Understanding E-rate: An Essential Guide for K-12 Leaders

Produced by: Center for Digital Education
For: Spectrum Enterprise
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Contents

04 INTRODUCTION
06 A BRIEF HISTORY OF E-RATE
08 NAVIGATING THE PROCESS
16 EMERGING CHALLENGES AND OPPORTUNITIES
19 CONCLUSION
It’s an exciting time for K-12 education. After decades of effort, the goal of ensuring every student has access to high-speed Internet for meaningful digital learning experiences appears within reach.

Ninety-eight percent of America’s K-12 school districts — both rural and urban — now have the broadband infrastructure and Internet access they need for digital learning, according to EducationSuperHighway’s 2018 State of the States report. Nearly half (49 percent) of all schools now have 1-to-1 device environments, according to the Consortium for School Networking (CoSN), and growing numbers are supporting more than one device per student. Schools also have moved beyond online assessments to provide a rich variety of digital content, getting closer to the goal of creating a personalized learning environment for each student.

“Twenty years ago, we were talking about students going to media labs and how we get teachers to use email,” says John Harrington, CEO of Funds for Learning (FFL). “We’ve shifted so far from that. Now we are looking at multiple devices per student. The demand is there; the need is there; and the resources are there.”

But the work is not done. Challenges around digital equity persist, particularly beyond the walls of the school. At the same time, the rapid rate of technological innovation means states and K-12 districts must constantly upgrade infrastructure to sufficiently equip students with the tools they need to thrive in a digital era. More than half of school districts (56 percent) anticipate their Internet bandwidth needs will increase by 50 percent or more over the next three years, according to FFL.

The federal E-rate program has been a critical financial resource for districts for more than two decades, and the modernization of the program in 2014 has redoubled the focus on broadband and wireless access. However, changes to the program, as well as a new presidential administration, have complicated the landscape.

“Costs are going down and the need is going up,” says Marie Bjerede, CoSN’s principal for leadership services.

The challenge in navigating the E-rate process while still addressing a school’s technology needs, Bjerede adds, is “staying ahead of that curve but not jumping too far ahead of it.”

This handbook is intended to help district leaders ensure they effectively leverage E-rate dollars and don’t miss opportunities. It provides an overview of the program, insights on the process, and strategies to help districts navigate E-rate and address persistent challenges.
E-rate by the Numbers

- More than 117,000 schools and library sites benefit from the E-rate program
- $2 billion in requests for data and Internet service in 2019
- 94% of school districts say the E-rate program is vital to their organization’s Internet connectivity goals

Cost of K-12 Internet access has declined 85% between 2013 and 2018

Success in connecting K-12:

- 98% of districts and 81,000 U.S. schools have access to high-speed Internet
- 44 million students have access to high-speed Internet — up from just four million in 2013
- 94% of schools without scalable infrastructure have upgraded to fiber-optic connections since 2013
- 27 states have connected more than 99% of their schools to 100 kbps/student bandwidth or more
- At least 92% of districts fully meet the FCC’s 100 Mbps/1,000 students goal
- 49% of districts have a 1-to-1 device environment

More work to be done:

- Only 28% of school districts are currently meeting the FCC’s 1 Mbps/student goal
- 2.3 million students still lack high-speed Internet at school
- 5 million households with school-aged children don’t have Internet access at home
- 95% of K-12 IT leaders agree that addressing the homework gap is a concern for their districts
- 1,356 schools still lack fiber connections

Sources: 2019 E-Rate Trends Report by Funds for Learning, EducationSuperHighway State of the States 2018, CoSN 2018-2019 Annual Infrastructure Survey, the 1Million Project
Signed into law as part of the Telecommunications Act of 1996, the Schools and Libraries Program of the Universal Service Fund requires telecom providers to provide services to public schools and libraries at discounted rates — between 20 and 90 percent based on economic need, as measured by the percentage of students eligible for the National School Lunch Program.

At the time of E-rate’s introduction, the Internet was just beginning to make inroads into K-12 schools. Only 14 percent of K-12 classrooms in the U.S. had access to the Internet — and the WiFi standard that would bring wireless connectivity to schools, businesses and homes was still a year away from being unveiled.

