



# NITC Meeting Agenda

Tuesday, October 28, 2014 at 1:30PM

## Main Site

University of Nebraska  
Varner Hall – Board Room  
3835 Holdrege Street  
Lincoln, NE

### Video Conference Sites [NEB. REV. STAT. § 84-1411(2)]

- |                                      |                               |
|--------------------------------------|-------------------------------|
| • Vocational Rehabilitation Services | • Educational Service Unit 16 |
| 505 Broadway #A131                   | 314 West 1st                  |
| Scottsbluff, NE                      | Ogallala, NE                  |

### Meeting Documents

- 
- 1:30 PM 1. Roll Call, Notice of Meeting & Open Meetings Act Information  
2. Approval of Minutes - August 14, 2014\*  
3. Public Comment

- 
- 1:40 PM 4. NITC Progress Report to the Governor and Legislature\*

- 
- 1:45 PM 5. 2015-2017 Biennial Budget - IT Project Proposals - Recommendations to the Governor and Legislature\*

- 
- 2:00 PM Reports from the Councils and Technical Panel

6. State Government Council

a. Standards and Guidelines

1. NITC 7-104: Web Domain Name Standard (Amendment)\*

7. Community Council - Report

- a. Broadband in Nebraska: Current Landscape and Recommendations\*
- b. Broadband Plan Video
- c. Membership\*

8. eHealth Council - Report

9. Education Council

- a. Network Nebraska Update
- b. Digital Education Update
- c. LB 1103 Update
- d. eRate Modernization

10. GIS Council - Report

a. Standards and Guidelines

1. NITC 3-201: Geospatial Metadata Standard (Amendment)\*

- 
2. NITC 3-203: Elevation Acquisition using LiDAR Standards (New)\*
  3. NITC 3-204: Imagery Standards (New)\*
- b. Membership\*
  - c. Strategic Initiatives Update

11. Technical Panel

- a. Enterprise Projects - Status Report and Annual Report
  - b. Project Closure: Office of the CIO - Nebraska Statewide Radio System\*
  - c. Project Designation: DHHS - Medicaid Eligibility & Enrollment System\*
- 

3:15PM 12. Informational Updates

- a. OCIO Roles and Responsibilities
  - b. Digital Summit Report
  - c. Digital States Survey Results
  - d. IRS Audit
  - e. OCIO Fire Drill
- 

3:25PM 13. Other Business

---

3:30PM 14. Adjournment

---

\* Action item

The Nebraska Information Technology Commission will attempt to adhere to the sequence of the published agenda, but reserves the right to adjust the order of items if necessary and may elect to take action on any of the items listed.

Meeting notice was posted to the [NITC website](#) and the [Nebraska Public Meeting Calendar](#) on September 16, 2014. The agenda was posted to the NITC website on October 23, 2014 and revised on October 26, 2014.

[Nebraska Open Meetings Act](#)

## NEBRASKA INFORMATION TECHNOLOGY COMMISSION

Thursday, August 14, 2014, 11:30 a.m. CT

Allo Communications  
702 E Francis Street  
North Platte, Nebraska

### MINUTES

#### MEMBERS PRESENT:

Brad Moline, Allo Communications (Chaired the meeting)  
Senator Dan Watermeier, Nebraska Legislature  
Dr. Terry Haack, Bennington Public Schools  
Donna Hammack, Saint Elizabeth Foundations  
Dorest Harvey, USSTRACTCOM/AFLCMS-HBCC  
Randy Meininger, City of Scottsbluff  
Gary Warren, Hamilton Communications  
Walter Weir, University of Nebraska

**MEMBERS ABSENT:** Lt. Governor Lavon Heidemann and Dan Shundoff, Intellicom

#### ROLL CALL, NOTICE OF MEETING & OPEN MEETINGS ACT INFORMATION

In the absence of the Chair, Commissioner Moline conducted the meeting. The meeting was called to order at 11:30 a.m. Roll call was taken. A quorum of seven voting members was present. The meeting notice was posted to the [NITC website](#) and the [Nebraska Public Meeting Calendar](#) on July 30, 2014. The agenda was posted to the NITC website on August 8, 2014. The [Nebraska Open Meetings Act](#) was located on the meeting table.

Ms. Decker introduced the following new commissioners: Dr. Terry Haack, Randy Meininger, Walter Weir, Dorest Harvey and Gary Warren. Each commissioner shared information about their career and backgrounds.

#### APPROVAL OF MINUTES

Commissioner Harvey moved to approve the **April 2, 2014\*** minutes as presented. Commissioner Hammack seconded. Roll call vote: Haack-Yes, Hammack-Yes, Harvey-Yes, Meininger-Yes, Moline-Yes, Warren-Yes and Weir-Yes. Results: Yes-7, No-0, Abstained-0. Motion carried.

#### PUBLIC COMMENT

There was no public comment.

#### REPORTS FROM THE COUNCILS AND TECHNICAL PANEL

##### STATE GOVERNMENT COUNCIL

Rick Becker, State Government IT Manager

##### 2015-2017 Biennial Budget – IT Project Review Timeline

Every biennium agencies are required to submit an agency IT plan. Some agencies also submit IT project proposals. Depending on the focus of the project proposal, the proposals are assigned to and evaluated by one of the councils. The Technical Panel also reviews each proposal and makes recommendations to the NITC. The NITC makes the final recommendations to the Governor and Legislature.

The IT project review timeline is as follows:

9/15/2014: IT project proposals due

9/17/2014: Projects posted on NITC website  
9/18/2014: Project reviewers assigned and notice sent to Technical Panel  
9/19/2014: Project proposals and scoring sheets sent to reviewers  
10/1/2014: Completed scoring sheets due from reviewers  
10/6/2014: Summary sheets, with reviewer scores and comments, sent to submitting agencies for their comments and/or response  
10/9/2014: State Government Council meeting  
10/14/2014: Technical Panel meeting  
10/15/2014: Education Council meeting  
TBD: eHealth Council meeting  
10/17/2014: Agency comment/response due (optional)  
TBD: NITC meeting  
11/15/2014: Report submitted to Governor and Legislature

## **Standards and Guidelines**

Agencies complete two forms for the NITC as part of the biennial budget process: NITC 1-201: Agency Information Technology Plan - Attachment A and NITC 1-202: Project Review Process - Attachment B. These forms have been updated to reflect the timelines and fiscal years for the next biennial budget. The State Government Council and the Technical Panel recommend approval by the NITC.

Mr. Becker entertained questions from the Commissioners. The inclusion of additional GIS questions was recommended by the GIS Council to gather more information as to what agencies are doing in regard to GIS.

### **NITC 1-201: Agency Information Technology Plan - Attachment A (Amendment)\***

**Commissioner Weir moved to approve [NITC 1-201: Agency Information Technology Plan - Attachment A \(Amendment\)\\*](#) as presented. Dr. Haack seconded. Roll call vote: Weir-Yes, Warren-Yes, Moline-Yes, Meininger-Yes, Harvey-Yes, Hammack-Yes and Haack-Yes. Results: Yes-7, No-0, Abstained-0. Motion carried.**

### **NITC 1-202: Project Review Process - Attachment B (Amendment)\***

**Commissioner Harvey moved to approve [NITC 1-202: Project Review Process - Attachment B \(Amendment\)\\*](#) as presented. Commissioner Hammack seconded. Roll call vote: Hammack-Yes, Harvey-Yes, Meininger-Yes, Moline-Yes, Warren-Yes, Weir-Yes and Haack-Yes. Results: Yes-7, No-0, Abstained-0. Motion carried.**

## **Open Data Work Group**

LB 919 was introduced during the last legislative session and proposed the creation of an advisory board to look at issues related to open data. The bill did not make it out of committee, but it will likely be introduced again. In preparation, the State Government Council has created a work group to address open data and what that means for agencies. The work group will report back to the State Government Council with their findings.

## **COMMUNITY COUNCIL - Report**

Anne Byers, Community IT and eHealth Manager

**Charter\***. The Community Council discussed charter changes at their meeting on May 20. Because the Community Council has been meeting infrequently, the group felt that having the chair or co-chair approve the minutes would ensure that they are approved in a timely manner. Members would still have the option to review the minutes and suggest changes.

The proposed changes were as follows:

- 7.4 Meeting Frequency  
The Council shall meet ~~not fewer than four times per year (quarterly)~~ as needed, generally two or three times a year.
- 7.7.4 Add the following paragraph  
Minutes shall be approved by the chair or co-chairs and will be available for review at the next Council meeting.

**Commissioner Harvey moved to approve the proposed changes to the Community Council charter. Commissioner Hammack seconded.**

Discussion followed regarding the frequency of meetings.

**Commissioner Meininger offered a friendly amendment to change the wording in 7.4 to “The Council shall meet generally two or three times a year or as needed.” Commissioner Harvey and Commissioner Hammack agreed to the friendly amendment.**

**Roll call vote on the amended motion: Warren-Yes, Moline-Yes, Meininger-Yes, Harvey-Yes, Hammack-Yes, Haack-Yes and Weir-Yes. Results: Yes-7, No-0, Abstained-0. Motion carried.**

Discussion followed regarding the convenience and cost savings of video conference meetings. State statute allows only half of the meetings can be by video conference. Senator Watermeier commented the law may need to be revised.

### **Broadband Plan Draft Executive Summary**

Since the kick off for the broadband plan on November 1, stakeholders shared input via work group and Community Council meetings. The following recommendations emerged from discussions with stakeholders:

- Leverage resources to encourage investment in Nebraska’s telecommunications infrastructure.
- Enhance the capacity of local communities to address broadband development.
- Encourage the development of a skilled IT workforce.
- Support innovation and entrepreneurship.
- Support the use of broadband technologies in agriculture and businesses.
- Support the use of broadband technologies in health care, local government, libraries, and education.

A draft of the state broadband plan will be reviewed by Community Council members at their meeting on August 25. After comments from the Community Council are incorporated into the plan, a copy will be e-mailed to Commissioners. The plan will be posted for public comment by September 19. The plan will be presented at the Broadband Connecting Nebraska Conference on October 2. Participants will be given a chance to comment on the plan. Commissioners will be asked to approve the plan at their next meeting in late October or November. A draft of the executive summary is included in the meeting materials.

Commissioner Moline commented that smaller communities are addressing the need for skilled workers by utilizing the “we will invest in you if you will invest in us” strategy. Companies will send students to school with a commitment that they will come back to work for the company in their communities.

Ms. Byers entertained questions from the Commissioners. The Commissioners recommended that the Community Council consider adding measurable goals.

Ms. Byers gave a brief update on the Broadband Connecting Nebraska Conference which will be held on October 1-2 in Kearney. Keynote speakers include Shane Farritor who is involved in the University of Nebraska-Lincoln’s efforts to create a Maker Space on the Innovation Campus and Daniel Sieberg, Senior Marketing Manager, Google. Maker Space is a hands-on gathering place for creative minds.

### **EHEALTH COUNCIL - Report**

### Health Information Exchange Updates

- **NeHII.** NeHII held their annual meeting on August 7 in Omaha. Over 100 stakeholders attended. At the meeting NeHII announced that Direct Secure messaging will now be available. Direct is a national encryption standard for securely exchanging clinical healthcare data via the internet.
- **E-Prescribing.** E-prescribing in Nebraska continues to grow. Nebraska ranks 13th in e-prescribing according to Surescripts' 2013 report, moving up from 17th the previous year. 82% of physicians in Nebraska e-prescribe, compared to 73% nationally. Nebraska has moved up in the rankings every year since Surescripts started ranking states approximately five years ago. Nebraska Methodist Health System has piloted e-prescribing of controlled substances with 11 prescribers and plans to add more in the following weeks. So far, feedback has been mainly positive.
- **eBHIN.** On August 6, eBHIN notified the Office of the CIO/NITC that they were sunsetting their health information exchange functionality and transitioning their services supported by electronic health record functionality to Heartland Community Health Services. This highlights that sustainability remains an issue for health information exchanges.

**State HIE Cooperative Agreement Evaluation Report.** A team of evaluators from UNMC completed their evaluation of the State Health Information Exchange Cooperative Agreement. The evaluation was designed to assess the impact of health information exchange in Nebraska. Unfortunately, adoption of health information exchange was slower than anticipated, necessitating some adjustments to the evaluation plan. Lessons learned include:

- Incomplete information is a barrier for HIE utilization.
- There must be efficient workflow integration for the health information exchange to be useful for providers.
- Education and training are necessary to demonstrate the utility of health information exchange.
- Privacy and confidentiality in sharing medical information are major barriers.

The evaluation consisted of several studies.

- **Provider Adoption.** Providers were surveyed on their use of health information exchange. Of the 100 providers currently using NeHII, 63% indicated satisfaction with NeHII. Accessing a comprehensive patient medication list was identified as the most important feature of the HIE.
- **Consumer Awareness.** Eight focus groups were conducted in seven towns and cities across Nebraska. Participants identified the following positive impacts of health information exchange: accuracy and completeness of information, improved communication, coordination and access to information between health care providers. Concerns included privacy and security of medical information, decreases in quality of care, inconsistent provider participation, and potential cost.
- **E-Prescribing Discrepancies.** Researchers looked at discrepancies between what a physician intended to prescribe, what was entered into the electronic health record and e-prescribed, and what was actually dispensed by the pharmacies. The overall discrepancy rate was relatively low. Differences in directions for administration of the medication were the most common type of discrepancy identified.
- **Value of HIE in Emergency Department/Use of the Prescription Drug Monitoring Program.** Seventeen providers from three emergency departments were surveyed on their use of NeHII's Prescription Drug Monitoring functionality. Only five physicians completed the surveys. The study revealed low levels of utilization. NeHII is making efforts to reach out to participants and provide additional training.

The report was included in the meeting materials.

**ONC 10 Year Interoperability Vision.** The Office of the National Coordinator (ONC) released a document outlining their vision for interoperability, setting the following agendas:

- Three-Year Agenda: Send, Receive, Find and Use Health Information to Improve Health Care Quality
- Six-Year Agenda: Use Information to Improve Health Care Quality and Lower Cost
- 10-Year Agenda: The Learning Health System.

The document is available at

<http://healthit.gov/sites/default/files/ONC10yearInteroperabilityConceptPaper.pdf>.

ONC is forming work groups to get feedback from the states on interoperability issues.

## EDUCATION COUNCIL

**Membership\***. The Education Council is requesting approval of the following membership recommendations for the 2014-2016 term:

Higher Education:

- Mary Niemiec, representing the University of Nebraska (Renewal)
- Greg Maschmann, representing Independent Colleges and Universities (New)
- Randy Schmailzl, representing the Community College System (Renewal)
- Jon Dunning, representing the State College System (Renewal)

K-12 Education:

- Gary Needham, representing the Educational Service Units (Renewal)
- Dan Hoelsing, representing School Administrators (New)
- Darren Oestmann, representing Boards of Education (Renewal)
- Burke Brown, representing Public Teachers (New)

K-12 & Higher Education (2013-2015 Pro Tem)

- Derek Bierman, representing the Community College System (New)
- Steve Hotovy, representing the State College System (New)

**Commissioner Haack moved to approve the Education Council's membership recommendations. Commissioner Warren seconded. Roll call vote: Hammack-Yes, Harvey-Yes, Meininger-Yes, Moline-Yes, Warren-Yes, Weir-Yes and Haack-Yes. Results: Yes-7, No-0, Abstained-0. Motion carried.**

**Network Nebraska Update.** Commissioners asked about library participation in Network Nebraska. Mr. Rolfes explained that libraries are aware of Network Nebraska but there is no aggressive marketing to recruit libraries at this time. Commissioner Weir complimented Mr. Rolfes on this work and efforts with Network Nebraska.

## Summer 2014 Events

- Upgraded 35+ WAN circuits in Central and South-Central Nebraska
- Redirected 40+ WAN circuits in Southeast Nebraska
- Extended the State backbone with 1Gbps circuit to ESU 6 in Milford
- Extended the State backbone with 1Gbps circuit to ESU 5 in Beatrice
- Brought up a new Lincoln Internet provider (Windstream) with ~12Gbps
- Increased the Omaha Internet provider (Unite) to ~12Gbps
- Added 14 new K12 Participants from Southeast Nebraska
- Relocated the Scottsbluff Aggregation Point from State Office Bldg to Panhandle Research
- New website is up and running: [www.networknebraska.net](http://www.networknebraska.net)
- [www.networknebraska.gov](http://www.networknebraska.gov) has been acquired as an additional domain for \$125/year
- 4 school consolidations occurred, reducing the number of paid Participants by 4 entities
- Prepared to offer UNCSN Rack Hosting Service at Nebraska Hall for \$628/rack/month

## Participation Summary, as of 8/1/2014

Public K-20 Participants:

233 of 248\* public school districts (\*unified districts as separate entities, (94%)

17 of 17 Educational Service Units, (100%)  
6 of 6 community colleges, (100%)  
3 of 3 state colleges, (100%)  
2 of 2 tribal colleges, (100%)  
1 of 1 University of Nebraska, (100%)  
Non-Public K-20 Participants:  
6 of 213 private, denominational or parochial schools (3%)  
7 of 14 nonprofit private postsecondary educational institutions (50%)

#### **Procurement Outlook for Fall 2014**

- Provider information meeting on Tuesday, August 19, 2014
- Possible rebidding of Internet access to replace the 2012-2015 contract
- Possible rebidding of statewide backbone to augment the 2012-2016 contract
- Possible rebidding of K12, Higher Ed, Library WAN circuits, as requested
- Possible bidding of internal networking equipment for K-12 and public libraries, depending on FCC Preferred Master Contract recommendations

**E-rate Modernization.** Nebraska K-12 schools receive an average of 66 cents in E-rate for every dollar spent on eligible telecommunications services. The E-rate modernization information has just been released by the FCC. It is undetermined how the new funding for internal connections and Wifi will roll out and how it will affect local level procurement. Most schools and libraries have not received this information as of today.

The following legislative bills were passed. The Education Council asked if the NITC would be able to assist in communicating information to the senators.

- LB 497. Sec. 3. *[excerpt]* The Education Committee of the Legislature shall conduct a study of potential uses of the funds dedicated to education from proceeds of the lottery conducted pursuant to the State Lottery Act. The committee shall submit a report electronically on the findings and any recommendations to the Clerk of the Legislature on or before December 31, 2014. Factors the study shall consider, but not be limited to, include: (1) The educational priorities of the state; (2) What types of educational activities are suited to being funded by state lottery funds as opposed to state general funds; (3) Whether state lottery funds should be used for significant projects requiring temporary funding or to sustain ongoing activities; and (4) Whether periodic reviews of the use of lottery funds for education should be scheduled.
- LB 1103. Sec. 2. *[excerpt]* The Education Committee of the Legislature shall conduct a strategic planning process to create the statewide vision for education in Nebraska described in section 1 of this act which shall include aspirational goals, visionary objectives, meaningful priorities, and practical strategies. The committee or subcommittees thereof may conduct meetings, work sessions, and focus groups with individuals and representatives of educational interests, taxpayer groups, the business community, or any other interested entities. The committee shall also hold at least three public hearings to receive testimony from the general public in locations that represent a variety of educational situations. The committee shall submit a report regarding such process electronically to the Clerk of the Legislature on or before December 31, 2014.

Both bills are scheduled to have a report to the Legislature by December 2014. . Mr. Rolfes will send the Commissioners the public hearing dates for LB 1103.

#### **GIS COUNCIL - Report**

**Membership\***. There are three GIS Council members whose terms expire in September 2014. A request to seek nominations for the Member-at-Large, Federal Agencies, and Omaha Metro seats were sent out in April. At the June 4 GIS Council meeting, the Council reviewed the nominations and tallied votes for two of the seats. The Council received two nominations for the Member-At-Large seat: Michael Schonlau, GIS Manager from Douglas County (10 votes) and Kelly Mueller, self-employed (3 votes). The Council

received two nominations for the federal agency seat: Jim Langtry, USGS (11 votes), and Steve Peaslee, Natural Resources Conservation Service (NRCS) (2 votes).

The GIS Council has recommended the reappointments of Michael Schonlau of Douglas County to fill the Member-At-Large GIS Council seat and Jim Langtry, United States Geological Survey (USGS) to fill the federal agency GIS Council seat.

**Commissioner Weir moved to approve the GIS Council membership nominations. Commissioner Warren seconded. Roll call vote: Moline-Yes, Meininger-Yes, Harvey-Yes, Hammack-Yes, Haack-Yes, Weir-Yes and Warren-Yes. Results: Yes-7, No-0, Abstained-0. Motion carried.**

Representatives of the Omaha Metro area nominate a representative for the Omaha Metro seat. A selection committee has been formed and nominations have been provided to the committee. The Committee is seeking additional information from nominees prior to making their nomination. The current nominations include Eric Herbert, Sarpy County; Josh Corrigan, Metropolitan Area Planning Agency (MAPA); and Donald Groesser, Mayor of Ralston. The nomination for the Omaha Metro seat will be provided at the next NITC meeting. A seat was vacated back in April for the Nebraska Association of County Officials (NACO). NACO has selected Brittny King, Assessor, Dodge County to replace Kelly Mueller, Deputy Assessor, Antelope County. In accordance with statute, this seat is nominated by NACO with final approval and appointment by the Governor. No action is required by the Commission for this seat.

**Standards Update.** Standards have been drafted and submitted to the NITC Technical Panel for Elevation Acquisition using LiDAR, Imagery, Street Centerline, Address Points, and updates to the existing Geospatial Metadata standards. The GIS Council also sought further input from the Technical Panel on the best way to represent information to support maintenance, distribution and ownership of data to all the standards. The NITC Technical Panel has provided recommendations to the GIS Council. Since this also affects the imagery and metadata standards they will also be updated. It is expected to have all the standards ready for review and approved by the NITC at their next meeting.

**Business Plans Update.** The GIS Council is using a national Federal Geographic Data Committee (FGDC) template for use in developing statewide business plans for geospatial data and technologies. The drafting of the standards was integral to completing several components of the Business Plans for Elevation, Imagery, Street Centerline and Addresses, Land Records, and NebraskaMAP. All the business plans have been started and are currently completing the implementation plans, timelines, and education/technical assistance components by various volunteers of the working groups. The Elevation and NebraskaMAP business plans are currently prioritized for draft review yet this fall.

**Nebraska K-12 Educational GIS Initiative.** The Nebraska Department of Education and the Office of the CIO recently partnered to bring free GIS software and online mapping service through a statewide educational enterprise license agreement (ELA) with Esri. This provides software and online instruction for all K-12 schools, districts, staff, students, and formal youth clubs in the state. This software and service is valued at \$80,000 per year. This includes GIS software for desktop, server, ArcGIS Online, and mobile use. It provides updates to software, technical support, online instruction, and complimentary registrations to the annual Esri User Conference.

Earlier this year, the Nebraska Department of Education received a three-year grant for \$88,881 from the Nebraska Environmental Trust to develop curriculum around soil conservation and GIS. The project is entitled, "Educating the Next Generation of Nebraskans About Soil Conservation Using the Power of Geographic Information Systems (GIS)." The key to implementing the statewide curriculum and GIS plan for K-12 is to find the right teachers with the interest and support from their organization.

Since then, curriculum was developed and five teacher training workshops were conducted through June and July in Omaha, Scotts Bluff, North Platte, Kearney, and Wakefield. More than 90 teachers were instructed on how to take the information from the field and utilize GIS software to create a computer document called a story map. Story maps combine intelligent Web maps with Web applications and

templates that incorporate text, multimedia, and interactive functions. Each story map in the workshops followed the theme of soil conservation practices and consisted of photos showing conservation practices, a narrative written to explain the photos and a computerized GIS map. The GIS map showed where the photos were taken and allowed the user to select information from that location to see pictures that were taken about soil conservation.

These workshops will be conducted again for the next two consecutive summers throughout the state. During the next school year, the process of creating story maps will then be taught by the workshop's teachers in classrooms across the state. The end result will be classrooms visiting sites in their local community and creating story maps that help young people to understand soil conservation practices and the use of GIS technology. The Nebraska K-12 Educational GIS Initiative online resource web site for teachers is located at <http://needgis.maps.arcgis.com>.

Mr. Watermeier commended his co-workers Anne Byers, Tom Rolfes and Rick Becker, for their cooperation and collaboration with GIS efforts.

Ms. Decker informed the Commissioners of a concern raised by several county assessors and their private vendor regarding the state's recent public records request for parcel data. Several state records board grants are funding GIS data efforts in many of Nebraska counties. The grant contracts for several counties stipulate that counties will share their data with the state. The concern is regarding what the county believes is or is not a public record. The Office of the CIO has been kept the Secretary of State, State Attorney General and with NACO (Nebraska Association of County Officials) informed of the ongoing discussions.

## **TECHNICAL PANEL**

Walter Weir, Chair

### **Enterprise Projects - Status Report**

Mr. Weir provided an update on the status of the Enterprise Projects.

## **INFORMATIONAL UPDATES**

**State Contracts Database.** LB429, enacted in 2013, requires state agency contracts to be posted on a publically accessible website. The deadline to have all state contracts online was July 1, 2014. The State met this deadline. It is a model for other states and it has already been shown at state conferences. Currently, there are over 54,000 documents in the system.

**Licensing Application.** A number of small agencies are looking at potential budget requests relating to licensing applications. The Office of the CIO was asked to bring these agencies together to determine if there was an opportunity for a shared application or other potential saving through some shared development. This review is ongoing.

**State Records Board Contracts.** The State Records Board, with the assistance of the Office of the CIO, has begun drafting an RFP for the management of the state's portal -- Nebraska.gov -- and related services. The current contract for these services expires in January 2016.

**Audits.** The Office of the CIO is undergoing a state audit of the Statewide Radio System. The OCIO recently completed an IBM software audit and an IRS audit. Adobe and Novell have also notified the Office of the CIO that they will be conducting software audits.

