



E-Rate Deployed Ubiquitously (EDU)

2011 Pilot Program APPLICATION

WC Docket No. 10-222

Submitted by:
Neil J. Schroeder, Directory of Technology
Sioux City Community School District
627 4th St.
Sioux City, IA 51104
712-279-6678
schroen@siouxcityschools.org

16 December 2010

1. DESCRIPTION OF APPLICANT WIRELESS PROGRAM.....	3
2. POVERTY LEVEL.....	7
3. FINANCIAL NEED.....	7
4. COSTS	8
5. SCHOOL RESOURCES	9
6. EDU2011 EFFECTS	9
7. COST EFFECTIVENESS ANALYSIS.....	9
8. PLANNING DOCUMENTS	9
9. CIPA / FRAUD, WASTE, AND ABUSE.....	10
10. POLICIES AND PROCEDURES.....	10
11. REQUIRED SCHOOL INFORMATION.....	11
LOCATION	11
BUILDING INFORMATION	11
DESCRIPTION	11
CURRICULUM OBJECTIVES	12
SUMMARY OF DATA	12

1. Description of Applicant Wireless Program

- a. The Sioux City Community School District (SCCSD) continually strives to better serve its students. It seeks to dramatically raise student achievement in all sub groups across all schools as well as preparing district students to be productive 21st century citizens. The district considers technology an integral piece in helping realize its vision. Based on national research and initial district pilot efforts we know that the providing netbooks or laptops with wireless access on a one to one basis can help accomplish the following objectives with our students:

Objective	Measure
Improve attendance	Average Daily Attendance (ADA) as defined by the state of Iowa
Decrease discipline incidents	Total # of all discipline infractions
Increase student engagement	Results of Area Education Agency student engagement classroom survey
Improve quality of classroom work as measured in grades	Aggregate classroom grades compared pre and post fielding district wide
Improve standardized test scores	Iowa Test of Educational Development standard score for all subject areas
Improve planned college attendance rates	Guidance Counselor administered survey
Teach and improve 21 st century skills (technology, collaboration, critical thinking, etc. as outlined in National Education Technology Standards)	Score on district technology test (aligned with NETS).

In order to accomplish its objectives the wireless program augments district efforts in district-wide implementation of research based strategies including differentiated instruction, formative assessment, and 21st century skills. The district wireless program has evolved from a small pilot to focus on providing all 10-12 grade students across three high schools a netbook with 3G wireless connectivity.

In order to better differentiate instruction for the wide variety of learners and learning styles the district has developed blended instructional courses in our Pinnacle learning management system with both in class and online instructional components. This strategy allows the district to extend the time and place of the classroom to virtually anytime, anywhere when coupled with the district off site wireless access program. Additionally teachers have created content such as audio, videos, blogs, wikis, and other Web 2.0 technologies that help engage students that are not as readily available without the wireless program. The use of netbooks with wireless access helps teachers target

multiple learning modalities, offering more students a chance to learn through a method they are comfortable with. The richness and reach of the blended curriculum and anytime, anywhere access allow students to move at different paces through lessons without leaving anyone behind or bored in class. It is therefore very important that students also be able to access content and participate while off site, a key function enabled by the 3G wireless connectivity.

Through the use of netbooks with web cameras and wireless connectivity the district has even been able to give several home bound students a “full” classroom experience with live video of the class and the ability to interact with the instructor and other students. See this link for a story about one of our high school students, <http://www.ktiv.com/Global/story.asp?S=12008256> .

The district wireless program also allows for greatly expanded formative assessment opportunities. When used with the blended online curriculum in the district learning management system allows teachers to more easily and frequently assess every student’s individual progress. This is done through short online assessments, taken on the student netbook, that are able to be administered and scored with virtually no teacher intervention. Teachers, building administrators, and central office personnel then have ready access to a full suite of data and item analysis to better understand in detail which topics students have learned and which they still need to work with. Prior district efforts have been met with limited success because there were not always enough computers for students to take assessments and the short amount of time necessary made trips to labs inefficient. Additionally paper based tests for formative assessment increase a teacher’s workload too significantly and ultimately fail.

The district wireless program also very directly supports efforts to develop 21st century skills in our students. All district 6-12 students are given an account in the district’s Live@Edu Web 2.0 collaboration suite that includes email, online Microsoft Office, cloud storage, chat functionality, wiki/blog development, along with other features. This web based suite of applications when coupled with the wireless connectivity allows for acquisition and practice of technology based skills and also provides for unparalleled student collaboration. Students can interact with each other in rich ways and participate in student centered group projects off site using their wireless connectivity. The wireless connectivity will also provide students with the limitless capabilities of the internet to obtain information. This radically changes the depth and breadth of classroom engagements requiring more critical thinking skills than rote memorization.

