

Utilizing the NUSF to Leverage Federal Universal Service Fund Support

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Nebraska Department of Education
Rural Broadband Task Force • May 3, 2019

E-rate Program Overview

The Schools and Libraries (E-rate) Program provides discounts to assist eligible schools and libraries to obtain affordable internet access and telecommunications services. Funded services include:

Category 1: Data Transmission Services and/or Internet Access

Category 2: Internal Connections, Managed Internal Broadband Services, and Basic Maintenance of Internal Connections.

Discounts range from 20-90 percent depending on the level of poverty and the urban/rural status at the school district level. Eligible schools, school districts, and libraries, may apply individually or as part of a consortium. Educational Service Units are also eligible.

https://www.usac.org/_res/documents/sl/pdf/handouts/e-rate-overview.pdf

Current Status of E-rate for Nebraska Schools

FRN is a “Funding Request Number” and indicates a request for funding

2018-19 FRN Applicant Types:

Consortium	40
Private Schools / ESUs	86
School Districts	301
Average Statewide Discount	68%

Current Status of E-rate for Nebraska Schools

Type	FRNs	Amount Funded
Category 1:		
Data Transport / Internet Access	294	\$ 5,063,605.85
Voice Services *	8	\$ 6,041.18
Category 2:		
Internal Connections	130	\$ 3,164,919.62
Basic Maintenance	13	\$ 42,809.46
Managed Services	1	\$ 11,040.00
Total 2018-19 Funding for Nebraska Schools		\$ 8,288,416.11

*Voice Service has been phased out. This is the last year voice can be awarded.

E-rate Special Construction for High Speed Broadband

"If a state provides eligible schools and libraries with funding for special construction charges for high-speed broadband that meets the FCC's long-term connectivity targets, the E-rate Program will increase an applicant's discount rate for these charges up to an additional ten percent to match the state funding on a one-to-one dollar basis."

25 states have qualified for this FCC program since 2016

<https://www.usac.org/sl/applicants/beforeyoubegin/state-matching-provision.aspx>

E-rate Special Construction for High Speed Broadband

Example: \$50,000 Special Construction

• 70% Entity E-rate Discount	\$ 35,000
• State Match of 10%	\$ 5,000
• E-Rate Program Match of 10%	<u>\$ 5,000</u>
• Total cost covered by State/E-rate funds	\$ 45,000

The result

• Out-of-pocket cost for the Entity	<u>\$ 5,000</u>
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Total Project Cost:	\$50,000
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This type of anchor tenancy could stimulate fiber construction within towns and villages of less than 2,500 population.

Future of Category 2

In 2015 each school was given a budget of \$150 per student for Category 2 infrastructure upgrades over 5 years.

Nebraska's total 5-year Category 2 project budget for public schools =
 $\sim 310,000$ students x \$152 = \sim \$47,120,000 (\$31,570,400 E-rate \$\$)

FCC has recommended retaining this budget practice into the future. However, no details have been published.

Comparison of Urban/Rural Costs

<u>2018-19 Funding</u>	<u>LARGEST DISTRICT</u>	<u>SMALLEST DISTRICT</u>
Public School Name	Omaha Public Schools	Elba Public Schools
Total NSLP / Students	39,221 / 51,058	48 / 87
District Discount	90%	80%
Total CAT 1 FRNs for 2018-19	1 @ 10 Gbps WAN	1 @ 100 Mbps
Total Costs Pre-Discount	\$ 977,728.44	\$ 23,481.84
Eligible Discount Total	\$ 879,955.60	\$ 18,785.47
Total Cost to District post E-rate	\$ 97,772.84	\$ 4,696.37
Cost per student pre-E-rate	\$ 19.15	\$ 269.91
Cost per student post E-rate	\$ 1.92	\$ 53.98

These FRNs and costs do not include Network Nebraska – the statewide education backbone.
 Data retrieved 5/2/2019 USAC Schools and Libraries website: www.usac.org/sl



