Smart Schools Investment Plan - 2016-17 Version (Original) - SSIP - School Connectivity (Network Switches)

SSIP Overview

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Institution ID

800000052968

1. Please enter the name of the person to contact regarding this submission.

Eric Stockmeyer

1a. Please enter their phone number for follow up questions.

716-816-3105

1b. Please enter their e-mail address for follow up contact.

estockmeyer@buffaloschools.org

2. Please indicate below whether this is the first submission, a new or supplemental submission or an amended submission of an approved Smart Schools Investment Plan.

Supplemental submission

3. All New York State public school districts are required to complete and submit a District Instructional Technology Plan survey to the New York State Education Department in compliance with Section 753 of the Education Law and per Part 100.12 of the Commissioner's Regulations. Districts that include investments in high-speed broadband or wireless connectivity and/or learning technology equipment or facilities as part of their Smart Schools Investment Plan must have a submitted and approved Instructional Technology Plan survey on file with the New York State Education Department.
By checking this box, you certify that the school district has an approved District Instructional Technology Plan survey on file with the New York State Education Department.

☑ District Educational Technology Plan Submitted to SED and Approved

4. Pursuant to the requirements of the Smart Schools Bond Act, the planning process must include consultation with parents, teachers, students, community members, other stakeholders and any nonpublic schools located in the district.
By checking the boxes below, you are certifying that you have engaged with those required stakeholders. Each box must be checked prior to submitting your Smart Schools Investment Plan.

☑ Parents
☑ Teachers
☑ Students
☑ Community members

4a. If your district contains non-public schools, have you provided a timely opportunity for consultation with these stakeholders?

☑ Yes
☐ No
☐ N/A

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5. Certify that the following required steps have taken place by checking the boxes below: Each box must be checked prior to submitting your Smart Schools Investment Plan.

- ☑ The district developed and the school board approved a preliminary Smart Schools Investment Plan.
- ☑ The preliminary plan was posted on the district website for at least 30 days. The district included an address to which any written comments on the plan should be sent.
- ☑ The school board conducted a hearing that enabled stakeholders to respond to the preliminary plan. This hearing may have occured as part of a normal Board meeting, but adequate notice of the event must have been provided through local media and the district website for at least two weeks prior to the meeting.
- ☑ The district prepared a final plan for school board approval and such plan has been approved by the school board.
- ☑ The final proposed plan that has been submitted has been posted on the district's website.

5a. Please upload the proposed Smart Schools Investment Plan (SSIP) that was posted on the district's website, along with any supporting materials. Note that this should be different than your recently submitted Educational Technology Survey. The Final SSIP, as approved by the School Board, should also be posted on the website and remain there during the course of the projects contained therein.

BPS_Preliminary_SSIP_Final_Upload.pdf
SSIP_Board_Item_Approval_5a.pdf
2016-2019_Technology_Plan.pdf

5b. Enter the webpage address where the final Smart Schools Investment Plan is posted. The Plan should remain posted for the life of the included projects.

https://www.buffaloschools.org/Page/2400

6. Please enter an estimate of the total number of students and staff that will benefit from this Smart Schools Investment Plan based on the cumulative projects submitted to date.

33,000

7. An LEA/School District may partner with one or more other LEA/School Districts to form a consortium to pool Smart Schools Bond Act funds for a project that meets all other Smart School Bond Act requirements. Each school district participating in the consortium will need to file an approved Smart Schools Investment Plan for the project and submit a signed Memorandum of Understanding that sets forth the details of the consortium including the roles of each respective district.

- ☐ The district plans to participate in a consortium to partner with other school district(s) to implement a Smart Schools project.

8. Please enter the name and 6-digit SED Code for each LEA/School District participating in the Consortium.

Partner LEA/District	SED BEDS Code
(No Response)	(No Response)

9. Please upload a signed Memorandum of Understanding with all of the participating Consortium partners.

(No Response)

10. Your district's Smart Schools Bond Act Allocation is:

$56,020,356

11. Enter the budget sub-allocations by category that you are submitting for approval at this time. If you are not budgeting SSBA funds for a category, please enter 0 (zero.) If the value entered is $0, you will not be required to complete that survey question.

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	Sub-Allocations
School Connectivity	7,135,732
Connectivity Projects for Communities	0
Classroom Technology	0
Pre-Kindergarten Classrooms	0
Replace Transportable Classrooms	0
High-Tech Security Features	0
Totals:	**7,135,732**

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1. In order for students and faculty to receive the maximum benefit from the technology made available under the Smart Schools Bond Act, their school buildings must possess sufficient connectivity infrastructure to ensure that devices can be used during the school day. Smart Schools Investment Plans must demonstrate that:

- **sufficient infrastructure that meets the Federal Communications Commission's 100 Mbps per 1,000 students standard currently exists in the buildings where new devices will be deployed, or**
- **is a planned use of a portion of Smart Schools Bond Act funds, or**
- **is under development through another funding source.**

Smart Schools Bond Act funds used for technology infrastructure or classroom technology investments must increase the number of school buildings that meet or exceed the minimum speed standard of 100 Mbps per 1,000 students and staff within 12 months. This standard may be met on either a contracted 24/7 firm service or a "burstable" capability. If the standard is met under the burstable criteria, it must be:

1. Specifically codified in a service contract with a provider, and

2. Guaranteed to be available to all students and devices as needed, particularly during periods of high demand, such as computer-based testing (CBT) periods.