**OCIO Agency IT Managers.** The Office of the CIO has taken a collaborative approach with several agencies on I.T. management. The Office of the CIO contracts with an agency to place an OCIO IT Manager within the agency. The salary is shared by the OCIO and the agency. The IT Manager reports to the agency Director/Administrator on a daily basis, and serves as an OCIO liaison. Agencies currently contacting for this service are: Department of Agriculture, Department of Insurance, Nebraska Game and

Parks Commission, Department of Labor, Department of Correctional Services and the Public Employees Retirement Systems.

**2014 OCIO Annual Report.** The 2014 OCIO Annual Report will be available within the next 30 days. The office will send the report electronically to Commissioners when it is completed.

**Telecom Provider Workshop, August 19.** An invitation has been sent to all telecommunications providers to discuss Network Nebraska and the Statewide Radio System. The workshop will be held at 8:30 am at Varner Hall in Lincoln.

**Digital Government Summit, October 21.** The Digital Government Summit will be held on October 21, at the Embassy Suites, in Lincoln. Government Technology Magazine sponsors the conference along with the Office of the CIO. Commissioners were invited to attend.

#### **OTHER BUSINESS**

At the October/November meeting, the Commission will review the NITC Progress Report to the Legislature which is due November 15.

Senator Watermeier was recognized by Government Technology for his efforts to help the State of Nebraska utilize technology effectively. A link to the article was posted on the NITC's website.

#### **ADJOURNMENT**

Commissioner Harvey moved to adjourn. Commissioner Haack seconded. All were in favor. Motion carried.

The meeting was adjourned at 2 p.m.

Meeting minutes were taken by Lori Lopez Urdiales and reviewed by the OCIO/NITC staff.

---

Progress Report  
to the  
Governor and Legislature

November 15, 2014



---

State of Nebraska  
Nebraska Information Technology Commission  
[nitc.nebraska.gov](http://nitc.nebraska.gov)  
501 S. 14<sup>th</sup> 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	5
• Network Nebraska	6
• Community IT Planning and Development	8
• eHealth	11
• Public Safety Communications System	15
• Digital Education	16
• State Government Efficiency	17
• Nebraska Spatial Data Infrastructure	18
• E-Government	22
• Security and Business Resumption	23
Improved Coordination and Assistance to Policymakers	25
Policy and Funding Recommendations	26
Policies, Standards, Guidelines and Architectures	27
Information Technology Clearinghouse	28
Input and Involvement of Interested Parties	29
Infrastructure Innovation, Improvement, and Coordination	31
Awards and Recognition	33
Fun Facts	34
Advisory Group Members	35
Appendix: Policy Objectives and Review Criteria	37

---

---

## **NITC Commissioners**

**Lt. Governor John E. Nelson**, Chair

**Dr. Terry Haack**, Superintendent, Bennington Public Schools

**Donna Hammack**, Chief Development Officer, Saint Elizabeth Foundation

**Dorest Harvey**, USSTRATCOM/AFLCMC-HBCC

**Randy Meininger**, Mayor, City of Scottsbluff

**Brad Moline**, President, Allo Communications

**Dan Shundoff**, Chief Executive Officer, Intellicom

**Gary Warren**, President of Services Corporation, Hamilton Telecommunications

**Senator Dan Watermeier**, Nebraska Legislature

**Walter Weir**, Chief Information Officer, University of Nebraska

## **Staff**

**Brenda L. Decker**, Chief Information Officer

**Rick Becker**, Government Information Technology Manager

**Anne Byers**, eHealth and Community Information Technology Manager

**Tom Rolfes**, Education Information Technology Manager

**Jayne Scofield**, IT Administrator, Network Services

**Nathan Watermeier**, GIS Technology Manager

**Lori Lopez Urdiales**, Office Services Manager

**Jeff Timm**, GIS Analyst

---

## Executive Summary

The Legislature established the Nebraska Information Technology Commission (NITC) in 1998 to provide advice, strategic direction, and accountability on information technology investments in the state. This progress report highlights many of the significant accomplishments of the 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.

In particular, significant progress has been made on the following priority areas designated as strategic initiatives by the NITC.

- **Network Nebraska.** During the 2012-2014 time period, Network Nebraska grew its membership by 14 school districts, 2 Educational Service Units, 1 parochial school, and 1 private college. The demand for Internet has increased by 241% as the unit cost has decreased by 50%.
  - **Community IT Planning and Development.** The NITC and NITC Community Council, in partnership with the University of Nebraska, the Nebraska Public Service Commission, the Nebraska Department of Economic Development, and AIM, have developed a state broadband plan which describes the current broadband landscape and presents 10 recommendations to further broadband development in Nebraska.
  - **eHealth.** On March 14, 2014 the Nebraska Information Technology Commission/Office of the State CIO successfully completed a four-year \$6.8 million cooperative agreement from the U.S. Department of Health and Human Services' Office of the National Coordinator for Health IT. During the grant period, health information exchange through NeHII grew from 464 users in March 2010 to over 3,500 users in March 2014.
  - **Public Safety Communications System.** The Nebraska Statewide Radio System serves local, state and federal agencies and public utilities across the state. The system was funded through a partnership between the State and Nebraska Public Power District to jointly own, manage and operate the system.
  - **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.
  - **State Government Efficiency.** In 2009, the State Government Council identified enterprise content management (ECM) as an area to explore as a potential shared service. For years, as agencies purchased their own content/document management systems, the state was in the position of owning and operating multiple systems, each with standalone equipment and staff support. Six agencies volunteered to be involved with the requirements, Request for Proposal (RFP), and award process for
-

the new shared ECM system. Over six months, the group identified 126 requirements, prepared an RFP and evaluated the results. In September 2010, an ECM system contract was awarded. As of July 2014, fourteen agencies are using the ECM system with over 7,700 internal users, over 18,000 external users, and over 26.5 million documents in the system.

- **Nebraska Spatial Data Infrastructure.** This initiative promotes coordination, 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.
- **E-Government.** Nebraska has been recognized as a leader in e-government. The 2014 Digital States Survey, conducted by the Center for Digital Government, awarded the State of Nebraska a letter grade in the “B” category.
- **Security and Business Resumption.** The State of Nebraska continues to make progress in securing information resources, reducing associated vulnerabilities and updating policy. Over the course of the last two years, the NITC Security Work Group has worked with the State Government Council, the Technical Panel and agencies in order to formulate new policies for emerging technologies and update existing policies.

Over the past two years, the NITC has also realized significant achievements in each of the seven criteria set forth in Section 86-524(2).

- 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 prepared annually by the NITC has been an effective vehicle for identifying key projects, building stakeholder support, coordinating efforts, and communicating with policy makers.
  - 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.
  - In order to encourage interoperability and standardization, the NITC has adopted over 40 standards and guidelines. Within the past two years, 10 new or revised standards and guidelines have been adopted.
  - The NITC website serves as an information technology clearinghouse. In addition, the eHealth Council produces a newsletter to inform stakeholders of new research and developments.
-

- The NITC encourages and facilitates input and involvement of all interested parties by engaging in collaborative processes, involving five advisory councils, the Technical Panel, and numerous workgroups and subcommittees. Additionally information is publicly distributed and public input is encouraged.
- The NITC is addressing long-term infrastructure innovation, improvement, and coordination through Network Nebraska and related initiatives.

## Introduction

The Legislature established the Nebraska Information Technology Commission (NITC) in 1998 to provide advice, strategic direction, and accountability on information technology investments in the state. The NITC is chaired by Lieutenant Governor John E. Nelson. Commissioners are appointed by the Governor and represent elementary and secondary education, postsecondary education, communities, the Governor, and the general public.

The NITC conducts most of its work through six advisory groups: the Community Council, Education Council, eHealth Council, Geographical Information Systems Council, State Government 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. The Governor appointed Brenda Decker as Chief Information Officer in February of 2005. On March 7, 2006 the 99<sup>th</sup> Legislature of the State of Nebraska passed LB 921, changing the duties of the Office of the Chief Information Officer. As a result of LB 921, the Division of Communications and the Information Management Services Division became part of the Office of the CIO. This change in legislation has helped the State of Nebraska more closely align IT policy and IT operations.

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. 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 a strategic plan. The development of the strategic plans 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 annual Statewide Technology Plan ([http://nitc.nebraska.gov/documents/statewide\\_technology\\_plan.pdf](http://nitc.nebraska.gov/documents/statewide_technology_plan.pdf)).

The current list of strategic initiatives includes:

- Network Nebraska
- Community IT Planning and Development
- eHealth
- Public Safety Communications System
- Digital Education
- State Government Efficiency
- Nebraska Spatial Data Infrastructure
- E-Government
- Security and Business Resumption

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

## **Network Nebraska**

In order 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-12 Internet purchases into two state contracts of almost 25Gbps, the K-12 E-rate-eligible price has gone from \$2.55/Mbps on July 1, 2012 down to \$1.28/Mbps on July 1, 2014, a 50% decrease in unit cost. This will benefit all current and new 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 in telecommunications infrastructure. As the State bid connectivity to large regional areas of schools and colleges, the telecommunications companies responded with new network technologies such as metropolitan optical Ethernet, multi-protocol label switching (MPLS), and Ethernet "clouds", which have provided benefits for other nonpublic entities.

The development of the K-20 education network has increased the number of distance education courses available to Nebraska students. Through interactive videoconferencing, Nebraska high schools and community colleges exchange over 600 courses per year (2013-14) and that number is expected to increase. World languages, mathematics, science, and dual credit courses are popular offerings leveraged by our rural students.

Network Nebraska is now represented as a compilation of three major sub-networks: The University of Nebraska Computing Services 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.

Due to advances in WAN Ethernet technology, Network Nebraska-Education is now able to reach almost every education entity in the State through five core aggregation points: Grand Island--College Park, Lincoln--Nebraska Hall, Scottsbluff-State Office Building, Omaha-1623 Farnam, and Omaha—Peter Kiewit Institute.

The development of the K-20 education sub-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, the University of Nebraska system, several private colleges, and more than 230 school districts under 17 different educational service units. The number of K-12 educational entities increased as the remaining K-12 districts in southeast Nebraska elected to participate in 2014. The

---

Nebraska K-20 Education sub-network is completely funded by Participation and Interregional Transport Fees from its 254 members.

Network Nebraska has also provided support and assistance to the Nebraska Statewide Telehealth Network. The Nebraska Statewide Telehealth Network connects nearly all of Nebraska's hospitals and public health departments in one of the country's most extensive telehealth networks.

Network Nebraska has been made possible through a cooperative effort of the Collaborative Aggregation Partnership (CAP). CAP was established by Governor Dave Heineman (who was at the time Lieutenant Governor and NITC Chair) and former University of Nebraska President L. Dennis Smith. 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.

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 to act as an anchor tenant.

## Community IT Planning and Development

The NITC and NITC Community Council, in partnership with the University of Nebraska, the Nebraska Public Service Commission, the Nebraska Department of Economic Development, and the AIM Institute, have developed a state broadband plan which describes the current broadband landscape and presents 10 recommendations to further broadband development in Nebraska. "Broadband in Nebraska: Current Landscape and Recommendations" was released for public comment on September 19, 2014. A revised plan integrating comments received was presented to the NITC on Oct. 28, 2014. The development of a state broadband plan is the culmination of broadband mapping and planning efforts funded by a grant from the National Telecommunications and Information Administration to the Nebraska Public Service Commission.

The plan includes the following findings and recommendations:

**Economic Impact.** Broadband is impacting Nebraska's economy in a number of ways<sup>1</sup>, including:

- **Expanding Markets by Selling Online.** Over 60% of Nebraska businesses reported selling goods or services online.
- **Increasing Efficiencies and Reducing Costs.** Nebraska businesses reported cost

---

<sup>1</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>

---

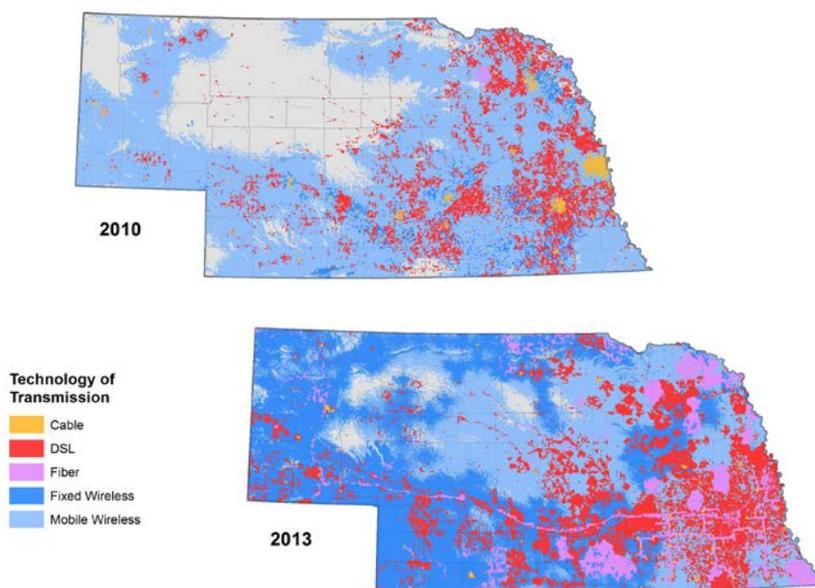
savings averaging 4% due to using the Internet.

- **Creating Jobs.** A 2013 survey of Nebraska businesses found that broadband access to the Internet is having a positive impact on jobs, with 364 respondents reporting a net increase of 654 jobs due to using the Internet.
- **Increasing Revenue.** Broadband access to the Internet is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.

National and international research links broadband availability with economic growth. However, broadband adoption appears to have a stronger economic impact than broadband availability, contributing to growth in household income, lower unemployment and other measures of economic success in non-metropolitan counties.<sup>2</sup>

**Broadband Availability.** Broadband provides high-speed access to applications such as the Internet. Broadband service is available to nearly all Nebraskans, with 99.5% of Nebraskans having access to service with download speeds of greater than 10 Mbps.<sup>3</sup> Nebraska ties for 12<sup>th</sup> on this measure.

Broadband availability in Nebraska continues to improve. The map on the right shows improvements in broadband coverage from 2010 to late 2013. Some areas of the state remain unserved, however.<sup>4</sup> Additional information on broadband availability in Nebraska can be found at [broadbandmap.nebraska.gov](http://broadbandmap.nebraska.gov).



<sup>2</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>

<sup>3</sup> National Broadband Map ([www.broadbandmap.gov](http://www.broadbandmap.gov)) accessed August 1, 2014. Data from Dec. 31, 2013.

<sup>4</sup> Map created by Cullen Robbins, Nebraska Public Service Commission.

Mobile connections are becoming increasingly important to residents and businesses with over 80% of Nebraska businesses currently using smart phones.<sup>5</sup> Although mobile broadband data coverage is improving in Nebraska, mobile coverage in some areas of rural Nebraska is still a challenge. Mobile coverage limitations in rural areas of Nebraska may impact the adoption and utilization of some precision agriculture technologies which rely on mobile broadband services.

**Broadband Adoption.** Most households in Nebraska (82%) have broadband service. However, there are significant rural-urban differences with subscription rates of 90% in Lincoln and 87% in Omaha, compared to 72% to 77% in other regions of the state.<sup>6</sup>

Nearly all Nebraska businesses are utilizing broadband access to the Internet. Internet applications relying on broadband networks are becoming increasingly important for agricultural producers. Most livestock producers use the Internet for market information, auctions, government and regulatory agency reporting, and farm business planning. Most grain producers use the Internet for market information, crop management, government and regulatory agency reporting, ROI calculators, farm business planning, and GPS information.<sup>7</sup>

**Recommendations.** The following recommendations emerged from discussions with stakeholders:

- Encourage investment in Nebraska's telecommunications infrastructure.
- Enhance the capacity of local communities to address broadband development.
- Encourage the development of a skilled IT workforce.
- Support innovation and entrepreneurship.
- Support the use of broadband technologies in businesses and agriculture.
- Support the development of libraries as community anchor institutions.
- Support the use of broadband in education and health care.
- Support the use of broadband by government and public safety entities.
- Support efforts to attract new residents and retain youth.
- Increase digital literacy and broadband access to the Internet.

---

<sup>5</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>

<sup>6</sup> Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>

<sup>7</sup> Vogt, R., Narjes, C., Byers, A. & Hancock, C. (July 16, 2014). Technology use in agriculture. Cornhusker Economics. Retrieved from <http://agecon.unl.edu/cornhuskereconomics>

---

**Additional Planning Activities.** The planning component of the broadband mapping project ([broadband.nebraska.gov](http://broadband.nebraska.gov)) included a number of projects:

**Surveys.** A survey of Nebraska households was conducted in early 2014 by the University of Nebraska-Lincoln to learn more about broadband adoption in Nebraska. The University of Nebraska-Lincoln also partnered with Strategic Networks Group to survey of Nebraska businesses on their use of broadband technologies in 2014. Coaching on how to better utilize broadband technologies was made available to selected participants.

**Broadband Conference.** An annual broadband conference has been held since 2011. The most recent broadband conference was held Oct. 1-2 in Kearney with over 300 attendees.

**Best Practice Videos.** The University of Nebraska and the AIM Institute have developed a series of short videos highlighting how broadband is being utilized in Nebraska. The videos are available at <http://Youtube.com/broadbandnebraska>.

**Regional Technology Planning.** Regional groups have developed technology plans. The priorities identified in the regional plans were incorporated into the state broadband plan.

## eHealth

On March 14, 2014 the Nebraska Information Technology Commission/Office of the State CIO successfully completed a four-year \$6.8 million cooperative agreement from the U.S. Department of Health and Human Services' Office of the National Coordinator for Health IT. During the grant period, health information exchange through NeHII grew from 464 users in March 2010 to over 3,500 users in March 2014.

The NITC's eHealth Council was instrumental in developing the strategic plan which guided the implementation of the State Health Information Exchange Cooperative Agreement. The eHealth Council established the following vision which is included in Nebraska's Strategic eHealth Plan:

*Stakeholders in Nebraska will cooperatively improve the quality and efficiency of patient-centered health care and population health through a statewide, seamless, integrated consumer-centered system of connected health information exchanges. Nebraska will build upon the investments made in the state's health information exchanges and other initiatives which promote the adoption of health IT.*

The plan leveraged the investments made in health information exchange, utilizing NeHII as the state's lead health information exchange and supporting the development of a separate behavioral health network, the Electronic Behavioral Health Information Network (eBHIN). Grant funding was also used to support the electronic submission of information to public health systems. The Nebraska Statewide Telehealth Network also

---

---

received support. Evaluation of the grant was conducted by a team of researchers at the University of Nebraska Medical Center.

**Accomplishments.** Accomplishments to date include:

1. NeHII, Nebraska's lead health information exchange, is one of the largest statewide health information exchanges in the country with over 2.9 million individuals in its Master Patient Index and 3,974 users as of Oct. 3, 2014. NeHII has grown considerably since the start of the State HIE Cooperative Agreement. In March 2010, NeHII had 1.5 million individuals in the Master Patient Index and 464 users. A 2013 survey of Nebraska healthcare providers found that 63% of providers currently using NeHII were satisfied. Accessing a comprehensive patient medication list was identified as the most important feature of the health information exchange.
2. Nebraska also has been a leader in addressing the exchange of behavioral health information. The Electronic Behavioral Health Information Network (eBHIN) went live with its health information exchange functionality in the summer of 2012. Although eBHIN sunset its health information exchange in August 2014, eBHIN has improved the capacity of behavioral health providers to exchange health information. Developments in the use of Direct secure messaging, behavioral health Clinical Document Architecture (CDA), and data segmentation should facilitate efforts to exchange behavioral health information in the future.
3. NeHII implemented an immunization gateway in 2011, enabling the exchange of immunization records between NeHII participants and the state immunization registry. The immunization gateway accepts messages from an EHR and sends the information to the Nebraska State Immunization Information System (NESIIS). The system receives the information, validates the format specifications, transmits the data to NESIIS, receives an acknowledgement from NESIIS and can query NESIIS for immunization information about a patient. This meets the requirement for Meaningful Use Stage 2 Core Objective 13 for eligible hospitals and Core Objective 15 for eligible providers. Regional West Physicians Clinic, York General Hospital and Boys Town are currently sending information. The third phase of the project will allow NeHII users to query NESIIS and save the immunization data available in NESIIS for a patient to the provider's EMR.
4. Legislation in 2011 authorized the Nebraska Department of Health and Human Services to work with NeHII to develop a Prescription Drug Monitoring Program utilizing NeHII's medication history functionality, making Nebraska the first state to incorporate PDMP functionality into an HIE. NeHII has worked with the Nebraska Medical Association to address physician concerns. Self-pay data from nine retail pharmacy chains and five mail order pharmacies was added. NeHII also has begun offering site licenses to all participating hospitals to address physician concerns about cost. NeHII has discussed breaking out the medication query functionality so that it could be offered as a stand alone function. This will be possible when Optum migrates to a new platform.

5. The use of e-prescribing in Nebraska has grown since 2010, with Nebraska ranking 17th in Surescripts' most recent ranking of states in e-prescribing. This is particularly noteworthy considering that in 2009 only 11% of physicians in Nebraska e-prescribed. Today approximately 90% of physicians in Nebraska are e-prescribing. Pharmacy participation in e-prescribing has also increased from 81% of Nebraska community pharmacies receiving e-prescriptions in January 2011 to 95% in February 2013.
6. Lab readiness has also improved. In December 2013, 62% of labs in Nebraska were sending electronic lab results in a structured format, up from just 20% in December 2011. Over a third of labs (35%) are sending electronic lab results using LOINC, up from 15% in 2011.

## Nebraska State HIE Cooperative Agreement 2010-2014 Metrics

NeHII	March 2010	March 2014	% Change
<b>Number of Clients</b>			
• Number of Clients in the Master Patient Index	1,544,570	2,703,439	75%
• Total Patients That Have Opted Out	27,032	69,020	155%
• Total Patients Opting Back In	2,092	4,372	109%
<b>Provider Information</b>			
• Total Number of Users	464	3,590	674%
<b>Hospital Information</b>			
• Number of Nebraska Hospitals Participating	8	22	175%
• % of Nebraska Hospitals Participating	8%	23%	188%
• Percent of Nebraska Hospital Beds Covered	36%	52%	44%
<b>Public Health Information</b>			
• State Public Health Systems Connected to NeHII	0	1 <sup>8</sup>	
• Local Health Departments Participating in NeHII	0	2	
<b>Payers</b>			
• Number of Payers Participating	1	2	100%
<b>Total Number of Results Sent to Exchange</b>			
• LAB	6,633,699	38,411,495	479%
• RAD	1,838,874	7,399,077	302%
• Transcription	947,739	16,623,562	1654%

<sup>8</sup> In 2011, NeHI implemented the immunization gateway.

## Public Safety Communications System

The Nebraska Statewide Radio System serves local, state and federal agencies, and public utilities across the state. The system was funded through a partnership between the state and Nebraska Public Power District to jointly own, manage and operate the system. State and local agencies are using the system and learning about the many new capabilities.

There are 54 towers owned by a variety of entities, including NPPD, the state, and local agencies that provide radio coverage across the state. Users of the system are able to communicate directly with other users across large geographic areas, and have the ability to communicate with many users at once.

Through the partnership with NPPD, the state has been able to share the cost of network infrastructure, towers, and upkeep of the system. A system user group represents all user agencies on the system, including NPPD, the State Patrol, Fire Marshal, Game and Parks, Corrections, Department of Roads and several local and federal agencies.

Benefits of the system include:

- Shared statewide communications infrastructure
- Interoperability for the State Patrol and other agencies
- Ability for local communications systems to interconnect
- Technology platform is scalable, expandable and upgradeable
- Partnership opportunities for other local, state and federal agencies

The Office of the CIO provides the operational support to public safety using the system. State agency partners in the project include the Nebraska State Patrol, the State Fire Marshal's Office, the Nebraska Game and Parks Commission, the Nebraska Emergency Management Agency, the Nebraska Departments of Agriculture, Correctional Services and Roads. Other partners include the Office of the Chief Information Officer, which provides technical support for the statewide radio network, and Nebraska Educational Telecommunications, which has provided access to many existing radio towers across the state.

During the past two years, much time has been spent on refining processes, developing standards, improving the methods of communication between the users and the system owners and expanding interoperability within the State of Nebraska. System acceptance of the Statewide Radio System was taken in September 2014.

---

## 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.

Establishing a Digital Education environment is critical to Nebraska's future. Internet has gone from a "nice to have" educational application of the 1990's to the "must have" mission critical application of the 2010's. So much of what teachers, students, and administrators do today is tied to Internet-based information and communication. Nebraska has continued to make progress in the ratio of students per high speed, Internet-connected computer in the classroom. However, it still makes it challenging for students to complete their digital assignments when they are expected to share two or three students to a computer, or to wait their turn to be able to use a computer. Educators and administrators are urged to work to achieve the goal of attaining 1:1 computer (or Internet-connected device) availability.

The benefits of the Digital Education Initiative would include:

- Greater technical capacity for schools and colleges to meet the increasing demands of a more diverse customer base;
-

- More equitable and affordable Internet access for Nebraska schools and colleges;
- A comprehensive Web-based approach to curriculum mapping and organization and automation of student assessment data gathering and depiction;
- The availability of rich, digital media to the desktop that is indexed to Nebraska standards, catalogued, and searchable by the educator or student;
- A more systematic approach to synchronous video distance learning that enables Nebraska schools and colleges to exchange more courses, staff development and training, and ad hoc learning opportunities.

