OVERVIEW

Marshall Public Schools is currently assessing the facilities and systems and identifying future improvements required in the District. As part of this assessment, Marshall Public Schools requested professional advisors to assess their existing technologies to permit proper planning, design, and deployment of future technology acquisitions. Marshall Public Schools together with Kingscott and Wright & Hunter required the needs assessment to achieve the following goals:

1. Discuss the strengths and challenges of their current technology systems and infrastructure.
2. Review the voice, data and video systems and infrastructure.
3. Recommend budget levels and present alternatives to permit proper funding for the necessary improvements.
4. Ensure that new technology acquisitions are the best possible choices to support the delivery of curriculum.
5. Ensure that new technology acquisitions are fiscally responsible and as "future proof" as possible.

TECHNOLOGY IN EDUCATION

It is common for school districts to maximize the life of their fixed assets before they decide to retire, upgrade or salvage them. With most hard assets in the past this did not create much of a problem for schools. But, with the advent of personal computers and the speed at which the computer industry changes, it has created a very difficult problem for schools to manage. Students and staff frequently have access to faster and sometimes even more stable computer systems outside of school. Marshall Michigan is no exception with ninety percent of households owning a computer.

Although Marshall is rich in history and the oldest school district in the state, the technology is embraced in the community and its schools.

The stability of the technology in the classroom is critical. Teachers can find themselves attempting to deliver some curricular content to their class when their computer system or other technology fails; then the daily lesson has to be re-planned quickly before the kids loose focus and become frustrated. In education, technology should be a tool to deliver instruction effectively, not impede the day's progress. This is why the support and staffing of the technology department is so vital to the success of Marshall Public Schools.

The current staffing levels are extremely low and will not increase under today's educational funding challenges in Michigan. Therefore, educated and intelligent decisions need to be incorporated into the design and deployment of the technologies to insure the current staff can manage the new systems and infrastructure. Preventative maintenance, centralized systems, and intelligent management systems are essential to provide technology reliability and availability to the students and staff of Marshall Public Schools.

In the best of times schools can plan to update their curriculum on a five to seven year cycle. Assuming a strong economy and sufficient funds it could be possible for the schools to budget for the replacement of their existing computer systems at the same time. But, due to the changes (early 1990's) in how schools are funded and the slow economy here in Michigan, most school districts have found themselves with significant budget shortfalls over the past three to five years. In an effort to support the needs of the local communities, without sufficient funding, many school districts have asked their voters to approve special bonds. These bonds have been used to provide the necessary funds to upgrade the school infrastructure and technology improvements necessary to provide the best educational opportunities to the children and adults in the community.

OUR APPROACH

Web Review

Wright & Hunter began the assessment with a review of the District and Technology Department websites. The District websites provide organized presentation to communicate with the students, teachers, staff, administration, parents, and the community. The links to external websites are current and useful including the music boosters and additional web resources. There is consistency amongst the individual school sites. The high school site is much more sophisticated with extensive content including calendaring, athletics, a comprehensive college handbook and Parent Connect a tool to facilitate better communication.

The technology department's website is fairly simple and evolving with links to the current District Technology Plan and several support pages and sites. The FYI Technology section provides support for common applications and tasks within the applications. The articles and links available are current and relevant. An overview of the District technology infrastructure and systems is also provided for visitors.

Technology Committee

Wright & Hunter conducted multiple collaborative meetings to document the vision for the integration of technology to support the curriculum in Marshall Public Schools. The meetings were attended by a District Committee consisting of Dr. Joyce Phillips – Superintendent, Charlie MacDonald – Director of Technology, Amy Jones – Director of Finance and Operations, and Bill Armstrong – Custodial and Maintenance Director. Bill Craig and Scott Brune of Wright & Hunter, as well as, David Martin of Kingscott provided professional guidance and support in these meetings.

