

November 15, 2022

Progress Report to the Governor and Legislature



NITC

Nebraska Information
Technology Commission



State of Nebraska
Nebraska Information Technology Commission
nitc.nebraska.gov
501 S. 14th Street
P.O. Box 95045
Lincoln, NE 68509-5045
(402) 471-3560



Contents

NITC Commissioners and Staff	1
Executive Summary	2
Introduction	5
Realization of Vision and Employment of Strategies	6
• State Government IT Strategy	7
• Nebraska Spatial Data Infrastructure	8
• Network Nebraska	11
• Digital Education	14
• Rural Broadband and Community IT Development	15
• eHealth	17
Improved Coordination and Assistance to Policymakers	18
Policy and Funding Recommendations	20
Policies, Standards, Guidelines and Architectures	20
Information Technology Clearinghouse	21
Input and Involvement of Interested Parties	22
Infrastructure Innovation, Improvement, and Coordination	23
Awards and Recognition	26
Fun Facts	27
Advisory Group Members	28
Appendix: Policy Objectives and Review Criteria	30

NITC Commissioners

Ed Toner, Chair	Chief Information Officer, State of Nebraska
Sen. Suzanne Geist	Nebraska Legislature (ex-officio)
Leah Barrett	President, Northeast Community College
Bret R. Blackman	Vice President for IT and CIO, University of Nebraska
James Ediger	General Counsel, Hamilton Telecommunications
Shane Greckel	Owner/Operator, Greckel Farms, LLC
Kirk Langer	Chief Technology Officer, Lincoln Public Schools
Zachary J. Mellender	Business Systems & Analytics Manager, Omaha Zoological Society
Daniel Spray	President, Precision Technology
Gary Warren	Senior Consultant, Hamilton Telecommunications

Staff

Ed Toner	Chief Information Officer
Rick Becker	Government Information Technology Manager
Anne Byers	eHealth and Community Information Technology Manager
Casey DunnGossin	State GIS Coordinator
Becca Kingery	Education Information Technology Manager
Lori Lopez Urdiales	Office Services Manager

Executive Summary

This progress report highlights many of the accomplishments of the Nebraska Information Technology Commission and fulfills the requirement of Section 86-518 to submit a progress report to the Governor and Legislature by November 15 of each even-numbered year.

Significant progress has been made on the following priority areas designated as strategic initiatives by the NITC.

State Government IT Strategy. The objective of this initiative is to develop and implement a comprehensive strategy for the use of information technology by Nebraska state government. The strategy has utilized a hybrid centralization model combining elements of both the centralized and decentralized IT management models. Enterprise technologies are centralized with agency-specific activities remaining with the agencies.

Nebraska Spatial Data Infrastructure. This initiative promotes coordination of geospatial data and GIS programs, guides policy, provides guidance on data accuracy requirements, coordinates dissemination of data through NebraskaMAP, and strengthens data sharing through partnerships to ensure access to quality geospatial datasets for governmental business needs and the public. The GIS Council continues to review Nebraska GIS standards due to the constant evolution of GIS technologies and applications. The OCIO GIO team upgraded the Statewide GIS Enterprise platform to a which improved application functionality. The OCIO GIO team deployed a new Portal environment to enable sharing sensitive information with local and other non-state partners, which requires a login using approved credentials. Nebraska agencies continue to develop innovative web mapping applications and dashboards to best serve their agency users and public constituents.

Digital Education. The primary objective of the Digital Education Initiative is to promote the effective and efficient integration of technology into the instructional, learning, and administrative processes and to utilize technology to deliver enhanced digital educational opportunities to students at all levels throughout Nebraska on an equitable and affordable basis. NITC staff assisted the Nebraska Department of Education as it developed the Hierarchy of Digital Learning Needs and CARES Act guidance for Nebraska school districts and private schools in an attempt to address the Homework Gap. NITC staff partnered with the Nebraska Library Commission and Public Service Commission as the NUSF-117 Nebraska Special Construction Matching Fund program was created to incentivize new fiber construction for public libraries in rural areas.

Network Nebraska. Network Nebraska has succeeded in lowering the unit cost of Internet service to participating entities through aggregated purchasing power. By combining Network Nebraska's K-20 Internet purchases and peering into five state contracts of over 100Gbps, the K-12 E-rate-eligible price has gone from \$.18/Mbps/month on July 1, 2020, down to \$.08/Mbps/month on July 1, 2022, a 55% decrease in unit cost.

This will benefit all current and future Network Nebraska schools, ESUs and colleges that purchase their Internet service from the statewide master contract. Benefits of Network Nebraska also include flexible bandwidth utilization, Intranet routing, lower network costs, greater efficiency, interoperability of systems providing video courses and conferencing, increased collaboration among educational entities, new student learning opportunities, enterprise network management software, and better use of public investments.

Rural Broadband and Community IT Development. The NITC Community Council and staff have supported rural broadband and community IT development in several ways. NITC staff has provided staff support to the state's Rural Broadband Task Force. NITC staff provided assistance in developing grant applications for federal broadband funding programs. Staff of the NITC/Office of the CIO are also participating in the Connect Nebraska Working Group, the interagency working group responsible for coordinating federal broadband funding. NITC/Office of the CIO staff will be administering the State Digital Equity Planning Grant which is expected to be awarded in October or November 2022.

eHealth. Nebraska continues to be a leader in health information exchange with near universal participation in the statewide health information exchange, CyncHealth. LB 411 which was signed by Governor Ricketts on May 24, 2021, mandated participation in the state health information exchange by ambulatory surgical centers, critical access hospitals, intermediate care facilities, long-term care hospitals, mental health substance use treatment centers, PACE centers, pharmacies, psychiatric or mental hospitals, public health clinics, and rehabilitation hospitals.

Other Progress and Priorities

- The NITC's vision is being realized and short-term and long-term strategies have been articulated and employed. The NITC has developed a vision statement, goals, and strategic initiatives to articulate its vision and to highlight technology projects which have strategic importance to the State of Nebraska.
 - The Statewide Technology Plan has been an effective vehicle for identifying key projects, building stakeholder support, coordinating efforts, and communicating with policy makers.
 - The NITC website serves as an information technology clearinghouse. Additional resources on broadband are currently available on the Rural Broadband Task Force website (<https://ruralbroadband.nebraska.gov>).
 - In order to encourage interoperability and standardization, the NITC has adopted over 100 technical standards and guidelines.
 - Recommendations made by the commission to the Governor and Legislature have assisted policy and funding decisions. The review process and prioritization of new
-

IT projects provides policy makers with information about the objectives, justification, technical impact, costs, and risks of proposed systems. Additionally, the NITC has provided staff assistance to the Rural Broadband Task Force. Several of the task force's recommendations have been implemented by the Legislature and Governor Ricketts. LB 388 which was enacted in 2021 created the Broadband Bridge Grant Program. \$20 million a year for two years was appropriated for the program.