In the years that followed, E-rate helped districts bring Internet access to school campuses. But needs within school buildings — including the growing demand for wireless access points as mobile device use exploded — often went unmet due to limited funding that restricted discounts to only the neediest districts. That contributed to what then-FCC Chairman Tom Wheeler called “the WiFi gap,” and, ultimately, a revamping of the program that has had wide-ranging consequences.

E-rate 2.0: Designed for the Digital Age
Following in the footsteps of President Barack Obama’s 2013 initiative to provide high-speed Internet access to 99 percent of U.S. classrooms, in 2014 the FCC modernized the E-rate program. Known colloquially as “E-rate 2.0,” the changes increased funding from $2.4 billion to $3.9 billion a year and introduced new funding cycles.

More importantly, the updated FCC order targeted $1.5 billion for WiFi and other internal connections, including managed internal broadband services that support connectivity within schools and libraries. Managed internal broadband services include WiFi expenses for managing and operating the local area and wide area network, such as installation, activation and initial configuration of eligible components, as well as onsite training for eligible equipment. E-rate 2.0 also provided new options for broadband services, including allowing schools to build their own fiber networks or lease existing ones (lit and dark fiber, respectively).

To the chagrin of some districts, the new regulations began phasing out subsidies for traditional phone services — both landline and wireless — to focus instead on closing broadband and WiFi gaps (although the Lifeline Program does provide subsidies for landline and cell phones).

The New Reality
The impact of E-rate over the past two decades has
been dramatic. More than 98 percent of schools are now connected to the Internet by fiber, and more than 40 million students have gained access to high-speed Internet since 2013, according to EducationSuperHighway’s 2018 report. At the same time, bandwidth costs have fallen dramatically, from a median cost of $22 per Mbps in 2013 to $3.26 in 2018. E-rate 2.0 also met its goal of ensuring more districts received funding for in-school WiFi, with more than 80 percent of districts receiving WiFi funding over the last three years, up from just 11 percent before 2014.

However, the program has had its challenges as well. E-rate and its funding mechanisms require extensive documentation, advanced planning and, importantly, a share of district money. And efforts to streamline the application process for districts have, to date, been mixed. According a 2018 FFL survey, 47 percent of respondents said it took longer for them to prepare and file their E-rate application than it had in previous years.

In fact, only $2.8 billion in E-rate funds were requested in 2018 compared to $5 billion in 2014, according to FFL’s 2018 trends report. Yet the program’s importance remains vital, particularly for districts that still lack high-speed Internet access to all their schools. Even in districts which have met their connectivity goals, school leaders must continue planning for network growth to accommodate changing technology needs, including digital learning, online curriculum and ever-increasing amounts of data.

“You’ve got a lot riding on these E-rate applications,” Harrington says. “For many districts, it’s keeping the lights on.”

E-rate’s Alphabet Soup: Key Acronyms and Agencies

**EPC:** E-rate Productivity Center, the web portal districts use to apply for and manage E-rate funding requests. https://portal.usac.org/suite/

**FCC:** Federal Communications Commission, the federal agency that manages the E-rate program. https://www.fcc.gov/

**USAC:** Universal Service Administrative Company, the organization that administers funding for the E-rate program. https://www.usac.org/

**USF:** Universal Service Fund, provides funding for E-rate subsidies through mandatory contributions from telecom providers. https://www.fcc.gov/general/universal-service-fund

**Lifeline:** Separate FCC program which provides low-income families with subsidies to purchase broadband Internet access and other services. https://www.fcc.gov/general/lifeline-program-low-income-consumers
Large districts have dedicated personnel to manage E-rate. But in many other districts the task falls on technology directors and their staff, who often find the process challenging to navigate.

“Technology directors are like small business owners — they have 15 jobs to do. Filing for E-rate is like filing taxes. It’s hard to keep up with the rules and how they change each year,” says Karen Allen, CEMP, president of Allen & Allen Consulting, LLC.

The comparison is particularly appropriate given there are both tactical and strategic steps districts must take to maximize their use of the program and its funding opportunities.

