Katy Independent School District Mobile Learning Program
ERate Deployed Ubiquitously 2011 (EDU2011) Pilot Program
WC Docket No. 10-222

Executive Summary

Katy Independent School District (KISD) is a high-performing[1], large suburban school district located west of Houston, Texas. Currently, KISD provides mobile learning devices and ubiquitous Internet access to 1500 5th grade students in 11 campuses as part of a comprehensive 21st Century learning program. This request is for full funding of this current wireless Internet access project and to expand this project to all 5th grade students and teachers within the district. The funding request of the EDU2011 portion of the project is for $ 839,509 out of the total project cost of $ 2,339,061. KISD has been a leader and direct mentor to Houston area school districts and districts within Texas in developing a mobile learning program[2].

Project Background

KISD Information Technology (IT) division provides an enterprise level technology service to all departments within the district with service level agreements and support. Katy ISD users are confident that technology will be available and functional whenever they need it, just as they expect to have lights when they flip a switch. During the 2009-2010 school year, the instructional functions of technology were moved into the IT department with the expectation of comparable high quality service. The new vision for Instructional Technology focuses on the digital learner; and the culture within the district had to change to embrace a new way of teaching and learning. Katy ISD had to make a systemic change in the approach to teaching, how curriculum is written, and the tools being used to deliver instruction. They also needed to change when and how the digital learner receives instruction. Mobile learning and mobile devices are an integral part of this change.

Building a 21 Century Learning Environment with Transparent Use of Technology

Through a project design process and using research and data garnered through other programs, KISD developed the Mobile Learning Program to facilitate changing to a 21st Century Learning Environment.KISD provided the support and resources for the change process to ensure broad-based acceptance, and long-term cultural change for all stakeholders within the district. To invoke this change, the 5th grade level was selected as the injection point for implementing technology empowered learning into the district.

Project Challenge and Change: The Growing Socioeconomic Gap in KISD

During program development of the Mobile Learning Program, a gap between student socioeconomic subgroups was identified. Katy ISD is a fast-growing school district that encompasses 181 square miles in Harris, Fort Bend, and Waller Counties. A major change that came with the growth of KISD was the change in the socioeconomic status of the families in North Katy. In 2004, KISD had only two (2) campuses with eRate discounts of 80% and the remainders of the campuses were at a blended discount rate of 44%. Today, KISD has one (1) campus with 90% eRate discount, fourteen (14) campuses with an eRate discount of 80% and the remainder at 40%. The Mobile Learning Program provides an effective solution to support the students of lower socioeconomic status within Katy ISD to ensure they are as equally connected to valuable resources for learning as their peers.

The Mobile Learning Program of KISD provides a pathway to 21st century learning in the classroom and at home for students. In addition, the program provides a method to narrow the digital gap between student subgroups. Through the EDU2011 funding, KISD will continue and expand this successful program and provide the foundation for ubiquitous access to technology for all KISD students.

[1] See Page 20 for Campus Rating Report

[2] Katy IT has been asked to present, participate on panels or share experiences in the following: Virtual FETC, COSN, Pasadena ISD, Temple ISD, Abilene ISD

(1) a full description of the current or planned Applicant Wireless Program, including but not limited to: a. the nature of the Applicant Wireless Program, including the extent to which the use of connectivity is interactive and utilizes the Internet.

In 2009, the Information Technology and newly formed Instructional Technology team in conjunction with a broad-based planning committee developed the Mobile Learning Program for KISD. The 5th grade level was selected as the injection point for implementing technology empowered learning into the district. The 5th grade level was seen as a pivotal point for students who are moving from more teacher-directed learning to self-directed learning. Research supports a shift in the way teachers teach and students learn. No more can the teacher be the sole source of information. Teachers and students would be assigned a mobile learning device and provided anytime/anywhere access to the Internet.[3] They are given the devices, training, resources and support to utilize the tool as an integral part of the daily learning process. Guidance and training is provided not just for classroom but also for home use. Students and parents are taught acceptable use of Internet access and responsible use of the device. They are also taught how to access the district WiFi network with their devices when on campus and how to use the mobile wireless network at home. As the students progress to the secondary level, they are allowed and encouraged to use their personal devices. The practices and processes they learned during the Mobile Learning Program in fifth grade will give the students the foundation for working responsibly in a digital world. KISD believes the Mobile Learning Program provides the most effective method for invoking sustainable change to using technology "like a pencil."

KISD selected Cimarron Elementary as a pilot campus to implement and formalize the program in 2009. The pilot project included approximately 140 fifth grade students and 10 teachers. In the pilot project, KISD used a classroom management system called GoKnow. This classroom management system allowed teachers to create and upload assignments and activities to a server where students then could log in and sync their device to receive the teacher's assignment to complete. When the student finished the assignment, they would then "turn it in" by syncing to the device. The GoKnow application provided a springboard and foundation for the instructional team to develop a more robust suite of tools utilizing Web 2.0. It is important to note that the Web 2.0 tools are not limited to the Mobile Learning Program, but are available district-wide. The pilot achieved incredible success, accomplishing the goals and expectations of the Mobile Learning Program. (See Section 5 for pilot project successful objective data.)

In 2010, the Mobile Learning Program was extended to ten additional elementary campuses for a total of 1500 devices. Nine of the campuses are bilingual. For the current 2010 project and the proposed EDU2011 Mobile Learning Program, the Web 2.0 Toolkit[4] will be used. It provides a vast array of Internet based resources including, but not limited to:

- Streaming Video
- Blogs
- Classroom response
- Podcasting
- Online quizzes
- Animation and Simulation
- QR Coding
- Wikis
- Online graphing and poster creation
- Video casting
- Vodcasting
- Online surveys
- Calendaring
- ESOL audio enhancements

[3] Personal devices will be provided by the student or provided through the Student Access Project as needed based on low income or other identified factors.

[4] The Instructional Technology division created a "Web 2.0 Toolbox" which consists of Web 2.0 tools that had been evaluated and approved. These "tools" are available to all students and staff within the district. As new web-based tools are evaluated, they are added to the "toolbox." Just as the Internet is constantly evolving, so is the Web 2.0 Toolbox.

