



FY2020 Edition

SMALL AND MEDIUM SCHOOL DISTRICTS:

**Leverage E-rate Special Construction
Funding to Break Bandwidth Barriers
... Not Budgets**



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Introduction

The arrival of Funding Year (FY) 2020 marks the sixth year since the adoption of the Federal Communications Commission's (FCC) 2014 Second E-rate Modernization Order. Some of the most transformative changes contained in the Order pertained to the treatment of special construction and its funding. This white paper (1) examines the benefits of investment in E-rate Category 1 Special Construction and key program requirements, (2) explains how E-rate makes it affordable for smaller districts to build scalable, high-speed Wide Area Networks (WANs) under increasing budget constraints, and (3) outlines the savings that can be achieved through these discounts.



The Fourth Utility

Broadband has become the United States' "fourth utility" — as critical to our current way of life as electricity, water, and natural gas. This is especially true in schools where the need for connectivity is higher than ever, and digital learning requires scalable infrastructure for increasing bandwidth demands to be effective.¹ Districts must be able to support a growing list of digital tools and resources, from devices and digital curriculum to online testing and assessment platforms.

This need is emphasized in the Office of Educational Technology's *Future-Ready Schools: Building Technology Infrastructure for Learning* guide: ***"To provide students with the education they need to thrive in a globally connected world, we must find ways to design, fund, acquire, and maintain the infrastructure that will make connectivity a reality for every teacher and student in every classroom."***

Unfortunately, for many smaller school districts and charter and private schools, access to this infrastructure is both limited and expensive. Current bandwidth from existing service providers

may not meet the growing demand for digital learning or support access to the media-rich learning tools and cutting-edge technologies students need to learn 21st century skills. Budget constraints further exacerbate the issue.

The high one-time, or non-recurring, costs of constructing telecommunications networks, coupled with the monthly recurring costs for maintaining those networks, has long been a barrier to many K-12 school districts and libraries seeking access to affordable, high-speed broadband. This is particularly true for districts with fewer than 20 site locations, including rural districts, due to budget constraints. In addition, up until 2016 under the E-rate Program (with a brief exception when dark fiber was eligible in the earlier years of the Program), schools and libraries often sought leased lit fiber solutions with the non-recurring costs absorbed into much higher monthly recurring rates. In large part, schools chose this option because they did not have the budgets to cover their non-discounted share of the non-recurring costs up front.



History of E-rate Federal Policy and Funding

The E-rate Program is a service discount, as opposed to a federal subsidy program, that provides discounts ranging from 20 – 90 percent to help schools and libraries obtain high-speed broadband access and telecommunications services at affordable rates, and its genesis stems from the Telecommunications Act of 1996. The Act provided the FCC with oversight authority of the E-rate Program, who in turn directed the Universal Service Administrative Company (USAC) to administer the Program. The primary objective of the E-rate Program was, and still is, to bring advanced communications and Internet access to the nation’s schools and libraries.

Recognizing the persistent gaps in connectivity leaving small and medium-sized school districts and libraries behind, President Obama created the ConnectED Initiative in 2013 as a catalyst to extend high-speed broadband and wireless infrastructure to 99 percent of all schools and libraries by 2018.

In furtherance of the ConnectED Initiative and in a much heralded decision, the FCC took a bold step forward in its 2014 Second E-rate

Modernization Order, empowering schools and libraries to not only choose the best and most cost-effective fiber network solutions to meet their technology, instructional, and security needs, but also to establish better networks at significantly reduced costs. More specifically, the 2014 Second E-rate Modernization Order granted considerably more flexibility to schools and libraries when it came to funding the design, engineering, construction, and project management associated with the buildout of high-speed networks.

As a result of the 2014 Second E-rate Modernization Order, districts now have more options and access to financial support to enable service providers to build these networks at a cost that better aligns with their budgets.

Unfortunately, it is unknown how long these funds will be available. Because of the ever-evolving state of the federal budget, it is critical districts understand the E-rate funding currently available to them to build future-proofed fiber networks that serve not only today’s students, but also the young minds of tomorrow.

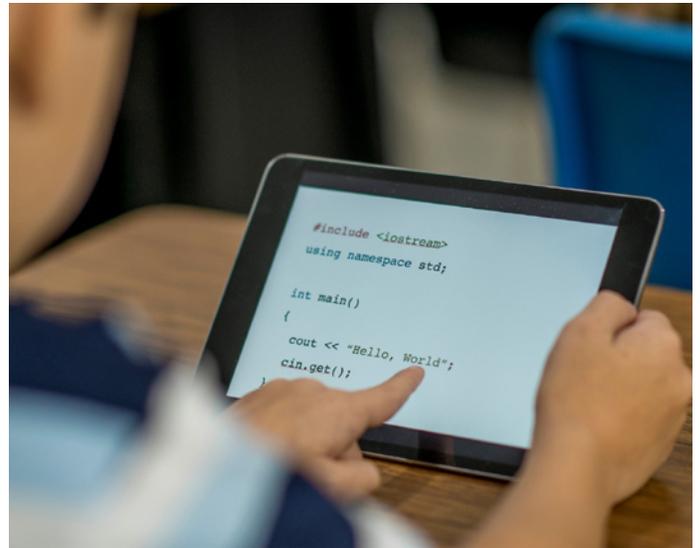
Equalizing the Treatment of Lit and Dark Fiber:

