



**NORTH CAROLINA**  
State Board of Education  
Department of Public Instruction

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# Report to the North Carolina General Assembly

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School Connectivity Initiative

*SL 2007-323 (HB1473), Section 7.28.(d)*

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## Legislative Update (2021-2022)

Data Provided for State Fiscal Years 2020-2021 and 2021-2022

E-rate Cycle Years 2020 and 2021

Prepared by:

Office of School Connectivity, North Carolina Department of Public Instruction

The Friday Institute for Educational Innovation, North Carolina State University

**Date Due: January 15, 2023**

DPI Chronological Schedule, 2022-2023

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## Executive Summary

The North Carolina School Connectivity Initiative (SCI) provides sufficient and reliable Internet access to every public school classroom across the state. Through the SCI, the NC Department of Public Instruction (NCDPI) also provides all PSUs with cooperative purchasing agreements, training, support, network engineering, content filtering, identity management and firewall services. North Carolina has been building this program for 16 years and is recognized as a national leader in providing equitable connectivity for public schools.

North Carolina utilizes the Federal Communications Commission's (FCC) [E-rate](#) program to the fullest extent possible and is a leading recipient of FCC funding on a per-student basis. This report details the significant accomplishments achieved over the State Fiscal Years 2021 and 2022 (SFY21 and SFY22) and calendar years 2020 through 2022 (CY20 to CY22). Due to the schedule in which the FCC allocates funding, multiple calendar years are reported for some data. Included are financial and operational performance data, opportunities for improvement, risks, mitigation strategies, and recommendations for legislative action. Key graphs used in this report are available online and interactively at <https://go.ncsu.edu/SCIreport> courtesy of the Friday Institute for Educational Innovation at NC State University.

### Key Characteristics of The Program

- North Carolina is a leader in recovering Universal Service Fees paid by its residents in their telecommunications bills. These fees are distributed to schools through the FCC E-rate program. Every school has a fiber internet connection, and every classroom has Wi-Fi access, all as a result of the SCI and the E-rate program. Over the last decade, the state has averaged \$75 million in funding commitments from the FCC E-rate program.
- Aggregate K-12 Internet capacity is over 450 Gbps (billion bits per second) with the average network utilization just under 60%. Every school has enough capacity to support digital teaching, with the capacity to grow, without overpaying for too much network capacity.
- Managed firewall, content filtering, and identity management services are provided at no cost to the PSUs, to protect students and school business systems.
- E-rate training programs for pertinent PSU staff. Leadership training is provided through a partnership with the UNC School of Government for PSU Chief Technology Officer/Technology Leaders.
- Provides network operations support, on-site technical assessments, and assistance is provided to PSUs to ensure the impact of the investment in infrastructure is maximized.
- In Fiscal Year 2021, each dollar of state funding spent on E-rate eligible goods and services delivers \$3.44 in value to the PSUs.

- Through analysis and modeling of E-rate filing scenarios performed by the Friday Institute, SCI continues to optimize E-rate Internet access applications to maximize the state's discount rate.
- Internet utilization at almost every PSU increased significantly post-pandemic. Federal pandemic-related programs, such as the Emergency Connectivity Fund (ECF), provided PSUs funding to ensure every student and teacher had a device for remote learning and expand the use of digital teaching and learning methods. These devices and methods returned to the physical classroom, causing increased utilization. SCI has always provided policies, guidance, and resources to have sufficient room for unexpected growth such as this.
- In 2020, SCI predicted an increased need of \$4.6M per year in response to an announced 12% E-rate program budget increase for PSUs. The General Assembly provided this funding and enabled SCI to meet the 15% increase in the amount requested by PSUs.

## Considerations and Recommendations

Detailed within this report are several recommendations for legislative actions that are necessary for SCI to remain viable at the current service levels:

### 1. Improve E-rate Project Allocation Flexibility

Renew the intent of SL2017-57 SECTION 7.11.(d) to permanently permit these School Connectivity funds allocated to PSUs (PRC 073 and PRC 036) to carry-over to the next funding year. The federal E-rate cycle spans 18 months. PSU's make requests in March and may not be approved by the FCC until June. PSUs must then wait for SCI funds to come in August (at the earliest due to OSBM and agency annual budget certification) before placing orders with vendors. Vendors continue to struggle with supply chain issues to deliver on time, and PSUs may not pay invoices until delivery is complete. If the PSU cannot receive the products in time, they experience financial challenges in managing state and local funds to not lose funding. This creates significant opportunity for audit exceptions and lack of transparency. The allocations are made for a specific, approved project. NCDPI could consider a new PRC specifically for allotments leveraged against E-rate with regulations concerning the timeframe in which the funds must be used.








### 2. Plan for Technology Deficit Created by the FCC Emergency Connectivity Fund

Devise potential funding models, cooperative purchasing agreements, and best practices for PSUs to enable sustainable digital teaching and learning when ECF and other temporary funds are no longer available.

North Carolina has been recognized as a leader in school connectivity for a decade. Few states have had the foresight, wherewithal, and support of their General Assembly to build and operate such an initiative. We know of no other state that is protecting public schools in such a centralized and coordinated manner as North Carolina with firewalls and identity management.





## Background

The School Connectivity Initiative was launched in earnest with the publication of the Developing Regional Education Networks report in May 2006. In the 16 years since the inception of the SCI program, NC public schools have sought almost \$2 billion in network infrastructure and services of which \$1.2 billion was paid by the Federal Communications Commission (FCC) E-rate<sup>1</sup> program. During this time, the telecommunications and computing markets have shifted dramatically, and the regulatory environment has been in near-constant flux. The NC legislature has called for and invested in a digital transition in public schools.

2006	Developing Regional Education Networks report published	
2007	NC Legislature Funds SCI with \$12M, recurring	
2008	NC Legislature adds \$10M for a total of \$22M, recurring	
2009	All 115 PSUs connected to NCREN	
2010	Inaugural class of 34 CeCTO students graduate	
2012	NC Education Cloud Identity and Access Management plan published	
2013	MCNC completes final phase of BTOP-GLF fiber expansion	
2014	First E-rate modernization order	

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<sup>1</sup> <https://www.fcc.gov/consumers/guides/universal-service-program-schools-and-libraries-e-rate>

2015	NC Digital Learning Plan published. NC legislature adds \$12M recurring to SCI.	
2017	NC reaches \$1B in E-Rate disbursements	
2018	Modern Wi-Fi is available in every classroom in NC	
	DPI establishes new contracts for Internet, Firewall and Filtering with substantial cost savings and improved service	
2022	NC reaches \$300M in E-Rate procurement value for Wi-Fi since modernization (2015 to 2022)	

*Figure 1: SCI Milestone Timeline*

Figure 1 illustrates how the SCI program has exhibited extraordinary productivity and adaptability over its history. Within its first year, it connected all 115 districts to the NC Research and Education Network using an opt-in approach. It established the Certified Educational Chief Technology Officer (CeCTO) training program through the UNC School of Government and developed and implemented the NCEdCloud Identity and Access Management (IAM) service. Through MCNC and the Golden Leaf Foundation, the program enabled the delivery of competitive fiber connectivity to rural NC schools and libraries, adapted to the NC Digital Learning Plan, FCC E-rate modernization orders, and the growth of student device proliferation. From 2009 to 2022, the K-12 contracted Internet usage grew from approximately 1 Gbps to 450 Gbps.

## Performance Overview

The vision of the SCI is to ensure all NC PSUs have equitable access to secure and reliable high-speed Internet access, sufficient to meet their instructional and professional needs, through efficient use of federal and state funding.

It is our mission to maximize the state and local use of the federal E-rate program to obtain the greatest discounts or reimbursements. This is accomplished with cooperative purchasing agreements (CPAs) and common shared services which enable PSU local control while leveraging economies of scale.

### E-rate Utilization Rate by North Carolina

In the CY2022 E-rate filing year:

- 188 PSUs submitted 417 requests for E-rate. A total contract value of \$89M was sought with \$67M of that being provided by the FCC E-rate program
- 97% approval of all requests, with an average E-rate discount of 75%

These results are directly attributable to the work of SCI's regional E-rate coordinators providing:

- Direct assistance within PSUs for E-rate planning and filing
- Individualized support through multiple levels of FCC reviews, audits and appeals occurring throughout the year
- Multiple regional training events open to all E-rate eligible entities, including public libraries
- Planning, filing, and audit support of multiple state Internet consortia applications
- Assistance from The Friday Institute in data analytics and the development of algorithms to determine the optimal E-rate filing strategy to maximize E-rate discounts.

### Financial Summary

The School Connectivity Initiative is a \$94 million program supported by \$32 million in legislative funding.

Table 1 summarizes SFY2021 and SFY2022 total SCI expenses, the portion paid by E-rate, and the portion paid by State funding. The FCC groups E-rate eligible expenses into two broad categories, external connectivity expenses (Category 1) that deliver Internet and interconnect individual schools, and internal connectivity expenses (Category 2) that provide the wiring, switches, and wireless access points within each school.

(All values in millions, rounded)	Total Cost	E-rate Portion	State Portion
Category 1 Consortium Internet	\$13.4	\$10.6	\$2.9
Category 1 School Fiber Connections (WAN)	\$30.6	\$23.4	\$7.2
Category 2 Classroom Connections (Wi-Fi)	\$38.5	\$27.4	\$11.2
<b>E-Rate Eligible Totals</b>	<b>\$82.6</b>	<b>\$61.3</b>	<b>\$21.2</b>
Identity and Access Management	\$1.5	not eligible	\$1.5
Client Network Engineering	\$1.8	not eligible	\$1.8
Program Administration NCDPI, FFL, FI	\$1.1	not eligible	\$1.1
Firewall Services	\$2.3	not eligible	\$2.3
Content Filtering Services	\$4.6	not eligible	\$4.6
<b>E-rate Ineligible Totals</b>	<b>\$11.3</b>		<b>\$11.3</b>
<b>Grand Totals</b>	<b>\$93.8</b>	<b>\$61.3</b>	<b>\$32.5</b>

*Table 1A: Financial Summary SFY21 (unaudited)*

(All values in millions, rounded)	Total Cost	E-rate Portion	State Portion
Category 1 Consortium Internet	\$12.6	\$9.8	\$2.7
Category 1 School Fiber Connections (WAN)	\$29.4	\$22.4	\$7.0
Category 2 Classroom Connections (Wi-Fi)	\$44.1	\$28.6	\$15.5
<b>E-Rate Eligible Totals</b>	<b>\$86.0</b>	<b>\$60.8</b>	<b>\$25.2</b>
Identity and Access Management	\$1.5	not eligible	\$1.5
Client Network Engineering	\$1.8	not eligible	\$1.8
Program Administration NCDPI, FFL, FI	\$1.1	not eligible	\$1.1
Firewall Services	\$2.2	not eligible	\$2.2
Content Filtering Services	\$4.2	not eligible	\$4.2
<b>E-rate Ineligible Totals</b>	<b>\$10.8</b>		<b>\$10.8</b>
<b>Grand Totals</b>	<b>\$96.8</b>	<b>\$60.8</b>	<b>\$36.0</b>

*Table 1B: Financial Summary SFY22 (unaudited)*

Each year approximately 85% of SCI expenditures are eligible for FCC E-rate discounts. Every E-rate-eligible purchase goes through multiple reviews by the Universal Services Administrative Company (USAC), a subcontractor to the FCC, to



ensure the most cost-effective and technically sufficient solution is selected through an open and competitive bidding process. SCI's E-rate Coordinators are involved in every filing and at various levels during the review and audit processes.

**For every \$1 of state funding spent on E-rate-eligible goods and services, North Carolina schools received \$3.44 in total value.**

### Consortium Internet

SCI offers all PSUs fiber-based Internet access to a single centralized location, often the district central office, through the NC Research and Education Network, (NCREN) operated by MCNC. This opt-in service is provided at no cost to all PSUs. All 115 districts currently, and have for over ten years, opted to use this service.

Charter schools may opt-in to this service at no cost or receive an annual \$5,000 allocation for Internet service. 165 charter schools use the state-provided internet service through NCREN.

On behalf of all PSUs, SCI establishes NCREN Internet access through a contract with the NC Department of Information Technology (NCDIT). Cost containment is achieved by actively monitoring each PSUs actual internet usage and only procuring the capacity actually needed, based on industry-standard metrics.

For SFY2021, NCDPI applied for Internet access at a cost of \$14.89 million with an E-rate funding commitment of \$11.68 million, making the worst-case cost to the State \$3.21 million.

For SFY2022, NCDPI applied for Internet access at a cost of \$14.71 million with an E-rate funding commitment of \$11.59 million, making the worst-case cost to the State \$3.12 million. It is unusual to have two consecutive years at the same cost. In CY2022, NCDPI bid the consortium internet contract and, while capacity increased, costs decreased. For the current fiscal year, SFY23, total Internet access is expected to cost \$10.73 million with an expected E-rate commitment of \$8.28 million, leaving the State to cover just \$2.45 million in a worst-case scenario.

### School Fiber Connections (District Wide Area Network, WAN)

To distribute Internet access from a district central location to each school, districts use private service providers, such as Spectrum, AT&T, CenturyLink, or Conterra, to provide a fiber-based Wide Area Network (WAN). These WANs aggregate all the district schools to a central location for upstream connection to NCREN and the public Internet. Each of these connections are eligible for E-rate discounts of up to 90%. Any PSU with multiple campuses may have a WAN that is funded by SCI.

