacking of technology standards" will be conducted to give staff a cursory overview of how the standards are to be implemented.

Current Assessment:

Assessment of current implementation correlates to teacher expertise. Technology implementation reflects Substitution based on the SAMR model. There is a current focus on tools rather than student skills and preparation. Technology implementation has been impeded by lack of access.

Accountability:

Teachers are accountable for implementing the standards with students.

Support:

Assistant Superintendents, Director of Curriculum, Principals and Instructional/Technology Coaches will provide support to teachers.

Measure:

Completion of District Directed training. PIR Evaluations. Walk through evaluation tool.

Funding:

District Directed, PIR, and PLC - Elementary and Secondary General Funds, Curriculum General Fund, and Building PD Funds.
Instructional Technology Coaches - Information Technology General Fund; future funding by Technology Levy once increased and approved by voters (TBD).
Estimate - $125,000.00 for two Technology Coaches (wages and benefits).

Timeline:

2016-2017	District Directed for Elementary PLC and PIR for Secondary Gap analysis and needs assessment
2017-2018	District Directed Menu Options Hire two new Technology Coaches
2018-2019	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years
2019-2020	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years
2020-2021	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years

Goal 1. Implement Technology Curriculum Standards

Objective 1.20 Computer Science course development

As the thirst for technology grows, so does the demand for a skilled, qualified work force. It is estimated that by 2020, 1 million technology positions will go unfilled. In order to prepare our students for a possible career in IT, a primary focus of GFPS will be to develop computer science curriculum. Simple introductory courses, such as Code.org, can be initiated at the elementary level and students can advance independently as their skills progress. Programs that promote STEM learning, such as Project Lead the Way (design and modeling, automation, and robotics), will challenge students to solve real world problems. Advanced programming courses such as Java and Python will prepare our students with technology skills that will advance them to higher education or directly to a career. As the computer science curriculum matures, consideration should be made to move it into its own department.

Current Assessment:

2015-2016 was the first year of computer science courses (Java) with one instructor.

Accountability:

Director of Curriculum, Assistant Superintendents, College and Career Coordinator, Teachers.

Support:

Information Technology, Principals, and Instructional/Technology Coaches will provide support to teachers.

Measure:

5 full sections at each high school, 10 students enrolled in Programming Associates Degree dual credit program.

Funding:

Elementary and Secondary General Funds, Curriculum General Fund
Instructional Technology Coaches - Information Technology General Fund; future funding by Technology Levy once increased and approved by voters (TBD).
Estimate - $62,500 for additional Computer Science Teacher (wages and benefits)

Timeline:

2016-2017	Code.org in Elementary PLTW in Middle School for 8th grade Train North Middle School teachers in PLTW Computer programming – Java/Python Pathway identification in 9th grade for Programming Associates Degree dual credit program

2017-2018	Add a second computer science instructor PLTW pre-engineering for both 7th & 8th at both Middle Schools
2018-2019	Become self-sufficient on PLTW curriculum Refine college and career level computer science pathway – investigate possibility of Advanced Placement Computer Science course
2019-2020	Initiate Advanced Placement Computer Science course Develop plans for Computer Science Department
2020-2021	Implement Computer Science Department

Goal 2. Develop and underscore Technology Professional Development

Objective 2.1 District Directed Technology Training

Professional Development directed by the District provides focus and commitment to staff. While there are many competing topics for District Directed training, technology should be included as a priority subject to drive transformation. The more focus GFPS places on technology, the greater the acceptance and adoption by staff, students, and parents. GFPS will conduct a needs/skills assessment and then drive PD in the direction that needs most attention.

Objective 2.2 Google/Microsoft Certified Educators

Mastery of technology literacy is an important element of building a foundationally sound, sustainable model of pedagogy in the 21st century. Both the Google and Microsoft Certified Educator certifications offer advanced skills to incorporate technology curriculum, policy, and tools into the classroom. GFPS should incentivize instructors to achieve this progressive level of learning to maximize the impact technology can have on academic success and achievement. Whether it be fulfillment of PIR, CEUs, or monetary awards, the return on investment will be well worth it.

Objective 2.3 New technology and pilot projects

Training for both teachers and technical staff should be incorporated as part of the implementation process in any new technology/pilot project and done in a time effective manner. Instruction on the specific device/application along with integration with curriculum and classroom activity is essential. Resources should be ample and available to help troubleshoot issues and provide needed support.

Objective 2.4 Course catalog of Technology PIR classes

GFPS offers a wide range of technology related courses that qualify for PIR. The courses will be fluid and changing as technology changes, but also adapt as the needs of the District changes. See Appendix A for a current list of technology related PIR courses.

Current Assessment:

Approximately 30 technology-specific PIR courses offered on an annual basis, including promotion and sponsoring of conferences, such as MIET. Teacher tech team meetings disseminate information, protocols, strategies, and tools to building staff. Technology integration coaches assigned to elementary and secondary (one each), but not adequate to meet demands. There is minimal interest or incentive to participate in technology specific PIR by staff.

Accountability:

Assistant Superintendents, Teachers

Support:

Information Technology, Human Resources, Principals, and Instructional/Technology Coaches will provide support to teachers.

Measure:

Completion of District Directed training and certifications. Walk through evaluation tool. Progress towards meeting identified needs/skills.

Funding:

District Directed, PIR and PLC - Elementary and Secondary General Funds, Curriculum General Fund and Building PD Funds.
Instructional Technology Coaches - Information Technology General Fund; future funding by Technology Levy once increased and approved by voters (TBD).
Estimate - $125,000 for two Technology Coaches (wages and benefits).

Timeline:

2016-2017	District Directed for Elementary PLC and PIR for Secondary Offer PIR/CEUs for Google/Microsoft Certified Educator Conduct needs/skills assessment
2017-2018	District Directed Menu Options Evaluate certifications for further incentives Hire two new Technology Coaches
2018-2019	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years
2019-2020	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years
2020-2021	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years

Goal 3. Hardware & Software selection, approval, and use

Objective 3.1 All hardware and software purchasing coordinated through Information Technology

In order to standardize, simplify (reduce duplication and costs), and provide adequate support, all hardware and software purchasing should be coordinated through Information Technology to make sure it meets defined specifications and is in alignment with District objectives. In addition, purchases involving new items, should be reviewed and approved by a committee representing the requestor, Principal, Assistant Superintendent and Director of Information Technology. All major software and hardware should be centralized and run through the budgets governed by Information Technology. A list of current approved hardware and software is located in Appendix B.