Following are some strategies to consider.

Start with the End in Mind

While the FCC no longer requires districts to submit a technology plan as part of the E-rate process, it’s vital that district officials align their applications with their overall plans.

“You need to start with what you want to do, and then look at what E-rate can cover,” says CoSN CEO Keith Krueger.

Among the steps to understand your networking needs:

*Think beyond E-rate — and your network.* Remember that networks exist to support technology that E-rate does not cover, including computers and mobile devices, software and digital content, which are themselves significant district priorities (and budget line items).

In similar fashion, E-rate focuses on specific connectivity needs, but not the entire infrastructure of a school or district network (see page 15 for details on what E-rate does and does not cover). CoSN’s Smart Education by Design (SEND) initiative provides guidelines for overall network design.

*Take inventory.* Assess your present-day baseline connectivity, both across schools and within individual campuses. Get a sense of the number of devices on your networks, as well as their specifications (2.4 and 5 GHz devices have different range and bandwidth capacities, for example). One key is continuously measuring usage, according to CoSN’s Bjerede.

“One you start seeing peak at 65 percent of capacity, it may be time to [reassess],” she says.

*Understand where the district is going.* Consider the specific initiatives — both planned and in the process of roll out — that will impact bandwidth going forward. Big-ticket items include changes to 1-to-1 device and bring-your-own-device (BYOD) initiatives and the adoption of digital curricula or personalized learning platforms, all of which require a different approach to forecasting demand.

One key: Talk with vendors and get estimates from comparable districts.

*Plan for evolving bandwidth needs.* In 2014 and 2015, the largest driver for bandwidth
growth among schools responding to CoSN’s infrastructure survey was online assessments. But in 2016, student devices took the top spot, where it remains today, followed by digital content and online assessments.

Keep in mind that bandwidth needs also change along the adoption curve.

“When you first start an initiative, adding devices, platforms and schools, you see exponential growth,” says Bjerede. “We’re starting to find that this levels out — it’s an S-curve, not a parabola.”

Once changes in networking needs are determined, districts should develop detailed RFPs that clearly outline the services needed to support those connectivity needs for the E-rate process.

Bring together a range of departments. Network planning involves not just IT staff, but also finance (for procurement information and processes), curriculum (for digital adoption and other initiatives), facilities (for timetables for new buildings coming online or existing ones being consolidated), nutritional services (for the free and reduced lunch numbers that determine E-rate’s discounts) and others.

“The most challenging aspect of the process is not the forms, filling out the paperwork or even staying up on the rules,” says FFL’s Harrington. “Oftentimes it comes down to coordination among different departments in the district. That’s where schools can fall short.”

One way to ensure all departments are on the same page, according to Harrington, is to hold an annual planning session to discuss future initiatives. Doing so also helps keep those responsible for E-rate apprised of what’s coming so they can plan their piece of it.

“The technology plan is no longer required,” Allen says. “But you have to think through your plans as if it is.”

Understand the E-rate Ecosystem: Consultants, Providers and Consortia

Districts don’t build and maintain their networks in a vacuum. Along with the vendors and service providers that provide and manage the technology, an ecosystem of consultants and consortia help districts with the E-rate process. It’s critical that districts understand each of these partners’ roles in the process, including what they can — and can’t — do.

E-rate consultants. Given the growing complexity of the program and the recent changes that came with E-rate 2.0, it’s not surprising that many districts turn to outside help to manage the application process. More than half (56 percent) of respondents to FFL’s 2018 survey used E-rate consultants.

While consultants can manage the E-rate application process on behalf of districts, they can’t develop a technology plan.

“An E-rate consultant can tell you what can or can’t be covered, but they won’t tell you what your networks should actually look like,” says CoSN’s Krueger.

Districts should carefully evaluate consultants (see box on page 13 for criteria) and work out a specific understanding of what parts of the process the consultant will own, what the district needs to provide, what
the timetable looks like and what will happen in the case of a selective review or audit.

District officials also shouldn’t outsource their entire understanding of the process and should remain actively involved throughout.