- The NITC encourages and facilitates input and involvement of all interested parties by engaging in collaborative processes, involving four advisory councils, the Technical Panel, and numerous workgroups and subcommittees. Information is publicly distributed and public input is encouraged.
- The NITC is addressing long-term infrastructure innovation, improvement, and coordination through Network Nebraska, by supporting the Rural Broadband Task Force, and by participating in the interagency working group responsible for coordinating federal broadband programs.
- OCIO-GIO successfully completed collaboration pilots with two GIS organizations in NebraskaMAP in 2021 and 2022.

Introduction

The Nebraska Information Technology Commission (NITC) was established by the Legislature in 1998 to provide advice, strategic direction, and accountability on information technology investments in the state. Chief Information Officer Ed Toner currently serves as the governor-designated chair of the NITC. Commissioners are appointed by the Governor, approved by the Legislature, and represent elementary and secondary education, postsecondary education, communities, the Governor, and the general public.

The NITC conducts most of its work through five advisory groups: the Community Council, Education Council, eHealth Council, Geographic Information Systems Council, and Technical Panel. Each council establishes ad hoc work groups to prepare recommendations on specific topics. The Office of the Chief Information Officer provides support for the NITC, its councils, the Technical Panel, and ad hoc groups.

Section 86-518 directs the NITC to submit a progress report to the Governor and Legislature by November 15 of each even-numbered year. This report fulfills this requirement. Over the past two years, the NITC has realized many significant achievements in each of the seven criteria established by the Legislature in Section 86-524(2). This report details those achievements.

Realization of Vision and Employment of Strategies

The vision has been realized and short-term and long-term strategies have been articulated and employed.

The NITC has developed a vision statement, goals, and strategic initiatives to articulate its vision and to highlight technology projects which have strategic importance to the State of Nebraska. The NITC continues to make progress toward the realization of its vision. However, because technology constantly presents new challenges and opportunities, the NITC's vision will continually evolve.

Vision. The NITC vision statement is to “promote the use of information technology in education, health care, economic development, and all levels of government services to improve the quality of life of all Nebraskans.”

Goals. The NITC has established four goals:

1. Support the development of a robust statewide telecommunications infrastructure that is scalable, reliable, and efficient;
2. Support the use of information technology to enhance community and economic development;
3. Promote the use of information technology to improve the efficiency and delivery of governmental and educational services, including homeland security;
4. Promote effective planning, management and accountability regarding the state's investments in information technology.

Strategic Initiatives. In 2004 the NITC began identifying priority areas as strategic initiatives. Each strategic initiative includes measureable action items. The development of the action items has been a collaborative effort involving many individuals and entities. These efforts have been successful in gaining cooperation of many stakeholders. The strategic initiatives form the core of the NITC's Statewide Technology Plan (https://nitc.nebraska.gov/documents/statewide_technology_plan.pdf).

The current list of strategic initiatives includes:

- State Government IT Strategy
- Nebraska Spatial Data Infrastructure
- Network Nebraska
- Digital Education
- Rural Broadband and Community IT Development
- eHealth

The past two years have brought significant progress in each of the strategic initiatives. A summary of each strategic initiative follows.

State Government IT Strategy

This initiative focuses on the development and implementation of a comprehensive strategy for the use of information technology by Nebraska state government. The strategy has utilized a hybrid centralization model combining elements of both the centralized and decentralized IT management models. Enterprise technologies are centralized with agency-specific activities remaining with the agencies.

Top priorities include:

- Security
- Consolidation
- Availability

The following graphic lists the priorities of the OCIO:



Action items supporting this initiative include:

- Implement same sign-on for certain enterprise applications;
- IT cost efficiency projects;
- Consolidate on STN domain;
- Application process maturation (DevOps); and
- SharePoint/Teams (cloud migration).

Recent accomplishments include:

- Completed the data center consolidation for code agencies;
- Completed application portfolio management survey of code agencies;
- Completed upgrade of the enterprise content management application; and
- Completed implementation of the new and improved staff onboarding and offboarding process for 30 agencies, boards, and commissions.

Nebraska Spatial Data Infrastructure

Mapping and geospatial data support the economy, safety, environment and overall quality of life for Nebraskans. Coordination and management of these activities are essential to reduce duplication of efforts and provide cost savings to our taxpayers.

The GIS Council develops strategies, standards and policies related to the creation and use of geospatial data and geographic information system technologies for Nebraska. The council's interagency and intergovernmental coordination efforts focus on facilitating data sharing, coordinating joint database development, developing GIS enterprise services, data and system standards, and education. The council represents

GIS Council Mission

To encourage the appropriate utilization of GIS technology and to assist organizations to make public investments in GIS technology and geospatial data in an effective, efficient, and coordinated manner.

Nebraska Revised Statute - §86-569 through §86-573

“Geospatial technologies incorporate GIS, global positioning systems (GPS), remote sensing such as imagery and Light Detection and Ranging (LiDAR), and other geographic data and information systems. GIS is a tool to capture, store, manipulate, analyze, manage, and visualize all types of geographic data.”

state, local and federal government agencies and other stakeholders needing access to data. The council is affiliated with nationally coordinated efforts through the Federal Geographic Data Committee and the National States Geographic Information Council (NSGIC).

This initiative promotes coordination, guides policy, provides guidance on Nebraska Spatial Data Infrastructure (NESDI) data accuracy requirements, and strengthens data sharing through partnerships to ensure access to quality geospatial datasets for governmental business needs and the public.

The major components of this initiative include:

1. Facilitating the creation, maintenance, analysis and publishing of quality NESDI data and information systems.
2. Encouraging data sharing and provide widespread access to data and services through NebraskaMAP.gov.
3. Developing and implementing NESDI layer standards and guidelines.

4. Facilitating technical assistance and education outreach opportunities for furthering the adoption of the NESDI and geospatial applications.
5. Achieving sustainable and efficient allocation of resources to support the implementation and wise governance of GIS services and geospatial data.