Network Nebraska has recently undergone a significant upgrade process that began in July 2012. By moving to a high bandwidth, flexible IP network, participating education entities will be able to:

- Have more bandwidth for local and regional transport to accommodate present and future education technology applications;
- Take advantage of nationwide Internet2 routing and resources;
- Purchase some of the lowest Internet access pricing in the country;
- Participate in a statewide, standards-based IP videoconferencing system between all schools and colleges;
- Post their course offerings and unfilled curriculum needs to a statewide clearinghouse and scheduling system for all synchronous and asynchronous distance learning;
- Position themselves to develop new and exciting regional and statewide applications of digital content to serve all students and teachers.

The furthering of the Digital Education initiative and completion of the Digital Education action items requires the participation of many education-related entities. The Educational Service Unit Coordinating Council (ESUCC) has recently testified before the Legislature's Education Committee (LB 1103) to describe the future vision and feasibility of a statewide learning management and statewide content management system, which would greatly enhance Nebraska's eLearning system.

## **State Government Efficiency**

The State of Nebraska is improving efficiency in state government through the development of standards and guidelines and the implementation of shared services.

**Standards and Guidelines.** In order to encourage interoperability and standardization, over 40 standards and guidelines have been adopted. Within the past two years, 10 new or revised standards and guidelines have been adopted, including:

- Web Domain Name Standard
-

- 
- Information Security Policy
  - Web Branding and Policy Consistency
  - Active Directory; User Photographs
  - Password Standard
  - Geospatial Metadata Standard
  - Elevation Acquisition using LiDAR Standards
  - Imagery Standards
  - Agency IT Plan Form
  - Project Proposal Form

**Shared Services.** The NITC has supported the long-term effort to consolidate the purchase and operations of certain technology services through a shared services initiative. The initiative has been very successful in reducing costs and increasing efficiency. The NITC's State Government Council has played an important role in identifying the potential services which could be offered as a shared service. Over the past two years efforts have focused on the following shared services:

- Enterprise Maintenance / Purchase Agreements
- E-mail and Collaboration Services
- Business Continuity / Disaster Recovery
- Enterprise Content Management
- Interactive Voice Response

## Nebraska Spatial Data Infrastructure

Recognizing the increasing importance of geospatial data to support the business needs of all levels of government, the NITC included Nebraska Spatial Data Infrastructure (NESDI) as a strategic initiative in the Statewide Technology Plan. This initiative promotes coordination, guides policy, provides guidance on data accuracy requirements, and strengthens data sharing through partnerships to ensure access to quality geospatial datasets for governmental business needs and the public.

*Geospatial technologies incorporate geographic information systems (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 present all types of geographic 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.”*

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.

**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, point addressing, and land records.

An overall inventory and assessment was completed on the twelve NESDI data layers, including the current status of each data

layer in terms of accuracy or resolution, completeness of data and metadata, extent of data coverage, age of data, and identification of data stewards. The inclusion of metadata is a key requirement for these data layers.

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). These standards have

#### NESDI Data Layers for Nebraska

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

recently been updated to include changes in ISO data standards endorsed by the FGDC. The metadata standards were presented to the NITC for approval on Oct. 28, 2014.

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 with given budgets. As the use of geospatial data has grown, there are now other needs for the data. Some of these additional uses require a greater level of spatial accuracy.

An ad hoc group of state agencies and GIS Council members, led by the State Surveyor, began an inventory and assessment of this data. A report is currently being drafted that provides information about the current survey and geodetic control data based on various criteria for its use in the development of other NESDI framework layers. It provides recommendations on use and further development of survey and geodetic control data, education and training needs, and methods and linkages through data sharing to communicate and provide access to relevant data to users and stakeholders.

**Elevation (LiDAR).** This action item, led by the Elevation Working Group, facilitates the acquisition, maintenance, and sharing of a statewide elevation dataset by developing standards and specifications for LiDAR point clouds and derivative products. It further develops alternatives for systematic and cost-effective acquisition of these products and defines a program of stewardship for managing and publishing the data. A Request for Information (RFI) went out in April of this year for additional industry feedback.

Standards (NITC 3-203 Elevation Acquisition Using LiDAR) were presented to the NITC for approval on Oct. 28, 2014. These standards are intended for entities participating in collaborative efforts to acquire airborne LiDAR elevations that may contribute to a comprehensive statewide elevation dataset in Nebraska. The standards are derived from the U.S. Geological Survey (USGS) National Geospatial Program’s (NGP) LiDAR Base Specification Version 1.0. In addition, the standard emphasizes particular requirements and needs for Nebraska that are not available in USGS standards and where additional clarity is needed. Information gathered from the NESDI inventory, RFI, and standards are currently being used in the development of a business plan.

**Imagery.** This action item establishes the Nebraska Statewide Imagery Program which is designed to provide plans for digitizing and acquisition standards and guidelines, enable data sharing, and complete statewide coverage for various levels of imagery products and services. A business plan is currently being drafted by members of the Imagery Working Group. A specifications document was initiated and was further modified into a standards document. The standards (NITC 3-204 Imagery) were presented to the NITC for approval on Oct. 28, 2014. These standards are designed for future statewide aerial imagery acquisition efforts that meet verified minimum horizontal accuracy requirements for a spatial resolution of 12 inch, preferably flown

---

during the “leaf-off” period for trees. The requirements from federal standards (i.e., National Emergency Number Association) are also driving the need for greater spatial accuracy of imagery in order to meet needs to develop and create street centerline and address points.

**Land Records.** This action item enables the integration of different local government land records information into a statewide dataset. Currently 95.8% of all parcels in Nebraska are digitized in some form. The Nebraska State Records Board has provided more than \$924,485 in grant assistance to digitize and create geodatabases of the data. In 2013, five counties were awarded State Records Board grants totaling \$117,065 for digitizing land parcel information. This leaves five counties without digitized land records.

An ad hoc group of members from the Land Records Working Group prepared implementation steps to begin gathering parcel data from counties. A common geodatabase model and workflow was developed to integrate all county parcel data so it can be used more efficiently in a multitude of state government applications. The State has been soliciting input from assessors to partner on this initiative since 2012 after this layer was deemed a priority layer in the statewide Geospatial Strategic Plan. A formal request for parcel data and shapefiles was sent to all county assessors in June, 2014. Only 44 counties responded to the request with fourteen of these counties actually providing some level of data. The GIS Council is inviting assessors to participate in the Land Records Working Group.

The Land Record Information and Mapping Standards (NITC 3-202) were adopted on January 27, 2006 and are currently being updated. These standards provide guidelines for public entities responsible for maintaining property parcel maps.

**Street Centerline Address Database.** This action item is designed to develop and maintain a statewide seamless street centerline and address referencing system used for various transportation, emergency management, public safety (ie, NG9-1-1), economic development and other related applications. A data model schema has been developed for required data to be used in street centerline and address databases. These specifications were incorporated into the development of standards (NITC 3-205 Street Centerline and NITC 3-206 Address).

These standards provide requirements necessary for the creation, development, delivery, and maintenance of a statewide Nebraska Street Centerline Database (NSCD) and Nebraska Address Database (NAD). Both standards have a direct correlation to one another. There are many applications that use street centerline and address point data. These standards will enable the data to be integrated not only with 9-1-1 but with existing applications through emergency management, public safety and other state government agencies. Address points support state agency needs for a central contact database, tax assessment, and geocoding services. The standards are compatible with the National Emergency Number Association (NENA) and Federal Geographic Data

---

Committee (FGDC) standards for NG9-1-1 and are backwards compatible to enhanced 9-1-1.

A statewide addressing database was purchased to fulfill current state government business needs. This will also assist the development of addressing points to be used in combination with the street centerline database.

**NebraskaMAP.** NebraskaMAP (<http://www.NebraskaMAP.gov>) provides public access to geospatial data in Nebraska. NebraskaMAP currently provides more than 242 geospatial metadata files and access to server web mapping services for use in other state agency base map applications. Efforts are currently underway to enhance NebraskaMAP towards a multi-use enterprise platform by providing and sharing NESDI data either through direct download, API and REST services, or accessing through web and mobile services.

Several of the current geospatial data holdings for Nebraska have been inventoried and uploaded to the OCIO's SAN file server. This has provided an internal centralized secure and redundant environment for most of the state's geospatial data. Other network connections such as direct file share and SFTP access to the data were established for key staff supporting emergency management and public safety. Data through NebraskaMAP has provided support for legislative research as well as emergency and public safety response for recent natural disasters. Data and map viewer resources were made available for the 2013 South Platte flood and 2014 tornados to pertinent emergency response staff. Plans are currently underway to develop a front-end interface to begin sharing some of the data to the public.

## E-Government

Nebraska has been recognized as a leader in e-government. The 2014 Digital States Survey, conducted by the Center for Digital Government, awarded the State of Nebraska a letter grade in the "B" category. According to the report, that grade indicates:

"These states are trending up. They show results in many survey categories, and their leaders use modernization to change entrenched practices to prepare for more sustainable operations. Incentives for collaboration are in place, and performance measures are used in key areas."

The State's Web portal, [Nebraska.gov](http://Nebraska.gov), was recognized by the Center for Digital Government as one of the top state Web portals in 2007, 2008, 2009, 2012 and 2014.

An annual e-government conference is held every November to showcase successful e-government projects and to keep both managers and IT staff informed on developments in e-government and technology. The conference is presented in partnership with *Government Technology* magazine.

---

---

## Security and Business Resumption

**Security.** The State of Nebraska continues to make progress in securing information resources, reducing associated vulnerabilities, and updating policy. Over the course of the last two years, the NITC Security Architecture Work Group has worked with the State Government Council, the Technical Panel, and agencies in order to formulate new policies for emerging technologies and update existing policies. Third Party data hosting and storage has been a recent working subgroup topic. The group submitted NITC Policy 8-301 "Password Standard" to the Technical Panel for approval in 2013. Work has also been done trying to unify our approach to federal audits and to reduce the individual agency work along with providing a consistent and accurate response to audit requirements.

The OCIO has annually hosted the Nebraska Cyber Security conference. In previous years, sponsors have been used to reduce the fees and provide valuable training for the State, educational participants, and county workers. This year, through additional sponsors and the selection of presenters and keynote speakers with limited travel needs, conference costs were kept to a minimum, and participation continued to increase.

The NITC has also supported cyber security awareness efforts in conjunction with October's designation as Cyber Security Awareness month. Governor Heineman signed a proclamation on Oct. 8, 2014, declaring October as Nebraska Cyber Security Awareness month. The NITC/Office of the CIO sent brochures, posters and materials co-branded with the Multi-State Information and Analysis Center to over one-hundred State agencies, counties, and to the educational service units.

The Cyber Security workgroup portal continues to facilitate interaction and the sharing of information with Agency representatives. The portal contains a calendar of security related events, training opportunities (both free and paid), and current security news. The portal is also being used to increase interaction of the workgroup beyond monthly meetings of Agency representatives and to provide a conduit to continue business between scheduled meetings.

Presentations on security and awareness were provided to Agencies at the 2014 Nebraska Cyber Security Conference and at the 2014 Nebraska Digital Government Summit.

**Business Resumption/Continuity of Operations.** Recent efforts have been focused on business continuity management practices for improving our Continuity of Operations (COOP) planning and organizational resiliency. Accomplishments include:

- A revision of NITC standards requiring a disaster recovery plan has been drafted. The revision moves disaster recovery requirements from the security architecture standard to a proposed Business Continuity Planning Standard under General Provisions.

- Active interagency dependency planning for increased communication and coordination of planned maintenance events has been included in the OCIO's change management process.
- A \$4.2 million Building Master Plan was developed which focuses on the resiliency of the facility to support the current mission of the OCIO and the Agencies supported by the OCIO. Upgrades to the legacy electrical and mechanical services will be the main focus along with consolidating space for more energy efficient systems.
- The Enterprise Mass Notification Service as a software contract was replaced with a new product which allows for improved rapid emergency notification with many new features such as mobile application, GIS integration and social media output. Several new state agencies, regional groups, and individual counties have signed up for this service.
- Bids are currently being taken for the replacement and upgrade to the data center's air handling equipment. The current units are original to the building and are now beyond their design life of reliable critical service.

---

## Improved Coordination and Assistance to Policymakers

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

The statewide technology plan annually prepared by the NITC has been an effective vehicle for identifying key projects, building stakeholder support, coordinating efforts, and communicating with policy makers.

The current plan was prepared in 2012 and updated in 2013. The plan focuses on nine strategic initiatives:

- Network Nebraska
- Community IT Planning and Development
- eHealth
- Public Safety Communications System
- Digital Education
- State Government Efficiency
- E-Government
- Security and Business Resumption
- Nebraska Spatial Data Infrastructure

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 plan is sent to members of the Legislature and the Governor. 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.

Chief Information Officer Brenda L. Decker has met with senators at their request and has testified at hearings and given briefings to legislative committees five times over the past two years.

The Chief Information Officer and the staff or 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.

---

## 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. Prior to budget submissions, agencies submit IT plans which are reviewed by the Office of the CIO and the NITC Technical Panel. This information provides a context in which to better review IT projects submitted by agencies. Technical reviews of information technology projects are conducted by a team of reviewers. With input from the NITC State Government and Education Councils, the Technical Panel further reviews the project proposals. Using information from the review process, the NITC makes funding 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 systems. The agency comprehensive information technology plans and the project proposal forms for budget requests of new IT spending provide policy makers with far more information in a consistent format than before. The Technical Panel also conducts voluntary review of IT projects and projects awarded funding through the NITC Community Technology Fund and Government Technology Fund.

In 2014, six IT budget requests for new projects were reviewed. 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 40 standards and guidelines have been adopted. 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 approval of standards and guidelines to the NITC. All standards are approved at open NITC meetings after a 30-day comment period.

Within the past two years, 10 new or revised standards and guidelines have been adopted, including:

- Web Domain Name Standard
- Information Security Policy
- Web Branding and Policy Consistency
- Active Directory; User Photographs
- Password Standard
- Geospatial Metadata Standard
- Elevation Acquisition using LiDAR Standards
- Imagery Standards
- Agency IT Plan Form
- Project Proposal Form

## 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](http://www.nitc.nebraska.gov)) serves as an information technology clearinghouse, providing access to information including resources for communities, health care providers, 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 eHealth Council also publishes an electronic newsletter which is available from the NITC website. 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.

---

## 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 five 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—Enterprise Content Management Shared Service Work Group
  - State Government Council— Open Data Work Group
  - State Government Council— Security Architecture Work Group
  - State Government Council—Webmasters Work Group
  - Technical Panel—Accessibility of Information Technology Work Group
  - Technical Panel—Learning Management System Standards Work Group
  - Technical Panel—Intergovernmental Data Communications Work Group
  - Community Council—Broadband Planning Steering Committee
  - Community Council—Economic Development Work Group for Broadband Plan
  - Community Council—Agriculture Work Group for Broadband Plan
  - Community Council—Broadband Availability and Affordability Work Group for Broadband Plan
  - Community Council—Digital Literacy and Adoption Work Group for Broadband Plan
  - eHealth Council—E-Prescribing Work Group
  - eHealth Council—eHealth Implementation Work Group
  - GIS Council—Street Centerline-Address Database Work Group
  - GIS Council—Imagery Work Group
  - GIS Council—Land Records Work Group
  - GIS Council—Elevation Work Group
  - GIS Council—Geospatial Data Sharing and Web Services Work Group
  - GIS Council—Strategic Planning Work Group
-

- Education Council—Marketing Task Group
- Education Council—Services Task Group
- Education Council—Emerging Technologies Task Group
- Education Council—Network Nebraska Governance Task Group
- Education Council—Network Nebraska Advisory Group

---

## 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 and related initiatives.

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 more than 230 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. Additionally, 140 public libraries are 2010 recipients of grants from the federal Broadband Technology Opportunities Program and Bill and Melinda Gates Foundation to upgrade their infrastructure and public computer centers. The Network Nebraska K-20 sub-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 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 October 2006, the original circuit from Scottsbluff to Grand Island to Lincoln which served as a pilot for Network Nebraska was upgraded, providing Scottsbluff with the same capabilities as Omaha and Lincoln. The benefits of this upgrade included the ability to incrementally increase bandwidth and cost savings of up to 30%. More recently, the Office of the CIO rebid the statewide Internet contract for Network Nebraska to negotiate a 50% lower Internet rate to begin July 1, 2014 out of Lincoln's Nebraska Hall location. This will benefit all current and new Network Nebraska schools, ESUs and colleges that purchase their Internet service from the statewide master contract. Network Nebraska has also stimulated investments in telecommunications infrastructure.

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.

---

Additionally, the NITC has facilitated the coordination and development of a statewide telehealth network. The Nebraska Statewide Telehealth Network (NSTN) connects nearly all of the state's hospitals and all of the state's public health departments. The Nebraska Statewide Telehealth Network is used for patient consultations, teletrauma, teleradiology, continuing medical education, and other applications. Members of CAP have provided technical assistance in the development of the Nebraska Statewide Telehealth Network. The telehealth network will also be able to obtain telecommunications services at the same rate negotiated by the Chief Information Officer for Network Nebraska.

## Awards and Recognition

- The State of Nebraska Office of the CIO received the 2013 Cross Boundary Collaboration and Partnerships Award by the National Association of State Chief Information Officers (NASCIO) for its work with the Network Nebraska-Education Project.
- Governor Heineman was awarded the 2012 State Technology Innovator Award from the National Association of State Chief Information Officers.
- The State of Nebraska's Web portal, Nebraska.gov, ranked in the top 10 in the Center for Digital Government's "Best of the Web" awards for 2007, 2008 and, 2009, 2012, and 2014.
- Nebraska received a grade of "B" in the Center for Digital Government's Digital States Survey in 2014.
- Brenda Decker finished serving her one-year term as the President of the NASCIO organization in October 2013.
- The Office of the CIO and State Purchasing Bureau received the State Administrative Services "Pioneering Spirit" Award for competitively bidding and contracting over 150 telecommunications circuits for education entities totaling over \$20 million over 4 years.

---

## Fun Facts

- 6 advisory groups (Community Council, Education Council, eHealth Council, GIS Council, State Government Council, and Technical Panel) have assisted the NITC.
- Over 40 standards and guidelines have been adopted by the NITC.
- 25 work groups have been active during the past two years.
- 99.5% of Nebraskans having access to broadband services of greater than 10 Mbps down. Nebraska is tied for 12<sup>th</sup> on this measure.<sup>9</sup>
- 82% of Nebraska households have broadband service.<sup>10</sup>
- Over 60% of Nebraska businesses sell goods or services online.<sup>11</sup>
- Over 2.9 million patients from Nebraska and neighboring states have information in NeHII's master patient index.
- Nearly 4,000 physicians and health care providers are participating in NeHII.
- 274 education entities are currently served by Network Nebraska.
- The proportional reduction of the unit price of Internet since the State and University began cooperatively bidding the State's Internet (2002-2012) is 99%.
- The proportional increase in length and bandwidth capacity of the statewide education backbone, from 2011 to 2012 is 100%.
- Nebraska K-12 entities pay \$. 39/Mbps/month for Internet access after E-rate discounts are applied.
- The Nebraska Statewide Radio System utilizes 51 towers owned by a variety of entities, including NPPD, the state, and local agencies to provide radio coverage across the state.
- The enterprise e-mail system has over 18,000 mailboxes and receives an average of 500,000 e-mails per weekday. Approximately 85% of e-mails from external senders are stopped by filtering to eliminate spam, virus, and other threats.
- Network Nebraska-Education daily serves over 375,000 students and staff with Internet and distance learning courses.

---

<sup>9</sup> Data from [broadbandmap.gov](http://broadbandmap.gov). Data is from Dec. 31, 2013 broadband mapping submission.

<sup>10</sup>Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>

<sup>11</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>

---

## Advisory Group Members

Technical Panel	Community Council	Education Council
<p><b>Walter Weir, Chair</b>, University of Nebraska Computer Services Network</p> <p><b>Michael Winkle</b>, Nebraska Educational Telecommunications</p> <p><b>Brenda Decker</b>, Office of the CIO</p> <p><b>Christy Horn</b>, University of Nebraska Central Administration</p> <p><b>Kirk Langer</b>, Lincoln Public Schools</p>	<p><b>Rod Armstrong, Co-Chair</b>, AIM, Lincoln</p> <p><b>Phil Green, Co-Chair</b>, City of Blair</p> <p><b>Pam Adams, American Broadband</b></p> <p><b>Chris Anderson, City of Central City</b></p> <p><b>Jay Anderson</b>, NebraskaLink</p> <p><b>Brett Baker</b>, City of Seward</p> <p><b>Randy Bretz</b>, TEDxLincoln Curator</p> <p><b>Jessica Chamberlain</b>, Norfolk Public Library</p> <p><b>Norene Fitzgerald</b>, Community Developer (retired)</p> <p><b>Steve Fosselman</b>, Grand Island Public Library</p> <p><b>Dave Hahn</b>, Nebraska Information Network</p> <p><b>Connie Hancock</b>, University of Nebraska-Lincoln Extension</p> <p><b>Darla Heggem</b>, Twin Cities Development</p> <p><b>Steve Henderson</b>, City of Lincoln</p> <p><b>Jacob Knutson</b>, Department of Economic Development</p> <p><b>David Lofdahl</b>, IT Consultant</p> <p><b>Monica Lueking-Crowe</b>, Furnas Harlan Partnership</p> <p><b>Marion McDermott</b>, Kearney Area Chamber of Commerce</p> <p><b>Megan McGown</b>, City of Sidney</p> <p><b>Joan Modrell</b>, Department of Labor</p> <p><b>Holly Woldt</b>, Nebraska Library Commission</p>	<p><b>Derek Bierman</b>, Northeast Community College</p> <p><b>Burke Brown</b>, District OR-1 Palmyra/Bennet</p> <p><b>Mike Carpenter</b>, Doane College</p> <p><b>Matt Chrisman</b>, Mitchell Public Schools</p> <p><b>Brenda Decker</b>, Office of the CIO, Nebraska Department of Administrative Services</p> <p><b>John Dunning</b>, Wayne State College</p> <p><b>Brent Gaswick</b>, Nebraska Department of Education</p> <p><b>Stephen Hamersky</b>, Daniel J. Gross Catholic High School</p> <p><b>Dr. Dan Hoelsing</b>, Schuyler Community Schools</p> <p><b>Yvette Holly</b>, University of Nebraska Medical Center</p> <p><b>Steve Hotovy</b>, Nebraska State College System</p> <p><b>Dr. Mike Lucas</b>, York Public Schools</p> <p><b>Greg Maschman</b>, Nebraska Wesleyan University</p> <p><b>Gary Needham</b>, ESU 9-Hastings</p> <p><b>Mary Niemiec</b>, University of Nebraska</p> <p><b>Darren Oestmann</b>, Johnson Brock Public Schools</p> <p><b>Dr. Carna Pfeil</b>, Coordinating Commission for Postsecondary Education</p> <p><b>Randy Schmailzl</b>, Metropolitan Community College</p> <p><b>Gary Targoff</b>, Nebraska Educational Telecommunications Commission</p> <p><b>Dr. Bob Uhing</b>, ESU 1</p>

eHealth Council	GIS Council	State Government Council
<p><b>Dr. Delane Wycoff</b>, Co-Chair, Pathology Services, PC</p> <p><b>Marsha Morien</b>, Co-Chair, UNMC College of Public Health</p> <p><b>Wende Baker</b>, Electronic Behavioral Health Information Network</p> <p><b>Kevin Borcher</b>, Nebraska Methodist Health System</p> <p><b>Kevin Conway</b>, Nebraska Hospital Association</p> <p><b>Susan Courtney</b>, Blue Cross Blue Shield</p> <p><b>Joel Dougherty</b>, OneWorld Community Health Centers</p> <p><b>Senator Annette Dubas</b>, Nebraska Legislature</p> <p><b>Marty Fattig</b>, Nemaha County Hospital</p> <p><b>Congressman Jeff Fortenberry</b>, represented by Marie Woodhead</p> <p><b>Kimberly Galt</b>, Creighton University School of Pharmacy and Health Professions</p> <p><b>Harold Krueger</b>, Western Nebraska Health Information Exchange and Chadron Community Hospital</p> <p><b>Sharon Medcalf</b>, UNMC College of Public Health</p> <p><b>Kay Oestmann</b>, Southeast District Health Department</p> <p><b>John Roberts</b>, Nebraska Rural Health Association</p> <p><b>Jenifer Roberts-Johnson</b>, Nebraska Department of Health and Human Services, Division of Public Health</p> <p><b>Greg Schieke</b>, CIMRO of Nebraska</p> <p><b>Max Thacker</b>, UNMC</p> <p><b>Patrick Werner</b>, Department of Correctional Services</p>	<p><b>Josh Lear</b>, Chair, Department of Natural Resources</p> <p><b>Bill Wehling</b>, Vice-Chair, Department of Roads</p> <p><b>Chad Boshart</b>, Nebraska Emergency Management Agency</p> <p><b>Karis Bowen</b>, Department of Health and Human Services</p> <p><b>Lash Chaffin</b>, League of Nebraska Municipalities</p> <p><b>Timothy Cielocha</b>, Nebraska Public Power District</p> <p><b>Dick Clark</b>, Governor's Policy Research Office</p> <p><b>Steve Cobb</b>, State Surveyor</p> <p><b>Nancy Cyr</b>, Clerk of the Legislature</p> <p><b>Eric Herbert</b>, Sarpy County GIS</p> <p><b>Les Howard</b>, Conservation and Survey Division – UNL</p> <p><b>Brittney King</b>, Dodge County Assessor's Office</p> <p><b>Cullen Robbins</b>, Public Service Commission</p> <p><b>James Langtry</b>, US Geological Survey</p> <p><b>Pat Larson</b>, Grand Island Public Schools</p> <p><b>Jeff McReynolds</b>, City of Lincoln, Lancaster County</p> <p><b>John Miyoshi</b>, Lower Platte North Natural Resources District</p> <p><b>James W. Ohmberger</b>, Office of the CIO</p> <p><b>Kyle Otte</b>, Nebraska State Patrol</p> <p><b>Sudhir Ponnappan</b>, Nebraska Game and Parks Commission</p> <p><b>Mike Preston</b>, Nebraska Geospatial Professional Association</p> <p><b>Mike Schonlau</b>, Omaha/Douglas County</p> <p><b>Ruth Sorensen</b>, Department of Revenue</p> <p><b>Tom Lamberson</b>, Department of Environmental Quality</p> <p><b>Todd Whitfield</b>, Lamp, Rynearson and Associates</p> <p><b>Greg Youell</b>, Metropolitan Area Planning Agency</p>	<p><b>Brenda Decker</b>, Chair, Office of the CIO</p> <p><b>John Albin</b>, Department of Labor</p> <p><b>Beverlee Bornemeier</b>, Office of the CIO, Enterprise Computing Services</p> <p><b>Dennis Burling</b>, Department of Environmental Quality</p> <p><b>Mike Calvert</b>, Legislative Fiscal Office</p> <p><b>Kimberly Conroy</b>, Department of Revenue</p> <p><b>Darrell Fisher</b>, Crime Commission</p> <p><b>Pat Flanagan</b>, Private Sector</p> <p><b>John Gale</b>, Secretary of State of Nebraska</p> <p><b>Brent Gaswick</b>, Department of Education</p> <p><b>Rex Gittins</b>, Department of Natural Resources</p> <p><b>Dorest Harvey</b>, Private Sector</p> <p><b>Eric Henrichsen</b>, Department of Health and Human Services</p> <p><b>Rhonda Lahm</b>, Department of Motor Vehicles</p> <p><b>Glenn Morton</b>, Workers' Compensation Court</p> <p><b>Gerry Oligmueller</b>, DAS—Budget Division</p> <p><b>Ray Pont</b>, Department of Banking and Finance</p> <p><b>Col. David Sankey</b>, Nebraska State Patrol</p> <p><b>Jayne Scofield</b>, Office of the CIO, Network Services</p> <p><b>Robin Spindler</b>, Department of Correctional Services</p> <p><b>Corey Steel</b>, Supreme Court</p> <p><b>Rod Wagner</b>, Library Commission</p> <p><b>Bill Wehling</b>, Department of Roads Department of Administrative Services Governor's Policy Research Office</p>

## 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 states: "It shall be the policy of the state to:

1. 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;
2. Stimulate the demand to encourage and enable long-term infrastructure innovation and improvement; and
3. 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 states: "In the review, the committees shall determine the extent to which:

1. The vision has been realized and short-term and long-term strategies have been articulated and employed;
  2. The statewide technology plan and other activities of the commission have improved coordination and assisted policymakers;
  3. 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;
-

4. Policies, standards, guidelines, and architectures have been developed and observed;
5. Recommendations made by the commission to the Governor and Legislature have assisted policy and funding decisions;
6. Input and involvement of all interested parties has been encouraged and facilitated; and
7. Long-term infrastructure innovation, improvement, and coordination has been planned for, facilitated, and achieved with minimal barriers and impediments.”

