Technology Update 2021-2022

Purpose: This report allows us to provide a comprehensive overview of technology deployment in the district, updates on current and upcoming projects, and clarity on how technology funds are spent and how staff and students benefit as a result. It also provides transparency on the Capital Projects (Technology) Levy passed in 2015 and each iteration of the report serves as a running record of how the objectives of the levy are being fulfilled.

<u>Instructional Technology Department Vision</u>

Shakopee Instructional Technology Services
will support the district's educational goals
by providing high levels of reliability, service, and support.

Contents

Tech Update Report Introduction

This is the fourth version of the report on the Capital Projects Levy (commonly known as the technology levy, which is how it will be referred to throughout this document). It is being authored not long after the community generously committed to an operating levy for the district. Discussions about the operating levy brought up some common questions or themes about budget transparency, accountability, and clarity around the use of funds. This report and all of the previous iterations have addressed those questions head on. While a portion of technology funding continues to be sourced from the general fund, the majority is now funded via the tech levy. And if the past two years have illustrated anything, it is that we are incredibly fortunate to have had the resources to put a device in the hands of every student, to be able to supply wireless hotspots when needed, to have online learning tools and systems that staff could utilize, and to have personnel in place to support all of these efforts. Nobody who voted for the tech levy in 2015 could have predicted where we would be in a few years, but it's fair to say that the levy funding was crucial to the district's ability to respond to the situation and continue to provide a positive learning experience for our students.

Tech Levy Promises

One piece of documentation provided to voters prior to the Capital Projects (Technology) Levy in May 2015 was a timeline covering various goals for the use of the increased funding. In reviewing those goals, it should be noted that many have been met or are on track toward completion (we are in year 6 of the chart now). In fact, out of all of the goals listed the only one that we have had to push back to later in the timeline is the replacement of classroom multimedia systems (Smartboards and projectors).

Shakopee Public Schools

Proposed Initial Plan for Technology Levy Funding

If voters approve Question 2 on May 5, 2015

Technology has become a critical part of all learning environments, but it has to compete with other important needs for funding. If voters approve the technology levy request, it would provide a stable and dedicated source of annual funding to give students access to the technology they need to learn, teachers the technology they need to teach and staff the training they need to use technology effectively.

GOAL	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Network/ Infrastructure	Replace network switches on 6-year replacement cycle					
	Increase and update data storage and capacity			Monitor use; increase as demand dictates		
	Replace 6 year old Smartboards/Projectors with Interactive Projectors increasing teaching space				Projectors: 6-year replacement cycle	
	Wireless access; target dead zones in academic areas		Replace access points on a cycle to ensure capacity and speed			
		Update aging systems (e-mail, telephone, information system for HR/Finance)				
Devices for students & staff	Replace/Add Computers and devices in Elem. Schools (approx. 1510)	Replace/Add Computers and devices in Elem. Schools (approx. 645)	Replace/Add Computers and devices in Elem. Schools (approx. 2090)	Replace/Add Computers and devices in Elem. Schools (approx. 1275)	Replace/Add Computers and devices in Elem. Schools (approx. 1375)	Replace/Add computers and devices in Elem. Schools on cycle
	Replace/Add computers and devices in Sec. Schools (approx. 2500)	Replace/Add computers and devices in Sec. Schools (approx. 2215)	Replace/Add computers and devices in Sec. Schools (approx. 365)	Replace/Add computers and devices in Sec. Schools (approx. 910)	Replace/Add computers and devices in Sec. Schools (approx. 2620)	Replace/Add computers and devices in Sec. Schools on cycle
Technology Support	Add additional tech support staff to provide technology training and support		Continue to provide instructional and technical support across all buildings and programs			
Training	Provide teacher training that directly supports academic design and curriculum needs. Training will be on demand, just-in-time, and personalized for teachers to support them in high quality uses of technology.					

Tech Levy Promises Report Card

Here is another view of the levy goals and progress that has been made.

Key:

Not started

On-going – A project or task with annual targets that are being met.

Completed – A stand-alone project or task that has been finished.

Goal/Item	Status	Notes
GOAL: Network/Infrastructure		
Replace network switches on 6-year replacement cycle.		
Increase and update data storage and capacity.		Completed 2019
Replace SmartBoards/Projectors with interactive projectors increasing teaching space.		
Wireless access; target dead zones in academic areas (and replace on a regular cycle).		
Update aging systems: e-mail.		Completed 2016
Update aging systems: telephone.		Refresh Summer 2019
Update aging systems: information system for HR/Finance.		Completed 2015 & 2020
GOAL: Devices for students and staff		
Replace/Add computers devices in Elementary and Secondary schools (various amounts year over year).		
GOAL: Technology support		
Add additional tech support staff to provide technology training and support.		
GOAL: Training		

Provide teacher training that directly supports academic design and curriculum needs. Training will be on-demand, just-in-time, and personalized for teachers to support them in high quality uses of technology.		

Years 7-10 and beyond - Completed items removed; modified and new items noted.

Goal/Item	New?	Recommendation
GOAL: Network/Infrastructure		
~~Replace network switches on 6-year replacement cycle.~~ Update network infrastructure on a regular cycle to meet demands for capacity and usage.		Revised; continue to maintain network infrastructure.
Increase and update data storage and capacity.		Monitor and maintain.
~~Replace SmartBoards/Projectors with interactive projectors increasing teaching space.~~ Update audio-visual equipment to leverage tools and environment.		Revise and continue.
~~Wireless access; target dead zones in academic areas (and replace on a regular cycle).~~		Combined with network infrastructure item.
Update aging systems: telephone.		Maintain and update system as needed.
Improve resiliency and recovery of systems - including infrastructure for back-ups, redundancy, disaster recovery, and preventative maintenance	New	
Improve systems, processes and training in the broad area of cybersecurity, and in specific domains of account management, data retention and privacy, multi-factor authentication, and breach prevention and policy.	New	
GOAL: Devices for students and staff		

Replace/Add computers devices in Elementary and Secondary schools (various amounts year over year).		Continue to support 1:1 and curriculum specific devices.
GOAL: Technology support		
Add additional tech support staff to provide technology training and support.		Staffing has been adjusted as needed in response to needs and budgetary realities.
GOAL: Training		
Provide teacher training that directly supports academic design and curriculum needs. Training will be on-demand, just-in-time, and personalized for teachers to support them in high quality uses of technology.		Trying to address this goal with a mix of documentation, training, and support staff.

Technology Finances

This section provides an overview of technology-related revenues and expenditures. It includes the current year (Fiscal Year 2021-2022, or FY22), all levy years prior and projections two or more years into the future.

There are many ways to slice and dice financial data. The numbers here are intended to give a high-level overview of the major categories of spending. One detail to be clear on from the outset is the revenue category: any reference to the General Fund indicates that the revenue source is regular district funding, specifically allocated for technology expenses. Any reference to the Levy is funding derived from the voter-approved May 2015 Capital Projects Levy, for which funds became available for use in the 2016-2017 (FY17) school year.

Revenues

The primary categories of revenue for technology spending are the General Fund and the Capital Projects (Technology) Levy. The next chart provides a breakdown of revenue categories, where the funding originates, and the frequency or stability of each revenue stream.

Category	Source	Frequency
General Fund	State & Local	Annual
Capital Projects Levy	Local	FY17-FY26 (10 years)
E-rate	Federal	Annual
Telecom Equity aid	State	Annual
Mi-Fi Grant	State	FY17-FY19
Surplus equipment sales	3rd Party/Commercial	Whenever surplus equipment is identified. (Deposits back to general fund through FY20; to tech levy projects as of FY21)
Recycling	3rd Party/Commercial	Whenever recyclable items are identified. (Deposits back to general fund)
Device Insurance Fees	Student Fee/Local	Annual for 1:1 take-home device usage (grades 6-12 currently).
COVID Relief Funds	Federal & State	Intermittent since spring of 2020.

Capital Projects (Technology) Levy Revenue

The Capital Projects Levy that was voter-approved in May of 2015 was defined at the February 9, 2015 Board meeting. An excerpted section of those minutes is pasted below, with a few items emphasized for clarity.

> *The board also finds and determines that it is necessary and expedient for the school district to submit a capital project levy authorization to fund technology to the voters for their approval.* ***The proposed authorization for technology will be in the amount of 5.837584% times the net tax capacity of the school district.*** *The proposed capital project levy authorization will raise approximately $2,500,000 for taxes payable in 2016, the first year it is to be levied, and would be authorized for ten years. The estimated total cost of the projects to be funded by the proposed capital project levy authorization is approximately $25,000,000. The money raised by the capital project levy authorization will be used to provide funds for the acquisition and maintenance of technology and technology systems, and to pay the costs of technology-related personnel and training.*

One purpose of this specific report is to provide on-going documentation not just about the entirety of technology department funding and initiatives, but also to clearly note the impact of the levy on the district's technology program. Transparency in this regard helps in reassuring the community that what was voted on is what is actually happening. It also builds a long-term picture of the impact of that spending and allows the district to understand what will be needed in order to maintain technology once the levy term ends.