- Research tools
- Scientific measurement tools

With EDU2011 and eRate funding support for anytime/anywhere Internet access, the Mobile Learning Program will expand to teach students to use the devices at home with the Web 2.0 Toolkit. By enabling usage at home:

- Teachers can assign work that requires Internet access.
- Teachers can create online virtual "study rooms" that provide students the ability to get additional help and tutoring after hours.
- Teachers can create podcasts of entire lessons and post them to the website. These lessons will be available for students to review or to receive first time teaching if they were not able to attend class on a particular day.
- Teachers can utilize the recording feature to record explanations of complex concepts that need additional clarification for use by students and/or parents from home. They may also use the recording feature to check for understanding by having students record explanations of concepts. These tools will help to provide interactive, real-time content for students.
- Collaboration with fellow students on projects will be encouraged using the Mobile Learning Program.

The Mobile Learning Program has three main strategies: 1) training teachers, students and parents; 2) transparent and increased technology usage in the classroom through curriculum integration, (See the curricular goals in section 7.0) and 3) encouraging anytime/anywhere learning with technology. Katy ISD has dedicated three Technology Integration Specialists to support the Mobile Learning Project. These Integration Specialists develop and provide training for the program and continue to expand the Web 2.0 Toolkit and provide training on the Web 2.0 applications.[5] Research states that the key to deeper understanding is for learners to have a high level of engagement with the content, opportunities to explore in a safe and supportive environment, permission to make choices, autonomy, and time to reflect and make connections. Educators need to create these multi-dimensional learning spaces that allow students to understand and develop skills that will enable them to become responsible for the demands that are placed on them. The Mobile Learning Device program is the key to fostering this learning environment and then extending it from the classroom to the home.

b. how long the Applicant Wireless Program has been in operation and the mobile wireless device(s) being used,

The Katy ISD Mobile Learning Project began in the 2008/2009 school year with planning and development.

In the Fall of 2009, The Mobile Learning Program pilot project was started with approximately 140 student devices and 10 teacher devices. The mobile learning devices allowed students to access the Internet and utilize a few applications that were available to download from the Verizon Mobile Store. The 2009 Pilot devices were:

- Audiovox 6800 Smart Phones with data only, no text or no voice.
- GoKnow Management Software, Student Tools and Staff Development
- Windows Mobile 6.1.

[5] Curriculum Specialists and lead teachers from across the district worked closely with Integration Specialists from the Instructional Technology group. Integration Specialists met with this group of educators to identify curricular areas of need, and then modeled instruction using a variety of the selected tools in our Web. 2.0 toolkit. Integration Specialists continue to offer teachers web tools as solutions for wide variety of curricular needs.

In the Fall of 2010 the Mobile Learning Program was expanded to include 10 low income campuses, 9 of which are bilingual, and 1500 devices for 5th grade students and teachers. The 2010 devices are:

- HTC Droid Incredible Smart Phone with data only, no text and no voice
- Android operating system version 2.2 (froyo), Flash Functionality

This HTC Droid provides significant benefits over the Windows Mobile Smartphone used in the 2009 pilot. The new device and operating system allows students access to much more content. The devices also allow teachers to have access to the Android Marketplace which they use to download applications for the students to use in the classroom and at home.

It is important to this program that the device is mobile, durable and easy to use. As additional devices become available, KISD will continue to utilize the most capable device at the best cost for the Mobile Learning Program.

c. a description of any technical issues associated with implementing the Applicant Wireless Program, including an analysis of any problems with the availability of wireless access to students or patrons off the school or library premises and how those issues are being or will be addressed by the school or library,

The following technical issues and solutions were identified in the design and pilot phase of the project:

- All mobile learning devices (MLD) are required to have Internet access that is filtered for CIPA compliance regardless of the device accessing the Internet from a KISD facility or carrier network.
- The MLDs were treated as non-trusted devices because of limited management capabilities. As a result, they were separated off of the KISD internal network.
- Mobile wireless network coverage and capacity by the provider was limited within the campus.
- Availability of a dedicated WIFI network at the schools to be used the MLDs was required.
- The ability to monitor and report usage was needed.
- Adequate Internet bandwidth for the Wi-Fi and carrier networks to support the mobile learning devices.
- Provide devices with adequate power, durability and functionality.
- Support and service the devices.

Katy ISD implemented a solution that addressed all of these concerns. The campus Wi-Fi networks use Cisco's controller based Light Weight Access Points. Additional Access points were added to the selected schools to provide the increased capacity and coverage requirements of the MLD project. A unique SSID was created for use by the MLDs. A Cisco 4402 controller was added to access a public DMZ. Adding this controller allows us to tunnel traffic from our internal controllers based on the MLD SSID to this DMZ, keeping all access external from our private KISD network. A VPN tunnel was established from Verizon, our MLD service provider, which terminates in the same public access DMZ. All MLDs are setup on the Verizon network to route all traffic over that VPN connection, regardless of where they are trying to connect.

A new CIPA compliant web filter was implemented in the DMZ. This is an in-line filter, so all traffic that flows in and out of the DMZ must run through the CIPA compliant filter managed by KISD. This DMZ is secured by Cisco ASA firewalls that separate these users/devices from the KISD private network as well as the Internet. The filter also provides usage reports.

The service provider's wireless network capacity and the devices are critical components for a successful project. Initially in the pilot project neither the cellular provider's in-building network coverage nor the device fully met the needs and requirements were modified. Through the pilot project, a detailed set of requirements and configurations were defined. KISD issued a Request for Proposal (RFP) in 2009 for the 1500 device project and

a RFP in 2010 for the additional 3000 devices. The competitive bid process provides both the documentation and design specifications from the vendors in order to evaluate the best network, device and cost. Cellular networks and devices change so quickly, the RFP process and the yearly evaluation provide significant benefits to KISD.

The mobile learning project increased the Internet bandwidth capacity needed for KISD. KISD has a gigabit circuit to the Internet and had a burstable Internet service of 140 MB. An additional 60 MB of Internet bandwidth capacity was added for 2010 to support the 1500 devices. In 2011, an additional 100 MB of bandwidth is planned to support the Mobile Learning Program and the Student Access Initiative.

A technical concern for this project was the device deployment and support. Network access 24/7 was also required. KISD addressed this solution on multiple levels. On deployment, the wireless service provider is a critical partner in the provisioning and deployment of the devices. The Integration Specialists provide a level of support in deployment and training. The teachers provide support for the students, and the KISD help desk provides support for teachers, technicians and instructional technology personnel. The KISD technology team supports the network, for MLD access and the Wireless service provider provides support for network access at home.

d. what training has been or will be provided to teachers, librarians, students or parents to implement the Applicant Wireless Program, and

Training is an important aspect for the success of this Mobile Learning Project. During our pilot project, the team was able to define training needs and modalities based on feedback from students, teachers, administrators, and parents. We regard training as a continual process that is customized and changed based on each campuses' particular needs. Knowing that support materials are available and accessible is crucial to developing the positive, forward-thinking culture of this Mobile Learning Community.