The objective of the NESDI is:

“To develop and foster an environment and infrastructure that optimizes the efficient use of geospatial technology, data, and services to address a wide variety of business and governmental challenges within the state. Geospatial technologies and data will be delivered in a way that supports policy and decision making at all levels of government to enhance the economy, safety, environment and quality of life for Nebraskans.”

NESDI Framework Layer Assessment. The NESDI comprises of geospatial data layers that have multiple applications and are used by a vast majority of stakeholders. They are consistent with the Federal National Spatial Data Infrastructure (NSDI) “7 framework layers” and provide additional layers of particular importance to Nebraska stakeholders. The current priority layers for the state include imagery, elevation, street centerlines, address points, and land records.

NESDI Data Layers

- Survey and Geodetic control
- Transportation (roads, rail, air, etc.)
- Cadastre/parcels
- Elevation
- Aerial imagery
- Hydrography
- Political and administrative boundaries
- Addresses
- Soils
- Groundwater

Metadata standards (NITC 3-201 Geospatial Metadata) have been developed specific to the needs of Nebraska stakeholders while maintaining compliance with the metadata standards from the Federal Geographic Data Committee (FGDC).

The following are other accomplishments for the priority data layers.

Survey and Geodetic Control. Survey and geodetic control need to be taken into consideration for good quality data to exist in the future for several of the NESDI framework layers—particularly if multiple data sets are used in combinations for analysis and decision making. Some of the State’s current data sets were created for specific purposes. As the use of geospatial data has grown, there are now other business use cases for the data. Some of these additional uses require a greater level of spatial accuracy.

A low-distortion projection (LDP) project is in progress under the direction of the State Surveyor’s office with assistance with other registered land surveyors of Nebraska. The LDP will create the best ground to grid solution with control established using recognized local control. This will lead to a better source data for all GIS horizontal calculations and will improve Nebraska geospatial data. Survey and geodetic control recommendations have been identified and included into ongoing data collection

projects. There is a federal goal for implementation of this project to coincide with the 2027 Federal Datum change.

The state has a signed MOU with the Bureau of Land Management to share data with control points for Federal and non-federal lands. The state surveyor's office is the steward of this data.

Elevation (LiDAR). This action item establishes the Nebraska Statewide Elevation Program. The Elevation Business Plan was approved by the GIS Council on March 26, 2015. The plan outlines the business case for LiDAR statewide. The plan takes a comprehensive approach and details the organizational needs, technology and human resource requirements, required product deliverables, funding requirements, legislative support, implementation plans, and a marketing and outreach strategy. The Elevation initiative has reached its defined milestone with complete coverage for Nebraska.

The LiDAR standard (3-203 LiDAR Standard) was updated in May 2022 to adopt by reference the most recent version of the LiDAR Base Specification standards released by the USGS for elevation acquisition using LiDAR.

Imagery. This action item establishes the Nebraska Statewide Imagery Program which sets out to coordinate the acquisition, delivery, and data sharing of imagery products and services. All government entities can participate with the program.

The core product is a statewide aerial ortho-image that meets the minimum horizontal accuracy requirements and a spatial resolution of 12 inch or better, preferably flown during the "leaf-off" period for trees. Obliques and other value-added products and services will also be included in the program.

Land Records. This action item enables the integration of different local government land records information into a statewide dataset.

A Nebraska Statewide Parcel Geodatabase Development and Implementation Plan was finalized in 2015 with input from several county assessors. The plan outlines expectations of the State's public records request and a timeline going forward to obtain core parcel data and GIS files on an annual basis. The state has developed statewide data aggregation workflows, a data schema/model, and appropriate map services to that provide data for business operations. All counties submit digitized and tabular parcel data to be aggregated into the statewide database. This effort has also leveraged a data sharing partnership effort to identify state level data that can be shared to counties to support their needs. This is an ongoing endeavor in cooperation with the Nebraska Department of Revenue - Property Assessment Division and County Assessors.

Light Detection and Ranging

LiDAR is a technology that is used in conjunction with GPS technology, an aerial collection platform, and a processing computer to collect data points that can be used to define the location of objects that reflect near infrared light, including the land surface, structures and vegetation.

Street Centerline Address Database. Nebraska Public Service Commission (PSC) continues to coordinate quality control and provisioning of various geospatial (GIS) data sets such as street centerlines and address points for use in emergency call routing services per NG-9-1-1 requirements. These datasets follow the NITC Standards 3-205 (Street Centerlines Standard), and 3-206 (Address Points Standard), these standards follow NENA (National Emergency Number Association, Inc) GIS standards and as of late 2022 will adopt the current NENA standards by reference. The datasets are also shared in the Nebraska GIS enterprise and NebraskaMAP and may be used to improve state operations various transportation, emergency management, public safety, or economic development related applications.

NebraskaMAP. NebraskaMAP (<http://www.NebraskaMAP.gov>) is the online gateway to access



Nebraska's authoritative geospatial data. The system integrates with the State's GIS Enterprise platform and has more than 158 data sets and over 133 web mapping applications. The site averages over 2,500 views per day.

State agencies that use geospatial data continue to work together to reduce duplicated datasets and streamline the data sharing process. This has been done by consolidating resources and the development and deployment of Nebraska Enterprise GIS platform (NEGIS). This allows users in state agencies to access data in one location for the most current information. The new system formalizes communication with all statewide data stewards, keeping data current while exercising the importance of authoritative and quality data for public consumption.

The Geographic Information office has successfully completed two pilots for linking other entity open data sites to NebraskaMAP. The next step is to partner with additional open data sites at the local level in Nebraska. The website may eventually include a component to provide an easier way to view and access available imagery, LiDAR and other raster and large file size datasets for Nebraska.

Network Nebraska

Participants in Network Nebraska are reducing costs and stimulating investment in Nebraska's telecommunications infrastructure. Network Nebraska is represented as a compilation of three major sub-networks: The University of Nebraska network, State and County Government network, and the K-20 Education network. Each network has its own management staff, but takes advantage of co-location facilities, Internet and telecommunications contracts, and shared infrastructure wherever possible.

