Stillwater
AREA PUBLIC SCHOOLS

Learning & Innovation Technology Plan

for

Stillwater Area Public Schools
Independent School District #834

July 1, 2022 - June 30, 2025

Educational Technology Planning Team 2022

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Executive Summary May 2022

Introduction

Technology planning and implementation in the past has largely focused on the 4 tenants of Anytime Anywhere Learning, Regular & Reliable Access, Fully Supported Technologies, and Unified Experiences. The results of these initiatives over the past 6 years have been objectively positive, positioning the district in an advantageous position leading into the pandemic in 2020 through 2022. The pandemic also spurred progress in previously neglected areas such as providing home Internet access when and where needed. However, there are challenges that have persisted as well, specifically in the area of providing unified experiences, which will need to be a continued area of focus moving forward.

The conclusion of the previous technology plan called for the implementation of a new student information system in order to move past the persistent barriers encountered when attempting to integrate multiple 3rd party databases. This move created a host of opportunities and challenges that will take 1-3 years to fully exploit and overcome. With the adoption of the PowerSchool Suite, the district is moving to integrate its student information system, learning management platform, assessment platform, special education management system, staff development tracking and support system, and data analytics and visualization engine.

This year marks a turning point in the District for many reasons. Soon after implementing comprehensive eLearning systems, the global Covid Pandemic took hold. The resulting shift in classroom pedagogy strongly favored technology based learning. Additionally, the District made some significant shifts away from 3rd party integrations in favor of dedicated API (Application Programming Interface) software integrations through the adoption of the PowerSchool suite of products (SIS, Assessment, Reporting, and Learning Management). Lastly, the District passed its Tech Levy, which will be effective in the first year of this technology plan and will result in a more measured and systematic approach to managing technology resources. Moving forward, this plan will focus on the sustainable maintenance of technology, the deployment of one-to-one technology resources for staff and students, continued reintegration of systems using APIs, and increasing technology related supports that are available in the classroom.

One-to-one Device Allocations

Beginning in the 2022-2023 school year, the District seeks to ensure all students and staff have access to reliable technology through individual assignments. All students grades 2-12 and staff will be individually assigned a device to support teaching and learning by the first day of second semester in the 2022-2023 school year (by January 2023). Students in grades K-1 will continue to use iPads in their classrooms, with the possibility of expanding access in the future as needed. Devices will be used appropriately to support: access to Schoology, students when they are ill, family vacations, cyber safety instruction, typing instruction, the creation of media projects, and collaborative learning. These devices will also level the playing field, ensuring that all students have access to devices that are required for effective instruction.

Screen Time & School
As communities struggle to reset after the pandemic, the amount of screentime children experience is a controversial topic. How do schools encourage healthy face-to-face interactions with so much technology in their lives? For Stillwater Area Public Schools, the focus is on the Learning Technology Vision (*see Mission, Vision and Strategic Direction below*). The primary goal of technology usage in ISD#834 is to connect students and parents to their learning environment at any time from anywhere; and to keep students connected when they otherwise would not be. The district's one-to-one initiative is not meant to replace paper literature, physical manipulatives, or direct person-to-person interaction. For parents looking for more support helping their children manage healthy screen time habits, please visit Common Sense Media at: https://www.commonsensemedia.org/articles/screen-time

Reintegration of System
The district integrates database services for learning amongst dozens of systems. Best practice is to reduce the number of vendors the district works with, tighten the security between systems, lessen the data that gets shared, remove redundancies, and ensure effective transit of required data before it is needed. The district is now fully integrated between PowerSchool SIS, Performance Matters Assessment system, Schoology Learning Management System, and Unified Insights Data & Visualization system. We are looking at adding Unified Talent for professional development, and adding IDEA Special Education data management as well. All of these systems would then be housed under one vendor, significantly reducing the District's data sharing while increasing the API integrations. The District is also exploring deeper integrations and upgrades to its School Messenger system, Transportation system, and School Nutrition systems, which remain to be provided by 3rd party entities. Lastly, the District will continue to work to improve its automated account creation system in order to improve the experience for district parents.

The "parent experience" continues to be one of the more difficult pieces to improve. All companies approach parent authentication and inclusion differently. In 2021, the district attempted to simplify parent logins by providing a single Google-based user account. Many companies have struggled to support these accounts even though the company may support google authentication. The District will need to make a decision about continuing to support this integration based on whether significant progress can be made by the Summer of 2022. In March of 2022, the district resolved a persistent login error that parents experienced.

Lastly, we are awaiting some significant upgrades from PowerSchool that should tighten gradebook synchronization between PowerSchool and Schoology. These upgrades are expected to affect the Parent App and provide parents with the most up-to-date grade information available (Currently Schoology contains the most up-to-date grade information).

Classroom Technology Supports
Historically, the District has struggled to provide a sufficient amount of technology integration and use support to classroom teachers. This technology plan also seeks to increase the amount of technology deployed, which will require additional break/fix support. Successful support of increased classroom technology will require adding additional support staff. The district will also seek to realign some existing staff to focus more on supporting professional development.

Technology Levy
In the Fall of 2021, the ISD#834 community passed its Capital Project Levy dedicated to technology (Tech Levy). The Tech Levy provides $4.7M in order to fund the District's technology programs beginning on July 1st 2022. Previously, the District subsisted on approximately $2.8M for the Learning Technology department. The additional $1.9M in funds will be used to implement a one-to-one device program that ensures all students and teachers have equal access to technology tools, increase staffing to support students and teachers with expanded technology, to modernize classrooms audio and video equipment, and to increase information system security to keep up with growing cyber threats.

Mission, Vision, and Strategic Direction

Stillwater Area Public Schools Mission
The mission of Stillwater Area Public Schools, in partnership with students, family and community, is to develop curious individuals who are active and engaged leaders in an ever-changing world by challenging all students as they travel along their personalized learning pathways.

Strategic Direction – Learning for Life
Stillwater Area Public Schools will prepare each learner for success in an ever-changing world by developing curious individuals who are active and engaged learners resulting in career and college readiness and the development of essential life skills.

Learning Technology Vision
Students & Teachers can access their educational resources at any time from anywhere. Learning environments have standard defined resources that staff and students have been trained to use. Parents can easily access information on grades, attendance, assignments, and communicate freely with their children's teachers. Students and teachers use common devices to access standard, technology-enabled learning resources. Students learn and succeed in mixed-mode environments where they have access to other students, teachers, and a web of knowledge and resources. Learning is neither restricted to the classroom nor the Internet, and users can shift fluidly to ensure no barriers to learning exist due to weather, illness, or scheduled conflict.