These collaboration tools and wireless connectivity allow teachers to engage and support students in new ways. The teachers in the pilot effort have made out of school office hours where students can virtually chat and see help or clarification on problems. This has proved very valuable to many of the pilot students, and the teachers have embraced the concept.

This district wireless program is the key pillar moving forward in the district efforts towards more student centered classrooms and eliminating the one size fits all industrial model of education the nation has used for the last century.

- b. The district has been operating its wireless netbook pilot program since August of 2009. Netbook vendors in use include Dell, HP, and Asus. Over this time the district has used several netbook models to test reliability, durability, and feature differences while in operation. For the 2010-2011 school year the district has 150 devices fielded. 90 are in use by 9th graders and 30 are in use by 10th graders who also used as 9th graders and 30 are in use by 12 graders. Off-site connectivity is provided through Verizon Wireless 3G internet connectivity built in to the netbook device for one section of students. In the spring of 2009 the district also completed a full high density build out of 802.11n wireless access points in each high school in preparation for one to one access on site.
- c. In the first pilot group the district discovered that 50% of students did not have internet access available at their home. This made the implementation of the entire program exceedingly difficult. This led to a large survey effort that discovered district wide 45% of students did not have high speed internet at home. The district worked with students and their families to highlight free off campus Wi-Fi access but this was an imperfect solution. In the second pilot year we partnered with Verizon Wireless to provide netbooks with built in “3G” access to help alleviate this technical shortfall. The EDU2011 program can help the district alleviate this technical shortfall across the district.

Another issue is supporting break/fix operations for a large number of student’s workstations that demand quick turnaround. With such tight integration into classroom curriculum it is not acceptable to have the device inoperable for even a single class period. We have addressed this through the creation of a student help desk located in each of our high school media centers. These locations have both loaner devices to keep students functional and basic troubleshooting and reimaging capabilities to fix devices and put back in students hands quickly. The student help desk provides interested students an opportunity to practice their skills and the district is currently developing a for-credit option so that those who would work the student help desk can receive a tangible benefit.

Additionally during the pilot period there have been issues with students not properly charging batteries leaving a device unusable when needed. The district has purchased quick charge battery stations that charge multiple batteries at the same time. These work with purchased spare batteries to offer a quick swap capability to ensure students have power when needed.

- d. The district believes that training/professional development for teachers and students is absolutely critical to both short term implementation success and long term attainment of positive outcomes from the program. In that end the district has aggressively built training and professional development specifically supporting these technology related

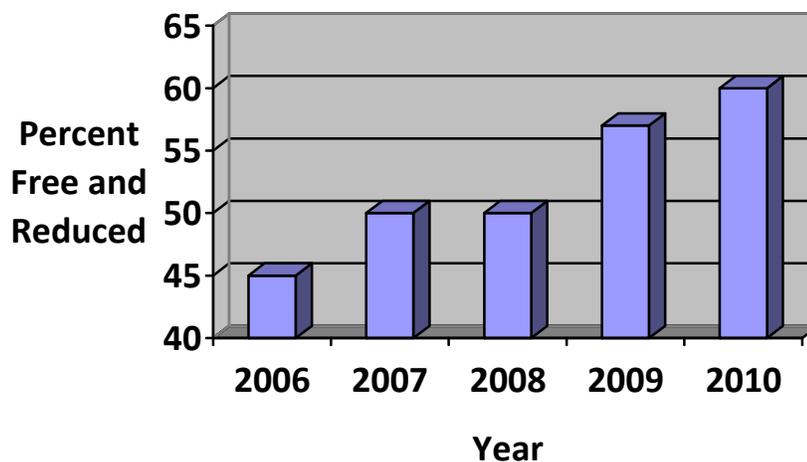
efforts across the district. Professional development for teachers and students participating in this program is offered both up front and ongoing as outlined below.