Nebraska Public Libraries and E-rate, the Federal Universal Service Fund

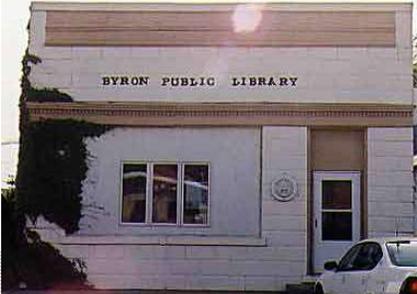


Christa Porter
Library Development Director/
State E-rate Coordinator for Public Libraries
Nebraska Library Commission

Rural Nebraska Public Libraries

In communities with populations under 2,500:

- Average population served – 815
- Average number of hours open per week – 25
- 65% have less than 1 full time paid staff.
- 99% offer free internet.
- 97% offer public computers.
- 92% provide free wi-fi.



However...
80% of public libraries remain unserved or underserved, with internet speeds of **less than 25Mbps**.

Source: 2016-2017 Nebraska Public Library Survey.

What is E-rate?

- Federal program that provides discounts to schools and libraries on Internet Access and Internal Connections costs.
 - Internet Access - Broadband, Fiber, Wi-Fi, etc.
 - Internal Connections - wiring, routers, switches, network equipment, etc.
 - Basic Maintenance of Internal Connections
- Funded through the Universal Service fee charged to companies that provide telecommunications services.
- All public libraries in Nebraska are eligible.
- The average discount for Nebraska libraries is 70%.
- At least \$3.99 billion in funding is available.



E-rate Funding 2018-2019

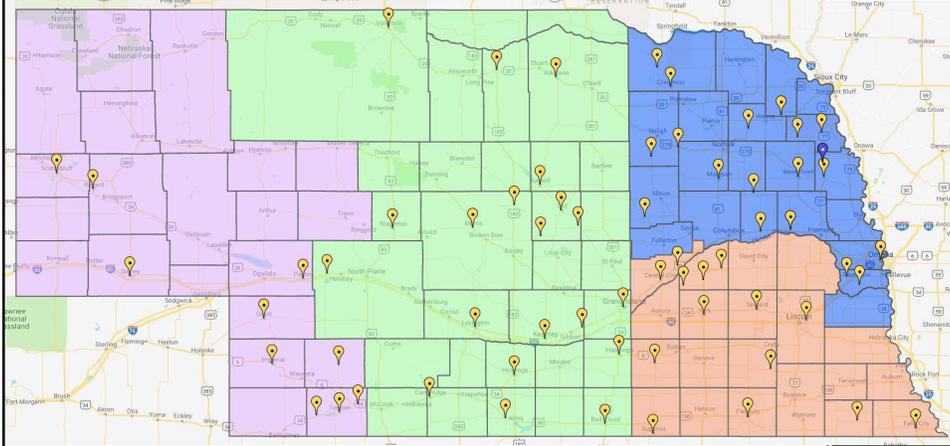
- 60 libraries received a total of \$199,950 in E-rate funding.

Category 1		Category 2	
60 libraries	\$185,633	3 libraries	\$14,326

- Category One - services providing high-speed connectivity to the building. Digital transmission and Internet access services – basically anything that provides high speed broadband.
- Category Two - services providing high-speed connectivity throughout the building - Internal Connections.