Classroom Standard

The Classroom Standard is meant to be an idealized standard of the technology that a typical classroom should be resourced with to support the 4Cs: Critical Thinking, Communication, Collaboration, and Creativity. The reality is that many classrooms are set up for distinct purposes that will contradict this standard, and in those cases, deviations should and must be made. Additionally, the classroom standard will not fit with many current space limitations. As we transition from paper-based to personalized digital learning environments, the Classroom Standard will be required to evolve toward universal access where every student has a device when they need a device.

Based on a class-size of 32:

K-1 - 2:1 ratio of students to iPads
2-12 - 1:1 ratio of students to Chromebooks

1 teacher laptop setup for communication, attendance, grading, and curriculum creation.

1 teacher chromebook for streaming media, and interactive purposes. (matched with student)

1 multimedia setup: document camera, large interactive visual display (75” minimum), classroom audio (30-60 watts or 4+ ceiling speakers).

Classroom audio reinforcement (teacher mic connected to speaker system)

Wireless network availability for 64 simultaneous device connections.

8 wired network connections that facilitate numerous classroom configurations.

Minimum of 1Mbps of Internet bandwidth allocation per user.

Personalized portal learning gateways (website connecting each student to all resources).

Future Ready Media Center Standard

Library Media Centers (LMC) are at the core of Future Ready schools. LMCs provide the hub for learning resources that all students and teachers can access in order to fully engage in student driven project based learning.

Library Media Specialists provide standards aligned professional development, curricular, and media support for other teachers and students. Their role is pivotal in connecting classrooms with ancillary resources and the instructional practices for incorporating those resources.

All Library Media Centers:
Sufficient access to paper books for leveled reading.
Chromebook devices for individual student checkout - (5% ratio).
Access to 3 research databases.
Campus access for printing.

Elementary Library Media Center Resources:
Chromebook devices for media center use - cart of 36.
Video Production Space
Next Generation Media Carts:
-Supply of 16 iPad devices that support the production of audio and video presentations.
-Robotics devices that support coding curriculum.
-Maker Space carts that support prototyping with a variety of materials.

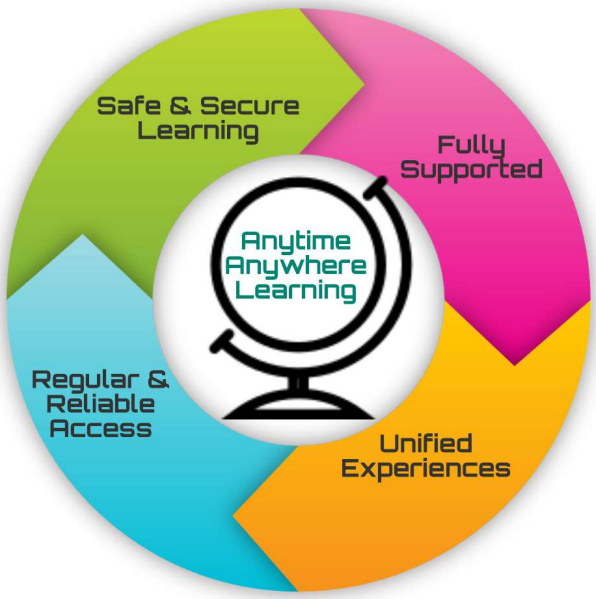
Secondary Library Media Center:
Chromebook devices for media center use - cart of 36.
Supply of 32 iPad devices that support the production of audio and video presentations.
3D printer access

Educational Technology Tenets

Educational technology is unique because the technologies used are designed to meet the needs of students and teachers in an academic setting as opposed to a business or recreational setting. In an academic setting, users need broad but secure Internet access, internal and external access to teaching and learning resources, heterogeneous device support, and the ability to adapt to a rapidly changing environment. In order to properly plan for the future of technology in an academic setting, there must be an understanding of the challenges faced by students and teachers. To that end, the following five tenets are designed to align and focus the technology systems that are implemented:

Anytime Anywhere Learning - Students, parents and teachers can access academic lessons and resources from anywhere in the world at any time, day or night. Student's are always learning and their learning environments are always available to them.

Unified Experiences for Teaching & Learning - Students and teachers can access all of their academic resources from one place, using one user-id and password.



Fully Supported Technology - Students and teachers have access to the training, professional development, technical, and the academic support personnel they need to be able to effectively use technology on a daily basis.

Regular & Reliable Technology Access - Students and teachers have regular access to technology whenever they require it; and the technology works whenever they use it.

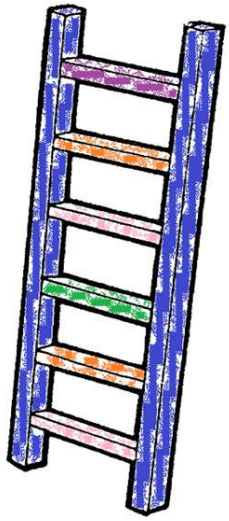
Safe & Secure Learning - Data is safe and secure. Students and teachers have secure logins and their information is protected. The District is audited to ensure its security practices meet or exceed industry standards.

Technology Learning Systems Hierarchy

Instructional Technology components are most effective when they are systematically aligned to directly support student learning environments using the five tenets: Arranging technology systems into a hierarchy facilitates planning, implementation, and the future evaluation of the complete teaching and learning technology platform. Each layer of the hierarchy is dependent on the layer beneath it. In effect, the top of the hierarchy is the most visible system in place; and its function is dependent on the proper and consistent function on the hidden systems beneath it. Developing systems that support Personalized Learning Environments is a key goal of the district's Bridge to Excellence plan and therefore all systems are designed to support that outcome.

Hierarchy of Systems & Support

Personalized learning environments	(Software)
Staff-based instructional support team	(People)
Cloud enabled learning resources	(Service)
Single sign-on functionality (SSO)	(Software)
Student & Staff Devices	(Hardware)
Staff-based technology support team	(People)
Automated security and account management	(Service)
Integrated database architecture	(Software)
Network infrastructure	(Hardware)
Staff-based infrastructure support team	(People)



Hierarchy by System Type

Software

These systems work together to support a unified learning environment in which a student can login from anywhere at any time and access their personal learning resources.

Personalized learning environments - These are websites with customized resources for each student embedded in them. Acting as an aggregate point for all available resources, this is a single web portal where students can go online to have instant access to all available learning tools.