It should also be noted that the levy funding is based on a **percentage**, not a fixed amount. A review of the total expenditures billed to the levy will show close to 3 million dollars for 2018-2019. The estimated amounts in the board motion reflected the first year of assessments based on property values at the time. As property value goes up, the assessed levy goes up (again, because it is based on a percentage of value). The ten year total as described to the board in 2015 assumed flat property values (which is fair because historically property values can and do fluctuate). Through six years of levy funding, the actual amount collected has been about $19,390,000. If the remaining four years follow a similar progression, an additional $18,000,000 would be collected, yielding a ten year total exceeding $37,000,000. Not to put too fine a point on it, but this is another reason why the information in this report is so very necessary for documenting not just the fact of what revenue was collected, but how it was used to continuously improve the technology environment throughout the district.

Additional Revenues

Revenue categories beyond the General Fund and Levy are not a significant contributor to the technology budget, but they are helpful.

- E-rate aid is diminishing as the federal government reduces the types of qualifying expenses, but still helps with costs related to our Internet service. This includes the Emergency Connectivity Fund, which was managed through a process similar to E-rate to address distance learning needs.
- Equity aid is a state allocation that also helps offset some of the Internet access costs.
- The Mi-Fi grant was a competitive grant awarded to the district last year, with a fixed amount of funds that has been expended at this point.
- Surplus equipment sales represent an area that we intend to pursue more aggressively and strategically as a counterpart to our device replacement cycle. Additional detail is noted below.
- Recycling of items such as unused wires and cables, bulk metal, and obsolete technology with no other resale value brings in the least amount of money but allows us to squeeze every last dollar out of unused (and unusable) items.
- Device Insurance Fees are used to repair damaged devices; additional detail is noted below.
- COVID Relief Funds were applied to support some non-budgeted distance learning needs for technology, such as additional mi-fi hotspots, unexpected damage or loss of devices, and increased licensing of curriculum software for credit recovery.

Surplus equipment sales revenue

Maintaining a consistent and predictable replacement cycle for devices and other hardware helps to ensure that we have well-functioning equipment in the district and also clarifies budget expectations from one year to the next. There are fewer surprises with items breaking down and better overall reliability. Whenever possible, we will sell off any surplus technology, with the monies (currently) returning to the general fund. In the past two years we have recouped over $300,000 in surplus sales.

2017-2022 Surplus Equipment Sales

Date	Device Type	Device Count	Winning Bidder	Revenue
2017 - October	iPad Minis	585	iPhone Antidote	$51,540.00
2017 - December	MacBook 11" Air	182	Tech Defenders	$48,600.00
2018 - March	MacBook 11" Air	330	Second Life Mac	$101,397.00
2018 - March	iPad Various	124	Second Life Mac	$5,330.00
2018 - August	MacBook various	261	Tech Defenders	$68,020.00

2018 - September	iPad Various (4th gen mostly)	528	iPhone Antidote	$36,038.00
2018 - October	Chromebooks - HP G1	219	Classform	$845.00
2019 - May	iPad various 2nd, 4th, Mini 1st and 2nd gen	750	Second Life Mac	$34,310.00
2019 - May	MacBooks - 11” and 13” Air	322	Planitroi Inc	$30,283.00
2020 - March	iPad	213	Second Life Mac	$54,212.00
2020 - May	Apple TV	496	Tech Defenders	$7500.00
2020 - May	MacBook various (2/3 damaged stock)	354	Second Life Mac	$110,293.00
2020 - September	iPad	1533	Total Technology	$97,634.00
2021 - May	iPad	1027	Second Life Mac	$165,050.00
2021 - November	MacBook	296	Diamond Assets	$38,104.50
2021 - December	iPad	500	Total Technology	tbd
2022 - February	MacBook	600	Mac of All Trades	tbd

Device Insurance Overview

The district currently offers 1:1 device insurance at rates of $20 annually for iPads and $50 annually for MacBooks. The charts below show annual collections and expenditures.

Rates for the upcoming year are generally set sometime around April. Insurance pool money is currently used for repair of devices for which the family has actually paid into the pool or is considered exempt from payment. Repair costs for any device for which insurance was declined are covered initially from the general tech budget and billed back to the student.

The factors we look at when setting the rate include the initial cost and repair cost of the device, number of devices deployed, amount of stock we need to maintain to ensure that a replacement device is always available, and costs associated with tracking inventory and repair processes and labor for those tasks.

Over time we have developed a process to be more efficient with repairs and making determinations about what types of damage are actually worth repairing given the current value of the device. Taking total cost of ownership and resale value into account has helped establish a healthy reserve for repair costs while allowing us to set rates significantly below what is charged by 3rd party providers.

Insurance Pool Collections and Expenditures

Year	iPad Ins	Mac Ins	Collected	Expended	Year Balance	% Used	Running Balance
FY16	$25	$75	$76,432	$19,125	$57,307	25%	$57,307
FY17	$25	$75	$110,858	$79,694	$31,164	72%	$88,471
FY18	$25	$75	$126,317	$37,154	$89,163	29%	$177,634
FY19	$20	$60	$98,060	$38,542	$59,518	39%	$237,152
FY20	$20	$60	$98,660	$17,766	$80,894	18%	$318,046
FY21	$20	$50	$93,100	$75,769	$17,331	81%	$335,377
FY22	$20	$50	$99,575	$69,708	$29,867	70%	$365,244
			$703,002	$337,758			

While the device insurance option has been successful in some ways, it does have some drawbacks. Our data on repairs does not adequately capture the costs associated with devices that are a total loss and never repaired but instead end up recycled (a common example is water damage, which tends to cost more than what the device may be worth at that point). It is also difficult to document all of the costs associated with processing repairs, collecting and processing fees, and related documentation and outreach. Additionally, there are disparities in the ability of any particular household to pay the insurance fee. Even though we do make accommodations for exempting or waiving the fee, it is an additional step for families.

Another path to ensure we have adequate stock of working devices is to pre-pay for AppleCare warranties at the time of purchase. This runs for a three year period and covers much of what we typically end up repairing. It also covers total loss types of damage that we typically have not repaired in the past and end up reducing our total stock. While more costly up front, the AppleCare option reduces other costs and is a predictable and consistent budget item, while annual repair costs through 3rd party vendors are less predictable.

Our current recommendation is to eliminate device insurance fees effective for the 2022-2023 school year, with the understanding that they may need to be resumed in the event that the technology levy is not renewed.

Expenditures

Expenditures are grouped into three categories; we will dive into each of the categories in a section of this report. The categories are:

- Staffing (Salaries and Benefits)
- Devices (Devices and Cases)
- Services, Supples, Software & Capital Expenses

The next few charts provide some specific data on expenditures, both in the broad sense and more specifically by revenue source and projections over time.

