



3 October 2016

Chad Maisel
Aalok Mehta
White House National Economic Council

Dear Chad and Aalok,

Thanks for meeting with us three weeks ago. Near the end of the meeting, I agreed to provide you some examples of success stories from the FCC's E-rate reforms in 2014.

This packet of E-rate success stories has been compiled with the help of schools, libraries, research and education networks, consultants, and providers across the country. As shown by these case studies, the E-rate program is changing how an entire generation of students learns by making 1:1 initiatives and personalized learning possible.

- **Charlotte Mecklenburg Schools** used Category 2 funding to transform its learning environment. It went from 0% of schools connected just four years ago to 100% of schools now fully connected. Category 2 funding enhances students' use of 1:1 devices and helps the school system strive toward personalized learning. Contact: Dr. Valerie Truesdale, valeriep.truesdale@cms.k12.nc.us, (980) 344-0023
- **Lafayette Parish School System in Louisiana** was able to begin a 1:1 initiative roll-out due to the 80% E-rate discount on \$3.5 million upgrades. The school system, which previously had to restrict Internet access, now plans on providing Chromebooks and iPads to all students in the 42 schools by 2020, paving the way for personalized learning. Contact: John Harrington, Funds for Learning, jharrington@fundsforlearning.com, (405) 471-0900.
- **Sacramento Public Library**, the fourth largest library system in California, used E-rate Category 2 funding to perform a major infrastructure upgrade to take advantage of its Gigabit broadband connectivity. Without this funding, the process would have taken multiple years, but now SPL will be one of the best-connected Library Systems in the United States by January 2017. Contact: Jarrid Keller, jkeller@saclibrary.org, (916) 264-2819

Case studies provided by Corporation for Education Network Initiatives in California (CENIC)

CENIC operates the two largest E-rate consortiums in the US, one serving libraries (public libraries and library systems) and one serving the K-12 community (public schools, school districts, and county offices of education).

Contact: Louis Fox, President & CEO, lfox@cenic.org, (714) 220 - 3455

- **Santa Fe Public Library** surveyed their patrons and found that it took people eight minutes to just access email. Thanks to E-rate funding and CENIC's aggregated buying model, SFPL will receive a 1 Gbps connection and reduce monthly costs from \$1200 to \$270.
- **Yorba Linda Public Library** will increase its connectivity 50-fold to 1 Gbps and their costs will decline from \$1589 to \$247 per month.
- **Death Valley Unified School District** drastically improved its capacity and lowered monthly costs due to E-rate funding. Superintendent Jim Copeland said, "Getting higher bandwidth at our school feels similar to a freeway being installed instead of having a two lane road."
- **Shasta Elementary School** – Seth Hemkin, Director of Technology at the Redding School District said, "With their additional network infrastructure, they will be able to enjoy wireless and mobile devices for students and teachers like never before. And of course when testing time comes in the spring the school will be more ready than it ever has."

Case studies provided by Education Networks of America

ENA is a leading provider of Infrastructure as a Service (IaaS) solutions to K-12 schools, higher education institutions, and libraries.

Contact: Lillian Kellogg, lkellogg@ena.com, (615) 312-6072

- **East Washington School Corporation** is one of the poorest counties in the region, yet E-rate funding enabled the school district to plan a 1:1 initiative to be completed in 2017, grow its infrastructure, and provide online courses.
- **Paoli Community School Corporation** used E-rate to build a fiber-optic line with 100 Mbps speeds, maintain a robust, high-capacity managed WiFi network with a 1:1 program, and hire e-learning coaches with the money saved. Superintendent Brewster said, "E-rate is the difference between having a few computer labs to rolling out devices to every single student from kindergarten to 12th grade."
- **South Harrison Community School Corporation** had the technology but students were using their laptops as doorstops because they didn't have the connectivity. E-rate enabled the school district to provide the necessary Internet to take advantage of digital learning.
- **Putnam County Public Library** used E-rate funding to transform itself into a digital literacy space. In its "Imagination Portal" children can make movies, produce music, and other activities that would not have been possible without a strong Internet connection. The library can now also provide free basic computer and digital literacy programs.

Press releases provided by Fatbeam, a competitive access provider

Contact: Tammy Palm, tammy@fatbeam.com, (509) 344-1008

- **Bend School District and the Pasco School District** – Fatbeam won E-rate contracts with these school districts to build fiber infrastructure for ultra-high-speed Internet. Each school district will receive 20 gigabit lit fiber services. In Pasco School District, this contract reduced prices by as much as 94%.
- Fatbeam won **11 new E-rate contracts in Washington, Oregon, Idaho, and Montana** – “The fiber contract through E-rate is a very positive step forward in providing quality education through our 1:1 initiative,” said Matt Brass, IT Director of Lake Pend Oreille School District.

This is just a small sample of the many benefits of the E-rate program changes. We would be pleased to provide you with more examples or more specific benefits if it would be helpful.

We would also be pleased to work with you if you would like to schedule a convening to highlight these successes.