Single sign-on functionality (SSO) - SSO is a background software service that enables students to log in once and have secure access to multiple systems, or to at least be able to log in to disparate systems using a single username and password.

Integrated database architecture - Integrating databases is a process of creating interfaces between data systems so that when a student is enrolled in one, they are automatically populated in another. This ensures that when a student is enrolled, on day one, that student is populated in all other school related systems.

People

These are the individuals and teams who support our teachers and students in their learning environments.

Staff-based instructional support team - This team is responsible for assisting teaching staff with their professional practice. They help teachers develop strategies for delivering high quality education.

Staff-based technology support team - This team's primary focus is on ensuring regular and reliable access to building and classroom based technology resources.

Staff-based infrastructure support team - This team's primary focus is on ensuring regular & reliable access to our network and server systems for all staff and students in support of anytime anywhere learning. They are also responsible for implementing and maintaining many of the software programs and services within the Hierarchy of Systems.

Services

Services are generally resources that are subscribed to, not owned by nor residing within any district building.

Cloud enabled learning resources - These are websites or web accessed programs that directly support student learning. These resources would be included in a student's individualized learning environment or available through a common web portal.

Automated security and account management - These are services that assist in connecting students to local and cloud enabled learning resources. This is how we ensure that single sign-on works.

Hardware

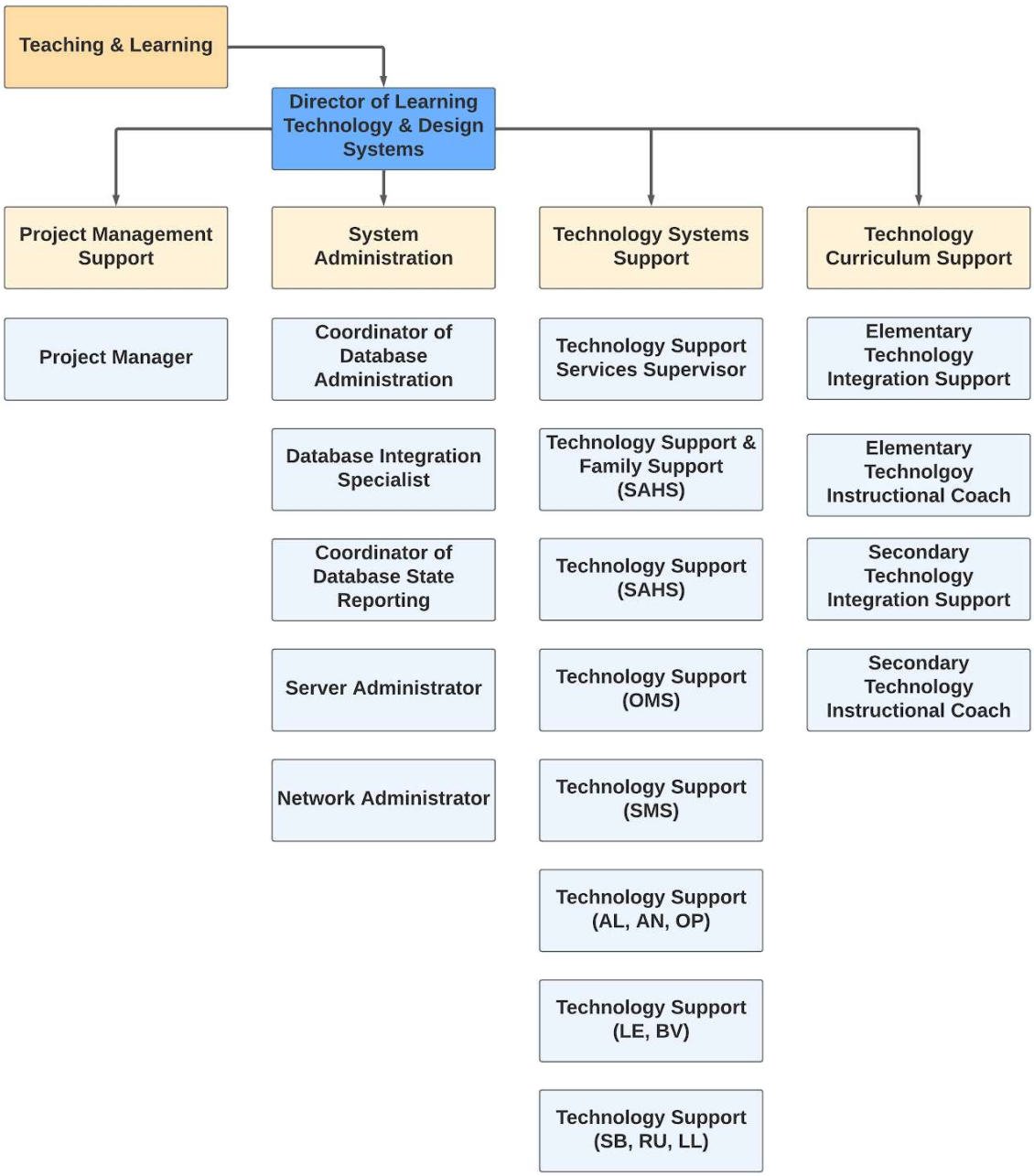
Hardware is the collection of physical devices that we generally refer to as 'technology'.

Student & Staff Devices - Laptops, Chromebooks, iPads, etc; these are the tangible technology tools that we put in the hands of students and teachers.

Network Infrastructure - This is the network switches, routers, fiber-optics, wireless access points, and servers that function to ensure that our students and teachers can reliably connect to the Internet.

Fully Supported Technology

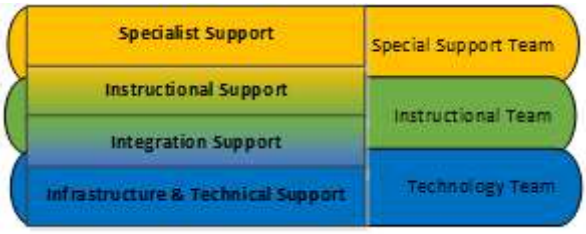
Staff-based technology curriculum support team ***(People)***
Staff-based technology systems support team ***(People)***
Staff-based infrastructure support team ***(People)***



Systems of Support (Needs Additional Review)

Aligning Support

Effective technology support requires having the right people in the right positions. It also requires alignment between those positions. ISD#834 support systems have four separate categories that need to be aligned into three separate, overlapping, teams:



The technology team is responsible for ensuring that the infrastructure and devices used by teachers and students are reliably functional. The instructional team is responsible for providing primary and intervention instructional support to classrooms. The Special Support Team is responsible for providing high-level interventions for student instruction. Together, these teams ensure that classrooms are supported to deliver high quality, technology enabled, instruction.