To develop a broadband, scalable telecommunications infrastructure that optimizes quality of service to public entities, the State of Nebraska and the University of Nebraska

began aggregating their backbone network services into a core network backbone in 2003. In 2006, the Nebraska Legislature passed LB 1208 which named the statewide network as Network Nebraska and tasked the Chief Information Officer (assisted by the University of Nebraska) with “providing access to all education entities as soon as feasible, but no later than July 1, 2012.” Network Nebraska is also expected to “meet the demand of state agencies and local governments...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.”

Network Nebraska has succeeded in lowering the unit cost of Internet service to participating entities through aggregated purchasing power. By combining Network Nebraska’s K-20 Internet purchases and peering into five state contracts of over 100Gbps, the K-12 E-rate-eligible price has gone from \$.18/Mbps/month on July 1, 2020, down to \$.08/Mbps/month on July 1, 2022, a 55% decrease in unit cost. This will benefit all current and future Network Nebraska schools, ESUs and colleges that purchase their Internet service from the statewide master contract.

Benefits of Network Nebraska also include flexible bandwidth utilization, Intranet routing, lower network costs, greater efficiency, interoperability of systems providing video courses and conferencing, increased collaboration among educational entities, new student learning opportunities, enterprise network management software, and better use of public investments.

Network Nebraska has also stimulated investments and competition in telecommunications infrastructure. As the State bid connectivity to large regional areas of schools and colleges, the telecommunications companies responded with fiber Ethernet service pricing that greatly reduced the costs to educational entities.

The development of the K-20 education network has increased the number of distance education courses available to Nebraska students. Through Zoom interactive videoconferencing, Nebraska high schools and community colleges exchange over 275 courses per year (2022-23). Highest concentration of courses are in English, Foreign Language, and Mathematics, however, offerings also include Agriculture, Technology, and Industrial Technology. Virtual Field Trips are also available to Nebraska students with over 150 offerings.

Due to advances in WAN Ethernet technology, Network Nebraska-Education is now able to reach every education entity in the State through seven core aggregation points: Grand Island, Kearney, Lincoln, Norfolk, Scottsbluff, and two locations in Omaha.

The development of the K-20 Education network has increased the number of customers served by Network Nebraska. Data and Internet customers currently include the three state colleges, all six community colleges, two tribal colleges, the University of Nebraska system, over half of the private colleges, and nearly 100% of public school districts under 17 different educational service units. Likewise, non-public school district participation

has continued to expand. The Nebraska K-20 Education network is completely funded by Participation and Interregional Transport Fees from its 294 members.

Cybersecurity has been a priority area of the Education Council since the most recent update to the Statewide Technology Plan. The Education Council and Network Nebraska Advisory Group continue to promote and provide cybersecurity training experiences for Network Nebraska members.

Establishing a robust digital education environment is critical to Nebraska's future. So much of what teachers, students, and administrators do today is dependent upon Internet-based information and communication. To assist with facilitation of digital education, and in efforts to combat the 'homework gap,' in 2021 Nebraska was selected as one of only three initial states to pilot a K-12 global Wi-Fi program called eduroam.



eduroam is a service that allows students, researchers, teachers, and staff from participating universities, colleges, K-12 schools, libraries, and museums to obtain secure Internet connectivity when visiting other participating schools and partners by simply opening their computing device. ConnectEd Nebraska was

created through a collaborative effort between Network Nebraska, the Nebraska Department of Education, the University of Nebraska, and ESU leaders. The objective of ConnectEd Nebraska is to enable participating teachers, staff, and students in Nebraska to have anywhere, anytime wireless access at all educational sites in the state and in other eduroam-participating sites throughout the U.S. and other countries. eduroam is available to all Network Nebraska participants, and as of today over 60% of public school districts are enrolled in the eduroam program.

Student equity of access to the internet continues to be a high priority action item; the Office of the CIO partnered with the Nebraska Library Commission and Public Service Commission continue to promote the Nebraska Special Construction Matching E-Rate fund for schools and libraries. The matching funds from the FCC's E-Rate program and the Nebraska Universal Service Fund will increase the discount for special construction of fiber by as much as 20%, which could dramatically reduce costs and increase transport speeds for the participants.

Network Nebraska has been made possible through a cooperative effort of the Collaborative Aggregation Partnership (CAP). CAP is composed of several operational entities: Office of the CIO, University of Nebraska, and Nebraska Educational Telecommunications with policy assistance from the Nebraska Department of Education, Public Service Commission, and the NITC.

In 2009, the NITC Education Council chartered the Network Nebraska Advisory Group (NNAG). These 16 members, representing all the major K-12 and higher education

communities, have been instrumental in helping guide Office of the CIO decisions concerning network infrastructure, services, and fees.

Network Nebraska is not a state-owned network. Facilities and circuits are leased from private telecommunications providers in the state, allowing the State of Nebraska and members of Network Nebraska to act as anchor tenants.

Digital Education

The primary objective of the Digital Education Initiative is to promote the effective and efficient integration of technology into the instructional, learning, and administrative processes and to utilize technology to deliver enhanced digital educational opportunities to students at all levels throughout Nebraska on an equitable and affordable basis.

The initiative is dependent upon adequate Internet connectivity and transport bandwidth for learners, instructors, administrators, and for educational attendance sites. A minimum acceptable level of classroom technology will have to be established for the initiative to be successful.

The primary components of the Digital Education Initiative include:

- A statewide telecommunications network with ample bandwidth capable of transporting voice, video, and data between and among all education entities (See Network Nebraska.);
- Distance insensitive Internet pricing for all Nebraska education entities;
- Development of a statewide eLearning environment so that every teacher and every learner has access to a web-based, digital curriculum;
- Development of a statewide digital resource library so that any teacher or learner will be able to retrieve digital media for use in instructional and student projects;
- Synchronous videoconferencing interconnections between all schools and colleges;
- The means to coordinate and facilitate essential education opportunities for all students through a statewide student information system; and
- Regional Pre-K-20 education cooperatives that vertically articulate educational programs and opportunities.

Rural Broadband and Community Development

The NITC Community Council and staff have addressed rural broadband and community IT development in several ways:

Rural Broadband Task Force. NITC staff has provided staff support to the state’s Rural Broadband Task Force. The Rural Broadband Task Force was created by LB 994 in 2018 to “review issues relating to availability, adoption, and affordability of broadband services in rural areas of Nebraska.” The task force’s second report was submitted to the Legislature in October 2021.