We focus on just in time training for each campus and the delivery method is based on each campuses' needs. The Technology Integration Specialists look ahead at the curriculum and find areas of weaknesses based on previous years' test scores. By working together with the classroom teachers to find the best resources to implement, we are able to share them with the entire Mobile Learning Community.

Below are the various modes of training that are continually offered to the Mobile Learning Community throughout the year:

- Professional Learning Community Discussions
- Training Videos
- Student Explore & Peer/ Teacher Train
- Meeting with Curriculum Specialists
- Integration Specialist Support
- Parent Support Meetings
- Webinar Series Synchronous & Asynchronous
- Job-Embedded Professional Development
- Knowledge Base
- Technology Support Center
- Wiki and Blog Informational Site
- Mobile Learning Teachers Connections

Below are the various days and times used to implement the Professional Development:

- Professional Learning Days
- Conference Periods
- Before and After School
- Early Release Days
- Volunteered Time

One important characteristic to note about the Mobile Learning Community was the bond that they formed within their campus and outside their campuses when leveraging the expertise of their colleagues. The content that was delivered to students was much richer based on the need to plan more often together as a team rather than individually.

e. the extent to which the Applicant Wireless Program is integrated with federal, Tribal, state, regional or local governmental or non-profit initiatives to achieve educational or community access outcomes;

The KISD Mobile Learning Program is aligned with and supports the goals and objectives of the programs listed below; however, the Program is not integrated with any other initiatives :

- The National Broadband Plan, Education Section
- The National Education Technology Plan 2010 in all five focus areas: Learning, Assessment, Teaching, Infrastructure and Productivity
- State of Texas Long Range Plan for Technology
- The District Improvement Plan and the District Facility Plan

(2) the poverty level based on the percentage of students eligible for a free or reduced price lunch under the national school lunch program (NSLP) or a federally approved alternative mechanism, and the current discount rate of the school or library;

Primary EDU2011 Request – Continuation of Current 11 Campus Project

Campus	ben	FR	ADA	FRPct	Disc
110 SUNDOWN EL	89456	630	877	71.8%	80.0%
105 ZELMA HUTSELL EL	89603	533	770	69.2%	80.0%
130 MORTON RANCH ELEMENTARY	16047462	302	486	62.1%	80.0%
116 MCROBERTS EL	89454	578	968	59.7%	80.0%
121 JEAN & BETTY SCHMALZ ELEMENTAR	231211	705	1205	58.5%	80.0%
126 FRANZ EL	16021041	550	944	58.3%	80.0%
106 BEAR CREEK EL	88952	446	777	57.4%	80.0%
101 MAURICE L WOLFE ELEMENTARY	88907	249	438	56.8%	80.0%
128 URSULA STEPHENS ELEMENTARY	16041786	460	812	56.7%	80.0%
125 JACK & SHARON RHOADS EL	16021040	463	914	50.7%	80.0%
107 CIMARRON ELEMENTARY	89466	188	732	25.7%	50.0%
Group Totals		5104	8923	57.2%	80.0%

Remaining 5th Grade Elementary Campuses for full Program

Campus	ben	FR	ADA	FRPct	Disc
111 MAYDE CREEK EL	88954	374	774	48.3%	60.0%
113 LORAINE T GOLBOW EL	89457	390	818	47.7%	60.0%
120 ROBERT KING ELEMENTARY	230072	358	814	44.0%	60.0%
104 MEMORIAL PARKWAY EL	89467	298	725	41.1%	60.0%
103 WEST MEMORIAL EL	89463	263	687	38.3%	60.0%
108 DIANE WINBORN EL	89455	280	828	33.8%	50.0%
102 KATY EL	89602	112	603	18.6%	40.0%

115 JEANETTE HAYES EL	89470	133	841	15.8%	40.0%
124 JOELLA EXLEY EL	16021039	131	1111	11.8%	40.0%
114 EDNA MAE FIELDER EL	89610	112	996	11.2%	40.0%
123 ROBERTA WRIGHT RYLANDER EL	16021038	131	1169	11.2%	40.0%
129 WOODCREEK EL	16041787	103	987	10.4%	40.0%
109 NOTTINGHAM COUNTRY EL	89465	59	664	8.9%	40.0%
132 STANLEY C STANLEY EL	16052030	58	833	7.0%	40.0%
119 SUE CREECH ELEMENTARY	230071	59	900	6.6%	40.0%
131 BONNIE HOLLAND ELEMENTARY	16047463	39	886	4.4%	40.0%
112 HAZEL S PATTISON EL	89468	34	808	4.2%	40.0%
117 ROOSEVELT ALEXANDER EL	226302	43	1237	3.5%	40.0%
122 ODESSA KILPATRICK ELEMENTARY	15796712	36	1149	3.1%	40.0%
127 GRIFFIN ELEMENTARY	16034134	27	955	2.8%	40.0%
118 JAMES E WILLIAMS ELEMENTARY	230070	24	977	2.5%	40.0%
Group Totals		3064	18762	16.3%	40.0%

(3) the financial need of the school or library, including any additional budgetary hardships, notwithstanding the school or library's current discount rate;

3.1 In addition to the high Free and Reduced population within the North/Central campuses, there is also a significant gap between the campuses in multiple categories that reflect the budgetary hardships of the North/Central elementary campuses.

GAP ANALYSIS PER ELEMENTARY SORTED BY LOCATION

Percentage of Parent Members of the PTA/PTO
35.30 % Gap

Location	Number of Campuses	Average % of PTO
North	10	17.5%
Central	8	22.4%
South	14	52.8%

Percentage of Parents with Email Addresses for Contact
37% Gap

Location	Number of Campuses	Average % of FR
North	10	32.1%
Central	8	48.0%
South	14	69.1%

Free and Reduced Averages
52.90% Gap

Location	Number of Campuses	Average % of FR
North	10	60.3%
Central	8	37.2%
South	14	7.4%

3.2 In addition to the financial indicators above, based on a report from the FCC on broadband access and adoption at home, [6] demographics also impacts broadband adoption with African-Americans and Hispanics trailing the average in broadband access: 59% of African-Americans have broadband at home, 49 % of Hispanics (English and Spanish speaking) have broadband at home, 67% of adults generally have broadband at home.