Documentation

The technology department provided existing network and systems documentation that were noted and reviewed. These records were utilized to estimate the quantities required to support each District building. The documentation should be accessible via the web to assist the support of users, including equipment inventory and schematic documentation. The security and access of this information will need to be controlled to authorized support personnel. The documentation of new systems and infrastructure acquired would be extensive to maximize usefulness and manageability.

Report

This assessment report documents the written recommendations for District master planning and anticipated funding requirements for the necessary improvements and replacement of the dated technology infrastructure and systems. The recommendations are presented in three categories; good, better, and best. The good category includes immediate and required updates. The better category encompasses improved access to technology and enhanced systems. The best is what the District would like to proceed with if the budgets are attainable to provide the technology rich environment the Marshall community expects.

TECHNOLOGY DEPARTMENT

Marshall Public Schools is fortunate to have a technology department that is efficiently structured and supportive to the District's users. The department strives to resolve user issues within 24 hours. Software and hardware training is provided in cooperation with the ISD. The operational requirements for Marshall are currently supported with an extremely small technology department and select vendors and partners. In order to properly support the new technology presented in this report, additional staff development and potential increased staffing may be required.

TECHNOLOGY IMPROVEMENTS

Overview

Although still early in the process, an understanding of the direction the District would like to pursue from a curricular viewpoint is being synchronized with the technology required to support the learning process. We are attempting to expand the technology components in a manner that both meets those identified requirements, while building a foundation to support future requirements by building on industry technology standards. This foundation of industry standards coupled with District standards provides improves support, reduces operational costs, while maximizing flexibility and availability of the systems and infrastructure.

Wide Area Network (WAN)

Fiber optic cabling between the District's sites is already installed and operational. A modest allowance is budgeted if modifications or relocations are required related to the proposed building improvements.

Structured Cabling Systems (SCS)

Category 5 cabling is currently installed throughout the District's facilities. The initial feedback was that the installed cabling system was satisfactory for today. Category 5 cabling is not the present recommended standard to support future multiple telecommunications applications to the desktop. The EIA/TIA 568B.1 standard recommends 4-pair 100 ohm Category 5e or higher for work area outlets. Based on new technologies such as Voice over IP (Internet Protocol) and Gigabit speeds, the District will need to update cable links within buildings to Category 6 and between distribution closets with fiber optic cabling. Additional Category 6 copper cables will also be required for any new or renovated areas of the schools.

Voice Communication Systems (VCS)

The District has an existing Vodavi telephone system. This switch appears to be upgradeable to an IP-based platform. The High School currently is not on this system. We are looking at adding the High School to the District system, expanding current messaging capabilities, and providing some reconfigurations where required. Also, upgrades to the Uninterruptible Power Supplies (UPS) at all sites protect the critical network and server equipment. Consideration of a back up generator at the Middle School is being recommended, along with environmental needs (cooling) in selected Head Ends and computer labs.

Data Network Systems (DNS)

The District's data electronics equipment installed at all sites is in need of an upgrade. In today's K-12 educational network, the speeds required for

video streaming and other demanding applications require Gigabit connections in the network backbone. These high speed connections are distributed between distribution closets within buildings and between buildings. Currently the connection speeds of the existing switches are one tenth of the speed of the proposed improvements. However, wherever possible, specifically to the desktop, some of these existing switches may be reused. The middle school infrastructure has established the gigabit connectivity to the District head end located at the middle school.

For estimating purposes, the data port counts provided by the District are being utilized. Wireless "hot spots" have also been included in the data network configuration. This will allow for wireless access to be provided in select areas such as media centers or cafeterias, if deemed appropriate. This is well short of providing wireless access building-wide. Also included in this component will be network security devices and management tools.

Video and Paging Systems (VPS)

There are existing Channel One video distribution systems at each site. There is no intension of implementing a new traditional analog video distribution system. There is interest in providing display capabilities for video streaming from United Learning, provided through the ISD. Upgrades to monitors in classrooms and video projectors in select locations throughout the District are being reviewed to provide this capability.