Sincerely,



John Windhausen, Jr.
Executive Director
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The Impact of E-rate on Charlotte Mecklenburg Schools

By Dr. Valerie Truesdale, Chief of Technology, Personalization and Engagement

The modernizing of the E-rate program has been beneficial to Charlotte Mecklenburg Schools in many ways. Using a district-wide discount rate for all schools has allowed CMS to create a network and wireless plan that benefits 147,000 learners and strengthens forecasting of budget needs. The per student funding amount has allowed CMS to provide upgrades to the network and increase wireless access points. Increasing wireless access points for our 168 schools ensures students can connect to the worldwide classroom. Moving from none of CMS schools fully connected to the Internet four short years ago to 100% of classrooms, even 1100 portable classrooms, with wireless connections to the Internet has been transformational. All students in grades 4-12 have access to Chromebooks during the school day so ensuring connectivity is a key driver to student achievement increases. The district's graduation rate has soared to almost 90% (89.6%) in 2016, in part due to opportunities provided for students to extend learning beyond the school day. Being a majority poverty school district, CMS has many students who go home to no connectivity so often, their connection to the worldwide classroom happens only at school. Category Two enhances the student use of 1:1 devices at school and helps us stretch toward maximizing student achievement in a personalized 21st century learning environment. We are in year 2 of our 5 year plan to upgrade all of our school's internal connections.

[News Update](#) > New E-Rate savings bring speedy internet to more students

NEWS UPDATE

New E-Rate savings bring speedy internet to more students

E-Rate discounts range from 20 percent to 90 percent

By Mackenzie Ryan — District Administration, September 2016

8/25/2016



The Lafayette Parish School System was granted E-Rate funds to fully upgrade the district and to provide 1-to-1 devices to students by 2020.

E-Rate funds kept at least one district connected to the internet through testing—and opened the door for a 1-to-1 initiative rolling out this fall.

The Lafayette Parish School System in Louisiana used to restrict internet access, only granting certain streaming websites to teachers by request. For example, music teachers would be the only ones with access to streaming music—locking out others in the district. And during state testing, schools would disable streaming to ensure exams were not affected.

But thanks to 2015 rule changes in the FCC's E-Rate program, which gives [discounts](#) to schools and libraries for internet upgrades, that will change this fall.

Advertisement

Located an hour from the Gulf of Mexico, Lafayette is a hub for offshore drilling companies. But when oil prices took a dive, the board didn't believe voters would support an infrastructure tax.

So the district applied for E-Rate funds, which gives discounts on campus infrastructure, such as [Wi-Fi connections](#) for classrooms.

With nearly 70 percent of the district's 31,000 students qualifying for free and reduced-price lunch, Lafayette received an 80 percent discount on \$3.5 million, the total cost of upgrades. "I would not be able to accomplish this without E-Rate funds," says LaShona Dickerson, district technology director.

Outfitting individual classrooms with wireless access points can range from \$150,000 for an elementary school to \$300,000 for a high school. Costs also depend on size and infrastructure.

Across the nation, more than \$1 billion in campus wireless access points were sought through the program for the 2016–17 school year.

“It doesn’t matter how fast a connection is to the school’s front door if they can’t bring that high-speed internet all the way to the classroom or the library,” says John Harrington, CEO of Funds For Learning, an E-Rate compliance services firm.

1-to-1, testing needs

In Lafayette, upgrades were necessary for a 1-to-1 initiative that, by 2020, will give Chromebooks and iPads to all students in the district’s 42 schools. “It allows us to create personalized learning opportunities for students,” Dickerson says.

The E-Rate program also paid for additional bandwidth, helping Lafayette prepare for the statewide move to online standardized testing that requires more devices, she says.

“This upgrade is a huge improvement for us,” Dickerson says. “Now we can empower all teachers without putting them through the red tape for permissions.”

E-Rate discounts range from 20 percent to 90 percent, based on the school’s economic need; the average is 74 percent. Applicants typically receive funding as long as proper protocols are followed, such as completing competitive bids for installation or upgrade work, Harrington says.

About 60 percent use consultants to help navigate the process.

Taxonomy:

[Budget](#)



The Impact of E-rate on Sacramento Public Library

By Jarrid Keller, Assistant Director-Infrastructure | (916) 264-2819 | jkeller@saclibrary.org

