

## District Wide Technology & Security System Improvements

### ***Communications Equipment Rooms:***

The majority of existing data rooms throughout the district are located within acceptable vicinities to accommodate data cabling distance requirements, however some of the actual locations that are not within an environment that is conducive to the requirements of today's network switch and power equipment. For example: very small closet type areas, spaces used as general storage, spaces with casework, bathroom area, laundry area, classrooms, etc.

### **Recommendation:**

Modify the existing spaces or move the location to a space that will better suit the equipment.

Data room requirements include: Secured space with authorized access only (no general storage allowed), air conditioned to allow proper equipment operating temperatures, allow easy access to all equipment with required working space clearances, power system upgrades including Uninterruptable Power Supplies, improved lighting, and grounding systems to protect equipment per manufacturer's requirements.

### ***Communications Equipment and Cabling:***

The data equipment currently installed is mostly stackable non PoE (Power over Ethernet) switches with patch panels between. There are PoE injectors (midspans) installed to supply power to various devices throughout the district. Cabling is a mix of Category 5 and Category 5e with some Category 6. It appears that the majority of the cabling is Category 5 which was installed in 1997. In some cases, the patch panels used in the data rooms do not conform to the same standard as the station cabling which reduces the performance of the cabling. The cabling runs above ceilings were inspected at various locations and were found to be out of compliance by today's standards at many locations (cables supported by structural members and not conforming to bend radius & mechanical clearance requirements). Improper installation of data cabling will significantly impact the performance of the cabling. The life expectancy of data cabling that has been properly installed is 20 years. Cabling that is not properly installed will have a shorter life expectancy.

## ***Communications Equipment and Cabling (continued):***

### **Recommendation:**

Replace the network switches with chassis based PoE switches with 10Gig uplinks. Replace the fiber optic connections between the data rooms (backbone) with Single Mode and Multimode Cabling to allow maximum flexibility and higher bandwidth. Replace the cabling in the district with Category 6 and install adequate pathways using cable tray and other approved support methods. All patch panels and patch cables would be replaced and wire management including cable runways added.

### ***Wireless System:***

*The existing wireless system is using Cisco Aironet 1250 Series Access Points throughout the district. The 1250 Series Access points have been End of Sale for 1 year and will be supported by Cisco until January 31, 2017. With the demands of wireless increasing dramatically since the introduction of small tablet devices such as the iPad, the stress on existing wireless systems have spiked. The existing wireless network may experience throughput issues in a high user environment.*

### **Recommendation:**

Upgrade the wireless access points to Cisco 3600 series or latest 802.11ac Cisco AP to leverage newer technologies that support today's high speed demands in a building wide high density, high usage wireless environment.

### ***Security Cameras:***

The existing security cameras were installed in a 2002 project. Day Automation indicated that the cameras are nearing end of life and that they are seeing a 30% failure rate. There are approximately 200 existing cameras throughout the district. The Bus Garage does not currently have any security cameras or access control making it impossible to identify vandals, thieves, or suspicious activity.

### ***Security Cameras (continued):***

#### **Recommendation:**

Replace the existing analog cameras as part of a district wide cabling project with IP cameras to minimize the potential for failure and allow increased image performance. Install additional cameras at areas that do not currently have adequate coverage. Add security cameras and access control to the Bus Garage to increase security and deter theft

### ***Phone System:***

The existing phone systems throughout the district are Nortel Networks PBX based systems. Nortel Networks Inc. is currently under chapter 11 Bankruptcy protection and is no longer supporting the products it sold. Support for the existing phone system will likely become increasingly more difficult as the system ages and components harder to find. The capabilities of the existing phone system are not as efficient as that of a VoIP (Voice over IP) based system and the life expectancy is in the foreseeable future. A new VoIP system would provide the district with a long lasting solution, more features, and options for operating cost savings.

#### **Recommendation:**

Replace the existing phone systems with a Cisco VoIP solution and maximize the efficiencies that the system will allow.

### ***Video Distribution System:***

The existing video distribution system is using coaxial cabling throughout the district for delivery. This system is feeding older model television sets which are more difficult to view in a classroom environment due to the small display size. The district currently has interactive boards with projectors installed in the classrooms throughout the district.

#### **Recommendation:**

Install an IP distributed video system with content servers to leverage the existing interactive displays that are in place. This will also provide the district with additional teaching resources, collaboration options, and allow students to see the display without having to move closer to the screen.

### ***Secured Building Entryways:***

- The existing building entry ways are inconsistent throughout the district
- No means to easily identify and manage visitors AFTER entry into the building

#### **Recommendation:**

Reconfigure the building main entrances to have a secure vestibule which has access only to the main office. This will allow for the identification of visitors and to verify the purpose of their visit before allowing visitors access to the entire building.

### ***Security Locksets for Classrooms:***

- The existing classroom locksets do not currently allow for teachers to lock the doors from inside the classroom
- In the event of a lockdown, teachers would need to go outside of the classroom and use keys to activate the locks

#### **Recommendation:**

Upgrade the existing classroom locksets to allow the ability to lock the doors from inside the classrooms during a lockdown or other emergency.

### ***Update Student Computers:***

- Recently, minimum requirements for student computers have been set forth by PARCC (Partnership for Assessment of Readiness for College and Careers)
- Many of the existing computers in the district do not meet these new requirements
- PARCC recommends that schools upgrade or replace computers with older operating systems and lower memory capacities to Recommended Specifications levels as soon as possible

#### **Recommendation:**

Replace the student computers that do not currently meet the minimum requirements set forth by PARCC.

***Middle School LGI:***

The equipment in the Middle School LGI is in need of upgrading due to the age.

Pricing is provided to upgrade / replace the equipment in the LGI room to support a high end Video Conferencing space.