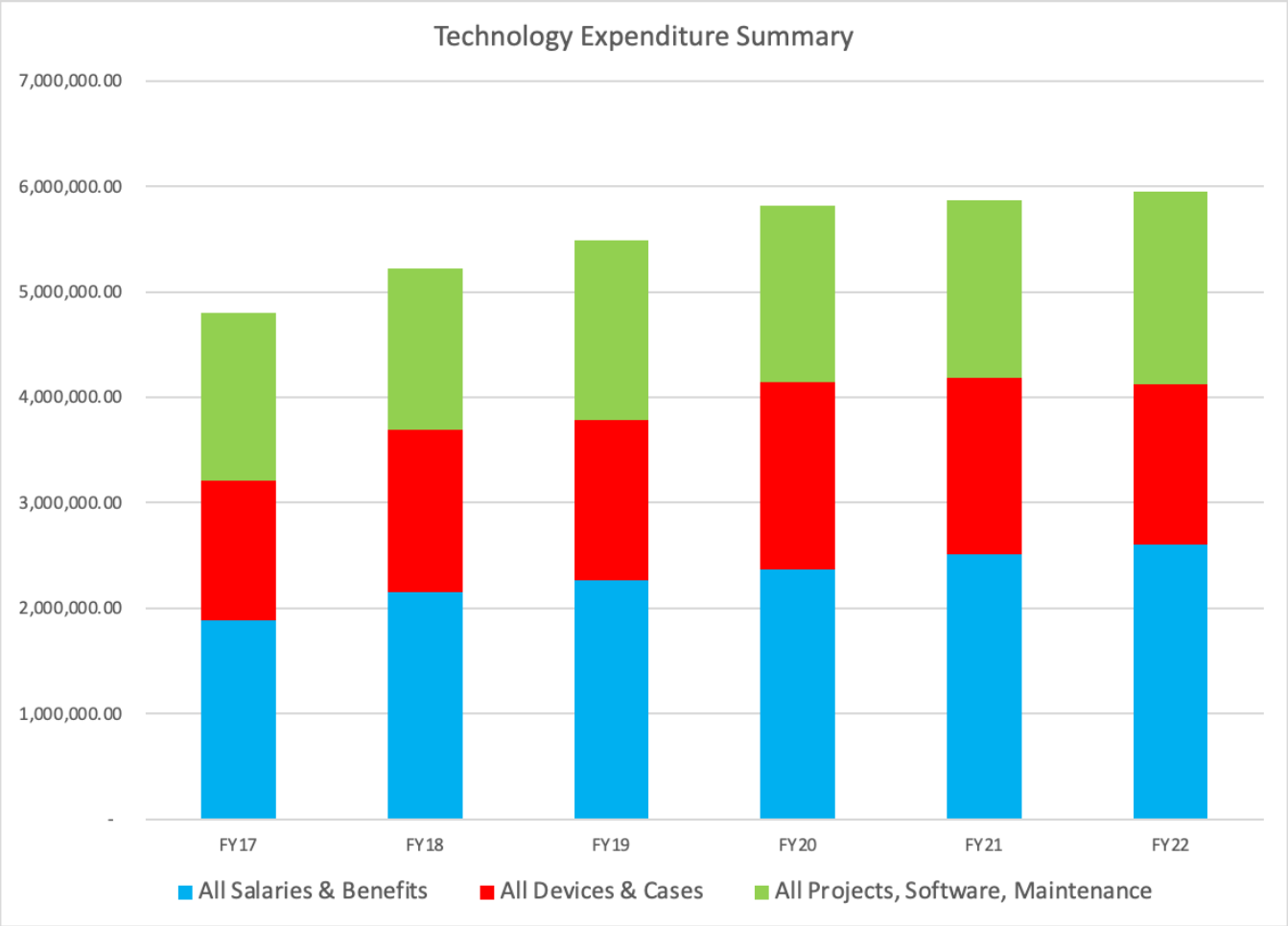


Chart showing overall expenditures (combined General and Levy budgets)

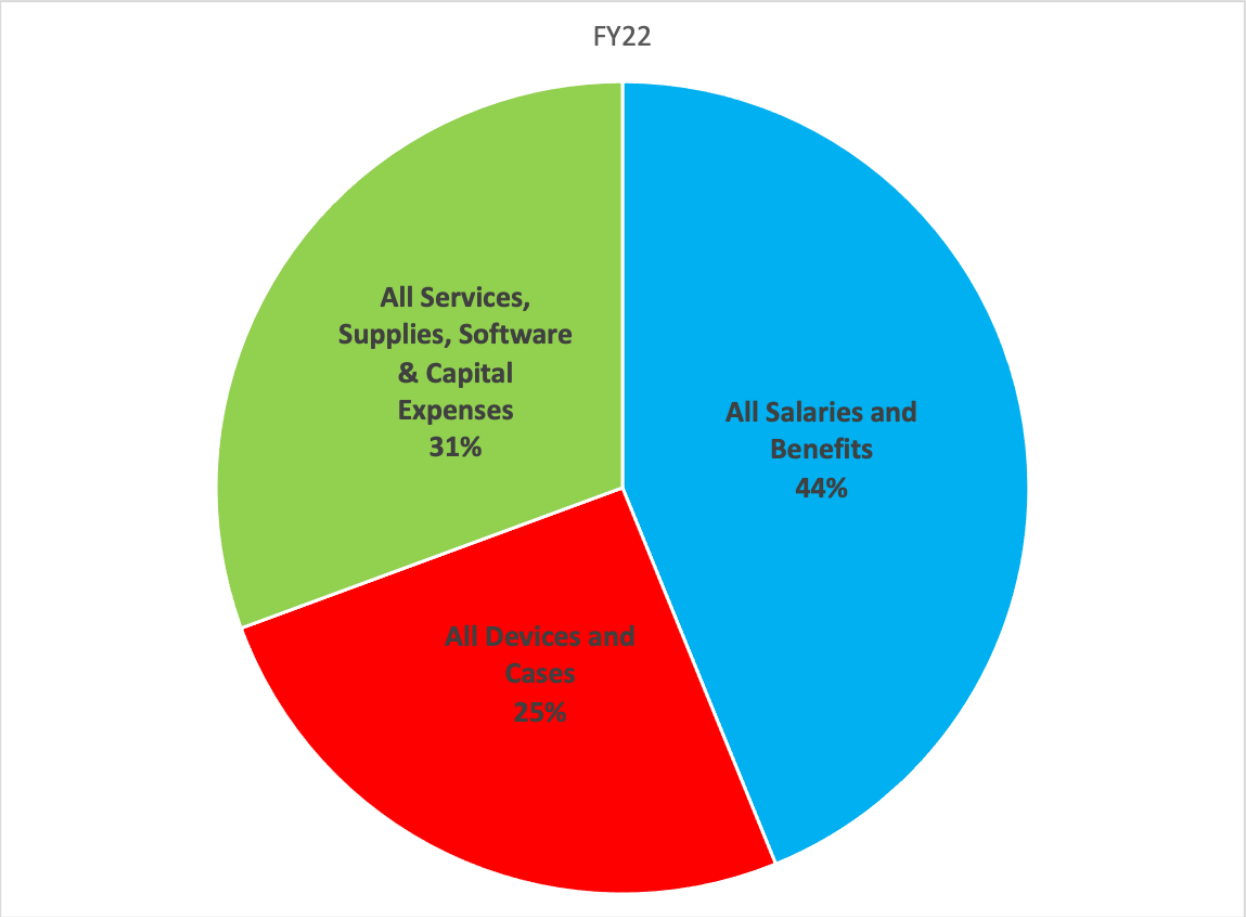
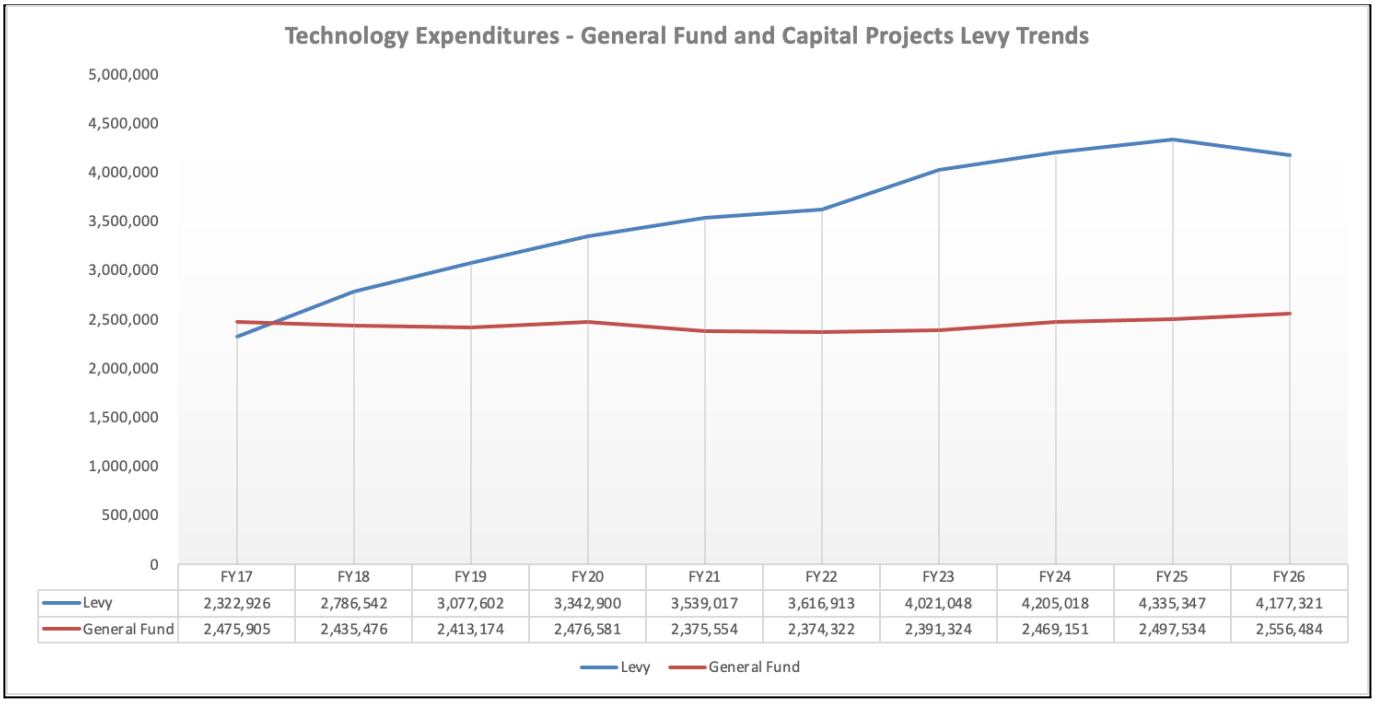


