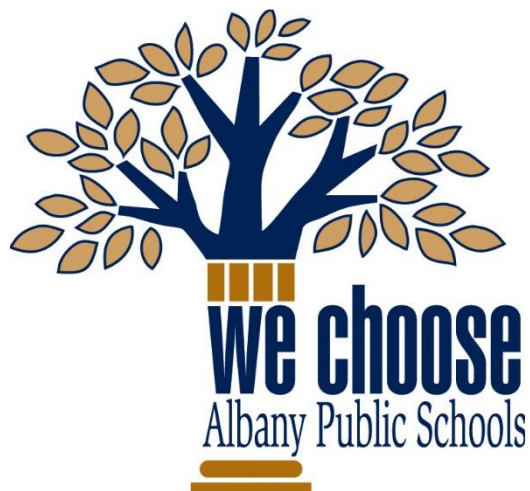


SMART SCHOOLS  
INVESTMENT PLAN

Phase 1

City School District of Albany

January 4, 2016



Approved January 4, 2016

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# SMART SCHOOLS INVESTMENT PLAN OVERVIEW

The Smart Schools Bond Act was passed in 2014 by a state wide referendum. The Smart Schools Bond Act (SSBA) supports educational technology and infrastructure to improve teaching and learning. It focuses on four main areas of funds: construct or modernize educational facilities for pre-kindergarteners, install high-speed broadband or wireless, install high-tech security features and acquire technology equipment.

All District plans approved by the school board and submitted to the New York State Education Department must meet the required elements including demonstrating students’ needs, minimal speed requirements for internet connectivity, professional development, technical support, and sustainability. As part of the process, districts are required to submit a District Instructional Technology Plan survey in compliance with the Education Law and Commissioner’s Regulation. The Instructional Technology Plan survey outlines the current and future plans of the district as it relates to infrastructure, devices, staffing, and professional development to improve teaching and learning. The Instructional Technology plan was approved by New York State Education Department in September 2015.

Over the course of several months a draft preliminary plan was developed and presented to the school board at regular public meetings. The current draft is scheduled to be presented to the school board on October 29, 2015 for approval. Once the draft preliminary plan is approved by the school board, it will be posted on the district website and a public hearing will be conducted to enable stakeholders to respond to the preliminary plan. After the hearing, the district will prepare a final plan for school board approval. The approved plan will be submitted to the New York State Education Department and will be posted on the district website. The planning process will include consultation with parents, teachers, students, community members, any non-public schools located in the district, and other stakeholders.

The district has been allocated \$7,946,807. At this time the district is seeking approval of \$2,400,827.20 in the budget categories outlined below.

Budget Category	City School District of Albany Allocations	Non-Public School Allocations
School Connectivity	\$1,500,000	
Classroom Technology	\$500,000	\$100,827.20
High-Tech Security Features	\$300,000	
Unallocated Funds	\$5,545,979.80	

## **SCHOOL CONNECTIVITY (BROADBAND AND WIRELESS)**

The City School District of Albany wants to ensure that it can support all its students, teachers and administrators with a robust, reliable and secure high-speed network infrastructure for wired and wireless access both within the District and out to the global internet. The District wants to use the Smart Schools Bond funds to continue the network build-out the District has been undertaking for the last five years and to enhance connectivity to the digital world of the internet.

The Albany City School District has nearly 10,000 students, which based on the state standard, means a 1Gb connection speed is required (100Mb x 10 = 1,000 Mb). The District currently has a 750Mb internet connection and plans to upgrade to a 1Gb connection by July 2016. The District also has 10Gb Wide Area Network (WAN) connections implemented between buildings. While some segments of its building local-area network (LANS) have also been upgraded to 10 Gb; the majority are 1 Gb and need to be upgraded.

### **Use of Funds to Support High-Speed Broadband and Wireless Connectivity**

Critical to expanding the network infrastructure will be adding the following key capabilities:

- 1) increasing internet connectivity speed to at least 1Gb by July 1, 2016;
- 2) continuing the implementation of a high-speed 10Gb switching fabric within and between all the wiring closets in all District school buildings. This will require purchasing additional network switches. Note that with the support of E-Rate funds the district has already upgraded the wide area network (WAN) links between buildings to support 10Gb speeds, as well as within some buildings' Local Area Networking (LAN) closet switches. In addition, single-mode fiber optic and multimode fiber optic cabling is in place between all wiring closets in every building, and all data runs for wired and wireless access are cabled with Category 6e cable. Only a limited amount of additional cabling will be added under the Smart Schools Bond to support security cameras and new access points;
- 3) providing both additional and upgraded wireless access points throughout the District to provide both ubiquitous wireless coverage in buildings and sufficient wireless bandwidth capacity per access point in classrooms to allow for large-scale use. Additionally, add wireless controllers for access points, and outside wireless capabilities for select school buildings;
- 4) replacing uninterruptible power supply (UPS) backup battery systems in every wiring closet to protect sensitive network equipment from power surges and brown-outs, as well as to ensure network connectivity in the event of a power outage;
- 5) adding additional network storage (Equilogic box) for archiving email and other electronic files for students and staff;
- 6) and adding Apple Cache servers to each school building to support the use of iPads for special needs students.