Please describe how your district already meets or is planning to meet this standard within 12 months of plan submission.

The Buffalo City School District has nearly 33,000 students, which based on the state standard, means a 3.3Gb connection speed is required. The District's current connection speed is already in compliance with the minimum connection speed standards identified in the Smart Schools Bond Act. Currently, the District has a 10Gbps connection between all schools and between all data rooms within each building. Smart Schools Bond Act funds will be used to maintain and increase these speeds.

1a. If a district believes that it will be impossible to meet this standard within 12 months, it may apply for a waiver of this requirement, as described on the Smart Schools website. The waiver must be filed and approved by SED prior to submitting this survey.

☐ By checking this box, you are certifying that the school district has an approved waiver of this requirement on file with the New York State Education Department.

2. Connectivity Speed Calculator (Required)

	Number of Students	Multiply by 100 Kbps	Divide by 1000 to Convert to Required Speed in Mb	Current Speed in Mb	Expected Speed to be Attained Within 12 Months	Expected Date When Required Speed Will be Met
Calculated Speed	33,000	3,300,000	3300	10000	10000	Already

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3. Describe how you intend to use Smart Schools Bond Act funds for high-speed broadband and/or wireless connectivity projects in school buildings.

The Buffalo City School District wants to ensure that it has a robust, secure, and reliable high speed network infrastructure to serve its end-users. The District wants to use the Smart Schools Bond funds to continue to increase network capacity to support both instruction and daily operations including: 1 to 1 programs, readiness for Computer Based Testing (CBT), VoIP telephone system, and future Bring Your Own Device (BYOD) initiatives.

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

Upgrading **network switches** that are nearing end of life. Originally installed in 2008, the District's current network switches will be replaced with new switches capable of supporting faster network speeds at all buildings. A total of 1330 network switches will be installed in all buildings as well as 14 hub switches to replace and expand network connectivity between District buildings and with the internet.

With the support of E-Rate funds, the District already has single-mode fiber optic and multi-mode fiber optic cabling in place between wiring closets in buildings, and all data runs for wired and wireless access are cabled with 6e cable. Further, the District has just completed an upgrade of its wireless infrastructure with the installation of an additional 1020 Aruba AC Wireless Access Points. These faster WAPS in all instructional areas capable of providing connectivity for each student, teacher, and administrator to use a mobile computing device. A total of 3670 AC Wireless Access points are now capable of leveraging new, faster AC wireless technology. The District's new wireless infrastructure will be able to provide ubiquitous wireless coverage in buildings and sufficient wireless bandwidth capacity per access point in classrooms to allow for 1 to 1 device implementations.

4. Describe the linkage between the district's District Instructional Technology Plan and the proposed projects. (There should be a link between your response to this question and your response to Question 1 in Part E. Curriculum and Instruction "What are the district's plans to use digital connectivity and technology to improve teaching and learning?)

The District plans to use digital connectivity and technology to improve teaching and learning by embracing a mobility strategy that aligns with the current way of accessing information and interacting in a global digital society. This will incorporate a 1 to 1 strategy that will ultimately place a mobile computing device in the hands of each child starting in grade 3. Implementation of a District-wide 1 to 1 strategy and implementation of new innovative technology will necessitate the need for a robust, dependable and reliable wired and wireless infrastructure. In addition, the District should address internet access needs for students outside of the school local area WiFi network through after-school use of school computer labs in addition to leveraging other possible options including cellular networks and community WiFi.

The District is committed to support anywhere, anytime access to digital resources by students and teachers. Supports will be put in place for students, teachers, and administrators to get greater access to resources when they are not in school. In addition, as the district moves in the direction of mobile applications, the BPS Data Center will be expanded to ensure students and teachers have access to their files and instructional resources from any device or location at any time. Furthermore, a collaborative model will engage educators across district schools to cooperatively analyze and align BPS curriculum with the CCLS and technology competencies overlap. Many of the CCLS include specific technology components that align directly with the NETS-S. Support is needed for teachers' efforts to see and understand how to incorporate the technology components into daily content delivery and formative assessment.

In support of the greater use of technology as part of daily instruction, the District will completely refresh its inventory of network switches to support new technologies and the greater demands a 1 to 1 deployment has on a district's network infrastructure. Switch upgrades will support Power Over Ethernet (POE) and have been properly sized in each IDF to accommodate not only necessary Ethernet ports, but to accommodate all the need for POE devices, ie: Wireless Access Points, interactive displays, VoIP phones, security cameras, etc.