The paging (public address) system needs to be replaced at the high school. All other District locations will utilize their existing paging systems.

Facility Security Systems (SEC)

The intended uses of security systems such as video surveillance, card access, and intrusion alarm systems are being explored. The video surveillance in use at the High School is being evaluated and the need in other locations is being presented. The use of video surveillance in the interior of a school needs to be discussed internally. Card access will control access to buildings without the need to "loan out" keys. The intrusion alarm systems are also being considered to improve the District capability to support industry standards and decrease operational budgets for monitoring.

Audio Video Systems (AVS)

The Sound Systems in place are adequate for the most part. The High School cafeteria and auditorium are being considered.

Hardware and software to support curriculum based video production needs for the High School, and at a lesser level, for the Middle School are included.

Servers and Storage (SRV)
Information Systems and Services are controlled and managed by centralized and local building servers. These servers provide access to storage, printers, files, web services, email and other communication services. Long term storage needs and back up capabilities are also being budgeted for to protect information and meet increasing storage needs of the students and staff of Marshall.

Computers Workstations and Printers (CWP)
Replacement requirements for both staff and students are being identified. This includes both quantity and type (desktop versus laptop). In addition, new requirements such as computer lab expansion or media center resource workstations. Laser printer needs are identified as well as copier requirements at each building.

Loose Equipment
Miscellaneous needs are also being identified. This would include items utilized in classrooms, yet not required in each classroom. Among these items are digital cameras, document cameras, and portable projection carts.

Nextel Enhancements
The improvement of Nextel "coverage" inside District facilities was assessed to provide connectivity for the staff and personnel to support the building services.

Contingency
A contingency fund for unforeseen circumstances, necessary additions, and continually evolving District technology requirements is also identified.

NEXT STEPS

Kingscott will present the facility and technology recommendations to the Board of Education on March 13, 2006. The goal of the presentation is to summarize the assessment and requirements for future improvements to the District. This meeting will also provide a forum for the District to pose any questions related to the report and presentation. Wright & Hunter, together with Kingscott, will collaborate with the District to prioritize the recommendations and finalize the budget and project plan.

The funding requirements defined in this report were divided into distinct technologies for the District's consideration. The recommendations are presented in three categories; good, better, and best. The good category includes immediate and required updates. The better category encompasses improved access to technology and enhanced systems. The best is what the District would like to proceed with if the budgets are attainable to provide the technology rich environment the Marshall community expects.

The timeline estimates are based on a combination of the age, manageability, flexibility, and capability of the existing technology infrastructure and systems. A majority of technology deployments are required in the first three years. A portion of the structured cabling and security systems will extend into the three to five year timeline due to the typical phased approach to school building improvements.

Wright & Hunter and Kingscott, look forward to this exciting project to improve the facilities and technology in Marshall Public Schools.

Any questions or comments related to this report may be directed to Scott Brune, President of Wright & Hunter at 248.594.5850 or sbrune@wrighthunter.com.

FIRM HISTORY

Wright & Hunter provides independent professional technology services ranging from consulting, design, and acquisition, to complete project management and technology planning services. We are truly independent; we do not sell, install, service, or maintain any technology systems or equipment. We have no favorite manufactures, integrators, or contractors. Our system designs are easily managed and flexible enough to support a wide variety of data, voice, and video applications. Our designs support current requirements and industry standards, while always keeping the future in mind. Wright & Hunter understands technology and the importance of maximizing technology investments.

Wright & Hunter's services include technology planning, technology reviews, needs analysis, structured cabling system design, wireless LAN systems design, voice communications system design, video surveillance and intrusion alarm security systems design, audio visual systems, and RFP development and proposal analysis.

Wright & Hunter is built on the foundation of meeting the technology needs of educational, government, and commercial institutions. We are not just book smart; our people all have hands-on installation and design backgrounds. Our experience runs deep, with certified professionals averaging over 20 years of experience. More information about our services and people can be found at our web site, www.wrighthunter.com.