“They should be making decisions together instead of relying solely on the consultant,” says Jeannie Horton-Isreal, education program manager for Spectrum Enterprise. “Regardless of who does the work (school, school district, library, etc.), they’re the ones signing the applications and receiving the necessary funding.”

FFL’s Harrington agrees. “The school district has to understand it has to own this process. The accountability and responsibility cannot be outsourced.”

**Service providers.** The role of vendors and service providers in the E-rate process is narrowly defined. Because of the competitive bidding process, they can’t help districts develop their overall technology vision, write a school’s technology plan, or take part in completing and submitting E-rate applications. However, service providers can have discussions with school leaders to identify solutions that will best meet their technology goals and initiatives, according to Horton-Isreal.

Once districts have a sense of how digital curricula, distance learning, mobile devices and other tools will be used, the service provider can work with them to determine the best solution to address bandwidth needs. Horton-Isreal urges districts to involve providers in that design process early.

“There needs to be a strategic approach on how to build and plan for network growth and expansion,” she says. “Districts should collaborate with a trusted service provider to deliver the right solution instead of telling them to deliver [x] circuit.”

Horton-Isreal adds: “Sometimes what a school requests isn’t what is needed to support a wireless infrastructure.”

**Consortia.** School districts have long banded together to get better prices through volume purchasing, and networking is no exception. E-rate 2.0 provides added incentives for schools and districts to work together, including an FCC pledge to prioritize applications from state and regional consortia.

Consortia also oversee the competitive bid process, simplifying it for their participating schools and districts. The drawback is that these schools and districts are limited to the specific products or services the consortium applied for; if they want to obtain different services, they must start the application process for those specific services on their own. The number of consortia that have applied for E-rate funding has fallen significantly, from 573 in 2015 to 489 in 2017, according to FFL. CoSN’s own survey found that one-third of districts with the options to join consortia don’t use them for E-rate purchases, which is double the amount from the previous year. CoSN’s Krueger says it’s not entirely clear why fewer districts use consortia, although he predicts that pressures associated with the repeal of net neutrality may result in more districts collaborating with each other or at the state level to gain leverage and avoid retransmission fees.

**Avoid Pitfalls**
Maximizing the use of E-rate funds requires both an understanding of the details of the program and the bigger picture of your district’s overall technology vision. At the most basic level, applying for E-rate requires schools to ensure that the products and services they’re requesting are eligible under the program’s regulations and meet their school’s learning needs. Beyond what is required for the applications, district technology officials also must have a clear picture of their overall technology goals and
how their network design fits into it. To navigate the process, districts need to:

**Understand the categories.**
E-rate funding is divided into two categories. Speaking broadly, Category 1 focuses on the big picture — the types of wide-area networks that provide district-wide Internet access and (for now) telecommunications services. Category 2 covers the internal, school-centric pieces that facilitate internal connections and, ultimately, the wireless connections to student devices and other learning technologies. Historically, fewer districts have sought Category 2 funding, in large part because funding was often exhausted by the highest-priority schools. However, E-rate 2.0 increased available funding and changed the way Category 2 funds are disbursed, making it possible for more districts to take advantage of school-specific funding.

And school-specific needs — and the funding to help meet them — still exist: More than

### In Miami-Dade, Getting to 1-to-1

About five years ago, Miami-Dade County Public Schools unveiled an ambitious plan to upgrade classroom technology and provide a laptop or tablet to each of the district’s middle and high school students. E-rate played a crucial role in ensuring the district’s schools were provided with wireless access, but it was only one part of a much larger plan.

“We sat down and discussed what it would take to get us there,” says Richard Benvenuti, director of the district’s division of instructional technology, instructional materials and library media services. “We planned out all the different steps and pieces of the puzzle that would make the classroom whole. Then we started planning out where the pieces were coming from. One of the things we knew we needed was wireless.”

“**It was really a grassroots effort to try and change the district. E-rate can help so much, but you have to fund the holes. It’s about seeing where it fits and how you can augment it.”**

Richard Benvenuti, Director, Miami-Dade Public Schools Division of Instructional Technology, Instructional Materials and Library Media Services

While voters had approved a $1.2 billion bond for school renovations and technology improvement in 2012, the district still had wired and wireless infrastructure gaps that needed to be addressed to support the 1-to-1 program.

