

# East Aurora Union Free School District

## Smart Schools Investment Plan (SSIP) - 2018-2021 Funding Cycle

### **INTRODUCTION**

With gratitude for the careful consideration they've provided, our thanks to the EAUFSD Smart School Bond Act committee. Their collective insight, thoughtfulness and objectivity are the basis of this plan.

The SSIP presented here will be comprised of two initiatives;

- An upgrade to classroom presentation devices throughout the district (within the SSBA category of Classroom Learning Technology)
- A targeted replacement of network switching equipment (within the SSBA category of School Connectivity)

### **SSBA PROGRAM DETAILS**

The SSBA program was approved by voters in a statewide ballot referendum in November 2014. The program is designed to assist school districts across the state implement learning technologies that benefit all students. The program emphasizes the need for a robust technology infrastructure (network) that includes wireless connectivity for devices as appropriate. To emphasize the importance of infrastructure investment, NYSED has mandated certain aggregate network speed thresholds that every district must achieve for program eligibility.

The program also endeavors to provide similar assistance to each non-public school located within the boundaries of individual school districts across the state. For our school district, this includes Immaculate Conception, Waldorf, Gow and Mandala schools.

School districts are required to follow steps with respect to the application for and approval of individual investment proposals. The first step is the submission of an Instructional Technology Plan (ITP). This is a three year technology plan (in this case, 2018-2021) that expresses the overarching vision of each school district. Once approved (our plan was approved in late October, 2018) districts can begin submission of investment plans that are aligned to the overarching three year plan. These documents are called SSIP (Smart Schools Investment Plan). The following pages contain our SSIP that aligns to our previously approved ITP.

## **EAUFSD - Vision Statement**

A vision of effective instructional technology deployment in the East Aurora Union Free School District includes these elements;

- Enriched communication among staff and students provided through the implementation, maintenance and growth of a comprehensive network through which information is shared
- Ample technology to provide equitable access by students and staff
- Development of an environment in which technology is used to extend thinking and provide opportunities for continuous learning within the community
- Enabling and encouraging of cooperative interdisciplinary learning, exploration and creative thinking in a student centered environment
- Novel uses of technology to remove barriers of time, location and handicap
- Ample and appropriate technological training to accompany all technology deployments
- Adequate planning and management of financial and support resources to insure update/upgrade of existing technology at intervals appropriate to technological life-cycles or market changes

## **EAUFSD - Goals that Support the Vision**

- Furnish appropriate and differentiated development opportunities for both staff and students aimed at proficient and novel use of deployed technologies within our schools. These development opportunities will support the integration of technology into curriculum and instructional practices.
- Re-invigorate classroom presentation tools that continue to foster interaction between students and faculty. Such technology will also promote collaboration during the instructional process as well as provide interactive opportunities for presentation of curriculum.
- Insure equitable access to technology across all grade levels. This includes both direct support resources, properly functioning and secure infrastructure, sufficient quantities of classroom presentation tools, and sufficient quantity of end-user devices. This also includes the financial means to provide timely upgrade and expansion of technological resources throughout the district. (“scalability”)
- Provide timely and appropriate communication to all stakeholder groups within the community - including faculty, staff, administration, the Board of Education, parents,

community leaders and philanthropic organizations - to foster collaboration among both internal and external stakeholder groups. Timely and relevant communications are essential to forging partnerships throughout the community and must contain evidence of instructional successes related to technological deployments and the investments which have led to their deployment.

### **EAUFSD - Process/Structure used to Develop the Plan**

Instructional Technology Committees are established at each of our buildings (Parkdale Elementary, East Aurora Middle School and East Aurora High School). These building-level committees are comprised of representatives from each grade level or department, the building library media specialist, a building administrator and member of the Technology Department.

From each building-level committee, at least one representative also serves on the district-level Technology Committee. This aggregate level working group also includes representation from our central office departments; business, pupil personnel, curriculum and instruction and buildings and grounds.