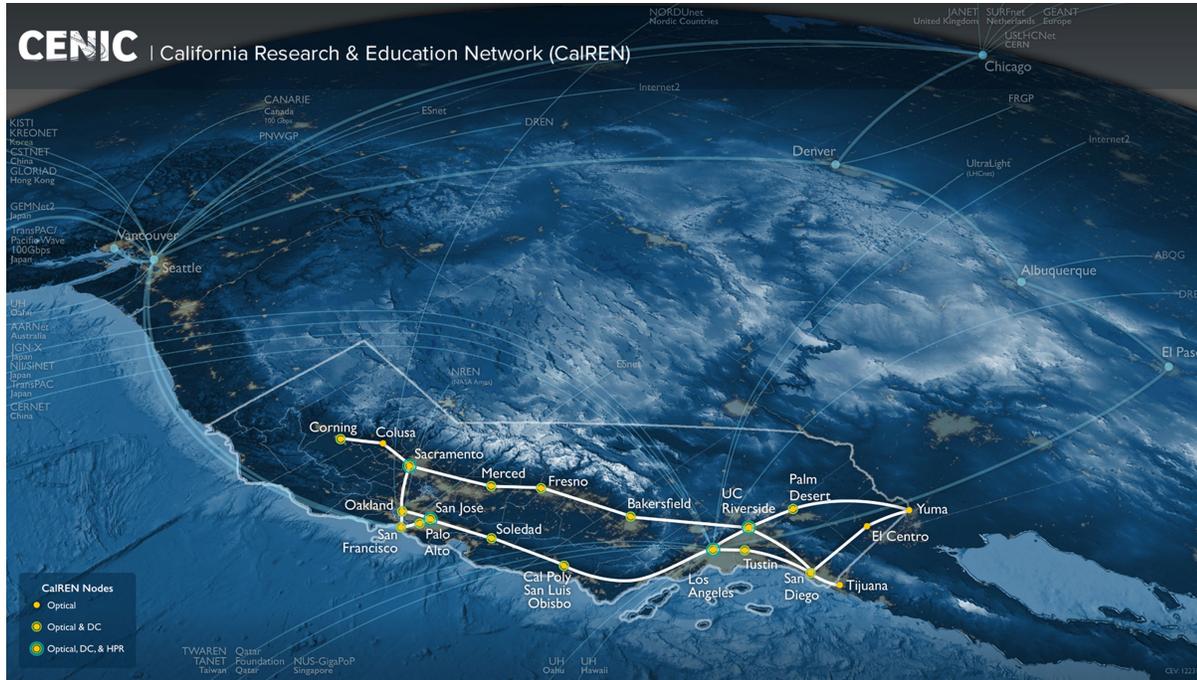
The Sacramento Public Library (SPL) is the fourth largest library system in the state of California with 28 locations spanning a service area of 995 square miles. It has been serving the Sacramento region's 1.3 million residents since 1879. In February 2016, the Sacramento Public Library committed to connect to the California Research & Education Network (CalREN) for Gigabit broadband connectivity for all 28 locations. In many of our communities, our libraries serve as the only location where library patrons can access computing resources and online services. As more services migrate online, the need for robust broadband capacity is critical.

The governor's enacted budget for the 2014-2015 fiscal year allocated \$2.25 million annually from the State of California General Fund to provide public libraries with access to high-speed Internet. A statewide needs assessment of public-library broadband connectivity conducted by the California State Library determined that the non-profit Corporation for Education Network Initiatives in California (CENIC) would be the most suitable and cost-effective means to provide high-speed Internet services for public libraries. CENIC designs implements and operates CalREN, a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of these communities, and to which the vast majority of the state's K-20 educational institutions are connected. CalREN consists of a 3,800-mile, CENIC-operated backbone, to which nearly 10,000 schools and other institutions in all 58 of California's counties connect via fiber-optic cable or leased circuits obtained from telecom carriers.

By connecting to CalREN, the SPL will dramatically increase network capacity at all locations, enabling gigabit network connectivity at all branches in the SPL system, making the SPL one of the best connected Library Systems in the United States. This will allow us to provide dynamic bandwidth intensive services that will meet the current and future needs of library patrons. However, to take advantage of the increased connectivity, a major infrastructure upgrade is needed. The SPL is required to replace all 28 routers in the system, and its firewall to accommodate Gigabit connectivity. Costs for this effort are in excess of \$518,000. Although the SPL budgets for annual infrastructure upgrades, one-time costs such as these are difficult to absorb in a single fiscal year, and would normally need to occur over a multi fiscal year cycle. As a result of guaranteed Category 2 funding from the E-rate Modernization Order, the SPL is in the process of upgrading its infrastructure system wide to accommodate Gigabit connectivity, and will connect all sites beginning January 2017. Without the guaranteed Category 2 funding, this process would have taken multiple years.

E-rate and California's Schools and Libraries: Two Success Stories

Contributed by the Corporation for Education Networking Initiatives in California (CENIC) | October 1, 2016



Success Story #1: California's Public Libraries

Library patrons in Santa Fe, California regularly struggle to connect to the Internet due to low bandwidth connectivity. The library has just 5 Mbps of connectivity to serve the public and support administrative functions, far less bandwidth than many Americans have in their homes. Joyce Ryan, Director of the Santa Fe Public Library notes, "Recently, we reached out to the community with a survey. About half of the respondents actually wrote down a comment regarding the slow connectivity and the difficulty they experienced in completing work on our computers. One patron mentioned that it took her eight minutes to access her email! Staff regularly fielded complaints regarding the slow connectivity."

In 2013, to address this need in libraries across California, Governor Brown and the California State Legislature provided funds for a historic initiative to help all of California's 1200 public libraries to receive high-speed broadband service. Libraries across the state are connecting to the California Research & Education Network (CalREN) operated by CENIC, the Corporation for Education Networking in California. CENIC's high-capacity network, CalREN, is designed to meet the unique requirements of over 20 million users, including the vast majority of K-20 students together with educators, researchers and other vital public-serving institutions. A connection to CalREN enables schools and libraries to become part of one of the most advanced research and education communities in the world.