With over 2,600 school buildings in NC and dozens of service providers in the state, it is not feasible for SCI to provide WAN services in the same manner as Internet service. Therefore, each district is responsible for the procurement, management, and E-rate filings for their WAN. The SCI E-rate coordinators provide each PSU

guidance and assistance with each step. Upon E-rate approval, the service provider bills E-rate directly for the discounted portion and invoices the PSU for the remaining cost of the service. SCI provides an allocation to the PSU to cover this discounted invoice, resulting in a net-zero cost to the PSU. In each fiscal year, SFY2020 and SFY2021, PSUs received approximately \$32 million in WAN services with E-rate covering approximately \$25 million, leaving just \$7 million for SCI to cover. These funds provide fiber connections to approximately 2,500 school buildings. See Appendices A and B for details on a per-PSU basis.

### Classroom Connections (Wi-Fi)

With Internet service delivered to the individual school building, additional network infrastructure is necessary to distribute access to individual classrooms. Funding inside the school building is called "Category Two" in E-rate terminology, to distinguish it from the funding used to provide fiber to the school building itself. Unlike Internet and WAN funding, this classroom connection funding is capped by the FCC on a per-student basis of \$167 per student over five years.

Identical to the WAN process, PSUs make the purchases, the vendor bills E-rate and then invoices the PSU for the balance, and finally, SCI allocates to the PSU an amount equal to the invoice.

In July 2014, the FCC issued an E-rate Modernization Order establishing a five-year per-student-per-school "budget" to expand funding for robust classroom Wi-Fi. In response, SCI established Cooperative Purchasing Agreements providing numerous options for each PSU to select a vendor of their choice. The CPAs provide deep discounts that would not be available to most PSUs if they were to obtain services and equipment on their own. SCI continues to maintain and re-bid these contracts as necessary to meet state procurement laws and E-rate rules.

SCI has an established and tested methodology to track each PSU's use of E-rate funds and to budget for each funding year. If every PSU applies for every dollar allowed under E-rate, PSUs will procure \$161 million of classroom connectivity equipment, with E-rate providing \$119M and SCI providing the remaining \$42 million. Over the next three years, for every \$1 of state funding, the PSUs would receive \$4 of equipment, on average. A detailed analysis and tracking tool has been developed by the Friday Institute and is available at: <https://go.ncsu.edu/2023cat2budgets>

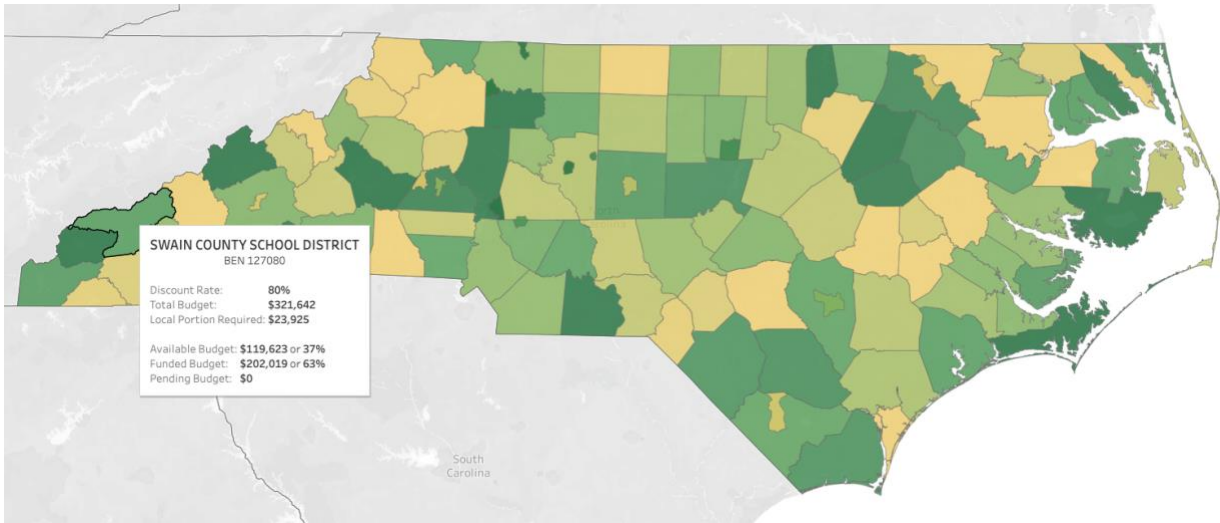


Figure 2. A screenshot of the Category Two budget tracking tool which can help PSUs and the state plan for maximum usage of the E-rate program.

A detailed accounting of Category Two funding for E-rate years 2020 and 2021, which includes calendar years 2020, 2021, and 2022 is provided below. This data is broken out by E-rate discount, which is based on rurality and the percentage of students eligible to participate in NSLP (National School Lunch Program). Pre-discount is the full contract value of the equipment and services. Requested is the portion of the total cost requested from the FCC. Committed is the amount that the FCC agrees to provide. Disbursed is the actual amount that the PSUs received. Sometimes projects require less funding than expected. PSUs can only be reimbursed for actual expenses incurred thus the disbursed amount may be slightly less than what the FCC committed.

Type	Discount %	# Requests	Pre-Discount	Requested	Committed	Disbursed
Charters	20% - 29%	9	\$141,913	\$33,372	\$33,372	\$17,385
	40% - 49%	60	\$1,075,629	\$430,252	\$430,252	\$329,783
	50% - 59%	47	\$871,383	\$435,691	\$435,691	\$402,279
	60% - 69%	13	\$252,800	\$151,680	\$151,680	\$113,529
	70% - 79%	3	\$29,774	\$20,842	\$20,842	\$20,455
	80% - 89%	24	\$442,042	\$370,068	\$370,068	\$318,281
Charters Total		156	\$2,813,540	\$1,441,905	\$1,441,905	\$1,201,712
Districts	50% - 59%	97	\$6,120,818	\$3,060,409	\$3,060,409	\$2,113,906
	60% - 69%	60	\$1,712,091	\$1,027,255	\$1,027,255	\$1,022,449
	70% - 79%	145	\$2,335,373	\$1,634,761	\$1,634,761	\$1,130,042
	80% - 89%	1,491	\$27,550,005	\$22,306,689	\$22,306,689	\$21,883,921
Districts Total		1793	\$37,718,288	\$28,029,114	\$28,029,114	\$26,150,317
<b>Grand Total</b>		<b>1949</b>	<b>\$40,531,828</b>	<b>\$29,471,019</b>	<b>\$29,471,019</b>	<b>\$27,352,030</b>

Table 2A. E-rate Year 2020 Category Two by discount rate.

Type	Discount %	Number of Requests	Pre-Discount	Requested	Committed	Disbursed
Charters	20% - 29%	11	\$139,069	\$30,133	\$30,133	\$23,386
	40% - 49%	48	\$1,015,500	\$406,200	\$406,200	\$270,562
	50% - 59%	33	\$863,539	\$431,770	\$431,770	\$257,828
	60% - 69%	7	\$143,088	\$85,853	\$85,853	\$22,725
	70% - 79%	4	\$32,927	\$23,049	\$23,049	\$18,984
	80% - 89%	35	\$692,715	\$574,660	\$574,660	\$523,232
Charters Total		138	\$2,886,839	\$1,551,665	\$1,551,665	\$1,116,717
Districts	50% - 59%	53	\$7,758,866	\$3,879,433	\$3,879,433	\$374,525
	60% - 69%	21	\$3,741,547	\$2,244,928	\$2,244,928	\$2,088,831
	70% - 79%	44	\$3,915,672	\$2,740,971	\$2,740,971	\$1,584,085
	80% - 89%	142	\$35,335,298	\$28,749,364	\$28,749,364	\$19,018,040
Districts Total		260	\$50,751,384	\$37,614,697	\$37,614,697	\$23,065,482
<b>Grand Total</b>		<b>398</b>	<b>\$53,638,223</b>	<b>\$39,166,361</b>	<b>\$39,166,361</b>	<b>\$24,182,200</b>

Table 2B. E-rate Year 2021 Category Two by discount rate.

Based on the data provided by the FCC in November 2022, a "best case" scenario would result in \$42 million in state funding or \$14 million per year for the next three years. Herein lies a significant challenge for SCI; allowing local control of the Category Two procurement makes it exceedingly difficult to evenly spread the demand across multiple years. The three-year budget is important because the FCC will reevaluate the Category Two program and reset the budgets in 2026. The original budget in 2015 was \$150 per student. In 2021 the budget was adjusted to \$167 per student, over a 5-year period. On average, the E-rate discount is 74% across the state.

The Friday Institute closely monitors the usage and produces the dashboard mentioned above annually. As seen in the tables above, the total contract value for Category Two increased by \$13 million or 32% year over year. This is due to pent-up demand following COVID. Preliminary data for E-rate Year 2022, which is the current cycle, shows \$48 million in total contract value with SCI expected to provide \$12.5 million of that amount.

### E-rate Ineligible Expenses Detail

While most SCI expenses are leveraged against E-rate, there are several items that are not E-rate eligible:

- **Firewall Services:** PSUs may opt-in to the SCI firewall service offered at no charge to the PSUs through a contract with NCDIT. This firewall service enforces network policies designed to protect school networks. In SFY22, 86

LEAs and 131 charters utilize this service at a cost of \$2.4 million in state funding.

- **Content Filtering Services:** PSUs may opt-in to the SCI Content Filtering Service offered at no charge to the PSU through a contract with NCDIT. Each PSU's acceptable use policy is enforced on school-issued student devices regardless of the device's location on or off campus. This type of filtering is required by E-rate and the Children's Internet Protection Act<sup>18</sup> but is not E-rate eligible. Currently, NCDIT is billing NCDPI for 89 districts and 136 charters for this service at a cost of \$4.3 million in state funding. Costs remain the same as last year.
- **Identity and Access Management (IAM):** The 2015 appropriations act expanded the SCI budget by \$12M annually effective SFY2017 and included IAM services. Processing logins for every student and staff member daily, IAM automates the provisioning and management of accounts for every student and school employee, over 1.7 million accounts. Integration of those accounts with cloud-based applications and services allows for more consistent security across applications and across PSUs. NCDPI manages the NCEdCloud IAM service through a contract with an identity services provider at an annual cost of \$1.5M.
- **Client Network Engineering (CNE):** Network infrastructure requires knowledge and skill to deliver reliable and secure access. PSUs are responsible for technology planning and the daily operation and maintenance of their infrastructure, but they need assistance at times. SCI contracts with MCNC to assist PSUs with high-level troubleshooting, network design consultation, and related training events through its CNE team. For SFY22, CNE directly supported 140 PSUs with 329 specific engagements. SCI is invoiced quarterly for services provided by MCNC and the actual expenses incurred for each PSU engagement at a cost not-to-exceed \$1.8M annually.
- **Program Administration:** Program administration includes SCI staff salaries and operational costs, licenses, and contracts with E-rate consulting firms and the Friday Institute. For most of SFY21 and SFY22, five, regionally based NCDPI staff members provided technical consulting, E-rate training, and related support at a combined compensation and benefit expense of \$701,922. A Friday Institute contract provides for strategic planning, design, forecasting, modeling, and documentation support at an annual budget of up to \$280,000, billed monthly based on actual effort. Total Program Administration costs are less than 1% of the total value delivered to PSUs and less than 3% of State appropriations for the program.

## K12 Internet Utilization and Capacity Analysis

The following diagrams are available in an interactive dashboard at <https://go.ncsu.edu/SCIreport>

NCREN provides for bulk purchase of Internet for all K-12 schools. NCREN peers with several major commercial carriers as well as Internet2. North Carolina schools all receive excellent Internet access, no matter how remote. By combining the purchasing power of the entire state, the cost is spread out among all the schools, enabling even the most remote or economically disadvantaged schools to have the same quality Internet access as the most urban or wealthy schools.

Between May 2020 and May 2022, contracted bandwidth increased from 320 Gbps to 420 Gbps. As of November 2022, the total contracted bandwidth is 450 Gbps. Contracted bandwidth represents the maximum sustainable transmission rate between all K-12 schools, in aggregate, and the public Internet. The average daily usage is significantly below the peak. This is because the network must be prepared to handle high utilization spikes, such as may be seen during end-of-grade testing. By aggregating the access across all PSUs, the amount of capacity required per student is lowered as compared to the network design in which each PSU connects to the Internet separately. This is because the likelihood that all PSUs will be at peak capacity on the same day is extremely low. This allows SCI to procure reasonable, and enough bandwidth, while giving each PSU the appearance of having unlimited capacity.

Note that the data represented in the graph below is only downstream, from the Internet to the school; a similar graph for upstream traffic also exists. Per common industry practice, the highest 5% of usage readings have been discarded. This ensures that MCNC is not aggressively billing based on transient spikes but rather the long-term average based on the lowest 95% of the usage readings, taken only during weekdays from 7 AM. to 5 PM.

