

TECHNOLOGY ASSESSMENT

Sylvester Elementary School

Our observations during the site visit relative to existing technology in this facility are presented for your use, review and consideration.

GENERAL BUILDING:

In this section we present our observations of the physical building and structure relative to its supporting of technology. Any commentary made about building materials and related items is made from the perspective of its relationship with and to technology, not on its condition, suitability or other capability. Comments and assessments from other engineering disciplines for these areas are included in other sections of this report.

The building is an older traditional multi story brick school building that used to be the High School. The building has high tiled ceilings and hard surfaced walls. The construction results in surface mounted outlets.

For this study, we present our observations by categories that have shown to be beneficial in clearly showing the relationship and function of technology. The categories of the physical infrastructure will be presented first, followed by the various systems and components. For example, the voice wiring observations will be presented in the infrastructure, but the telephone system and instruments will be presented in the voice systems.

INFRASTRUCTURE:

In today's schools, the term infrastructure is applied to the cable, wire and systems installed to provide the capability to connect technology devices for access to resources. To be more specific, the typical and common educational infrastructure would be comprised of the wiring for the telephone and public address system, the data network and the video network. This is generally referred to as the voice, video and data network. The person reading this report may want to think of this area as the physical wiring and cabling that is in the walls and not readily seen. This is also the area that is typically the hardest and most costly to deal with "after the fact." The infrastructure is not limited to these topologies and technologies.

VOICE INFRASTRUCTURE:

The Sylvester Elementary School has an older limited separate voice infrastructure in place. The infrastructure is installed with separate infrastructure wiring systems, one to support a small telephone system and the other to support intercom and public address functions. There is wiring in place to an intercom switch and to a wall speaker unit in the classrooms. The voice infrastructure supports a limited number (6) of telephone instruments mainly in office areas.

VIDEO INFRASTRUCTURE:

The Sylvester Elementary School has no current video distribution wiring system in place. A cable television franchise feed is provided with cable TV drops in certain locations, but not throughout the building.

DATA INFRASTRUCTURE:

The Sylvester Elementary School has a limited data infrastructure in place. We observed surface mounted category 5 cabling outlets at locations throughout the facility. Each room has one (1) data drop / outlet. There is a grouping of drops in the room adjacent to the library proper. The typical office has one (1) data drop per person with some additional drops for printers and other devices. There are no drops in various common spaces. The placement of the data drops reflects the ability to install the infrastructure given the material composition of the walls and the layout of the facility. To provide for a “computer lab” configuration the school has made use of wireless technology. There are nineteen (19) IBooks in a cart with wireless receivers.

The current data infrastructure is category 5 cabling emanating from a wiring distribution location, the server room closet. The selection of this location and the layout of the existing wiring infrastructure and how this is accomplished highlight the considerations that must be given to infrastructure wiring. Understanding the limitations of the various topologies relative to price and performance is important. Consideration for distance limitations must be taken. The current wiring distribution locations points out one of the issues associated with a facility that has aged and was not originally designed to accommodate facility-wide technology cabling and wiring.

SYSTEMS AND COMPONENTS

VOICE SYSTEMS:

The voice technology system in the Sylvester Elementary School is a mix of communications equipment. The intercom and public address controller is a Rauland Telecenter system. In the rooms are push-to-talk switches and separate two-way wall speakers.

The telephone system is a small Lucent Partner 8-port switch. This system supports the limited number of telephone instruments as well as the limited number of external telephone lines for the building. There is a separate telephone line for the nurse as well as a line to support a fax machine. Voice mail capability is provided utilizing Verizon’s service.

VIDEO SYSTEMS:

There is no current building-wide video wiring in place. Therefore, there is no video head-end distribution equipment/system. No cable TV broadcast or reception equipment was observed. The limited number of cable TV outlets allow for viewing of cable TV offerings at those locations.

There is no satellite dish.

There are some television sets of various sizes on carts in the school. There are no permanently mounted video monitors. There is one (1) large screen monitor. The school has made use of EIKI data / video projectors.

DATA SYSTEMS:

The current data infrastructure is supported at the wiring distribution location by category 5 devices. The devices are an Ortronics 24 port patch panel, a Netgear 24 port Fast Ethernet switch and a LanCity router.

All devices are industry standard devices and match the configuration and layout.