Chart showing percentage of major expenditures for 2021-2022

TECHNOLOGY TOTALS	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
General Fund Salaries & Benefits	1,255,905	1,215,476	1,330,024	1,417,581	1,354,899	1,374,322	1,401,808	1,429,844
General Fund Services, Supplies, Software & Capital Expenses	1,220,000	1,220,000	1,083,150	1,059,000	1,000,000	1,000,000	1,000,000	1,050,000
Levy Salaries and Benefits	628,940	938,323	938,538	953,987	1,153,545	1,234,250	1,271,278	1,309,416
Levy Devices and Cases	1,326,987	1,539,320	1,517,613	1,777,413	1,676,141	1,519,173	1,679,252	1,728,662
Levy Services, Supplies, Software & Capital Expenses	367,000	308,900	621,451	611,500	685,890	821,490	847,700	885,000
All Salaries and Benefits	1,884,845	2,153,799	2,268,562	2,371,568	2,508,444	2,608,572	2,673,086	2,739,260
All Devices and Cases	1,326,987	1,539,320	1,517,613	1,777,413	1,676,141	1,519,173	1,679,252	1,728,662
All Services, Supplies, Software & Capital Expenses	1,587,000	1,528,900	1,704,601	1,670,500	1,685,890	1,821,490	1,847,700	1,935,000
TOTAL	4,798,832	5,222,018	5,490,776	5,819,481	5,870,475	5,949,234	6,200,038	6,402,922

Chart showing how expenditures are broken out by category depending on revenue source



	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Levy	2,322,926	2,786,542	3,077,602	3,342,900	3,539,017	3,616,913	4,021,048	4,205,018	4,335,347	4,177,321
General Fund	2,475,905	2,435,476	2,413,174	2,476,581	2,375,554	2,374,322	2,391,324	2,469,151	2,497,534	2,556,484

Chart showing trendline for expenditures based on revenue source

Staffing

As the quantity of devices and overall dependence on technology throughout the district has increased, staff have been added to ensure that we have qualified personnel in place to support all of our users and systems. To put this in the context of the budget, current staffing listed below notes the funding source, which encompasses salaries and benefits.

Tier	Role	Name	Building/Office	Fund
1	Building Tech	Maria Hawes	District Office/TLC	General
1	Building Tech	Scott Carpenter	Eagle Creek	General
1	Building Tech	Pilar Rodriguez	East	Levy
1	Building Tech	*vacancy*	East	Levy
1	Building Tech	Trask Trojanek	High School	Levy
1	Building Tech	Dion Yorm	High School	General
1	Building Tech	*vacancy*	High School	General
1	Building Tech	*vacancy*	West	Levy
1	Building Tech	Ahmed Mohamud	Red Oak	General
1	Building Tech	Abdi Iyow	Sun Path	General
1	Building Tech	Robin Jahangir	Sweeney	Levy
1	Building Tech	Joe Rodela	Jackson	Levy
1	Building Tech	*vacancy*	West	General
1	Building Tech (0.5)	Jen Reis	PELC	General
2	Administrative Assistant	Holly Anderson	District Office	General
2	Tech Systems Coordinator	Jonathan Benz	District Office	General
2	Tech Systems Coordinator	Colin O'Brien	District Office	General
2	Tech Systems Coordinator	Amanda Holm	District Office	General
3	Systems Admin - Apple	Josh Novotny	District Office	General
3	Systems Admin - Finance	Michele Carpenter	District Office	General
3	Systems Admin - Network	Quazi Jahangir	District Office	General
3	Systems Admin - Servers	Dave Ryan	District Office	General
3	Systems Admin - Student	Ty Willmsen	District Office	General
3	Theater Manager	Bob Cole	High School	Levy

4	Director of Instructional Tech	Bryan Drozd	District Office	Levy
4	Instructional Tech Manager	Chris Lee	District Office	General
TOSA	Blended Learning Coordinator	Kara Osmundson	District Office	Levy
TOSA	Blended Learning Coordinator	Eric Hills	District Office	Levy
TOSA	LTE Coach	Mara Sonday	District Office	Levy
TOSA	LTE Coach	Monica Miller	District Office	Levy
TOSA	LTE Coach	Jill Wimberger	District Office	Levy
TOSA	LTE Coach	Brandy Lokshin	District Office	Levy
TOSA	LTE Coach Supervision (0.3)	Nika Summer	District Office	Levy
Total				**33**

TOSA=Teacher on Special Assignment. LTE=Learning, Teaching & Equity.

Technology Staff Roles and Responsibilities

The staffing of the technology department has attempted to keep pace with the deployment of technology and the expectations for how it will be used. Two key areas identified for use of levy funding were training and tech support staffing; the growth of the department and staff focus has been consistent with that directive.

Building Tech/Tier 1 (Paraeducator)

These are our front-line tech support personnel, each assigned to a specific building. They have the most direct contact with staff and students and handle a wide array of issues each day.

Tech Support Coordinators/Tier 1 (Unaffiliated)

This position is expected to be implemented in 2022. It essentially splits Tier 1 support into a more fixed assignment/specifically focused Building Tech group and a more project based and mobile Tech Support Coordinator group. In addition to providing more focused roles, it should also give us more flexibility in hiring staff.

Tech Systems Coordinator & Administrative Assistant/Tier 2 (Unaffiliated & Secretarial)

This position focuses on identifying common issues amongst buildings, noting problems to be escalated to Tier 3, and working with vendors for support or repair tasks. They are also very involved with onboarding of new staff and training of Tier 1 technology staff. This group also includes our administrative assistant due to the nature of their work and how closely they need to collaborate with our Tier 2 technology staff.

System Admins & Database Support/Tier 3 (Unaffiliated)

Staff in this group handle the more system-specific tasks, such as maintaining staff and student databases, network functionality, global management of devices, and resolution of issues that are escalated beyond Tiers 1 & 2.

Tech Support Supervisor and Director/Tier 4 (Unaffiliated)

Decisions affecting the department or district are made at this level. Staff in this group are also responsible for maintaining the budget and coordinating the efforts and direction of the department.

Blended Learning Coordinators & Instructional Coaches (Teacher)

As of the 2021-2022 school year, the previous position of Digital Learning Coach was phased out due to the impact of budget cuts and overall streamlining and refocusing of duties amongst a group of Teachers on Special Assignment (sometimes referred to by the acronym TOSA).

Related Tech Tools article: Technology Help Resources

All of the technology staff listed above are also integral to departmental **communications** and day to day **support**. Examples of these efforts include:

- District website additions: A Technology section under the Parents/Students menu on the district website includes information about device roll-outs and procedures, software commonly used by parents, and Internet safety.
- More frequent tech updates to staff: Timely information about technology issues or anything that may be impacting staff are sent out as needed.
- Tech newsletter: Every month or so a tech newsletter goes out to all staff with a more detailed overview of current or planned technology initiatives. We also occasionally use the newsletter format for troubleshooting updates.
- TECHknowledgy newsletter: Monthly newsletter from the Blended Learning Coordinator staff that provides updates and tips for staff with a particular focus on Canvas and Seesaw as well as various learning software and tools we use throughout the district.
- Department meetings: To address concerns within the department about how well everyone was being kept informed, we now provide a weekly overview of current and resolved issues, projects, and other useful information.
- Help Desk: In spring of 2016 we switched to a different help desk software solution that is more user friendly, intuitive, and allows for a better overall support interaction with staff. We have since opened up access to that system to students and parents. Our needs are currently exceeding the capacity of the system so it is scheduled for review and potential replacement.

Central Duplicating

As of early 2019, Central Duplicating was moved from Finance Department oversight over to the Technology department. Staff are not presently budgeted from the technology fund, though, so they were not included in the staffing chart or in any of the budgetary data earlier in this report. Technology funds have been used for some long overdue upgrades to equipment, but are not a substantial amount in the overall budget. They do a great job of supporting our staff with production of materials and provide a cost effective service to the district.

Related Tech Tools article: Central Duplicating

Staffing Challenges

Maintaining the presence of a high-quality technology staff has been a challenge. Within a department of 33 staff, various contractual and at-will employee agreements are represented, including the SEA Teacher contract, MSEA Para-educator contract, Secretary Group agreement and Unaffiliated Group agreement. The district has been an effective job training center for technology staff, turning over almost 50% of our building tech and coaching personnel over the past several years predominantly as a result of not being able to compete with the marketplace. More concerning is that we lose more staff to other public institutions (schools or government entities) than to the private sector. Salary, benefits, and opportunities for advancement and professional growth are the most commonly cited concerns for exiting staff. Upcoming changes to the Tier 1 support group as described above may be helpful in addressing the staff retention challenges.

Devices

This section focuses on student and staff devices to be found throughout the district. It should be noted that one of the goals of the Capital Projects Levy was to provide much greater access for students to technology. As of this year, the student device goals that were outlined in encouraging a "yes" vote for the Levy have been met.

Supported Devices/Operating Systems

We try to standardize wherever possible in order to increase reliability and make our systems easier to maintain. However, meeting a variety of needs from both a curriculum perspective and a business process point of view means that we have to support a wide variety of hardware and software. The chart below provides an overview of the most common hardware and operating systems in use throughout the district.