Objective 3.2 Google vs Microsoft Applications

Both Google Applications for Education (GAFE) and Microsoft's suite of applications provide a very rich and robust learning environment. While each has their strengths and weaknesses, they both play a prominent part in the set of tools used at GFPS. It is the recommendation that GFPS remain in a hybrid model and support both platforms. The simplicity of Google delivers an ideal setting for Elementary while Microsoft is the defined standard for the business world and should be the focus of Secondary education. Our community business leaders have expressed that prospective candidates should know Microsoft products to be productive in their environment.

Objective 3.3 Process to submit requests for Web 2.0, Chromebook, and iPad apps

Information Technology will develop a process for submitting requests for Web 2.0, Chromebook and iPad applications that is efficient and time-sensitive. The goal will be to review, approve, and install requested applications within one business week. Applications will be reviewed for content, relevance, duplicity and privacy/security concerns.

Objective 3.4 Purchase Medical Documentation software

Currently, therapists and nurses in Special Services are documenting medical encounters using Microsoft Word and Excel. Unfortunately, those products are not HIPAA compliant in the manner they are being used. Each encounter must be electronically signed and dated and Microsoft will only allow each document to be signed once vs multiple encounters on one document. It is recommended that GFPS investigate purchasing a medical documentation system that is tailored for medical practices within school districts.

Objective 3.5 Re-energize Intranet page on SharePoint

An internal employee based web page affords a secure environment for confidential documents, applications, and communication. Access to key applications such as employee portal, IT Help Desk, PowerSchool, Webmail, etc. is one important benefit of using SharePoint. The Intranet also provides a good avenue for District communication and location of electronic forms. Converting paper forms to electronic form is also an objective that should be considered with this project.

Objective 3.6 Standardize Microsoft products to common version

While Microsoft products can co-exist in the same environment on multiple versions, it is best practice to standardize on the same version for compatibility reasons and stay no more than two versions behind current. For the most part, desktop (Windows 7) and server (Server 2008/2012) operating systems are current and up to date. However, Microsoft Office products are spread over four different versions (2003-2007-2010-2013) and the most current version is 2016. GFPS should standardize on Windows 10 and Office 2016 versions on all computers.

Current Assessment:

Most technology purchases are coordinated through Tech Budget, governed by Information Technology. However, staff can easily bypass this check point by using non-tech budget funds. Google and Microsoft applications are used based on staff's expertise and comfort level with the product. Device applications are selected and used without review and/or approval and not pushed to devices in a timely manner. Medical documentation done on Word and Excel (not HIPAA compliant). Confidential applications and data potentially exposed to external threats. Microsoft Office product exists on multiple versions.

Accountability:

Assistant Superintendents, Director of Curriculum, Principals, Information Technology, Special Services, Teachers

Measure:

Policy and procedure for hardware and software purchases
HIPAA compliance with medical documentation
Re-work of Intranet home page
Paper forms reduction
Standardize MS Windows desktops to Windows 10 and Office 2016

Funding:

Technology Levy Budget, Building Funds, Information Technology General Fund
Estimate - $62,500 for System Administrator to manage SharePoint, Medical Documentation Software TBD.

Timeline:

2016-2017	Policy and procedures for review/approval of hardware/software Evaluate, select and budget for medical documentation software Design and plan Intranet – begin forms automation Standardize on Windows 10 and Office 2016 Implement eTime – electronic time cards
2017-2018	Install medical documentation software Continue forms automation and build of Intranet Hire System Administrator to manage SharePoint site Focus on Microsoft products at Secondary level
2018-2019	Review Microsoft product versions and upgrade if needed
2019-2020	Review Microsoft product versions and upgrade if needed
2020-2021	Review Microsoft product versions and upgrade if needed

Goal 4. Infrastructure upgrades for performance, reliability, redundancy, security, and safety

Objective 4.1 Network switch replacement and standardization

While desktop computers and laptops generally follow a five year industry standard replacement schedule, network components typically do not. By and large, network components are replaced due to end of support by vendor, equipment failures, lack of functionality needed for new technology, or inability to integrate with other network components. It is best practice to standardize on a manufacturer to simplify management and replacement, ensure compatibility and performance, and reduce training and vendor relationships. GFPS has chosen Brocade ICX series as the vendor and model of choice moving forward. Portable network switches, used when wiring is not available, should be avoided if possible and only employed if approved and installed by Information Technology.

Objective 4.2 Wireless Access Point replacement and standardization

Trends continue to indicate that school districts are adopting more mobile technology to allow greater flexibility within and between classrooms. GFPS is no different. Wireless technology continues to advance and become a more stable, reliable, and efficient form of data communication, reaching speeds of up to 1 gigabit per second (Gbps). There are multiple factors, however, that can influence performance which offers challenges. GFPS has upgraded all wireless access points to Ruckus R700 802.11ac technology which provides greater bandwidth and allows more clients to attach to each access point. The initial implementation has been successful but GFPS will continue to refine the implementation by conducting post wireless surveys and tweaking configuration to achieve maximum performance. The ultimate goal will be to provide complete building coverage for each school which may require additional access points.

Objective 4.3 Internet Bandwidth monitoring and evaluation

The Education Super Highway has estimated that by 2018, the average student will require 1 Mbps each for internet bandwidth. That equates to a 10 Gbps internet service which is 10 times what GFPS provides today. While we are moving in a more online, cloud based application environment, our monitoring shows we are only currently using 1/30th of that estimate. We will continue to monitor and make recommendations but what might be a better use of funds is a second internet connection that will provide added bandwidth but also redundancy and failover if one Internet Service Provider fails.

Objective 4.4 WAN Bandwidth monitoring and evaluation

The Wide Area Network (WAN) bandwidth between DOB (Data Center) and school locations also plays a pivotal part in performance. Bottlenecks can develop in multiple locations but limited bandwidth between the Data Center and a school

will impact the entire school. These connections will continue to be monitored and recommendations made as demand increases. In addition, our contract with Charter expires June 2018, which at that time, we will do a thorough evaluation of our bandwidth needs across the district and adjust as needed. Depending on price, it might be advantageous to standardize all locations on a minimum bandwidth of 1 Gbps. Currently, only CMR and GFH operate at that speed.