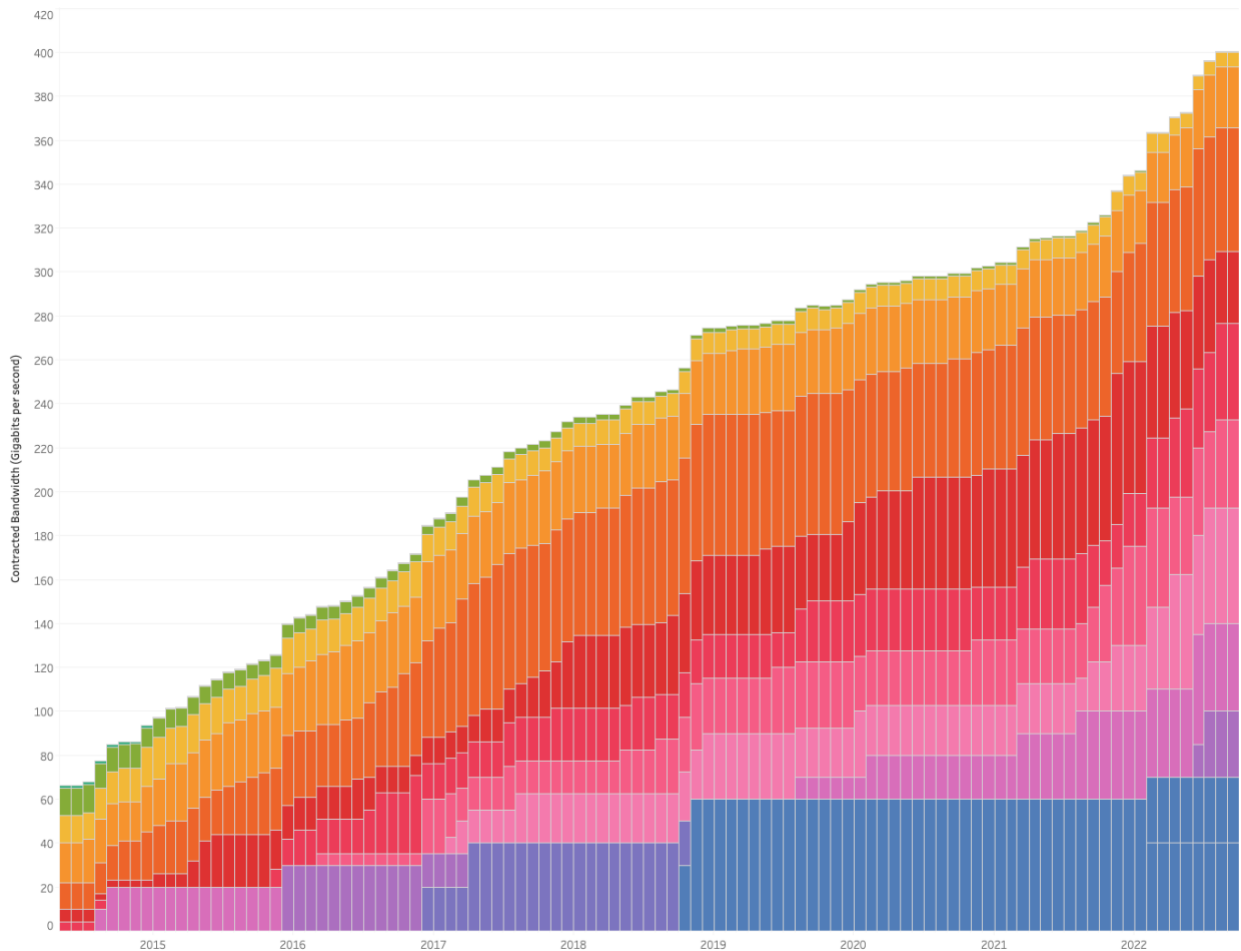
The graph below clearly shows the impact of the return from COVID. Summers are excluded from this data.



Figure 3: Statewide Contracted Bandwidth, Peak, and Average Utilization for all PSUs using NCREN.

As the pandemic waned, students returned to schools with thousands of new student devices creating increased demand. It is likely that many schools that were not fully engaged in digital teaching and learning prior to the pandemic will have, by necessity, embraced it and will continue to use digital teaching techniques henceforth. We will continue to use the previous rate of a 10% capacity increase per year for budgeting. Despite a massive increase in bandwidth capacity over the last ten years, the actual cost of the Internet has remained fairly flat. One key point of distinction is that the aggregated Internet cost of NCREN includes not only peering with the public Internet providers, but also the cost of circuits from the various PSUs to the NCREN backbone.

The following diagram shows the growth of district contracted bandwidth, color-coded by circuit speed. The green portions of the bars represent the circuits at 250 Mbps, while the blue bars represent the 30 and 40 Gbps circuits. There are 14 unique capacity levels in use across LEAs on NCREN. This granular billing ensures that schools are only being charged for their actual need and helps conserve SCI funding. Over time, slower-speed circuits are migrated to higher-speed circuits, as demand dictates.



*Figure 4: Aggregate Contracted Bandwidth 2015 through 2022, districts only.*

The following diagram shows the relationship between district size and peak Internet utilization. The size of the LEA, along the x-axis, is logarithmic in scale to spread out the data for better readability. This graph shows that the larger the LEA, the lower the peak utilization. Larger districts typically have more variety in activities that may or may not require the internet at the same time. Larger districts also typically have staggered school schedules. Contrasted with smaller districts, where there is a higher likelihood that all students are in class at the same time, the utilization is spread across a smaller number of hours in the school day.

The graph is color-coded by circuit speed. Rural districts are represented with open circles while urban districts are represented with filled circles. While rural districts tend to be smaller, the graph shows there is not a particular bias for rural districts to have slower connections than urban ones. In fact, all districts with the highest per-student use are rural. This is probably because students at these schools are most likely to not have internet access at home, thus they rely on the school internet



connection more than their urban counterparts.

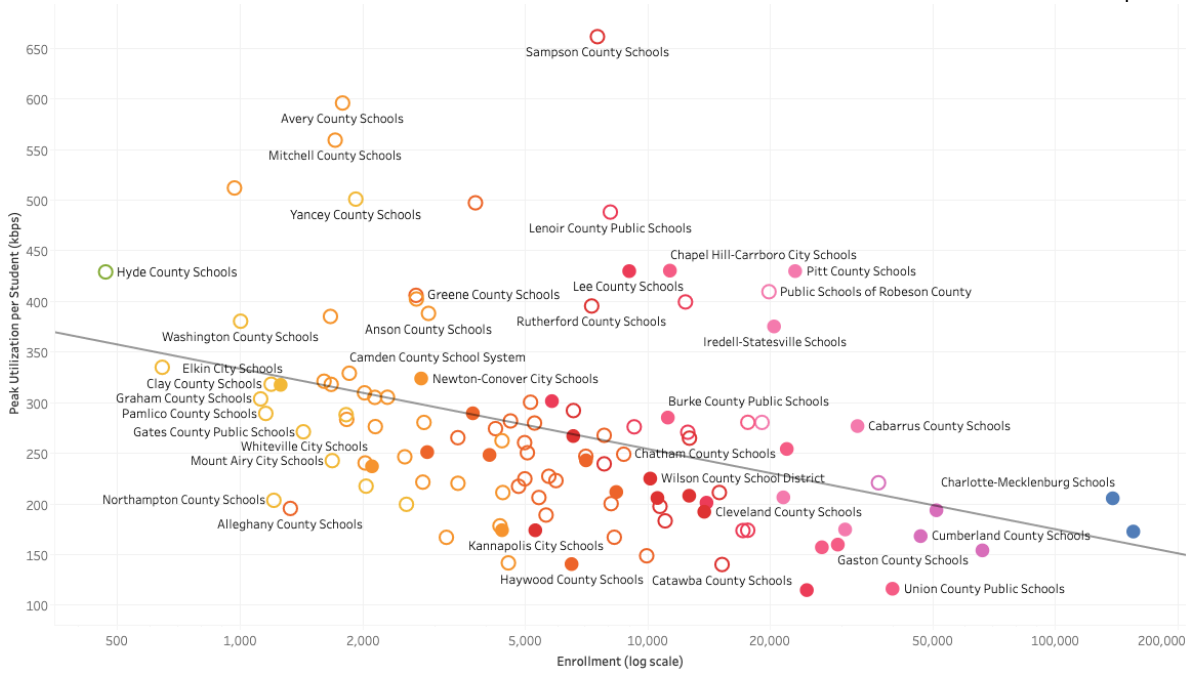


Figure 5: Peak Per-Student Utilization versus school size, color-coded by contracted bandwidth. May 2022, districts only. Open circles are rural districts, while filled circles are urban.

The gradient of color shows that the contracted bandwidth generally increases with the number of students in the district. The y-axis is measured in kilobits per second, per student. One megabit is 1,000 kilobits. This graph normalizes the usage on a per-student basis allowing for a more accurate comparison between PSUs.

### Equity in Access

The final graph related to utilization and capacity is a high point for North Carolina and the School Connectivity Initiative. The x-axis shows the percentage of students eligible to participate in the National School Lunch Program and the y-axis shows the average utilization per student. The graph is color-coded by cost per Mbps.

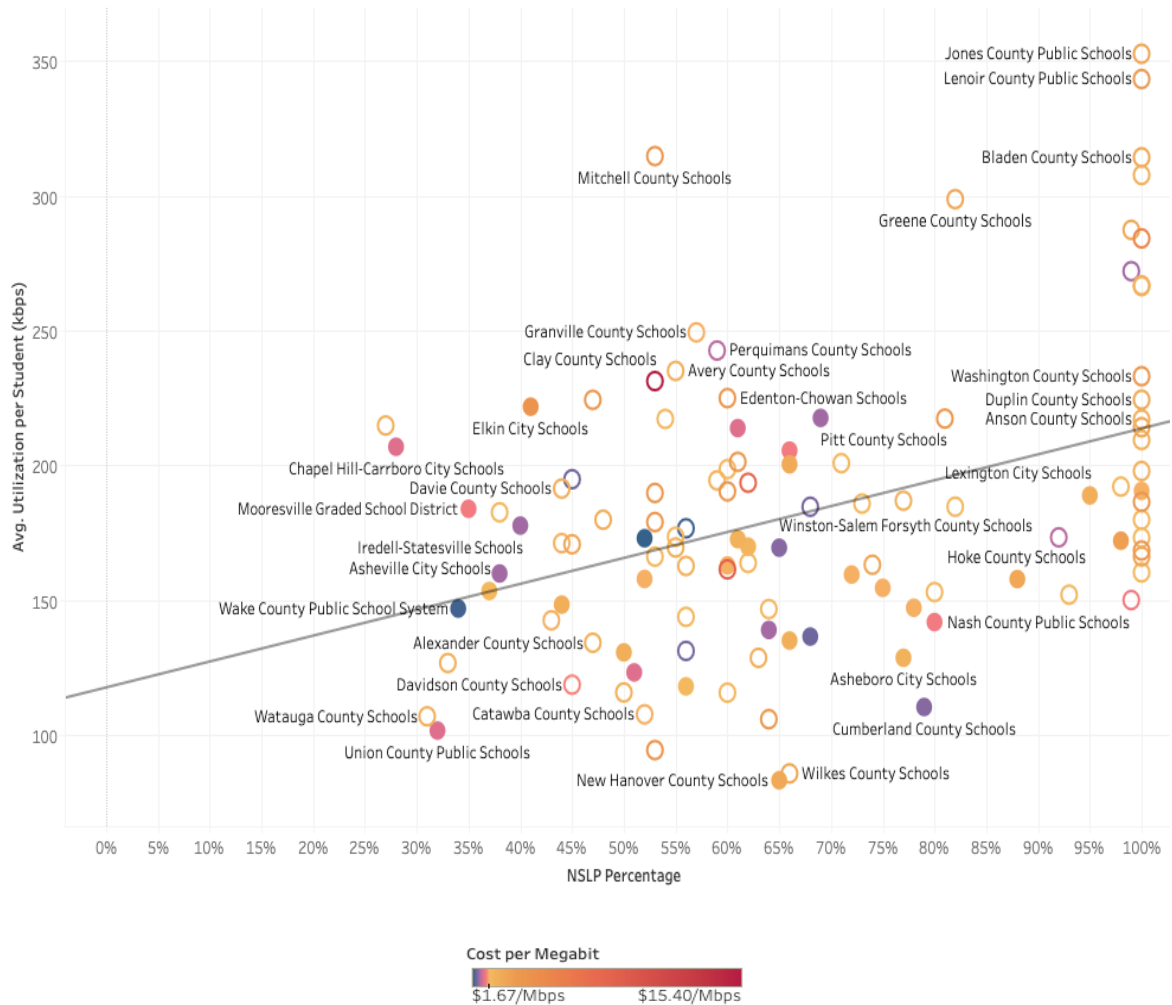


Figure 6: Average Per-Student Utilization versus NSLP% by District, color-coded by cost per Mbps (May 2022)

There is no correlation between district wealth level and utilization. This implies there is no bias in the way Internet access is provided to the PSUs by the SCI program.

Also apparent is the value of procuring Internet access centrally by NCDPI. The cost per Mbps varies widely in the state, because of geography, topology, and service provider used for the circuit from the PSU to the NCREN backbone. By aggregating the purchasing power and procuring Internet centrally, at the state level, districts located in difficult-to-service areas are not disadvantaged compared to those in locations with multiple service providers and competition.