**Nebraska Information Technology Commission**

**2015-2017 Biennial Budget  
Information Technology Project Proposals**

**Project Review Documents**

October 28, 2014

1. Council Tier Recommendations
2. Technical Panel Review
3. Summary Sheets

Nebraska Information Technology Commission  
 2015-2017 Biennial Budget - Information Technology Project Proposals  
**Council Tier Recommendations**

<b>Project #</b>	<b>Agency</b>	<b>Project Title</b>	<b>FY16</b>	<b>FY17</b>	<b>Total*</b>	<b>Score</b>	<b>State Gov't Council</b>
09-01	SECRETARY OF STATE	Business Services Filing System	\$ 40,000	\$ 840,000	\$ 2,630,000	79	<b>Tier 1</b>
09-02	SECRETARY OF STATE	Collection Agency Online Renewal Application	\$ 65,955		\$ 65,955	94	<b>Tier 2</b>
18-01	DEPT OF AGRICULTURE	Paperless Inspection Project	\$ 30,000	\$ 30,000	\$ 260,000	78	<b>Tier 2</b>
24-01	DEPT OF MOTOR VEHICLES	Nebraska Systems Update and Modification (NSUM)	\$ 583,775	\$ 583,775	\$ 2,606,228	75	<b>Tier 1**</b>
40-01	MOTOR VEHICLE INDUSTRY LICENSING	Replacement Software Program				37	***
41-01	REAL ESTATE COMMISSION	Licensee Database	\$ 635,774	\$ 85,774	\$ 796,075	78	<b>Tier 2</b>
81-01	COMM FOR BLIND & VISUALLY IMPAIRED	AWARE Client Data Tracking System Procurement			\$ 371,500	79	<b>Tier 2</b>

Notes:

\*Total may include prior year or future planned costs in addition to biennial budget request amounts.

\*\*Project 24-01 is mandated and funded by LB905 through the development of an RFP (Request for Proposal).

\*\*\*No review necessary for project #40-01; no associated funding request.

<b>Category</b>	<b>Description</b>
Mandate	Required by law, regulation, or other authority.
Tier 1	Highly Recommended. Mission critical project for the agency and/or the state.
Tier 2	Recommended. High strategic importance to the agency and/or the state.
Tier 3	Other. Significant strategic importance to the agency and/or the state; but, in general, has an overall lower priority than the Tier 1 and Tier 2 projects.
Tier 4	Insufficient information to proceed with a recommendation for funding.

**Technical Panel Review**

Project #	Agency	Project Title	Technical Panel Checklist*			Technical Panel Comments
			(1)	(2)	(3)	
09-01	SECRETARY OF STATE	Business Services Filing System	✓	Unk	Unk	- Unknown until the RFP process is completed.
09-02	SECRETARY OF STATE	Collection Agency Online Renewal Application	✓	✓	✓	
18-01	DEPT OF AGRICULTURE	Paperless Inspection Project	✓	✓	✓	
24-01	DEPT OF MOTOR VEHICLES	Nebraska Systems Update and Modification (NSUM)	✓	Unk	Unk	- Unknown until the RFP process is completed.
40-01	MOTOR VEHICLE INDUSTRY LICENSING	Replacement Software Program	Unk	Unk	Unk	- Insufficient information in the proposal to evaluate the technical elements
41-01	REAL ESTATE COMMISSION	Licensee Database	✓	Unk	Unk	- Unknown until the RFP process is completed.
81-01	COMM FOR BLIND & VISUALLY IMPAIRED	AWARE Client Data Tracking System Procurement	✓	Unk	Unk	- Unknown technical elements, specifically related to connections to other agencies.

**\* Technical Panel Checklist Items**

- (1) The project is technically feasible.
- (2) The proposed technology is appropriate for the project.
- (3) The technical elements can be accomplished within the proposed timeframe and budget.

## IT Project Proposal Summary Sheets

- Each summary sheet has the following information:
  - Summary of the Request
  - Funding Summary
  - Project Score
  - Reviewer Comments
  - Technical Panel and Council Comments
  - Agency Response to Reviewer Comments (if any)
- Full text of all the project proposals are posted at:  
[http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html)

NEBRASKA INFORMATION TECHNOLOGY COMMISSION

Project Proposal - Summary Sheet  
2015-2017 Biennial Budget

Project #09-01  
Page 1 of 6

Project #	Agency	Project Title
09-01	SECRETARY OF STATE	Business Services Filing System

**SUMMARY OF REQUEST (Executive Summary from the Proposal)**

[Full text of all proposals are posted at: [http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html) ]

The purpose of this project is to replace the existing custom software utilized by the Business Services Division of the Secretary of State's Office.

The existing business services software is used to file and generate a variety of documents within the Secretary of State's Office. These documents include all corporate filings and filings made pursuant to the Uniform Commercial Code (UCC), revised article 9. The software is also utilized to file federal and state tax liens, farm product security filings, trade names and trademarks, and a variety of other statutory filings. The software also interacts with an image library, online filing services, and an accounts receivable system.

The existing business services software is 15 years old and is extremely difficult to modify and support. It was written in Visual Basic (VB6) which was released in mid-1998 and has been unsupported by Microsoft since April 2008. The company that initially developed our filing system stopped providing ongoing support, maintenance and enhancements in 2011. Programming and technical support is nearly extinct. The OCIO's office does not have programmers to support this system. We are at the mercy of a part-time contracted programmer who assists us outside of regular business hours 8:00 AM – 5:00 PM due to having other full time employment. This makes communications, updates, enhancements and support very difficult and costly. Having minimal support often makes it difficult to meet statutory changes for business processes. Replacement software is needed at this time in order to prevent system failure and to continue to provide the level of service currently expected by the business community.

**FUNDING SUMMARY**

**IT Project Costs**

Contractual Services	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
Design	\$0					
Programming	\$180,000			40,000	140,000	
Project Management	\$0					
Data Conversion	\$0					
Other	\$0					
<b>Total</b>	<b>\$180,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40,000</b>	<b>\$140,000</b>	<b>\$0</b>
<b>Capital Expenditures</b>						
Hardware	\$0					
Software	\$2,000,000				700,000	1,300,000
Network	\$130,000					130,000
Other	\$320,000					320,000
<b>Total</b>	<b>\$2,450,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$700,000</b>	<b>\$1,750,000</b>
<b>Total Request</b>	<b>\$2,630,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40,000</b>	<b>\$840,000</b>	<b>\$1,750,000</b>

**Funding**

	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
General Fund	\$0					
Cash Fund	\$2,630,000			40,000	840,000	1,750,000
Federal Fund	\$0					
Revolving Fund	\$0					
Other Fund	\$0					
<b>Total Funding</b>	<b>\$2,630,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40,000</b>	<b>\$840,000</b>	<b>\$1,750,000</b>

**PROJECT SCORE**

Section	Reviewer 1	Reviewer 2	Reviewer 3	Mean	Maximum Possible
Goals, Objectives, and Projected Outcomes	15	12	15	14	15
Project Justification / Business Case	25	19	25	23	25
Technical Impact	5	16	20	14	20
Preliminary Plan for Implementation	5	7	10	7	10
Risk Assessment	2	7	10	6	10
Financial Analysis and Budget	5	20	20	15	20
			<b>TOTAL</b>	<b>79</b>	100

**REVIEWER COMMENTS**

Section	Strengths	Weaknesses
Goals, Objectives, and Projected Outcomes	<ul style="list-style-type: none"> <li>- Goals appear to be logical, realistic and straight forward</li> <li>- Good project, desire to integrate all aspects of the process.</li> <li>- Well written and easy to understand. This project has a significant profile and has the potential to impact the public and the State in a very positive manner. It is far reaching in the customer base it serves. The information is critical to both the public and the State.</li> </ul>	<ul style="list-style-type: none"> <li>- The project appears to be headed in the same direction as the existing. If a solution is picked using similar software that could become outdated like the existing process. With 3 years to develop, existing items within the office may no longer be useable.</li> </ul>
Project Justification / Business Case	<ul style="list-style-type: none"> <li>- Potential revenue, from filings is estimated to be 10 Million per year per the report</li> <li>- Well written and the metrics provided are valuable in determining the size and scope of this project.</li> </ul>	<ul style="list-style-type: none"> <li>- Unsure what benefits are new to the proposed system versus what may already exist. The document sounds like all of these benefits are new and will be achieved with the project, yet filings were completed and fees collected. (configured by non-IT staff, yet changes to the application would quite likely require programming/application changes, confusing statements)</li> </ul>
Technical Impact		<ul style="list-style-type: none"> <li>- I did not get the sense that the Agency knows if a solution is actually available. While they know what they want - is there an off the shelf solution or are we looking at creating something?</li> <li>- Numerous vendors and applications available, yet only one mentioned in the prior section for justification.</li> </ul>
Preliminary Plan for Implementation		<ul style="list-style-type: none"> <li>- Based on what I read, I think the Agency needs to do a lot more research. Is there a solution or do they need to build one.</li> </ul>
Risk Assessment		<ul style="list-style-type: none"> <li>- While the project is well intended there are just not enough facts to assign a level of risk to the project. When they have a vendor in mind or a more definitive solution they should re-submit.</li> </ul>
Financial Analysis and Budget		<ul style="list-style-type: none"> <li>- From what I read these budget numbers cannot be justified.</li> </ul>

**TECHNICAL PANEL COMMENTS**

Technical Panel Checklist				Comments
	Yes	No	Unknown	
1. Is the project technically feasible?	✓			
2. Is the proposed technology appropriate for the project?			✓	- Unknown until the RFP process is completed.
3. Can the technical elements be accomplished within the proposed timeframe and budget?			✓	

**STATE GOVERNMENT COUNCIL COMMENTS**

- The State Government Council recommends this project be categorized as Tier 1.

**APPENDIX: AGENCY RESPONSE TO REVIEWER COMMENTS****Goals, Objectives, and Projected Outcomes**Weaknesses Identified:

The project appears to be headed in the same direction as the existing. If a solution is picked using similar software that could become outdated like the existing process. With 3 years to develop, existing items within the office may no longer be useable.

Response:

The solution is not headed in the same direction as the existing system. It is our intent to require any vendor bidding on the project to provide long term maintenance and support for the system or conversely to select a system which can be supported on a long term basis by the OCIO. In addition, through the RFP process, the vendor will be required to demonstrate that the technology utilized for the project is modern and sustainable into the future.

We understand that existing items within the office may no longer be useable and therefore are taking action at this time to secure funding to enable our office to purchase a new system. As a cash funded agency, we plan to spread the funding of this project over several years; however, we don't anticipate having 3 years of initial development. We anticipate that the RFP process may take up to a year. Once the contract has been awarded, we believe the new system can be implemented in a year and a half.

**Project Justification/ Business Case**Weaknesses Identified:

Unsure what benefits are new to the proposed system versus what may already exist. The document sounds like all of these benefits are new and will be achieved with the project, yet filings were completed and fees collected. (configured by non-IT staff, yet changes to the application would quite likely require programming/application changes, confusing statements)

Response:

We have met with 5 vendors who have developed similar systems in other states. There are additional functionalities offered by each vendor that would be considered enhancements from our current system. However, the most important issue we are addressing with the purchase of a new system is the ability to have ongoing maintenance and support. We look forward to being able to utilize the "bells and whistles" that a new system has to offer, but primarily our request for funding is related to our need to purchase a system which is stable and can be adequately supported.

With regard to the configurations mentioned in our proposal. Some of the systems that we have reviewed provide the option for an administrator in the system to make certain system modifications. These modifications don't affect the programming of the system. These configurations include things like changing a fee or adding another filing action for a particular type of entity.

**Technical Impact:**Weakness Identified:

I did not get the sense that the Agency knows if a solution is actually available. While they know what they want - is there an off the shelf solution or are we looking at creating something? Numerous vendors and applications available, yet only one mentioned in the prior section for justification.

Response:

There is not a complete off the shelf solution to replace our current system; however, there are vendors who have developed similar filing systems for other states. We have met with these vendors and have viewed demonstrations regarding their systems. These vendors include CC Intelligent Solutions, FileOne, Foster Moore, PCC Technology Group and Tecuity. Through the RFP process we plan to select a vendor to develop a system which is customized to meet our needs and requirements. Vendors with demonstrated experience developing similar systems in other states will be viewed favorably.

The specific system mentioned in the project proposal referred to a system used by the State of Massachusetts. The State of Massachusetts is willing to sell their base code to other states for their use and modification at a reduced cost. This option would require locating and selecting a vendor to enhance and modify the code to meet our needs in Nebraska. Overall, this option would be using a newer programming language than our current system, but otherwise would not be an enhancement over our current system (in some cases the system has less functionality than our current system) and would not ensure long term maintenance and support of the system which is critical to the system's long term viability.

**Preliminary Plan for Implementation**

Weakness Identified:

Based on what I read, I think the Agency needs to do a lot more research. Is there a solution or do they need to build one.

Response:

As mentioned previously, there is not a complete off the shelf solution to replace our current system; however, there are vendors who have developed similar filing systems for other states. We have met with these vendors and have viewed demonstrations regarding their systems. These vendors include CC Intelligent Solutions, FileOne, Foster Moore, PCC Technology Group and Tecuity. Through the RFP process we plan to select a vendor to develop a system which is customized to meet our needs and requirements. Vendors with demonstrated experience developing similar systems in other states will be viewed favorably.

**Risk Assessment**

Weakness Identified:

While the project is well intended there are just not enough facts to assign a level of risk to the project. When they have a vendor in mind or a more definitive solution they should re-submit.

Response:

Due to the size and scope of this project, we cannot select a vendor without going through the RFP process. We cannot start the RFP process until we have funding established. Once funding is established, and a vendor is selected through the RFP process, we will update the NITC regarding our selection of the vendor and the specific technologies that will be employed by the vendor. If we limit our project request to a specific solution/vendor, we would be essentially negating the RFP process.

**Financial Analysis and Budget**Weakness Identified:

From what I read these budget numbers cannot be justified.

Response:

The total amount requested, approximately \$2.6 million (over two bienniums), is within the range of estimates we received from vendors who have developed these types of systems for other states. The estimates from the vendors we identified range from \$1,000,000 - \$5,660,000 for the base cost of the system, licensing, interfaces, support and maintenance. As a predominately cash funded agency, our budget request reflects cash funds we believe will be available to use for this project over the next two bienniums. We believe our budget request is reasonable and justified based upon the estimates we have received.

Project #	Agency	Project Title
09-02	SECRETARY OF STATE	Collection Agency Online Renewal Application

**SUMMARY OF REQUEST (Executive Summary from the Proposal)**

[Full text of all proposals are posted at: [http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html) ]

The Secretary of State's Office is requesting funding to develop an online renewal application for collection agency licenses. The online renewal application will allow collection agencies to renew their license online, update relevant contact information with the State and submit the required renewal documentation. Most licensed collection agencies are not physically located in Nebraska and desire the ability to communicate with the State licensing office electronically.

**FUNDING SUMMARY**

**IT Project Costs**

Contractual Services	Total	Prior Exp	FY15 Appri/Reappr	FY16 Request	FY17 Request	Future Add Request
Design	\$0					
Programming	\$40,275			40,275		
Project Management	\$25,680			25,680		
Data Conversion	\$0					
Other	\$0					
<b>Total</b>	<b>\$65,955</b>	<b>\$0</b>	<b>\$0</b>	<b>\$65,955</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Request</b>	<b>\$65,955</b>	<b>\$0</b>	<b>\$0</b>	<b>\$65,955</b>	<b>\$0</b>	<b>\$0</b>

**Funding**

	Total	Prior Exp	FY15 Appri/Reappr	FY16 Request	FY17 Request	Future Add Request
General Fund	\$0					
Cash Fund	\$65,955			65,955		
Federal Fund	\$0					
Revolving Fund	\$0					
Other Fund	\$0					
<b>Total Funding</b>	<b>\$65,955</b>	<b>\$0</b>	<b>\$0</b>	<b>\$65,955</b>	<b>\$0</b>	<b>\$0</b>

**PROJECT SCORE**

Section	Reviewer 1	Reviewer 2	Reviewer 3	Mean	Maximum Possible
Goals, Objectives, and Projected Outcomes	15	15	13	14	15
Project Justification / Business Case	25	23	23	24	25
Technical Impact	20	16	20	19	20
Preliminary Plan for Implementation	10	8	10	9	10
Risk Assessment	10	7	8	8	10
Financial Analysis and Budget	20	20	20	20	20
<b>TOTAL</b>				<b>94</b>	100

**REVIEWER COMMENTS**

Section	Strengths	Weaknesses
Goals, Objectives, and Projected Outcomes	- The goals are well expressed and make sense. - Well written, easy to understand and all points addressed.	
Project Justification / Business Case	- The project justification is sound and reasonable. - Well written, easy to understand and all points addressed.	
Technical Impact	- Use of Nebraska.Gov makes very good sense from a technical perspective. - A good approach to the development of this	

Section	Strengths	Weaknesses
	project.	
Preliminary Plan for Implementation	- Implementation plan looks to be solid.	
Risk Assessment	- Plan to minimize risks looks appropriate.	
Financial Analysis and Budget	- Financial proposal appears appropriate.	

**TECHNICAL PANEL COMMENTS**

Technical Panel Checklist				Comments
	Yes	No	Unknown	
1. Is the project technically feasible?	✓			
2. Is the proposed technology appropriate for the project?	✓			
3. Can the technical elements be accomplished within the proposed timeframe and budget?	✓			

**STATE GOVERNMENT COUNCIL COMMENTS**

- The State Government Council recommends this project be categorized as Tier 2.

Project #	Agency	Project Title
18-01	DEPT OF AGRICULTURE	Paperless Inspection Project

**SUMMARY OF REQUEST** (Executive Summary from the Proposal)

[Full text of all proposals are posted at: [http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html) ]

Phase II of the paperless inspection project.

**FUNDING SUMMARY**

IT Project Costs

Contractual Services	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
Design	\$0					
Programming	\$260,000	0	200,000	30,000	30,000	
Project Management	\$0					
Data Conversion	\$0					
Other	\$0					
<b>Total</b>	<b>\$260,000</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$0</b>
<b>Total Request</b>	<b>\$260,000</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$0</b>

▼ Funding

	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
General Fund	\$260,000		200,000	30,000	30,000	
Cash Fund	\$0					
Federal Fund	\$0					
Revolving Fund	\$0					
Other Fund	\$0					
<b>Total Funding</b>	<b>\$260,000</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$0</b>

**PROJECT SCORE**

Section	Reviewer 1	Reviewer 2	Reviewer 3	Mean	Maximum Possible
Goals, Objectives, and Projected Outcomes	12	13	9	11	15
Project Justification / Business Case	19	23	20	21	25
Technical Impact	16	19	15	17	20
Preliminary Plan for Implementation	6	9	5	7	10
Risk Assessment	7	8	4	6	10
Financial Analysis and Budget	19	18	12	16	20
			<b>TOTAL</b>	<b>78</b>	100

**REVIEWER COMMENTS**

Section	Strengths	Weaknesses
Goals, Objectives, and Projected Outcomes	<ul style="list-style-type: none"> <li>- Phase I must have gone well enough that Dept. of Ag is ready to make enhancements.</li> <li>- Had to look at the phase I document to understand the phase II work. When reviewed together, the project was easier to evaluate and understand. Without the phase I information, the scores would have been much lower.</li> <li>- A very worthy project but I felt the narrative for this project shown on the 2015-2017 request to be lacking in detail and substance. A link to the 2013-2015 request would be essential to understand the scope of this project. As a result</li> </ul>	<ul style="list-style-type: none"> <li>- Could have been a bit more description on what these enhancements are to be as well as new ones being developed that were not a priority during Phase I.</li> </ul>

Section	Strengths	Weaknesses
	my scoring is based on a review of both request documents. In the Executive Summary for 2013-2015 it was cited as a 'one time biennium cost' which would appear to raise a question of why the 2015-2017 request is made. I also think it would be appropriate to provide the status on the development of this project. My understanding is that the Department would be the recipient of most of the efficiencies as opposed to the public.	
Project Justification / Business Case	- If the project justification provided in the FY 14/15 budget submission is still valid, this continues to be a good use of technology for Agriculture.	- It would have been beneficial for the Dept of Ag to provide more information about what has been accomplished on this project through the funding provided in FY 14/15. No indication if this is a result of a state or federal mandate although in the last submission there is a statement that alludes to good cooperation between state and federal.
Technical Impact	- If the technical impact provided in the FY 14/15 budget submission is still valid, this continues to be a good use of technology for Agriculture. They are using the solution required by the NITC.	- It would have been beneficial for the Dept of Ag to provide more information about what has been accomplished on this project through the funding provided in FY 14/15.
Preliminary Plan for Implementation		- It is hard to determine if the preliminary plan is adequate as no detail has been provided on what has been accomplished to date. - Current status of the project would be very helpful in determination. I found that the various phases were not very well defined nor was the expected completion date, as 2013-2015 request indicated full implementation by January 2015.
Risk Assessment	- If the risk justification provided in the FY 14/15 budget submission is still valid, this continues to be a good use of technology for Agriculture.	- It would appear that the risks are minimal but due to lack of detail regarding the status of Phase I, it is difficult to determine. - I did not find that risks were enumerated in either request.
Financial Analysis and Budget	- It would appear that projects were not completed in Phase I, causing the \$200,000 re-appropriation. That in addition to the \$60,000 they are requesting, appears to be reasonable.	- It would appear that the funding is adequate, but due to lack of detail regarding the status of Phase I, it is difficult to determine. - The narrative is confusing.

**TECHNICAL PANEL COMMENTS**

Technical Panel Checklist				Comments
	Yes	No	Unknown	
1. Is the project technically feasible?	✓			
2. Is the proposed technology appropriate for the project?	✓			
3. Can the technical elements be accomplished within the proposed timeframe and budget?	✓			

**STATE GOVERNMENT COUNCIL COMMENTS**

- The State Government Council recommends this project be categorized as Tier 2.

**APPENDIX: AGENCY RESPONSE TO REVIEWER COMMENTS**

Responses to the NITC 2015-2017 Biennial Budget – IT Project Reviews

Overview of the Paperless Project

The Nebraska Department of Agriculture's Paperless Project was chosen to reduce the amount of paper consumed by the agency, reduce the amount of time necessary to perform agency functions, and reduce the cost of carrying out inspections under the various regulatory areas of the agency. The project has eleven subprojects relating to different teams of inspectors in a diverse range of regulatory focus areas. Two subprojects have been completed; one was a complicated project while the other was less complicated. Eight of the remaining subprojects are in progress with level of completion ranging from over 70% to 1% and one subproject will not begin until December 2014. The goal is to have all subprojects and thus the whole project for the first phase completed by June 30, 2015. The initial intent was to have the project completed by January 2015. The completion date has been extended due to the length of time the first completed project required and the decision to upgrade OnBase from version 12 to version 14. This upgrade was not part of the original project, resulting in resources not available to meet the original completion date and do the upgrade in parallel. The Gantt chart (see Figure 1) outlines completion dates and current progress on each of the subprojects.