At the district-level, committee representation also includes at least one Board of Education member. Additionally, representatives of the community are invited to attend and can also participate via other committee memberships such as the Communications Committee, Textbook Committee, Policy Committee. These committees, while not solely focused on instructional technology, make decisions, recommendations and create policies and procedures that can ultimately impact the overall scope of IT services and deployments in our district. Likewise, we endeavor to "cross-pollinate" these committees with representation from the District Technology committee wherever possible.

By design, this structure seeks to accomplish the development of an overarching strategic technology plan which honors the unique requirements of all instructional areas and grade levels. Additionally, this structure takes into account the IT needs of various staff areas throughout the district. Finally, by including the Board of Education and community members, we believe that our structure reflects the diverse needs of our organization and avails itself of expertise and viewpoints from our community which might not ordinarily be available to us.

## **SSIP Initiative One - Classroom Presentation Tools**

GOAL - Re-invigorate classroom presentation tools that continue to foster interaction between students and faculty. Such technology will also promote collaboration during the instructional process as well as provide interactive opportunities for presentation of curriculum.

This initiative aligns well with an expressed goal for school districts put forth by the New York State Education Department (NYSED). Specifically;

*Increase equitable access to high-quality digital resources and standards-based, technology-rich learning experiences*

### **PROJECT NARRATIVE**

The word “reinvigorate” was very deliberately incorporated into our goal statement. EAUFSD has deployed interactive whiteboards and accompanying software in nearly every classroom throughout our district. The interactive nature of this technology has provided incalculable benefit to both our students and teachers for nearly 15 years. This has been accomplished with Smart Boards paired with digital data projectors. Proper mounting, adequate supplies and cabling have all been a major part of these deployments. However, supplies for projectors (bulbs), maintenance (annual air filter cleaning) and installation labor have added significant costs to maintenance and upkeep of this technology. Additionally, as graphics capabilities of teacher laptops and student devices have evolved considerably, the graphics capability of our projector “fleet” has not. This has led to significant loss of opportunity and mounting frustration among our faculty.

To remediate, we seek funding from the SSBA program to bring interactive flat panels to each of our classrooms throughout the district.

It is vitally important to note that all teachers in EAUFSD have, for nearly eleven years, been assigned a district-owned laptop computer. In its third generation, this program has been an unmitigated success. By bringing modern, wireless devices to our teachers, we have seen a dramatic productivity enhancement within this cohort as this technology is applied to instructional purposes within our classrooms. This point is mostly notable as it influences the product selections that our committees have deliberated for use of interactive panels in conjunction with our teacher laptops.

### **WHO BENEFITS FROM THIS PROJECT?**

All students and all teachers in our school district will directly benefit from this initiative. All staff, administrators and the Board of Education will be furnished with ancillary benefit from this initiative.

## **PROJECT PLAN - Specific Steps**

*Planning/Consideration* - Consider current requirements of classrooms with respect to physical interaction (remote, at board, none). Consider classroom mounting or mobility needs. Consider brightness, expected lifespan, maintenance. Consider necessity of Third Party software. Seek out, and recommend several affordable, easily maintained and long lasting replacements for very well utilized - but rapidly aging - Smart Boards and projectors in every classroom throughout our district. Meet all requirements put forth from considerations.

*Evaluation* - From recommended list, obtain evaluation units for sufficient duration. Make all evaluation units available to technology committee members and other faculty members in each of our buildings. Accompany all evaluation units with a consistent survey for feedback from "pilot" users. Survey must contain an evaluation of all relevant feature sets that enhance instruction. Examine survey data in conjunction with relevant technology committees. Recommendation on a successor product is expected from this action item

*Pre Purchasing* - Take recommendation from action item #2, including all relevant feature sets, and negotiate most financially advantageous terms for purchase. Criteria includes conditions of warranty, availability of replacement parts, accessories, any required software, mounting or mobile hardware, and cabling. Installation labor by district personnel versus cost of vendor installation services should be considered.