Access to Support

At Stillwater Area Public Schools, access to technology support is initiated through a trouble-ticket system. This allows any staff member to submit a support ticket for any technology related problem. The ticket is then forwarded to the most appropriate staff member for a resolution. The primary issue affecting this system's function today is an insufficient number of technicians to adequately cover the number of sites and the number of devices. Resolving this issue requires two changes:

1) Stillwater requires 5-6 technicians to cover the geographic area. This keeps technicians relatively close to their supported clients.
2) Stillwater needs to implement an obsolescence system to remove devices from circulation that are beyond end-of-life. These systems can take up to 10 times more support hours than a newer device.

By initiating these changes, Stillwater can ensure that all staff are supported efficiently with their technology concerns, which will increase the effectiveness of technology in the classroom that directly supports teaching and learning.

Fully Supported Technology Goals

The purpose of this section is primarily to focus on reorganizing and expanding support capacity for classroom teachers and other users. To accomplish this, these action items would add 2 FTE to hire 1 Licensed Elementary Technology Coach and 1 Licensed Secondary Technology Coach (or similar) positions focused on providing instructional technology support. Additionally, there would be a Technology Integrationist (realigned) focused on creating and providing training and support materials for technology. The district would realign another Technology integrationist to focus on database integration and feature development for PowerSchool, Schoology, and other connected systems (See Unified Experience Goals).

In order to better support buildings and provide the level of service and support required for the District's one to one program, two technology support staff would be assigned to the High School and one additional staff would be assigned to elementary buildings. Accomplishing this requires one additional FTE. One person at the high school would be assigned to 'Help Desk' management which would allow the tech office to remain open. That person would also assign support to the Central Services Building based on current ticket load and who is available. Tech support ratio targets would be between 1000-1600:1 (student:tech ratio).

In terms of standard visual data analytics, the District needs to plan and grow its use of common benchmark assessments (formative and summative), as well as expand staff and leadership access to useful data. This essentially means using Performance Matters effectively as well as building out the built-in report functions so staff have instant access to usable data. It also means building an Enrollment and Achievement (combined) report for the School Board and the public that answers the questions, "who is in our buildings, at what level are they achieving, and what are the learning needs and/or gaps".

Accomplishing all of this requires both adding and aligning existing support staff. Staff surveys and meeting feedback have strongly indicated that teachers are asking for more in-person support to aid in their professional development and use of integrated technologies.

(FST1) Fully Supported Technology #1 All teachers receive technology integration and repair support at the time of need.		
Action Item	**Timeline**	**Cost Estimate**
Add in-person help desk support at SAHS	2022	$0
Add/Increase help desk level support across all sites.	2022	$80K
Add/Increase technology integration support across all sites.	2022	$250K
Improve alignment between technology support, technology integration support, and curriculum coaching support.	2022 2023 2024 2025	$0
Conduct an annual survey by building regarding support satisfaction.	2023 2024 2025	$0
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Survey Data	Annual	Establish baseline in year 1 and see improvements based on actual feedback.

(FST2) Fully Supported Technology #2 Establish standard classroom technology use expectations to align district-wide support efforts.		
Action Item	**Timeline**	**Cost Estimate**
Establish curriculum standards for technology application adoption and implementation through our Curriculum Advisory	2022 2023	$0

Committee (CAC) **-Develop This More**		
Establish a system for verifying and supporting classroom implementation of district standard application implementation.	2024 2025	$0
Develop a web page for technology use and training support that includes documents and videos.	2022 2023 2024 2025	$0
Develop additional Schoology based staff development courses for safe technology use (Cyber Safety, FERPA, and Phishing)	2022 2023	$0-$20K
Establish key PowerSchool/Schoology usage expectations and training tools for onboarding new staff and supporting existing staff. (Live and/or Recorded training)	2023 2024	$0
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Training completion verifications	Annual	80%-100%

(FST3) Fully Supported Technology #3 Create standard visual data analytics access for parents, teachers, and administration.		
Action Item	**Timeline**	**Cost**
Deploy Unified Insights	2022	$80,000
Define special program and reporting priorities	2022	$0
Create standard reports by all subgroups for all reports	2022	$0

Define reports aligned with Strategic Plan.	2022	$0
Define reports that support classroom teachers and PLC processes.	2023	$0
Develop Early Warning System reports evaluating grades, test scores, mobility, attendance, discipline, and other factors.	2023 2024	$0
Expand assessment availability for analysis as appropriate (Special Education Assessments).	2025	$0
Expand reporting to include geographical analysis of the student body to include internet availability, language, grades, achievement, attendance, discipline, and other enrollment factors.	2024 2025	$0
Integrate the district financial system into reporting in order to develop reports that include 'cost of program.'	2025	$12,000
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Availability of public reports	Annual	See Actions

Regular & Reliable Technology Access

Network infrastructure ***(Hardware)***
Student & Staff Devices ***(Hardware)***

Regular and reliable technology access is based on the replacement cycles and quantity of devices available. Technology systems all have a useful life that, when exceeded, leads to poor and/or unreliable performance. The purpose of this section is to clearly define the scope of hardware technology improvement review and replacement cycles.

A primary goal defined in this plan is to provide one-to-one technology to students by the first day of 2nd semester, Jan 2023. Ideally, this would also provide each teacher with a student device. Staff devices would return to a 5-6 year replacement cycle with the expectation that it will take two years to catch up on replacements. Classroom upgrades would also begin, including audio reinforcement, TV upgrades, and in-ceiling speakers. These classroom upgrades would be designed to connect into the building PA systems for bells, announcements, and communication with the office (casual & emergency management).

The district's one-to-one initiative, classroom upgrades, computer lab replacements, existing printing, copying needs, teacher devices, network infrastructure projects, and security upgrades all compete for funds. In any given year funding will shift between these categories based on need.