Operating System	Notes
MacBooks ***Apple MacOS***	MacBooks run the Apple MacOS operating system. The most current versions we support are Big Sur and Monterey. Updates and software are distributed using the JAMF management software.
PCs ***Microsoft Windows***	Virtually all PCs have been migrated to Windows 10. Updates and software are distributed using a management tool called ConfigManager.
Chromebooks ***ChromeOS***	Chromebooks use ChromeOS. Updates are centrally managed to a large extent, but can be forced or delayed on machines by the user.
iPads ***Apple iOS***	iPads, iPods and iPhones run the Apple iOS operating system, with most devices currently on version 15+. Updates and software are distributed using the JAMF management software.
Android Tablets ***Android OS***	We have a small batch of tablets running the Android operating system; this is similar to what one would find on an Android phone.

Device Distribution/Inventory Counts (FY16-FY22)

Computers are just one category of many pieces of hardware in use throughout the district. Later sections of this report will speak to "everything else". As the district has aggressively pursued a 1:1 program and increases in device availability and mobility over the past several years, it makes sense to

start with those totals. The chart below provides totals for each major category of device over the past 7 years. As of FY20, we had full deployment for iPads and MacBooks. As one would expect, the number of PCs has dropped and will likely drop a little more before stabilizing. The heaviest use of PCs among students involves the Project Lead The Way (PLTW) curriculum, which is still primarily (although not entirely) dependent on the PC platform. Chromebooks exist almost exclusively in carts and are handy for situations such as assessment and keyboard intensive assignments. The quantity of Chromebooks has also peaked, though, and is expected to drop over the next few years.

Device Totals	PC	iPad	MacBook	Chromebook	District Total
FY16	2673	3375	1593	933	8574
FY19	1114	5831	3547	1129	11621
FY22	700	6340	4780	1165	12985

Device Replacement Cycle

Establishing a clear and specific replacement cycle for devices helps in accomplishing several goals:

- Ensure that devices can handle the latest software requirements.
- Reduce expenditures on maintaining older devices.
- Allow the district to recoup some costs by selling off surplus devices while they still have value.

It should be noted that many of our devices are currently being acquired through lease agreements with a buyout option at the end of the lease. In many cases, devices are repurposed beyond their replacement cycle. If there is not another use for a device, we will declare it surplus and sell it to the highest bidder. The flexibility of being able to use devices beyond the lease agreement and the ability to recoup value for devices through resale are why we do a buyout to take ownership of the devices. Leasing has been necessary as part of establishing a 1:1 technology program, but the long-term goal should be to reduce our dependence on leases.

Device Group	Replacement Cycle
K-1 iPads (1:1 as of FY21)	4-6 years
2-5 iPads (1:1 as of FY20)	4 years
6-8 1:1 iPads	3 years

9-12 1:1 MacBooks	4 years
Staff MacBooks	5-6 years
Staff iPads	5 years
PLTW Labs (PCs)	4-8 years
Office Staff PCs	4-6 years
Chromebooks	4-5 years

Annual purchasing cycles for student devices consistently include 2nd grade and 6th grade iPads along with 9th grade MacBooks. Kindergarten and 1st grade devices are their own cycle generally occurring at a 5-year interval. We continually monitor Project Lead the Way labs to determine if we can upgrade devices to meet the program specifications or if it is time to replace them entirely.

Services, Supplies, Software & Capital Expenses

This section focuses on our systems related to technology infrastructure (capital expenses) and our most widely utilized software. Services and supplies are not covered much here; they are not a huge portion of the budget but include more of the mundane aspects of technology such as bulbs for projectors, outsourcing for repair, annual service contracts, and so forth.

Infrastructure - Security, Life Safety and Building Operations

We cooperate with Buildings & Grounds on maintaining and improving our security-related systems and providing a more unified and interconnected design for those systems. The district's current systems include:

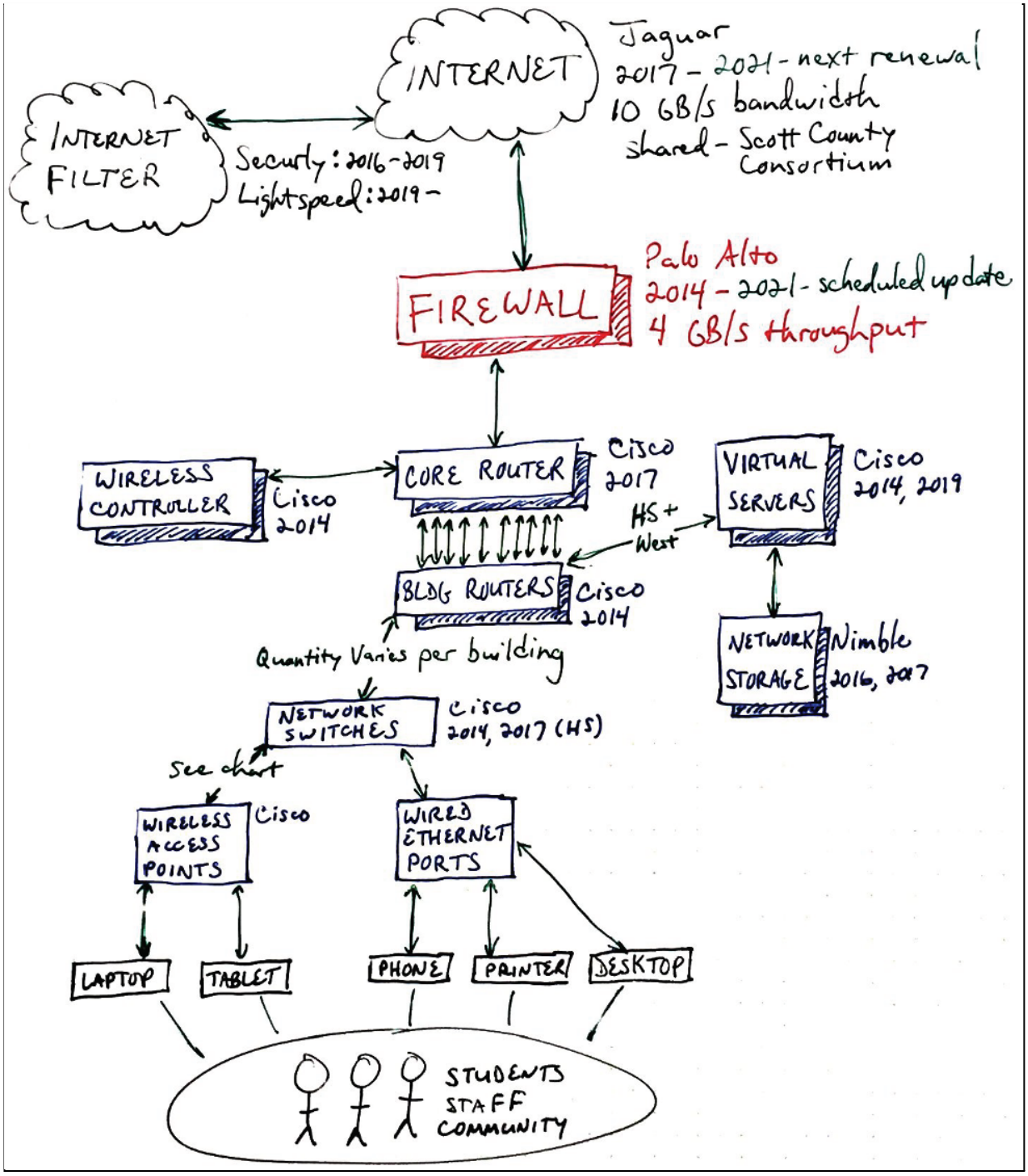
- Keycard door entry (S2)
    - Includes emergency door lockdown capabilities.
- Raptor hardware and software for various individual and site safety measures, including:
    - Visitor background check and badge
    - Volunteer application and background checks
    - Safety drill scheduling and management
    - Emergency alerts
    - Student reunification following an emergency event (piloting in 2022)
- Internal and external surveillance cameras (Exacq/Avigilon)
    - Notes on district-wide camera system overhaul can be found near the end of this report in the New Projects section.
- Bell/clock systems (various vendors)
- Entrance camera and intercoms (Aiphone)
- Building intercoms (various vendors)
- Phone system (Mitel – some integration with building systems)
- Walkie Talkies (Motorola)
    - Currently midway through a full replacement cycle of walkie talkies; expected completion in 2023.

We continue to explore upgrades and integration within these systems. In addition, capacity for emergency alerts, panic buttons, and other mass communications tools are also being examined. Ultimately, our goal is to have systems in place that are simple to use, consistent between buildings, and which function just as reliably in day to day use as in an emergency situation.

Infrastructure – Network

Each year we have more devices on the network and increase our reliance on local and cloud-hosted services. We are continuously monitoring how the network functions and taking time to identify current and potential bottlenecks or trouble spots. This section details various components of our infrastructure and how each plays a role in maintaining a well-functioning network and systems.