## **Robust Network**

The District has updated and enhanced the overall network infrastructure during the last five years. Enhancements include expanding the wireless network to be able to support ubiquitous access in each building. The District has also improved network speeds, reduced wired and wireless access bottlenecks, and improved overall network and system reliability.

The deployment started initially five years ago with 803.11n wireless access points (WAPS) and during the past two years the District has moved to the more capable 802.11ac WAPS, using centralized Cisco 5760 Wireless Local Area Network (WLAN) controllers. In Phase 1, the District will maintain its use of 802.11ac WAPS. In Phase 2, higher bandwidth WAPS and new wireless technologies will be considered.

The District wants to ensure all teachers and students have wireless access when they need it. To this end, the District closely monitors and manages network traffic to ensure high throughput. In order to meet usage demands with the appropriate level of wireless access, every classroom will have at least one WAP and larger instructional spaces will be outfitted with multiple WAPS.

## **District Instructional Technology Plan**

The Smart Schools Bond investment will allow us to expand learning opportunities for all our students beyond the four walls of a school building. This funding is directly linked to and supports our District Instructional Technology Plan. Some of the major initiatives in our Technology Plan are:

- a) new Bring Your Own Device (BYOD) policy for staff to increase communications between parents and staff, as well as provide real-time information on students for teacher-parent-administrator discussions;
- b) adding mobile devices to reinforce student academic skills through the use of Google for Education and providing expanded curriculum applications for differentiated instruction;
- c) implementing a new Student Information System which includes curriculum mapping, teacher calendar of lessons, and a parent portal;
- d) replacing all netbooks in the District that are more than four (4) years old to support learning in the classroom and allow more web access for staff and students to better support teaching and learning;
- e) and adding an infrastructure to support Apple iPads for special education students.

Mobile devices are a valuable part of differentiated instruction. Teachers will be able to access mobile carts in the building to deliver interactive math and ELA lessons to students. By using Windows applications and Google for Education to complete assignments, students will be able to collaborate with peers and the teacher. Parents and students will also be able to review documents from home using Class Link, a web based tool permitting students to access files and programs from any location with internet access.

<b>Connectivity Projects for Schools</b>	
School Internal Connections and Components	\$1,400,000
Professional Services	
Testing	
Other Costs – Equilogic Box	\$100,000
Subtotal	\$1,500,000

## **CLASSROOM LEARNING TECHNOLOGY**

### **(EQUIPMENT OR DEVICES)**

As previously stated, the District will establish a minimum speed standard no later than July 1, 2016 as required by NYSED and will work with the current provider to increase connectivity within the timeframe.

#### **Device Purchases**

The District will focus purchases in four main areas:

- replace/upgrade approximately 1,000 Windows netbooks in carts across the district ;
- add mobile carts consisting of 30 devices within each cart to six school buildings that currently have less than two mobile device carts;
- add three 3D printers for each of three Middle Schools;
- and replace the Project Lead the Way CAD/CAM milling machine which is an essential component of the high school program.

All Windows computer devices including the netbooks will be running Microsoft Windows 7 (with future plans for Windows 10) allowing full compatibility with installed devices and software, as well as full compatibility with our network applications and other end-user devices.

The 3D printers are compatible with existing applications and hardware. The milling machine is a replacement of an existing machine that is over 15 years old. This device is a critical component of the high school Project Lead the Way program. It permits students to learn G&M coding which is the programming language used in the industry. Students also need to setup the CNC mill as a work cell integrating a robotic arm which feeds work to the mill. The two machines need to be programed to interact with each other just as work cells in industry perform.

#### **Supporting Student Achievement through Devices**

The District has worked hard to use technology tools and resources to transform our teaching and learning environments across the District. The District believes that technology can be a powerful vehicle for actively engaging all students in learning, and that active engagement is particularly important for students who are struggling. Using technology tools and resources, teachers are able to personalize learning, differentiating both the content and the pedagogical approaches depending on the needs of students. Teachers can extend learning beyond the hours of the day and the confines of the classroom. They can also create authentic learning experiences and connect students to resources that will greatly enhance their learning. These resources can include content, study tools, collaborative tools, tools for assessment and also connections to experts in the field, as well as to other students. Access to these resources benefits all students but especially English as a New Language students. Technology can help transform learning largely from consuming information to actively constructing knowledge.