E-rate covered almost all the costs — $54.5 million of the $70 million networking price tag. But Miami-Dade still had to raise $7 million for its share, which it did largely through corporate and community donations.

Today, more than 154,000 student devices are in use in Miami-Dade schools, supported by wireless access in every school. Benvenuti credits stable school leadership that has sustained the vision over the past half-decade, as well as creative approaches to raising the funds required to supplement E-rate funding.

“It was really a grassroots effort to try and change the district. E-rate can help so much, but you have to fund the holes. It’s about seeing where it fits and how you can augment it,” Benvenuti says.
2,000 school districts have not taken advantage of the $150 per student E-rate Category 2 funding to upgrade their WiFi networks. These districts are at risk of losing more than $320 million of funding if they don’t utilize at least a portion of their $150 per student budget in the 2018-19 E-rate cycle, according to EducationSuperHighway.

“Every school qualifies for some of that funding,” Harrington says.

**Understand what is and isn’t covered, and prepare to pay for the things you need anyway.** A variety of networking services are covered by E-rate, including some that districts may not be aware of. For example, few districts take advantage of E-rate to fund managed WiFi services, which outsource the installation and ongoing management of networks — and are covered as part of managed internal broadband services under Category 2.

Service providers can provide managed solutions that reduce the burden of managing equipment, keeping up to date with protocols and standards, and helping districts understand device and network utilization, all of which reduces the time spent to establish and maintain connectivity throughout school and campus locations.

A turn-key solution allows school districts to implement and sustain enterprise-grade networks without hiring additional IT staff. By outsourcing the assessment, design, implementation, training, and management of a school or district’s WiFi network to experienced professionals, technology leaders can focus on students.

However, other essential portions of a school’s networking needs — including most software, servers (except those that cache network connections), cloud services, security and backup connections — aren’t funded by E-rate. (See box, page 15, for a sense of what is and isn’t covered in each category.) Yet all these pieces still need to be addressed.

“You need to know what E-rate can cover and be smart about it, but that doesn’t mean you don’t do the other things,” CoSN’s Krueger says. “The political calculation was to focus on broadband and WiFi [with E-rate]. There are essential things you should do whether they’re covered or not.”

**Use network design to your advantage.** E-rate won’t pay for duplicative services like multiple network connections for redundancy purposes. That’s important because at least one-third of districts responding to CoSN’s infrastructure survey reported a day or more of outages or network downtime each year. However, it is possible to design a network in which different carriers provide different services — allowing districts to shift loads among them in the case of outages or service disruptions.

“There are things around network design that people have to be smart about,” says Krueger.

**Remember the rest of your budget.** Unlike other federal grants and programs, E-rate doesn’t represent a cash disbursement to pay for equipment and services. Instead, it provides a discount based on the economic need of a district’s students — meaning that even if districts receive the maximum discount of 90 percent on a specific service, they still need to fund the remaining 10 percent.

> The school district has to understand it has to own this process. The accountability and responsibility cannot be outsourced.

John Harrington, CEO, Funds for Learning
from general or capital budget funds.

“The component some miss is what available matching funds the district will provide,” Allen says. “Does your district have the budget to pay the non-discount portion? There are some who go through the whole competitive bidding process, take it to the board and the board says, ‘We don’t have that money.’”

Think about timing. The biggest challenge for many districts is stepping back and managing two technology cycles — one specifically for E-rate, and the other for the overall life cycle of all technology throughout the district. In both cases, the process is not a “last-minute Friday discussion for Monday,” Harrington says. “To do it well, it can take two to three years to lay out the vision and direction. It takes the leadership component to get that vision and a plan.”

Timelines for the overall technology plan — curriculum and content, devices and networks — should be mapped out at least three years in advance to inform the annual E-rate application process, Harrington and others say (see box on page 14).