Objective 4.5 Building MDF & IDF cabinet rebuilds and isolation

Each building within the District contains a Main Distribution Frame (MDF) wiring closet and multiple Intermediate Distribution Frame (IDF) wiring closets. MDF's usually contain the entry point for the WAN into the building as well as the phone and camera systems and network equipment/wiring to individual user circuits (computers, printers, etc.) located nearby. IDF's, located strategically throughout the building, usually just contain network equipment/wiring for individual circuits located nearby. Many of these locations have handmade wooden cabinets for housing the equipment which does not provide adequate ventilation, access, or ability to mount and secure modern network equipment. IT will revitalize all locations with modern rack mount cabinets that provide security and protection for the equipment. In addition, where possible, IT will secure locations that are dedicated strictly to this purpose and not shared for multiple uses (supplies, janitorial).

Objective 4.6 Building MDF Uninterrupted Power Sources

Currently, building MDF's do not afford protection from power failures. This can lead to security and safety issues within the building as well as damage to equipment. The objective would be to provide uninterrupted power to a central location (usually the main office), keeping both voice and data communications ongoing throughout the outage. Battery backup devices located in the MDF for network and phone systems and on strategic equipment in the central location can deliver this level of service.

Objective 4.7 Building MDF to IDF Single Mode fiber connectivity

Fiber optic cable is the industry standard for structure of a data network backbone. Fiber can deliver greater speeds over longer distances than traditional copper wiring. GFPS should standardize on single mode fiber between and within buildings (MDF and IDF wiring closets) when distance/bandwidth limitations for copper require it. This can occur over time but will position GFPS to have the infrastructure to support greater network bandwidth when demand increases (up to 10 Gbps). Considerations will also need to be made for upgrading network switches and optics to anything greater than 1 Gbps.

Objective 4.8 Phone system replacement – Voice Over IP

The current phone system is out of date and no longer supported. The decision has already been made to replace with a modern Voice Over IP (VOIP) system and is incorporated in the Facility Bond Levy (Oct 4, 2016). Initial plans will be to implement traditional phone services with E911 capability, and then evaluate other options to integrate security and safety systems.

Objective 4.9 Expand video surveillance at Elementary Schools

Video surveillance systems are as common today as telephone systems. Benefits include ability to monitor and record access 24 hours a day, deter theft and vandalism, surveillance for emergency situations, and general activity. Most Elementary schools in the GFPS district only have basic main entrance monitoring. For greater security and safety, surveillance should be expanded to all entrance/exit points for improved visibility internally and externally.

Objective 4.10 Infrastructure redundancy for maximum up time

As the dependence on technology and online resources increase, the need for up time and ubiquitous access will also surge. GFPS Cabinet will need to decide the tolerance for down time and then develop plans to meet those objectives. Redundancies can include items such as UPS/Generator backup, dual fiber feeds to every school and MDF to IDF within the building, dual Internet Service Providers, redundant system server structure, second data center, etc. Costs can be substantial so this needs to be carefully weighed.

Current Assessment:

Main core network switches replaced in 2015-2016. Edge network switches are various makes, models, ages and do not have Power Over Ethernet capability (POE). POE will be needed for the new Voice Over IP (VOIP) phone system and subsequent systems that need that functionality. Wireless access points replaced in 2015-2016 but further refinement for placement and configuration needed to improve coverage. Internet bandwidth spiking past 300 Mbps contracted bandwidth amount. WAN bandwidth sufficient for existing demand. MDF/IDF closets in various conditions and shared with other resources (supplies/janitorial). MDFs without UPS power and connectivity to IDFs not on fiber. Phone system is out of date and no longer supported. Elementary schools have limited video surveillance which is not adequate for security and safety.

Accountability:

Information Technology

Measure:

174 main network switches replaced in 2015-2016
154 edge network switches to be replaced in 2016-2017
20 edge network switches to be replaced in 2017-2018
305 Wireless Access Points replaced in 2015-2016
Wireless survey completed at all building locations
Internet bandwidth upgraded to 1 Gbps
WAN bandwidth monitored and upgraded at contract renewal
16 MDF wiring closets upgraded to standards, including UPS power
Phone system upgraded to VOIP and E911
210 cameras installed at Elementary schools to cover all entrance/exit points
14 NVR video surveillance recording units

Funding:

Network switches and MDF/IDF upgrades qualify for Category 2, E-rate funding. 60% discounted with remainder being absorbed by Technology Fund. Estimated costs - $100,000 after E-rate discount applied. Internet increase to 1 Gbps - $3,360/yr. Cost for phone VOIP - $750,000.00. Cost for cameras and NVR recording devices - $125,000.00. Costs for technology building upgrades and new construction TBD.

Timeline:

2016-2017	Replace 154 edge network switches across District (E-rate). Conduct wireless survey of each building and make adjustments for current needs. Increase Internet Bandwidth to 1 Gbps (E-rate). Upgrade 16 MDFs to new standards (E-rate). UPS backup in each building MDF (E-rate). If approved by voters, begin VOIP implementation. 75 cameras & 5 NVRs installed at 5 Elementary schools. Plan for facility building upgrades and new construction.
2017-2018	Replace 20 edge network switches @ Sunnyside, East, Skyline. Wireless AP expansion as needed (complete coverage). Review Internet and WAN Bandwidth usage and prepare for contract renewal or new vendor/solution. Continue rollout of VOIP. Plan for security/safety options. 75 cameras & 5 NVRs installed at 5 Elementary schools. Implement facility plan for building upgrades and new construction.
2018-2019	Network and Wireless expansion as needed (complete coverage). Implement VOIP security/safety options. 60 cameras & 4 NVRs installed at 4 Elementary schools. Develop redundancy, uptime strategy. Implement facility plan for building upgrades and new construction.
2019-2020	Network and Wireless expansion as needed (complete coverage). Implement redundancy, uptime objectives. Plan for Network/Wireless upgrade/replacement. Implement facility plan for building upgrades and new construction.
2020-2021	Expansion as needed. Implement redundancy, uptime objectives. Implement Network/Wireless upgrade/replacement. Implement facility plan for building upgrades and new construction.

Goal 5. Ubiquitous Access

Objective 5.1 Fixed lab use and design for instructional space

Computer labs have been a staple for schools for many years and will be into the future. However, their purpose and layout has not changed as technology has changed and as the demands increase. Computer labs need to be utilized also for instructional purposes so the design needs to incorporate elements that facilitate this. Most commonly, a teacher computer and projector/screen can accommodate this objective, but furniture and student seating can also be impacted. Where possible and feasible, schools should start budgeting for furniture that is adaptable to collaborative learning and accommodates technology devices (flip up monitors, tables with cable management and power supplies, charging stations, etc.)