As the project to connect public libraries enters its third year of operation, 72% of the 176 eligible public library jurisdictions (main library connections) in California are either connected or are in the process of connecting to CalREN. A major goal of this initiative is to set a new standard for Internet connectivity in public libraries at 1 Gbps (or 1,000 Mbps) or higher.

This goal is being achieved and California libraries will truly be gigabit libraries with over 80% of main libraries connecting at 1 Gbps or higher. The gains that have been made would not be possible without the federal E-rate program.

As part of its service to its members, CENIC operates the two largest E-rate consortiums in the US, one serving libraries (public libraries and library systems) and one serving the K-12 community (public schools, school districts, and county offices of education). Currently these consortia are comprised of 1,139 members. In 2016, 50 certified E-rate applications with 187 funding requests were submitted for a total of \$33,857,775. In operating its consortia, CENIC competitively bids services; awards and executes contracts; files for E-rate funding; orders and implements services and pays invoices, relieving members of a significant administrative burden.

California's Contribution: The California Teleconnect Fund

The state of California leverages the E-rate program, expanding its benefits. The California Teleconnect Fund (CTF) is a California public purpose program funded by a surcharge on phone bills administered by the California Public Utilities Commission. The CTF program provides discounts of up to 50% to schools, libraries, community colleges, hospitals and health clinics and community-based organizations for eligible telecommunications services. For schools and libraries participating in the E-rate program, this discount is applied on the total remaining after the E-rate discount is applied.

Of the 50 library jurisdictions who joined the consortium in 2015, 32 jurisdictions will be receiving E-rate discounts for the first time by participating in the CENIC run state-wide consortium. Those



jurisdictions will benefit from receiving E-rate discounts of over \$700,000 on an annually recurring basis and a one-time discount of more than \$340,000 for non-recurring costs such as construction.

As a result of their participation in this historic initiative to bring all libraries high speed broadband, Joyce Ryan of the Santa Fe Public Library anticipates that “the increased broadband will allow our patrons to be more productive and much less frustrated.”

After their connection to CalREN is complete, Santa Fe Public Library will receive 1,000 Mbps (1 Gbps) while reducing their monthly recurring costs for their main library and branch library from \$1,200.00 per month to \$270.00 per month.

This dramatically reduced cost is in large part due to the libraries' participation in the federal E-rate program and the further discounts provided by the CTF program. It is also due to CENIC's aggregation model in which the circuits needed to upgrade the connectivity to all research and education organizations in the state are bid competitively. In addition, CENIC works with Cisco and others to create deep discounts for the equipment needed by schools and libraries to upgrade their connectivity from megabits to gigabits.

Yorba Linda Public Library is another case in point. The library currently has 20 Mbps of Internet connectivity, and as a result of their upcoming connection to CalREN, their connectivity will increase 50-fold to 1 Gbps. As they were not previously access E-rate or CTF, their costs, even for this higher level of connectivity, will decline from \$1,589 per month to \$247 per month. "One of our biggest challenges is accommodating all the mobile devices patrons bring into the library. Our wireless network is frequently overwhelmed and sometimes vital functions, such as circulation, shut down as a result of this demand. Almost every library patron who walks through our doors logs on to our network and 20 Mbps of connectivity is simply not enough to serve our community." Says Carrie Lixey, Library Director.

Success Story #2: California's K12 Schools

Another major initiative is underway in the K-12 E-rate consortium operated by CENIC. The California Legislature approved a \$76,000,000 investment to improve last mile connectivity to public schools. The schools participating in this initiative are the least connected and hardest to connect in the state. When their connections to CalREN are complete, most will be connected at 1Gbps, and they will be among the best connected schools in the state.

The one-time special construction costs to reach these schools are being covered by the state of California. The E-rate subsidy for each school results in low monthly recurring costs, making the connection sustainable over the long term, another example of how the E-rate program is being leveraged to secure state support for high-speed broadband service.

Jim Copeland, Superintendent of Death Valley Unified School District, remembers when his schools could not run two or three browsers in classrooms at the same time. When they did so, it shut down operations in the business office. If teachers needed to use the Internet, they'd have to coordinate use with one another and with the business office. "Teachers couldn't dream of doing what they do online now," Copeland notes. "Our connection opened up unimaginable abilities to carry out district business as well as get classrooms on the Internet.



Getting higher bandwidth at our school feels similar to a freeway being installed instead of having a two lane road. It hasn't just been a matter of things getting better. Things that were impossible before are now possible and being done every day.”

When obstacles to connectivity are overcome and a school has high-speed broadband, the impact on the lives of teachers and students can be significant. Seth Hemken, Director of Technology at the Redding School District, spoke about Shasta Elementary School's upgraded Internet connectivity, saying, “One constant for Shasta Elementary was that they had always dealt with few opportunities for advancement of the bandwidth and connectivity to their campus. I feel so excited to see this new connectivity come to such a great school. With their additional network infrastructure, they will be able to enjoy wireless and mobile devices for students and teachers like never before. And of course when testing time comes in the spring the school will be more ready than it ever has.”

On the day that teachers and students first used their 1 Gbps connection at Montessori Middle School, Seth made a video of students at work on an assignment to do research on a topic using streaming video. This assignment would have been impossible with their prior 1.5 Mbps connection. As they begin their research, students are heard to say, “It is working like a magic wand.” It is working like lightning speed.”

