

Technology Recommendations: 2016 – 2022

Next Generation Technology Committee

ADM Community School District

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Background and Purpose: The Next Generation Technology Committee met five times between November, 2015 and April, 2016 with the purpose of developing a series of recommendations as it relates to district technology during the second half of the 10-year Physical Plant and Equipment Levy (PPEL). The committee is comprised of district teachers, administrators, parents, a student, and a board member.

These recommendations are not exhaustive, but combine to serve as a district technology plan for which the technology department, as well as other building and district leaders, can build an operational and instructional framework prior to full implementation.

Recommendations

Student Devices:

The committee recommends that the number of student-accessible devices available in the schools be increased to a **one-to-one ratio** at ADM High School, ADM Middle School, and DeSoto Intermediate School beginning with the 2017-2018 school year. The committee is also recommending an increase in the number of student-accessible devices at Adel Elementary School, but more research is required in order to determine ratios for that building, which could vary by grade level.

It is recommended that the one-to-one ratio take the form of a student-assigned, one-to-one device initiative (hereafter referred to as 1:1 initiative) at ADM High School and ADM Middle School. In these buildings, each student would be assigned a device at or near the beginning of the school year, which would be furnished by the district and would include a protective case and power adapter. Students would be allowed to take devices between school and home freely. The program at DeSoto Intermediate School would take the form of a classroom-assigned 1:1 initiative, where devices are stored in carts in the classroom, and are used primarily during the school day.

The deployment model at Adel Elementary would also rely upon classroom-assigned devices.

In all of the buildings, existing demand has made clear that teachers and students want access to more technology on a reliable basis, with a goal of providing more seamless and consistent technology integration in the classroom while enabling technology-reliant initiatives such as flipped classrooms, instant assessments, Hour of Code, makerspaces,

Integration:

Support for academic technology integration was shown to be crucial in the other districts that the committee researched and visited. As such, the committee recommends that (a) technology integrationist position(s) must be created prior to or to coincide with the implementation of a 1:1 initiative, or any other substantial investment in student accessible and/or classroom technologies.

While the specifics of this position will be dictated by specific needs and resource availability, it could take the form of a district technology integration specialist, elementary and secondary integration specialists, building-level integration specialists, or technology instructional coaches. The committee expressed a strong preference that this role should not be combined with a technology support role, and that preference aligns with the positions of both the outgoing and incoming directors of technology.

Device Selection:

The committee recommends that the devices deployed at the 3rd – 12th grade levels be Chromebook laptops – laptops running the Chrome OS operating system – supported by Citrix XenApp and/or XenDesktop application and desktop virtualization software. These devices cost – at current prices – less than \$230/each, and offer a web browser-based environment that research shows is used by students for more than 90% of their work. Additional software needed for science, engineering, art, music, and other coursework can be run on the Chromebooks through the Citrix virtualization software, meaning that these software titles will be available to secondary students both at school and at home.

In the preschool – 2nd grade levels, the primary device used will be iPad Mini devices, which offer form-factor and user interface advantages for younger students, and are currently widely-used at Adel Elementary. In addition to iPad Minis, classrooms would have access to additional computing resources in the form of single assigned devices or small sets of MacBooks / Chromebooks.

Safety & Security:

One of the considerations when sending devices home with students is student safety. In order to address this issue, all district-owned Chromebooks will be configured to use the ADM Community School District’s firewall as a web proxy, meaning that all content accessed by the Chromebook will be filtered by the district’s content filters and protected by the district’s firewall, even when the device is being used off-campus.

The district will further its existing commitment to education of students about digital citizenship issues, including cybersecurity and cyberbullying. Further, orientation sessions will be provided to both parents and students when students receive their devices, and will address issues such as device care, responsible technology usage, and strategies for encouraging online safety.

Classroom Technology: The district’s current classroom suite of an interactive whiteboard product, mounted projector, and document camera was largely viewed as adequate as a base suite, with the possible addition of voice augmentation technology.

Additional technologies that could be implemented, depended upon need and available resources, include: camera/recording systems to support flipped classroom and multiple display implementations to support collaborative classrooms.

Infrastructure: A 1:1 initiative in three buildings and a substantial increase in the number of devices at Adel Elementary will result in a heavier load on the district’s network infrastructure. Existing infrastructure, including the district firewall, as well as wireless and wired networks at ADM High School, ADM Middle School, and the ADM Schools Administration Center, are sufficient to handle this added load without substantial changes or improvements. The wireless networks at Adel Elementary School and DeSoto Intermediate School will need to be upgraded to the same standard as the other buildings in order to accommodate this device growth. Further, the district’s internet connection will need to be expanded to handle the additional traffic that this initiative will create.

The district’s server infrastructure will need to be upgraded in order to meet the requirements for the Citrix application virtualization software, to support the use of full software on the district’s Chromebooks.

Costs: As it currently stands, the district is scheduled to spend \$1.35 million from PPEL over the next six years to support technology. Replacing devices that have reached end-of-life, without changing the current deployment, would cost approximately \$1.1 million over the next six years. **The plan recommended by the committee would cost \$1.2 million over the next 6 years.** These cost figures account for device purchases, licensing, infrastructure, and all other capital costs associated with the operational technology program, including staff-assigned and office devices.

Deployment Model Cost Comparison					
Description	Status Quo	Recommended Option:	1:1 MacBooks 6-12, 1:1 Chromebooks @ DeSoto, 1:1 MacBooks @ AE	1:1 MacBooks 3-12, 2:1 iPads @ AE	2:1 MacBooks 6-12, 2:1 Chromebooks @ DeSoto, 2:1 iPads @ AE
6-Year Cost	\$1.1 million	\$1.2 million	\$2.4 million	\$2.9 million	\$2.3 million