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5. If the district wishes to have students and staff access the Internet from wireless devices within the school building, or in close proximity to it, it must first ensure that it has a robust Wi-Fi network in place that has sufficient bandwidth to meet user demand.

Please describe how you have quantified this demand and how you plan to meet this demand.

Buffalo Public Schools has just completed an upgrade of its wireless infrastructure with the installation of an additional 1020 Aruba AC Wireless Access Points. These faster WAPS in all instructional areas capable of providing connectivity for each student, teacher, and administrator to use a mobile computing device. A total of 3670 AC Wireless Access Points are now capable of leveraging new, faster AC wireless technology. The District's new wireless infrastructure will be able to provide ubiquitous wireless coverage in buildings and sufficient wireless bandwidth capacity per access point in classrooms to allow for 1 to 1 device implementations.
The District wants to ensure that all students and staff 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 dedicated WAP capable of supporting 40-50 students simultaneously and larger spaces will be outfitted with multiple WAPS.
In addition, the District is refreshing its inventory of network switches to support greater connectivity, both wired and wireless. Through the upgrading of network switches, buildings will have full network connectivity with room for expansion.
Lastly, the District's fiber network is currently a 10GB ring connecting all buildings. To support increased connectivity, capacity is being upgraded to a 40GB connection.

6. As indicated on Page 5 of the guidance, the Office of Facilities Planning will have to conduct a preliminary review of all capital projects, including connectivity projects.
Please indicate on a separate row each project number given to you by the Office of Facilities Planning.

Project Number
14-06-00-01-7-999-BA1

7. Certain high-tech security and connectivity infrastructure projects may be eligible for an expedited review process as determined by the Office of Facilities Planning.

Was your project deemed eligible for streamlined review?

Yes

7a. Districts that choose the Streamlined Review Process will be required to certify that they have reviewed all installations with their licensed architect or engineer of record and provide that person's name and license number. The licensed professional must review the products and proposed method of installation prior to implementation and review the work during and after completion in order to affirm that the work was code-compliant, if requested.

☑ I certify that I have reviewed all installations with a licensed architect or engineer of record.

8. Include the name and license number of the architect or engineer of record.

Name	License Number
Joseph Giusiana	59122

9. If you are submitting an allocation for School Connectivity complete this table.
Note that the calculated Total at the bottom of the table must equal the Total allocation for this category that you entered in the SSIP Overview overall budget.

	Sub-Allocation
Network/Access Costs	4,106,808

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	Sub-Allocation
Outside Plant Costs	(No Response)
School Internal Connections and Components	3,028,924
Professional Services	(No Response)
Testing	(No Response)
Other Upfront Costs	(No Response)
Other Costs	(No Response)
Totals:	**7,135,732**

10. Please detail the type, quantity, per unit cost and total cost of the eligible items under each sub-category. This is especially important for any expenditures listed under the "Other" category. All expenditures must be eligible for tax-exempt financing to be reimbursed through the SSBA. Sufficient detail must be provided so that we can verify this is the case. If you have any questions, please contact us directly through smartschools@nysed.gov.
NOTE: Wireless Access Points should be included in this category, not under Classroom Educational Technology, except those that will be loaned/purchased for nonpublic schools.
Add rows under each sub-category for additional items, as needed.

Select the allowable expenditure type. Repeat to add another item under each type.	Item to be purchased	Quantity	Cost per Item	Total Cost
Network/Access Costs	HPE 5 Year Foundation Care Next Business Day Exchange 5940 48p 10G/6p 100G 2 F PS Service (H6AZ8E)	14	3,986	55,804
Network/Access Costs	HPE FlexNetwork 5940 48p 10GbE SFP/SFP+ and 6p 40/100GbE QSFP28 with 2 Fans 2 PS Switch Bundle (JH684A)	14	5,870	82,180
Network/Access Costs	HPE X140 40G QSFP+ LC ER4 40km SM Transceiver (JL306A)	14	1,810	25,340
Network/Access Costs	HPE X132 10G SFP+ LC LR Transceiver (J9151A)	128	48	6,144
Network/Access Costs	HPE X132 10G SFP+ LC LRM Transceiver (J9152A)	1,060	43	45,580
Connections/Components	HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)	136	36	4,896
Connections/Components	HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)	42	50	2,100
Connections/Components	Aruba 3800/3810M 0.5m Stacking Cable	1,253	63	78,939
(No Response)	(No Response)	(No Response)	(No Response)	(No Response)
(No Response)	(No Response)	(No Response)	(No Response)	(No Response)

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Select the allowable expenditure type. Repeat to add another item under each type.	Item to be purchased	Quantity	Cost per Item	Total Cost
(No Response)	(No Response)	(No Response)	(No Response)	(No Response)
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