	White	Asian	Subtotal	Black	Hispanic	Subtotal
North	25%	5%	30%	14%	56%	70%
Central	50%	4%	54%	12%	33%	45%
South	59%	18%	77%	6%	17%	23%

The North campus demographic ratios between White/Asian:Black/Hispanic of 30%:70% represents a significant dissimilarity to the South campus rations of 77%:23%.

[6] Federal Communications Commission, Broadband Adoption and Use in America, 10B Working Paper Series No. 1.

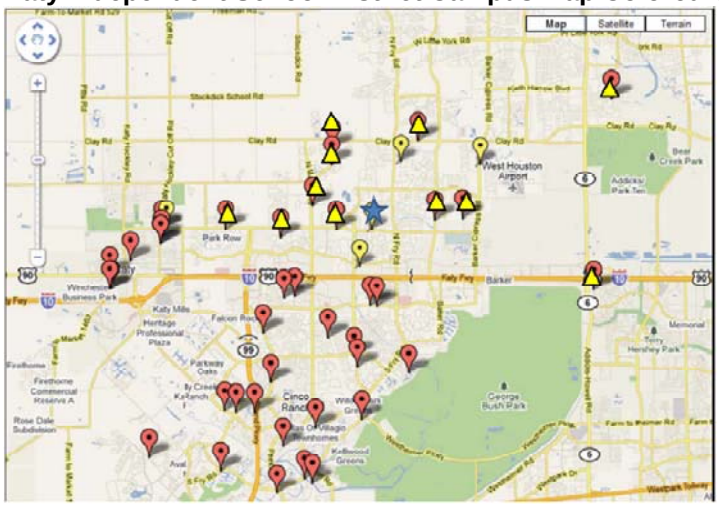
3.3 A major change that came with the growth of KISD was the change in the socioeconomic status of the families in North Katy. In 2004, KISD had only two (2) campuses with eRate discounts of 80% and the remainders of the campuses were at a blended discount rate of 44%. Today, KISD has one (1) campus with 90% eRate discount, fourteen (14) campuses with an eRate discount of 80%, eleven (11) campuses with an eRate discount of 60%, three (3) campuses with a 50% discount rate and the remainder twenty-three (23) campuses at a discount rate of 40%. Table 1.0 detail this information and presents both the decrease in socioeconomic status in families within KISD as reflected by the free and reduced lunch factor in eRate discount calculations and the increase in growth as reflected by the number of campuses added in KISD during the period.

Table 1. Campus Counts by ERate Discount Levels by Year

ERate Discount Levels	2004	2005	2006	2007	2008	2009	2010
90%	0	0	0	0	0	0	1
80%	2	3	4	5	9	15	14
60%	3	8	13	13	10	8	11
50%	11	11	7	6	7	5	3
40%	21	21	20	20	21	23	23
Total Campus per Year	37	43	44	44	47	51	52

In addition, the map below shows the campuses with eRate discount indicators with 2008-2009 data when the project planning began for the Mobile Learning project and a change icon to the current eRate discount percentage. The buttons denote locations of campuses and the colors signify the eRate discount levels – red for 60% of lower, yellow for 80% and blue for 90%. The icons over the button show the current discount levels and denote the change – the yellow triangle from 60% to 80% and the blue star from 80% to 90%. This trend in the socioeconomic status of the families in the north area is projected to continue.

Katy Independent School District Campus Map Colored by ERate Discount Level



KISD began working with the Connected Texas team to understand Broadband availability and adoption for low income areas of the district. The findings within Katy ISD are in line with the findings from the Connected Texas/Nation research and the research from the Federal Communication Committee on barriers to broadband adoption[7] that reports socioeconomic status and demographics are the two largest differentiators between families that have access to high quality Internet at home and those that do not have access.

[7] Federal Communications Commission, Broadband Adoption and Use in America, 10B Working Paper Series No. 1.

(4) all costs, including those eligible for ERate support and those not eligible for ERate support, associated with implementing the Applicant Wireless Program, including but not limited to costs for equipment such as e-readers or laptops, access and connection charges, teacher training, librarian training, or student/parent training

PROJECT COST FOR 2011			
INELIGIBLE COST			
District Applications for all devices	**Unit Cost**	**Quantity**	
Discovery Education	$ 1,153.85	32	$ 36,923.08
Edmodo	$ 500.00	32	$ 16,000.00
Soti- mobi control	$ 100.00	300	$ 30,000.00
Documents To Go	$ 15.00	4816	$ 72,240.00
Quia	$ 33.33	300	$ 9,999.00
Subtotal Yearly License Cost			$ 165,162.08
Salary (3 FTE)	$ 58,000.00	3	$ 174,000.00
Consulting Services	$ 4,800.00	1	$ 4,800.00
Subtotal Labor/Services Cost			$ 178,800.00
Device 2011 -	$ 200.00	3310	$ 662,000.00
1/2 of $150 Activation Credit on the Device	$ (75.00)	3310	$ (248,250.00)
Subtotal Device Cost			$ 413,750.00
ELIGIBLE ERATE SERVICES - Wireless Internet Service			
4500 @ 37.99 per month for 10 months	$ 37.99	4816	$ 1,829,598.40
1/2 of $150 Activiation Credit on Service	$ (75.00)	3310	$ (248,250.00)
Total of Yearly Wireless Internet Service			$ 1,581,348.40
Campus Allocations			
80% Campus Total	$ 37.99	1362	$ 517,423.80
District Portion - 20%			$ 103,484.76
Erate Portion - 80%			$ 413,939.04
40% Campus Total	$ 37.99	3454	$ 1,312,174.60
1/2 of $150 Activation Credit on Service	$ (75.00)	3310	$ (248,250.00)
Total 40% Service Cost			$ 1,063,924.60
District Portion - 60%			$ 638,354.76
Erate Portion - 40%			$ 425,569.84
Total Ineligible Cost			**$ 757,712.08**
Total District Portion of Eligible Cost			**$ 741,839.52**
Total Erate Portion of Eligible Cost			**$ 839,508.88**
Total Project Cost			**$ 2,339,060.48**

(5) the committed school or library resources available to implement the entire Applicant Wireless Program, including whether those funds are from the school or library's general budget or from an outside funding source;

General Funds	$ 1,085,801.60
Bond (Devices)	$ 413,750.00
Total	$ 1, 499,551.60

(6) the effect EDU2011 support for off-premise connectivity is likely to have upon the school's or library's projects;

For KISD, the support for off-premise connectivity to the over-all program is critical. One of the primary goals of the project is to teach students how to effectively use mobile learning devices and the associated resources available to them allowing learning to be continual. Students need the availability of resources for learning "as easily as they use pencil and paper today". Making it transparent to the learners when they access, create and communicate information is paramount to the success of the program. The additional and critical long term strategy for KISD is for students moving into the 6th grade using their own mobile learning devices at school and at home. Without off-premise connectivity, the KISD Mobile Learning Program cannot train and model to the teachers and students the new processes of 24/7 learning.