Objective 5.2 Mobile lab for classroom use – 2:1 student to device ratio

The trend continues for technology directly in the classroom for quick and easy access. An objective of a device for every 2 students (2:1) in a mobile environment, at the Elementary and Middle School level, provides an acceptable level of service when coupled with fixed labs that also supports instructional use. At the High School level, GFPS should investigate and potentially adopt a model that provides a laptop to each student when they are a freshman. The student will care and use this device though out their four years of high school. At graduation, the student can purchase for a nominal fee and keep or return to the District. The wireless network will need to be sound to support this initiative. Estimated counts are 6450 devices costing approximately $2,328,500.00. Additional costs for mobile carts and additional wireless access points will be necessary.

Objective 5.3 Equitable level of technology across the District

The Belief Statements of the District and this Technology plan contain language pertaining to equality in instruction but also include equality in access to tools to achieve academic success. Technology equity will be measured in two ways:

- A consistent level of funding for technology per student per school
- Approximate same count and device types and models for each school level

Supplemental funding sources (i.e. Grants, Title funding, etc.) will challenge equality at times, but careful oversight and planning and a balance of building, District and Technology funding will keep the system in check.

Objective 5.4 Research options for equitable access from home

As technology is utilized more in curriculum and adoption increases, it is only natural that the dependence for it will migrate beyond the walls of the school into homes. This presents two problems. The environment needs to be seamless so it

is the same anywhere, anytime. With the shift to online and cloud computing, most of the concerns are alleviated but making all applications available may necessitate opening the internal network to external access which needs to be done carefully to protect security. In addition, not all homes are equipped with internet so GFPS should research options to provide access outside of the school walls in a fair and equitable manner.

Current Assessment:

Wireless inconsistencies throughout buildings. Frequent schedule conflicts for fixed lab time. Limited devices in classrooms. Instructional time delays with problematic and out of date equipment. Labs not designed for instructional use.

Accountability:

Information Technology, Assistant Superintendents, Principals

Measure:

17 fixed labs upgraded for instructional use
6450 mobile devices purchased for student use
Annual $160/student (Technology Levy) to meet technology plan objectives
Annual technology plan for each school

Funding:

Technology Levy, Building Funds, District Funds
Estimated costs - $2,500,000.00 for mobile devices, $30,000 for computer, projector and white board for 17 fixed computer labs.

Timeline:

2016-2017	Identify and plan for fixed lab upgrades for instructional use Develop plan for 21st century classroom configuration Chromebook pilot and evaluation. If successful purchase next set. Annual technology plan with each school – maintain equity Develop plan for 1:1 High School objective
2017-2018	Technology Levy increase to support per student technology Annual technology plan with each school – maintain equity Implement plan for fixed lab upgrades Implement plan for 21st century classroom configuration Purchase Chromebooks/Carts (1 each Elementary, 3 each Middle)
2018-2019	Annual technology plan with each school – maintain equity Implement plan for 21st century classroom configuration Implement plan for 1:1 High School objective – 1st year rollout Purchase Chromebooks/Carts (1 each Elementary, 3 each Middle)
2019-2020	Annual technology plan with each school – maintain equity Implement plan for 21st century classroom configuration Implement plan for 1:1 High School objective – 2nd year rollout Purchase Chromebooks/Carts (1 each Elementary)
2020-2021	Annual technology plan with each school – maintain equity Implement plan for 21st century classroom configuration Implement plan for 1:1 High School objective – 3rd year rollout Purchase Chromebooks/Carts (1 each Elementary)

Goal 6. Hardware maintenance to enable reliable and sustainable fleet of equipment

Objective 6.1 Refresh schedule – minimum specs, age, and warranty

It is understood, that over time, computer equipment will need to be replaced due to lack of performance and/or failure, end of support by vendor and/or end of warranty, specifications that do not meet software requirements or lack of functionality needed for new technology. On an annual basis, Information Technology will identify the minimum and preferred specifications needed to keep equipment at a level that achieves a reliable and acceptable level of performance. Equipment that falls below this level will be tagged and renamed to indicate it is not to be replaced. The Director of Information Technology will meet with the Principal and Teacher Tech Team member at each school and review the current inventory of equipment and develop a building technology plan that melds needs and goals with replacement of aging equipment. Please see Appendix C for a list of current minimum and preferred specifications and equipment that is on the "To Be Replaced" list.

Objective 6.2 Achieve 5 year hardware replacement cycle

In conjunction with Objective 6.1, Information Technology will strive to maintain an industry standard five year hardware replacement cycle for staff and student computers. Driving factors to accomplish this initiative are Technology Levy funding and staffing to replace approximately 2200 computers a year, once the plan is fully operational.

Objective 6.3 Sustainability model for grants and foundation awards

It is expected that GFPS will apply for and receive grants that involve technology components. While grants can be an asset, they also present a challenge on how to sustain the technology after the grant runs out. As part of the grant application process, the requestor will develop an equipment sustainability model that is reviewed by Cabinet in conjunction with the grant itself. The model may vary widely with each grant. Sustainability models can range from full replacement indefinitely to no replacement which would lead to the technology being discontinued after its usable life.

Current Assessment:

Equipment replaced, many times not factoring age, warranty, or specifications. No sustainable revenue stream for consistent periodic replacement. No sustainability model for grants involving equipment. Over 50% of current inventory is over 5 years old and out of warranty.