Technology is an incredible tool for students with disabilities, allowing them to participate and interact and work independently using a wide range of assistive technologies. These assistive technologies allow disabled students to learn via new multimedia applications such as on the iPad. The District's Special Education Department works directly with the District Technology Coordinator to insure that assistive technologies are available for all students who require their use, and both departments collaborate to make sure that the technology requirements of each student's IEP are met.

The District continues to focus its technology implementation in areas where there are significant learning gaps, especially English Language Arts and math. Recent grant applications have reflected this on-going emphasis.

### **Increasing Communications**

The District wants to continue to use communication technologies, including email, the district web site, and other electronic applications to stay in touch with and to share information with parents and the rest of the community. The expanded wireless capability in conjunction with staff BYOD implementation will allow for improved staff-to-parent communications. Expanded connectivity across the district and to the internet will also support the parent portal for student learning. Student access to web-based applications will enhance student learning. Parents are strongly urged to review student progress on these applications.

### **Professional Development**

On-going professional development is a critical component of the District's Instructional Technology Plan, including the Smart Schools Investment Plan. The district provides a wide range of professional development each year for our teachers, teaching assistants, and administrators. The training includes interactive boards and smart notebook, document cameras and LCD BrightLink projectors, Microsoft products, netbooks, tablets and chromebooks. The Instructional Technology Specialist holds monthly sessions addressing district supported web-based applications that can be integrated into curriculum and instruction. The Technology cohort members hold training at the building level as well. The District strongly believes that both the instructional leadership staff and the technical support staff need higher-level professional development in order to continue in their roles. There is currently one staff member dedicated to instructional technology integration across the District. The District is committed and will continue to provide professional development on an on-going basis to the staff to allow them to utilize the technology tools and resources in the most effective manner possible. Going forward, additional technology personal will be needed to support the integration of the new initiatives supported by the Smart Schools Bond.

### **Contact with SUNY**

The District has contacted SUNY Albany teacher preparation program, as required by the Smart Schools Bond Act to request advice on innovative uses and best practices at the intersection of pedagogy and educational technology.

### **Loaning Hardware to Non-Public Schools**

The Smart Schools Bond Act provides that any district hardware purchases made using Smart Schools funds shall be lent, upon request, to non-public schools in the district. All students



attending non-public schools are eligible to receive loans of classroom technology equal on a per pupil basis to the per pupil amounts spent on classroom technology for public school students (up to \$250 per pupil).

The District will notify all non-public schools in October 2015 of their eligibility for technology loans similar to the process for textbooks, computer hardware, and software. The notification will include a date by which requests must be received by the district.

**Sustainability Plan**

The District is committed to the sustainability of infrastructure and devices purchased through the Smart Schools Bond Act. The plan includes funding supported through the general fund and grant opportunities. Staff will recommend hiring additional personnel to provide for general maintenance and technical support necessary for the additional devices. Staffing may include an Instructional Technology Specialist to support professional development, Technology Support Specialist for maintenance and repair of equipment, and a specialist to manage the addition of iPads into the environment. There will be funding available for training and support for these positions.

**Inventory Management**

The District has a new distribution and inventory management system in place. This system will maintain a detailed inventory of all technology in the district including purchases made through Smart School funds.

Classroom Technology	City School District of Albany Allocations	Non-Public School Allocations
Mobile Devices including Tablets/Laptop/Netbooks/Chromebooks(with Carts)	\$464,000	\$62,011.20
Desktop computers		\$27,122.00
Printers, 3D printers, and milling machine	\$36,000	\$570.00
Wireless Access Points		\$1,556.95
Switch		\$2,856.97
Smartboard		\$5,590.00
Document Camera and Camcorders		\$1,119.32
Subtotal	\$500,000	\$100,827.20

## INSTALLATION OF HIGH-TECH SECURITY FEATURES

The District security plan provides for upgrades and replacements under the Smart Schools Bond funding that will be implemented in two different phases. The first phase, presented here, will replace the present outdated Stanley/Sonitrol intrusion detection (ID) system, which includes control panels, keypads, and audio sensors, along with door and window contacts where necessary. The present intrusion detection system has reached its end-of-life and cannot be maintained or upgraded. Our plan is to replace this present system in every building. The estimated cost to replace it is \$300,000.

High-Tech Security Features	
Capital-Intensive Security Project (Standard Review)	\$300,000
Main Entrance Electronic Security System (Streamlined Review)	
Main Entrance Entry Control System (Streamlined Review)	
Approved Door Hardening Project (Streamlined Review)	
Other Costs—	
Subtotal	\$300,000