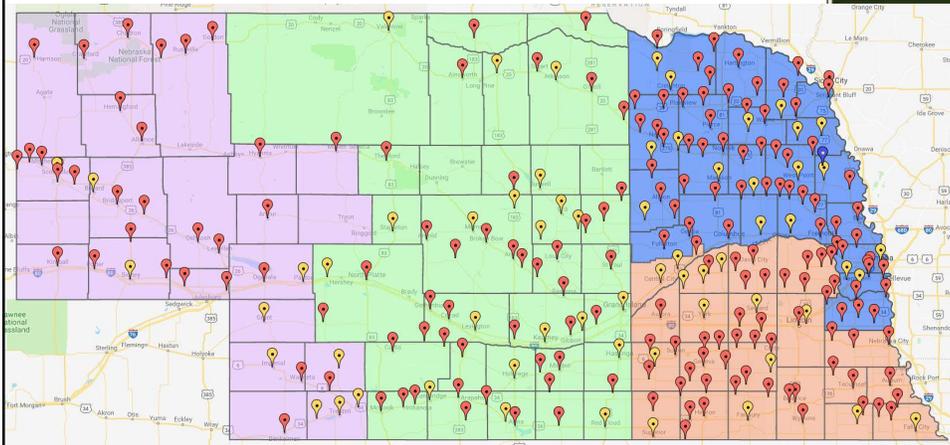


Libraries Receiving E-rate



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Public Libraries in Nebraska - 172



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Why don't they apply for E-rate?

- Free or very low cost internet provided by ISP or local municipality.
- Don't understand their network, don't know what to ask for.
- Don't understand E-rate.
- Daunting application process.
- Not enough time or staff.
- CIPA - Children's Internet Protection Act
 - too difficult/confusing/costly to figure out filtering software.
 - internet filtering vs. freedom of information.



Increase E-rate participation?

- Education, Education, Education!
- Public Library/school district/ESU partnerships.
 - IMLS Sparks Grant, Nebraska Schools and Libraries--Breaking the Ice and Igniting Internet Relationship
- Statewide consortia application for E-rate.
 - NLC applies on behalf of all public libraries.
- State Match for Special Construction Projects.





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Executive Sponsors of Network Nebraska--Education:

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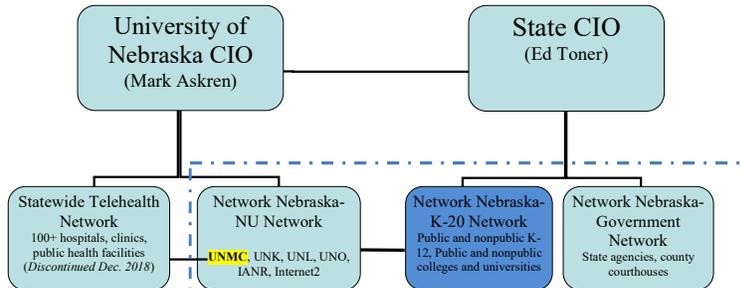
Mark Askren, CIO
University of Nebraska

Websites:

<http://www.networknebraska.net> (Network Nebraska)
<http://www.nitc.ne.gov/> (Nebraska Information Technology Commission)



- (N.R.S. 86-5,100) The Chief Information Officer, in partnership with the University of Nebraska, shall develop and maintain a statewide, multipurpose, high capacity, scalable telecommunications network to be called **Network Nebraska**. The network shall consist of contractual arrangements with providers to meet the demand of **state agencies, local governments, and educational entities** as defined in section 79-1201.01. (LB 1208—2006 Session) (“Network Nebraska” is shown inside the dotted lines)