The 2021 report included findings and recommendations on the broadband needs of farmers and ranchers. The report found that farmers and ranchers need upload speeds of at least 30 Mbps to transfer large amounts of generated data to the cloud. In the future, even greater upload speeds may be required. Rural areas of most Nebraska counties—including many of Nebraska’s top-producing agricultural counties— lack broadband with upload speeds of greater than 25 Mbps or fiber connectivity. Different methods of connectivity are required for agriculture, including:

- Low-bandwidth connectivity for devices like sensors or monitors often called internet of things (IoT) devices
- High speed, centralized broadband with upload speeds of at least 30 Mbps up for targeted agricultural operational headquarters such as a farm or ranch operations center
- High-speed decentralized coverage over large agricultural areas
- The report is available at: <https://ruralbroadband.nebraska.gov> .

Considerable progress made since the 2019 report, including the following:

- \$29.5 million in grants was awarded to 60 projects bringing broadband to 17,600 households through the Remote Access Rural Broadband Grant Program. The grant program was funded by the CARES Act and administered by the Nebraska Department of Economic Development.
 - LB 388 which was enacted in 2021 created the Broadband Bridge Grant Program. \$20 million a year for two years was appropriated for the program. The first round of grants were awarded in January and February 2022. Sixty-one grants were awarded totaling \$19.2 million to connect 12,640 locations. Awards for the second round will be announced in December 2022.
 - Broadband projects funded through the Nebraska Universal Service Fund have connected 19,583 households since 2019.
 - Remittances to the Nebraska Universal Service Fund increased from \$32.8 million in 2018 to \$46.8 million in 2020 due to reforms to the residential contribution method.
-

- The Public Service Commission is taking steps to initiate a reverse auction of \$3 million in NUSF support.
- LB 338 improved the accountability of the Nebraska Universal Service Fund by specifying build out requirements of 100 Mbps down and 100 Mbps up and by requiring recipients to conduct and submit speed tests.
- The Nebraska Public Service Commission established the E-Rate Special Construction Matching Program in 2020, providing matching funding for 6 public libraries and one public school in the first year of the program.
- Governor Ricketts, the Nebraska Department of Education, Educational Service Units, and local school districts coordinated federal funding to purchase computing devices, hot spots, and internet-enabled devices as well as implement connectivity projects.
- LB 992, enacted in 2020, established a process to use private utility easements for communications and made the process of leasing dark fiber less burdensome.

Many of these developments have helped the State of Nebraska build the capacity to administer federal broadband funding made available through the American Rescue Plan Act (ARPA) and the Infrastructure Investment and Jobs Act (IIJA).

Federal Broadband Funding. NITC staff provided assistance in developing grant applications for federal broadband funding programs. Staff of the NITC/Office of the CIO are also participating in the Connect Nebraska Working Group--interagency working group responsible for coordinating federal broadband funding.

- **Capital Projects.** On August 30, 2022, the U.S. Department of the Treasury approved an award of \$87.7 million to connect 21,000 homes and businesses to affordable, reliable high-speed internet services. The Nebraska Broadband Bridge Program, a competitive grant program, will award grants for broadband infrastructure. The program is designed to reach areas without access to reliable, affordable high-speed internet infrastructure, especially the state's rural areas. The press release is at <https://home.treasury.gov/news/press-releases/jy0931>. The Public Service Commission anticipates opening a round of the Broadband Bridge Grant Program in early 2023 to distribute the funding.
 - The State of Nebraska has also applied for funding from the **National Telecommunications and Information Administration Broadband Equity, Access and Deployment (BEAD) program**. Nebraska will receive at least \$100 million for broadband deployment projects through the BEAD program. The State of Nebraska expects to receive \$5 million in planning funds in November 2022 to develop a five-year broadband deployment plan. The Nebraska Public Service Commission will administer the BEAD funding.
-

- Nebraska will receive \$600,000 to develop a state digital equity plan through the **State Digital Equity Planning Grant**. States which complete digital equity plans will be able to apply for a minimum of \$7.2 million over 5 years to set up a state digital equity grant program. Nebraska expects to receive this award in October or November. The Nebraska Information Technology Commission/Office of the CIO will administer the State Digital Equity Planning Grant.

eHealth

Nebraska continues to be a leader in health information exchange with near universal participation in the statewide health information exchange, CyncHealth. LB 411 which was signed by Governor Ricketts on May 24, 2021, mandated participation in the state health information exchange by ambulatory surgical centers, critical access hospitals, intermediate care facilities, long-term care hospitals, mental health substance use treatment centers, PACE centers, pharmacies, psychiatric or mental hospitals, public health clinics, and rehabilitation hospitals.

CyncHealth in partnership with the Nebraska Department of Health and Human Services serves as Nebraska's Prescription Drug Monitoring Program (PDMP). Nebraska's PDMP was the first PDMP to include all medications. CyncHealth has been working with health care facilities to make it easier for health care providers to access and use the PDMP.. 42 hospitals accounting for 59% of the state's hospital beds have implemented PDMP workflow integration.

CyncHealth also offers a solution to address social determinants of health (SDOH) and to help connect patients to resources including food, housing, transportation, mental health support, state benefits, and employment services.

CyncHealth continues to make investments in IT security and is completing HITRUST certification. CyncHealth expects to receive the certification by the end of November. The MyCyncHealth patient portal is available for Medicaid patients. The portal is at mycynchealth.org.

Improved Coordination and Assistance to Policymakers

The statewide technology plan and other activities of the commission have improved coordination and assisted policymakers.

Statewide Technology Plan. The statewide technology plan has been an effective vehicle for identifying key projects, building stakeholder support, coordinating efforts, and communicating with policy makers.

The current plan was approved in 2022. The plan focuses on six strategic initiatives:

- State Government IT Strategy
- Nebraska Spatial Data Infrastructure
- Network Nebraska
- Digital Education
- Rural Broadband and Community IT Development
- eHealth

These initiatives were identified by the NITC and its advisory groups. These groups include representatives of a wide array of entities, including health care providers, education, local government, the private sector, and state agencies. This process has proven to be effective in building stakeholder support. These initiatives are collaborative projects involving many entities both inside and outside of state government. The statewide technology plan provides a method of communicating the importance of these initiatives, progress made, and plans for further implementation. The primary role of the NITC in these initiatives has been facilitation and coordination. The success of these initiatives testifies to the NITC's effectiveness at facilitation, coordination, and communication with policymakers.