Equally important to the Mobile Learning Program is to ensure that all 5th graders are learning how to use and access the mobile learning devices, The continual connection when leaving the building allows students the benefits of learning anytime, anywhere. Without off-premise connectivity, the KISD Mobile Learning Program cannot provide or maintain the rich learning environment outside the school's walls. Connectivity is also required for the use of research projects and is invaluable as it allows students to access Katy ISD online Library resources and the Web 2.0 Toolkit. This positively affects students' performance by providing an "even playing field" for student Internet access at home. Off-premise connectivity allows all students the same opportunities to not only complete assignments and projects but to also extend their learning regardless of their family's financial ability to provide Internet access and computer use.

Through full funding support of the Mobile Learning Program with EDU2011, the KISD Mobile Learning Program provides a sustainable, affordable, replicable, successful model to invoke long term change in the learning process and the technical model and processes to support this change to a true 21st Century Learning Environment.

(7) an analysis of the cost-effectiveness of the current or planned Applicant Wireless Program as compared to the use of other types of technology that would also meet the Program's objectives;

As part of the KISD Mobile Learning Program, the Network Services technical team was charged with evaluating the options to provide the mobile learning device (smartphone) and the Internet Access at school and at home for the approximately 4500 5th grade students and teachers with the option to expand to support the secondary students in North Katy. The technical team evaluated six options for KISD:

1. Building a private WiFi network with Tropos equipment or equivalent as was built by Google in Mountain View, California. Tropos, Ruckus, Cisco, Wavion and others equipment manufacturers cost and technical design were evaluated. Even with KISD providing co-location facilities and fiber backhaul for the project, the cost, the support model and the technology solution did not meet the immediate or long term objectives of the project. A service provider did submit a response on the KISD RFP in 2009 and 2010 for the EDU2011 filing, detailing a private WiMax solution.
2. Purchasing the Mobile Learning Device independent of an Internet service was evaluated. KISD evaluated this option in an effort to reduce the monthly reoccurring rate for Internet service. However, removing the hardware from a monthly service contract did not reduce, in any significant manner, the monthly fees, but did increase costs for a device to use the network. The cellular model of subsidizing hardware is advantageous to the district in procuring devices and providing Internet service. This model

lowers cost on both the device and service fees. Therefore, changing the traditional hardware/service model with the cellular model was eliminated.

3. Partnering with the district's fiber provider, KISD evaluated the cost to extend the fiber from the campuses to the students' homes. With equipment, construction and core infrastructure, the fiber to home option would cost the district approximately $4000 per student but did not include the device, support or mobility for the students. This option was eliminated based on cost and not meeting the program objectives. The base cost for North Katy was estimated at $6,000,000 for 1500 students
4. A partnership between the wireless provider and the district to build dedicated capacity in the cellular network was investigated. This is a cost effective and technically superior design at a breakpoint of approximately 7000 devices; however, with the KISD mobile learning program deployment schedule of 4500 devices it did not provide the quantity needed to utilize this option.
5. Standard state contract pricing with activation credits for services and hardware based on quantities was investigated, This is the program KISD used for the 2009 pilot project and 2010 5th grade students and teachers at the 80% campuses.
6. The most cost effective solution is for KISD to commit to a quantity of devices on a multi-year contract. In addition, continuing to use the 3G network and pooling bandwidth usage was determined to be the best method to reduce costs of the program. Multiple existing cellular providers, including Verizon, Sprint and T-Mobile, responded to the current 2010 RFP with cost effective options. The selected vendor from the RFPs will provide the service for the Mobile Learning Project; however, because the board has not yet published the award and this document is public; the detailed cost analysis is not included. This award, following all eRate and district procurement procedures, will be used for the 471 filing of the EDU2011.

A detailed cost analysis, bid tab and criteria matrix can be provided to support these evaluations upon request.

(8) any relevant technology planning documents and, if applicable, a statement of long-term objectives for the Program;

The 2009-2012 Technology Plan defines the new vision for Instructional Technology in KISD that is focused on the digital learner and the culture and infrastructure within the district required to support a new way of teaching and learning. The Mobile Learning Program is the turning point in the district when the students and teachers leave their old ways and enter the 21st Century Learning environment where technology is a transparent and integral part of teaching and learning and is available 24/7 to all students. Providing a program that not only defines the expectation and requirements for change but also provides the change management processes, support, training and resources to enable and sustain the change is what differentiates the KISD Mobile Learning Program. The Mobile Learning Program for the 5th grade students and teachers of KISD and the Student Access Program are foundational infrastructure components of the KISD 2009-2012 Technology Plan.

The KISD 2009-2012 Technology Plan is based was created with input from a technology planning committee, the technology bond committee, as well as the continued review and modification of operational processes and district needs. The goals and objectives identified within the planning process are aligned to the Katy ISD District Improvement Plan, the District facility plan, the Texas Long Range Plan for Technology, the National Education Technology Plan, the No Child Left Behind, and ERate strategies and objectives respectively.

http://www.katyisd.org/technology/Documents/2009-2012ePlan.pdf

(9) a description of the specific measures taken, or that will be taken, to ensure compliance with the Children's Internet Protection Act and measures to protect against waste, fraud, and abuse; and

Katy ISD currently utilizes Cymphonix (Network Composer) for its Secure Web Gateway. Cymphonix is a leader in the market that combines hardware and software into a solution enabling organizations to manage and optimize Internet connectivity while shielding from connection risks. Cymphonix supplies enterprise-class Internet controls that include content filtering, gateway security and application prioritization. All device traffic is filtered through the Cymphonix Secure Web Gateway, including the Mobile Learning Program.