Readers are encouraged to visit <https://go.ncsu.edu/SCIReport> to view the interactive version of Figure 5 for more details. All PSUs, including charter schools, are shown in the interactive dashboard on the website.

## Cost Containment

A per-student capacity goal of 1 Mbps per student has been proposed by some national coalitions and the FCC. On the contrary, SCI employs a capacity management process based upon data-driven predictions and demonstrated need through continuous utilization monitoring. This has proven to be a much more efficient and cost-effective approach than simply using an arbitrary Mbps per student target.

## Considerations and Recommendations for 2023

### Improve SCI Allocation Flexibility

**Issue:** The federal E-rate cycle spans 18 months. PSU's make requests in March and may not be approved by the FCC until June. PSUs must then wait for SCI funds to come in August (at the earliest due to OSBM and agency annual budget certification) before placing orders with vendors. In 2016, the FCC delay was so significant that in SL2017-57 SECTION 7.11.(d), the legislature provided relief over the 2017-19 fiscal biennium to permit these funds to remain available until the end of the 2018-19 fiscal year. Over those two years, approximately \$2M was able to "roll over" into the next fiscal year, enabling SCI to continue fully funding approved requests. However, this relief has expired.

While the FCC has made improvements, delays still exist. Further, vendors are experiencing supply chain issues that are causing significant delays. While the FCC has extended some deadlines for product installation, the state fiscal year does not accommodate these delays. If the PSU cannot receive the products in time, they experience financial challenges in managing state and local funds to not lose funding. This creates significant opportunity for audit exceptions and lack of transparency.

SCI provides PSUs allocations shortly after receiving E- rate commitments, the amount of which is based on project quotes and are highly accurate. However, these allocations must be consumed by the end of the next June, or they will revert.

Appendix C of this report details the history of E-rate funding in North Carolina. It is indeed apparent that funding requests are variable from year to year with DPI having little control over funding sought, the cost of WAN circuits, or the ability to influence the speed at which the FCC (USAC) processes applications.

**Recommendation:** SCI recommends the legislature renew the intent of SL2017-57 SECTION 7.11.(d) on a recurring basis to prevent these funds from reverting.

### Technology Deficit Created by the FCC Emergency Connectivity Fund (ECF)

**Issue:** Throughout 2021 and 2022, North Carolina public schools utilized the FCC ECF program. This program was a one-time extension of the E-rate program, with substantially different rules than are normally used. The program was funded by a one-time Congressional appropriation rather than Universal Service Fund fees used to cover the costs of E-rate.

The Friday Institute has analyzed the ECF data on a nationwide basis and developed an interactive dashboard: <https://go.ncsu.edu/nationwideECF>

From this analysis we have discovered that NC public schools will receive approximately \$186 million of one-time funding from this program. Of that, approximately \$149 million will be used to procure laptops and tablets. Unlike normal E-rate funds, ECF can be used for student devices, and NC schools have taken advantage of this fact. However, this is one-time funding and in three or so years when the ECF-funded laptops begin to fail, they will need to be replaced. With COVID there was an accelerated move to digital resources and as such the state needs to plan for the sustainable use of digital teaching and learning.

**Recommendation:** Form a team comprised of DPI, PSUs, Fiscal Research, the Friday Institute, and other technology and policy experts to devise potential funding models, cooperative purchasing agreements, and best practices for PSUs to enable sustainable digital teaching and learning.

## Supporting Documentation

An interactive dashboard that illustrates PSU Internet utilization, as well as statistics about the costs of E-rate-related services, may be found at:

<http://go.ncsu.edu/SCIReport>

An interactive map showing Internet utilization may be found at:

[https://portal.mcnc.org/reporting/ncren\\_utilization\\_map](https://portal.mcnc.org/reporting/ncren_utilization_map)

An interactive data dashboard of for Category Two budgets and ECF may be found at:

<https://go.ncsu.edu/2023cat2budgets>

<https://go.ncsu.edu/nationwideecf>

The balance of this report includes supporting data as follows.

APPENDIX	DATA
A	2020 and 2021 LEA PRC 073 allotments and shared services distributions
B	2020 and 2021 Charter School PRC 036 allotments and shared services distributions
C	North Carolina E-rate Funding History Report

## Appendix A: 2020 and 2021 LEA Allotments and Shared Services

Presented below are details of the direct funding received by districts from SCI through PRC 073 allocations and the direct costs paid by SCI for each shared service (Content Filtering, Firewall, and Internet services) for SFY21 and SFY22. Districts request E-rate funds for WAN and Wi-Fi during spring for service/delivery within the funding year between July 1 and June 30. SCI issues allocations during each fiscal year to cover the costs for eligible expenses that E-rate does not.

PSU	PSU Name	District WAN	Category 2 Wi-Fi	Content Filtering	Firewall	Internet	Total
10	Alamance-Burlington Schools	51,675	270,959	73,226	35,530	175,604	606,994
20	Alexander County Schools	28,496	71,498	21,008	9,946	39,989	99,994
30	Alleghany County Schools	17,280	11,447			44,607	28,727
40	Anson County Schools	19,890	13,422			39,989	33,312
50	Ashe County Schools	22,080	19,521		9,946	39,989	41,601
60	Avery County Schools	14,760	1,562	21,008	9,946	39,989	16,322
70	Beaufort County Schools	13,987	14,766	34,319		64,775	28,753
80	Bertie County Schools	11,849		21,008	9,946	39,989	11,849
90	Bladen County Schools	37,261	18,019	38,414	20,211	96,279	55,280
100	Brunswick County Schools	85,618	62,918			114,209	148,536
110	Buncombe County Schools	106,920	361,517	53,960		125,922	468,437
111	Asheville City Schools	52,860	79,965	23,716		56,231	132,825
120	Burke County Schools	73,416	177,718	55,820	35,530	104,334	251,134
130	Cabarrus County Schools	128,102	238,940	100,666	35,508	168,579	367,042
132	Kannapolis City Schools	11,708	39,650	55,820	20,211	104,334	51,358
140	Caldwell County Schools	80,425	96,292		20,211	71,789	176,717
150	Camden County Schools	20,495	24,861	12,307	9,946	27,416	45,356
160	Carteret County Public Schools	33,934	29,811	38,414	20,211	78,825	63,745
170	Caswell County	10,036		12,307	9,946	27,416	10,036

	Schools						
180	Catawba County Schools	96,048	72,633			137,027	168,681
181	Hickory City Schools	49,236				68,297	49,236
182	Newton Conover City Schools	7,300	25,097	21,008	9,946	51,348	32,397
190	Chatham County Schools	23,864		38,414	20,211	90,522	23,864
200	Cherokee County Schools		16,864	21,008	9,946	105,732	16,864
210	Edenton-Chowan Schools	12,810	8,118	12,307	9,946	27,416	20,928
220	Clay County Schools		13,870			95,234	13,870
230	Cleveland County Schools	24,300		55,820	20,211	104,334	24,300
240	Columbus County Schools	23,506	12,983	21,008	9,946	39,989	36,489
241	Whiteville City Schools	7,300	5,878			39,989	13,178
250	Craven County Schools	10,000		55,820	35,530	104,334	10,000
260	Cumberland County Schools	141,817		134,152	65,701	215,046	141,817
270	Currituck County Schools	35,435	80,377	21,008	9,946	39,989	115,812
280	Dare County Schools	28,457	49,142	38,414	20,211	63,854	77,599
290	Davidson County Schools	72,785		55,820	20,211	109,686	72,785
291	Lexington City Schools	5,417	25,339	21,008	9,888	49,933	30,756
292	Thomasville City Schools	3,698	12,384	13,353	9,888	29,721	16,082
300	Davie County Schools	1,940	35,812	26,582	18,856	60,089	37,752
310	Duplin County Schools	21,892		57,299	20,211	137,290	21,892
320	Durham Public Schools	104,400	235,038	73,226	35,530	133,927	339,438
330	Edgecombe County Public Schools	22,283		38,414	20,211	71,789	22,283
340	Winston Salem/Forsyth County Schools	115,172	394,817			275,297	509,989
350	Franklin County Schools	54,827	36,187	38,414	20,211	82,145	91,014
360	Gaston County Schools	90,221				187,441	90,221
370	Gates County Schools	22,342	2,954	12,307	9,946	27,416	25,296
380	Graham County	3,000	9,340	7,955	4,800	18,856	12,340

	Schools						
390	Granville County Schools	25,543	74,639	55,820	20,211	104,334	100,182
400	Greene County Schools	12,336	4,567	21,008	9,946	46,343	16,903
410	Guilford County Schools	327,718	516,702	144,020		271,334	844,420
420	Halifax County Schools	10,112	5,460	21,008		46,343	15,572
421	Roanoke Rapids City Schools	12,480		12,307	9,946	27,416	12,480
422	Weldon City Schools	5,700		7,955	4,895	18,817	5,700
430	Harnett County Schools	91,020	151,074	73,226	35,530	175,213	242,094
440	Haywood County Schools	28,274	39,873			200,384	68,147
450	Henderson County Schools	42,372	77,059	42,302		104,334	119,431
460	Hertford County Schools	7,865	15,303	12,307	9,946	27,416	23,168
470	Hoke County Schools	20,932	65,613	38,414	20,211	90,522	86,545
480	Hyde County Schools	2,889	4,537	7,955	4,895	18,817	7,426
490	Iredell-Statesville Schools	447,664	83,590	134,152	65,701	213,634	531,254
491	Mooresville Graded School District	10,445	123,457	38,414	20,211	71,789	133,902
500	Jackson County Schools	17,700	30,081			39,989	47,781
510	Johnston County Schools	238,680	236,467		65,268	464,696	475,147
520	Jones County Schools	3,540			9,888	27,895	3,540
530	Lee County Schools	65,304	81,523	46,372	20,211	97,403	146,827
540	Lenoir County Public Schools	29,898	12,250			175,213	42,148
550	Lincoln County Schools	78,964	192,905		-766	76,730	271,869
560	Macon County Schools	64,500	36,248			114,396	100,748
570	Madison County Schools	13,440	26,065	21,008	9,888	42,653	39,505
580	Martin County Schools	13,604		12,307	9,946	27,416	13,604
590	McDowell County Schools	42,828			20,211	71,303	42,828
600	Charlotte-Mecklenburg Schools	221,011	468,116	525,781		770,084	689,127
610	Mitchell County	20,112	15,022	15,096	9,946	41,333	35,134



	Schools						
620	Montgomery County Schools	57,974	34,495		9,946	46,343	92,469
630	Moore County Schools	225,035	117,569	55,820		107,963	342,604
640	Nash-Rocky Mount Schools	78,971	98,330	55,820	35,530	104,334	177,301
650	New Hanover County Schools	103,021			35,530	152,995	103,021
660	Northampton County Schools	10,272		12,307	9,946	27,416	10,272
670	Onslow County Schools	102,492	182,466	73,226	35,508	129,873	284,958
680	Orange County Schools	48,220	76,072	38,414	20,211	82,145	124,292
681	Chapel Hill-Carrboro City Schools	42,281	214,830	55,820	35,530	104,334	257,111
690	Pamlico County Schools	10,000	2,669			19,188	12,669
700	Elizabeth City-Pasquotank Public Schools	30,944	33,436	38,414	20,211	71,789	64,380
710	Pender County Schools	53,769		38,414		119,519	53,769
720	Perquimans County Schools	12,583	14,927	12,307	9,946	27,416	27,510
730	Person County Schools	27,848	48,026	38,414	20,211	71,789	75,874
740	Pitt County Schools	279,925	261,541	90,631	35,530	155,708	541,466
750	Polk County Schools	10,706	13,718		9,946	27,416	24,424
760	Randolph County Schools	108,511	88,592	38,414	20,211	71,789	197,103
761	Asheboro City Schools	13,546	27,514	21,008	9,946	39,391	41,060
770	Richmond County Schools	26,471	28,812	38,414	20,211	71,789	55,283
780	Public Schools of Robeson County	45,273	106,248	90,631	35,530	152,332	151,521
790	Rockingham County Schools	40,982	128,856	55,820	35,530	109,426	169,838
800	Rowan-Salisbury Schools	145,458	69,231			175,604	214,689
810	Rutherford County Schools	15,912	51,884	55,820	35,530	104,334	67,796
820	Sampson County Schools	31,458	48,038	38,414	20,211	90,522	79,496
821	Clinton City Schools	8,850	9,890		9,946	46,343	18,740
830	Scotland County Schools	33,846	56,687		20,211	71,789	90,533
840	Stanly County Schools	118,598	62,883		20,211	82,145	181,481