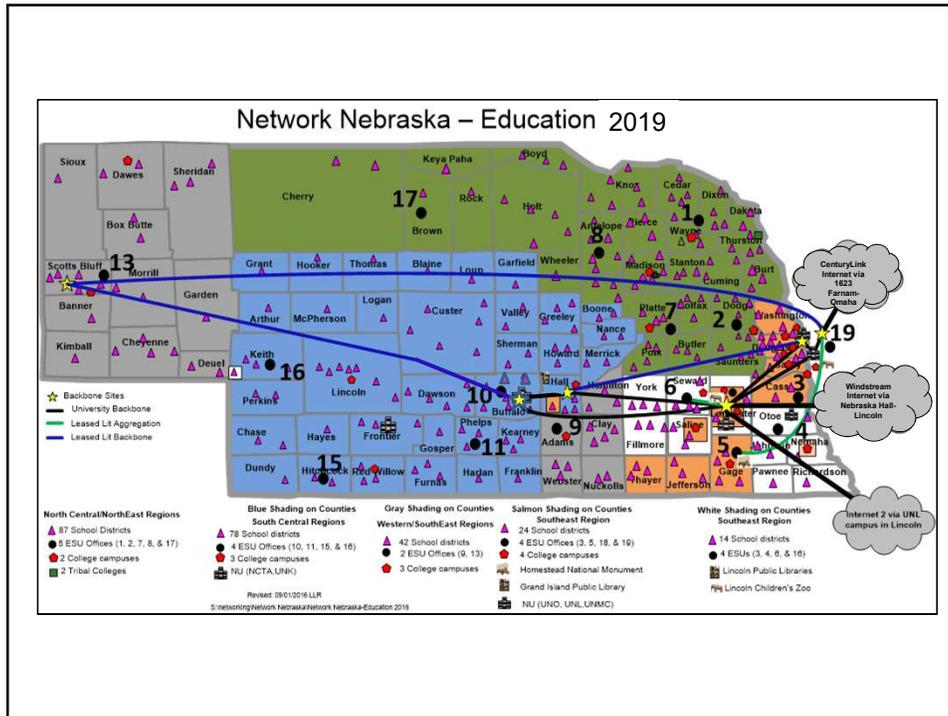
- **Neb. Rev. Stat. 86-5,100 (excerpts)**
 - Such network shall provide access to a reliable and affordable infrastructure capable of carrying a spectrum of services and applications, including distance education, across the state.
 - Access may be provided through educational service units or other aggregation points.
 - The Chief Information Officer shall aggregate demand for those state agencies and educational entities choosing to participate and shall reduce costs for participants whenever feasible.
 - The Chief Information Officer shall establish a cost structure based on actual costs, including necessary administrative expenses but not including administrative travel or conference expenses, and shall charge participants according to such cost structure.
- **Neb. Rev. Stat. 79-1201.01 Terms, defined. (excerpt)**
 - (3) Educational entity means a school district, a private, denominational, or parochial school, an educational service unit, a community college, a state college, the University of Nebraska, or a nonprofit private postsecondary educational institution

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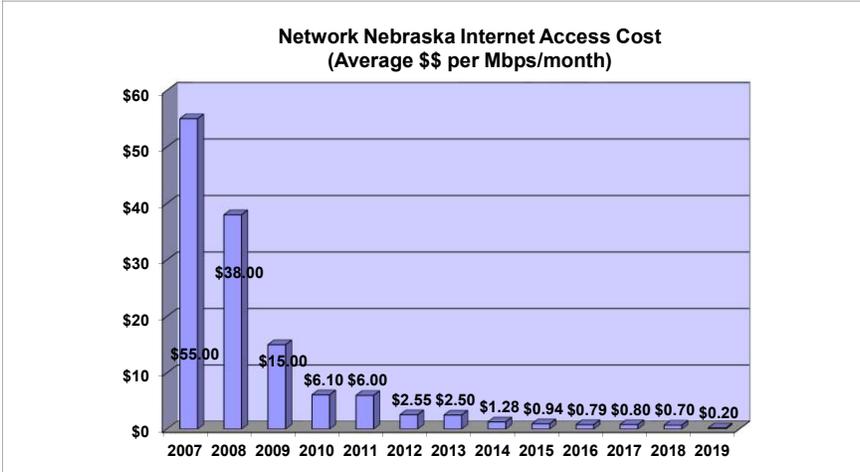


- **What is Network Nebraska?**
 - A statewide consortium of 292 education entities working together to improve their telecommunications, share services and lower costs;
 - A voluntary, self-funded network of 300+ fiber Ethernet circuits connecting to a statewide 2G-10G backbone carrying 95Gbps of commodity/peered Internet;
 - Daily serving network and internet access to over 325,000 K-12 students and over 125,000 higher education students;
 - Managed by the State of Nebraska Office of the CIO, in partnership with the University of Nebraska, with guidance from the Network Nebraska Advisory Group, Collaborative Aggregation Partnership, and the NITC.