An important component of the annual E-rate process involves the needs of specific schools across the district. As part of changes to how Category 2 funding works, E-rate 2.0 allows

Choosing an E-rate Consultant

While E-rate consultants have become a vital part of the application process for nearly half of all districts, there are no clear-cut rules about what consultants should know or do on behalf of their clients.

“Anyone can say ‘I’m an E-rate consultant,’” says Allen. That means districts must do their homework. Among the criteria to consider:

✓ **Experience.** How many years have they served as a consultant? With how many districts? With how many districts with similar characteristics as yours?

✓ **References.** Along with checking with district officials, consider searching USAC’s online records to see if the consultant’s funding requests were approved or denied.

✓ **Certifications.** The E-rate Management Professionals Association (www.e-mpa.org) certifies consultants, and requires them to follow a code of ethics and keep current on regulations.

✓ **Pricing structures.** Some consultants charge a flat rate for services, others charge hourly and some base fees on a percentage of E-rate funding. There’s no correct approach for every district, but it’s vital to understand the pricing structure to make accurate forecasts — and avoid surprises.
individual schools to apply for up to $150 per student over a five-year period.

“Where in the past we could pool all our E-rate money for a cycle, now that money must stay with those campuses,” says Lenny Schad, chief information technology officer for Houston Independent School District (HISD). “It’s made us plan in much greater detail those five-year increments and the campuses we’re including in each E-rate cycle, because that directly impacts the life cycle replacement for each of the five years coming down the road.”

Focus on getting the lowest rate. E-rate 2.0 emphasizes the importance of controlling costs, but puts the onus on districts to ensure they get what’s called the “lowest corresponding price.” Several organizations, including EducationSuperHighway and

Nuts and Bolts: E-rate Forms and Timetables

Selected E-rate forms:

- **Form 470**: Used to describe goods and services requested for Category 1 and 2 funding through the E-rate program; required to open the 28-day competitive bidding period
- **Form 471**: Once providers are selected, used to list all contracts and services for which the applicant is requesting discounts through E-rate
- **Form 472**: Used to seek reimbursement from USAC for services rendered
- **Form 474**: Submitted by service provider for discounts
- **Form 486**: Used to confirm to USAC that services have started; required before most payments can be made
- **Form 500**: Used for adjustments and to modify dates for receipt of service or file for extensions

A general timeline of the E-rate process; specific dates vary from year to year:

- **FALL**: Form 470 is filed, typically in October/November; opens 28-day competitive bidding process
- **WINTER**: Contracts signed with service providers following competitive bidding period; form 471 is submitted to USAC before the specified deadline (typically mid-March)
- **SPRING**: USAC Program Integrity Assurance (PIA) staff review all applications; funding decision letters sent; appeals must be made within 60 days
- **FALL**: Form 486 confirming start of service filed with USAC, followed by reimbursement forms 472/474

It’s important for districts to start planning well in advance of each E-rate funding cycle — as much as a year or more in advance for specific needs — as well as regularly review overall technology initiatives.
state consortia, have developed resources that allow districts to compare prices by provider, geography, district size and other factors.

One strategy to get the lowest possible rate is to focus on long-term contracts — and to ensure the providers are applying the contract rate, according to Allen. If districts choose to do so, they should make sure that opportunities for technology reviews and refreshes are included in contracts.

Document everything. “The attention to detail sometimes seems ridiculous, but it’s what is required when you go through a review,” Allen says.

Keep informed. Changes in rules governing E-rate applications and the process are announced by USAC via news briefs available on its website (see box on page 19).

What’s more, E-rate regulations require documentation to be retained for at least 10 years — which is fine, except that some districts have document retention policies with shorter timespans or electronic systems that automatically purge materials after a set amount of time. And any work done by a consultant on behalf of the district remains the district’s responsibility, so ensure that outside providers supply the district with their own documentation.

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What’s Covered

Category 1

☑ Eligible
Digital transmission and Internet access services (cable modems, DSL lines, T1/T3/Fractional T1/T3, fiber, MPLS, etc.)