In communities across California, the digital divide is being closed one school and one library at a time, thanks in large part to the E-rate program discounts which make high-speed Internet connections achievable and sustainable for these critical social institutions.





Leveraging High-Speed Broadband to Connect Students and Communities to Their Futures

How Three Indiana School Systems and One Public Library Are Transforming the Learning Landscapes in Their Rural Communities.

President John F. Kennedy once said, “Change is the law of life. And those who look only to the past or present are certain to miss the future.” School and library leaders in Southern Indiana are embracing this philosophy and are leveraging high-quality broadband and technology to redefine and transform their learning environments into future-ready spaces that meet the diverse learning needs of their students and patrons. Below are the stories of three Indiana school corporations and one public library who are breathing new life and opportunities into their rural communities through the provisioning of robust broadband access to online instructional resources and applications. With funding assistance from the federal School and Libraries Program, otherwise known as E-rate, these institutions of learning are all undergoing massive digital transformations that are already producing positive outcomes for their respective local communities.

East Washington School Corporation

E-rate discount rate: 70 percent

Student enrollment: 1,471

Located in one of the poorest counties in the region, East Washington School Corporation (East Washington) has adopted a “no excuses” attitude toward the socioeconomic climate of its community.

“We have two choices,” says East Washington Superintendent Dennis Stockdale. “We can use poverty as an excuse, or we can step up as a school corporation and provide our students with the same opportunities that are available to those students who reside in more affluent communities. We’ve chosen the latter.”

When Superintendent Stockdale arrived in East Washington just a couple of months ago, he immediately revisited the school corporation’s device roadmap. “The original plan was to launch a one-to-one deployment in three to five years,” says Stockdale. “We’ve quickly revamped that original plan, and our goal now is to be fully one-to-one by the start of the 2017/18 school year. In order to achieve that goal, we’ve got to have the infrastructure in place to support the technology.”

East Washington has already made significant strides to ensure its students have the broadband access they need to facilitate online learning. Just three years ago, the school corporation was operating on 50 Mbps Internet access speeds. Today, East Washington provides 200 Mbps speeds to its educators and students—an impressive increase of 400 percent.

“Having slow connectivity is like driving from the Ohio River to the Michigan state line on a two-lane country road,” says Superintendent Stockdale. “You have to throttle it down so much that students don’t



have the opportunity to explore and gain the knowledge they need to know to grow and thrive. We have to create robust connected learning environments for our students. Many of our families lack Internet access outside of the school building because we are surrounded by hills and valleys. Also, we don't have a public library in our city. If our school system doesn't meet the needs of our students, and if we don't create personalized learning opportunities for them, there are very few options open to them to grow and see their future potential."

Funding from the federal E-rate program has enabled East Washington to speed up its digital conversion. "Having that funding helps us secure and grow our infrastructure," says Superintendent Stockdale. East Washington's Director of Technology and Integration Katie Hutchinson agrees. "I asked our teachers what their biggest fear about working with technology was, and ninety percent of them said that they were scared it wouldn't work," says Hutchinson. "We have to make sure it works so that our teachers, kids, and parents aren't scared it's going to fail. E-rate funding helps us do that by making sure the access is there when we need it."

The Internet is opening the door to new learning possibilities for this Indiana school corporation. "We have students taking courses online," says Hutchinson. "I run a technology club, and they are all getting different types of certifications and getting their drone licenses. We have a student who has successfully 3D printed three different mouth pieces for three different instruments. Those opportunities don't exist without Internet access."

Superintendent Stockdale and Hutchinson are both excited about what the future holds in store for their school corporation. "The next step is changing the pedagogy," says Stockdale. "We are moving into interdisciplinary, collaborative learning environments in all of our buildings. For me, that is where the rubber meets the road. Our kids will be able to take the skills they have acquired and use them to take ownership of their learning and become creative and collaborative problem-solvers."



Paoli Community School Corporation

E-rate discount rate: 80 percent

Student enrollment: 1,566

As a former classroom teacher and principal with Paoli Community School Corporation (Paoli), Superintendent Casey Brewster recognized the need to grow and develop Paoli's technology platform in order to ensure his students were sufficiently college and career-ready upon

graduation. Not only has the district brought its fiber network up to speed over the last five years, Paoli has also deployed a district-wide one-to-one initiative and integrated a building-wide managed Wi-Fi service, enabling educators to leverage innovative mobile and beacon technologies to improve instruction, reduce costs, and enhance learning opportunities.

Building a solid technology infrastructure that effectively supports 21st century learning has been a top priority for Paoli. In 2010, the district had just three T1 circuits in place that supplied 4.5 Mbps Internet access speeds to the entire school corporation. Jump forward five years to now and the district has a fiber-optic line in place that provides 100 Mbps speeds, as well as a robust, high-capacity managed Wi-Fi network. "Having access to high-speed Internet has been incredibly important for us," says Superintendent Brewster. "It is one thing to access information online, it is another thing to have 1,500

students downloading or uploading documents or resources on a daily basis. When we were operating on only 15 or 20 Mbps speeds, it slowed down our learning environments and sucked the innovative spirit out of the activities and lessons. Teachers either tried to use technology and it didn't work, which was deflating, or they didn't even attempt to use it because they were worried it wouldn't work. Neither was a good situation. We upped our Internet access speed because we don't ever want our students and staff to wonder if the Internet is going to be fast enough to accomplish what they need to accomplish."