*Purchasing* - Select vendor. Establish project plan to include physical installations including any necessary wiring, mounting or assembly of mobile mounts. Make purchase, receive and inspect shipment, inventory equipment. Begin installation deployment. Monitor progress for any issues that may require plan adjustment.

*Professional Development* - Incorporate professional development curriculum into technology course catalog. Commence class offerings for faculty. Integrate device specific content where possible into existing catalog offerings. Assure pace of PD offering is aligned with deployment pace. Nearly all teachers in our district have been trained and are quite effectively utilizing software for interactivity today.

## PRODUCT SELECTION CRITERIA

- Expected length of reliable service
- Touch Enabled (requirement)
- Operating System Agnostic (must minimally support Windows and Chrome OS)
- Length of Warranty
- Ease of Use for faculty (minimize cabling to teacher laptop)
- Ease of use for faculty (will new hardware work with familiar software)
- Compatibility with established software titles (honor existing teacher-created content)
- Ease of Installation
- Ease of Maintenance/Limited addition to maintenance routines
- Leverages existing, deployed teacher laptops - at present and in the future
- Avoid duplication of existing functionality among device cohorts
- Brightness/Visibility (particularly in classrooms with high ambient lighting)
- Mounting capability (where applicable)
- Mobility of Assets (where applicable)
- Vendor Support/Update Facilities
- Price

## EVALUATIONS

We have evaluated a variety of boards from multiple vendors. While the above criteria list was our primary reference point, we've also conducted numerous conversations with neighboring districts to hear their feedback and testimonials regarding their selections.

The anecdotal evidence we've received, first, corroborates the concept of replacing Smart Boards and projectors with interactive flat panels. Secondly, such conversations pointed out the potential duplication of functionality across multiple deployed technology cohorts.

Specifically, with respect to processing power to drive the board - our teachers have laptops and we expect to continue our "laptops for teachers" program for the foreseeable future. This dramatically decreases the attractiveness of boards equipped with a built-in computer on grounds of asset duplication, price, and longevity of the asset life-span and ease of maintenance. We prefer to maintain the *option* of adding a computer to the monitors in the future if necessary.

## RESULT OF EVALUATION - PILOT PROGRAM - DEVICE PREFERENCE

The Dell brand flat panels (available in 55", 75" and 86" models) was the only board evaluated that met all criteria. Very importantly, pricing for these devices is significantly less than all competitors. Among the most attractive features of these devices is the simplicity - there are no built-in computers/devices in this product line. This eliminates duplication of functionality, reduces cost, provides far easier maintenance and provides a measure of comfort with respect

to expected life span. However, this product affords us with the *opportunity* to add such capability in the future should this become a desirable path.

With all of our criteria satisfied by this vendor/product line, we arranged for demonstration units to be sent to our school district. We received an 86" board and a 70" board both equipped with a mobile base such that they could be easily moved throughout several classrooms in each of our buildings. Teachers that participated in our "pilot" program were selected for their expertise with current solutions (Smart Board, projector and Smart Notebook software), their objectivity/receptiveness to new technological solutions and if they are a technology committee member.

The results of the pilot were overwhelmingly positive relative to quality and ease of use of the board. The piloted flat panels received high marks for brightness, clarity, image quality, color, visibility and ease-of-use in conjunction with current models of teacher laptops.

Also discussed by the pilot participants was the ease with which they can connect their computers to the board (simplified, single HDMI cable), the superior responsiveness of the board and the absence of the need for calibration of the board and the projector. Also mentioned frequently during the pilot effort - the ambient brightness of the classroom did not significantly impact the images being displayed on the flat panel versus the projector/Smart Board arrangement that they currently use.

Survey results with respect to the mobile base (upon which the pilot flat panels were mounted) were mixed. To the positive, teachers appreciated the mobile mounting option for the ability to flexibly arrange their classrooms - particularly within the elementary school and the inherent use of station-based learning. At higher grade levels, teachers appreciated the same classroom flexibility but not necessarily due to station-based learning.