- a. Summer Bootcamp. All teachers that participate in the districts wireless program and other technology rollouts are brought in during the summer for an intensive “bootcamp” training session. These are typically 8 hour days with preparation in advance. Two days are built specifically for the differences, challenges and expectations of classes with students having wireless access devices at all times.
 - b. Annual technology professional development day. In the fall of each year all teachers across the district collaborate in a large scale day long guided professional development session. This day is built much like an industry conference and teachers have opportunities to attend sessions to learn new ways to integrate technology into their teaching as well as collaborate with their peers.
 - c. Weekly professional develop sessions. The district has dedicated professional every Monday afternoon. The technology department provides 5 minute how-to tip videos that are used to keep the entire staff up to date on technology use in the classroom including the use of netbooks and laptops for student work.
 - d. Instruction on online teaching and course management. As part of a larger state wide grant, all district secondary teachers participating in the wireless access program receive 30 hours of instruction delivered online over three months. This course teaches pedagogically sound strategies for instruction in blended learning environments.
 - e. Technology Coaches. In 2009 the district hired two full time “technology integration” coaches whose focus is aiding teachers in all facets of technology integration into daily classroom curriculum. The coaches conduct dedicated training, co teach with teachers, maintain website, blog, and social media for teachers, and a variety of other modalities to ensure teachers are fully trained on how to use the technology in their classrooms. Their presence provides continuous and tailored opportunities for in depth professional development year round.
 - f. Media Specialists. The lead certified media specialist in high schools provides initial and ongoing training to students on basics of using the wireless connectivity and device functionality. They also cover acceptable use and wide variety of other topics to help students make the best use of the devices they are issued.
 - g. In 2009 the district also decided to prepare for an eventual 1:1 environment by creating a 100% mandatory course of instruction in technology over three years in middle school for students. All students receive the skills necessary to fully use the wireless access devices as outlined in this plan. Students are given training in topics from technical use to web safety and cyberbullying.
- e. The ongoing pilot nature of the program and limited funding available to date have precluded a larger scale implementation with other entities. The district has participated in several citywide and regional broadband stimulus applications that ultimately proved unsuccessful.

2. Poverty Level

The poverty level of the district has been steadily increasing over the last several years increasing 33% from fall of 2006 to fall of 2010 (see chart). The district now stands at approximately **60% free and reduced population, its highest total ever**. The district-wide discount rate for the E-Rate program will stand at **75%** this year.

District Free and Reduced Percentage



3. Financial Need

The Sioux City Community School District has faced extraordinarily austere budget conditions over the last two fiscal years and will likely to continue to do so for the next several years. In this period the portion of the district's general fund that supports technology has been slashed over 50%. At this point most technology funding is dedicated to must pay obligations and the district wireless initiative for students can only be carried on in an extremely limited capacity if at all. Recent large scale layoffs at community employers will drive even greater needs and further challenge the district's budget. If access funding is approved through the EDU2011 effort our wireless access program for students will likely be able to commit the full district portion of funds.

4. Costs

Costs for access/connection charges and devices were determined as the result of a competitive board approved bidding process that fulfilled state and local requirements. All costs necessary for this program are highlighted in the table below. The first table shows costs to date while the second represent total costs of the program for the first year of the EDU2011 program. Subsequent years will see changes in training and hardware costs but access costs will remain fixed.

SIOUX CITY SCHOOLS 2009-2011 PILOT COSTS

Item	E-Rate Costs (75% discount rate)	District Costs	TOTAL
Access – Verizon Wireless - \$42.99 per month per student	\$0	30 students x \$42.99 x 12 x = \$15,480	\$15,480
Laptops	\$0	\$54,000	\$54,000
Software - (Windows, Anti Virus, Filtering, Management)	\$0	\$5,000	\$5,000
Damaged Hardware (industry standard @ 2.5% of devices)	\$0	\$800	\$800
Battery Replacement	\$0	\$300	\$300
Teacher Training	\$0	\$110 per day * 5 days * 10 teachers = \$5,500	\$5,500
Student / Parent Training	\$0	No direct costs	\$0
On campus 802.11n high density wireless network		\$74,450	\$74,450
TOTAL Year One Costs	\$0	\$155,530	\$155,530

SIOUX CITY SCHOOLS YEAR ONE EDU2011 COSTS 2011-2012

Item	E-Rate Costs (75% discount rate)	District Costs	TOTAL
Access – Verizon Wireless - \$42.99 per month per student	3000 students x \$42.99 x 12 x .75 = \$1,160,730	3000 students x \$42.99 x 12 x .25 = \$386,910	\$1,547,640
Laptops – Included at no cost as part of bid for large scale	\$0	\$0	\$0
Software - (Windows, Anti Virus, Filtering, Management)	\$0	\$60,000	\$60,000
Damaged Hardware (industry standard @ 2.5% of devices)		\$37,500	\$37,500
Battery Replacement		\$5,000	\$5,000
Teacher Training		\$110 per day * 2 days * 250 teachers = \$55,000	\$55,000

Student / Parent Training		No direct costs	\$0
TOTAL Year One Costs	\$1,160,730	\$544,410	\$1,706,140

5. School Resources

If funded for access through the EDU2011 program, the district will pay the remainder of costs, as outlined above. The district will use general fund technology budgets and professional development budgets to cover the \$544,410 remaining for the coming fiscal year. Even in tight budget times a large portion of the funds will be made available but not having to “refresh” and license as many computers in each of our high schools. There will still be labs for 9th grade use but the total number will be substantially decreased.