Accountability:

Information Technology, Principals, Teacher Tech Team

Measure:

All computers on 5 year replacement schedule

Funding:

Technology Levy, Grants, Foundation Awards
Estimated cost – $936,250.00/yr for 2230 replacement computers, $75,000 for two additional Technology Support Techs to manage increase in equipment and replacement schedules

Timeline:

2016-2017	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications
2017-2018	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications
2018-2019	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications Hire 1 additional Technology Support Tech to support increase of equipment
2019-2020	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications
2020-2021	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications Hire 1 additional Technology Support Tech to support increase of equipment

Goal 7. Support structure to facilitate consistent and uninterrupted processes and operations

Objective 7.1 IT support structure and processes

Improve the effectiveness and efficiency of IT support by the following actions:

- Implement an Incident Management Process
  - Intake/Request Process (Help Desk-Tech Support)
  - Escalation Procedures
  - Incident Prioritization - Target Response Times

- Implement a Change Management Process
  - Evaluate system changes for benefits/risks
  - Prioritize changes for greatest benefits
  - Thoroughly test changes
  - Back Out plan if change fails
  - Proper communication of changes
  - Process for emergency changes

- Emphasize use of Help Desk/Ticket system

Objective 7.2 Technology Coaches support structure and processes

Improve the effectiveness and efficiency of Technology Coaches support by the following actions:

- Train Instructional Coaches (4) on Technology to broaden coverage
- Develop schedule/rotation of onsite support
- Increase number of Technology Coaches to 4
- Revamp Technology PD based on needs/skills assessment
- Develop Technology PD opportunities for PLCs

Objective 7.3 Technology Teacher Team support structure and processes

Improve the effectiveness and efficiency of Technology Teacher Team support by the following actions:

- Use of Help Desk system to manage requests within school
- Develop schedule for staff of availability
- Trainers for Technology @ PLCs

Current Assessment:

Help Desk system not used by staff consistently. Tickets not always prioritized and escalated properly. Technology Coaches spread too thin for demand. Technology not a priority at PLCs.

Accountability:

Information Technology, Technology Coaches, Teacher Tech Team, Principals, Staff

Measure:

Incident and Change Management processes in place
Help Desk Ticket system used for 80% of reporting requests
Schedules published for support of availability
4 Technology Coaches
Technology PD conducted in at least 25% of PLCs

Funding:

Information Technology Elementary and Secondary General Funds, Technology Levy, Building PD Funds.
Instructional Technology Coaches - Information Technology General Fund; future funding by Technology Levy once increased and approved by voters (TBD).

Timeline:

2016-2017	Develop/Implement Incident and Change Management Processes Increase Help Desk Ticket use by staff and Teacher Tech Team Work with Principals to incorporate more Technology at PLCs Develop schedules/rotations to increase onsite support
2017-2018	Hire two new Technology Coaches
2018-2019	Hire 1 additional Technology Support Tech to support increase of equipment
2019-2020	
2020-2021	Hire 1 additional Technology Support Tech to support increase of equipment

Goal 8. Security/Privacy to protect student data

Objective 8.1 Designate Security/Privacy Official

Security and Privacy issues and concerns are becoming increasingly prevalent in school district affairs. GFPS will designate a Security/Privacy Official(s) to govern the following actions:

- Develop policies and procedures and monitor for compliance
- Evaluate, approve and implement technical and administrative safeguards
- Be educated and stay current on federal and state regulations and legislation
- Ensure staff is adequately trained on security and privacy policies
- Review security/privacy violations and make recommendations for discipline
- Represent the District on security and privacy matters

Objective 8.2 Security assessment and remediation process

In the spring of 2016, GFPS contracted with a third party firm to assess the security posture of the District. Key stakeholders were interviewed to determine use of security practices in daily activities and compliance with policies. In addition, both internal and external scans were run to test for system vulnerabilities and malicious activity. GFPS is waiting the results of this assessment before making plans for prioritization and then subsequent remediation. It is anticipated that there will be policy, procedures, and technical safeguards that will need to be addressed.

Objective 8.3 Web 2.0 and device apps Privacy Policy process

As the trend continues to accept and implement online applications, it is imperative that protecting the privacy of student data be a critical part of the selection process. FERPA is very specific about how student data should be handled, especially when exposed outside of the GFPS environment. GFPS will develop a process to evaluate vendor privacy policies to ensure compliance with FERPA. When possible, GFPS will include privacy and security compliance language in contracts to hold the vendor accountable for hosting student data.

Objective 8.4 Annual Security/Privacy awareness training

GFPS will develop an annual security/privacy awareness training program for all employees. Training will concentrate on proper handling of student data and security practices.

Current Assessment:

No overall governance of security and privacy matters. Staff using applications that have not been vetted for compliance with protecting student data. No security or privacy awareness training program.

Accountability:

Superintendent, Information Technology, Staff

Measure:

Designation of Security/Privacy Official(s)
Implemented plan for security assessment remediation
Conduct security assessment every 2 years
Established privacy policy and procedure for approval of Web 2.0 and device applications
Established security and privacy awareness training for all employees

Funding:

Technology Levy, Information Technology Elementary and Secondary General Funds
Estimate – Security Assessments (2) $20,000.00

Timeline:

2016-2017	Designate Security/Privacy Official(s) Develop remediation plan for security assessment findings Develop and implement privacy policy for approval of Web 2.0 and device applications Develop and implement security/privacy awareness training program Report to School Board annually on security/privacy matters
2017-2018	Implement remediation plan for security assessment findings Conduct security/privacy awareness training Report to School Board annually on security/privacy matters
2018-2019	Conduct bi-annual security assessment Revise and implement remediation plan for security assessment Report to School Board annually on security/privacy matters
2019-2020	Implement remediation plan for security assessment Report to School Board annually on security/privacy matters
2020-2021	Conduct bi-annual security assessment Implement remediation plan for security assessment Report to School Board annually on security/privacy matters

Goal 9. Budget funding to support technology plan

Objective 9.1 Technology Levy increase

GFPS introduced a Technology Levy in 2003 to cover computer related expenses. To date, this Levy has not been adjusted for changes in ANB, cost of equipment, development of technology curriculum, or modern technological improvements. The current funding for technology is woefully below the average for AA Districts in the state and inadequate to meet current needs. It is the recommendation that the Budget Committee consider running a revised Technology Levy that provides adequate funding for annual infrastructure and network wiring requirements, new and replacement computer equipment, training, support, and professional development. Please see Appendix D for a proposed general and technology levy budget.

Objective 9.2 State Legislature funding

GFPS will continue to collaborate with state officials and legislators to develop opportunities for technology funding. Currently, SAM has adopted a resolution requesting the state legislature develop a state wide technology fund to cover annual replacement equipment costs based on ANB. GFPS will cooperate and confer with local and state legislators to support this resolution in the 2017 Legislative Session.

Objective 9.3 Grants and Foundations

GFPS will continue to investigate prospects for technology grants and foundation awards. Per Objective 6.3, all applications for technology grants and awards will need to include a sustainability plan.

Current Assessment:

Current budget not adequate to meet current needs.