There are benefits, other than reduction in paper consumption, to be realized by this project. These benefits include more information being readily available to the inspectors when on location, a shorter timeline from inspection to completion, less re-entering of information, fewer errors, better transparency to the customer/citizen via a website similar to the LB429 website, more efficient inspections and cataloging of the information, and better availability of the information within the agency. These benefits will not all be realized in the current project (Phase 1), but will be realized in future phases which are outside the scope of the current project. Several other benefits may be even less obvious, but may turn out to be just as big of a benefit as the paper consumption. All inspectors will have a computer, which is not the current situation. This will provide inspectors access to information related to their inspections located on their tablets for easy access and resulting in not having to carry paper copies with them. Having a computer provides them with almost instantaneous information from NDA main office via email accounts, which not all inspectors have. This permits the inspectors to email their timesheets in to Lincoln instead of printing the timesheet out and mailing it. This saves paper, postage, and gets their information submitted in hours instead of days.

When June 30, 2015 arrives, does this mean that the entire Nebraska Department of Agriculture (NDA) project is complete? The answer is no. This date indicates NDA has completed the first phase of multiple phases in moving forward to increase efficiency and reduce paper consumption by the agency. The anticipation is for an ongoing, iterative improvement process for these projects. It was difficult for NDA to comprehend what the capabilities of OnBase are when NDA had no experience with this type of system. Staff using the two completed subprojects are seeing, and now wanting, some of the additional capabilities OnBase can provide for their areas.

Responses to the Reviewer CommentsGoals, Objectives, & Projected Outcomes:

- Phase 1 is the phase where all regulatory areas receive the foundation application. Then as additional needs and functionalities are defined, these additions can be added to the existing foundation. The concept is to build a solid foundation in phase 1 with developing additional functionality through a release concept. Release 2 of an application would correlate to phase 2 and will be an enhancement to the phase 1 version.
- The Department of Agriculture is looking at the long-term benefits of this project. Initially the inspectors don't know what they want until they have used the system for awhile. We have already experienced this with the two completed portions of the project. Staff using these two portions are already asking for modifications and additions. These teams are collecting their wants and needs, and the requests will be evaluated and encapsulated into release/phase 2 for these two areas. You have to be able to walk before you can run.
- An example of enhancements is the request for additional reports to provide information for federal reporting. Currently this information is provided from Microsoft Access databases. In phase 1 the users of this application could not see how this information could be pulled out of OnBase, but after using the application, they are now seeing how they can get this information directly from OnBase, thus eliminating the need for the Microsoft Access databases.

Project Justification / Business Case:

- The FY14/15 funding has resulted in building the foundation. This includes Release 1 of the applications used by the inspectors, hardware and software, training on Microsoft Products (Windows and Office Suite), training on OnBase, and changing how inspections will be done going forward. These items may not seem like much, but this is a large paradigm shift for inspectors and how inspections are done.
- This shift in how inspections are done is resulting in a shorter lapse of time between the inspection and the results being available for the NDA Management to utilize in their regulatory duty. There has been a reduction in paper, both in doing the inspection and the archival of the information. Staff is spending less time transcribing and rekeying data from the electronic inspections.

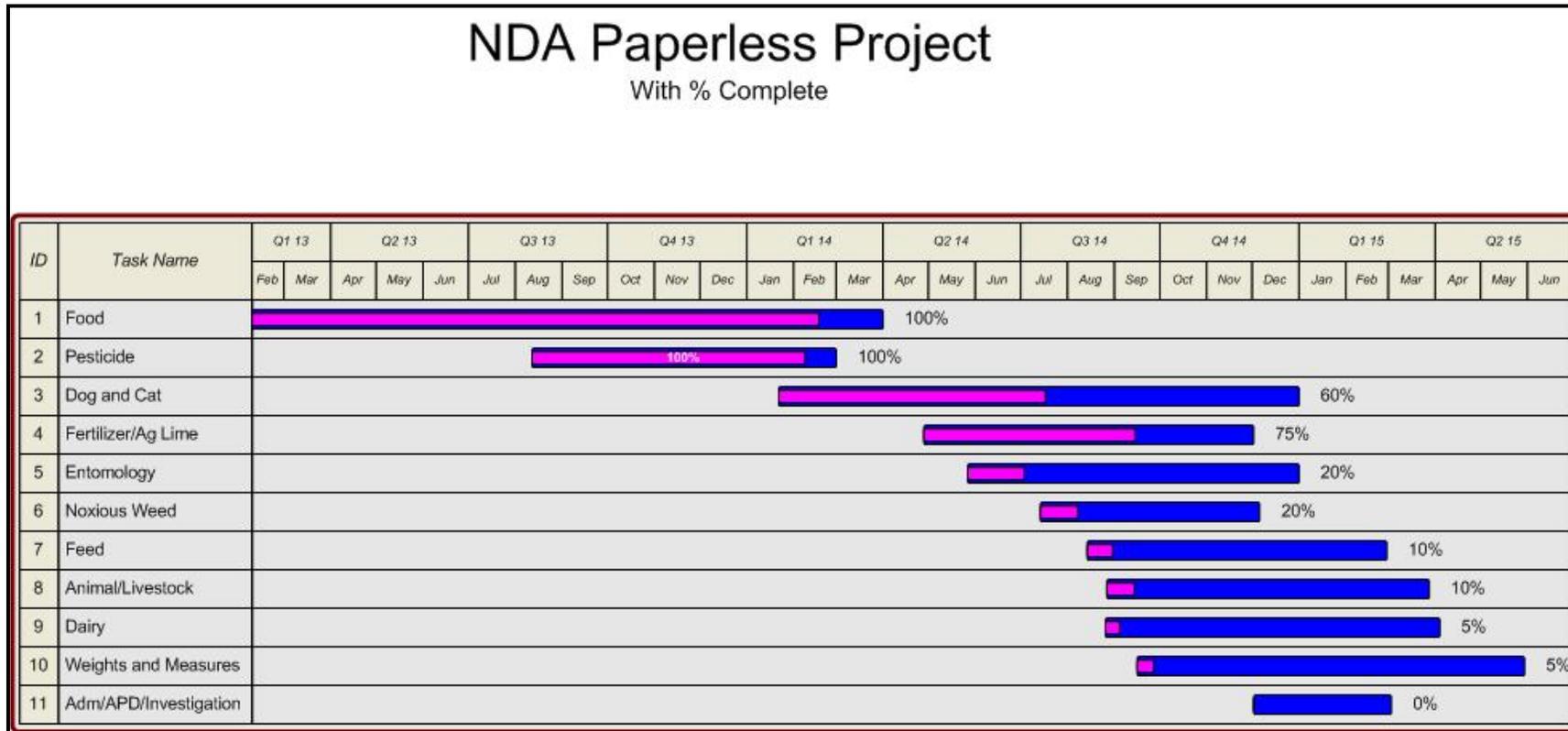
Technical Impact:

- There has been a substantial amount of work accomplished. Unfortunately some of this work isn't directly measured or documented by the project plan. Putting a computer in every NDA Inspector's hands is not directly measured, but it is a huge benefit. The inspectors and the agency are moving at a very quick pace away from everything done on paper to most things done electronically. This is a paradigm shift for the agency. This project has facilitated this paradigm shift. A second unmeasured benefit is the reduction in the amount of floor space necessary for storing information, which was in paper format and is now stored electronically in OnBase. A third benefit is fewer errors and rework due to less rekeying in data and a reduction in transcription errors.

Preliminary Plan for Implementation:

- See Gantt Chart (Figure 1)
- Two of the eleven subprojects have been completed. The first subproject was a complicated project and provided ECM and Department of Agriculture teams with plenty of challenges. The first two took approximately 9 months to complete with the anticipation for a much shorter timeline to complete each of the remaining nine subprojects.
- The ECM and Department of Agriculture teams went through a substantial learning curve on the first two, and the teams are making more efficient progress on the remaining subprojects.
- Several of the current subprojects are using some of the synergy from the first two subprojects. Some of the forms and workflow needed for the current subprojects are very similar to what was created for the first two subprojects.

Figure 1



**NEBRASKA INFORMATION TECHNOLOGY COMMISSION**

Project Proposal - Summary Sheet  
2015-2017 Biennial Budget

Project #24-01  
Page 1 of 3

Project #	Agency	Project Title
24-01	DEPT OF MOTOR VEHICLES	Nebraska Systems Update and Modification (NSUM)

**SUMMARY OF REQUEST (Executive Summary from the Proposal)**

[Full text of all proposals are posted at: [http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html) ]

The Department of Motor Vehicles (DMV) is beginning the process of developing a single DMV system that will, over time, host all DMV services. The system will be 'customer centric' and be designed to provide a single, fully integrated access point for all customers to conduct business with the DMV.

This project will be approached from the view point of the customer's needs and expectations. Applications and technologies will be built to support redefined and modernized business processes. Although the entire project will span several budget periods, this project phase will focus on the preliminary events required for the recreation of the DMV Vehicle, Title and Registration (VTR) business processes, applications and technologies.

In 2014 LB 905 was passed by the Nebraska Legislature and states; "There is included in the appropriation to this program for FY2014-15 \$271,128 Cash Funds to identify a replacement vehicle title and registration system, associated costs, and financing options."

"The VTR system, now over 20 years old, no longer meets the evolving business requirements of stakeholders and expectations of Nebraska residents. Implementation of a new VTR system should be considered. Revenues to support a new VTR system may be derived from a variety of sources. ... The DMV should move immediately to collaboratively develop a funding model that is supported by key stakeholders. Upon approval, the DMV should create a project structure, conduct a business process analysis, and further refine the analysis with a concept of operations and system requirements. With that information, the DMV and its stakeholders will be positioned to evaluate how it will approach VTR system replacement. .... Upon determination of a direction, a project plan will be further developed and the contracting/tasking of VTR system development and implementation will be undertaken. Based on the experience of other states, VTR system implementation projects typically have taken between 4 to 10 years from initial planning through implementation of the production system." (1)

(1) Excerpts from: "2013 DMV VTR Business Case" - Prepared for the Nebraska Department of Motor Vehicles by Nancy Shank, PhD, MBA, Associate Director, University of Nebraska Public Policy Center.

**FUNDING SUMMARY**

**IT Project Costs**

Contractual Services	Total	Prior Exp	FY15 Appri/Reappr	FY16 Request	FY17 Request	Future Add Request
Design	\$0					
Programming	\$0					
Project Management	\$1,677,806	127,500		383,000	385,848	781,458
Data Conversion	\$0					
Other	\$0					
<b>Total</b>	<b>\$1,677,806</b>	<b>\$127,500</b>	<b>\$0</b>	<b>\$383,000</b>	<b>\$385,848</b>	<b>\$781,458</b>
<b>Other Operating Costs</b>						
Personnel Cost	\$875,032	132,418		180,530	184,592	377,492
Supplies & Materials	\$8,500	2,500		3,500	2,500	
Travel	\$44,890	8,710		16,745	10,835	8,600
Other	\$0					
<b>Total</b>	<b>\$928,422</b>	<b>\$143,628</b>	<b>\$0</b>	<b>\$200,775</b>	<b>\$197,927</b>	<b>\$386,092</b>
<b>Total Request</b>	<b>\$2,606,228</b>	<b>\$271,128</b>	<b>\$0</b>	<b>\$583,775</b>	<b>\$583,775</b>	<b>\$1,167,550</b>

**Funding**

	Total	Prior Exp	FY15 Appri/Reappr	FY16 Request	FY17 Request	Future Add Request
General Fund	\$0					
Cash Fund	\$2,606,228	271,128		583,775	583,775	1,167,550
Federal Fund	\$0					
Revolving Fund	\$0					
Other Fund	\$0					
<b>Total Funding</b>	<b>\$2,606,228</b>	<b>\$271,128</b>	<b>\$0</b>	<b>\$583,775</b>	<b>\$583,775</b>	<b>\$1,167,550</b>

**PROJECT SCORE**

Section	Reviewer 1	Reviewer 2	Reviewer 3	Mean	Maximum Possible
Goals, Objectives, and Projected Outcomes	12	10	14	12	15
Project Justification / Business Case	25	15	25	22	25
Technical Impact	15	13	15	14	20
Preliminary Plan for Implementation	10	5	10	8	10
Risk Assessment	8	5	8	7	10
Financial Analysis and Budget	15	5	15	12	20
<b>TOTAL</b>				<b>75</b>	<b>100</b>

**REVIEWER COMMENTS**

Section	Strengths	Weaknesses
Goals, Objectives, and Projected Outcomes	<ul style="list-style-type: none"> <li>- Planning approach appears sound.</li> <li>- The Business Case document was a comprehensive look at the issues with the current system. It articulates all users of the information and a nice review of what other state are doing as well as emerging trends.</li> <li>- The DMV VTR business case is well written.</li> </ul>	<ul style="list-style-type: none"> <li>- Measurable efficiencies and ROI could use more definition.</li> <li>- Neither the Project Proposal Report nor the Business Case document clearly articulated the goals and problems to be resolved. IT Project Proposal did not list beneficiaries, outcomes or assessments. It was focused on the tasks needed to get to the project plan stage, not why the project is needed. It is implied through the faults of the current system. While this project is in the early planning stage, and "how" it is to be accomplished is not yet determined, the project will have better success if it the organization clearly articulates what they want to accomplish and what problems they intend to solve. That will also give them a better assessment tool to measure success.</li> <li>- A broader "green field" approach with more collaboration of stakeholders should be considered.</li> </ul>
Project Justification / Business Case	<ul style="list-style-type: none"> <li>- Preparation of the business case document demonstrates a thoughtful and thorough approach to the project.</li> <li>- Identifies that older technology is expensive to maintain and is not adaptable to our changing business needs.</li> <li>- Clearly, although there is no mandate, an alternative to the existing DMV VTR system is required.</li> </ul>	<ul style="list-style-type: none"> <li>- While this is in the initial phase of the project and there are still many questions, the proposal does not articulate the customer centric reasons to justify the project.</li> <li>- (As the project evolves provision should be made to consider new alternatives approaches.)</li> </ul>
Technical Impact	<ul style="list-style-type: none"> <li>- Compliance with state systems, standards and management practices is a notable strength.</li> <li>- The project will conform to NITC standards and utilize OCIO facilities and resources.</li> <li>- Good approach by designing with guidance from the OCIO - and looking at what some other states are doing in this area.</li> </ul>	<ul style="list-style-type: none"> <li>- Technical impact difficult to assess in this stage of the process.</li> <li>- Vague in approach; however, that will be determined as part of the initial phase of the project.</li> <li>- More research should be done to determine current "state of the art" alternative approaches being considered in other similar collaborative efforts.</li> </ul>
Preliminary Plan for Implementation	<ul style="list-style-type: none"> <li>- Inclusive of stakeholders. Governance model seems very reasonable.</li> <li>- Input from user/stakeholder team that includes private industry is a positive element. Additional staff approved prior to the project, more resources.</li> <li>- Good overall implementation timeframe and related objectives - need to ensure commitment of stakeholders as project evolves.</li> </ul>	<ul style="list-style-type: none"> <li>- No description of project team roles. Who is the project champion? Executive sponsor?</li> <li>- More detail needed - (as an example) - footnote comment #26 from the 2013 AAMVA conference.</li> </ul>

Section	Strengths	Weaknesses
Risk Assessment	<ul style="list-style-type: none"> <li>- Scoring for this stage only: funding solution is project's largest risk.</li> <li>- They have studied other projects and know some of the pitfalls. They plan to utilize outside resources.</li> <li>- This area is a significant revenue generator for the state, and the current system is outdated and unsustainable.</li> </ul>	<ul style="list-style-type: none"> <li>- No solution for their largest and most immediate obstacle - funding.</li> <li>- Conversion to a new system will be complex and must be done with minimum impact to the state revenue streams.</li> </ul>
Financial Analysis and Budget	<ul style="list-style-type: none"> <li>- No request for general funds. Seeks authorization for cash funds.</li> <li>- Year 1 is exploration. It is good that they are taking the time to explore and plan before jumping in to the project. They have funding for the exploration.</li> <li>- Some budget estimates from the experience of other states for "similar projects" were considered.</li> </ul>	<ul style="list-style-type: none"> <li>- Cash fund model is one of the deliverables, in form of future legislation. Lack of detail regarding our project management estimates.</li> <li>- The Business Case document suggests the project will cost \$13-50 Million and take from 4 to 10 years to complete; however, the budget is less than \$3 million over a 4 year period. Based on the Business Case document and research, this seems inadequate and not sustainable. Consider allowing more time and more money to complete the project.</li> <li>- More detailed budget planning needs to be done to identify project financing options - with active participation of all project stakeholders.</li> </ul>

**TECHNICAL PANEL COMMENTS**

Technical Panel Checklist				Comments
	Yes	No	Unknown	
1. Is the project technically feasible?	✓			
2. Is the proposed technology appropriate for the project?			✓	- Unknown until the RFP process is completed.
3. Can the technical elements be accomplished within the proposed timeframe and budget?			✓	

**STATE GOVERNMENT COUNCIL COMMENTS**

- The State Government Council recommends this project be categorized as Tier 1. [Project 24-01 is mandated and funded by LB905 through the development of an RFP (Request for Proposal).]

NEBRASKA INFORMATION TECHNOLOGY COMMISSION

Project Proposal - Summary Sheet  
2015-2017 Biennial Budget

Project #41-01  
Page 1 of 3

Project #	Agency	Project Title
41-01	REAL ESTATE COMMISSION	Licensee Database

**SUMMARY OF REQUEST** (Executive Summary from the Proposal)

[Full text of all proposals are posted at: [http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html) ]

The Nebraska Real Estate Commission is seeking funding for the replacement of the current real estate license database, which was acquired in 1998. The licensee database keeps general contact information on licensees, tracks the relationship between designated brokers (licensees with authority to operate independently) and affiliated licensees (licensees with authority to act as a licensee only under the supervision of the designated broker. In addition, the database tracks and records payments for license applications, renewals and transfers. The database also generates reports and licensee lists, as well as recording and tracking disciplinary matters and generating form letters with the appropriate licensee information inserted (late renewal notices, etc.).

**FUNDING SUMMARY**

IT Project Costs

Contractual Services	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
Design	\$0					
Programming	\$43,000		13,000	15,000	15,000	
Project Management	\$0					
Data Conversion	\$0					
Other	\$0					
<b>Total</b>	<b>\$43,000</b>	<b>\$0</b>	<b>\$13,000</b>	<b>\$15,000</b>	<b>\$15,000</b>	<b>\$0</b>
<b>Telecommunications</b>						
Data	\$31,500		10,500	10,500	10,500	
Video	\$0					
Voice	\$0					
Wireless	\$0					
<b>Total</b>	<b>\$31,500</b>	<b>\$0</b>	<b>\$10,500</b>	<b>\$10,500</b>	<b>\$10,500</b>	<b>\$0</b>
<b>Other Operating Costs</b>						
Personnel Cost	\$157,055		43,527	56,764	56,764	
Supplies & Materials	\$0					
Travel	\$0					
Other	\$0					
<b>Total</b>	<b>\$157,055</b>	<b>\$0</b>	<b>\$43,527</b>	<b>\$56,764</b>	<b>\$56,764</b>	<b>\$0</b>
<b>Capital Expenditures</b>						
Hardware	\$14,020		7,000	3,510	3,510	
Software	\$550,500		500	550,000		
Network	\$0					
Other	\$0					
<b>Total</b>	<b>\$564,520</b>	<b>\$0</b>	<b>\$7,500</b>	<b>\$553,510</b>	<b>\$3,510</b>	<b>\$0</b>
<b>Total Request</b>	<b>\$796,075</b>	<b>\$0</b>	<b>\$74,527</b>	<b>\$635,774</b>	<b>\$85,774</b>	<b>\$0</b>

▼ Funding

	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
General Fund	\$0					
Cash Fund	\$796,075		74,527	635,774	85,774	
Federal Fund	\$0					
Revolving Fund	\$0					
Other Fund	\$0					
<b>Total Funding</b>	<b>\$796,075</b>	<b>\$0</b>	<b>\$74,527</b>	<b>\$635,774</b>	<b>\$85,774</b>	<b>\$0</b>

**PROJECT SCORE**

Section	Reviewer 1	Reviewer 2	Reviewer 3	Mean	Maximum Possible
Goals, Objectives, and Projected Outcomes	13	12	14	13	15
Project Justification / Business Case	19	20	22	20	25
Technical Impact	15	15	16	15	20
Preliminary Plan for Implementation	7	5	7	6	10
Risk Assessment	6	5	7	6	10
Financial Analysis and Budget	16	18	16	17	20
<b>TOTAL</b>				<b>78</b>	100

**REVIEWER COMMENTS**

Section	Strengths	Weaknesses
Goals, Objectives, and Projected Outcomes	<ul style="list-style-type: none"> <li>- The agency has clearly defined the overall goals of the project and the types of issues they are attempting to overcome. They also address the need to interface with other items such as payment systems and web based filing.</li> <li>- Well described goals and need for a replacement of their 1998 licensing system. Replacement is required due to discontinued support of Sybase.</li> <li>- Rationale for project pretty straight forward - need to upgrade old system (1998) to enable greater access, self-service direction, overall flexibility &amp; functionality and ongoing support. Goals cover the key points even though selection not yet known. Need to replace existing system (16 years old?) should carry higher priority when fully vetted.</li> </ul>	<ul style="list-style-type: none"> <li>- The agency could have made a stronger case about what success looks like. For example, is the intent to have the system take an online application and move it through an automated workflow that steps the agency through each of the steps it takes to obtain a license? If given the opportunity to dream - what would the system be?</li> <li>- Several interfaces desired.</li> </ul>
Project Justification / Business Case	<ul style="list-style-type: none"> <li>- Agency has issued an RFI to at least find out what the potential replacement options are.</li> <li>- An RFI for a potential replacement licensing system was issued in 2013. Three responses were received.</li> <li>- Rationale for upgrade clear in ability to eliminate the need for specialized support by OCIO, simplify ongoing support, enhanced reporting capabilities and reducing costs longer term.</li> </ul>	<ul style="list-style-type: none"> <li>- It is an old system that needs to be replaced - but what is the business case? Is it costing you too much money to support it? When is the payback of a new system? What does the agency do if it is not replaced? What happens to the agency if this system dies?</li> <li>- Two of the three responses indicated a replacement cost of a system to be approximately \$550,000.</li> <li>- Should make a stronger case upfront in narrative of the fact the Sybase/SAP support has/will go away and support critical moving forward?</li> </ul>
Technical Impact	<ul style="list-style-type: none"> <li>- The technical impact of no longer having support for the system is large and well described. The point of the audit finding is strong support.</li> <li>- A new system would provide the opportunity to acquire a system that would meet state standards - including an audit finding deficiency of only one level of login/security. Potentially could provide better reporting capability to the public.</li> <li>- Good points made toward identifying impact/risks to the business operation and to conform to. Score assigned recognizing unknowns.</li> </ul>	<ul style="list-style-type: none"> <li>- Does the system meet any NITC standards? Not understanding the business of the agency, what is so important about disciplinary information? This would make the technical impact of a non-supported system stronger.</li> <li>- Did not address hardware or networking requirements.</li> <li>- Would some verbiage on selection options to include consideration for an SaaS model?</li> </ul>
Preliminary Plan for Implementation	<ul style="list-style-type: none"> <li>- The agency understands the need for an RFP - but may need to include more than the internal agency IT staff and the Director in the process.</li> <li>- If funding is approved, would draft an RFP per State Purchasing guidelines for the replacement product.</li> </ul>	<ul style="list-style-type: none"> <li>- Your plan for how quickly the plan may be implemented is a bit aggressive. Additionally, since this will be an Enterprise project as defined by the NITC, the agency needs to also add the NITC process to their plan.</li> <li>- No other details given as relates to this section.</li> </ul>

Section	Strengths	Weaknesses
	- Rated 7 only because intent to RFP/select and information not available. As noted earlier might help to identify what options for delivery would be considered from vendors in an RFP?	
Risk Assessment	- They pledge to do a thorough assessment of any proposed replacement system and to follow policies and guidelines of the Office of the CIO. - High level risks well defined but since solution not fully known at submission made a 7. Definitive risks would likely change or new risks ID'd once defined/assessed at selection?	- Not sure the agency understands the risks of this project. What if the requirements are not clearly defined and the product does not address the main issues the agency is attempting to resolve? With a small IT staff, there is a risk that the provider chosen does not have the skills to pull the project off - and that is not known until the end of the project. Is the agency willing to change their business process to meet the needs of the solution chosen? - Acknowledgement of risk but no actual description of that risk.
Financial Analysis and Budget	- Agency seems to have a plan on how they can fund this project, assuming that they don't lose licensees in the process. Also it is unclear whether this is a one-time hike or a forever hike and paying this bill over time. - Have included dollar amounts for the IT expenditures. - Understand acquisition costs not fully known yet. Inclusion of commentary on fees to support overall funding reflect "foresight" for any subsequent Appropriations discussions. Again score reflects know aspects of project at submission.	- Fee increase required in order to fund this purchase.

**TECHNICAL PANEL COMMENTS**

Technical Panel Checklist				Comments
	Yes	No	Unknown	
1. Is the project technically feasible?	✓			
2. Is the proposed technology appropriate for the project?			✓	- Unknown until the RFP process is completed.
3. Can the technical elements be accomplished within the proposed timeframe and budget?			✓	

**STATE GOVERNMENT COUNCIL COMMENTS**

- The State Government Council recommends this project be categorized as Tier 2.