850	Stokes County Schools	27,862	38,037	21,008	9,946	39,989	65,899
860	Surry County Schools	53,841	68,163	38,414	20,211	71,789	122,004
861	Elkin City Schools	7,000	16,094		9,888	30,767	23,094
862	Mount Airy City Schools	16,668	12,106	12,307	9,946	27,416	28,774
870	Swain County Schools	15,000				39,989	15,000
880	Transylvania County Schools	20,052	47,345	21,008	9,946	39,989	67,397
890	Tyrrell County Schools	3,000	4,833		4,895	18,817	7,833
900	Union County Public Schools	489,216	663,293			155,708	1,152,509
910	Vance County Schools	23,921	20,698	38,414	20,211	71,789	44,619
920	Wake County Schools	663,612	2,102,322			762,084	2,765,934
930	Warren County Schools	27,841	15,469	21,008	9,946	39,989	43,310
940	Washington County Schools	9,530		12,307	9,888	27,416	9,530
950	Watauga County Schools	39,240	43,271	21,008	9,888	39,989	82,511
960	Wayne County Public Schools	42,869			35,508	137,027	42,869
970	Wilkes County Schools	44,760	30,363	38,414		90,522	75,123
980	Wilson County Schools	38,640	47,618	38,414	20,211	71,789	86,258
990	Yadkin County Schools	22,687	34,203	21,008	9,946	49,933	56,890
995	Yancey County Schools	17,985		12,307	9,946	27,416	17,985
	Grand Totals	\$6,900,443	\$9,750,779	\$3,698,507	\$1,670,476	\$11,198,883	\$16,935,582

Table 3A: SCI Funding to LEAs Through PRC073 and for shared services, SFY21

PSU ID	PSU Name	District WAN	Category 2 Wi-Fi	Content Filtering	Firewall	Internet	Total
10	Alamance-Burlington Schools	51,676	164,983	65,442	34,550	164,116	480,767
20	Alexander County Schools	34,453	17,788	17,368	9,064	35,775	114,448
30	Alleghany County Schools	21,960	31,783			63,453	117,196
40	Anson County Schools	17,381	37,135	7,675		35,775	97,966
50	Ashe County Schools	22,080		7,675	9,064	35,775	74,594
60	Avery County Schools	14,760	16,638	14,137	9,064	35,775	90,374
70	Beaufort County Schools	13,987	54,187	19,123		55,845	143,142

80	Bertie County Schools	17,322		17,368	9,064	35,775	79,529
90	Bladen County Schools	37,261		31,759	17,974	83,796	170,790
100	Brunswick County Schools	82,690	110,193	22,939		105,740	321,562
110	Buncombe County Schools	106,920	334,362	33,115		133,920	608,317
111	Asheville City Schools	52,860		23,338		63,453	139,651
120	Burke County Schools	73,416		56,326	32,549	106,260	268,551
130	Cabarrus County Schools	159,881	726,598	110,911	32,549	184,659	1,214,598
132	Kannapolis City Schools	18,749	57,480	46,150	17,974	92,148	232,501
140	Caldwell County Schools	57,060	121,601		27,249	79,686	285,596
150	Camden County Schools	21,161		14,623	9,064	31,961	76,809
160	Carteret County Public Schools	65,964	119,482	31,759	17,974	63,453	298,632
170	Caswell County Schools	10,036	2,612	13,987	9,064	31,114	66,813
180	Catawba County Schools	96,048	485,779			92,148	673,975
181	Hickory City Schools	49,236				78,930	128,166
182	Newton Conover City Schools	7,300	31,747	17,368	9,064	35,775	101,254
190	Chatham County Schools	37,512	253,727	31,759	17,974	81,906	422,878
200	Cherokee County Schools		57,092	17,368	9,064	101,475	184,999
210	Edenton-Chowan Schools	12,840		10,171	9,064	25,185	57,260
220	Clay County Schools	10,800	1,630	1,798		92,961	107,189
230	Cleveland County Schools	24,300		46,150	19,299	92,148	181,897
240	Columbus County Schools	20,912	96,596	22,456	13,924	44,695	198,583
241	Whiteville City Schools	3,000	2,815	10,089		35,775	51,679
250	Craven County Schools	10,000	180,892	46,150	32,549	92,148	361,739
260	Cumberland County Schools	150,521		117,819	59,829	195,366	523,535
270	Currituck County Schools	41,773	17,861	17,368	9,064	35,775	121,841
280	Dare County Schools	38,753	38,247	31,759	17,974	57,453	184,186
290	Davidson County Schools	72,785	60,776	51,238	20,006	103,436	308,241
291	Lexington City Schools	5,425	82,616	19,912	13,924	50,034	171,911
292	Thomasville City Schools	3,698	24,404	10,807	9,064	29,715	77,688
300	Davie County Schools	16,307	111,991	31,759	17,974	73,506	251,537
310	Duplin County Schools	105,792	57,211	47,422	20,624	123,948	354,997

320	Durham Public Schools	19,529	74,299	96,157	52,389	166,383	408,757
330	Edgecombe County Public Schools	116,039		31,759	17,974	63,453	229,225
340	Winston Salem/Forsyth County Schools	38,777	376,697			236,823	652,297
350	Franklin County Schools	90,221	11,362	38,119	29,203	82,871	251,776
360	Gaston County Schools	22,342	123,313			143,851	289,506
370	Gates County Schools	3,000	2,964	10,171	9,064	25,185	50,384
380	Graham County Schools	75,447	39,816	8,482	4,400	21,889	150,034
390	Granville County Schools	12,336	86,347	46,150	17,974	92,148	254,955
400	Greene County Schools	253,713	7,453	22,456	17,337	54,946	355,905
410	Guilford County Schools	10,112	261,367	146,887		228,531	646,897
420	Halifax County Schools	12,480	5,337	17,368		41,922	77,107
421	Roanoke Rapids City Schools	5,700		10,171	9,064	25,185	50,120
422	Weldon City Schools	91,020		8,800	7,368	22,502	129,690
430	Harnett County Schools	28,274	175,885	74,533	37,509	190,525	506,726
440	Haywood County Schools	42,372				218,922	261,294
450	Henderson County Schools	7,865	420,804			92,148	520,817
460	Hertford County Schools	20,932	11,167	13,987	9,064	31,114	86,264
470	Hoke County Schools	3,367	18,868	31,759	17,974	81,906	153,874
480	Hyde County Schools	446,380	14,774	6,574	4,400	17,598	489,726
490	Iredell-Statesville Schools	10,445	634,185	71,699	59,829	184,659	960,817
491	Mooresville Graded School District	17,700		44,479	20,624	87,812	170,615
500	Jackson County Schools	246,570				42,465	289,035
510	Johnston County Schools	3,788	304,202		59,829	292,281	660,100
520	Jones County Schools	65,304			9,064	26,775	101,143
530	Lee County Schools	29,898	13,176	60,541	17,974	113,904	235,493
540	Lenoir County Public Schools	70,108	1,921	5,351		161,855	239,235
550	Lincoln County Schools	64,500	91,289			92,148	247,937
560	Macon County Schools	12,240	11,380			110,163	133,783
570	Madison County Schools	12,538	127,192	17,368	9,064	38,223	204,385
580	Martin County Schools	42,828	15,131	10,171	9,064	25,185	102,379
590	McDowell County Schools	226,757	24,600		17,974	62,634	331,965

600	Charlotte-Mecklenburg Schools	20,112	1,259,633	485,574		702,989	2,468,308
610	Mitchell County Schools	35,901		17,368	9,064	52,482	114,815
620	Montgomery County Schools	191,548			9,064	41,922	242,534
630	Moore County Schools	78,971	587,156	46,150		92,148	804,425
640	Nash-Rocky Mount Schools	103,021	337,541	48,694	32,549	95,636	617,441
650	New Hanover County Schools	10,272			32,549	147,928	190,749
660	Northampton County Schools	105,072		10,171	9,064	25,185	149,492
670	Onslow County Schools	48,220	196,246	65,629	32,549	121,040	463,684
680	Orange County Schools	36,022	231,078	31,759	17,974	73,506	390,339
681	Chapel Hill-Carrboro City Schools	10,000	772,766	65,648	32,549	121,686	1,002,649
690	Pamlico County Schools	30,944	22,790			25,437	79,171
700	Elizabeth City-Pasquotank Public Schools	46,070		31,759	17,974	63,453	159,256
710	Pender County Schools	12,583	92,998	26,145		110,982	242,708
720	Perquimans County Schools	24,518	39,726	10,171	9,064	25,185	108,664
730	Person County Schools	279,925	19,783	31,759	17,974	63,453	412,894
740	Pitt County Schools	10,598	182,278	90,832	49,492	155,485	488,685
750	Polk County Schools				9,064	25,185	34,249
760	Randolph County Schools	9,977	172,581	32,737	19,299	65,145	299,739
761	Asheboro City Schools	26,090	14,312	17,368	9,064	35,775	102,609
770	Richmond County Schools	42,633		49,572	24,425	75,048	191,678
780	Public Schools of Robeson County	41,869		71,489	32,549	143,851	289,758
790	Rockingham County Schools	129,341		46,150	32,549	96,852	304,892
800	Rowan-Salisbury Schools	15,912	36,763			163,043	215,718
810	Rutherford County Schools	31,458	88,563	46,150	32,549	92,148	290,868
820	Sampson County Schools	8,850	105,886	39,391	17,974	104,327	276,428
821	Clinton City Schools	33,846	29,225	15,350	9,064	41,922	129,407
830	Scotland County Schools		7,037		17,974	63,453	88,464
840	Stanly County Schools	27,862	12,673	5,614	17,974	65,964	130,087
850	Stokes County Schools	36,401		22,456	9,064	44,695	112,616
860	Surry County Schools	7,000	97,852	31,759	17,974	63,453	218,038

861	Elkin City Schools	16,668	40,944		9,064	28,317	94,993
862	Mount Airy City Schools	15,000	53,267	10,171	9,064	25,185	112,687
870	Swain County Schools	20,052				35,775	55,827
880	Transylvania County Schools	3,000	3,529	17,368	9,064	35,775	68,736
890	Tyrrell County Schools	496,713			4,400	17,598	518,711
900	Union County Public Schools	24,265	128,552			136,095	288,912
910	Vance County Schools	683,454	140,112	28,952	17,974	63,453	933,945
920	Wake County Schools	25,521	2,978,116			641,601	3,645,238
930	Warren County Schools	7,495	15,833	17,368	9,064	35,775	85,535
940	Washington County Schools	39,240		10,171	9,064	25,185	83,660
950	Watauga County Schools	42,869	10,600	17,368	9,064	35,775	115,676
960	Wayne County Public Schools	44,760			32,549	104,356	181,665
970	Wilkes County Schools	38,640	79,728	26,145		81,906	226,419
980	Wilson County Schools	22,687		38,119	39,803	75,048	175,657
990	Yadkin County Schools	14,347	134,433	17,368	13,924	45,522	225,594
995	Yancey County Schools			10,171	9,064	25,185	44,420
	Totals	\$6,638,928	\$14,043,756	\$3,370,966	\$1,643,229	\$10,368,792	\$36,065,671

Table 3B: SCI Funding to LEAs Through PRC073 and for shared services, SFY22

## Appendix B: 2019 Charter/Residential/Lab School Allotments and Shared Services

Presented below are the details of direct funding received by Charter/Residential/Lab Schools from SCI through PRC 036 allocations and the direct costs paid by SCI for each shared service (Content Filtering, Firewall, and Internet services).

Charter schools may choose to receive a \$5,000 allotment in lieu of connecting to NCREN for Internet service. Charters request E-rate funds for WAN and Wi-Fi during spring for service/delivery within the funding year between July 1 and June 30. SCI issues allocations during each fiscal year to cover the costs for eligible expenses that E-rate does not.