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- **Network Nebraska-Education 7/1/2018 Participants (292)**
 - 244 public school districts (100%)
 - 17 Educational Service Units (100%)
 - 1 public university (100%)
 - 3 state colleges (100%)
 - 6 community colleges (100%)
 - 2 tribal colleges (100%)
 - 7 nonpublic colleges (54%)
 - 39 nonpublic schools (20%)
 - 3 public libraries (1%)
 - 2 municipalities (.3%)
- **Network Nebraska-Education POTENTIAL Participants (422)**
 - 6 nonpublic colleges
 - 151 nonpublic schools
 - 265 public libraries
 - 530 municipalities



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- **Network Nebraska successes**
 - Scalable fiber to every school district, ESU, and college campus
 - Reduced the unit cost of internet by 99.6%
 - Leveraged aggregated purchasing power to lower costs
 - 18 different RFPs for backbone, internet, Ethernet circuits
 - 100% member retention rate over 12 years of operation
 - Lowest administrative costs of any educational network in the country
 - Cooperative self-funding contributes to budgetary resiliency
- **Network Nebraska challenges**
 - 15-17% of students leave campus with insufficient internet at home
 - 90,000 students ride 7,500 buses daily; no WiFi (33 million miles/year)
 - Monthly costs for 100Mbps Ethernet service ranges all the way from Holdrege Public Schools with \$400 (\$120/month after 70% E-rate) to Boyd County Public Schools at \$4,396 (\$879/month after 80% E-rate) ⁸



- **Current (2018-19) Network Nebraska fees**

1. **Participation Fee (one entity, one fee):**
 - \$217.03/month for each Participant if 40+ Mbps
 - \$ 54.26/month for each Participant if \leq 39Mbps
2. **Interregional Transport (backbone) Fee:**
 - \$23.55/month for each Participant if 40+ Mbps
 - \$ 5.89/month for each Participant if \leq 39Mbps
3. **Layer 2 Ethernet circuit(s) to reach 1 of 5 different aggregation points (i.e. Scottsbluff, Grand Island, Lincoln, Omaha-Farnam, Omaha-PKI):**
 - Costs vary from \$1.80/Mbps/month to \$43.96/Mbps/month
4. **Internet access:**
 - \$.70/Mbps/month for commodity Internet (major price decrease for 2019-20)
 - \$.0355/Mbps/month for commercial peering and InterExchange routing services