The Chief Information Officer and the advisory groups of the NITC are occasionally called upon to provide analysis or review of technology initiatives, explanation of state-specific information technology data, and other requests as needed by the Governor and Legislature.

Rural Broadband Task Force. By providing staff support for Nebraska's Rural Broadband Task Force, the NITC has assisted policymakers by studying issues related to rural broadband availability and by making recommendations. The Rural Broadband Task Force was created by LB 994 in 2018 to "review issues relating to availability, adoption, and affordability of broadband services in rural areas of Nebraska." LB 994 was introduced by Senator Curt Friesen, Chair of the Transportation and Telecommunications Committee.

The 14-member task force is chaired by Ed Toner, CIO for the State of Nebraska and Chair of the Nebraska Information Technology Commission. The task force's second

report was submitted to the Legislature in October 2022. The report included findings and recommendations on:

- Broadband availability;
- Broadband data and mapping;
- Alternative technologies and providers;
- Nebraska Universal Service Fund and reverse auction;
- Public-private partnerships and broadband planning;
- Digital inclusion, homework gap and leveraging E-Rate funding; and
- Broadband needs of farmers and ranchers

The report and supporting appendices is available at:

<https://ruralbroadband.nebraska.gov>.

Members of the task force include:

Ed Toner, Task Force Chair, Chief Information Officer, State of Nebraska and Chair, Nebraska Information Technology Commission

Senator Curt Friesen, Chair, Transportation and Telecommunications Committee, Nebraska Legislature

Senator Bruce Bostelman, Nebraska Legislature (selected by the Executive Board)

Mary Ridder, Commissioner, Nebraska Public Service Commission

Tony Goins, Director, Nebraska Department of Economic Development

Steve Wellman, Director, Nebraska Department of Agriculture

Zachary Hunnicutt, Farmer, Hunnicutt Farms, Representing Agribusiness Community

Vacant

Representing Nebraska Business Community

Tom Shoemaker, President, Pinpoint Communications, Representing Regulated Wireline Telecommunications Industry

Daniel Spray, Owner, Precision Technology, Inc., Representing Wireless Telecommunications Industry

Gwen A. Kautz, CEO/General Manager, Dawson Public Power District, Representing Public Power Industry

Andrew Whitney, Director of Virtual Platforms, Bryan Health & Teledyne, Representing Health Care Providers

Andrew Buker, Executive Director of Infrastructure Services, University of Nebraska, Representing Nebraska postsecondary educational institutions

Ron Cone, Director of Network Information Services, ESU 10, Representing Rural Schools Offering Kindergarten through Grade Twelve

Policy and Funding Recommendations

Recommendations made by the commission to the Governor and Legislature have assisted policy and funding decisions.

Section 86-516 (8) directs the NITC to “make recommendations on technology investments to the Governor and the Legislature, including a prioritized list of projects, reviewed by the technical panel,” as part of the biennial budget process. Technical reviews of information technology projects are conducted by a team of reviewers. Projects are then reviewed by the Technical Panel. Using information from the review process, the NITC makes recommendations to the Governor and the Legislature by November 15 of each even-numbered year. The review process and prioritization of new IT projects provides policy makers with information about the objectives, justification, technical impact, costs, and risks of proposed projects.

In 2022, four projects were reviewed as part of the biennial budget process. Recommendations on these requests were submitted to the Governor and the Legislature.

Policies, Standards, Guidelines, and Architectures

Policies, standards, guidelines, and architectures have been developed and observed.

In order to encourage interoperability and standardization, over 100 standards and guidelines have been adopted by the commission. The development of standards and guidelines has helped the State of Nebraska achieve greater interoperability and efficiency. The process encourages public input from all involved constituents. Most standards are developed by a work group consisting of stakeholders from state government agencies and other interested entities. The Technical Panel recommends standards and guidelines to be considered for adoption by the NITC.

A full listing of the NITC Standards and Guidelines are listed at this website:
<https://nitc.nebraska.gov/standards/index.html>

Information Technology Clearinghouse

An information technology clearinghouse has been established, maintained, and utilized of Nebraska's information technology infrastructure and of activities taking place in the state involving information technology, and the information flow between and among individuals and organizations has been facilitated as a result of the information technology clearinghouse.

The NITC's website (www.nitc.nebraska.gov) serves as an information technology clearinghouse, providing access to information including resources for communities, health care providers, and educational entities, the GIS community, and state government. The NITC website is the official repository for agenda, minutes, and documents for the NITC, its councils and their workgroups. The section on "Standards and Guidelines" provides access to all technical standards and guidelines adopted by the NITC or under development. The Community Council and its partners have developed resources to help Nebraska communities and regions improve their broadband service. Links to these resources are available from the websites of the NITC and the Rural Broadband Task Force (ruralbroadband.nebraska.gov). Network Nebraska has its own project website, with information designed for current and prospective participants (<http://www.networknebraska.net>). The NITC website also includes a link to NebraskaMAP (<http://www.NebraskaMAP.gov>) which provides public access to geospatial data in Nebraska. Additionally, NITC staff members handle requests for information on technology projects and development and facilitate the exchange of information.



NITC Commissioners hear reports from its advisory councils.

Input and Involvement of Interested Parties

Input and involvement of all interested parties has been encouraged and facilitated.

The NITC engages in collaborative processes, involving four advisory councils, the Technical Panel, and numerous workgroups and subcommittees. Additionally, information is publicly distributed and public input is encouraged through the NITC's website and through e-mail distribution. NITC staff also present information on NITC initiatives at conferences, workshops, and meetings across the state. The list of NITC Commissioners, council members, and Technical Panel members is included in this document.



Active work groups and subcommittees over the past two years include:

- State Government Council—Security Architecture Work Group
- Technical Panel—Accessibility Work Group
- Technical Panel—Intergovernmental Data Communications Work Group
- GIS Council—Boundary Work Group
- Education Council—Network Nebraska Work Group
- Education Council—Digital Education Work Group
- Education Council—Network Nebraska Advisory Group

Additionally, the Rural Broadband Task Force has encouraged the input and involvement of interested parties through its subcommittees and by providing opportunities for public comment.

Infrastructure Innovation, Improvement and Coordination

Long-term infrastructure innovation, improvement, and coordination has been planned for, facilitated, and achieved with minimal barriers and impediments.

The NITC is addressing long-term infrastructure innovation, improvement, and coordination through Network Nebraska, by supporting the Rural Broadband Task Force, and by participating in the State of Nebraska's interagency working group which is coordinating federal broadband funding..