Superintendent Brewster anticipates that his school corporation's broadband usage will continue to increase over the next few years. "I'll be surprised if we don't have a need to exceed 200 Mbps within the next year," says Superintendent Brewster. "Our ability to connect to the Internet has changed nearly every aspect of our learning environments. Our teachers communicate with each other differently. They are not printing out large amounts of paper—saving us

thousands of dollars. As we continue to use more online resources and Software as a Service [SaaS] solutions, we will need to have more access."

Paoli is in the midst of an impressive digital transformation, and Superintendent Brewster attributes much of the school corporation's success to the federal E-rate program. "E-rate is the difference between us having a few computer labs to rolling out devices to every single student from kindergarten to twelfth grade," says Superintendent Brewster. "It's impacted us at every turn. Because our broadband and Wi-Fi expenses are off-set by E-rate, we are able to allocate more money toward professional development for our staff and hire e-learning coaches to support our digital initiatives. Also, we received a digital learning grant from the Indiana Department of Education in 2014, and I think one of the principal reasons we were selected as a recipient was because of the work we'd already done as a result of E-rate."

Superintendent Brewster is excited about all the positive changes he's seeing around his district. "Our philosophy has always been that it's not about the technology, the device, or the Internet—those are all just tools. It's about the students and seeing and hearing them engage with content in meaningful, creative, and personal ways. Having access to the Internet and their devices connects them to the content and helps prepare them for the future."



South Harrison Community School Corporation

E-rate discount rate: 70 percent

Student enrollment: 3,175

Located in rural Southern Indiana, South Harrison Community School Corporation (South Harrison) is taking tremendous steps to level the digital playing field for all of its students—and it's working! This past year, one South Harrison senior graduated with thirty dual college credits plus a significant scholarship to the college of his choice. A noteworthy accomplishment for any student, this achievement is particularly remarkable because the student is one of the first members of his family to graduate high school, let alone attend college. Breaking generational cycles requires a tremendous amount of effort and

dedication, both on the part of the student and the school district. Presenting students with personalized learning opportunities facilitates that process by opening the door to an endless amount of possibilities.

South Harrison's digital transformation has been a gradual process, but it quickly picked up steam when its new superintendent—Dr. Mark Eastridge—arrived approximately three years ago. “When I started this position, I spoke with a number of teachers, parents, and staff members about how the students were using their laptops,” says Superintendent Eastridge. “One parent remarked that her child used the laptop as a doorstop. That shocked me because our students had these wonderful devices that they weren't using at all. Most of them weren't even charging them.”



After speaking with his teachers, Superintendent Eastridge quickly identified the problem—the school system didn't have the infrastructure in place to support the technology. “When I spoke with our teachers, they told me that our Wi-Fi was unreliable and that the Internet was too slow,” says Eastridge. “If they were going to integrate technology into their instruction, they had to create two lesson plans—one if the technology worked and one if the technology failed. Teaching is hard enough as it is. Teachers don't have time to create extra lesson plans—the technology should just work.”

Superintendent Eastridge has since leveraged critical E-rate funds to increase South Harrison's Internet access speeds from less than 100 Mbps to 500 Mbps. “If we didn't have E-rate, we couldn't provide the access that our students need to learn effectively,” says Eastridge. “We'd have to make some very difficult decisions in terms of our resources. E-rate has enabled us to shift our budget dollars toward supporting and growing other programs that rely on reliable and robust Internet access.”

South Harrison's career readiness program is one program that has grown by leaps and bounds since the school system increased its broadband connectivity. “We purchased Naviance, a career planning software, to support our college and career readiness initiative,” says Superintendent Eastridge. “Choosing a career is one of those fundamental decisions that really influences the direction of your entire life. As a school system, we play a role in helping students make that choice. If you asked a student twenty years ago what they wanted to do in terms of a career, many times they didn't know. The prevailing thought was they'd go to college and figure it out there. We can't do that anymore. If that happens, we are committing our students to \$20,000, \$30,000, or \$40,000 of debt. That's [also] v program so vigorously.”



Through its college and career readiness program, South Harrison is providing its students with the resources they need to make informed decisions about their career pathways. “Without robust Internet access, this program wouldn't be what it is today,” says Superintendent Eastridge. “In the past, we had to

parse out access because more than two students couldn't view Naviance's video resources simultaneously without experiencing the dreaded 'wheel of death.' That was unacceptable to me. My job is to make sure access is there." Fast forward two years and the program is now thriving, with South Harrison's students even making a video highlighting their successes and what the program did for them in terms of their career paths.

Increased connectivity has also enabled South Harrison to integrate Project Lead the Way (PLTW), a program that provides transformative, hands-on learning experiences that empower students to develop the in-demand knowledge and skills they need to thrive. In the vein of PLTW, the school system is hoping to transform one of its schools into a STEM academy in the near future.