With Network Composer, Katy ISD administrators can easily allocate bandwidth to mission-critical applications and at the same time protect users from inappropriate content and potentially dangerous and malicious Internet sites. Because every organization has different Internet use and business-process constraints, Network Composer is highly customizable, giving organizations the ability to establish refined policies down to the department, group or even individual level for both Web and application traffic. Katy ISD has instituted (3) policies. First, the "Default" policy is given the most restrictive (CIPA compliant) access. This is reserved for all Elementary students and any unauthenticated user (Guest or Public Network). Second, the "Secondary Student" policy allows Katy ISD administrators to give elevated access to certain websites to junior high and high school students that may not be appropriate or do not fall within the district curriculum guidelines for elementary students. The policy also follows all CIPA requirements. The third policy, "Staff", allows for access to websites not designated for student use while adhering CIPA requirements.

Cymphonix has full featured reporting engine and allows delegated administrator functions. It provides the highest degree of visibility and responsiveness to known and emerging threats from a converged Internet connection.

In addition to this advanced technical solution, Responsible Use of the devices and the Internet Service is taught and modeled as a fundamental part of the training to students, teachers and parents.

(10) a description of internal policies and enforcement procedures governing acceptable use of the wireless devices used in the Program off the school or library's premises.

KISD has a Responsible Use Guideline (RUG) that all students must sign to use any technology provided by the district. All 5th grade students involved in the Mobile Learning Program must have a signed RUG on file. In addition, the students and parents are trained in appropriate usage of the MLD and the program continues modeling and teaching appropriate use throughout the year. A link to the complete RUG is included below.

Responsible Use Guidelines:
http://www.katyisd.org/parents/Documents/Forms%20and%20Guidelines/AcceptableUse.pdf
Student Handbook:
http://www.katyisd.org/parents/Documents/890_DMPSCC_2010-2011_Final_Web.pdf

Required Information (schools only). The applications filed by schools also must contain the following information:

(1) the location of the school;

Campus	**Street**	**City**	**State**	**Zip**
110 SUNDOWN EL	20100 SAUMS RD	KATY	TX	77449
105 ZELMA HUTSELL EL	5360 FRANZ RD	KATY	TX	77493
130 MORTON RANCH ELEMENTARY	2502 MASON RD	KATY	TX	77449
116 MCROBERTS EL	3535 N FRY RD	KATY	TX	77449
121 JEAN & BETTY SCHMALZ ELEM	18605 GREEN LAND WAY	HOUSTON	TX	77084
126 FRANZ EL	2751 N WESTGREEN BLVD	KATY	TX	77449
106 BEAR CREEK EL	4815 HICKORY DOWNS DR	HOUSTON	TX	77084
101 MAURICE L WOLFE ELEMENTARY	502 ADDICKS HOWELL RD	HOUSTON	TX	77079
128 URSULA STEPHENS ELEMENTARY	2715 Fry Rd	KATY	TX	77449
125 JACK & SHARON RHOADS EL	19711 CLAY RD	KATY	TX	77449
107 CIMARRON ELEMENTARY	1100 S PEEK RD	KATY	TX	77494

Campus	Street	City	State	Zip
111 MAYDE CREEK EL	2698 GREENHOUSE RD	HOUSTON	TX	77084
113 LORAINE T GOLBOW EL	3535 LAKES OF BRIDGEWATER DR	KATY	TX	77449
120 ROBERT KING ELEMENTARY	1901 CHARLTON HOUSE LN	KATY	TX	77493
104 MEMORIAL PARKWAY EL	21603 PARK TREE LN	KATY	TX	77450
103 WEST MEMORIAL EL	22605 PROVINCIAL BLVD	KATY	TX	77450
108 DIANE WINBORN EL	22555 PRINCE GEORGE	KATY	TX	77449
102 KATY EL	5726 GEORGE BUSH AVE	KATY	TX	77493
115 JEANETTE HAYES EL	21203 PARK TIMBERS	KATY	TX	77450
124 JOELLA EXLEY EL	21800 WESTHEIMER PKWY	KATY	TX	77494
114 EDNA MAE FIELDER EL	2100 GREENWAY VILLAGE DR	KATY	TX	77494
123 ROBERTA WRIGHT RYLANDER EL	24831 WESTHEIMER PKWY	KATY	TX	77494
129 WOODCREEK EL	1155 WoodCreek Bend Ln	KATY	TX	77494
109 NOTTINGHAM COUNTRY EL	20500 KINGSLAND BLVD	KATY	TX	77450
132 STANLEY C STANLEY EL	26633 Cinco Terrace Drive	KATY	TX	77494
119 SUE CREECH ELEMENTARY	5905 S MASON RD	KATY	TX	77450
131 BONNIE HOLLAND ELEMENTARY	23720 SEVEN MEADOW PKWY	KATY	TX	77449
112 HAZEL S PATTISON EL	19910 STONELODGE	KATY	TX	77450
117 ROOSEVELT ALEXANDER EL	6161 S FRY RD	KATY	TX	77494
122 ODESSA KILPATRICK ELEMENTARY	26100 CINCO RANCH BLVD	KATY	TX	77494
127 GRIFFIN ELEMENTARY	7800 S FRY RD	KATY	TX	77494
118 JAMES E WILLIAMS ELEMENTARY	3900 S PEEK RD	KATY	TX	77450

(2) the name of the school applicant, along with a complete list of the individual schools that will be served, including their billed entity numbers; Katy Independent School District, Katy, TX.

Campus	ben	FR	ADA	FRPct	Disc
110 SUNDOWN EL	89456	630	877	71.8%	80.0%
105 ZELMA HUTSELL EL	89603	533	770	69.2%	80.0%
130 MORTON RANCH ELEMENTARY	16047462	302	486	62.1%	80.0%
116 MCROBERTS EL	89454	578	968	59.7%	80.0%
121 JEAN & BETTY SCHMALZ ELEMENTAR	231211	705	1205	58.5%	80.0%
126 FRANZ EL	160210 41	550	944	58.3%	80.0%
106 BEAR CREEK EL	88952	446	777	57.4%	80.0%
101 MAURICE L WOLFE ELEMENTARY	88907	249	438	56.8%	80.0%
128 URSULA STEPHENS ELEMENTARY	16041786	460	812	56.7%	80.0%
125 JACK & SHARON RHOADS EL	16021040	463	914	50.7%	80.0%
Group Totals		4916	8191	60.0%	80.0%