To the negative, several pilot participants discussed the geometry of the extended "feet" of the mobile base as an impediment to their physical access to the board.

## **SSIP Initiative Two - Targeted Infrastructure Replacement**

Goal - Ensure equitable access to technology across all grade levels. This includes both direct support resources, properly functioning and secure infrastructure, sufficient quantities of classroom presentation tools, and sufficient quantities of end-user devices. This also includes the financial means to provide timely upgrade and expansion of technological resources throughout the district.

This initiative aligns well with an expressed goal for school districts put forth by the New York State Education Department (NYSED). Specifically;

*Design, implement, and sustain a robust, secure network to ensure sufficient, reliable high-speed connectivity for learners, educators, and leaders*

### **NARRATIVE**

The foundational element of all IT deployments in any organization is a robust, accessible, secure and reliable network. The network enables collaboration, resource sharing, resource access, efficiency and enhanced productivity for all users. Evaluation of network traffic can also be a measure of the effectiveness of the overall IT deployment as well as provide insights to specific needs for additional resources in various areas throughout the deployment.

Perhaps most importantly, the network infrastructure is the underpinning of a pervasive wireless network throughout all buildings of the campus. The wireless network, in turn, furnishes users with long-sought mobility of assets now available to every cohort of the organization. This implies that all students in our school district will be the beneficiary of the advantages of the network deployment.

All components of our network were fully upgraded during a facilities project that commenced in 2008. Beginning with this work, our network fully satisfied all state and federal bandwidth/speed requirements. Our ability to leverage this network as it relates to end user access and technology support of our device "fleet" has been instrumental during a subsequent period of extremely tight operating budgets. Together with our wireless network deployment, we have been able to harness the power of so-called cloud computing and take full advantage of a market proliferation of low-cost devices for our students. This has resulted in an average increase of nearly 200% in the saturation of student used devices deployed across each of our school buildings.

While our network has served us quite well since 2008 (we continue to exceed bandwidth requirements), we are aware that 55% of our network switches will be reverted to "end-of-life" status by their manufacturer in December 2020. Additionally, 45% of our network switches will reach the same status in December of 2023.

## **WHO BENEFITS FROM THIS PROJECT?**

All students and all teachers in our school district will directly benefit from this initiative. All staff, administrators and the Board of Education will be furnished with ancillary benefit from this initiative.

## **PROJECT PLAN - Specific Steps**

*Planning/Consideration* - Develop an implementation plan for switch replacements. Emphasis on sufficient quantity of switch chassis, power redundancy, fiber optic adaptors, and centralized control mechanisms. Consider closet by closet implementation that will NOT interrupt instructional activity during the school day. Target naturally occurring calendar breaks such as winter, mid-winter and spring recess.

*Evaluation* - Products will be evaluated with several criteria in mind; product must be on the WNYRIC standards list, length and cost of manufacturer warranty, vendor reputation and experience, manufacturer reputation and experience, electrical consumption, heat dissipation, ability to support 10Gb backbone cost effectively, ability to integrate with remaining/existing network components, support requirements for local technicians, supportability by Erie 1 BOCES/WNYRIC

*Pre Purchasing* - Take recommendation from action item #2, including all relevant feature sets, and negotiate most financially advantageous terms for purchase. Criteria includes conditions of warranty, availability of replacement parts, accessories, any required software, mounting, and cabling. Installation labor by district personnel versus cost of vendor installation services should be considered.

*Purchasing* - Select vendor. Establish project plan to include physical installations including any necessary wiring, mounting or assembly of mobile mounts. Consider integration with existing/remaining equipment and react as needed. Make purchase, receive and inspect shipment, inventory equipment. Begin installation deployment. Monitor progress for any issues that may require plan adjustment.