Replacement Cycles

Chromebooks, Computer, Audio & Video

Devices	Grades	Cycle	Cost Components	Annual Cost
iPads	K-1	6 Year	Device, MDM License	$65,000
Chromebooks	2-12	4 Year (Lease)	Device, Configuration Services, Google license	$800,000
Staff Laptop/ Computer	District-wide	5-6 Year	Device, Basic Accessories	$150,000
Classroom Displays	PreK-12+	10-12 Year	Device, Cart/Bracket, Installation	$200,000
Classroom Audio (as a component of a campus PA system)	K-12	20 Year	Controller, Amplifier, Speakers, Installation	$200,000
Specialty Rooms (Auditorium, Forum, Gym, etc)	Varies	Varies	Varies	$30,000
			Annual	**$1,445,000**

Computer Power Labs

School	Full Labs	Size of Labs	Special Labs	Special Cost	Cost of Labs
Stillwater Middle School	2	36 (40)	2	$20,000	$128,000
Oak-Land Middle School	2	36 (40)	2	$20,000	$128,000
Stillwater Area High School	3	40	10	$60,000	$240,000
				Total	$538,000
				Annual	**$107,600**
Special Labs Include: Art Lab, Graphic Arts Lab, Design & Make Labs, and PLTW Labs.					

Computer Power Labs are only supported on secondary campuses (grades 6-12). Power labs are designated as such because they support the use of high-end computing software that exceeds the capabilities of a simple Chromebook or iPad device. These labs support graphic design, computer rendered animation, architectural system design, and some computer science programming environments.

Regular & Reliable Technology Access Goals

(RRTA1) Regular & Reliable Technology Access #1 All students and staff will all have access to common technology platforms.		
Action Item	**Timeline**	**Cost**
Deploy 1:1 for students 2-12 (K-1 ipad in class 2:1) (2-5 in class) (6-12 take home)	2022 2023 2024 2025	$800,000 - $1,000,000/year
Deploy system for evaluating and supporting Internet Access for all students.	2023 2024 2025	$120,000/year
Deploy Teacher/Para Devices; performance device and student device	2023 2024 2025	Included in 1:1 above
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Chromebook access ratio	Annually	1:1
iPad access ratio	Annually	2:1

(RRTA2) Regular & Reliable Technology Access #2 All deployed devices remain fully functional.		
Action Item	**Timeline**	**Cost**
Implement repair program for student devices: internal, external, and warranty.	2023 2024	$30,000
Implement an insurance program to ensure device replacements when necessary.	2022+	$40,000
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Repair logs	Annually	Maintain 0 day backlog (based on effective loaner system)

Regular & Reliable Technology Access Goals Continued

(RRTA3) Regular & Reliable Technology Access #3 All power labs are replaced every 5 years.		
Action Item	**Timeline**	**Cost**
Replace SAHS: Arts Lab	September 2027	$64,000
Replace SAHS: Graphic Arts lab	September 2023	$64,000
Replace SAHS: PLTW	September 2024	$40,000
Replace OMS : PLTW	September 2024	$40,000
Replace OMS : Design & Make	September 2026	$40,000
Replace SMS: PLTW	September 2024	$40,000
Replace SMS: Design & Make	September 2026	$40,000

Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Evaluate current need Annually to assess replacement need/ schedule	Annually	Lab meets classroom teacher curricular expectations

(RRTA4) Regular & Reliable Technology Access #4 All classrooms have required modern audio/video technology for teaching and learning.		
Action Item	**Timeline**	**Cost**
Evaluate campus audio solutions for integration of PA systems, classroom audio, digital signage, and emergency response.	2022 2023 2021	$0
Implement plan for upgrading classrooms (classroom modernization) in accordance with prior evaluations.	2022 2023 2024 2025	$200,000
Implement plan for upgrading campus systems for integration of PA systems, classroom audio, digital signage and emergency response.	2022 2023 2024 2025	Included above
Evaluate teacher voice amplification systems for classroom audio enhancements	2022	Included above
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Classroom Inventory	Annual	Progressive

Unified Experience for Teaching & Learning

Personalized learning environments ***(Software)***
Single sign-on functionality (SSO) ***(Software)***
Integrated database architecture ***(Software)***

In order to ensure that students have a unified experience accessing their data resources, their information must exist across all technology systems. An integrated database architecture achieves that result. Within 24 hours of enrollment, a student's data needs to be populated into the lunch system, library system, Google Apps for Education, and more. This ensures that when a student comes to class on the first day, they can login and participate in any lesson that has been planned. This allows classrooms to keep the focus on teaching and learning while also providing all students with the most inclusive experience possible.

Unified Experiences means that: each student, staff, and parent has a unique username; they are able to login to a 'home page' and access all relevant services from there; and when they access those services they are known. For example, when a student logs into a chromebook, the default homepage would be Clever, Clever would know the student, and who the student's teacher is. If the teacher has placed TypingPractice on their shortcut list for students, when the student clicks on TypingPractice, the software opens, knows who the student is, and knows who the student's teacher is. The District uses educational software from dozens of providers, including text book publishers; and providing a unified experience is key for students, staff, and parents to use all of these services effectively.

The parent experience remains the most problematic. Different software providers have very different ideas about how to support parent access. Bridging the gap between providers has proven to be extremely difficult. It also remains a priority for the District's technology focus. The district has moved to provide universal logins for parents and is attempting to synchronize those logins across multiple product vendors. This has been successful for PowerSchool, Schoology, and SmartSchoolK12. The District is now focused on Unified Insights, School Cafe, and MyBusStop. Additionally, there have been persistent issues with Google Authentication for parents. These issues will either be resolved or the District will move on to another form of parent authentication.

Managing multiple system integrations requires diligence with regard to protecting student data. To that end, the district synchronizes only the required data to the relevant system(s). Usually this data is limited to Google ID, First Name, Last Name, and Teacher(s) Name. Any given system will also contain the data that a student produces within it. When linking database systems for learning, the District does not send any extra data (date of birth, address, phone number, gender, etc).