Network Nebraska. Network Nebraska has aggregated statewide telecommunications to a common infrastructure, generated considerable cost savings to public entities, and decreased the unit cost of Internet service by leveraging the consolidated demand of all participating entities. Since September 2003, Network Nebraska has grown to serve the data and Internet service needs of all state agencies with outstate circuits, the University of Nebraska's four campuses, all six of the state's community colleges, all three state colleges, and all but one of the 244 school districts under 17 different educational service units. The number of customers is expected to continue growing due to the favorable Internet rates and the high quality of service offered by Network Nebraska. The Network Nebraska K-20 network is one possible alternative for them to interconnect with each other and purchase less expensive Internet.

Network Nebraska has been made possible through a cooperative effort of the State of Nebraska Office of the CIO, University of Nebraska, and Nebraska Educational Telecommunications, with policy assistance from the Nebraska Department of Education, Public Service Commission, and the NITC. This partnership is known as the Collaborative Aggregation Partnership (CAP).

The first phase of the State multipurpose backbone became operational in September 2003, serving Omaha, Lincoln, and Grand Island with the second phase following in February 2004, extending service to Norfolk, Kearney, North Platte, and the Panhandle. In July 2008, the Network Nebraska K-20 backbone interconnected Grand Island, Lincoln, and Omaha, and Scottsbluff was added in 2012. The University of Nebraska has multiple statewide Internet contracts for Network Nebraska that have dramatically reduced the unit cost of Internet access to Network Nebraska participants. By leveraging Internet2 and InterExchange Carrier peering relationships, an additional 40 Gbps of Internet egress has been made available at substantially lower costs than commodity Internet.

Network Nebraska is not a state-owned network. Facilities are leased from private telecommunications providers in the state. In this way, the state hopes to stimulate private investment into Nebraska's telecommunications infrastructure.

Rural Broadband Task Force. LB 994, which was introduced by Senator Curt Friesen, passed by the Legislature and signed into law by Governor Ricketts on April 17, 2018,

created the Rural Broadband Task Force. LB 994 charges the task force with reviewing “issues relating to availability, adoption, and affordability of broadband services in rural areas of Nebraska.” Ed Toner, Chair of the NITC, serves as the chair of the Rural Broadband Task Force. The NITC is providing support to the Rural Broadband Task Force.

The Task Force submitted its second report to the Legislature and Governor Ricketts in October 2021. Since the first task force report was submitted in 2019, the State of Nebraska has implemented many of the task forces recommendations and has improved broadband availability and increased the accountability of telecommunications providers receiving state support. LB 388 which was enacted in 2021 established the Nebraska Broadband Bridge Grant Program. \$20 million a year for two years was appropriated for the program. The first round of grants were awarded in January and February 2022. Sixty-one grants were awarded totaling \$19.2 million to connect 12,640 locations. Awards for the second round will be announced in December 2022.

The establishment of a state broadband program has helped the State of Nebraska build the capacity to administer federal broadband funding made available through the American Rescue Plan Act (ARPA) and the Infrastructure Investment and Jobs Act (IIJA).

Federal Broadband Funding. NITC staff provided assistance in developing grant applications for federal broadband funding programs. Staff of the NITC/Office of the CIO are also participating in the Connect Nebraska Working Group--interagency working group responsible for coordinating federal broadband funding.

- **Capital Projects.** On August 30, 2022, the U.S. Department of the Treasury approved an award of \$87.7 million to connect 21,000 homes and businesses to affordable, reliable high-speed internet services. The Nebraska Public Service Commission will administer the program and will distribute the funding through the Nebraska Broadband Bridge program. The Public Service Commission anticipates opening a round of the Broadband Bridge Grant Program in early 2023 to distribute the funding.
 - The State of Nebraska has also applied for funding from the **National Telecommunications and Information Administration Broadband Equity, Access and Deployment (BEAD) program**. Nebraska will receive at least \$100 million for broadband deployment projects through the BEAD program. The State of Nebraska expects to receive \$5 million in planning funds in November 2022 to develop a five-year broadband deployment plan. The Nebraska Public Service Commission will administer the BEAD funding.
 - Nebraska will receive \$600,000 to develop a state digital equity plan through the **State Digital Equity Planning Grant**. States which complete digital
-

equity plans will be able to apply for a minimum of \$7.2 million over 5 years to set up a state digital equity grant program. Nebraska expects to receive this award in October or November. The Nebraska Information Technology Commission/Office of the CIO will administer the State Digital Equity Planning Grant.



Cullen Robbins gives an overview of broadband terms to members of the Rural Broadband Task Force, Sept. 24, 2018.

Awards and Recognition



Nebraska received a grade of "B" on the 2022 Digital States Survey.



Nebraska received awards from the Center for Digital Government for Disaster Recovery and Continuity of Operations (DR/COO) in 2020 and for Continuous Innovation in 2022.



StateScoop named Ed Toner State Executive of the Year in 2022.



Nebraska received a grade of "B" from the National States Geographic Information Council's Geospatial Maturity Assessment in 2021.



The State of Nebraska received a \$600,000 State Digital Equity Planning Grant from the National Telecommunications and Information Administration. The NITC/OCIO will be administering the grant in partnership with the Connect Nebraska Working Group.

Nebraska Information Technology Facts



90% of Nebraska households have an internet subscription

Source: ACS 2020 5-year estimates



85% of Nebraska farms & ranches have an internet subscription

Source: 2021 Farm Computer Usage and Ownership.



51%



of Nebraska farmers and ranchers use precision agriculture practices to manage crops or livestock

Source: 2021 Farm Computer Usage and Ownership



5 advisory groups assist the NITC:

- Community Council
- Education Council
- eHealth Council
- GIS Council
- Technical Panel



Since the State and University of Nebraska began cooperatively bidding for statewide internet in 2007, the unit rate has been reduced by **99%**.

Nebraska K-12 entities pay **\$.08** per Mbps per month for internet access after E-rate discounts are applied.



The Network Nebraska statewide consortium is comprised of **294** entities and serves over **425,000** students and staff with internet, distance learning, and other network management services.