PSU ID	PSU Name	WAN	Category 2 Wi-Fi	Content Filtering	Firewall	Internet	Total
01B	River Mill Academy			7,955	4,800	20,698	33,453
01C	Clover Garden		23,878			13,102	36,980
01D	The Hawbridge			7,955	4,895	22,664	35,514

	School						
01F	Alamance Community School		54,199				54,199
06B	Williams Academy (Crossnore)			7,955	4,895	22,664	35,514
07A	Washington Montessori					10,183	10,183
09A	Paul R Brown Leadership Academy			3,954	4,800	9,886	18,640
09B	Emereau: Bladen		28,888			13,275	42,163
10A	Charter Day School		10,345	8,747	4,800	28,300	52,192
10B	South Brunswick Charter School			5,992	8,000	21,399	35,391
11A	Evergreen Community Charter					22,664	22,664
11B	ArtSpace Charter		9,532	4,472	4,895	11,025	29,924
11C	Invest Collegiate - Imagine		3,432			22,664	26,096
11D	The Franklin School of Innovation		12,279	7,967	9,888	22,864	52,998
11K	Francine Delany New School			4,479	4,895	11,050	20,424
12A	The New Dimensions School			4,898	4,800	12,044	21,742
13A	Carolina International School		42,278			18,939	61,217
13B	Cabarrus Charter Academy	5,000					5,000
13C	A.C.E. Academy		8,453	6,179	4,800	15,780	35,212
13D	Concord Lake STEAM Academy	5,000					5,000
16B	Tiller School	5,000					5,000
19A	Chatham Charter		6,333	5,504	4,800	12,161	28,798
19B	Woods Charter School			7,955	4,895	22,664	35,514
19C	Willow Oak Montessori			3,954	4,800	9,886	18,640
20A	The Learning Center			4,472	4,800	18,708	27,980
23A	Pinnacle Classical Academy	6,732				22,664	29,396
24B	Thomas Academy	5,000					5,000
24N	Columbus Charter School		2,750	4,953	5,200	12,065	24,968
26B	Alpha Academy			2,618		11,966	14,584
26C	The Capitol Encore Academy			4,940	4,800	10,995	20,735
27A	Water's Edge Village School			3,778	1,917	8,463	14,158
296	Eastern NC School for the Deaf			5,342	4,895	11,420	21,657
297	North Carolina School			5,342	4,895	13,102	23,339

	for the Deaf						
298	Governor Morehead School			5,285	4,895	12,801	22,981
29A	Davidson Charter Academy: CFA		12,392	4,519	4,800	11,134	32,845
32A	Maureen Joy Charter		4,971	7,955		20,698	33,624
32B	Healthy Start Academy			7,955	9,559	20,698	38,212
32C	Carter Community Charter			5,342		12,934	18,276
32D	Kestrel Heights School	15,778	10,110			20,698	46,586
32H	Research Triangle Charter	5,000					5,000
32K	Central Park School For Children	12,840	13,704	8,251	4,800	21,562	61,157
32L	Voyager Academy			12,307	9,946	30,767	53,020
32M	Global Scholars Academy		1,549	5,342	4,895	12,934	24,720
32N	Research Triangle High School			12,307	9,946	27,383	49,636
32P	The Institute for the Development of You		565	4,519	4,800	11,134	21,018
32Q	Reaching All Minds Academy			4,472	4,895	11,037	20,404
32R	Excelsior Classical Academy			5,013	4,800	12,540	22,353
32S	KIPP Durham College Preparatory			5,342	4,800	12,934	23,076
32T	Discovery Charter			5,235	4,800	13,342	23,377
33A	North East Carolina Preparatory School		1,889	7,955		18,512	28,356
34B	Quality Education Academy		2,702	5,504	4,800	13,717	26,723
34D	Carter G Woodson School		254	4,732	4,895	11,909	21,790
34F	Forsyth Academy	5,000					5,000
34G	Arts Based School	5,000					5,000
34H	The North Carolina Leadership Academy		36,371	7,955	4,800	22,664	71,790
35A	Crosscreek Charter School	5,806	4,531				10,337
35B	Youngsville Academy	5,000					5,000
36B	Piedmont Community Charter	13,297	27,869	10,087	9,983	25,633	86,869
36C	Mountain Island Charter			12,307	9,946	33,982	56,235
36F	Ridgeview Charter School			3,954		9,779	13,733
36G	Team CFA - Community Public		10,225	3,954		9,779	23,958



	Charter						
39A	Falls Lake Academy		12,856			20,698	33,554
39B	Oxford Preparatory High School		34,798		4,800	18,512	58,110
41B	Greensboro Academy	5,000					5,000
41C	Guilford Preparatory Academy	1,076	570	4,472	4,800	11,025	21,943
41D	Phoenix Academy Inc	22,572	2,666	4,634		11,378	41,250
41F	Triad Math and Science Academy			7,955	4,895	22,664	35,514
41G	Cornerstone Charter Academy		75,668	6,623	9,888	17,814	109,993
41H	The College Preparatory and Leadership A			5,342	4,895	12,934	23,171
41J	Summerfield Charter Academy	5,000					5,000
41K	Piedmont Classical High School			7,955	4,895	20,698	33,548
41L	Gate City Charter Academy	5,000					5,000
41M	Next Generation Academy					10,226	10,226
41N	The Experiential School of Greensboro			3,954	4,800	9,779	18,533
41Q	Revolution Academy		31,144				31,144
42A	KIPP Halifax College Preparatory	4,890	4,671	7,955		18,512	36,028
42B	Hobgood Charter School		4,263	4,269		10,277	18,809
43C	Anderson Creek Club Charter School		6,252	4,472	4,895	9,924	25,543
43D	Achievement Charter Academy		14,675				14,675
44A	Shining Rock Classical Academy: CFA			5,342	4,895	13,102	23,339
45A	The Mountain Community Sch			3,954	4,800	9,779	18,533
45B	FernLeaf Community Charter School		16,062	3,954	4,895	9,779	34,690
49B	American Renaissance School	6,984		7,955	4,800	20,698	40,437
49D	Success Charter School				1,917	9,361	11,278
49E	Pine Lake Preparatory			12,307	9,946	33,982	56,235
49F	Langtree Charter Academy	5,000					5,000

49G	Iredell Charter Academy	5,000					5,000
50A	Summit Charter		6,576			18,867	25,443
51A	Neuse Charter School			7,955	4,895	18,670	31,520
51B	Johnston Charter School	5,000					5,000
53B	Ascend Leadership Academy		15,655	4,056	4,800	24,445	48,956
53C	MINA Charter School of Lee County		33,695				33,695
54A	Children's Village Academy	1,050		7,955		21,446	30,451
55A	Lincoln Charter School	7,038	50,478	12,307	9,946	33,982	113,751
55B	West Lake Preparatory Academy	5,000					5,000
58B	Bear Grass Charter School		7,280	7,955	4,895	18,512	38,642
60B	Sugar Creek Charter	1,464	11,162			22,664	35,290
60D	Lake Norman Charter		15,082	12,307		27,416	54,805
60F	Metrolina Regional Scholars Academy			4,598	4,895	11,324	20,817
60G	Queens Grant Community School		25,155	7,955	4,800	22,664	60,574
60I	Community School of Davidson	5,400	10,868	7,955	4,895	22,664	51,782
60J	Socrates Academy		24,287	7,955	4,800	20,698	57,740
60K	Charlotte Secondary School			5,342	4,895	13,102	23,339
60L	KIPP: Charlotte	7,398	6,825				14,223
60M	Corvian Community School	3,683	35,741	7,955	4,800	22,664	74,843
60N	Aristotle Preparatory Academy			4,133	4,895	10,226	19,254
60P	Eastside STREAM Charlotte Choice Charter			4,472	4,800	11,025	20,297
60Q	Invest Collegiate		64,982			11,785	76,767
60S	Bradford Preparatory School		42,051	10,423	5,743	26,410	84,627
60U	Commonwealth High School					11,025	11,025
60Y	Pioneer Springs Community School		20,114	3,954	4,895	9,779	38,742
61J	Lakeside Charter Academy		7,035	4,472	4,895	11,025	27,427
61K	United Community School			4,472	4,800	11,045	20,317
61L	Stewart Creek High School					11,808	11,808

61M	Charlotte Lab School	14,946	20,388	7,955	9,983	22,664	75,936
61N	Queen City STEM School			7,955	4,800	22,664	35,419
61P	VERITAS Community School			5,216	4,895	13,418	23,529
61Q	Mallard Creek STEM Academy			5,743	4,800	14,597	25,140
61R	Matthews-Mint Hill Charter Academy	5,000					5,000
61S	Unity Classical Charter School	5,000					5,000
61T	Movement School		6,408		8,000	22,664	37,072
61U	UpROAR Leadership Academy			4,472	4,800	11,025	20,297
61V	Bonnie Cone Classical Academy		16,227	4,578		11,808	32,613
61W	East Voyager Academy			5,342	4,895	13,102	23,339
61X	Mountain Island Day Community Charter		45,431	7,955	4,800	22,664	80,850
61Y	Steele Creek Preparatory Academy	5,000					5,000
62A	Tillery Charter Academy		1,524			13,007	14,531
62J	Southwest Charlotte STEM Academy			4,634		11,408	16,042
62K	Movement School Eastland		7,215			7,319	14,534
63A	The Academy of Moore County			4,787	4,800	11,730	21,317
63B	Sandhills Theatre Arts Renaiss	5,000					5,000
63C	Moore Montessori Community School			3,954	4,800	8,833	17,587
64A	Rocky Mount Preparatory		2,278	7,955	4,895	18,512	33,640
65A	Cape Fear Center for Inquiry			7,955	4,800	22,664	35,419
65B	Wilmington Preparatory Academy	5,000					5,000
65C	Douglass Academy			4,893	4,800	12,827	22,520
65D	Island Montessori Charter			4,472	4,800	11,025	20,297
65F	Coastal Preparatory Academy		39,928	6,346	4,895	16,867	68,036
65G	Girls Leadership Academy of Wilmington		2,306	4,695	4,800	11,785	23,586
65H	Wilmington School of the Arts		7,464				7,464
65Z	DC Virgo Prep				4,895		4,895

	Academy						
66A	Gaston College Preparatory			7,955		18,512	26,467
67B	Z.E.C.A. School of Arts and Technology			4,472	4,800	9,924	19,196
68A	Eno River Academy		4,405	7,955	4,895	18,512	35,767
68C	The Expedition School		26,501			11,037	37,538
69A	Arapahoe Charter School		5,339	4,480	4,895	9,822	24,536
70A	Northeast Academy of Aerospace & AdvTech		38,663	6,346	4,800	14,357	64,166
73A	Bethel Hill Charter			4,787	4,800	9,734	19,321
73B	Roxboro Community School		16,938	7,955	4,895	18,512	48,300
74C	Winterville Charter Academy	5,000					5,000
76A	Uwharrie Charter Academy	9,245			4,800	19,039	33,084
78A	CIS Academy			3,954	4,800	9,779	18,533
78B	Southeastern Academy			4,472	4,895	11,025	20,392
79A	Bethany Community Middle			3,605	4,800	16,188	24,593
80B	Essie Mae Kiser Foxx Charter School			3,954		9,779	13,733
81A	Thomas Jefferson Classical Academy	5,340	60,497	7,955	4,895	22,664	101,351
81B	Lake Lure Classical Academy		6,628	7,955	4,895	22,664	42,142
84B	Gray Stone Day School		10,595	7,955	4,895	20,698	44,143
86T	Millennium Charter Academy	5,000					5,000
87A	Mountain Discovery Charter School			3,778	1,896	19,222	24,896
88A	Brevard Academy			4,519	4,800	16,633	25,952
90A	Union Academy Charter School		17,246	9,347	4,895	23,907	55,395
90B	Union Day School					10,856	10,856
90C	Union Preparatory Academy at Indian Trail	5,000					5,000
90D	Monroe Charter Academy		10,870			10,735	21,605
90F	Apprentice Academy HS of North Carolina		9,326	3,954		9,886	23,166
91A	Vance Charter School			7,955		18,512	26,467
91B	Henderson Collegiate	1,040	8,543	10,982	4,895	24,934	50,394
92B	Exploris Middle	7,533	5,243	4,528	4,895	11,157	33,356

	School						
92D	Magellan Charter			4,883	4,895	12,007	21,785
92E	Sterling Montessori Academy			7,955	4,895	22,664	35,514
92F	Franklin Academy					20,881	20,881
92G	East Wake Academy			12,307	9,946	33,982	56,235
92K	Raleigh Charter High School			7,955	4,800	22,664	35,419
92L	Torchlight Academy			5,351	4,895	13,702	23,948
92M	PreEminent Charter School	5,000					5,000
92N	Quest Academy	5,000					5,000
92P	Southern Wake Academy			7,955	4,895	18,512	31,362
92R	Casa Esperanza Montessori		36,691	4,088	4,895	15,496	61,170
92S	Endeavor Charter		2,862	6,157	4,800	16,693	30,512
92T	Triangle Math and Science Academy			7,955	4,895	22,664	35,514
92U	Longleaf School of the Arts		5,694	4,269	4,800	9,485	24,248
92V	Wake Forest Charter Academy	5,000					5,000
92W	Cardinal Charter	5,000					5,000
92Y	Envision Science Academy		22,245	7,955	4,895	22,664	57,759
93A	Haliwa-Saponi Tribal School		570	4,472	4,895	9,924	19,861
93J	PAVE Southeast Raleigh Charter		2,749	6,059	4,800	15,403	29,011
93L	Central Wake Charter High School					13,187	13,187
93M	Peak Charter Academy	5,000					5,000
93N	Pine Springs Preparatory Academy		40,533	7,955	4,800	22,664	75,952
93P	Rolesville Charter Academy	5,000					5,000
93Q	Carolina Charter Academy: CFA			7,955		20,698	28,653
93R	Raleigh Oak Charter			4,133	4,800	10,226	19,159
93T	Cardinal Charter Academy at Wendell Falls	5,000					5,000
94A	Pocosin Innovative Charter		3,664	3,137		7,022	13,823
94Z	Northeast Regional School - Biotech/Agri			4,472	4,895	9,924	19,291
95A	Two Rivers Community School		8,932	4,472	4,895	11,025	29,324
96C	Dillard Academy			4,898	4,800	12,044	21,742

96F	Wayne Preparatory			7,955	4,800	22,664	35,419
97D	Bridges Academy			4,472	4,895	9,924	19,291
98A	Sallie B Howard School	3,855					3,855
98B	Wilson Preparatory Academy			7,955	4,990	18,512	31,457
	Grand Totals	\$307,967	\$1,404,013	\$859,602	\$650,685	\$2,659,556	\$5,881,823

*Table 4A: SCI Funding to Charter, Residential, and Lab Schools Through PRC036 and for shared services, SFY21*