*Professional Development* - For this initiative, Professional development needs are limited to appropriate Technology Department personnel.

## **PRODUCT SELECTION CRITERIA**

- Expected length of reliable service
- Length of Warranty

- Ease of Deployment (for local tech department and service provider where applicable)
- Compatibility with remaining/existing network components
- Ease of Installation
- Electrical Consumption
- Heat dissipation (cooling fans, environmentally controlled mounting options)
- Ease of Maintenance/Limited addition to maintenance routines
- Mounting capability and options (where applicable)
- Vendor Support/Update Facilities
- Price

## **EVALUATIONS**

We have discussed a variety of switching products from multiple vendors. While the above criteria list was our primary reference point, we've also conducted numerous conversations with neighboring districts and our support resource personnel at Erie 1 BOCES/WNYRIC to hear their feedback and testimonials regarding their selections.

Undoubtedly, our most important criteria was compatibility with existing/remaining network components, ease of installation and the impact upon normal maintenance routines performed by the local technology department.

The emphasis upon compatibility assumes greater significance due to the fiscal constraints inherent in the SSBA funding source and their impact upon a deployment project. SSBA will furnish the district with a fixed dollar amount eligible for our use across both projects. A significant cost escalation in one initiative has necessitated a reduction in the other initiative. This has had the effect of a "phased-in" approach to our project plans. To accommodate the cost increase of the flat-panel effort, we have reduced the amount needed for the infrastructure effort. We have a solid plan to utilize federal e-rate funding to bridge the gap. This "phased-in" approach to deployment necessitates and even greater emphasis upon compatibility since the overall replacement/upgrade will now take several school years as opposed to being contained within a single school year.

## **RESULT OF EVALUATION - DEVICE PREFERENCE**

While we evaluated and discussed products from several manufacturers, the clear advantage accrues to Extreme Networking (formerly Avaya) as the manufacturer which most closely aligns with our criteria.

Our district has successfully deployed products from this company (or a predecessor) since the mid-1990's. They have been highly cost-effective, exceptionally reliable and are readily and easily supported by Erie 1 BOCES/WNYRIC. Perhaps, most importantly, they will be 100% compatible with existing switches from the same manufacturer that will remain in place for several more years. Our phased-in approach to this project will most certainly be made easier to complete, will afford us the same reliability that we've come to expect in the past, and limit the

number of service interruptions to our customer base - freeing us to choose mid-school year for implementation if necessary.

Additionally, new products from this manufacturer will be able to directly connect to new fiber optic cabling that the district has installed as part of our current facilities project. By leveraging that investment, we will be able to boost network speeds between our buildings and within our building (backbones) from 1 Gb to 10 Gb and position ourselves for the future rather effectively.

## **Conclusion**

Both of the initiatives presented are supported by a lengthy and successful history within our school district and have proven to be instrumental parts of our instructional success.

Interactivity (Smart Boards and projectors) has been a significant aspect of our instructional efforts since the late 1990's. More than 90% of our teaching cohort have received professional development aimed at effective utilization of this technology within their classrooms. A Smart Board and projector are available in all of our classrooms. We have seen direct evidence of the effectiveness of this technology in all of our classrooms for significant period of time.

Our network infrastructure can trace its lineage to at least 1997. At that time, what is now Extreme Networks was known as Bay Networks. Those networks were small in scale and not readily available throughout each of our facilities. When we expanded our network wiring beginning in 1999, we turned to Extreme Networks again (then known as Nortel) and were completely impressed by the ease of deployment and support as well as the reliability and cost-effectiveness of the investment. Beginning in 2008, we completely refreshed our network and once again, chose Nortel products. That project brought additional wiring during building expansions and has subsequently allowed us to expand upon its' use to include a robust wireless network and the addition of security systems attached to the network. Additionally, as our school district has embraced technology as a driver within ALL of our processes, our network has proven to be very reliable even as our operation has evolved far more into a 24X7 production environment.