NEBRASKA INFORMATION TECHNOLOGY COMMISSION

Project Proposal - Summary Sheet  
2015-2017 Biennial Budget

Project #81-01  
Page 1 of 7

Project #	Agency	Project Title
81-01	COMM FOR BLIND & VISUALLY IMPAIRED	AWARE Client Data Tracking System Procurement

**SUMMARY OF REQUEST (Executive Summary from the Proposal)**

[Full text of all proposals are posted at: [http://nitc.nebraska.gov/commission/project\\_proposals/2015-2017.html](http://nitc.nebraska.gov/commission/project_proposals/2015-2017.html) ]

AWARE (Accessible Web Activity Reporting Environment), produced by Alliance Enterprises, is used by over 31 State Rehab Agencies to manage grants from U.S. Department of Education's Rehabilitation Services Administration.

**Strengths:**

Financial component can be linked to the Edge system to track obligations and payments for case services  
 Required changes to federal reporting requirements are added through semiannual software upgrades  
 Continuity of Operations can be assured as developments and modifications are developed by the vendor  
 Nonvisual accessibility is maintained through close partnerships between vendor and software manufacturers  
 Current case management system is heavily customized and updates are costly and time-consuming; it is not feasible to add financial component.

AWARE is a product of Alliance Enterprises of Lacey, WA. It is designed to specifically meet the reporting needs of Vocational Rehabilitation agencies that report to the Rehabilitation Services Administration (RSA), which is part of the Department of Education. The system is used by 31 states and other agencies to manage grants awarded to them by the RSA. The AWARE system has a financial component that creates obligations for products and services procured for clients as a part of their case services. It is our goal to utilize this component in conjunction with data exchange with the Edge system to track obligations and payments for case services. To meet our current case management needs, we are utilizing a system that was given to us by the state of Iowa, which we have heavily customized. Although the system currently performs effectively, a change to the AWARE (Accessible Web Activity Reporting Environment) would benefit us in the future from a continuity of operations standpoint, as well as ensuring that modifications to the system necessitated by changes in federal reporting requirements are not as costly or time-consuming to implement. In addition, upgrades to the system can be insured to be accessible to our blind staff as Alliance Enterprises works closely with manufacturers of screen access technology, operating systems, and backend database and related software.

**FUNDING SUMMARY**

(Images from the Budget Request and Reporting System.)

**IT Project Costs**

Contractual Services	Total	Prior Exp	FY15 Appr/Reappr	FY16 Request	FY17 Request	Future Add Request
Design	\$0					
Programming	\$100,000		100,000			
Project Management	\$103,000		103,000			
Data Conversion	\$50,000		50,000			
Other	\$0					
<b>Total</b>	<b>\$253,000</b>	<b>\$0</b>	<b>\$253,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Training</b>						
Technical Staff	\$6,871		6,871			
End-user Staff	\$11,353		11,353			
<b>Total</b>	<b>\$18,224</b>	<b>\$0</b>	<b>\$18,224</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Capital Expenditures</b>						
Hardware	\$0					
Software	\$100,276		100,276			
Network	\$0					
Other	\$0					
<b>Total</b>	<b>\$100,276</b>	<b>\$0</b>	<b>\$100,276</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Request</b>	<b>\$371,500</b>	<b>\$0</b>	<b>\$371,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

▼ Funding

	Total	Prior Exp	FY15 Appri/Reappr	FY16 Request	FY17 Request	Future Add Request
General Fund	\$0					
Cash Fund	\$0					
Federal Fund	\$371,500		371,500			
Revolving Fund	\$0					
Other Fund	\$0					
<b>Total Funding</b>	<b>\$371,500</b>	<b>\$0</b>	<b>\$371,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

**PROJECT SCORE**

Section	Reviewer 1	Reviewer 2	Reviewer 3	Mean	Maximum Possible
Goals, Objectives, and Projected Outcomes	15	10	9	11	15
Project Justification / Business Case	25	18	22	22	25
Technical Impact	18	15	15	16	20
Preliminary Plan for Implementation	10	8	8	9	10
Risk Assessment	10	8	4	7	10
Financial Analysis and Budget	13	15	15	14	20
<b>TOTAL</b>				<b>79</b>	<b>100</b>

**REVIEWER COMMENTS**

Section	Strengths	Weaknesses
Goals, Objectives, and Projected Outcomes	<ul style="list-style-type: none"> <li>- The goals are to update software that will allow the agency to fulfill federal guidelines.</li> <li>- Want to utilize a system that is easy to maintain and not be heavily customized; want to produce more accurate data.</li> <li>- Goals are clear.</li> </ul>	<ul style="list-style-type: none"> <li>- Start date listed at 09-01-2014 although many decisions have not been made; indication of being a sole source acquisition.</li> <li>- Very Brief. Didn't see how they would measure the effectiveness of the solution. Outcomes are vague.</li> </ul>
Project Justification / Business Case	<ul style="list-style-type: none"> <li>- CFVI has significant issues in terms of accessibility. They did a good job of assessing what software could fit their requirements that is accessible. It is a part of fulfilling federal reporting requirements and has been used by other VR agencies.</li> <li>- Indicate they need to stay current with federal reporting requirements. (Do not specifically state it is a federal mandate.) Would provide capability of several staff knowing how to utilize the system in lieu of one or two analysts.</li> <li>- I thought this was very clear on the benefits and review of other solutions.</li> </ul>	<ul style="list-style-type: none"> <li>- Only one other case management system was explored.</li> <li>- They mentioned linking this to the Payroll and Financial Center, but nothing about working with DAS. Is the assumption that they will be able to interface with no problems?</li> </ul>
Technical Impact	<ul style="list-style-type: none"> <li>- The proposal clearly discusses how the project enhances the current technology and the software, hardware, and communication requirements.</li> <li>- Indicate they are working with the Office of the CIO and the vendor to determine the best hosting solution. The system is used by 31 other states.</li> <li>- They are aware of the options available to them for implementing the system. They know the standards that must be followed.</li> </ul>	<ul style="list-style-type: none"> <li>- There could have been a clearer description of reliability, security and scalability.</li> <li>- Current system will need to go through a data conversion process. An interface may be required to the State's mainframe.</li> <li>- Too many questions as to how this should be implemented. Based on my experience, there will be a cost difference between hosting it internally and externally. Is the cost based on the most expensive option? I would have liked to see a breakdown of the development that is required.</li> </ul>
Preliminary Plan for Implementation	<ul style="list-style-type: none"> <li>- The implementation plan is clear. The project team is outlined and the strategies to minimize risk seem appropriate.</li> <li>- Milestones, deliverables, dates and Project Team are stated. Have acknowledged considerable training will be required.</li> <li>- Good description of training and on-going</li> </ul>	<ul style="list-style-type: none"> <li>- Timeline seems aggressive since the system has yet to be purchased.</li> <li>- Since and interface with the Payroll and Financial Center will be required, I expected to see someone from DAS as part of the team. This isn't part of the timeline either.</li> </ul>

Section	Strengths	Weaknesses
	support.	
Risk Assessment	<ul style="list-style-type: none"> <li>- A good description of possible barriers and of strategies to address problems.</li> <li>- They have identified possible barriers and risks and did identify strategies to help minimize risks. A part of that is to leave the old system in place for a number of years.</li> <li>- Identified a number of strategies that could be used to minimize risks.</li> </ul>	<ul style="list-style-type: none"> <li>- They indicate the system will be supported by NCBVI staff, the vendor and the OCIO. The type and amount of that support is not fully defined.</li> <li>- I don't see how the strategies are related to the risks defined. Identified risks should have strategies that explain how to minimize the risk and what will be done if the risk occurs.</li> </ul>
Financial Analysis and Budget	<ul style="list-style-type: none"> <li>- Funding is appears to be 100 per cent federally funded.</li> </ul>	<ul style="list-style-type: none"> <li>- Budget doesn't really explain where the numbers are coming from although the project is still in the initial planning stages.</li> <li>- There were no hardware or networking costs identified. Since the hosting solution has not yet been determined was not sure if the need for hardware and networking had yet been decided as well.</li> <li>- It's reasonable but since there are two options and they haven't decided which way to go, I'm concerned that it may cost more or they may sacrifice something in order to stay within budget.</li> </ul>

**TECHNICAL PANEL COMMENTS**

Technical Panel Checklist				Comments
	Yes	No	Unknown	
1. Is the project technically feasible?	✓			
2. Is the proposed technology appropriate for the project?			✓	- Unknown technical elements, specifically related to connections to other agencies.
3. Can the technical elements be accomplished within the proposed timeframe and budget?			✓	

**STATE GOVERNMENT COUNCIL COMMENTS**

- The State Government Council recommends this project be categorized as Tier 2.

**APPENDIX: AGENCY RESPONSE TO REVIEWER COMMENTS**

Nebraska Commission for the Blind and Visually Impaired

Response to scoring for Agency Project 81-01

Goals, Objectives, and Outcomes

We are working closely with a number of stakeholders in a project like this, including the OCIO, representatives from the vendor, and State Accounting. We may have given the wrong impression with a start date of September 1, 2014. In our mind we started this process 15 months ago, with exploring options; we have not obligated the agency to date. We would like to be ready to “go live” by October 1, 2015. We want to make it clear that our plan is to be deliberate and methodical in the implementation of the system, as we have been in the process so far. We will not sacrifice the accuracy of data conversion or system implementation steps simply to meet a deadline. We have been told by Alliance that the system can be in place in 4 to 5 months; issues with conversion, decision making, and Payroll and Financial Center could impact the timeline.

This system would be a success if it can provide to us the accurate data needed by our Federal partners, and assist us in keeping track of our financial obligations and payments. In regards to the latter goal, we have had two meetings with State Accounting to discuss how an interface with the Payroll and Financial Center would be achieved. We were provided with two types of interfaces that could be utilized. We need to discuss them with our system vendor as we move forward with this process.

We are working with AS Materiel’s State Purchasing Bureau on the acquisition of the product. The initial thrust was to look at RFP and/or Sole Source but this Software product is available through the State’s Contracted Third Party Reseller Contract with en Pointe and they have offered a proposal for purchase.

The outcomes of this project will be a much more comprehensive data management system that will create a better environment to coordinate our program and financial planning for clients. It will also provide the assurance and expertise of thousands of users in the technical and maintenance aspects of the program as opposed to our present staff of two people.

Project Justification/Business Case

The system is used for reporting to the U.S. Department of Education Rehabilitation Services Administration by 31 agencies across the country and maintained to report on that agency’s two billion dollar federal grant. This program will better mitigate our risks than our present custom built system.

In our research of solutions for this issue, it became very apparent that AWARE is the most widely used system across the country and users that we spoke with were satisfied with their decision. Currently there are 31 Vocational Rehabilitation agencies, including a number of Blind Agencies, who are using this product.

The Office of the CIO has been heavily involved in our discussions. During the preliminary stages of determining how we could purchase the software, we reached out to Steve Schafer as we had worked with him on other software licensing projects. We have also had two high-level meetings with OCIO staff including Chief Information Officer Brenda Decker, State Chief Information Security Officer Chris Hobbs, Aaron Weaver of the Open Systems Team, Jim Ohmberger of the OCIO, Steve Schafer, and Tod Wyrick and Rich Burns of the CIO Web Development Team. Rick Becker of the Nebraska Information Technology Commission also sat in on one of these meetings and was consulted for advice at the outset of this request process. We continue to correspond with Steve Schafer as we have questions and are awaiting a proposal from the OCIO Open Systems Team for possibly hosting AWARE locally. This proposal is based on system architecture documents provided to OCIO staff in our meetings.

We have worked with Deb Schnell and Kay Mencl from State Accounting to discuss preliminary plans for interfacing with the Payroll and Financial Center. Discussions still need to take place with the vendor of AWARE to enable us to fully plan how this will function.

The outcomes of this product will be a more efficient and comprehensive management system for our client information and federal grants.

#### Technical Impact

Our agency does not have expertise in reliability, security, and scalability, which is why we brought in a team from OCIO to assist us. We have received information that we have passed along to Chris Hobbs with OCIO security to evaluate the State of Nebraska's need for security and we are working with Aaron Weaver and others on reliability and scalability issues.

Data Conversion is one of the main issues in this process and we are approaching it with our eyes open both in terms of who will create the program and how much data will be converted. Rich Burns within OCIO wrote the program for eForce data conversion so he has experience with our business processes and is local. Alliance has experience in converting similar data from other agencies into its format. With these options in mind, we are evaluating our next steps.

The issue of hosting the program is probably the single most important variable that we have yet to decide. We are working both with Alliance and OCIO to make a best solution happen. Two upgrades are made to the program each year and must be incorporated into the system so it becomes a critical issue. The option set out in our budget proposal assumes that Alliance Enterprises hosts our 47 licenses of AWARE. In this configuration, all hardware is on Alliance's end, except for the hardware and software necessary to facilitate the interface with the Payroll and Financial Center. The system's database and web server footprint can be scaled in the event that our agency would change drastically in size or client load. Enhancements and features governing the user interface, system outputs, and other functionality are handled in the semiannual software upgrades that are offered as part of the subscription fee. These can be placed into a test environment for our review and then we decide when they are rolled into our production system. Depending on the service tiers purchased from Alliance, the system's uptime is guaranteed to be 99.6-99.9 percent uptime. This option also provides access to a designated service manager to assist with upgrades and other concerns.

### Preliminary Plan for Implementation

As we have stated, we are early in the process, but wanted to take advantage of the State Budget forum to submit our proposal. Conversations with our colleagues in Missouri, South Carolina, New Mexico, and Hawaii have pointed us favorably toward AWARE. They have mentioned that implementation projections can be a little too optimistic from AWARE.

We are aware that we have decisions to make about data conversion; it was our assumption that until we have a go or no go from the NITC on the merits of the project we should proceed conservatively. Also, from the vendor's standpoint we have not pursued a lot of conversion information as it may not be in their best interest to reveal that information. If you tell us standard business practice is not that way, we will have some leverage with Alliance.

A solid timeline at this point will emerge as these issues are finalized.

As stated above, we have asked the OCIO to include members of their team to work with us and guide us through this implementation. We will rely heavily on OCIO expertise and implementation efforts. We have also included members of the Payroll and Financial team to work with us. If there are others that we should include, we invite your feedback.

We are looking and responding to our data conversion issues and will make decisions on that as the plan unfolds.

### Risk Assessment

Many of the risks we identified relate to training, support and data conversion. As we considered training for use of the new AWARE system, staff told us that they wanted as much training as possible, and that they preferred it to be done in a small group setting. To this end, we will include in the vendor contract, trainings for various aspects of the system in multiple locations. From the Vendor's Statement of Work, these are the Introduction to AWARE and the Use of AWARE with Access Technology trainings. We want to hold these from 3 to 6 times to cover either offices themselves or the districts. For those staff members who need additional training that goes above and beyond these classes, the Technology Program Manager, Data Quality Analyst/System Administrator, or their immediate District Supervisor can work with them individually to overcome deficiencies. As mentioned previously, we are moving deliberately in regards to the data conversion process. We plan to work closely with Rich Burns, our OCIO contract programmer, who is familiar with our data format to help us proceed with conversion. We may also convert a subset of cases to the new system. To help in these determinations, we will rely heavily on our Data Quality Analyst to determine which cases are crucial to have in the new system going forward. We are also soliciting assistance from peer agencies who have converted to AWARE to determine which questions we need to ask and determine where they encountered gaps in their data conversion process.

The next two risk areas address compliance and compatibility. First, one risk we cited was noncompliance with NITC Standards out of the box requiring heavy customization. The only area where this is relevant is in our decision to host the product. We will work with Alliance and State Security to ensure that the product complies with data security standards regardless of

hosting platform. The next risk surrounding compatibility and compliance is with the Payroll and Financial Center and any interfaces that we create. We are working closely with staff of AS State Accounting. We will work with Alliance Enterprises to ensure that data formats are compatible between the two systems and to determine how to handle any issues that arise in sending data between systems both on a regular or infrequent basis. Mitigation of these risks can be achieved through close communication between all three stakeholders; NCBVI, AS Accounting, and Alliance Enterprises.

#### Financial Analysis and Budget

This project will be financed primarily by federal grant funds and federal program income funds already captured. Through the carryover process of our grants, which allows for a second year to use grant funds, and reallocation of grant funds from our federal partners, the agency has retained funds to make this purchase. We do have funds available to make this purchase and to implement customization that will best serve our blind customers.

As stated earlier, we are still in the process of identifying our costs which will be heavily influenced by the hosting question. It is our primary thought that we prefer to pay as much of the license and maintenance fees as possible with funds available, however we must be cognizant of the grant and the long term viability of the project. We take those issues very seriously in our evaluation of the options.

**State of Nebraska  
Nebraska Information Technology Commission  
Standards and Guidelines**

**AMENDMENTS TO NITC 7-104**

NITC 7-104 (Web Domain Name Standard) is amended as follows:

1. Section 1 is amended to read:

**1. Standard**

**1.1**

The official Nebraska ~~government domain is nebraska.gov~~ state government domain names are nebraska.gov and ne.gov. The State CIO may also allow other domain names using the .gov top level domain.

**1.2**

All web domain name registrations, purchases, and renewals must be made by the Office of the CIO. Top level domain names other than .gov may be registered but cannot serve content or be publicly promoted. The domain state.ne.us is a supported legacy domain which may serve content but which should not be publicly promoted.  
~~All public facing domains shall be registered as at least a third-level domain within the nebraska.gov domain. The third level domain name shall uniquely identify the state agency or service. In addition to nebraska.gov, the domain ne.gov may be registered as an alternate domain to the corresponding nebraska.gov domain name.~~

**1.3**

All registered ~~nebraska.gov and ne.gov~~ .gov domains ~~shall~~ must adhere to all federal .gov domain ~~registration requirements and policies and~~ guidelines.

**1.4**

~~Domains other than nebraska.gov and ne.gov may be purchased but cannot serve content or be publicly promoted. The domain state.ne.us is a supported legacy domain which can serve content but which should not be publicly promoted.~~

**1.5**

Nonconforming domains in existence when this standard is adopted will be exempt from ~~the these~~ requirements ~~in Section 1.4~~ until December 31, 2014.

2. Effective January 1, 2015, Section 1.4 is repealed.

October 22, 2014

**To:** NITC Commissioners  
**From:** Anne Byers  
**Subject:** Community Council Report

## **Broadband Plan and Video**

At the Oct. 28 NITC meeting, I will be asking you to approve the state broadband plan, "Broadband in Nebraska: Current Landscape and Recommendations." The NITC Community Council in partnership with the Nebraska Public Service Commission, University of Nebraska-Lincoln, Nebraska Department of Economic Development, and AIM developed the plan as part of the broadband mapping and planning project funded by a grant from the National Telecommunications and Information Administration to the Nebraska Public Service Commission. The plan incorporates suggestions made by Commissioners at the Aug. 19 NITC meeting, including adding measurable targets and information on the economic impact of broadband. The plan was made available for public comment on Sept. 19, 2014. Additionally, information on the draft plan was presented at the Connecting Nebraska Broadband Conference on Oct. 2, 2014. The plan was further revised to incorporate the handful of comments received. A list of comments is included at the end of this memo.

A video produced by the University of Nebraska highlights the findings. The video is available at <http://www.youtube.com/watch?v=siae3ADCiHQ&feature=youtu.be>.

In my report, I am going to highlight the goals, economic impact, and recommendations.

### **Goals**

The following goals and targets help focus attention on key aspects of the plan and provide a way to assess the state's progress in addressing broadband development:

#### **Increase household adoption of broadband**

- Over 90% of households statewide will subscribe to broadband by 2020.

**Current:** 82%

- 85% of households in rural Nebraska will subscribe to broadband by 2020.

**Current:** 74%

#### **Increase broadband availability**

- Broadband service of 25 Mbps down will be available to 90% of households by 2020.

**Current:** 74.9% of households

- Broadband service of 1 gbps down will be available to 25% of households by 2020.

**Current:** 11.5% of households

### **Support broadband-related development by increasing the number and diversity of IT workers**

- At least 1,400 degrees in computer and information science, management information systems, computer engineering, and bioinformatics will be awarded annually by Nebraska colleges and universities by 2020.

**Current:** 1,113 degrees awarded in 2012

- Women receive at least 25% of the degrees in computer and information science, management information systems, computer engineering, and bioinformatics will be awarded by Nebraska colleges and universities by 2020.

**Current:** 20% of IT degrees awarded to women

### **Economic Impact**

Broadband is impacting Nebraska's economy in a number of ways<sup>1</sup>, including:

- **Expanding Markets by Selling Online.** Over 60% of Nebraska businesses reported selling goods or services online.
- **Increasing Efficiencies and Reducing Costs.** Nebraska businesses reported cost savings averaging 4% due to using the Internet.
- **Creating Jobs.** A 2013 survey of Nebraska businesses found that broadband access to the Internet is having a positive impact on jobs, with 364 respondents reporting a net increase of 654 jobs due to using the Internet.
- **Increasing Revenue.** Broadband access to the Internet is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.

National and international research links broadband availability with economic growth. However, broadband adoption appears to have a stronger economic impact than broadband availability, contributing to growth in household income, lower unemployment and other measures of economic success in non-metropolitan counties.<sup>2</sup>

---

<sup>1</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>

<sup>2</sup> Whitacre, B., Gallardo, R., Strover, S. (March 26, 2013). Broadband's contribution to economic health in rural areas: A causal analysis and an assessment of the 'Connected Nation' program. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2239876](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239876)

## Recommendations

The following recommendations emerged from discussions with stakeholders:

- Encourage investment in Nebraska's telecommunications infrastructure.
- Enhance the capacity of local communities to address broadband development.
- Encourage the development of a skilled IT workforce.
- Support innovation and entrepreneurship.
- Support the use of broadband technologies in businesses and agriculture.
- Support the development of libraries as community anchor institutions.
- Support the use of broadband in education and health care.
- Support the use of broadband by government and public safety entities.
- Support efforts to attract new residents and retain youth.
- Increase digital literacy and broadband access to the Internet.

**Membership.** The Community Council recommended the nomination of Jay Anderson to replace Paul Ludwick. A bio for Jay Anderson is below:

Jay has been with Nebraskalink since 2013 and his responsibilities include working with government, education, medical and financial institutions on broadband projects and upgrades. Jay also represents Nebraskalink at many broadband conferences, public relations events and committee meetings throughout the state of Nebraska. Prior to coming over to Nebraskalink he worked at HunTel Systems located in Blair, NE for 15 years. His primary duties included fiber related broadband projects, human resources and data recovery systems.

Prior to beginning work in the telecommunications field Jay worked 8 years as a Law Enforcement Officer in Houston, TX and Washington County, NE. He is also a Navy veteran having served in the Middle East, Somalia, Panama and West Africa.

Jay is the father to two girls, Adeline and Josie, who attend Midland College and Blair High School.

## Broadband Plan Comments Received

### From Community Council Members

**Comment:** Jacob Knutson from the Nebraska Department of Economic Development shared statistics on IT graduates which a DED staff member was able to access from the National Center for Education Statistics Integrated Postsecondary Education Data System (IPEDS).

**Response:** I was not able to break down the IPEDS data by major. We agreed that the data from DED is better data and updated the IT workforce targets on pages 5 and 10.

**Comments from Randy Bretz:** Again, your presentation at the Kearney Broadband Conference was excellent. I liked your opening comments about "What is Broadband." If there's any way you could include those bullet points in the Broadband in Nebraska Plan, I'd encourage you to do so.

**Response:** Additional introductory material was added to page 9.

Also, two additional recommendations for you to consider related to the plan.

First, on page 13, I suggest a statement that clearly gives the URL for the Broadband Landscape map on that page, and a statement that notes detail for some urban areas is available as people zoom into the map.

**Response:** The URL was added to the map.

Second, and I know this is a challenge for a State Agency to suggest, but I feel it is very important for our Unicameral to examine current law and consider modifications to bring those regulations up to date. While I'd like it to be more specific, I feel it's important to note that some legislation in our state needs to be reviewed and revised to appropriately open the door to the further development of this new infrastructure.

**Response:** The NITC recommends policies and programs which support the use of technology within the existing legal and regulatory framework.

In conclusion, I encourage you to seek opportunities to share the plan through presentations and other means to get the word out about the needs of Nebraska. Perhaps a press release once the plan has been accepted by the NITC.

**Response:** I can work with the Governor's Press Office on a press release.

## **From Nebraska Broadband Initiative Members**

**Comment:** Charlotte Narjes from the University of Nebraska suggested including additional information on attracting new residents and retaining youth.

**Response:** Additional information was added to page 29.

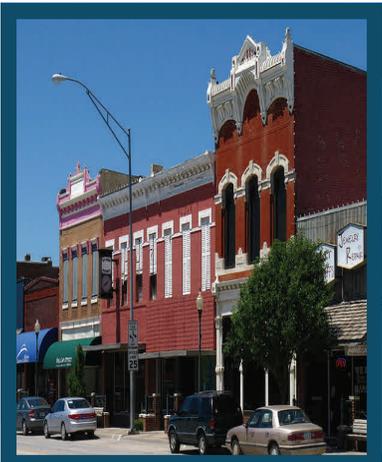
## **From Conference Participants**

**Comment:** Include information on affordability.

**Response:** A paragraph on satisfaction and affordability from the household and business surveys was included on page 14.

**Comment:** Include information on the Latino business survey.

**Response:** The survey results will most likely be very useful. However, information from the survey is not yet currently available.



# Broadband in Nebraska

## Current Landscape and Recommendations

Draft—Oct. 22, 2014

2014

Nebraska Information Technology Commission

Nebraska Broadband Initiative

Nebraska Public Service Commission

University of Nebraska-Lincoln

NITC Community Council

Nebraska Department of Economic Development

AIM



---

**The Nebraska Information Technology Commission** ([nitc.nebraska.gov](http://nitc.nebraska.gov)) promotes the use of information technology in education, health care, economic development, and all levels of government service. The nine-member, governor-appointed commission is chaired by Lieutenant Governor John E. Nelson..