This sketch is a little out of date but the design is still basically accurate.



Internet

We purchase access to the Internet through Metronet (formerly Jaguar Communications) as a member of the Scott County Network Consortium (consisting of Shakopee, New Prague, Prior Lake, Belle Plaine, Jordan). A portion of the cost for the Internet is offset via E-rate and Telecom Equity funding. Our current Internet contract runs through 2023.

Internet (Content) Filter

We are currently using Lightspeed Relay filtering. No filtering solution is perfect but our experience has generally been positive. We have signed on with Lightspeed through 2022 and expect to renew.

Firewall

A firewall is the first line of defense. It is the traffic cop, looking at every piece of data flowing in and out of our network and sending it to the proper destination. Two Palo Alto firewalls were purchased in 2014; we expected to replace them in 2021 but this was pushed back due to supply chain issues so we now expect this to be completed in summer of 2022. The capacity of a firewall must be properly matched up to the peak potential traffic on the network; our current hardware struggles at peak usage but we expect the new hardware to handle the traffic much more effectively.

Core and Building Routers

The core and building routers are the primary network equipment that carries traffic between buildings. These are generally bought in pairs to minimize the possibility of a building completely losing communication. These were all replaced in 2020 and 2021.

Wireless Controller

The wireless controller manages every wireless access point in the district. It is the “big brain” of the system. This is also a device we buy in pairs since if it goes down, all wireless devices (in other words, most of what our staff and students use) lose network access. This is expected to be replaced in summer 2023.

Network Switches

All of that network cable has to plug in somewhere. Traffic in a building is routed primarily through network switches. Most of our network devices are about 4-5 years old. We do not have any immediate critical needs in this area but will monitor performance of the network and develop a replacement plan to ensure optimal operation. The addition of more security cameras has required tapping into network switch capacity and adding cabling. We will start a full replacement cycle in 2022-2023 and expect it to take 3-4 years to get through the entire district.

Wireless Access Points

Our system of wireless access points is on a continuous refresh cycle. At the moment there are about 805 wireless access points in use. The access points are centrally managed through the wireless controller. As of summer 2021 all of our oldest series of access point models had been replaced. We generally try to budget for a 20% turn-over of access points each year in order to avoid a backlog that would out too much strain on the budget.

Related Tech Tools article: District Internet

Infrastructure – Servers & Storage

Virtual Servers

We are continuously upgrading servers and moving as many as possible to virtual environments. This allows more uptime, lower cost, and easier upgrades. We still need physical hardware to run virtual servers, but we can aggregate those virtual servers onto fewer physical systems, lowering overall long-term costs. A recent project involved upgrading the server hardware and creating a redundant system for ensuring server uptime and availability.

Network Storage

In order to maintain virtual servers and shared network storage & databases we have had to increase our available capacity. This is an on-going project related not only to storage and servers but also disaster recovery. In addition, we use the Backupify cloud-based back-up service for items stored to Google personal and share drives.

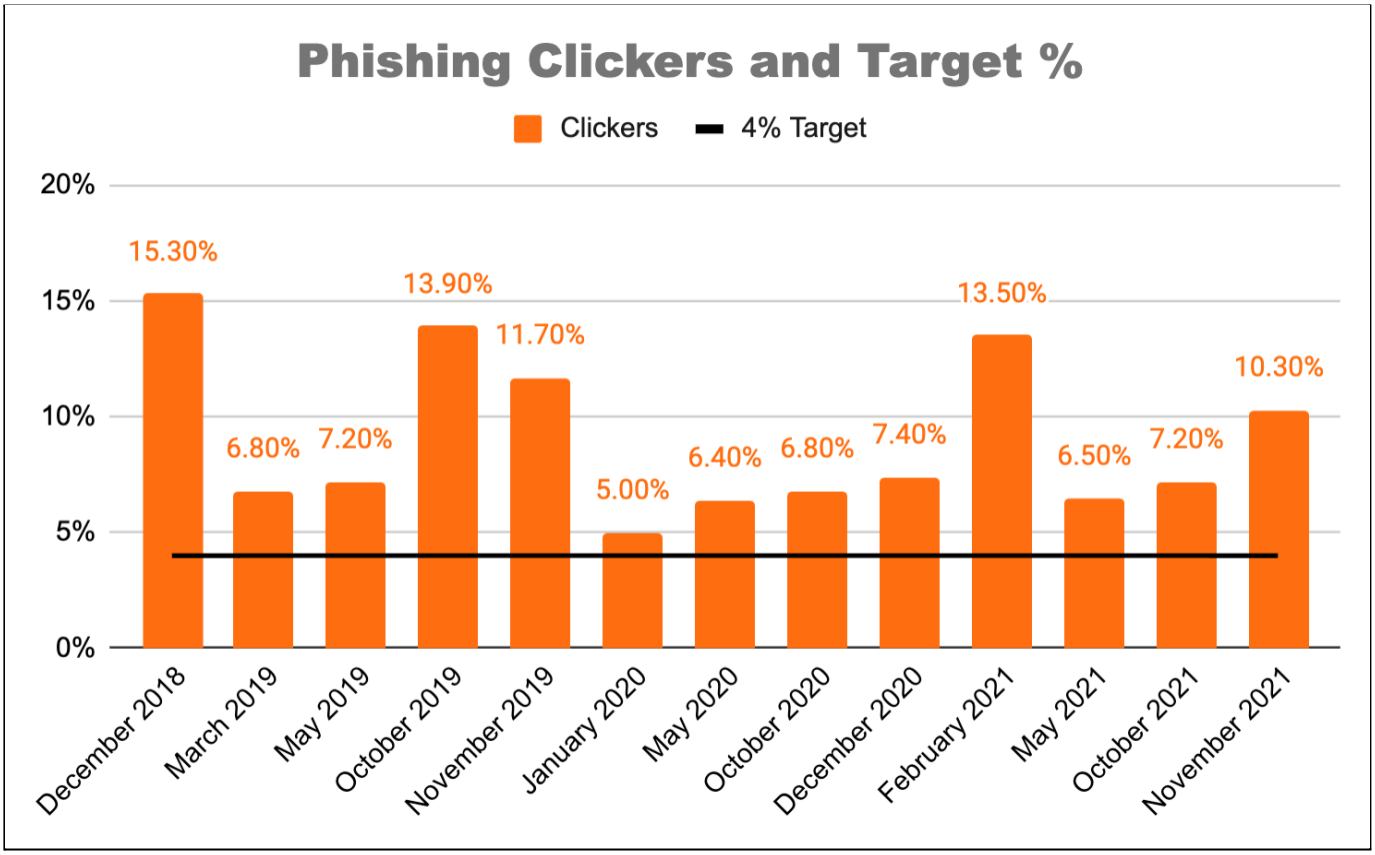
Infrastructure - Services & Management

E-mail Archiver

We previously used an on-site system called GFI Archiver to back-up our incoming and outgoing e-mail (just the perceived legitimate items, not any spam that doesn't make it past the filter) for items addressed to the shakopee.k12.mn.us domain. This system was due for an update and was replaced in 2020 with a Jatheon mail archiving appliance. In our Google environment (items addressed to shakopeeschools.org addresses) we use the Google Vault service for e-mail archiving (more about Vault here: https://workspace.google.com/products/vault/).

Phishing Training

The district uses a service called KnowBe4 to help train staff on how to recognize and avoid attempts at e-mail phishing. "Phishing" is a technique for disguising the sender or intent of an e-mail in order to trick users into clicking a potentially malicious link or in some way providing information to a third party. It can also be used to deliver damaging malware or ransomware to devices. Since there is no way to completely block these devious e-mails, our strategy now is to try to provide practice to staff in recognizing the warning signs and avoiding being "phished". Ongoing results **show a need for continued growth in this area**.



Results from recent phishing campaigns.

Related Tech Tools article: [Phishing]

Account Management

In summer of 2017 we put in place a new system for account management. This was necessary in order to automate processes related to account creation, password maintenance, and assignment of accounts to security and distribution groups. The system (referred to as RapidIdentity) also gave staff greater control over managing their accounts and handling time-sensitive issues without intervention from technology staff, such as unlocking student accounts (which can be necessary after multiple failed login

attempts) and helping students with password issues. We are currently implementing an overhaul to this system partly to increase efficiency in account management and partly due to complexities introduced to the process with the switch to Skyward for human resources tasks.

Management & Automation Systems

A system as large as ours requires the use of automation and management tools. Running these systems and ensuring that they are properly configured and maintained is a significant job duty for technology staff in a system administrator role.

A summary of major systems utilized for managing our environment and automating daily tasks.