13%

of employed Nebraskans work from home up nearly **3X** from 2019



Source: U.S. Census, 2021 & 2019 ACS 1-year estimates



Over 100 standards and guidelines have been adopted by the NITC

Advisory Group Members

Technical Panel

Kirk Langer, Chair, Lincoln Public Schools

Bret Blackman, University of Nebraska

Jeremy Sydik, University of Nebraska

Ed Toner, Office of the CIO

Ling Ling Sun, Nebraska Educational Telecommunications

Community Council

Rod Armstrong, Co-Chair, AIM, Lincoln

Chris Anderson, City of Central City

Jay Anderson, NebraskaLink

Randy Bretz, TEDxLincoln Curator

Karen Connell, Columbus Public Library

Johnathan Hladik, Center for Rural Affairs

Rick Nelson, Custer Public Power District and Nebraska Rural Electric Association

Judy Petersen, Central Nebraska Economic Development District

Mary Ridder, Nebraska Public Service Commission

Debora Robertson, Kilgore Public Library, York

Danny Rockhill, BankFirst

Jason Tuller, University of Nebraska-Lincoln Extension

Mehmet Can Vuran, University of Nebraska-Lincoln

Holly Woldt, Nebraska Library Commission

Education Council

Bret Blackman, University of Nebraska-Omaha

Dr. Mike Baumgartner, Coordinating Commission for Postsecondary Education

Burke Brown, District OR-1 Palmyra/Bennet

Matt Chrisman, Mitchell Public Schools

Chad Davis, Nebraska Educational Telecommunications Commission

Dr. Ted DeTurk, ESU 2-Fremont

John Dunning, Wayne State College

Stephen Hamersky, Daniel J. Gross Catholic High School

Dr. Dan Hoelsing, Schuyler Community Schools

Trent Kelly, Hastings Public Schools

Chuck Lenosky, Creighton University

Greg Maschman, Nebraska Wesleyan University

Alan Moore, ESU 3-LaVista

Gary Needham, ESU 9-Hastings

Mary Niemiec, University of Nebraska

Tom Peters, Central Community College

Carla Streff, Northeast Community College

Ling Ling Sun, Nebraska Educational Telecommunications Commission

Ed Toner, Office of the CIO, Nebraska Department of Administrative Services

Dr. Paul Turman, Nebraska State College System

SuAnn Witt, Nebraska Department of Education

eHealth Council

Kathy Cook, Co-chair, Lincoln-Lancaster County Public Health Department

Marty Fattig, Co-Chair, Nemaha County Hospital

Kevin Borchert, CynHealth

Gary Cochran, University of Nebraska Medical Center

Liaquat Hossain, Ph.D., University of Nebraska at Kearney

Cindy Kadavy, Nebraska Health Care Association

Jan Evans, Blue Cross Blue Shield of Nebraska (nominated)

Ashley Newmyer, Nebraska Department of Health and Human Services, Division of Public Health

Dave Palm, University of Nebraska Medical Center

Jina Ragland, AARP (nominated)

Brian Sterud, Faith Regional Health System

Anna Turman, Catholic Health Initiative

Allison Wisco, Nebraska Department of Health and Human Services, Division of Medicaid and Long-Term Care

Linda Wittmuss, Nebraska Department of Health and Human Services, Division of Behavioral Health

Robert Wagner, CyncHealth

GIS Council

Ryan Werner, Chair, Department of Natural Resources

Tim Erickson, Vice-Chair, Clerk of the Legislature

Timothy Cielocha, Nebraska Public Power District

Charlie Lucas, Nebraska State Patrol

Claire Inbody, Department of Transportation

Nathan Martinez, Nebraska Emergency Management Agency

Jennifer Parmeley, Department of Health and Human Services

Lash Chaffin, League of Nebraska Municipalities

Vacant, Governor's Policy Research Office

John Beran, State Surveyor

Eric Herbert, Omaha Metro Area Sarpy County GIS

Doug Hallum, Conservation and Survey Division – UNL

Nancy Salmon, Hamilton County Commissioner

Christian Nielsen, Public Service Commission

Neil Dominy, Federal Liaison

John McKee, Jefferson and Saline County Emergency Management

Jeff McReynolds, Lincoln Metro Area, SSP Innovations

Chuck Wingert, Nemaha Natural Resources District

Dave Hattan, Office of the CIO

Devarsi Majumder, Nebraska Game and Parks Commission

Lesli Rawlins, Nebraska Geospatial Professional Association

Mike Schonlau, Member at Large - Omaha/Douglas County

Barb Oswald, Department of Revenue

Shani Mach, Department of Environmental Quality

Matt Tinkham, Member at Large – Surveyors

Baily Gibson, Member at Large – Advanced Agrilytics

Don Linquist, Member at Large – Linquist Technologies

Appendix

Policy Objectives and Review Criteria

Section 86-518 directs the NITC to submit a progress report to the Governor and Legislature by November 15 of each even-numbered year. This report is offered in fulfillment of that requirement.

Section 86-524 further directs the Appropriations Committee and Transportation and Telecommunications Committee to conduct a joint review of the activities of the NITC by the end of the calendar year of every even-numbered year. Section 86-524 also provides three objectives and a list of criteria for evaluating progress. This report is intended to provide information to assist the Legislature in conducting its review.

Policy Objectives

Section 86-524(1) provides: "... It shall be the policy of the state to: (a) Use information technology in education, communities, including health care and economic development, and every level of government service to improve economic opportunities and quality of life for all Nebraskans regardless of location or income; (b) Stimulate the demand to encourage and enable long-term infrastructure innovation and improvement; and (c) Organize technology planning in new ways to aggregate demand, reduce costs, and create support networks; encourage collaboration between communities of interest; and encourage competition among technology and service providers."

Review Criteria

Section 86-524(2) provides: "In the review, the committees shall determine the extent to which: (a) The vision has been realized and short-term and long-term strategies have been articulated and employed; (b) The statewide technology plan and other activities of the commission have improved coordination and assisted policymakers; (c) An information technology clearinghouse has been established, maintained, and utilized of Nebraska's information technology infrastructure and of activities taking place in the state involving information technology, and the information flow between and among individuals and organizations has been facilitated as a result of the information technology clearinghouse; (d) Policies, standards, guidelines, and architectures have been developed and observed; (e) Recommendations made by the commission to the Governor and Legislature have assisted policy and funding decisions; (f) Input and involvement of all interested parties has been encouraged and facilitated; and (g) Long-term infrastructure innovation, improvement, and coordination has been planned for, facilitated, and achieved with minimal barriers and impediments."