☑ Ineligible
Email, text messaging, voicemail, web hosting, inside wire maintenance plans

☑ Recently eliminated
Voice service (including traditional telephone, wireless telephone, local, long distance and 800 number service) was completely phased out in FY 2019

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Category 2

☑ Eligible
Equipment and services (including access points for wired/wireless LANs, caching, firewall services, switches, routers, racks, UPS, wireless controller systems, software that supports internal broadband distribution, managed internal broadband services and basic maintenance)

☑ Ineligible
Services or components (data protection, interfaces, gateways and antenna, servers except for caching, software except for software supporting managed broadband connections, storage, telephone and video components, and voice/video IP components)
While E-rate 2.0 modernized the program to focus on schools’ most critical connectivity needs, other areas remain challenges for schools and districts. Among them:

**Phone/voice services.** E-rate 2.0 is approaching the end of a multi-year phase out of support for all phone services — traditional telephone systems and cellular services among them. However, people haven’t stopped making phone calls, and maintaining voice services remain a significant challenge for districts.

Voice services accounted for $619 million of E-rate supported services requested by districts in fiscal year 2017, according to FFL. More than half of respondents to FFL surveys said they want to keep voice services on E-rate’s eligible services list — much higher than any other uncovered service — while 22 percent of CoSN respondents report a “huge impact” on their districts.

“For us, those are big dollar items,” says HISD’s Schad. “It’s an increase in general fund expenses we’ve had the luxury of leveraging E-rate heavily for in the past.”

Many districts have transitioned to VoIP phone systems — which shift voice services to districts’ existing networks. However, discounts for implementing VoIP equipment are being phased out of E-rate, like all other telephone expenses, meaning “there are some upfront costs to the transition,” Krueger says.

The “homework gap.” More than five million households with school-age children have no Internet access at home, creating a growing equity divide for districts moving to digital learning environments.

One challenge is that there are different barriers to providing access to every student.

“There’s no silver bullet,” says Susan Bearden, an education technology consultant.

Low-income families may move frequently, making it difficult to take advantage of low-cost plans offered by providers. Others may have access to community facilities that offer free WiFi but can’t use them due to safety concerns. And rural students may not have access to broadband Internet at any price.

Districts large and small have taken creative steps to address
the issue, including adding wireless routers to buses and, at times, parking them in neighborhoods in the evenings and weekends. Some publish lists of community organizations and businesses that offer public WiFi, and others provide hotspots that students can take home.

However, these approaches are not funded by E-rate — districts which have sought funding for a range of creative out-of-school access methods have not been successful in obtaining it to date. Currently, two districts are seeking exemptions to the rule. One, in New York state, is working with Microsoft to get permission to use so-called “white spaces,” the broadcast spectrum between over-the-air television channels, to deliver connectivity to underserved students. Another in Colorado is seeking an exemption to provide services to a public housing complex. The only precedent is more than a decade old, when an isolated community in Alaska was given added networking flexibility.

Some technology directors want E-rate to broadly cover out-of-school services. Eighty-two percent of respondents to the 2018 FFL survey said insufficient Internet access in the homes of students or library patrons is a significant issue in their communities. However, some leaders say adding out-of-school service to E-rate would further dilute the funding available for school infrastructure.

“To me, it’s a community and district issue — how and what we are doing to engage our community in helping to facilitate wireless access,” says HISD’s Schad. “Are we talking to our churches, community centers, restaurants and apartment complexes?”

Other options for districts include informing families about the FCC’s Lifeline program, which provides subsidies to low-income families to help pay for Internet access at home. As with E-rate, recent changes in the Lifeline program allow recipients to use the benefit to purchase broadband Internet access, not just landline and mobile voice service.

Despite these options, progress remains slow. Only eight percent of districts report that all their students have access to shared devices at home, according to CoSN, although the number of community connections has increased in the past
year. Regardless of how it’s approached, addressing the homework gap will be a critical need in the years to come.

“Internet access is such an important part of participating in society, I think districts have a moral imperative,” Bearden says. “Districts can’t address all the problems in the world, but this is one way they can help close the gap.”

Rural districts. Rural districts account for half of all districts with zero or one broadband provider under E-rate Category 1, according to CoSN’s 2018-2019 Annual Infrastructure Report.