System	Purpose	Lead Tech(s)
JAMF Pro	• MacBook, iPad and AppleTV configuration and inventory. • Deployment of software and apps to those devices. • Maintenance of app catalog.	Josh Novotny
Microsoft SCCM (System Center Configuration Manager)	• Windows PC deployment, imaging, and inventory. • Managed updates of software.	Dave Ryan
Clever	• Pulls data from Infinite Campus and passes it to other programs for the purpose of setting up accounts, populating class lists, and maintaining up to date records.	Ty Willmsen
Cisco Prime	• Cisco wireless access point deployment, configuration management, and inventory.	Quazi Jahangir
Solarwinds Orion	• Tool for network monitoring, troubleshooting, and outage alerts.	Quazi Jahangir
Papercut & ~~Uniflow~~	• Monitor all printer usage in the district. • Manage printer restrictions, such as print release stations or quantity limits. • Uniflow was phased out in 2022.	Dave Ryan & Colin O'Brien

ClassLink ~~**RapidIdentity**~~	• Uses data from Infinite Campus & Skyward to automate the creation and management of user accounts, security and distribution group membership. • RapidIdentity being phased out in 2022.	Chris Lee, Dave Ryan & Ty Willmsen

Infrastructure - Phones

We updated our phone system (a Shoretel system from 2006) in summer of 2019. The newer system is essentially the next generation of our previous system, but offers enough new functionality and improvements to make it worthwhile. It also allows us to leverage existing hardware and configuration, which will help ease the migration process. Core infrastructure and software updates were completed, but we have had to delay the planned replacement of handsets throughout the district due to budget priorities.

Multimedia/Audio-Visual Hardware

A typical classroom has some form of digital projection and audio support. The E-5 buildings are more likely to have a Smart brand interactive whiteboard with a short or long throw digital projector, Middle School buildings generally just have a short or long throw projector, and the High School and Tokata tend to have digital projectors or large screen TVs.

Since Apple devices are the dominant platform in the district, we also have an Apple TV device connected to almost every display; currently we support 698 Apple TV devices. Note that this includes classrooms, conference spaces, and hallway or other common area displays.

In the spring of 2019, an Audio-Visual Committee met to review our options and determine next steps for replacing or upgrading classroom audio-visual solutions. The goal of the committee was to identify our most critical needs and any barriers to upgrading audio-visual equipment. **A key issue that we will need to resolve in the future is our dependence on Smart Notebook software, since certain curriculum materials have been built using that software and are not available elsewhere.** This is potentially problematic as we have seen diminished support for the software from the vendor, especially for the Mac version of the program (which is what our staff predominantly use).

We ran a pilot program to try out various display options, such as interactive LCD panels, as well as full classroom audio-visual systems. The pilot was successful in that it helped illustrate the potential and pitfalls of various options and to clarify our expectations and goals for the audio-visual systems.

Audio-Visual: Current Challenges

- Aging audio-visual equipment.
    - Smartboards are largely at the end of their support cycle (see chart below to get a sense of how prevalent that problem is for the district).
    - Many of our digital projectors are over 10 years old and failing.
- Curriculum that only exists in Smart Notebook files.
- Inconsistency between buildings in systems and capacity, which is a support and an equity issue.

Interactive whiteboards currently deployed

Model	**Count**	**End of Support**
Smart M600 DViT	4	11/30/2022
Smart SB660	4	9/1/2018
Smart SB680	243	10/31/2019
Smart SB685	2	10/31/2019
Smart SBM680	18	11/30/2022
Smart SBX880	1	tbd
Smart SD680	27	7/1/2017
Hitachi Starboard	6	discontinued
Total	305	

Audio-Visual: Addressing the Challenges

We have a 1:1 device deployment. Every K-8 student has an iPad, which essentially puts an interactive touchscreen in every student's hands. Combined with device management tools such as Apple Classroom, content delivery tools such as Lumio (the web-based successor to Smart Notebook) and Seesaw, learning management systems such as Canvas, and a variety of other formative assessment and engagement tools such as Kahoot, GimKit, and others, there is little incentive to continue installing interactive whiteboards in the classroom. We also acknowledge that there may be exceptions or specific use cases for an interactive whiteboard (certain special education curricula, for instance, may be better served by an interactive whiteboard).

Rather than replicate what we have had, we are focusing our energies and funding on solutions that are effective for our current and anticipated environment. New installations are largely composed of updating digital projection and adding display management and switching systems (specifically, FrontRow ezRoom systems) that also allow for an easy upgrade path to add voice amplification where needed.
The overhaul of systems started with East, West, and Sweeney over the past two years. Those buildings were in some sense chosen for us due to planned construction projects that made them the logical places to start. It will take another two summers to finish those buildings; along the way we will start mapping out the next wave of installations based on greatest immediate need. The audio-visual refresh will get a good start through the remainder of the current technology levy, but will be suspended unless a new levy passes or a different funding stream can be identified.

Printing & Copiers

Our current printer and copier inventory is comprised of approximately 144 active printers, 20 backup printers in storage, and 31 multi-function (copy/print/scan) devices. In early 2022 we consolidated all of our print services to a single vendor. This was done to simplify management and also for a modest overall reduction in costs. We are monitoring our usage to identify areas to reduce our deployment of printers and continually encourage using the less costly options for printing. For reference, the chart below provides the per-print costs for each classification of print device. Those fractions of a penny do start to add up and even with all of our digital resources we still do plenty of printing each year.

Per Page Costs by Type of Device	**Black Toner**	**Color Toner**
Desktop printer (HP)	.0079	.065
Multi-function (Konica MFP) devices	.005	.045
Central duplicating production copiers (Konica)	.0035	.04

Software – District Level

The district spends a significant amount each year at the district level on software and web-based applications. Some of the purposes/functions of these include: Managing student data, student learning tools, network management and security, and office/school communications and efficiency. Provided below is a list of the more significant pieces of software. There are numerous other software

applications in use throughout the district, but this chart represents some of the most widely used and also provides a sense of the annual budgetary impact. Whenever possible, we look for more cost-effective options.

Software	**Purpose**	**Annual Cost**
Adobe Suite	Collection of photo editing, video editing and creation, website design, publishing and PDF software.	$20,000
Blackboard (Schoolwires)	District & School websites.	$15,900
Blackboard Messenger Connect	Mass communications tool	$10,600
Canvas (Instructure)	Learning management system.	$81,300
Classlink	System for account lifecycle management, application access, and class rostering for academic applications. *Currently being implemented*	$33,300
Follett/Destiny	Library collection management & database.	$24,000
Frontline Education ● Aesop ● Applitrack ● Central ● Professional Learning Management ● Veritime	Various functions, including: Staff entry of time off requests. Substitute teacher availability and placement. Staff professional growth tracking and certain courses. Employment applications and interview scheduling. Employee time-clock.	$110,700
Frontline 5Maps (GuideK12/Forecast5)	School boundary mapping and school enrollment scenarios.	$15,500
Google GSuite Enterprise	Provides additional functionality for the Google environment, in particular for functionality with Meet and more robust security features.	$21,480
~~Infinite Campus – Finance~~	~~Payroll, HR, Finance database.~~ *Phased out 2019-2020; replaced with Skyward*	~~$75,000~~

Infinite Campus – Student	Student Info, Gradebooks, Transcripts, Food Service, Communications.	$125,000
JAMF Pro	iPad, MacBook & AppleTV management tool.	$66,400
Laserfiche	Document archiving.	$7,000
Microsoft	Licensing – all operating system (Windows), server, Office, Office365, and Exchange e-mail.	$58,000
Network Performance Monitor (Solarwinds)	Monitors network traffic for trouble spots and allows better diagnosis and correction of performance issues.	$7,000
Seesaw	E-5 classroom communications and student work portfolio.	$20,800
Skyward HR and Finance	Payroll, HR, Finance database.	$51,500
Smore Newsletters	Newsletter tool that also supports translations.	$7,300
WebHelpDesk	Technology help desk and inventory.	$4,000

Software With Parent Connections

Canvas Learning Management System

The primary function of Canvas is to allow teachers to create an on-line environment for delivering instruction, distributing and collecting assignments, and providing formative and summative assessment. It is also being used for some professional development, particularly training of new staff but expanding into other on-going training as well.

- Grade Levels Using Canvas: 6-12, with plans to start using in elementary.
- Parent Connection: Parents can set up logins and observer accounts that allow them to monitor how students are using the software.

Infinite Campus

Our system of record, which handles all of our state reporting, enrollment, attendance, student records, and so on. Additionally, when student records are created, changed or exited, it serves as the starting point for our system of automating the transfer of those account changes to systems such as Google (such as all of our @shakopeeschools.org accounts), Microsoft (management of logins,

@shakopee.k12.mn.us accounts, and Office licensing), and Clever/Classlink (syncing of account data to systems such as Seesaw).

- Grade Levels Using Infinite Campus: All
- Parent Connection: Parents can set up a portal account to view student records, update contact information, check lunch balances, pay fees, and communicate with staff. The table below shows 3 years of data on the presence of a parent portal account for each household.

Seesaw

We use Seesaw as a platform for sharing student work and communicating with parents. We chose to use Seesaw when we realized that many elementary staff were either using it already or were using a variety of other tools to enhance home-school communication. Being on a common platform simplifies that process while also ensuring that we can properly manage and protect student data.