Accountability:

School Board Budget Committee, Superintendent, Director of Business Operations, Director of Information Technology

Measure:

Annual revenue stream that supports objectives of the Technology Plan

Funding:

Technology Levy
Technology Grants and Foundation Awards
State approved funding

Timeline:

2016-2017	Collaborate with State Officials and Legislators to promote SAM resolution for replacement computer equipment based on ANB Investigate technology grants and foundation awards
2017-2018	Run revised Technology Levy Investigate technology grants and foundation awards
2018-2019	Investigate technology grants and foundation awards
2019-2020	Investigate technology grants and foundation awards
2020-2021	Investigate technology grants and foundation awards

Appendix A. Technology PIR Catalog

COURSES:

Absolutely Awesome Graphics, No Photoshop Needed
Advanced Google Tools
Create a Digital Textbook with OneNote
Create a Webpage
Digital Storytelling
Engaging 21st Century Learners Using Tech – Secondary
Excel Basics
Google Apps for Education Secondary (docs, sheets, forms, slides, drawing, classroom)
Google Apps for Education Elementary (docs, sheets, forms, slides, drawing, classroom)
Google Apps Classroom Projects Secondary (lesson/unit design)
Google Apps Classroom Projects Elementary (lesson/unit design)
Gooru and PBS Learning Resources
MIE
MIET
Math Activities for SmartPhones & Tablets
Maximizing the Use of Current Elementary Technologies (Successmaker, Think Central, Typing Pal, GHGR)
Moodle Advanced
Moodle Basics
Moodle for Elementary
Moodle with Web 2.0 tools
Office 365 (includes Office 2013, OneNote and OneNote Classroom)
PowerPoint & Google Slides for Classroom Management
Research & Critical Thinking Using Technology Elementary
Research & Critical Thinking Using Technology Middle School
Research & Critical Thinking Using Technology High School
SSI: Success Through the Use of Assistive Technology
Tech Gadgets
Technology and Common Core – Secondary
Technology Beyond the Classroom Walls (Skype, Google Hangouts, FaceTime, VisionNet, virtual field trips, etc …)
Technology in Project-based Learning
Technology in the Mathematics Classroom
Tech Survival Skills
Using Interactive Whiteboards for Elementary Instruction
Using Technology at East Middle School
Using Technology to Assess Students
Using Technology to Support Struggling Learners
Web 2.0 Tools Elementary
Web 2.0 Tools You Can Use Tomorrow - Secondary
Writing with Tech Tools Elementary
Writing with Tech Tools Secondary

Appendix B. Approved Hardware and Software

Software

A Suite - AverVision
Accelerated Reader
AccelerometerP11
Adobe Acrobat Professional
Adobe Creative Suite
Adobe Dreamweaver
Adobe Bridge
Adobe Flash Player
Adobe Illustrator
Adobe InDesign
Adobe PageMaker
Adobe Photoshop
Adobe Photoshop Elements
Adobe Premiere Elements
Adobe Reader
Adobe Shockwave Player
Adobe Soundbooth
AESOP Online
Alexandria
Alexandria District Librarian
AppliTrack
ArtRage 2 Starter Edition
AutoCAD
AutoDesk 123D Catch
AutoDesk 360
AutoDesk Inventor
Automated Accounting
BERNINA Embroidery Software
Boardmaker Plus!
Bonjour
Building Homes of Our Own
Classroom Performance System
Corel Paint Shop Pro Photo
Corel Painter
CorelDRAW Essentials
CorelDRAW Graphics Suite
CS 5.5 Design Preium
Crystal Reports Basic Runtime
CutePDF Writer
Earobics Step 1 SpecialistClinician
EasyMP Network Projection
Embroidery Software
Fiery User Software
FileMaker Pro
Finale 2009
FitnessGram 8 Client
FloorPlan 3D v11
GeoGebra
Google Apps for Education Suite
Google Earth
Google SketchUp
Harcourt Phonics Network LevelA/B/C
Harcourt Math Center Client
Home Designer Architectural 2015
Infinite Algebra 1
Infinite Algebra 2
Infinite Geometry
Infinite Pre-Algebra
Inspiration
iVisions
Jasc Paint Shop Pro
JAVA
Kidspiration
LEGO MINDSTORMS Edu NXT
Logger Lite
Logger Pro
LXRTEST 6.0 Professional Edition
Macromedia Contribute
Macromedia Dreamweaver
MathFacts in a Flash
MicroPace Pro 2.0
Microsoft Forefront Endpoint Protection 2010
Microsoft Office Professional Edition 2003
Microsoft Office Professional Plus 2007
Microsoft Office Professional Plus 2010
Microsoft Office Professional Plus 2013
Microsoft Office Professional Plus 2016
Microsoft OneNote MUI (English) 2013
Microsoft SharePoint
Microsoft Visio MUI (English) 2013
Microsoft Visio Premium 2010
Microsoft Visio Professional 2013
MicroType
Milepost

Minecraft
Moodle
Movie Maker
MuseScore 2
Musicnotes Software Suite 1.7.2
Net Control 2
NutriKids For Windows
NWEA MAP
Oregon Trail 5
PCI Math Munchers Deluxe
PCI Word Munchers Deluxe
Pizza Math Software
PowerSchool
PsychCorpCenter
PsychCorpCenter-II
Quest Atlantis
Read Naturally SE
Reflector
Reflector 2
Roller Coaster Factory
Rosetta Stone
SBAC
Schlage Express
SchoolDude
SketchUp
SMART Notebook
SportsWare2011
STAR Math
STAR Reading
Stellarium
SuccessMaker
Sweet Home 3D
The Imagination Station
Type to Learn
Typer Shark Deluxe
Typing Pal Online
VCarve Desktop - CNC Cutter
Virtual Business - Personal Finance
Virtual Business - Sports
Virtual Business Client Permissions
Visual Studio
West Point Bridge Designer
WIAT-III Scoring Assistant
WonderDesk Help Desk

Appendix B. Approved Hardware and Software

Hardware

Computers:

Latitude 3150
Latitude 3340
Latitude E5440
Latitude E5450
Latitude E5500
Latitude E6430
Latitude E6440
Latitude E6520
Latitude E6540
OptiPlex 3020
OptiPlex 3020M
OptiPlex 7010
OptiPlex 7020
OptiPlex 7040
OptiPlex 780
OptiPlex 790
OptiPlex 9020
Chromebook 11
Chromebook 13
iPad Air 2
Lenovo Miix 700