6. EDU2011 Effects

EDU2011 support virtually assures long term implementation viability of the schools wireless access program. The lack of this funding makes it extraordinarily difficult to scale this project especially in a district of any size. Larger districts with high free and reduced counts and lower tax bases will lag behind other districts with greater means. Without funding support 21st century learning stops at the doors of the school since 45% of students do not have high speed access at home. This is particularly an issue for our growing Spanish speaking population where the numbers are 65% without access. These students will have a sub optimal experience in the district curriculum and will likely lag their peers for years to come in the 21st century workplace.

7. Cost Effectiveness Analysis

The primary method of determining cost was a district let RFP that was outlined in Section 4. The district has not found a viable technology outside of a netbook/laptop with 3G access that would accomplish the objectives of the program. In order appropriately create content and collaborate the students needed a richer experience than that provided by an e-reader such as the kindle or tablets like the Ipad. Both of these options were explored but detailed costing comparison was skipped when determined they would not fully allow district to accomplish the full range of its objectives in a wireless device program. On the surface both tablets and e-readers were more expensive than any netbook option.

8. Planning Documents

The objectives of the program are:

Objective	Measure
Improve attendance	Average Daily Attendance (ADA) as defined by the state of Iowa
Decrease discipline incidents	Total # of all discipline infractions
Increase Student engagement	Results of Area Education Agency student engagement classroom survey
Improve quality of classroom work as measured in grades	Aggregate classroom grades compared pre and post fielding district wide
Improve standardized test scores	Iowa Test of Educational Development standard score for all subject areas
Improve planned college attendance rates	Guidance Counselor administered survey
Teach and improve 21 st century skills (technology, collaboration, critical thinking)	Score on district technology test.

The district’s comprehensive technology plan is included in Attachment 1.

9. CIPA / Fraud, Waste, and Abuse

In order to ensure CIPA compliance the district maintains a multi-tiered strategy. Each device has a program loaded on it called a guide (from Lightspeed systems) that “phones home” to a central District proxy server regardless of physical location to establish acceptability of a given website. As a result access is filtered and able to be monitored whether the student is off site or on site. Additionally the device has anti-virus and anti-malware software loaded to protect from malicious or inappropriate content. Further all email in the Live@Edu system is rigorously filtered with Microsoft’s Forefront products before ever being delivered to a mailbox. The email system also filters and rejects messages send or received based on a “dirty word” list and alerts administrators if those words appear. Also the District uses a centralized management and reporting suite from Adventnet called Desktop Central. This tool provides a wide variety of per device anti abuse controls, reporting, and alerting mechanisms. Through this product the district is able to control all facets of the desktop operations, locking it down to those programs necessary to participate fully in the wireless access program.