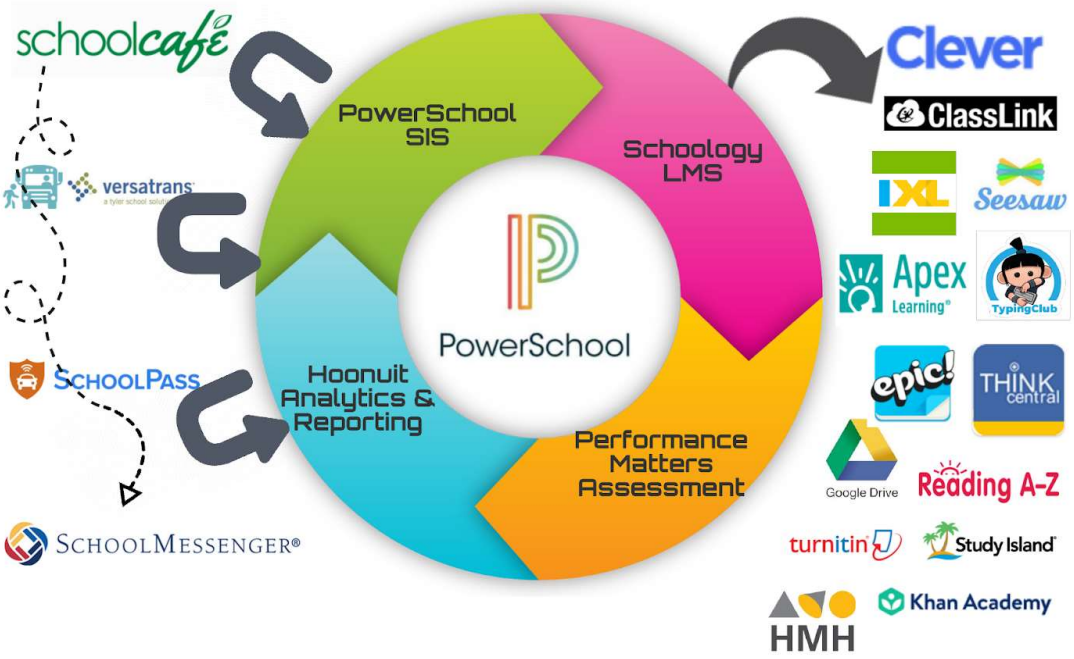
The District also seeks to minimize the number of vendors it utilizes, when possible. This was a very effective strategy when migrating to the PowerSchool Suite, but is much more impractical when adding curriculum solutions. However, now the bulk of student data only lives in the PowerSchool suite of products, and additional software learning solutions only receive the basic information required for a student to login and be identified on the roster of specific teachers.

In order to integrate learning systems, most data is now transmitted over secure APIs. Some data is transmitted over secure FTP (SFTP). All data transmitted is highly encrypted. During the duration of this technology plan (2022-2025) we will be performing security audits of our software partners to ensure their systems and policies are being kept up to date to protect our student data. Auditing local and remote data protections are now a part of this plan's Safe & Secure Learning goals.

Integrated Database Architecture Diagram

As of 2022, the District's new database architecture is largely dependent on API connection between PowerSchool products. This allows for the tightest integration of data sets between systems and solves a number of problems that were previously impossible to overcome. However, these new capabilities also come with challenges. 2022-2025 will be the first 3 years the District uses this new architecture. During that time, the District will need to invest a great deal of effort to mold the new systems to the desired results.

Perhaps the greatest challenge remaining involves creating seamless experiences for parents engaging in support of their children's learning.



Unified Experience for Teaching & Learning Goals

(UE1) Unified Experience Goal #1 Expand PowerSchool (PS) integration with Versatrans (Busing), SchoolCafe (Cafeteria), SchoolMessenger (Messaging), and Laserfiche (files storage).		
Action Item	**Timeline**	**Cost Estimate**
Automate the inclusion of bus information from Versatrans to PowerSchool.	2022 2023	$0
Establish a standard for Versatrans file naming.	2022 2023	$0
Investigate custom integration for SchoolCafe in order to embed SchoolCafe inside PowerSchool supporting SSO.	2022 2023	$20,000-$30,000
Integrate SchoolMessenger for Teachers.	2023 2024	$0
Evaluate SchoolMessenger from user perspective to determine better methods of staff use.	2023 2024	$0
Develop Laserfiche integration with PowerSchool for electronic cumulative folder storage.	2022	$0-$12,000
Develop Laserfiche integration for PowerSchool Parent Portal.	2023	$0-$12,000
Develop Laserfiche integration for enrollment portal.	2024	$0-$12,000
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Implementation Review	Annual	Completion w/ Notes

(UE2) Unified Experience Goal #2 Parents have a single launchpad/portal that reduces the number of apps, accounts, and improves their ease of use.		
Action Item	**Timeline**	**Cost Estimate**
Solicit Primero Edge for integrated PowerSchool integration utilizing plug-in support to PS website and/or app.	2022-2025	$30,000
Resolve parent authentication issues with Google.	2022-2023	$0
Integrate Schoology scores with PowerSchool App to make PS App a one-stop shop for all grades and attendance.	2022-2023	$0
Integrate Versatrans bus routes into PowerSchool to make PS a one-stop shop for bussing information.	2022-2023	$0
Implement Document Delivery service in PowerSchool to ensure parents can access report cards, transcripts, and other student reports in the PS Website and PS App.	2022-2023	$18,000 ($4K ongoing)
Add relevant forms to PowerSchool to remove requirements for families to access paper forms.	2022-2025	$0
Continue to pursue account automation for Parent Accounts.	2022-2025	$12,000
Implement feedback form for parents.	2023	$0
Monitoring & Evaluation		

Data Collected	Timeline	Expected Outcome
Feedback forms	Annual	Validation of current problems and goals.

(UE3) Unified Experience Goal #3 All PowerSchool apps are fully integrated.		
Action Item	**Timeline**	**Cost Estimate**
Fix grade passback between Schoology and PowerSchool	2022 2023	$0
Implement Special Education management	2023 2024 2025	$20-$30K
Revise special program tracking for reporting purposes	2023	$0
Maximize data feed to Unified Insights from all products	2023 2024 2025	$0
Improve Parent sync between PowerSchool Contacts and Schoology	2023 2024	$0
Evaluate eFinance Plus potential adoption and integration	2023+	$0 (evaluation only)
Provide user access to App Switcher, to make access to all PowerSchool products easier.	2023	$0
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Completion Stats	Annual	Timely Progress

Anytime Anywhere Learning

Cloud enabled learning resources ***(Service)***
Automated security and account management ***(Service)***

Anytime Anywhere Learning is about adopting teaching and learning resources that can be universally accessed. To achieve this outcome, the district must establish standards for curriculum and program adoptions that require them to be cloud-enabled (accessible via any Internet connections) and to support automated account creation and management. These standards will help ensure that, when a student enrolls, they immediately receive access to the services that will support their education at school and at home.

Anytime Anywhere learning also requires the presence of a unified learning hub known as a learning management system (LMS). An LMS is a website where teachers, students, and parents all come together to support learning outcomes. Teachers can post homework, discussion questions, or instructional videos. Students can receive and turn-in homework, seek teacher or peer assistance, and stay connected to their classes when they are absent. Parents can see their children's grades and attendance as well as know what tonight's homework is. Together, this information system allows parents, students, and teachers to communicate more effectively in order to support student learning outcomes.