"We need a lot of access for our kids," says Superintendent Eastridge. "Our teachers weren't using the technology before, and I don't blame them. It wasn't working. We've jumped our bandwidth almost ten times to give them that access. Now that those pieces are in place, we can take the next steps. We've hired an eLearning coach to support our teachers. We've started using the SAMR model to supplement instruction. We now have a technology committee in place that is made up of administrators and educators who oversee the direction we are going with technology, and that group is also responsible for refreshing our technology vision. None of this would have been possible without the access. It has opened a door for us that wasn't there before."

Putnam County Public Library

Nestled in the heart of Greencastle, Indiana, Putnam County Public Library (PCPL) serves as the connectivity and cultural hub for many of the community's rural residents. The library recently transformed its children's department into the Imagination Portal, an interactive technological playground with an emphasis on digital literacy. This new youth services library allows for collaborative digital creativity such as movie making and music production; exploratory learning through emerging medias including video games, eBooks, web applications, and movies; hands-on experiential programming including performances, arts, and crafts; cooking and culinary studies; and lively story-time events. The Imagination Portal combines the spirit of discovery and learning inherent in the traditional literary experience with the excitement of technological transformation and immersion.

PCPL Director Grier Carson spearheaded the library's transformation. "When I started, there was very little integration of consumer technology within the children's space," says Carson. "I think we had a single iPad that nobody used. We had patron computers and AWE™ Early Literacy Stations, but that was it."



Overhauling PCPL's existing network infrastructure was one of Carson's first priorities. The library used E-rate funds to increase its Internet access from 10 Mbps to 70 Mbps. Carson also decided to replace PCPL's locally managed wireless network with ENA Air, Education Networks of America's turnkey Wi-Fi service. "We had a patchwork of common wireless routers installed throughout the library that we managed ourselves. It was really inconsistent. When our

equipment went down, we had to replace the components ourselves. Last year we flipped that on its ear. We deployed ENA Air for Wi-Fi management, and we started outsourcing other services. This has been very effective in terms of managing the network and utilizing technology staff efficiently. I would much rather have my technology team members assisting our patrons with technology or planning future network improvements instead of managing network equipment all day.”

Carson understands the necessity of having a reliable and robust infrastructure in place at his library. “It is sometimes difficult for people to understand why building an infrastructure is so important because there is no immediate payoff,” says Carsen. “It is not viewed as a priority in terms of the budget because it is not visible. I think that is a mistake because a library’s infrastructure is critical. Our new technology plan focuses on that and our library board fully understands that as well. One of our primary goals is to maintain and support a robust infrastructure. We do not want our network to come to a grinding halt in five years when almost everything requires wireless access of some kind. I do not want to have to reallocate funding in order to get our network up to speed. We are preparing for the future now.”

Carson believes that today’s libraries need to evolve to meet the needs and demands of their future-ready patrons. “I don’t think it’s wise for libraries to sit back and be a sanctuary from the cacophony of the digital world,” says Carson. “I think we need to do the opposite. We need to expose our patrons to the world online and the world of culture, media, and global communication. It is our duty to provide patrons with the tools they need to navigate the world successfully. In our own county, we are trying to close the digital divide by providing our community’s residents with access to devices and online content that they do not have at home. We provide technology instruction through a series of free basic computer and digital literacy programs. In all respects, we’re emphasizing access to and meaningful use of digital technologies.”

Libraries are on the precipice of a digital leap, and it is imperative that they take the steps now to prepare for the future. “In order to avoid massive skill set discrepancies across our citizenry, public libraries are going to have to become places where everyone can go to get free and equitable access to resources like the Internet,” says Carson. “What we have accomplished in our children’s department, our technology instruction and support program, and through increased integration of technology across almost all of our services, sets the stage for what PCPL will be doing for the next decade. Our library will become a place where patrons can be creative, collaborate with their peers, and explore the world around them. That is how we are going to [engage] the next generation of library users.”

As the managed Internet service provider for the above organizations as well as hundreds of school districts and libraries across the country, ENA has the honor of helping our education and library communities identify, plan for, and meet their broadband infrastructure needs. Empowered by solutions that save them time, money, and frustration, ENA’s customers can focus on what matters most: preparing students, strengthening communities, and building leading educational enterprises.

CONTACT US TODAY!

For more information about ENA, contact your ENA account service manager or visit our website at www.ena.com.

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Education Networks of America

ABOUT ENA

ENA is the leading provider of Infrastructure as a Service (IaaS) solutions to K–12 schools, higher education institutions, and libraries. Since 1996, we have worked with our customers to ensure they have the robust and reliable high-capacity broadband, Wi-Fi/LAN, communication, and cloud solutions they require to meet the present and emerging technology needs of the communities they serve. Today, ENA manages numerous system-wide and statewide contracts, successfully delivering IaaS solutions to more than eight million users across the nation. For more information, please visit www.ena.com, call 866-615-1101, or email info@ena.com.