BROADBAND AND COMMUNITY ANCHORS

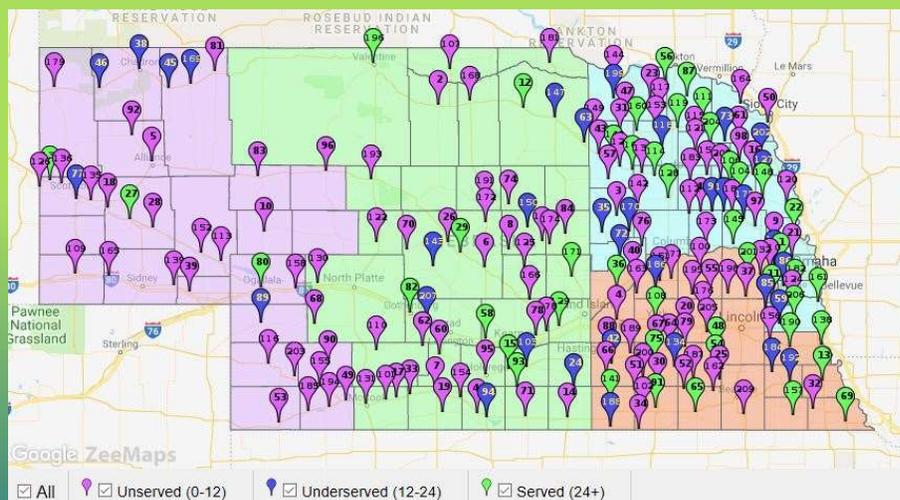
Nebraska Public Libraries

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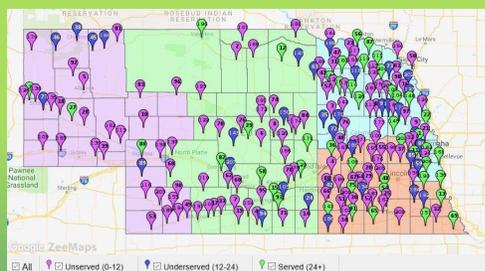
A Typical Rural Public Library

- Offers the only free Wi-fi in town.
- Safe supervised environment for youth to do homework and socialize.
- The library is open to the community beyond the school day and to all community members
- But, 74% of these public libraries have Internet speeds lower than 25Mbps (FCC minimum definition for household broadband), and 58% are at or lower than 12Mbps, which makes the parking lot Wi-Fi experience less than desirable
- Within 2 miles of almost every rural public library sits a school building that is connected by fiber to **Network Nebraska** and capable of Internet speeds from several hundred Mbps to over 1,000Mbps
- In the vast majority of these rural communities, the public school district and the public library have never discussed any infrastructure or Internet sharing.
- Many adult learners, community college and university students, rely on the local library to complete coursework and take proctored exams. In addition adults use the internet at the library for online certification processes and online access to Nebraska Extension materials.

DID YOU KNOW?



PUBLIC LIBRARY INTERNET SPEEDS IN COMMUNITIES WITH POPULATIONS UNDER 10,000



The homework gap is a stubborn disparity in at-home broadband that hinders millions of students' access to the array of online learning, collaboration, and research tools enjoyed by their better-connected peers.

STATE PARTNERSHIPS SOLVING CITIZENS' PROBLEMS



NEBRASKA SCHOOLS AND LIBRARIES—BREAKING THE ICE AND IGNITING INTERNET RELATIONSHIPS

One year grant – June 1, 2018 – May 30, 2019

IMLS Funding total \$25,000

Five Communities – Bancroft, Genoa, Imperial, Verdigre and Wymore (+1 – Bayard)

Fixed-base wireless connection between a local school district building that is connected with Network Nebraska and the local public library.

- ▶ Pursuing grants and partnerships to improve internet speeds at the local library.
 - ▶ Partnerships
 - ▶ State Agencies – Collaboration between state agencies to address digital literacy and the homework gap in rural communities.
 - ▶ The State Office of the Chief Information Officer and the Nebraska Library Commission have collaborated on two broadband related grants; Internet 2 grant, Broadband Toolkit and IMLS, Sparks Grant.
 - ▶ The Library Commission, Nebraska Extension and UNL Innovation campus are collaborating together on a three year grant funded by the Institute of Museums and Library Sciences.
 - ▶ Local Partnerships – Developing partnerships between community schools and libraries and Educational Service Units. Sharing high-speed internet between community anchors to address the Homework Gap.
 - ▶ Grant funded projects and Library Commission Initiatives to provide entrepreneurial opportunities to communities through the local public libraries.
 - ▶ IMLS Grant - Library Innovation Studios: Transforming Rural Communities
 - ▶ Digital literacy needs of the future – Design a curriculum and provide resources so makerspaces can be targeted to choosing, designing and prototyping the best technology to solve the individual needs of the community.
 - ▶ Library Commission staff are committee members of Technology focused statewide groups.

NEBRASKA LIBRARY COMMISSION AND NEBRASKA PUBLIC LIBRARIES RESPOND TO BROADBAND CHALLENGES