In addition to being a central point of online learning for students, an LMS becomes a jumping off point for students to access other online educational resources. This puts students one click away from accessing district adopted research databases, media archives, instructional support tools, online literature, library systems, and more. By bringing all of these resources back to one online location, students can easily find and access the tools they need to learn. Rather than simply unleashing students on the Internet at large, the district provides a portal from which an array of powerful Internet tools can be accessed.

Powerschool SIS, LMS, and Assessment

At the conclusion of the previous technology plan, the district migrated to an integrated solution with PowerSchool SIS and Schoology LMS. As of this writing, PowerSchool is working to finalize the proprietary integration of these systems. Additionally, PowerSchool has completed the successful integration of Schoology and Performance Matters (assessment platform). By integrating the SIS, LMS, and Assessment platforms, this ensures that students have full access to their core learning resources from one place (Schoology). Ultimately, Parents will have full access in one place as well (PowerSchool).

Online Curriculum Adoptions

When adopting future curriculum programs in the district, it will be important that they are compatible with the vision of Anytime Anywhere Learning. This means that they must have a means for facilitating account synchronization, google apps integration, and provide teachers with the resources they need to post content through the LMS. Additionally, curriculum programs need to be compatible with a wide range of technology platforms so access is not limited. Currently, about half of the district's curriculum publishers connect directly to Schoology via an API.

As technology continues to evolve, our curriculum choices need to remain useful within our changing environment. While supporting the publication of electronically available resources is useful, the district will also seek to adopt online curricula that leverages the power of technology to provide students with dynamic access to information in various forms of media. While a typical textbook is capable of providing factual information, an e-textbook is potentially capable of providing access to a documentary video clip, a research article, and a relevant excerpt from a novel all at the same time. This approach provides students with a higher level of engagement and enables them to process the information in ways more suited to their personal learning style.

Anytime Anywhere Learning Goals

(AAL1) Anytime Anywhere Learning Goal #1 All teachers use Schoology in 3rd - 12th grade.		
Action Item	**Timeline**	**Cost Estimate**
Expand Schoology implementation to 3rd	2025	$4,200
Expand Schoology implementation to 4th	2024	$4,200
Expand Schoology implementation to 5th	2023	$4,200
Realign elementary technology integration support to focus on schoology implementation	2022/2023	$0
Create parent support documentation and video on how to access and use Schoology.	2022/2023	$0
Work through Curriculum Advisory Committee to develop minimum standards for Schoology use at elementary grade levels.	2022 2023 2024	$0
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Schoology usage reports	Annual	Progress towards 100% weekly usage.

(AAL2) Anytime Anywhere Learning Goal #2 Establish standards for eLearning expectation, usage, and integrated subscription tools.		
Action Item	**Timeline**	**Cost Estimate**
Through the Curriculum Advisory Committee, evaluate standards for periodic grade updates in order to standardize the frequency and expectation for staff, students, and parents.	2022 2023 2024 2025	$0
Through the Curriculum Advisory Committee, establish a definitive list of technology based curriculum support products by grade or subject.	2022 2023 2024 2025	$0
Through the Curriculum Advisory Committee, develop a standard use model of incorporating online learning components in normal daily instruction for the purpose of connecting the home and the classroom.	2022 2023 2024 2025	$0
Through Curriculum Advisory Committee, develop clear grade level standards for technology skill literacy, cyber safety, and technology use content and/or skill development.	2022 2023 2024 2025	$20,000
Through Curriculum Advisory Committee, develop clear expectation for online learning, e-learning days, snow days, etc for K-1 (with or without technology)	2023	$0

Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Curriculum Advisory Notes	Annual	Annual Progress, Documentation of standards and expectations.

Safe & Secure Learning

Child Internet Protection Act (CIPA)

CIPA requires the public adoption and enforcement of an "Internet Safety Policy". For minors, the policy must also address monitoring of online activities, the safety and security of all forms of direct electronic communications, unauthorized online access, and unauthorized disclosure of personal identification information. In accordance with CIPA, the district has adopted, and continues to revise its Student Technology Access and Internet Acceptable Use Policy 524

It is the responsibility of the district to provide cyber safety education for all students accessing the Internet. Cyber safety teaches students how to recognize and respond to the dangers presented by accessing the Internet. This curriculum should be delivered in both formal and informal means. The formal should ensure that all students complete a structured curriculum that covers all relevant topics. This information would ensure that all parties have access to reliable information related to cyber safety. Common Sense Media provides materials available to schools and families that meet both of these categories.

Content Filtering is a technology that assists the district in protecting students from accessing offensive material. While no filtering technology can provide absolute protection against all obscenity, the district does maintain a CIPA compliant solution that does an effective job. Rather than attempting to determine what Internet-based material is appropriate, the district attempts to block material that is obscene.

Data Literacy

While we educate students in regards to information literacy, we also need to educate staff and students on data literacy. Data literacy is the knowledge of what personal data is, how it can be used, and who it can (and can't) be shared with. The Family Education Rights and Privacy Act (FERPA) governs how student data must be handled. It is important that as a part of this plan, we review our policies, procedures, and professional development strategies to ensure that staff and students are aware of FERPA and what it means for them.

Data Protection (storage & encryption)

Protecting data from cyber threats involves ensuring that data is difficult to access. All data should be stored using encryption; this includes laptop computers, desktop computers, server data storage, and server databases. Decryption should only be possible after a successful 2FA (2 factor authentication) process. ISD#834 is currently deploying all devices with encryption enabled. The district will also be adding encryption to all server storage in 2022/2023.

Disaster Recovery Planning (backup & recovery)

Whether or not encryption can be hacked for data theft purposes, cyber threats include the possibility that data can be re-encrypted and organizations extorted to regain access to their files. To protect against these “crypto-locker” threats, the district needs a sufficient plan for backup and recovery. Under this plan, the district will ensure that it maintains 2+ weeks of ready backups that can be restored immediately should the need arise. Additionally, the district will be maintaining 3+ months of ‘air-gapped’ backups. An air-gapped backup cannot be accessed easily or electronically, and they take hours or days to restore. While a less efficient form of backup, air-gapped backups cannot be hacked and are therefore immune from cyber threats.

Restores will be tested four times per year locally and once per year from air-gapped storage.