**The Nebraska Broadband Initiative** ([broadband.nebraska.gov](http://broadband.nebraska.gov)) promotes the adoption and utilization of broadband in Nebraska. Project partners include the Nebraska Public Service Commission, University of Nebraska-Lincoln, Nebraska Information Technology Commission, Nebraska Department of Economic Development, and AIM. Activities include the development of a state broadband map ([broadbandmap.nebraska.gov](http://broadbandmap.nebraska.gov)), state broadband conferences, videos highlighting how broadband is being used in Nebraska communities, surveys of households and businesses, regional broadband plans, community planning materials, and these recommendations.

The project is funded through a grant to the Nebraska Public Service Commission by the U.S. Department of Commerce's National Telecommunications and Information Administration through the American Recovery and Reinvestment Act.



**Front Cover Photo Credits:**

**Blair, Nebraska**, Jasperdo, Creative Commons License, <https://creativecommons.org/licenses/by-nc-nd/2.0/>

**Nebraska State Capitol**, Tim O'Brien, Creative Commons License,

<http://creativecommons.org/licenses/by-nc/2.0/deed.en>

**AIM Coder Dojo**, Anne Byers

**Back Cover Photo Credit:**

Showing Off, John Carrel, Creative Commons License

# Foreword



**Dave Heineman**  
*Governor*

**State of Nebraska**

**Office of the Chief Information Officer**  
**Brenda L. Decker**  
*Chief Information Officer*

My Fellow Nebraskans:

Nebraska is making significant progress in broadband development. Nearly all Nebraskans have broadband access to the Internet, and broadband speeds across the state are increasing. Nebraska businesses are creating jobs and increasing revenue through the use of broadband. Agricultural producers are also using broadband applications to monitor livestock and crops. Nebraska's tech sector continues to grow and is drawing national attention. Innovative programs at our colleges and universities are training our next generation of IT workers and entrepreneurs.

This broadband plan discusses the current broadband landscape in Nebraska and presents ten recommendations to help stakeholders in Nebraska build upon our successes and ensure that Nebraska continues to enjoy the benefits of broadband in the future.

I would like to thank the NITC Community Council, the Nebraska Public Service Commission, University of Nebraska-Lincoln, Nebraska Department of Economic Development, AIM, and other stakeholders for their contributions.

Sincerely,

A handwritten signature in blue ink that reads "Brenda L. Decker".

Brenda L. Decker  
Chief Information Officer



**Brenda L. Decker**  
Chief Information Officer

# Contents

---

<b>Foreword</b>	3
<b>Executive Summary</b>	5
What is Broadband?	8
<b>Vision, Objectives and Goals</b>	9
<b>Broadband Landscape</b>	10
Economic Impact	10
Broadband Availability	12
Broadband Adoption	13
<b>Priority Areas and Recommendations</b>	15
Encourage Investment in Nebraska’s Telecommunications Infrastructure	16
Enhance the Capacity of Local Communities to Address Broadband Development	20
Encourage the Development of a Skilled IT Workforce	21
Support Innovation and Entrepreneurship	22
Support the Use of Broadband in Businesses and Agriculture	23
Support the Development of Libraries as Community Anchor Institutions	25
Support the Use Of Broadband in Education and Health Care	26
Support the Use of Broadband by Government and Public Safety Entities	28
Support Efforts to Attract New Residents and Retain Youth	29
Increase Digital Literacy and Broadband Access to the Internet	30
References	31
NITC Commissioners and Staff	33
NITC Community Council Members	34
Broadband Plan Work Group Members	35
Nebraska Broadband Initiative	38

---

# Executive Summary

---

## Vision, Objectives and Goals

Nebraska's broadband vision is that residents, businesses, government entities, community partners, and visitors have access to affordable broadband service and have the necessary skills to effectively utilize broadband technologies.

### Objectives

- To increase economic development opportunities, create good-paying jobs, attract and retain population, overcome the barriers of distance, and enhance quality of life in Nebraska by stimulating the continuing deployment of broadband technologies which meet the need for increasing connection speeds.
- To increase digital literacy and the widespread adoption of broadband technologies in business, agriculture, health care, education, government and by individual Nebraskans.

### Goals

The following goals and targets help focus attention on key aspects of the plan and provide a way to assess the state's progress in addressing broadband development:

#### **Increase household adoption of broadband**

- Over 90% of households statewide will subscribe to broadband by 2020.
- 85% of households in rural Nebraska will subscribe to broadband by 2020.

#### **Increase broadband availability**

- Broadband service of 25 Mbps down will be available to 90% of households by 2020.
- Broadband service of 1 gbps down will be available to 25% of households by 2020.

#### **Support broadband-related development by increasing the number and diversity of IT workers**

- At least 1,400 degrees in computer and information science, management information systems, computer engineering, and bioinformatics will be awarded annually by Nebraska colleges and universities by 2020.
- Women receive at least 25% of the degrees in computer and information science, management information systems, computer engineering, and bioinformatics will be awarded by Nebraska colleges and universities by 2020.

---

*Nebraska's broadband vision is that residents, businesses, government entities, community partners, and visitors have access to affordable broadband service and have the necessary skills to effectively utilize broadband technologies.*

# Executive Summary

## Economic Impact

Broadband is impacting Nebraska's economy in a number of ways<sup>1</sup>, including:

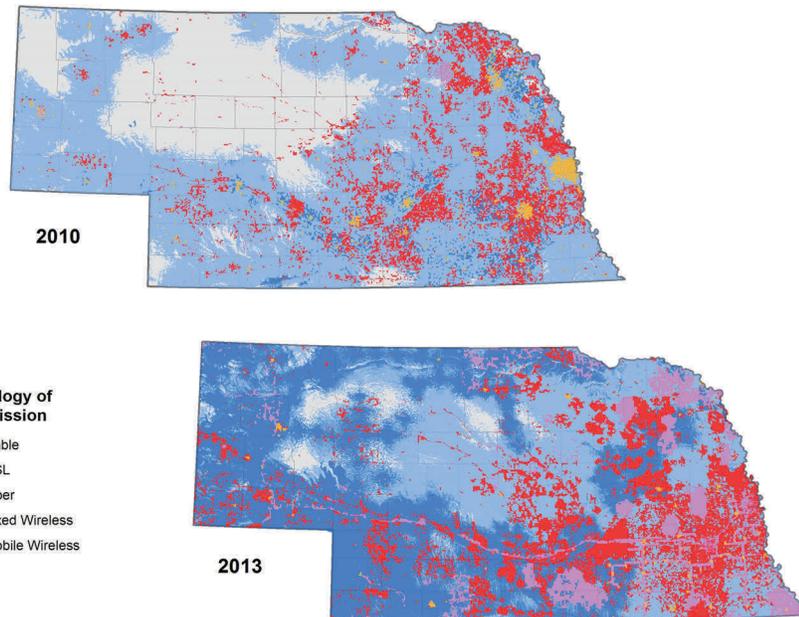
- **Expanding Markets by Selling Online.** Over 60% of Nebraska businesses reported selling goods or services online.
- **Increasing Efficiencies and Reducing Costs.** Nebraska businesses reported cost savings averaging 4% due to using the Internet.
- **Creating Jobs.** A 2013 survey of Nebraska businesses found that broadband access to the Internet is having a positive impact on jobs, with 364 respondents reporting a net increase of 654 jobs due to using the Internet.
- **Increasing Revenue.** Broadband access to the Internet is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.

National and international research links broadband availability with economic growth. However, broadband adoption appears to have a stronger economic impact than broadband availability, contributing to growth in household income, lower unemployment and other measures of economic success in non-metropolitan counties.<sup>2</sup>

## Broadband Availability

Broadband provides high-speed access to applications such as the Internet. Broadband service is available to nearly all Nebraskans, with 99.5% of Nebraskans having access to service with download speeds of greater than 10 Mbps.<sup>3</sup> Nebraska ties for 12<sup>th</sup> on this measure.

**B**roadband access to the Internet is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.



# Executive Summary

---

Broadband availability in Nebraska continues to improve. The map on the previous page shows improvements in broadband coverage from 2010 to late 2013. Some areas of the state remain unserved, however.<sup>4</sup>

Mobile connections are becoming increasingly important to residents and businesses with over 80% of Nebraska businesses currently using smart phones.<sup>5</sup> Although mobile broadband data coverage is improving in Nebraska, mobile coverage in some areas of rural Nebraska is still a challenge. Mobile coverage limitations in rural areas of Nebraska may impact the adoption and utilization of some precision agriculture technologies which rely on mobile broadband services.

## Broadband Adoption

Most households in Nebraska (82%) have broadband service. However, there are significant rural-urban differences with subscription rates of 90% in Lincoln and 87% in Omaha, compared to 72% to 77% in other regions of the state.<sup>6</sup>

Nearly all Nebraska businesses are utilizing broadband access to the Internet. Internet applications relying on broadband networks are becoming increasingly important for agricultural producers. Most livestock producers use the Internet for market information, auctions, government and regulatory agency reporting, and farm business planning. Most grain producers use the Internet for market information, crop management, government and regulatory agency reporting, ROI calculators, farm business planning, and GPS information.<sup>7</sup>

## Recommendations

The following recommendations emerged from discussions with stakeholders:

- Encourage investment in Nebraska's telecommunications infrastructure.
- Enhance the capacity of local communities to address broadband development.
- Encourage the development of a skilled IT workforce.
- Support innovation and entrepreneurship.
- Support the use of broadband technologies in businesses and agriculture.
- Support the development of libraries as community anchor institutions.
- Support the use of broadband in education and health care.
- Support the use of broadband by government and public safety entities.
- Support efforts to attract new residents and retain youth.
- Increase digital literacy and broadband access to the Internet.

---

**B**roadband adoption appears to have a stronger economic impact than broadband availability.

# What Is Broadband?

## What is Broadband?

"Broadband" refers to a high-speed data service that supports multiple applications including access to the Internet. Broadband access to the Internet can be provided through a number of technologies, including cable modem, Digital Subscriber Line (DSL), fiber, wireless, and satellite. There is no single universally-agreed up on definition regarding how fast a connection should be to be considered "broadband." To most users, anything faster than dial-up is considered "broadband." The National Broadband Plan released by the FCC in 2010 has defined broadband as 4 Mbps down and 1 Mbps up. In August 2014, the FCC launched an inquiry into changing the definition to 10 Mbps down and 1 Mbps up. The proposed change reflects the demand for increasing broadband speeds.

## Bandwidth, streaming video and download times

Video downloads or video streaming can demand broadband speeds of 5 Mbps or greater depending upon the size of the file or quality of the video being streamed. Standard definition video can be streamed at speeds from 1 Mbps to 2 Mbps. High quality video demands faster speeds, with full HD (1080p) demanding 5 Mbps or more for a single stream. Having multiple members of a household simultaneously streaming video on separate devices will require even greater connection speeds

Connection Speed	Single song (5 MB)	Album 100 MB	TV Show 450 MB
4 Mbps	10 seconds	3 minutes 20 seconds	15 minutes
8 Mbps	5 seconds	1 minute 40 seconds	7 minutes 30 seconds
16 Mbps	2.5 seconds	50 seconds	3 minutes 45 seconds
32 Mbps	1.25 seconds	25 seconds	1 minute 52 seconds
50 Mbps	.8 seconds	16 seconds	1 minute 12 seconds
100 Mbps	.4 seconds	18 seconds	36 seconds

## Upload Speed

The speed at which you can send information from your computer or device over the Internet is important for applications like video conferencing, sharing larger files online, interactive learning, medical applications that use HD imaging, and two-way online gaming – as well as advanced "cloud computing."

# Vision, Objectives and Goals

**B**roadband is essential to Nebraskans. Broadband is a way:

- To connect with friends and family,
- To shop,
- To access information,
- To play games, listen to music, and watch videos,
- To access education and training,
- To access health information and care,
- To better manage our health,
- To generate business revenue and jobs,
- To more efficiently farm and raise livestock,
- To better manage resources, and
- To attract new residents and retain youth.

## Vision

Nebraska's broadband vision is that residents, businesses, government entities, community partners, and visitors have access to affordable broadband service and have the necessary skills to effectively utilize broadband technologies.

## Objectives

- To increase economic development opportunities, create good-paying jobs, attract and retain population, overcome the barriers of distance, and enhance quality of life in Nebraska by stimulating the continuing deployment of broadband technologies which meet the need for increasing connection speeds.
- To increase digital literacy and the widespread adoption of broadband technologies in business, agriculture, health care, education, government and by individual Nebraskans.

## Goals

The following goals and targets help focus attention on key aspects of the plan and provide a way to assess the state's progress in addressing broadband development:

### **Increase household adoption of broadband**

- Over 90% of households statewide will subscribe to broadband by 2020.
- 85% of households in rural Nebraska will subscribe to broadband by 2020.

---

**N**ebraska's  
broadband  
vision is that  
residents,  
businesses,  
government entities,  
community partners,  
and visitors have  
access to affordable  
broadband service  
and have the

# Vision, Objectives and Goals

## Increase broadband availability

- Broadband service of 25 Mbps down will be available to 90% of households by 2020.
- Broadband service of 1 gbps down will be available to 25% of households by 2020.

## Support broadband-related development by increasing the number and diversity of IT workers

- At least 1,400 degrees in computer and information science, management information systems, computer engineering, and bioinformatics will be awarded annually by Nebraska colleges and universities by 2020.
- Women receive at least 25% of the degrees in computer and information science, management information systems, computer engineering, and bioinformatics will be awarded by Nebraska colleges and universities by 2020.

## 2014 Baseline and Targets

Measure	Baseline	2020 Target
Subscription to broadband service by Households in Nebraska <sup>8</sup>	82%	Over 90%
Subscription to broadband service by households in nonmetropolitan Nebraska	73.6%	85%
% of households with broadband service of at least 25 Mbps down available <sup>9</sup>	74.9%	90%
% of households with broadband service of 1 gbps down available	11.5%	25%
Degrees awarded in computer and information science, engineering, and engineering technologies by Nebraska colleges and universities <sup>10</sup>	1,113	1,400
% of computer and information science, engineering, and engineering technologies degrees awarded to women by Nebraska colleges and universities	20%	At least 25%

# Broadband Landscape

## Economic Impact

**B**roadband is impacting Nebraska's economy in a number of ways, including:

- **Expanding Markets by Selling Online.** Over 60% of Nebraska businesses reported selling goods or services online.<sup>11</sup> Additionally, Google reports that 6,000 Nebraska businesses and non-profits used Google's advertising programs, generating an estimated \$1.4 billion in economic activity in 2013.<sup>12</sup>
- **Increasing Efficiencies and Reducing Costs.** Nebraska businesses reported cost savings averaging 4% due to using the Internet.<sup>13</sup>
- **Creating Jobs.** A 2013 survey of Nebraska businesses found that broadband access to the Internet is having a positive impact on jobs, with 364 respondents reporting a net increase of 654 jobs due to using the Internet.<sup>14</sup>
- **Increasing Revenue.** Broadband access to the Internet is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.<sup>15</sup>

364 businesses  
reported an increase of

654 jobs  
due to the  
Internet

*Broadband adoption appears to have a stronger economic impact than broadband availability.*

National and international research links broadband availability with economic growth. Ericsson estimates that doubling broadband speeds for an economy can add 0.3 percent to GDP growth.<sup>16</sup> Another study found that non-metropolitan counties with broadband available at higher speeds experienced greater growth in the percentage of employees in the creative class.<sup>17</sup>

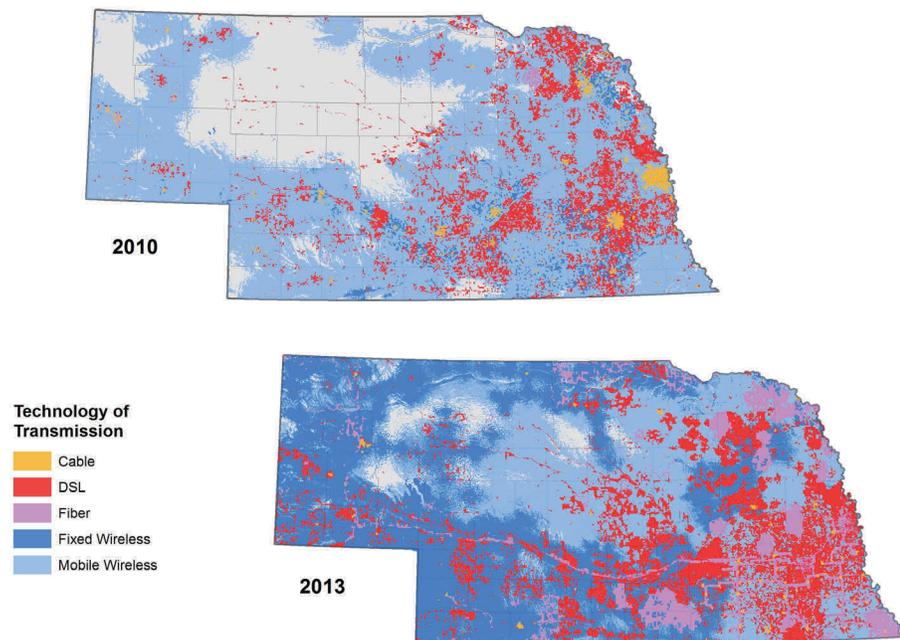
However, broadband adoption appears to have a stronger economic impact than broadband availability. One study found that broadband adoption—rather than broadband availability—contributes to growth in household income, lower unemployment and other measures of economic success in non-metropolitan counties.<sup>18</sup>

# Broadband Landscape

## Broadband Availability

Broadband service is available to nearly all Nebraskans, with 99.5% of Nebraskans having access to service with download speeds of greater than 10 Mbps. Nebraska ties for 12th on this measure.<sup>19</sup> Although broadband availability in Nebraska continues to improve, some areas of the state remain unserved. The map below shows improvements in broadband coverage between 2010 and late 2013.<sup>20</sup> The data displayed on the map below and the maps on the following page was collected during the spring 2014 collection period and reflects coverage information as of December 31, 2013.

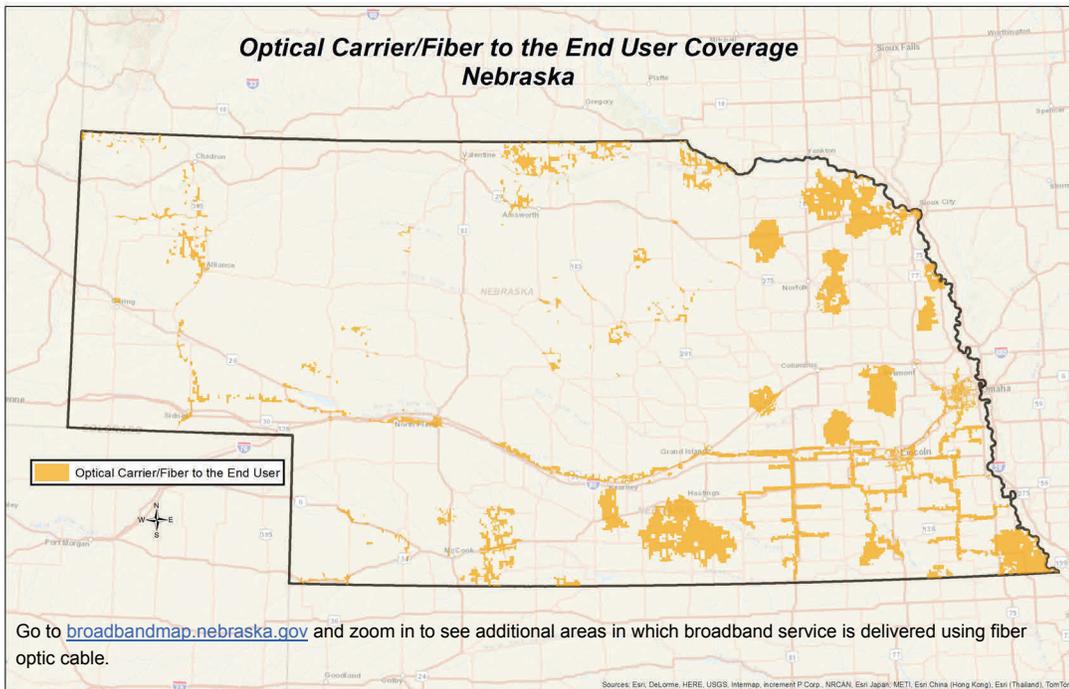
**B**roadband service is available to nearly all Nebraskans.



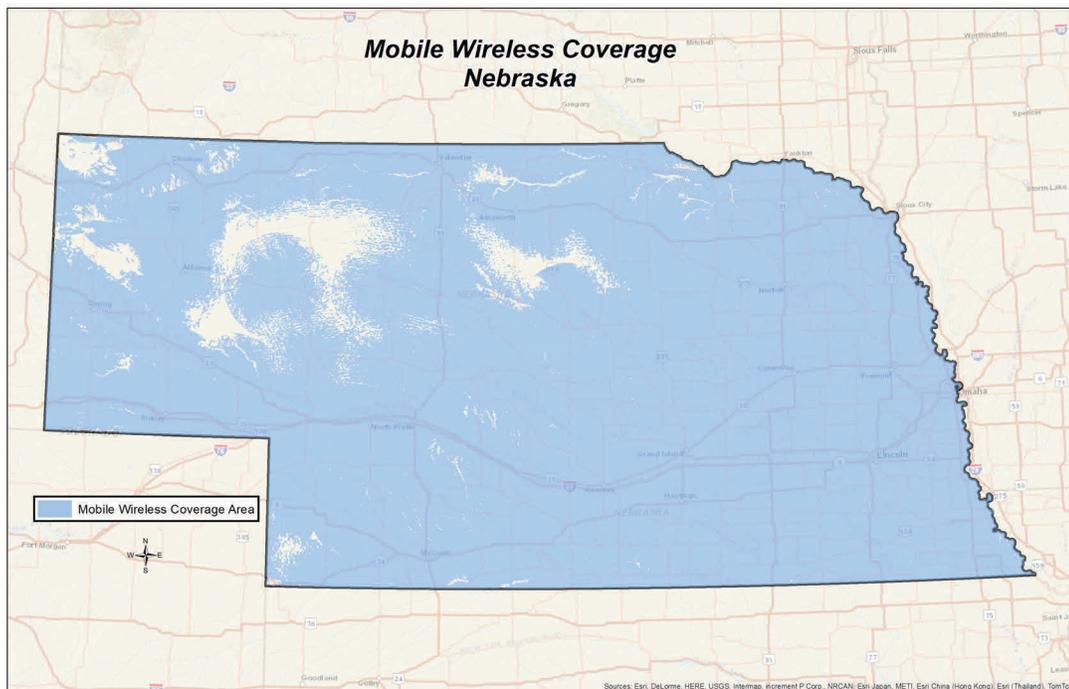
The deployment of fiber in Nebraska is increasing. The map on the following page reflects locations where fiber is the technology used to provide broadband access based on data. Going to the broadband map ([broadbandmap.nebraska.gov](http://broadbandmap.nebraska.gov)) and zooming in shows additional areas in which broadband service is delivered using fiber optic cable.

Mobile connections are becoming increasingly important to residents and businesses. Over 88 percent of Nebraska businesses use some form of web-enabled mobile device, with 84% using a web-enabled laptop computer, closely followed by web-enabled mobile phones (81.3%).<sup>21</sup> Although mobile broadband data coverage is improving in Nebraska, mobile coverage in some areas of rural Nebraska is still a challenge. These coverage limitations may impact the adoption and utilization of some precision agriculture technologies which rely on mobile broadband services. The map on the following page shows mobile wireless coverage in Nebraska.

# Broadband Landscape



*The deployment of fiber in Nebraska is increasing.*



# Broadband Landscape

## Broadband Adoption

*There are significant rural-urban differences in broadband adoption.*

**Households.** Most households in Nebraska (82%) access the Internet using their broadband service. However, there are significant rural-urban differences in broadband adoption.

Ninety percent of households in the Lincoln area and 87% of households in the Omaha have broadband access to the Internet. In comparison, the percentage of households with broadband access to the Internet in other regions of the state ranges from 72% to 77%.<sup>22</sup>

Older adults, those with lower incomes and those with lower levels of income are also less likely to have broadband access to the Internet at home.

**Businesses.** Nebraska businesses are utilizing broadband to expand their markets and reduce costs. More importantly, these businesses are creating

jobs and increasing revenue through the use of broadband. A 2013 survey of Nebraska businesses found that broadband access to the Internet is having a positive impact on jobs, with 364 respondents reporting a net increase of 654 jobs due to using the Internet. Over 50% of net jobs reported by respondents were attributed to use of the Internet. Broadband access to the Internet is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.<sup>23</sup>

**Agriculture.** Broadband applications are becoming increasingly important for agricultural producers with over 60% of livestock producers using the Internet for commodity prices/market information (69%), government/regulatory agency reporting (63%), and auctions (63%).

At least 60% of grain producers report using broadband for commodity prices/market information (77%), crop management (65%), and government or regulatory agency reporting (60%).<sup>24</sup>

**Satisfaction and Affordability.** Most businesses and households are generally satisfied with their Internet service. However, the majority of households and nearly a quarter of businesses expressed dissatisfaction with the price of their service. Fiber is considered the best value of all technologies by both businesses and households despite its higher average monthly cost.<sup>25</sup>

Broadband Service at Home	2010	2014
Nebraska Households with Broadband Service at Home	76%	82%
<b>By Region</b>		
Lincoln Area	81%	90%
Omaha Area	83%	87%
Southeast	72%	77%
South Central	69%	76%
West Central	70%	74%
Panhandle	74%	73%
Central	56%	73%
Northeast	72%	72%

\*For the survey, broadband was defined as anything faster than dial-up.