As stated previously the current wiring distribution location is a space/area that was not originally designed for these functions.

In order to achieve the density of network connections in certain locations, local small hubs have been installed.

To achieve a lab configuration, Apple's AirPort wireless technology is being utilized.

TECHNOLOGY COMPONENTS:

The school is MAC based. The typical classroom configuration has four (4) workstations, two (2) newer devices with two (2) older devices. The rooms typically have a printer that is not networked. The library had a small grouping of workstations. Offices had one (1) device per person dependent upon number of people and function. The one (1) computer lab is a mobile cart solution of nineteen (19) IBooks and wireless receivers supported by a MAC G#3 server. The printers are of various models and vintages. There are some older Apple systems being supported by an AppleTalk network.

MASTER CLOCK SYSTEM:

A master clock system by Simplex is installed in the main office. There have been and are intermittent problems with the unit and the clocks in the rooms.

INITIAL COMMENTS & RECOMMENDATIONS:

INFRASTRUCTURE:

The data infrastructure in place does provide limited capabilities to the different areas of the building. The physical structure of the building does not make additions to this network easy. The main wiring distribution location functions adequately given the conditions. In its present location and condition there are drawbacks and issues (location of equipment, environmental issues, expansion limitations, etc). We would look at options during a renovation / addition to address these issues. Again, we recognize that someone had the

creativity to utilize these spaces as they have. We realize that current building options are limited and this is why these alternatives were chosen. A renovated facility would provide for designed wiring locations and enable a comprehensive and complete data infrastructure to be in place. This infrastructure could allow for a greater density of technology outlets in all classrooms and spaces through the facility. The cost to do this during renovation or addition is far less than a piece-by-piece approach with the current facility conditions. Dependent upon what direction and scope the project would take, consideration would be given as to the feasibility of retaining the existing infrastructure.

It would be our recommendation to provide a dedicated technology outlet for the teacher / instructional person in each space. This drop would encompass not only data but video and other technological capabilities as well. For example, this would allow for the display of information on the teacher's workstation to be viewed on a large screen monitor or projection screen in the room. We would also recommend that a review of the number of drops per room be undertaken. This would provide confirmation of the resources desired and required in each location.

There should be an analysis of and plan for the video infrastructure. Consideration should be made regarding this topology and its potential offerings to the students and staff. Educational video programming and bi-directional programming are powerful educational tools. Discussions with the local cable television access group and /or franchisee should take place so that services could be provided to the facility that are in line with those being provided to other educational institutions.

The voice infrastructure in a new or renovated facility would be designed and installed in such a manner as to provide support for telephone instruments in all instructional locations and incorporate the intercom and public address functions as well as the inclusion of current voice technologies and advances.

SYSTEMS:

All of the systems for all of the technologies would be reviewed as part of a renovation or new facility project.

The current network system equipment would be replaced with newer higher speed systems in a redesigned head-end location. The existing equipment would be evaluated as to re-purpose or other functionality. We would recommend that most of the systems in place for the topologies currently in place be replaced or upgraded to the extent possible.

There are no video distribution system components in place. An adequately designed video head-end should be installed to provide true educational video functionality. This would allow for information from various and different information sources to be received and utilized in the classrooms and other locations in the building. Distance learning is a capability that could be provided in various forms to the staff and students dependent upon the video system and components selected.

The voice systems would be reviewed for functionality and the ability to provide intercom and public address system functionality along with the telephone system requirements and other communications advances. The expectation is that the existing voice systems would not meet the needs going forward and would be replaced with an integrated system.

COMMENTS AND CURRENT CONCERNS:

There is concern and questions regarding the ability to communicate with the Central school. The buildings are assumed to be on a contiguous parcel of Town property. The wide-area-networking capabilities between these buildings should be reviewed as part of this process. There are a number of methods that can be utilized to provide reliable and efficient communication that also provides for the proper level of performance. There could be some economies gained by sharing some technologies without having to provide separate systems and control units for each building.

Given the current situation, the security system is a concern. The school would request a review of this and the opportunity to discuss this area. Discussion was that there are security systems that will also provide automated attendance and other desirable functions.

One (1) in-house person does all maintenance and repair of the technology systems and equipment. This presents some issues and risks, especially if the person cannot repair the system in question. We would recommend that this area be reviewed.