Projectors:

Epson PowerLite 98H
Epson PowerLite 965H
Epson PowerLite 530
Epson BrightLink 585wi
Epson BrightLink 595wi

Printers:

HP LaserJet M402n
HP LaserJet M604n
HP LaserJet M606dn
HP LaserJet M452nw
HP LaserJet CP4025N
HP LaserJet CP5225dn
HP Pro MFP M127fn
Canon iR MFP*

Misc:

Canon DR-M160II Scanner
MIMIO TEACH
CA-2027 Speakers
CA-ACM-1 Mic
SmartBoard 77”/87”
HoverCam Neo3
AVerVision 50HD
AverVision 300AFHD
AverVision M70
AverVision F17HD
CPS Pulse Clickers
Satechi SP400 Presenter

*****Supplied through Superior Business Equipment

Appendix C. Minimum/Preferred Hardware Specifications

	Minimum Specs							
	Op System	CPU	RAM	Hard Drive	Wireless Adapter	Battery	Screen Size	Warranty
Desktop	Windows 7 64-bit	Pentium Dual Core	4 Gb	160 Gb	N/A	N/A	N/A	1 yr
Laptop	Windows 7 64-bit	Pentium Dual Core	4 Gb	160 Gb	802.11 a/g	6 Cell	11"	1 yr
iPad 4	iOS 9	A6X 64-bit		16 Gb	802.11 a/g		8"	1 yr
Chromebook	Chrome OS	Intel Celeron	2 Gb	16 Gb SSD	802.11 a/g	3 Cell	11"	1 yr
	Preferred Specs							
	Op System	CPU	RAM	Hard Drive	Wireless Adapter	Battery	Screen Size	Warranty
Desktop	Windows 10 64-bit	Intel i5 3rd Gen	8 Gb	250 Gb SSD	N/A	N/A	N/A	3 yr
Laptop	Windows 10 64-bit	Intel i5 3rd Gen	8 Gb	250 Gb SSD	802.11 ac	9 Cell	14"	3 yr
iPad Air 2	iOS 9	A8X 64-bit		64 Gb	802.11 ac		9.7"	3 yr
Chromebook	Chrome OS	Intel Celeron	4 Gb	32 Gb SSD	802.11 ac	4 Cell	11"	3 yr

Makes/models to be replaced:

Immediate

- Inspiron 1721
- Latitude 131L
- Latitude 2100
- Latitude 2110
- Latitude 2120
- Latitude D531
- Latitude D620
- Latitude D630
- OptiPlex 580
- OptiPlex 745
- OptiPlex 755
- OptiPlex 760
- Optiplex GX520
- Optiplex GX620

Near Term (1-2 years)

- Latitude E6400
- Latitude E6410
- Latitude E6420
- OptiPlex 740
- OptiPlex 740 Enhanced
- OptiPlex 960
- OptiPlex 980

Appendix D. Proposed General / Technology Budgets

Salaries / Benefits	$	1,097,282.00	Salaries / Benefits
Tech Services	$	145,439.00	Tech Services
Tech Supplies/Equip	$	105,595.00	Tech Supplies/Equip
Misc	$	83,350.00	Training/Travel/Phone/Fuel
Software	$	230,000.00	PowerSchool/SuccessMaker/iVisions
General Budget Total	$	1,661,666.00	
Replacement Equipment	$	936,250.00	500 student desktops @ $500/ea 715 student laptops @ $500/ea 715 Chomebooks @ $250/ea 300 staff computers @ $500/ea
New Equipment	$	250,000.00	
Infrastructure Equipment	$	100,000.00	
Wiring/Network	$	50,000.00	
Professional Development	$	50,000.00	Above DD and PIR Training
Staff - Training	$	250,000.00	4 Technology Coaches
Technology Levy Total	$	1,636,250.00	
Totals	**$**	**3,297,916.00**	

Appendix E. Aggregate Timeline

Goal	2016-2017	2017-2018	2018-2019
1. Implement Technology Curriculum Standards	District Directed for Elementary PLC and PIR for Secondary Gap analysis and needs assessment Code.org in Elementary PLTW in Middle School for 8th grade Train North Middle School teachers in PLTW Computer programming – Java/Python Pathway identification in 9th grade for Programming Associates Degree dual credit program.	District Directed Menu Options Hire two new Technology Coaches Add a second computer science instructor PLTW pre-engineering for both 7th & 8th at both Middle Schools	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years Become self-sufficient on PLTW curriculum Refine college and career level computer science pathway – investigate possibility of Advanced Placement Computer Science course
2. Develop and underscore Technology Professional Development	District Directed for Elementary PLC and PIR for Secondary Offer PIR/CEUs for Google /Microsoft Certified Educator Conduct needs/skills assessment	District Directed Menu Options Evaluate certifications for further incentives Hire two new Technology Coaches	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years
3. Hardware & Software selection, approval, and use	Policy and procedures for review /approval of hardware/software Evaluate, select and budget for medical documentation software Design and plan Intranet – begin forms automation Standardize on Windows 10 and Office 2016 Implement eTime – electronic time cards	Install medical documentation software Continue forms automation and build of Intranet Hire System Administrator to manage SharePoint site Focus on Microsoft products at Secondary level	Review Microsoft product versions and upgrade if needed
4. Infrastructure upgrades for performance, reliability, redundancy, security, and safety	Replace 154 edge network switches across District (E-rate). Conduct wireless survey of each building and make adjustments for current needs. Increase Internet Bandwidth to 1 Gbps (E-rate). Upgrade 16 MDFs to new standards (E-rate). UPS backup in each building MDF (E-rate). If approved by voters, begin VOIP implementation. 75 cameras & 5 NVRs installed at 5 Elementary schools. Plan for facility building upgrades and new construction.	Replace 20 edge network switches @ Sunnyside, East, Skyline. Wireless AP expansion as needed (complete coverage). Review Internet and WAN Bandwidth usage and prepare for contract renewal or new vendor/solution. Continue rollout of VOIP. Plan for security/safety options. 75 cameras & 5 NVRs installed at 5 Elementary schools. Implement facility plan for building upgrades and new construction.	Network and Wireless expansion as needed (complete coverage). Implement VOIP security/safety options. 60 cameras & 4 NVRs installed at 4 Elementary schools. Develop redundancy, uptime strategy. Implement facility plan for building upgrades and new construction.
5. Ubiquitous access	Identify and plan for fixed lab upgrades for instructional use Develop plan for 21st century classroom configuration Chromebook pilot and evaluation. If successful purchase next set. Annual technology plan with each school – maintain equity Develop plan for 1:1 High School objective	Technology Levy increase to support per student technology Annual technology plan with each school – maintain equity Implement plan for fixed lab upgrades Implement plan for 21st century classroom configuration Purchase Chromebooks/Carts (1 each Elementary, 3 each Middle)	Annual technology plan with each school – maintain equity Implement plan for 21st century classroom configuration Implement plan for 1:1 High School objective – 1st year rollout Purchase Chromebooks/Carts (1 each Elementary, 3 each Middle)
6. Hardware maintenance to enable reliable and sustainable fleet of equipment	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications Hire 1 additional Technology Support Tech to support increase of equipment
7. Support structure to facilitate consistent and uninterrupted processes and operations	Develop/Implement Incident and Change Management Processes Increase Help Desk Ticket use by staff and Teacher Tech Team Work with Principals to incorporate more Technology at PLCs Develop schedules/rotations to increase onsite support	Hire two new Technology Coaches	Hire 1 additional Technology Support Tech to support increase of equipment
8. Security/Privacy to protect student data	Designate Security/Privacy Official(s) Develop remediation plan for security assessment findings Develop and implement privacy policy for approval of Web 2.0 and device applications Develop and implement security/privacy awareness training program Report to School Board annually on security/privacy matters	Implement remediation plan for security assessment findings Conduct security/privacy awareness training Report to School Board annually on security/privacy matters	Conduct bi-annual security assessment Revise and implement remediation plan for security assessment Report to School Board annually on security/privacy matters
9. Budget funding to support technology plan	Collaborate with State Officials and Legislators to promote SAM resolution for replacement computer equipment based on ANB Investigate technology grants and foundation awards	Run revised Technology Levy Investigate technology grants and foundation awards	Investigate technology grants and foundation awards