FATBEAM WINS E-RATE CONTRACTS FOR MULTIPLE SCHOOL DISTRICTS
Will Construct 58 Miles of Fiber to Modernize Wireless Infrastructure in Bend, OR
and Pasco, WA

Spotlighted by FCC for Creating Competitive Fiber Options for Rural Communities

Coeur d'Alene, Idaho – April 13, 2015 – [Fatbeam](#), a competitive access provider, today announced winning E-rate contracts with the Bend School District in Bend, Oregon and the Pasco School District in Pasco, Washington to build fiber infrastructure for ultra-high-speed Internet.

FCC Commissioner Mignon Clyburn recently highlighted Fatbeam during a FCC Hearing on the 2015 E-rate season for championing the federal program to “deploy and provide smaller markets with competitive options.”

Fatbeam enters a market by building fiber optic networks for individual school districts. Once the network is fully constructed in that district, Fatbeam is able to offer fiber to other entities in the community – including hospitals, banks, local government offices as well as telecom and Internet carriers, driving economic development.

“Markets under 150,000 in population are frequently lacking competitive options for fiber based services,” said Fatbeam president Greg Green “In addition to the school districts, Fatbeam will also invest capital to reach the core business parks, developments and other key facilities in our partner communities to help drive local economic development.”

Bend School District – Bend, Oregon

Fatbeam has entered into a long-term agreement with the Bend School District to build a high capacity fiber optic network 20 gigabit lit fiber services to the school district and its 23 facilities.

“Cascade Divide operates internet data centers in markets such as Bend and high performance fiber connectivity is critical to our customers success. Fatbeam’s dark fiber options and routes are a perfect choice for our key clients’ connections to our data centers and infrastructure,” said Jeff Henry, SVP, Cascade Divide Data Centers. “We see Fatbeam as a strategic partner and look forward to working with them to create a world class fiber network for the Bend School District.”

Pasco School District – Pasco, Washington

Fatbeam has entered into a long-term agreement with the Pasco School District to build a high capacity fiber optic network and deliver 20 gigabit lit fiber services to its 24 school district facilities. The contract reduces the School District cost per megabit of fiber optic based price per meg by as much as 94% as the district goes from one gigabit to twenty gigabit speeds. The school district plans to implement a newly constructed fiber optic network from Fatbeam that dedicates four fibers into each school district location in a diverse fashion that will provide redundancy and resiliency. Fatbeam is in the process of engineering and designing its estimated 30-mile newly constructed network.

The school’s use of the FCC E-Rate program, which finances connectivity for schools and libraries, also made for an efficient and cost effective solution in the current environment of tight educational budgets. Fatbeam and the Pasco School District agreement takes effect June of 2016 providing plenty of time to construct the multi-million dollar fiber investment for the community of Pasco.

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FATBEAM WINS E-RATE CONTRACTS FOR MULTIPLE SCHOOL DISTRICTS
Will Construct over 200 Miles of Fiber to Modernize Wireless Infrastructure in
Washington, Oregon, Idaho and Montana

Coeur d'Alene, Idaho – August 11, 2016 – [Fatbeam](#), a competitive access provider, announced winning 11 new E-Rate contracts in Washington, Oregon, Idaho and Montana. These contracts will allow Fatbeam to build fiber infrastructure for Wide Area Networking and ultra-high-speed Internet.

Fatbeam entered into an agreement with the Lake Pend Oreille School District in Sandpoint, Idaho to build a 49 mile, high capacity fiber optic network delivering two gigabit lit fiber services to the School District and its 13 facilities. “Throughout the proposal process, Fatbeam proved they wanted the best for our School District and students. They were prompt, competent, and solutions oriented, offering superior customer service. We are excited to have them as a vendor moving forward and feel that the fiber contract through E-Rate is a very positive step forward in providing quality education through our 1-to-1 initiative” said Matt Brass, IT Director of Lake Pend Oreille School District.

The school’s use of the FCC E-Rate program, which finances connectivity for schools and libraries, also made for an efficient and cost effective solution in the current environment of tight educational budgets. Last year, FCC Commissioner Mignon Clyburn highlighted Fatbeam during a hearing on the 2015 E-Rate Season for initiating the federal program to “deploy and provide smaller markets with competitive options”.

Fatbeam enters a market by building fiber optic networks for E-Rate funded School Districts. Once the network is fully constructed in that district, Fatbeam is able to drive economic development by offering fiber to other entities in the community – including hospitals, banks, local government offices as well as telecom and Internet carriers.

"This year's E-rate success was a historical best for our organization and further solidifies that our sales organization is continuing to advance in this vertical market." "In addition, Fatbeam is predicting a record year in sales within its business, enterprise and local government segments as the investment in capital core business parks, developments and other key facilities continue to generate solid returns" said Fatbeam president Greg Green.

ABOUT FATBEAM

Fatbeam is the Pacific Northwest and Rocky Mountain region industry leader in delivering fiber infrastructure for best-in-class connectivity to schools, businesses and governments in *3rd and 4th tier markets. The company currently operates fiber networks in more than 23 markets, with 338 route miles of fiber and another 200 under construction throughout Idaho, Montana, Washington, Oregon and Wyoming. In 2015 Fatbeam was voted #190 by Inc. Magazines 500 fastest growing companies in the United States. For more information, visit www.fatbeam.com.

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