Data & Security Policies (board policies)

The District needs to evaluate its Data & Security School Board policies. Following best practices, policies should identify standards for internal, external, and 3rd party security. Additionally, this evaluation process should extend to annual security audits that assist the District in focusing its security efforts. All of this work is, and should be, done in partnership with other school districts, helping ISD#834 implement the best practices at the best cost.

Safe & Secure Learning Goals

(SSL1) Safe & Secure Learning #1 Maintain appropriate CIPA compliant policies for Technology Access and Acceptable Use.		
Action Item	**Timeline**	**Cost Estimate**
Review and Update Policy 524	2022 (April - June)	$0
Review and Update Policy 524	2023 (April - June)	$0
Review and Update Policy 524	2024 (April - June)	$0
Review and Update Policy 524	2025 (April - June)	$0
Reevaluate CIPA Compliant curriculum for cyber safety.	2022 2023	$0
Re-implement CIPA Compliant curriculum for cyber safety if necessary	2024 2025	$0-$20,000
Deploy 2nd layer protection to chromebooks w/ one-to-one program	2022 2023	$80,000
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Board Agenda Minutes	Annually	Board Approval

(SSL2) Safe & Secure Learning #2 All network computers and server systems are secure from ransomware.		
Action Item	**Timeline**	**Cost Estimate**
Deploy EDR solution to all servers and workstations	2022	$60,000

Deploy cloud-based one-way backup solution	2023	$20,000-$30,000
Develop testing cycle for local, remote, and cloud based backup systems	2023 2024	$0
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Deployment Review	Annual	Completion w/ Evaluation Notes

(SSL3) Safe & Secure Learning #3 All network computers and server systems are secure from data theft.		
Action Item	**Timeline**	**Cost Estimate**
Upgrade local database servers to Enterprise (supports at rest encryption).	2022	$22,000
Upgrade/Migrate existing databases to encrypted platforms.	2023	$0
Ensure all staff workstations and laptops are encrypted at deployment.	2022 2023 2024 2025	$0
Ensure all staff accounts utilize 2 factor authentications.	2022 2023 2024 2025	$0
Reengineer server access solution to enforce 2 factor authentication and restrict remote connections.	2023	$30,000
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**

Test Completion Audit	Annual	100% Completion

(SSL4) Safe & Secure Learning #4 All staff are properly trained to act safely and protect data.		
Action Item	**Timeline**	**Cost Estimate**
Deploy annual FERPA training (already developed)	2022 2023	$0
Develop and Deploy staff cyber safety training	2023 2024	$0-$12,000
Develop and deploy phishing training	2023 2024	$8,000-$12,000
Monitoring & Evaluation		
Data Collected	**Timeline**	**Expected Outcome**
Training Completion Reports	Annual	95% compliance

Appendix: Resources & References

Federal Department of Education National Education Technology Plan
http://tech.ed.gov/netp/

Federal Department of Education Connect Ed Initiative
http://tech.ed.gov/connected/

Federal Department of Education Future Ready Initiative
http://tech.ed.gov/futureready/

Future Ready Library Media Center Initiative
https://futureready.org/thenetwork/strands/future-ready-librarians/

Federal Communications Commision Child Internet Protection Act (CIPA)
https://www.fcc.gov/consumers/guides/childrens-internet-protection-act

Federal Family Educational Rights and Privacy Act (FERPA)
http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html

Stillwater Area Public Schools Technology Access & Acceptable Use
https://www.stillwaterschools.org/our-district/school-board/district-policies/individual-policy/~board/school-board-policies/post/524-student-tech-internet-access-acceptable-use

Cyber Safety Resources - Common Sense Media
https://www.commonsensemedia.org/

ISTE Standards
http://www.iste.org/standards

Appendix: Budget 2022-2025

The budget is provided in this document as an example of what technology based spending in the District looks like. It is not intended to represent a precise expression of any specific budget year's expenditures.

Sample Learning Technology Area Budget 2022 - 2023

Budget Item	Cost Estimate	Area of Expense
Internet Services & Transport	$40,000	Communications
Wide Area Network Fiber - Zayo	$116,000	Communications
PRI Phone Lines - Centurylink	$65,000	Communications
Cell Phones - T-Mobile	$45,000	Communications
Student Hotspots - T-Mobile	$68,000	Communications
DSL Services - Frontier	$2,500	Communications
1MB Services - AT&T	$2,500	Communications
WAN Upgrades & Repair	$70,000	Equipment & Service
Firewall Expansion for 10GB	$100,000	Equipment & Service
Radios for Communication Batteries	$4,000	Equipment & Service
Efficient IP (DHCP/DNS/SECURE)	$11,000	Equipment & Service
Local Network Upgrades & Repair	$50,000	Equipment & Service
Classroom Modernization (Audio / Video)	$200,000	Equipment & Service
Technology Supplies - Items under $500	$25,000	Equipment & Service
Annual Replacements - iPads	$60,000	Equipment & Service
Annual Replacements - Chromebooks	$800,000	Equipment & Service
Annual Replacements - Staff Computers	$160,000	Equipment & Service
System Integration & Security	$70,000	Equipment & Service
Printing & Copying	$22,000	Equipment & Service
Computer Management - JAMF	$20,000	License/Support/Subscription
iPad Apps - Apple VPP	$4,000	License/Support/Subscription
End Point Protection & Response	$30,000	License/Support/Subscription
Skyward Finance System License	$90,000	License/Support/Subscription
Skyward ISCorp Server Hosting	$15,000	License/Support/Subscription

Matrix - Phone Hardware Support	$33,000	License/Support/Subscription
Matrix - Wireless Network Licensing	$25,000	License/Support/Subscription
Copy/Printing Software - Uniflow	$7,000	License/Support/Subscription
Database Aggregator - CPSI	$8,000	License/Support/Subscription
SSO Integration - Classlink	$23,000	License/Support/Subscription
School Messenger	$15,000	License/Support/Subscription
HelpDesk License	$3,000	License/Support/Subscription
GIS Software - Guide K12	$16,000	License/Support/Subscription
School Pass Visitor Mgmt & Attendance	$34,000	License/Support/Subscription
E-rate Support	$10,000	License/Support/Subscription
Web Hosting	$18,000	License/Support/Subscription
Website Design	$18,000	License/Support/Subscription
Server Backups	$30,000	License/Support/Subscription
Security Software	$175,000	License/Support/Subscription
Zoom	$32,000	License/Support/Subscription
PowerSchool Suite	$167,000	License/Support/Subscription
Staffing, Benefits, & Mileage	$2,016,000	Technology Support Staff
Total	$4,700,000	