Goal	2019-2020	2020-2021
1. Implement Technology Curriculum Standards	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years Initiate Advanced Placement Computer Science course Develop plans for Computer Science Department	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years Implement Computer Science Department
2. Develop and underscore Technology Professional Development	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years	Continued Technology focused PIR and Instr/Tech Coaching 12 hours of elective technology related PIR over next 3 years
3. Hardware & Software selection, approval, and use	Review Microsoft product versions and upgrade if needed	Review Microsoft product versions and upgrade if needed
4. Infrastructure upgrades for performance, reliability, redundancy, security, and safety	Network and Wireless expansion as needed (complete coverage). Implement redundancy, uptime objectives. Plan for Network/Wireless upgrade/replacement. Implement facility plan for building upgrades and new construction.	Expansion as needed. Implement redundancy, uptime objectives. Implement Network/Wireless upgrade/replacement. Implement facility plan for building upgrades and new construction.
5. Ubiquitous access	Annual technology plan with each school – maintain equity Implement plan for 21st century classroom configuration Implement plan for 1:1 High School objective – 2nd year rollout Purchase Chromebooks/Carts (1 each Elementary)	Annual technology plan with each school – maintain equity Implement plan for 21st century classroom configuration Implement plan for 1:1 High School objective – 3rd year rollout Purchase Chromebooks/Carts (1 each Elementary)
6. Hardware maintenance to enable reliable and sustainable fleet of equipment	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications	Annual technology plan with each school – needs and replacement Review Grant/Foundation Sustainability Models as needed Replace equipment based on 5 yr schedule and specifications Hire 1 additional Technology Support Tech to support increase of equipment
7. Support structure to facilitate consistent and uninterrupted processes and operations		Hire 1 additional Technology Support Tech to support increase of equipment
8. Security/Privacy to protect student data	Implement remediation plan for security assessment Report to School Board annually on security/privacy matters	Conduct bi-annual security assessment Implement remediation plan for security assessment Report to School Board annually on security/privacy matters
9. Budget funding to support technology plan	Investigate technology grants and foundation awards	Investigate technology grants and foundation awards

Appendix F. Technologies to Explore

Explore use of video technology for distance learning and global collaboration

Video technology can open the doors to new learning opportunities around the world and also provide options for other school districts that could take advantage of GFPS course offerings. Knowledge of other cultures around the world, leads students to greater understanding, compassion, and problem solving of real world issues. Providing curriculum through video technology for other districts not only delivers a needed service but also generates a revenue stream for GFPS.

Explore full support of Bring Your Own Device (BYOD)

GFPS supports BYOD but on a limited scale, when approved by the teacher. GFPS will explore a full scale deployment of BYOD, analyzing the benefits, detriments, risks, considerations, and costs. A full scale BYOD implementation could be advantageous if funding for technology continues to be limited.

Explore Chromebook pilot implementation

GFPS has chosen to conduct a pilot project with Chromebooks impacting 5th/6th grade students at the Elementary level and 7th grade students at the Middle school level. A thorough assessment of the implementation will be conducted to determine the continued use and expansion of these devices. If determined to be successful, new deployments will be authorized, and the Chromebook would be documented as the preferred mobile device in Elementary and Middle schools.

Explore Virtual Desktop Infrastructure (VDI)

Virtual Desktop Infrastructure is the process of delivering a traditional Windows desktop operating system (Windows 7) via a server – thin client configuration. Traditional deployments operate well for fixed computer environments so primarily this would impact fixed computer labs and potentially staff machines. Benefits include a consistent and reliable Windows operating system, ease of maintenance since changes are made at the server vs individual computer, and low cost devices (thin-clients) that do not need to be constantly managed and upgraded. Considerations include a large up-front cost for servers and storage, impact on WAN bandwidth, and expertise on managing the system.

Explore TV monitors vs projectors

Investigate using TV monitors in the classroom vs projectors/interactive whiteboards for both standard and interactive displays. TV monitors are a growing trend and provide a much clearer picture and resolution. Advantages are image, resistance to light, low maintenance (replacement bulbs, filters), and ease of use. Considerations include cost, size, and ability to read text from distances.

Explore Security/Safety systems

Security/Safety systems include visitor check in, automated lockdown, and alert notification. Many of these tie into the VOIP system to deliver a unified notification system. If possible, these systems should be considered for new construction and then incorporated into existing buildings as funding permits.