Campus	ben	FR	ADA	FRPct	Disc
111 MAYDE CREEK EL	88954	374	774	48.3%	60.0%
113 LORAINE T GOLBOW EL	89457	390	818	47.7%	60.0%
120 ROBERT KING ELEMENTARY	230072	358	814	44.0%	60.0%
104 MEMORIAL PARKWAY EL	89467	298	725	41.1%	60.0%
103 WEST MEMORIAL EL	89463	263	687	38.3%	60.0%
108 DIANE WINBORN EL	89455	280	828	33.8%	50.0%
107 CIMARRON ELEMENTARY	89466	188	732	25.7%	50.0%
102 KATY EL	89602	112	603	18.6%	40.0%
115 JEANETTE HAYES EL	89470	133	841	15.8%	40.0%
124 JOELLA EXLEY EL	16021039	131	1111	11.8%	40.0%
114 EDNA MAE FIELDER EL	89610	112	996	11.2%	40.0%
123 ROBERTA WRIGHT RYLANDER EL	16021038	131	1169	11.2%	40.0%
129 WOODCREEK EL	16041787	103	987	10.4%	40.0%
109 NOTTINGHAM COUNTRY EL	89465	59	664	8.9%	40.0%
132 STANLEY C STANLEY EL	16052030	58	833	7.0%	40.0%
119 SUE CREECH ELEMENTARY	230071	59	900	6.6%	40.0%
131 BONNIE HOLLAND ELEMENTARY	16047463	39	886	4.4%	40.0%
112 HAZEL S PATTISON EL	89468	34	808	4.2%	40.0%
117 ROOSEVELT ALEXANDER EL	226302	43	1237	3.5%	40.0%
122 ODESSA KILPATRICK ELEMENTARY	15796712	36	1149	3.1%	40.0%
127 GRIFFIN ELEMENTARY	16034134	27	955	2.8%	40.0%
118 JAMES E WILLIAMS ELEMENTARY	230070	24	977	2.5%	40.0%
Group Totals		3252	19494	16.7%	40.0%

(3) a description of the school district or school, including the type of school, such as private, public, charter, or other special type of school;

The Katy Independent School District is a **public school district** based in Katy, Texas, United States. The district enrolls over 60,000 students and is currently rated as Recognized by the Texas Education Agency (as of 8/10/09).

All residential areas of the district are assigned to an elementary school, a junior high school, and a high school by subdivision.

(4) a description of the Program's curriculum objectives, the grade levels included, and the number of students and teachers involved and/or being served as part of the program; and

The Mobile Learning Program has several curricular goals that are key to improving student achievement. The expectation for students is that they will use the mobile learning devices and online tools available to them as a tool for accomplishing these goals. For math, the expectation is that students will be able to solve problems that incorporate understanding the problem; devising and implementing a solution, and then evaluating the solution for reasonableness. In science, students are expected to collect information by observing and measuring. They should construct simple graphs, table, maps and charts using the tools available online to organize, examine and evaluate information. In reading and language arts, students will analyze websites and other online resources to recognize how authors organize information. Students should be able to refer relevant aspects of what they read online to their own experiences. By using the devices in this way, students will improve their ability to paraphrase and summarize text to recall, inform, or organize their ideas. .

Campus	Teacher	5th
110 SUNDOWN EL	8	122
105 ZELMA HUTSELL EL	7	109
130 MORTON RANCH ELEMENTARY	5	68
116 MCROBERTS EL	10	152
121 JEAN & BETTY SCHMALZ	13	201

ELEMENTAR		
126 FRANZ EL	9	135
106 BEAR CREEK EL	8	122
101 MAURICE L WOLFE ELEMENTARY	5	82
128 URSULA STEPHENS ELEMENTARY	9	135
125 JACK & SHARON RHOADS EL	10	152
Sub Group Total:	84	1278

Campus	Teacher	5th
111 MAYDE CREEK EL	9	142
113 LORAINE T GOLBOW EL	10	148
120 ROBERT KING ELEMENTARY	9	135
104 MEMORIAL PARKWAY EL	8	116
103 WEST MEMORIAL EL	7	100
108 DIANE WINBORN EL	8	119
107 CIMARRON ELEMENTARY	9	135
102 KATY EL	8	114
115 JEANETTE HAYES EL	10	150
124 JOELLA EXLEY EL	12	183
114 EDNA MAE FIELDER EL	11	167
123 ROBERTA WRIGHT RYLANDER EL	13	197
129 WOODCREEK EL	10	151
109 NOTTINGHAM COUNTRY EL	7	103
132 STANLEY C STANLEY EL	11	172
119 SUE CREECH ELEMENTARY	10	150
131 BONNIE HOLLAND ELEMENTARY	8	124
112 HAZEL S PATTISON EL	10	148
117 ROOSEVELT ALEXANDER EL	13	195
122 ODESSA KILPATRICK ELEMENTARY	11	169
127 GRIFFIN ELEMENTARY	11	158
118 JAMES E WILLIAMS ELEMENTARY	11	162
Sub Group Total:	216	3238

(5) a summary of any data collected by the school on Program outcomes and achievement of Program objectives.

Engagement

Teachers have reported that they have observed those reluctant learners, who are normally shy in the classroom, feel more comfortable to participate in classroom discussions through the use of the MLD.

Time on task

At this time we have collected anecdotal evidence of students being on task longer. Evidence of students collaborating on assignments after school and on weekends has been observed through the use of Edmodo on the MLD.

Attendance

Average Daily Attendance (ADA) has increased at all the elementaries involved in the Mobile Learning program:

Campus	ADA % 2009-2010	ADA % Sept-Nov. 2010	% Changed
Hutsell	97.22	97.79	+.57
Cimarron	96.28	97.25	+.97
Sundown	97.14	97.84	+.7
Morton Ranch	97.42	97.7	+.28
McRoberts	97.57	97.8	+.23
Schmalz	97.01	97.53	+.52
Franz	96.55	97.23	+.68
Bear Creek	97.37	97.46	+.09
Wolfe	96.43	97.32	+.89
Stephens	97.65	98.12	+.47
Rhoads	96.54	98.13	+1.59

Test scores

District Benchmark testing data from the past two years on the same group of students has shown a substantial increase in student performance.

A. When comparing TAKS Benchmark scores for the 5th grade students involved in the Mobile Learning pilot to the scores they made as 4th graders, we saw substantial increases in all areas tested.