In dark fiber networks, the customer is required to supply the electronics necessary to light the fiber.² In a well-founded effort to get out of the road and put schools and libraries back in the driver's seat, the FCC made dark fiber eligible either through lease or an Indefeasible Right of Use (IRU). While dark fiber may not be the best choice for every district, it is sensible and in fact beneficial for many. And in response, a host of school districts are taking advantage of it. Data in the Consortium for School Networking's (CoSN's) 2018-2019 Annual Infrastructure Report points to many districts already using the dark fiber option for WAN transport. According to their survey, 20 percent are utilizing leased dark fiber compared to 39 percent leasing lit fiber, while the remaining respondents use some other form of broadband connection.³

Dark fiber unleashes high-speed broadband, allowing for complete network control, and is a viable option for districts with an experienced internal or outsourced IT team with the knowledge and skills to manage their network independently aside from outside plant maintenance (more commonly referred to as Maintenance and Operations, or "M&O" charges). In addition, the program rules allow for construction to begin up to six months prior to the funding year and extensions up to one year following the funding year due to unavoidable delays. Schools and libraries seeking dark fiber solutions must also request leased lit fiber on their FCC Form 470 applications and choose the most cost-effective solution, with price being the primary factor and rated the highest in the score criteria.

Permitting Self-Construction of High-Speed Broadband Networks:

Under the Order, districts lacking a variety of options for high-speed connectivity also can seek support for the construction of their own "self-provisioned" broadband networks.⁴





Savings Potential

While the term “special construction”

may not be new to schools, it may not be immediately clear why a district would or should utilize this option. To conflate matters, each district’s network design and construction costs are unique, and every service provider’s business model and cost of capital required to build out a network is different, so it is difficult to illustrate the benefits of special construction with exact numbers.

With that said, when a service provider calculates a district’s monthly recurring charges for either a Leased Lit or Leased Dark Fiber WAN, there are two primary considerations:

1. Recouping the cost of construction not paid up front in a non-recurring charge; and
2. the ongoing cost to provide M&O for the WAN.

Some major components of the cost of construction include permitting, engineering, equipment, materials, construction labor necessary to make the network operational, and project management. In contrast, the ongoing cost of M&O consists of such expenses as taxes and insurance, locate fees, pole rental fees,

ongoing licensing and franchising fees, repair and maintenance to the outside plant infrastructure, and administrative costs.

Commonly, the cost of construction amortized over time is the larger of the two pricing components affecting the price paid each month by school districts. Generally speaking, M&O is a more manageable number, and this is where the substantial financial impact of special construction is recognized. When a school district does not utilize the special construction option — a route many choose due to unfamiliarity, uncertainty of its value, or a reluctance to deviate from the status quo — they continue to pay the combination of these two pricing components indefinitely.

However, when a district takes advantage of special construction, paying some or all of the construction costs in a non-recurring charge, they have the ability to eliminate or at least significantly reduce the pricing component for network construction included in the ongoing recurring cost.

The question of whether special construction should be utilized can often be a defining moment



for a district, as the decision may either save or cost a district tens or hundreds of thousands, or even millions of dollars depending on the size of the district over the life of the contract. This is especially true when districts opt for longer-term agreements and/or request service providers to provide options for renewal terms. **The longer a district is able to commit to the service provider and a new network completed with special construction funds, the greater the amount of total savings that can be realized by the district.**

USAC requires that a district scrutinizing contract options from multiple service providers must

consider the total cost to the district over a defensible period of time, and a new network installation's life is generally accepted to be 20 years.⁵ **Taking advantage of E-rate's special construction option should always result in substantial cost savings to districts,** but it is important to note every service provider has their own pricing model and not all providers price WAN services in this manner. So, not all service providers offering special construction options will result in the same cost savings to districts, making it important to closely analyze pricing options and project future cost savings for the district.



Maximize Your E-rate Discounts

While the 2014 Second E-rate Modernization Order has had a significant impact on closing the disparity in connectivity across the country, there is still more work to be done. Small and medium school districts and rural schools continue to lack affordable broadband access, and districts most often cite the cost of monthly recurring expenses as the top barrier to increasing connectivity.³ These rural markets and other underserved districts have historically lacked an option other than their existing local telephone company or cable TV operator, but E-rate's special construction option has made it much more affordable for new Category 1 eligible service providers to construct competitively priced high-speed fiber optic networks in these areas.

It is imperative districts have access to a fiber platform that will serve their schools well into the foreseeable future and that these districts take advantage of the E-rate financial support available to them today, as the future of federal funding for this program remains uncertain year to year. Special construction rules established in the 2014

Second E-rate Modernization Order have provided districts with the additional financial tools needed to access better and more affordable broadband choices, including dedicated fiber WANs. It is important that districts renewing their existing broadband contracts understand and take advantage of the options available to them to upgrade to a high-speed network solution that will meet their needs today and offer a roadmap for meeting the bandwidth intensive, media-rich learning tools of the future.

How Velocity Fiber Can Help

Velocity Fiber custom-designs and builds E-rate Category 1 eligible leased lit and leased or IRU dark fiber WANs , both with and without special construction, to keep pace with the increasing network demands of today's districts. Instead of a single pair of shared fiber, we deliver multiple strands of dedicated (not shared) fiber. Our networks are never oversubscribed thanks to a true 1:1 architecture resulting in a reliable connection that allows districts to transfer data at full speeds across all sites, and we enable districts to increase WAN speeds as needed without ever increasing monthly costs. Velocity Fiber cost effectively unlocks digital learning so districts can focus on growing minds and not network costs.

For more information about Velocity Fiber, visit velocityfiber.com.

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Sources

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