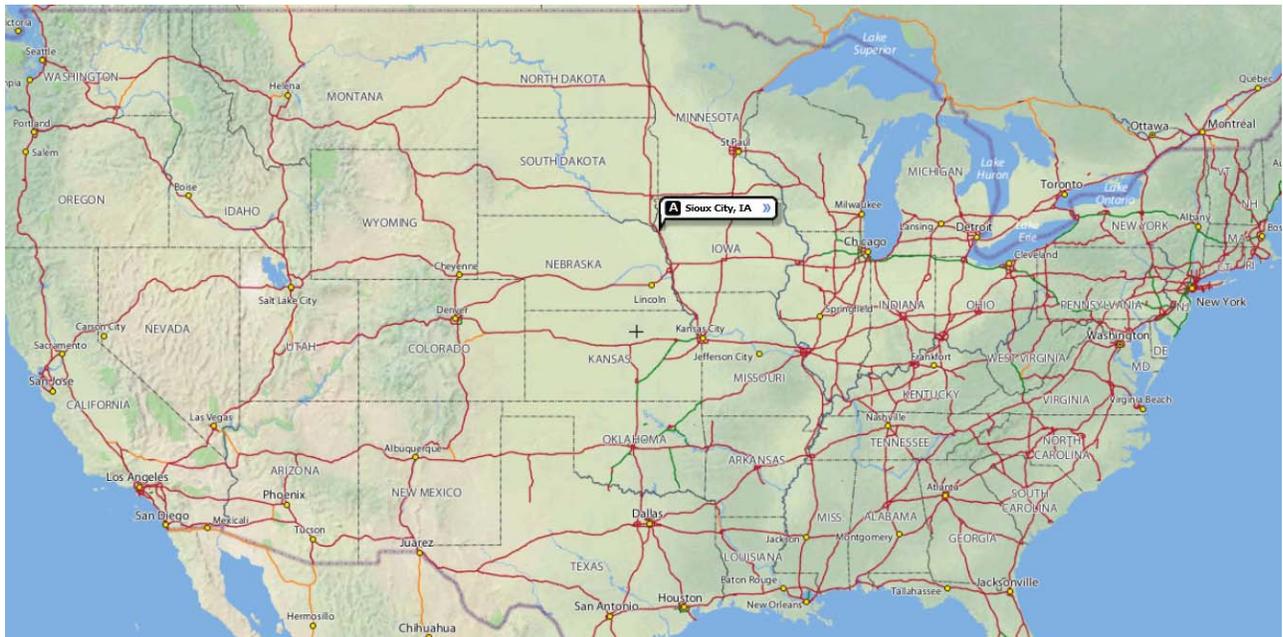
10. Policies and Procedures

Each student and a parent or guardian must sign must sign an acceptable use form after an initial training session (attachment 2). During this training session students are given instruction on acceptable use before they are issued the laptop and internet access. The student acceptable use form is augment by District policy 581.12 that outlines acceptable behavior on District networks (attachment 3). District IT personnel use standard enforcement procedures including use of all tools in section 9 above. These tools proactively provide automated reports on abuse and also allow IT personnel to efficiently and randomly audit device and internet use to ensure complies with acceptable use guidelines and District policy. The district is able to identify all attempts at abuse from prohibited software loading, inappropriate website, and even “dirty words” or inappropriate search items.

11. REQUIRED School Information

Location

The Sioux City Community School district is located in Sioux City, Iowa. The city lies on the Missouri river in Woodbury County Iowa at the intersection of Iowa, South Dakota, and Nebraska (see attached graphic).



Building information

The school applicant for the EDU2011 program is the Sioux City Community School District. Individually this program will serve East High School, West High School, and North High School. The billed entity numbers are as follows:

SCHOOL	Billed Entity Number (BEN)
Sioux City Community School District	132300
East High School	59519
North High School	59499
West High School	59483

Description

The Sioux City Community School District is the fourth largest public school district in the state of Iowa. Based on latest school year data some facts about the district include:

- Total enrollment is 13,872 students

- The district has a diverse student body that is 57% white, 27% Hispanic, 5% African American, 4% Native American, 4% Asian, and 3% other
- Special education services are delivered to 13% of the district's students
- 20% of the total student body are English Language Learners
- The average mobility for the district is 22%
- A survey in late 2009 reveal that nearly 45% of the district's student DO NOT have access to high speed internet connectivity in the home

Curriculum objectives

The districts program for wireless internet access has evolved from a pilot effort with 30 9th graders to over 120 students including 10th grade. The next step in the program involves all students in grades 10-12 at all three of the district's high schools receiving netbooks with 3G wireless connectivity built in. This impacts approximately 3,000 students. The program also directly impacts 250 district teachers across all teaching disciplines. Due to new district initiatives to address 9th grade transition difficulties and feedback from 9th grade pilot participants the district has chosen to not include 9th grade students in this program for the time being. This decision will be revisited over the next three years as both the wireless program mature and the other 9th grade initiatives.

The ultimate objective of the district's program is to help raise student achievement and prepare our students to be productive 21st century citizens. Specific curriculum objectives of this program are to support implementation of differentiated instruction, formative assessment, and the use of 21st century skills.

Summary of data

It is important to note that students in district wireless pilot program are randomly selected and as such are a representative sample of the larger student body. All data is current through the first quarter of the 2010-11 school year. Not all measurements have been taken at this point.

Objective	Measure
Improve attendance	Average Daily Attendance 5% higher in wireless pilot classrooms
Decrease discipline incidents	26.7% less discipline incidents in wireless pilot classrooms
Increase Student engagement	Baseline data collected, follow up not complete
Improve quality of classroom work as measured in grades	Aggregate end of quarter grades average 8.5% higher in wireless pilot classrooms.
Improve standardized test scores	Test will be administered in spring to obtain data
Improve planned college attendance rates	Survey not administered yet
Teach and improve 21 st century skills (technology, collaboration, critical thinking)	Test not yet administered