PSU ID	PSU Name	WAN	Category 2 Wi-Fi	Content Filtering	Firewall	Internet	Total
01B	River Mill Academy			6,574	4,400	19,302	30,276
01C	Clover Garden		1,088			18,939	20,027
01D	The Hawbridge School			6,574	4,400	21,273	32,247
01F	Alamance Community School		17,001				17,001
06B	Williams Academy (Crossnore)			6,574	4,400	21,273	32,247
07A	Washington Montessori					11,019	11,019
09A	Paul R Brown Leadership Academy			3,421	4,400	9,853	17,674
09B	Emereau: Bladen					17,109	17,109
10A	Charter Day School		12,534	10,171	4,400	31,542	58,647
10B	South Brunswick Charter School		4,916	6,997	4,400	25,367	41,680
11A	Evergreen Community Charter					21,273	21,273
11B	ArtSpace Charter	4,736	17,610	1,303	4,400	11,369	39,418
11C	Invest Collegiate - Imagine		19,350			22,007	41,357
11D	The Franklin School of Innovation		2,379	7,062	9,064	22,200	40,705
11F	Asheville PEAK Academy		11,212				11,212
11K	Francine Delany New School			4,413	4,400	12,387	21,200
12A	The New Dimensions School			5,941	4,400	18,939	29,280
13A	Carolina International School		34,510			20,034	54,544
13B	Cabarrus Charter Academy	5,000					5,000
13C	A.C.E. Academy			6,574	4,400	19,302	30,276
13D	Concord Lake STEAM Academy	5,000					5,000
16B	Tiller School	5,000					5,000
19A	Chatham Charter			6,574	4,400	17,109	28,083

19B	Woods Charter School			6,574	4,400	21,273	32,247
19C	Willow Oak Montessori		5,133	3,269	4,400	9,525	22,327
20A	The Learning Center			4,207	4,000	29,587	37,794
23A	Pinnacle Classical Academy	6,732				21,273	28,005
24B	Thomas Academy	5,000	7,499				12,499
24N	Columbus Charter School		6,793	6,574	4,400	17,109	34,876
26B	Alpha Academy			5,941		17,421	23,362
26C	The Capitol Encore Academy			6,574	4,400	17,109	28,083
27A	Water's Edge Village School			3,123	1,738	8,148	13,009
296	Eastern NC School for the Deaf			4,413	4,400	10,806	19,619
297	North Carolina School for the Deaf			4,413	4,400	12,387	21,200
298	Governor Morehead School			6,574	4,400	17,598	28,572
29A	Davidson Charter Academy: CFA		21,933	4,413	4,400	12,219	42,965
32A	Maureen Joy Charter		4,023	6,892		20,034	30,949
32B	Healthy Start Academy			6,574	9,064	19,302	34,940
32C	Carter Community Charter		570	4,413		12,219	17,202
32D	Kestrel Heights School	15,778	9,395			20,885	46,058
32H	Research Triangle Charter	5,000					5,000
32K	Central Park School For Children	8,400	12,191	6,574	4,400	19,302	50,867
32L	Voyager Academy			10,171	9,064	28,317	47,552
32M	Global Scholars Academy			5,941	4,400	17,421	27,762
32N	Research Triangle High School		43,540	10,171	9,064	25,185	87,960
32P	The Institute for the Development of You		450	5,941	4,000	17,421	27,812
32Q	Reaching All Minds Academy			4,969	4,400	14,109	23,478
32R	Excelsior Classical Academy		20,984	6,574	4,400	19,302	51,260
32S	KIPP Durham College Preparatory	1,618		6,574	4,400	19,302	31,894
32T	Discovery Charter		34,165	6,831		17,681	58,677
33A	North East Carolina Preparatory School		1,584	6,892	4,400	22,110	34,986
34B	Quality Education		1,562	6,574	4,400	21,273	33,809

	Academy						
34D	Carter G Woodson School			8,164	4,400	25,458	38,022
34F	Forsyth Academy	5,000					5,000
34G	Arts Based School	5,000					5,000
34H	The North Carolina Leadership Academy			10,171	9,064	28,317	47,552
35A	Crosscreek Charter School	5,806					5,806
35B	Youngsville Academy	5,000					5,000
36B	Piedmont Community Charter	13,611	7,847	10,171	9,064	31,542	72,235
36C	Mountain Island Charter			3,421		9,777	13,198
36F	Ridgeview Charter School			3,673		10,381	14,054
36G	Team CFA - Community Public Charter		29,352			22,962	52,314
39A	Falls Lake Academy				4,400	19,809	24,209
39B	Oxford Preparatory High School		36,088	5,477	4,400	17,559	63,524
41B	Greensboro Academy	5,000					5,000
41C	Guilford Preparatory Academy	1,104		6,895	7,416	19,617	35,032
41D	Phoenix Academy Inc	22,573	17,635	6,892	5,254	22,110	74,464
41F	Triad Math and Science Academy	2,398	18,653	6,574	9,064	21,273	57,962
41G	Cornerstone Charter Academy		3,212	4,413	4,400	12,219	24,244
41H	The College Preparatory and Leadership A			6,574	4,400	19,302	30,276
41J	Summerfield Charter Academy	5,000					5,000
41K	Piedmont Classical High School		9,097			10,678	19,775
41L	Gate City Charter Academy	5,000					5,000
41M	Next Generation Academy			4,297	4,400	12,774	21,471
41N	The Experiential School of Greensboro			4,413	4,400	12,219	21,032
41Q	Revolution Academy		6,061				6,061
42A	KIPP Halifax College Preparatory	1,618		6,574		17,109	25,301
42B	Hobgood Charter School		19,791	4,604		11,514	35,909
43C	Anderson Creek Club Charter School			4,969	4,400	12,543	21,912
43D	Achievement Charter	9,485	617				10,102



	Academy						
44A	Shining Rock Classical Academy: CFA			4,413	4,400	12,387	21,200
45A	The Mountain Community Sch			3,573	4,400	10,227	18,200
45B	FernLeaf Community Charter School	7,708	36,974	4,081	4,400	11,985	65,148
49B	American Renaissance School	6,984	45,701	6,574	4,400	19,302	82,961
49D	Success Charter School			2,018	1,738	9,528	13,284
49E	Pine Lake Preparatory			10,171	9,064	31,542	50,777
49F	Langtree Charter Academy	5,000					5,000
49G	Iredell Charter Academy	5,000					5,000
50A	Summit Charter		4,860			41,024	45,884
51A	Neuse Charter School			8,800	4,400	22,502	35,702
51B	Johnston Charter School	5,000					5,000
53B	Ascend Leadership Academy		26,719		4,400	23,310	54,429
53C	MINA Charter School of Lee County		6,477				6,477
54A	Children's Village Academy	1,018		6,574		17,598	25,190
55A	Lincoln Charter School	5,623	45,831	10,171	9,064	31,542	102,231
55B	West Lake Preparatory Academy	5,000					5,000
58B	Bear Grass Charter School			6,574	4,400	17,109	28,083
60B	Sugar Creek Charter	1,680	15,327			30,189	47,196
60D	Lake Norman Charter			10,807		26,032	36,839
60F	Metrolina Regional Scholars Academy			4,413	4,400	12,387	21,200
60G	Queens Grant Community School		3,474	6,574	4,400	21,273	35,721
60I	Community School of Davidson	13,587	95,633	8,482	7,792	27,132	152,626
60J	Socrates Academy		15,891	6,574	4,000	19,302	45,767
60K	Charlotte Secondary School			4,413	4,000	12,387	20,800
60L	KIPP: Charlotte	2,398	2,477				4,875
60M	Corvian Community School	7,396		8,800	4,000	27,969	48,165
60N	Aristotle Preparatory Academy			3,699	4,400	10,527	18,626

60P	Eastside STREAM Academy		6,513	3,699	4,400	10,527	25,139
60Q	Invest Collegiate		737			21,273	22,010
60S	Bradford Preparatory School			10,171	4,400	28,317	42,888
60U	Commonwealth High School					29,244	29,244
60Y	Pioneer Springs Community School		5,603	6,129	4,400	19,965	36,097
61J	Lakeside Charter Academy		1,256	4,715	4,400	14,043	24,414
61K	United Community School			3,699	4,400	10,527	18,626
61L	Stewart Creek High School					21,273	21,273
61M	Charlotte Lab School	14,946		7,528	9,064	23,784	55,322
61N	Queen City STEM School	7,571	25,137	8,470	7,368	27,969	76,515
61P	VERITAS Community School			3,307	4,400	9,507	17,214
61Q	Mallard Creek STEM Academy			6,574	4,000	21,273	31,847
61R	Matthews-Mint Hill Charter Academy	5,000					5,000
61S	Unity Classical Charter School	5,000	24,549				29,549
61T	Movement School	1,260	7,795		4,400	21,273	34,728
61U	UpROAR Leadership Academy			3,699	4,400	10,527	18,626
61V	Bonnie Cone Classical Academy		6,455	6,574		21,273	34,302
61W	East Voyager Academy		7,774	4,413	4,400	12,387	28,974
61X	Mountain Island Day Community Charter			9,118	1,200	28,806	39,124
61Y	Steele Creek Preparatory Academy	5,000					5,000
62A	Tillery Charter Academy		2,412			8,469	10,881
62J	Southwest Charlotte STEM Academy			5,368		16,027	21,395
62K	Movement School Eastland		8,350			9,777	18,127
62L	Tetra Institute		19,468				19,468
63A	The Academy of Moore County			4,413	4,400	12,219	21,032
63B	Sandhills Theatre Arts Renaiss	5,000					5,000
63C	Moore Montessori Community School		4,463	3,421	4,400	8,777	21,061
64A	Rocky Mount		13,177	6,574	4,400	17,109	41,260

	Preparatory						
65A	Cape Fear Center for Inquiry		30,473	6,574	4,400	21,273	62,720
65B	Wilmington Preparatory Academy	5,000					5,000
65C	Douglass Academy		493	6,892	5,248	22,110	34,743
65D	Island Montessori Charter			3,699	4,400	10,527	18,626
65F	Coastal Preparatory Academy		4,065	6,574	4,400	21,273	36,312
65G	Girls Leadership Academy of Wilmington		1,823	6,574	4,400	21,273	34,070
65H	Wilmington School of the Arts	2,569	7,930				10,499
65Z	DC Virgo Prep Academy				4,400		4,400
66A	Gaston College Preparatory	1,618		7,846		19,809	29,273
67B	Z.E.C.A. School of Arts and Technology			3,699	4,400	9,423	17,522
68A	Eno River Academy		5,004	6,574	4,400	17,109	33,087
68C	The Expedition School					14,109	14,109
69A	Arapahoe Charter School			4,648	4,400	12,600	21,648
70A	Northeast Academy of Aerospace & AdvTech		6,665	6,574	4,400	17,109	34,748
73A	Bethel Hill Charter			4,413	4,400	11,019	19,832
73B	Roxboro Community School		2,928	6,574	4,400	17,109	31,011
74C	Winterville Charter Academy	5,000					5,000
76A	Uwharrie Charter Academy	9,245	34,622	1,798	4,400	23,115	73,180
78A	CIS Academy			3,535	4,400	10,137	18,072
78B	Southeastern Academy			3,699	4,400	10,527	18,626
78C	Old Main Stream						0
79A	Bethany Community Middle				4,400	23,199	27,599
80B	Essie Mae Kiser Foxx Charter School			319			319
80C	Faith Academy Charter School		35,594				35,594
81A	Thomas Jefferson Classical Academy	5,340	63,545	6,574	4,400	21,273	101,132
81B	Lake Lure Classical Academy			6,574	4,400	21,273	32,247
84B	Gray Stone Day		3,634	1,926	3,595	20,034	29,189

	School						
86T	Millennium Charter Academy	5,000					5,000
87A	Mountain Discovery Charter School			3,227	1,738	19,098	24,063
88A	Brevard Academy			5,750	4,400	24,366	34,516
90A	Union Academy Charter School		9,756	10,171	4,400	28,317	52,644
90B	Union Day School		22,062			12,219	34,281
90C	Union Preparatory Academy at Indian Trail	5,000					5,000
90D	Monroe Charter Academy		12,500			9,525	22,025
90F	Apprentice Academy HS of North Carolina		23,928	5,313		15,893	45,134
91A	Vance Charter School		13,137	6,574		17,109	36,820
91B	Henderson Collegiate	1,245	1,518	5,088	4,400	41,922	54,173
92B	Exploris Middle School	7,533	6,118	5,941	4,400	18,939	42,931
92D	Magellan Charter			4,413	4,400	12,387	21,200
92E	Sterling Montessori Academy		6,184	6,574	4,400	21,273	38,431
92F	Franklin Academy					19,302	19,302
92G	East Wake Academy			10,171	9,064	31,542	50,777
92K	Raleigh Charter High School		867	6,574	4,400	19,797	31,638
92L	Torchlight Academy			6,574	4,400	21,273	32,247
92M	PreEminent Charter School	5,000					5,000
92N	Quest Academy	5,000	11,957				16,957
92P	Southern Wake Academy		41,549	6,574	4,400	17,109	69,632
92R	Casa Esperanza Montessori		36,442		4,400	31,542	72,384
92S	Endeavor Charter		50,281	6,574	4,400	21,273	82,528
92T	Triangle Math and Science Academy			8,482	4,400	27,132	40,014
92U	Longleaf School of the Arts		34,909	4,413	4,400	11,019	54,741
92V	Wake Forest Charter Academy	5,000					5,000
92W	Cardinal Charter	5,000					5,000
92Y	Envision Science Academy			6,574	4,400	21,273	32,247
93A	Haliwa-Saponi Tribal School			4,969	4,400	12,543	21,912
93J	PAVE Southeast Raleigh Charter			7,835	8,216	25,118	41,168
93L	Central Wake Charter High School					21,273	21,273

93M	Peak Charter Academy	5,000					5,000
93N	Pine Springs Preparatory Academy		38,939	8,800	7,368	27,969	83,076
93P	Rolesville Charter Academy	5,000					5,000
93Q	Carolina Charter Academy: CFA		23,531	3,088		19,302	45,921
93R	Raleigh Oak Charter			3,699	4,400	10,527	18,626
94A	Pocosin Innovative Charter		7,434	3,699		9,423	20,556
94Z	Northeast Regional School - Biotech/Agri			3,699	4,400	9,423	17,522
95A	Two Rivers Community School			3,699	4,400	10,527	18,626
96C	Dillard Academy		4,081	5,941	4,400	18,939	33,361
96F	Wayne Preparatory			6,574	4,400	21,273	32,247
97D	Bridges Academy			361	1,200		1,561
98A	Sallie B Howard School	2,519					2,519
98B	Wilson Preparatory Academy		11,066	7,846	6,772	19,809	45,493
	Totals	\$339,099	\$1,424,863	\$799,472	\$599,546	\$2,998,114	\$6,161,094

*Table 4B: SCI Funding to Charter, Residential, and Lab Schools Through PRC036 and for shared services, SFY22*

## Appendix C: North Carolina E-rate funding history report

Since the inception of the E-rate program, North Carolina public schools have procured almost \$2 billion in services and equipment. Over \$1.2 billion of that total cost has been disbursed to the schools in the form of E-rate discounts.