- Grade Levels Using Seesaw: EC-5
- Parent Connection: Parents are provided a code to create an account and connect to their child's classroom.

Communication Tools

In addition to the systems mentioned above that have a more academic focus, we also have various tools that facilitate both home-school communication and our broader presence and messaging to the community. Those include:

- Blackboard (Schoolwires) website: Anything housed at the https://www.shakopee.k12.mn.us/ address.
- Blackboard Messenger Connect: System for sending out mass email, phone calls, and text messages.
- Messenger functionality in Infinite Campus: Targeted messaging for school or classroom specific communications as well as day to day items like fee notices, lunch balances, attendance, and so on.
- Smore newsletters: An easy to use system for generating newsletters that includes an option for machine translation of the content.
- Tech Tools site (Helpjuice): Anything housed at the https://techtools.shakopeeschools.org/ address; this site is focused on technology articles and Blended Learning Coordinator communications.

Collectively, these tools give us a range of options for crafting a message, ensuring the accessibility of the content, and delivering across multiple platforms.

Department Initiatives & Updates

Projects (new and updates from previous report)

In addition to various projects discussed throughout this document, here are a few other projects that are in various stages of research or completion.

Updates to projects mentioned in previous reports

Disaster Recovery

When we talk about "disaster recovery", we are referring to several distinct situations. Can we handle a temporary disruption to the network? Can we ensure access to our local data? Can we continue to provide functionality after a catastrophic event? At this moment, the answer to any of those questions is a less than satisfying "mostly". That being said, we have identified many of our weak spots and have already made progress in addressing those deficiencies. As noted earlier, we have several examples of redundant systems, including our firewall, wireless access point controller, core switching equipment, virtual server hosting and network storage. Our long-term objective is to set up the High School and West Junior High as our redundant sites, meaning that if one site goes down the system can "fail-over" to the other site. Work remaining to get to that point includes obtaining an Internet connection through an alternate vendor and some contracted consulting work to ensure that everything is set up correctly. The take-away for disaster recovery is that we are aware of our weaknesses and have plans in development to address those areas.

Status: Making progress on this project but not yet where we want to be. Key infrastructure items yet to be addressed: Updated firewall (summer 2022) and wireless controller hardware (likely summer 2023). We also need to identify a secondary/back-up Internet provider.

Google Drive Reorganization

We will be taking steps to better organize how files are stored in Google Drive accounts. This includes a more strategic use of Team Drives, which have more robust options for security and file ownership. This is effectively a business continuity initiative, as we have come across several situations where important files are assigned to specific staff; individuals leaving the district should not cause a disruption to access or our ability to use district information and resources, but in the current environment that can happen.

Status: Ongoing; this project was stalled for a bit but we are now making progress and have better defined how Share drives (formerly Team drives) should be used and managed.

Infinite Campus On-Line Registration

In 2020 we launched the ability to complete new and continuing school enrollment information via the Infinite Campus On-Line Registration portal. This provides a more efficient option for parents and helps streamline and reduce some of the paperwork involved with enrollment, while also encouraging more families to use the portal and maintain accurate information in our system.

Status: Functionally complete. We are now revisiting communications and outreach for this functionality to improve participation. Added Early Childhood for 2022-2023 and continuing to tweak the system to improve the experience. Spanish translations were completed in 2021 (with some additional follow-up planned for written translations and other types of language support).

Student Virtual Library Card

Thanks to a partnership between the Shakopee Public Schools and the Scott County Library, all Shakopee students receive a fine-free virtual library card. This collaboration, called the Virtual Student Library Card, ensures that public library resources can be a part of every student's learning experience.
Students can benefit from access to the vast resources available through the public library, including online tutoring and homework help, research tools, eBooks, audiobooks, electronic magazines, language learning tools, and print books. This virtual card will also allow for the checkout of two physical library items.

Status: Completed for K-12 and we have been pleased with the results of this effort.

1:1 Home Internet Access

One of the challenges for a 1:1 program is Internet access at home for students. While the majority of our households have Internet access at home, some do not. Students have the option to request a wireless hotspot device (also known as a “mi-fi”) for use outside of school. The district underwrites the cost of these devices, though portions of that cost have been partially defrayed by a $36,000 grant from the state (2016-2018) and COVID Relief Funding (2021).

Status: Ongoing effort but we have a good process in place for managing these needs.

New Projects or Projects in the Exploratory Phase

Security Cameras

The district’s security camera infrastructure has not had any significant updates since 2017. It is due for a major overhaul, which is likely to take about three years to complete. This will involve replacing servers in each building, replacing all analog cameras (which comprise about a third of all cameras), and

strategic updates to the remaining two-thirds of digital cameras. We went through a lengthy process to identify a workable solution and vendor support for this project, and expect to see initial installations started in summer of 2022. Right now we are prioritizing locations that are in the worst shape, meaning systems that have limited functionality. Anticipated costs are still being worked out, but we know the first two locations (District Office/Tokata and Eagle Creek) will cost about $170,000 to complete. The funding source for this project will be revenue from surplus device sales starting with 2020-2021 revenue and continuing in that manner through completion of the project.

Software Review Process

This year we implemented a more formal and structured process for evaluating software and app subscriptions. The key goals for the process are as follows:

- Clarify when software choices are supplementing existing curriculum.
- Attempt to gain consensus on rationale for using specific software in order to avoid subscribing to multiple programs for the same service.
- Leverage volume pricing wherever possible.
- Review publisher terms of service and privacy policies and reject any options that do not adequately safeguard student data.
- Assess the training and support needs for software to be implemented effectively.
- Collect and appropriately act upon usage data.

This process is still in the early stages and somewhat at odds with a culture that values very localized (school or classroom level) decision-making versus a more collective approach. Still, we have been able to make some progress in aligning renewal cycles (Learning A-Z/RAZ Kids in particular) and eliminating individual licenses in favor of group licensing (Smore newsletters). Another facet of this is that as the district adopts more digital curriculum resources (such as Amplify Science) it is essential that we have a complete picture of all the tools in use and how they complement each other.

Account, Rostering, and Security Updates

We are planning major changes for authentication and application access management starting Spring 2022.

<u>Single Sign-On (SSO)</u>

We will be implementing ClassLink for SSO. ClassLink will provide a portal which is a single point with which to access all district sites, apps, and resources. You will sign in once to the ClassLink portal and then be able to access Google, Canvas, and nearly every other digital resource without authenticating again. This will be available across every platform - Mac, iPad, PC, and

Chromebook. ClassLink also has student friendly sign in options such as badges (QR codes) and facial recognition using a device's camera.

Rostering

ClassLink includes a rostering solution which will connect to most common services. For example, Amplify, IXL, and XtraMath rostering can all be done through ClassLink. The end result is more consistent data available more quickly across most common services.

MFA (Multi-Factor Authentication)

Security process that uses multiple factors to confirm you are who you say you are. The first factor is your regular username and password. The second factor can be something like:

- Smart phone authenticator app
- Biometric such as fingerprint, voice or facial recognition
- Hardware token

MFA is an extremely important security layer to protect against common attacks like phishing. Most likely there will only be a prompt for a second factor every 30 days, when logging in from a new location, or if there's some other anomaly like an attempted login from outside the country.

Conference Software

This is still in an exploratory phase so I hesitated a bit about adding it, but if we do make a change it impacts all of our families so I am including it. Our current reality is that we use multiple tools for setting up parent-teacher conferences and connect and assess days. Early in the pandemic we started using software called Pick-a-time, which gave us some additional capacity for virtual conference scheduling but never went through a proper review and selection process. Ultimately, we would like to have district-wide consensus on a system, while retaining the option to do virtual conferences and hopefully simplifying the process for staff who support our non-English speaking households. It’s too early to say where this will end up, but those are the key goals we would like to achieve.

Tech Tools

For 2021-2022 we replaced our software for hosting the Tech Tools site. We manage this site separately from the regular district website due to the specific nature and needs of the content. Our key goals were to have a more user friendly site that was easier to navigate and search and offered better flexibility for how we delivered the content. At this point the migration and roll-out of the site is complete but we consider this an on-going effort as we are always adding new content and updating existing articles. Some examples of those articles and what we have on the site have been included throughout this report.

High School Cell Phone Coverage & Event Spaces Network Upgrades

There have been grumblings about cell phone coverage at the High School in particular for years. As we have pushed to increase rentals of our event spaces there, the lack of cell coverage has put additional strain on our network capacity resulting in an overall unsatisfying experience for everyone using those spaces. While we have implemented measures to address this, ultimately there are infrastructure issues that need to be addressed. The outcome we want is better connectivity overall; what that means in terms of actual work and costs is still yet to be determined. So this is definitely a project in the "exploratory" phase but is included here to acknowledge that we are aware of the issue and are workin g toward making improvements.

Summary

As lengthy as this report is, there are plenty of other items that could have been included. This is an update to the 2019 Tech Report. We will continue to produce revisions and updates, along with occasional addendums to highlight significant items not included this time around.