B. When comparing 5th grade students TAKS Benchmark scores in the previous year to the scores of the 5th graders involved in the Mobile Learning pilot, we again saw substantial increases in all areas tested:

A. Same Students	2009	2010		B. 5th grade Students	2009	2010
Reading	86	95		Reading	95	95
Math	80	97		Math	89	97
Science	86	95		Science	86	95

Digital Literacy –students digital literacy will improve. In 2012, the pilot students' scores on the 8th grade literacy will be significantly higher than previous years.

Internet Access at Home based on survey of students will increase to 100% for 5th grade students but will continue to increase the adoption and access rates for 6th grade students.

This data will be collected by a Student Survey given in the Fall of each school year to each secondary student aligned to socioeconomic and demographic data. The initial survey will be done in the Spring of 2010 and the follow up survey in the Fall of 2011 and then yearly in the Fall. The Survey will be given in English and Spanish can be provided for review upon request.

Meaningful Parent Involvement will increase.

Parent Sign In Sheet for Training

Parent Involvement Indicators that will be monitored and reported include PTA involvement and Email Accounts.

2010 Parent Involvement Indicators

Name	# contacts	PTA	PTA Pct.	# email addrs	Email Pct.
Sundown Elementary	1265	146	11.54%	366	28.93%
Hutsell Elementary	1165	225	19.31%	420	36.05%
Morton Ranch Elementary	884	185	20.93%	259	29.30%
McRoberts Elementary	1307	280	21.42%	533	40.78%
Schmalz Elementary	1664	219	13.16%	708	42.55%
Franz Elementary	1472	182	12.36%	413	28.06%
Bear Creek Elementary	1136	264	23.24%	344	30.28%
Wolfe Elementary	654	147	22.48%	138	21.10%
Stephens Elementary	1192			457	38.34%
Rhoads Elementary	1623	304	18.73%	413	25.45%
Group Average:			17.48%		32.08%

Name	# contacts	PTA	PTA Pct.	# email addrs	Email Pct.
Mayde Creek Elementary	1256	287	22.85%	650	51.75%
Golbow Elementary	1187	216	18.20%	675	56.87%
King Elementary	1488			398	26.75%
Memorial Parkway Elementary	1109			552	49.77%
West Memorial Elementary	1156	222	19.20%	608	52.60%
Winborn Elementary	1321			387	29.30%
Cimarron Elementary	1066			583	54.69%
Katy Elementary	894	261	29.19%	554	61.97%
Hayes Elementary	1161	326	28.08%	655	56.42%
Exley Elementary	1672	781	46.71%	1233	73.74%
Fielder Elementary	1554	657	42.28%	1119	72.01%
Rylander Elementary	1820	638	35.05%	1235	67.86%
WoodCreek Elementary	2018	939	46.53%	1078	53.42%
Nottingham Country Elem	1003			725	72.28%
STAN STANLEY ELEMENTARY	833	720	86.43%		
Creech Elementary	1396	620	44.41%	1128	80.80%
Holland Elementary	1549	1029	66.43%	1104	71.27%
Pattison Elementary	1336	778	58.23%	912	68.26%
Alexander Elementary	1771	1040	58.72%	939	53.02%
Kilpatrick Elementary	1877	1343	71.55%	1318	70.22%
Griffin Elementary	1803	889	49.31%	1444	80.09%
Williams Elementary	1266			996	78.67%
Group Average:			45.20%		61.04%

The Mobile Learning Program will support student achievement as reflected in Campus Improvement Ratings. The 5th grade student performance at Cimarron Elementary in 2009 contributed to the improved campus ratings.

State of Texas Campus Performance Rating

TYPE	Campus	2008 Rating	2009 Rating	2010 Rating
El	110 SUNDOWN EL	Recognized	Recognized	Exemplary
El	105 ZELMA HUTSELL EL	Exemplary	Exemplary	Recognized
El	130 MORTON RANCH ELEMENTARY	.	Acceptable	Recognized
El	116 MCROBERTS EL	Recognized	Recognized	Exemplary
El	121 JEAN & BETTY SCHMALZ ELEMENTAR	Recognized	Exemplary	Exemplary
El	126 FRANZ EL	Recognized	Recognized	Recognized
El	106 BEAR CREEK EL	Recognized	Recognized	Exemplary
El	101 MAURICE L WOLFE ELEMENTARY	Recognized	Exemplary	Recognized
El	128 URSULA STEPHENS ELEMENTARY	Recognized	Recognized	Exemplary
El	125 JACK & SHARON RHOADS EL	Recognized	Recognized	Recognized
El	111 MAYDE CREEK EL	Recognized	Recognized	Recognized
El	113 LORAINE T GOLBOW EL	Acceptable	Recognized	Recognized
El	120 ROBERT KING ELEMENTARY	Recognized	Recognized	Exemplary
El	104 MEMORIAL PARKWAY EL	Recognized	Recognized	Recognized
El	103 WEST MEMORIAL EL	Recognized	Recognized	Exemplary
El	108 DIANE WINBORN EL	Exemplary	Exemplary	Exemplary
El	107 CIMARRON ELEMENTARY	Recognized	Recognized	Exemplary
El	102 KATY EL	Exemplary	Exemplary	Exemplary
El	115 JEANETTE HAYES EL	Exemplary	Exemplary	Exemplary
El	124 JOELLA EXLEY EL	Exemplary	Exemplary	Exemplary
El	114 EDNA MAE FIELDER EL	Exemplary	Exemplary	Exemplary
El	123 ROBERTA WRIGHT RYLANDER EL	Exemplary	Exemplary	Exemplary
El	129 WOODCREEK EL	Exemplary	Exemplary	Exemplary
El	109 NOTTINGHAM COUNTRY EL	Exemplary	Exemplary	Exemplary
El	132 STANLEY C STANLEY EL	.	.	Exemplary
El	119 SUE CREECH ELEMENTARY	Exemplary	Exemplary	Exemplary
El	131 BONNIE HOLLAND ELEMENTARY	.	Exemplary	Exemplary
El	112 HAZEL S PATTISON EL	Exemplary	Exemplary	Exemplary
El	117 ROOSEVELT ALEXANDER EL	Exemplary	Exemplary	Exemplary
El	122 ODESSA KILPATRICK ELEMENTARY	Exemplary	Exemplary	Exemplary
El	127 GRIFFIN ELEMENTARY	Exemplary	Exemplary	Exemplary
El	118 JAMES E WILLIAMS ELEMENTARY	Exemplary	Exemplary	Exemplary