The following data, as of December 1, 2022, shows all North Carolina public school E-rate funding requests for all 115 districts as well as charter schools that are open today. (Closed charters are filtered out.)

The total pre-discount amount for all requested services, the amount of E-rate funding requested, the amount of funding ultimately committed by the FCC, the amount of funding disbursed, and the utilization of funds (disbursed/committed) are provided for each year that E-rate has been available.

Since the modern E-rate rules went into effect in 2015, the average total contract value for all E-rate funding sought by public schools averages out to \$84 million per year. Of that, the FCC covers about \$64 million, with the state being responsible for \$20 million per year, on average. However, as the data shows, the procurement cycle is "lumpy" and it is impossible to predict, or even regulate how schools will seek funding from year to year.

Each year, significant increases in capacity, both in the NCREN backbone and in each district's WAN. However, due to improved technology and increased competition, prices have remained stable while service levels have increased steadily. With the introduction of Category Two, whereby the FCC funds Wi-Fi networks on a per ADM budget calculation, we can predict a 5-year total contract value by multiplying the number of students by the FCC per student budget. For the 2021 to 2026 E-rate years, the budget is \$167 per student. With an estimated 1.5 million students, \$250 million in procurement for Wi-Fi, cabling, and other inside-the-school network equipment is expected.

E-rate funding for fiber connections to schools is not based on a budget, but purely on prevailing rates as discovered by public bidding. So, while Category Two spending is kept in check by the per-student budget, and the fact that all schools purchase via NCDPI cooperative purchasing agreements, the WAN connections are not regulated. This may be an area of focus in the future if it is determined that some schools are seeking more WAN capacity than is warranted based on their actual utilization.

Year	Pre-Discount	Requested	Committed	Disbursed	Requests	Utilization %
1998	\$31,248,326	\$21,645,083	\$21,511,196	\$17,384,524	1,889	81%
1999	\$42,380,935	\$29,274,407	\$28,605,610	\$24,662,986	1,596	86%
2000	\$30,508,564	\$21,002,184	\$20,915,884	\$17,740,889	1,006	85%
2001	\$30,523,010	\$20,651,680	\$20,144,577	\$16,038,416	1,199	80%
2002	\$64,699,501	\$50,042,884	\$48,117,223	\$39,627,468	1,645	82%
2003	\$63,794,563	\$48,166,547	\$45,339,691	\$37,042,927	1,733	82%
2004	\$53,567,285	\$39,003,187	\$37,480,433	\$30,336,639	1,757	81%
2005	\$69,417,671	\$52,303,301	\$51,371,153	\$43,935,035	1,480	86%
2006	\$65,879,854	\$48,875,401	\$47,887,208	\$40,370,952	1,040	84%
2007	\$80,792,022	\$60,984,017	\$58,100,273	\$49,841,069	1,418	86%
2008	\$76,163,946	\$57,568,968	\$56,887,067	\$50,518,264	1,060	89%
2009	\$84,401,239	\$63,457,778	\$61,784,681	\$53,100,467	1,065	86%
2010	\$103,111,421	\$80,929,601	\$78,383,086	\$66,437,425	1,194	85%
2011	\$93,713,659	\$73,263,883	\$71,739,371	\$63,832,428	998	89%
2012	\$102,410,695	\$80,803,818	\$80,199,245	\$71,535,281	947	89%
2013	\$88,454,499	\$67,817,838	\$67,383,173	\$60,484,292	824	90%
2014	\$89,784,592	\$68,951,432	\$68,504,594	\$60,406,953	812	88%
2015	\$141,914,738	\$107,275,132	\$107,253,515	\$102,747,826	1,680	96%
2016	\$136,451,141	\$96,818,647	\$96,818,647	\$88,953,554	1,238	92%
2017	\$89,560,596	\$59,898,790	\$59,701,049	\$55,379,235	982	93%
2018	\$87,908,458	\$63,375,819	\$63,375,819	\$55,603,457	1,094	88%
2019	\$90,306,212	\$69,627,704	\$69,615,613	\$65,141,129	1,589	94%
2020	\$88,555,866	\$67,322,778	\$67,322,778	\$62,145,043	2,149	92%
2021	\$102,101,692	\$77,285,398	\$77,285,398	\$52,282,099	581	68%
2022	\$77,344,128	\$59,515,665	\$59,515,665	\$8,657,292	384	15%
<b>TOTAL</b>	<b>\$1,984,994,61</b>	<b>\$1,485,861,941</b>	<b>\$1,465,242,94</b>	<b>\$1,234,205,649</b>	<b>31,360</b>	

*Table 6: 1998-2022 NC public school E-rate Utilization*

Table 7 shows only Category Two funds associated with the Wi-Fi Expansion Program, which began in 2015, funded initially by the State with Race to the Top. Under this program, NCDPI developed statewide convenience contracts. The educational discounts offered by the vendors provided significantly lower pricing for even the small districts, enabling all schools to maximize their buying power while allowing choices from multiple vendors. In February

2020, new CPAs, with 23 original equipment vendors and 30 resellers, were established for the next five years.

The utilization for 2021 and 2022 is low because these funding years are still in progress. Schools have until September 30 of the following year, or 180 days after the FCC commits funding to complete their procurements. This is one of the reasons that reporting E-rate data is so complex; each E-rate funding year spans three state fiscal years.

Year	Pre-Discount	Requested	Committed	Disbursed	Requests	Utilization
2015	\$43,505,225	\$35,240,441	\$35,169,921	\$34,848,226	597	99%
2016	\$54,112,168	\$40,613,575	\$38,350,865	\$37,701,108	692	93%
2017	\$28,467,894	\$19,433,080	\$17,212,200	\$17,085,583	537	88%
2018	\$29,410,379	\$20,138,474	\$19,478,840	\$18,943,001	800	94%
2019	\$33,988,195	\$25,211,283	\$22,831,147	\$21,271,140	1116	84%
2020	\$40,531,828	\$29,471,019	\$29,471,019	\$27,352,030	1,949	93%
2021	\$53,638,223	\$39,166,361	\$39,166,361	\$24,182,200	398	62%
2022	\$39,157,072	\$29,359,764	\$29,359,764	\$3,793,057	227	13%
<b>Grand Total</b>	<b>\$322,810,983</b>	<b>\$238,633,999</b>	<b>\$231,040,117</b>	<b>\$185,176,343</b>	<b>6316</b>	

Table 7: NC Category Two E-rate Utilization Through NCDPI Contracts (2015-2022)

Total Category 2 Procurements on DPI Contracts

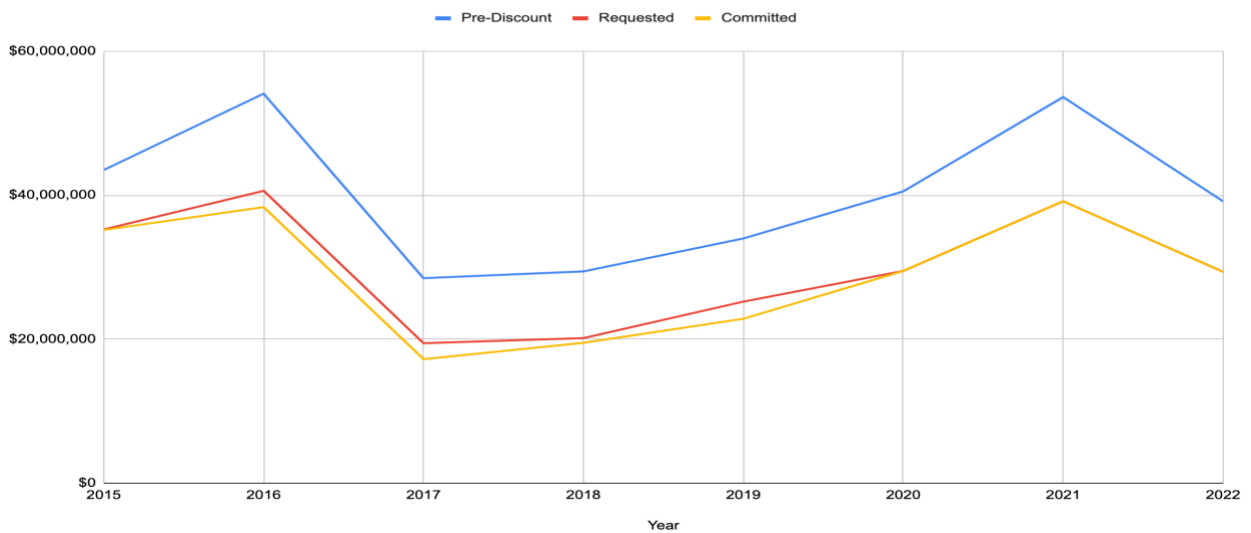


Figure 7: NC Category Two E-rate Utilization Through NCDPI Contracts (2015-2022)



The following graph shows Category Two utilization across the larger states of the nation. Of the 15 largest states, North Carolina ranks 7th in terms of the percentage of Category Two budget used in this 5-year cycle, with 56% consumed. Given that we are in year 3 of a 5-year budget cycle, North Carolina is positioned perfectly to use most of the available funding, without the risk of having a massive shortfall. The top 15 largest states are bound by Pennsylvania, which has only consumed 32% of the available budget, and Arizona which has consumed 73%.

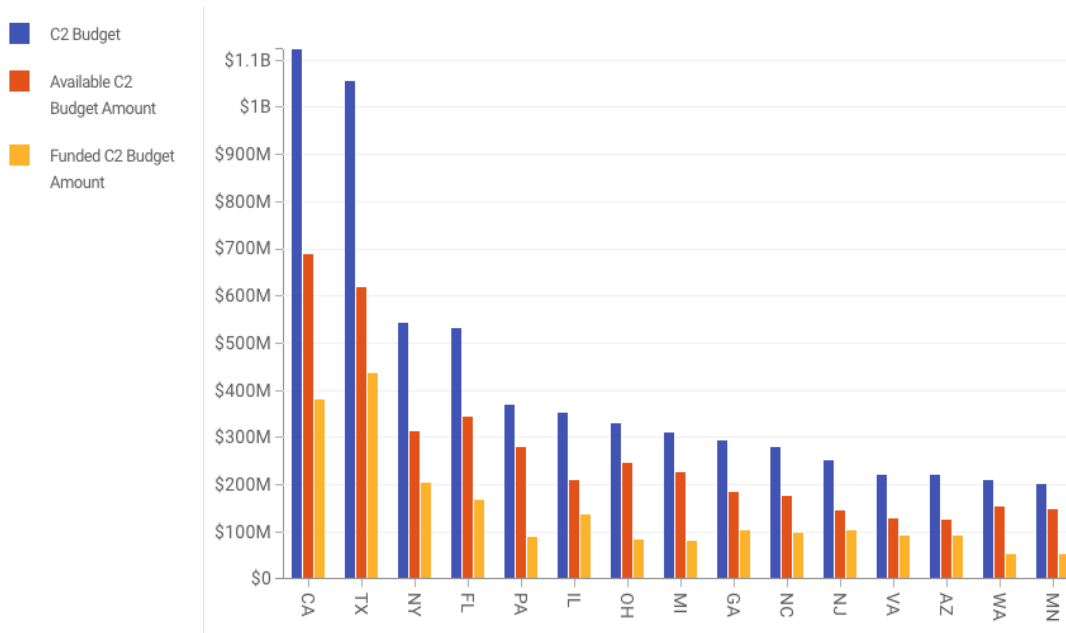


Table 8: Nationwide Category Two E-rate Utilization (2021-2026 Budget Cycle)