In partial response to limited service offerings, E-rate 2.0 allowed districts to receive funding to build fiber networks for the first time, and consortia in several states have focused on building rural networks. However, with a new administration in Washington, the FCC has questioned more than 100 mostly rural districts about their plans to do just that, including some districts that already had approved plans. The ultimate impact and policy direction were unclear at the time this report was produced, but rural districts remain an ongoing area of broadband need.

In Houston, Entering Uncharted Territory

At Houston Independent School District (HISD), bandwidth demand has not been driven by a sudden uptick in the number of devices in students’ hands, but by how students are using them.

“The explosive growth in digital content we have seen across all levels of our school system is because our kids are becoming more mature in how they leverage the technology,” say district Chief Information Technology Officer Schad. “It’s not that they don’t know how to use it, but that they use it in the classroom.”

These changes in teaching and learning have been driven by HISD’s emphasis on digital interoperability — bringing together a broad range of digital resources, including a growing number of digital textbooks and learning content, on a single platform. As one of the first districts to embrace the widespread use of digital resources and interoperability among different learning resources, HISD had to forecast and project future data use with few examples to build from.

“We were really cutting our teeth where there wasn’t information,” Schad says.

Therefore, the district tapped real-time data from its network, including bandwidth demand, network utilization, peak times, which resources are used the most and which resources use the most data.

“Data systems log this information inherently — that’s what they do,” Schad says.

The district used this data to build projections that support E-rate funding for network use.

“Our focus is on making sure we have adequate broadband capability — the minute your infrastructure can’t support this expanded use, an initiative dies very quickly,” Schad says. “Once you have limitations, you have to work very quickly because it will die on the vine in a matter of weeks.”
Schools have always focused on connecting students with the greater world around them, and preparing them for the 21st-century economy has shifted the emphasis to new learning methodologies and technologies. It’s important for districts to maintain their focus on how new digital learning tools support this overarching goal, says CoSN’s Bjerede.

“We talk about starting with your ‘why’ — why are you doing this? Why is this important?” she says. “From there, you can start to look at your goals and how you get them to happen in structures built for a different era.”

E-rate funding has been a dramatic driver of reaching those goals. However, changes to the program have complicated the process. To ensure they effectively leverage E-rate dollars and don’t miss any opportunities, school district leaders must continually educate themselves regarding evolving E-rate rules, but also build a long-term strategy for making the most of E-rate dollars. This strategy includes looking at the district’s overall technology vision, involving multiple stakeholders in the planning process, and partnering with consultants and service providers.

**Conclusion**

**Additional E-rate Resources**

- **CoSN Smart Education Network Design (SEND)**
  www.cosn.org/SEND
- **EducationSuperHighway**
  www.educationsuperhighway.org
- **The E-rate Management Professionals Association**
  www.e-mpa.org
- **Funds For Learning**
  www.fundsforlearning.com
- **FCC Form 470 User Guide**
- **Additional USAC resources**
  www.usac.org/si/
- **USAC News Briefs**
Navigating the E-rate process can be challenging; E-rate is an expansive program covering a variety of services — and recent changes have only complicated the landscape. Still, E-rate funding is a critical resource for school districts as they work to increase broadband access and further modernize their IT infrastructures to ensure every student has access to a 21st-century education.

**Expertise when you need it**
Helping districts navigate the E-rate application process and partnering to customize solutions that align with E-rate guidelines is what Spectrum Enterprise has been doing for 20 years with thousands of K-12 schools and libraries. As one of the largest E-rate service providers today, the local, experienced E-rate experts at Spectrum Enterprise partner with school districts to strategically build and plan for network growth and expansion, and select the best solutions to meet their goals.

**The value of partnership**
E-rate is an important tool to fund solutions that help schools build a modern IT infrastructure and technology-rich learning environment. But to truly improve student outcomes, school districts must also effectively implement and use this technology. With a strong history of partnering with schools and libraries served by the E-rate program, Spectrum Enterprise enables school districts to support increased bandwidth needs and offer the online curriculum and technology required to help students succeed.

Support your district’s digital transformation by visiting enterprise.spectrum.com/education to learn more.