# Priority Areas and Recommendations

---

Four priority areas were identified by nine regional groups in Nebraska working to develop regional broadband plans. These priority areas are:

- Economic Development
- Agriculture
- Digital Literacy and Public Access
- Broadband Availability and Affordability

The regional groups also recognized that the use of broadband in health care, education, local government and libraries were important, but were issues that were better addressed at the state level.

These priority areas were presented to members of the Nebraska Information Technology Commission Community Council and other stakeholders on November 1, 2013. Community Council members and other stakeholders were invited to participate in work groups to further discuss these priority areas and make initial recommendations.

The following recommendations emerged from discussions with work group members and the Community Council:

- Encourage investment in Nebraska's telecommunications infrastructure.
- Enhance the capacity of local communities to address broadband development.
- Encourage the development of a skilled IT workforce.
- Support innovation and entrepreneurship.
- Support the use of broadband technologies in businesses and agriculture.
- Support the development of libraries as community anchor institutions.
- Support the use of broadband technologies in education and health care.
- Support the use of broadband by government and public safety entities.
- Support efforts to attract new residents and retain youth.
- Increase digital literacy and broadband access to the Internet.

# Priority Areas and Recommendations

## Encourage Investment in Nebraska's Telecommunications Infrastructure

The State of Nebraska encourages investment in Nebraska's telecommunications infrastructure through two primary mechanisms:

- By providing support through the Nebraska Universal Service Fund; and
- By aggregating its demand for telecommunications services and acting as an anchor tenant.

Additionally, ways to leverage investments in FirstNet and Next Generation 911 should be explored.

## Provide Support through the Nebraska Universal Service Fund

In 1997, the Legislature passed LB 686, authorizing the Nebraska Public Service Commission to create the Nebraska Universal Service Fund (NUSF). The goal of the NUSF is, in conjunction with federal universal service funds, to ensure that all Nebraskans have comparable access to telecommunications services at affordable prices. The Commission created the following five programs within the NUSF:

**Broadband Program** provides targeted support for unserved and underserved areas to close the broadband availability gap. Nebraska Broadband grants are available to regulated wireline, wireless, and unregulated communications providers wishing to participate. \$500,000 in support has been earmarked in 2015 to initiate a pilot broadband adoption program. Nebraska is one of only four states in the nation with a universal service program to fund broadband deployment, and it provides the second greatest amount of total funding among the states with such programs.

**Dedicated Wireless Fund Program** supports the provision of wireless telecommunications infrastructure in rural unserved and underserved areas of the state. In 2014 the Commission combined the Dedicated Wireless Fund Program and the Nebraska Broadband Program.

**Rural Tele-Health Program** provides support for the Nebraska Statewide Telehealth Network. The Nebraska Statewide Telehealth Network connects 68 rural and critical access hospitals across the state to hub hospitals in Grand Island, Kearney, Lincoln, Norfolk, North Platte, Omaha, and Scottsbluff.

**Nebraska Telephone Assistance Program** assists eligible low-income individuals with obtaining and keeping telephone services by lowering monthly telephone service rates. In February of 2012, the FCC significantly reformed the low-income program supported by the federal and state universal service funds and began taking steps toward expanding the program to include broadband service. The Commission continues to monitor the Pilot Programs closely.

**High Cost Program** seeks to make telecommunications and information rates generally affordable and comparable across Nebraska by providing support to the

*The goal of the NUSF is, in conjunction with federal universal service funds, to ensure that all Nebraskans have comparable access to telecommunications services at affordable prices.*

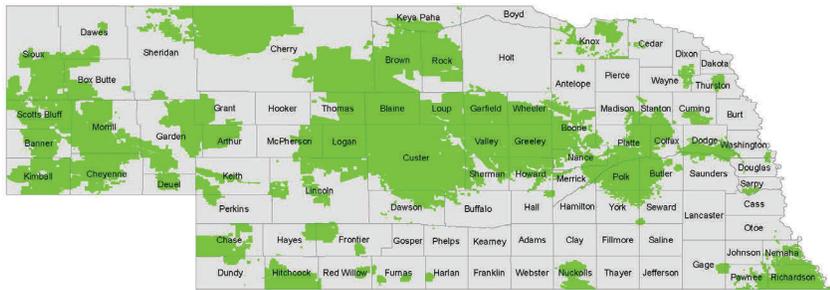
# Priority Areas and Recommendations

highest-cost areas.

The Commission has maintained the NUSF surcharge at 6.95% of in-state retail telecommunications revenue since 2007. Twenty-one states have state funds specifically dedicated to providing high-cost support and 8 states have funds dedicated to funding intrastate access rate reductions and reform. The percentage assessed by each state varies widely along with the method of assessment. Nebraska's assessment percentage falls near the middle.

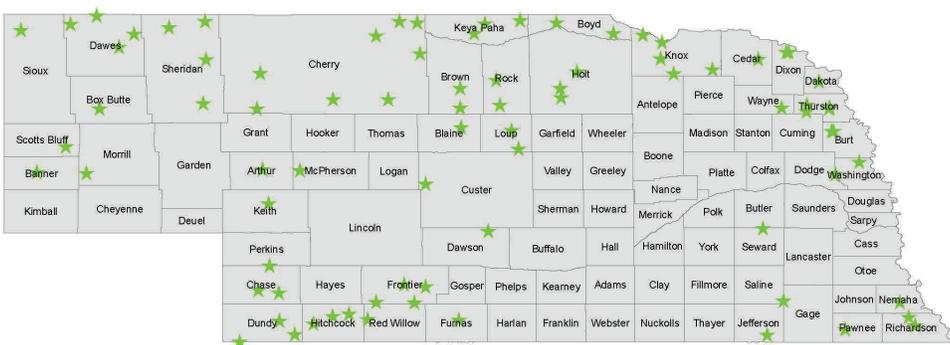
The maps on this page show the areas receiving support from the Nebraska Broadband Program and the Dedicated Wireless Program.

**Nebraska Universal Service Fund  
Broadband Grant Locations**  
Nebraska Broadband Pilot Program  
(2012-2014)



**NEBP Grant Locations**  
2012-2014

**Nebraska Universal Service Fund  
Supported Tower Locations**  
Dedicated Wireless Program  
(2008 - 2013)



**NUSF Supported Towers**  
2008 - 2013

# Priority Areas and Recommendations

## Aggregate Demand and Act as an Anchor Tenant

The Nebraska Information Technology Commission facilitated the aggregation of the backbone network services of the State of Nebraska and the University of Nebraska into a core network backbone segment in 2003 in order to develop a broadband, scalable telecommunications infrastructure that optimizes quality of service to public entities. In 2006, the network expanded to include the state's educational entities with the passage of LB 1208.

[Network Nebraska](#) is comprised of three major sub-networks: The University of Nebraska Computing Services Network, State and County Government Network, and Network Nebraska-Education. Each network has its own management staff and backbones, but takes advantage of co-location facilities, Internet and telecommunications contracts, and shared infrastructure wherever possible.

Network Nebraska-Education has enabled the exchange of video distance learning classes and decreased the cost of commodity Internet for participating K-12 entities. Nebraska K-20 education now enjoys one of the lowest unit costs for commodity Internet in the entire country. Over 270 entities participate in Network Nebraska-Education. Network Nebraska-Education was recognized by the National Association of State CIOs (NASCIO) as an outstanding collaborative and partnership project in 2013.

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 stimulated investments in telecommunications infrastructure. As the State bid connectivity to large regional areas of schools and colleges, the telecommunications companies responded with new network technologies such as metropolitan optical Ethernet, multi-protocol label switching (MPLS), and Ethernet "clouds", which have provided benefits for other nonpublic entities. 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 to act as an anchor tenant.

The University of Nebraska Computing Services Network has also provided support and assistance to the Nebraska Statewide Telehealth Network which connects nearly all of Nebraska's hospitals and public health departments in one of the country's most extensive telehealth networks.

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 Nebraska Information Technology Commission.

**N**etwork Nebraska-Education has enabled the exchange of video distance learning classes and decreased the cost of commodity Internet for participating K-12 entities. Nebraska K-20 education now enjoys one of the lowest unit costs for commodity Internet in the entire country.

# Priority Areas and Recommendations

## Explore Ways to Leverage FirstNet and Next Generation 911 Investments

Two public safety-related initiatives—FirstNet and Next Generation 911—will require significant investments in broadband infrastructure. Ways to leverage these investments should be explored as plans are made.

**FirstNet** will provide mission-critical, high-speed data services to supplement the voice capabilities of current Land Mobile Radio (LMR) networks. It will be used to send data, video, images, and text. FirstNet will also carry location information and eventually support streaming video. FirstNet also plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives. The FirstNet network will not become a viable replacement for LMR until the availability of mission-critical voice functionality that meets or exceeds the needs of public safety agencies.

FirstNet is a federal initiative created by the Middle Class Tax Relief and Job Creation Act in 2012. The law gives FirstNet the duty to build, operate and maintain a high-speed, nationwide wireless broadband network for public safety communications. FirstNet is governed by a 15-member board composed of representatives from public safety; local, state, and federal government; and the wireless industry.

Nebraska received \$1.5 million in federal funding from the U. S. Department of Commerce National Telecommunications and Information Administration to support planning, consultation, and data collection activities. A kickoff for the Nebraska planning effort was held in December 2013 with 120 attendees. FirstNet will schedule a consultation with each state and will then present a plan to the Governor. Governors have 90 days in which to opt in to the FirstNet plan or to opt out and plan their own system.

**Next Generation 911** is the next stage in developing a 911 system compatible with today's communications technologies. 911 services have evolved from a system designed to receive location information on landline calls from telecommunications providers to Enhanced 911 systems which allow a Public Service Answering Point (PSAP) to determine the location of a wireless call origination to within 300 meters. Current technology locates a call to the center of the street, but not the building or location within a building.

Next Generation 911 is an Internet Protocol (IP)-based system designed to enable dispatchers to move data including photos and video to responders without negatively impacting response time. In 2013, the Legislature passed LB 595 to provide for a study of Next Generation 911. A final report of the study was presented to the Nebraska Public Service Commission in March 2014. Because the current statutory and regulatory framework for the management and funding of 911 services in Nebraska was not designed to support a statewide Next Generation 911 system, legislation may be needed regarding funding and governance.

---

*FirstNet will provide mission-critical, high-speed data services to supplement the voice capabilities of current Land Mobile Radio (LMR) networks.*

---

---

*Next Generation 911 is the next stage in developing a 911 system compatible with today's communications technologies.*

---

# Priority Areas and Recommendations

## Enhance the Capacity of Local Communities to Address Broadband Development

Local broadband-related development usually starts with government, businesses, and educational entities coming together to address the challenges facing the community or region. Broadband-related development doesn't require community leaders who know all of the answers. It does, however, require community leaders who have the passion and commitment to find the answers. A sense of hope for a better future helps sustain initial efforts. Collaborating on small projects builds trust and social capital. Community partners then work together on bigger projects which address:

- Technology adoption,
- Developing a skilled IT workforce,
- Innovation and entrepreneurship,
- Broadband availability and affordability,
- And quality of life.

This can lead to economic growth and job creation.

The following model shows the key elements of broadband-related development.

### Broadband-Related Development



The Nebraska Broadband Initiative is developing a community workbook which will help communities assess their broadband readiness and develop a broadband plan.

**B**roadband-related development doesn't require community leaders who know all of the answers. It does, however, require community leaders who have the passion and commitment to find the answers.

# Priority Areas and Recommendations

## Encourage the Development of a Skilled IT Workforce

The availability and development of a skilled IT workforce is a key need in Nebraska. As a response, institutions of higher education in Nebraska are making efforts to increase the number of IT graduates. Code schools in Omaha and Lincoln are also addressing the need for a skilled IT workforce by providing intensive training to participants over a 12-week period. However, many employers still report a shortfall. Businesses outside of Omaha and Lincoln may find it even harder to recruit IT employees.



**A mentor works with young people at the April 26 Coder Dojo in Lincoln.**

Efforts to engage young people to go into IT should start in grade school. Young people begin to form opinions of careers around third grade. However, many young people don't have a good idea of what IT workers do. There are several innovative programs, including both in school and after school programs, which are introducing students to coding. Resources like those from the [Khan Academy](#), MIT's [Scratch](#), and Google's [Made to Code](#) program can be used to teach coding to students.

Several programs target junior and high school students. [Nebraskacareertours.com](#) provides information on jobs in several industries including IT. Career academies and programs like [First Job Lincoln](#) can encourage students to choose a career in IT and help students develop the necessary skills to enter the IT workforce. [Code Crush](#) is a four-day five-night immersion experience for 8<sup>th</sup> and 9<sup>th</sup> grade girls to show them the world of IT. The event was hosted by the UNO College of Information Science and Technology in the spring of 2014 with support from Google and Women Investing in Nebraska.

Nationally, Code.org is encouraging states to count computer science towards high school math and science requirements for graduation. Twenty-three states now count computer science credits for graduation requirements.<sup>26</sup>

A skilled workforce also requires workers knowledgeable on software commonly used in businesses. The Nebraska Department of Education is partnering with Microsoft on a Microsoft Academy program to allow students to receive Microsoft Office Certification. The program includes training for teachers and site licenses for certifications. The program is expected to begin rolling out in the fall of 2014, beginning with the training of teachers. Students are expected to begin taking certification tests in the spring semester of 2015.

Intern Nebraska connects full-time students at Nebraska postsecondary educational institutions and Nebraska residents attending postsecondary educational institutions in other states with businesses and non-profit organizations looking for interns. As of spring 2014, 415 students have been placed with approximately 40% of the interns placed outside of the Omaha and Lincoln metropolitan areas. Approximately 50% of the interns are offered full-time positions.

*The availability and development of a skilled IT workforce is a key need in Nebraska.*

# Priority Areas and Recommendations

## Support Innovation and Entrepreneurship

Over the past several years, Nebraska has made significant progress in supporting technology-related development, innovation and entrepreneurship—especially in the Omaha and Lincoln areas—through University programs, code schools, accelerators, contests, conferences, meet ups, maker spaces, coworking facilities, and venture capital firms.

Smaller communities are also leveraging innovation and entrepreneurship to create jobs and economic growth. Xpansion has pioneered a rural sourcing model, providing a complete range of software quality assurance services in rural locations including Kearney, Nebraska; Loup City, Nebraska; Ames, Iowa; and Manhattan, Kansas. Brent Comstock, chief innovator and owner of Bcom Solutions, has started a coworking facility in Auburn. Alliance was the pilot site for [Bella Minds](#), a crowd-funded technology training program for digitally literate rural women who want to improve their technology skills.

### Nebraska's Ranking on State Entrepreneurship Index Climbs

Year	Ranking
2011	24
2012	16

Source: Thompson, E. & Walstad, W. State Entrepreneurship Index (Dec. 1, 2013) University of Nebraska-Lincoln Bureau of Business Research

**N**ebbraska has made significant progress in supporting technology-related development, innovation and entrepreneurship.

## What is a Maker Space?

A maker space is a space with tools and equipment where individuals can come together to work on projects and interact with others. It can be associated with a university, community college, high school, library, or just a group of individuals interested in making things. Maker spaces often charge a fee for access.

Maker spaces can lower the barriers to entry for startups by offering low-cost access to equipment which can be used to develop prototypes. The synergy created in maker spaces may be the biggest benefit, however.

Shane Farritor, a professor of mechanical and materials engineering and member of the committee, is leading the Maker Space effort at UNL's Innovation Campus.

"Nebraska is full of makers," Farritor said. "There are so many talented kids who grow up in rural areas building and creating things. It's one of the things I respect most about the state. It is also the reason why I believe the Maker Space will be a success."

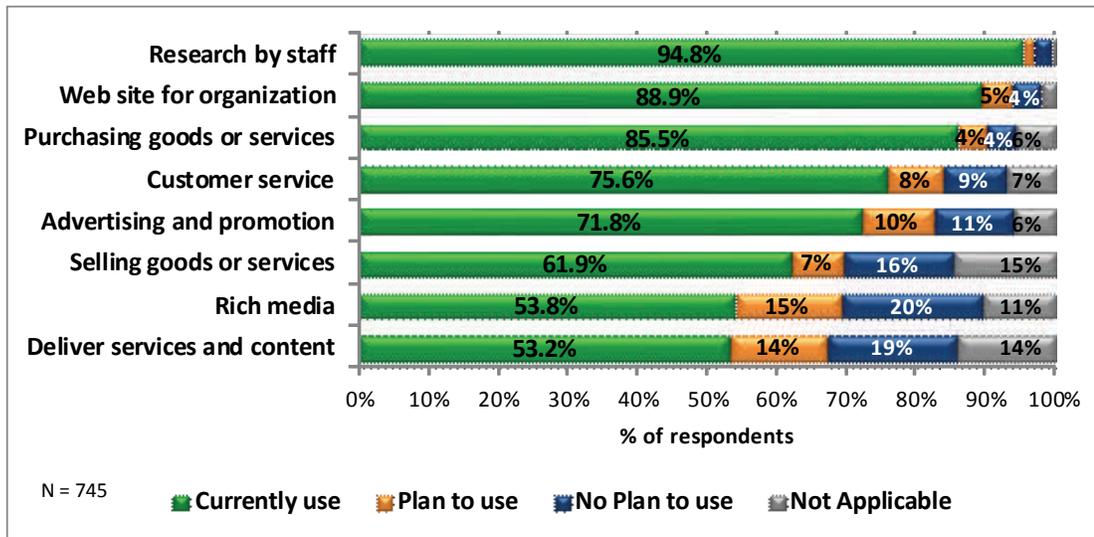
For more information on the UNL Maker Space and Club, visit [make.unl.edu](http://make.unl.edu). Other maker spaces in Nebraska include the [Omaha Maker Group](#) and [Metropolitan Community College Fab Lab](#).

# Priority Areas and Recommendations

## Support the Use of Broadband in Businesses and Agriculture

**Broadband Use in Nebraska Businesses.** Nearly all Nebraska businesses are using broadband access to the Internet to expand their markets and reduce costs, according to a 2013 survey of Nebraska businesses.<sup>27</sup> The chart below shows high usage levels of many business applications. Businesses in rural areas of the state on average, however, used fewer e-commerce applications than businesses in the Omaha and Lincoln areas.

### e-Commerce Uses of Broadband



Source: [Nebraska Broadband eSolutions Benchmarking Report, 2013](#)

Broadband use is having a positive impact on jobs with 364 respondents reporting a net increase of 654 jobs due to using the Internet. Over 50% of net jobs reported by respondents were attributed to use of the Internet. Broadband use is also having a positive impact on business revenue with typical respondents reporting 25 to 45 percent of revenue from the Internet.

Conferences, workshops, lunch and learn sessions, and other educational opportunities can help businesses keep up with new technologies. AIM's [InfoTec](#) conference draws over 1,000 attendees interested in learning more about the latest business technologies. Many of Nebraska's community colleges also offer classes on business technologies. Opportunities for training are often more limited in rural communities. The University of Nebraska-Lincoln Extension has helped to address this gap by offering workshops on e-commerce technologies in communities across the state.

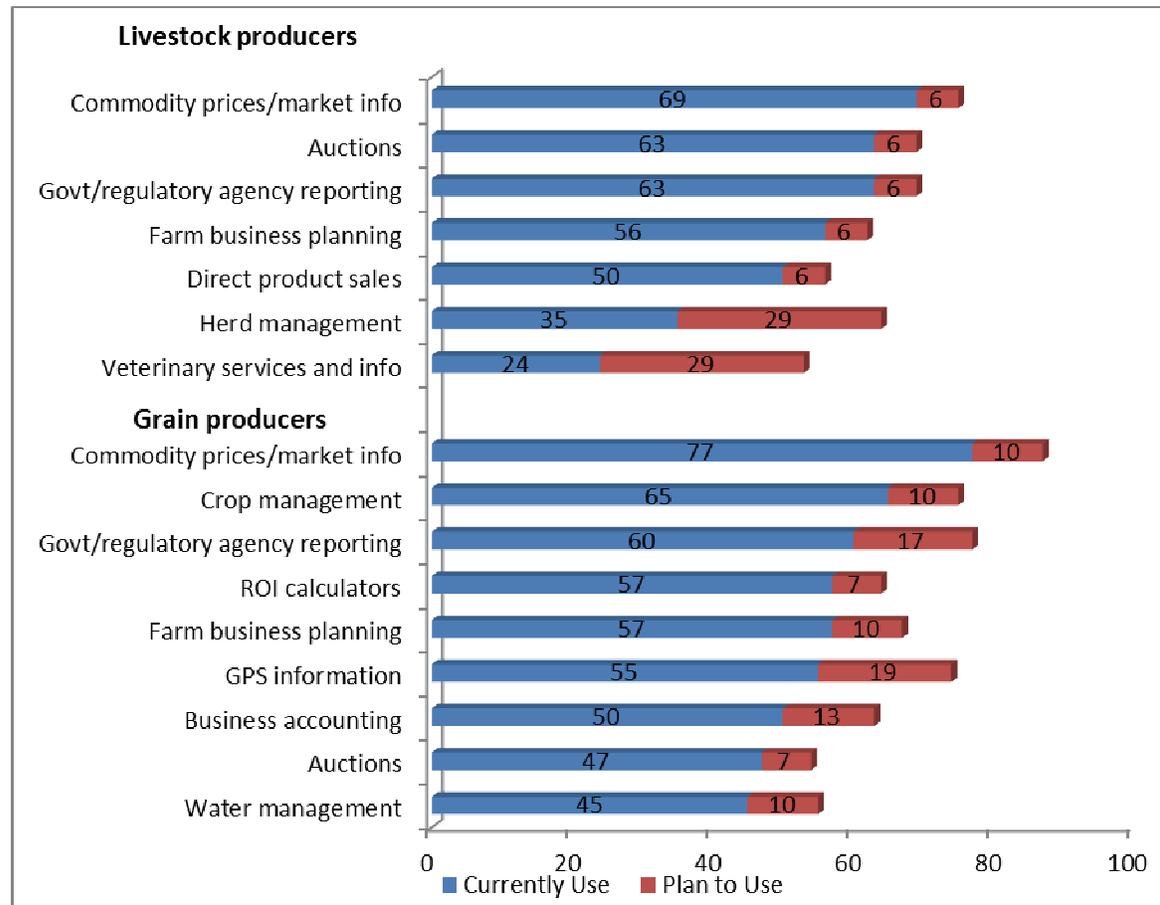
**N**early all Nebraska businesses are using broadband access to the Internet to expand their markets and reduce costs.

# Priority Areas and Recommendations

**Broadband Use in Agriculture.** Internet applications relying on broadband networks are becoming increasingly important for agricultural producers as shown in the chart below.<sup>28</sup>

**Use of Broadband Applications by Nebraska Agricultural Producers**

Internet applications relying on broadband networks are becoming increasingly important for agricultural producers .



Many smart farming technologies, including those utilizing GPS, may require a cellular connection. For example, precision guidance for row crop production requires GPS accuracy of +/- 1 inch. GPS correction through RTK (Real Time Kinematic) is often done through cellular connections. In some areas of the state, cellular coverage may be a barrier to utilizing RTK or other technologies. Anecdotal evidence suggests that some agricultural producers subscribe to two different carriers to get the coverage needed locally. Precision agriculture and remote sensing technologies produce large amounts of data. Limited upload speeds in some areas of the state may also present a barrier.

Conferences and workshops can help agricultural producers keep up to date on the latest technologies. The [Nebraska Agricultural Technology Association](#) is helping to meet this need by organizing an annual conference. In addition, University of Nebraska-Lincoln Extension Educators offer local programming on agricultural technologies. Broadband providers may also benefit from learning more about how agricultural producers are using broadband.

# Priority Areas and Recommendations

## Support the Development of Libraries as Community Anchor Institutions

Libraries are key partners in efforts to provide community anchor-based public access to the Internet, access to E-Government services, and training on computer applications. Often libraries are the only free access point in a community, bridging the digital divide between those that have access and those who do not. Thirty-two percent of the households in Nebraska without Internet access use the computer resources at a library or other public use facility.<sup>29</sup> Other community anchor institutions use broadband as infrastructure whereas public libraries provide broadband as a service, as well as infrastructure for increasingly bandwidth intensive applications.<sup>30</sup>

Through a three-year Library Broadband Builds Nebraska Communities grant awarded to the Nebraska Library Commission in 2010, libraries in Nebraska significantly improved their capacity to provide public access to computers and the Internet. 147 library outlets serving high proportions of vulnerable and underserved populations participated in the project, receiving computers, software and other hardware, as well as broadband upgrades. The Nebraska Library Commission is partnering with the University of Nebraska-Lincoln to provide additional training for library staff on common computer applications so that they can better answer technology questions from library customers. The grant has helped library staff and customers view libraries in a new light. Libraries are growing in their capacity to serve as essential digital connectors and vibrant community hubs for people to meet, learn, grow and exchange ideas together.

The national Edge Initiative is a resource for libraries in Nebraska and across the United States to help libraries and local government work together to assess how they are using technology and the technology needs of the community. This initiative also provides resources to help libraries develop a plan to achieve community goals and better meet the technology needs of the community.

Libraries may be challenged by several factors, including:

- Insufficient technical support,
- Need for staff training on technology applications,
- Funding to replace aging computers,
- Growing demand for greater broadband speeds,
- Distance from a community's last-mile broadband infrastructure.

The NITC Community Council is working with libraries and the Nebraska Library Commission to verify the landscape of Nebraska libraries serving as community anchor institutions and to identify and highlight new models for providing technical support and advanced broadband capabilities and services.

*Libraries are growing in their capacity to serve as essential digital connectors and vibrant community hubs for people to meet, learn, grow and exchange ideas together.*

# Priority Areas and Recommendations

## Support the Use of Broadband in Education and Health Care

Technology-related development crosses all sectors in a community, including education and health care. In many communities, schools and health systems may be among the largest users of telecommunications services.

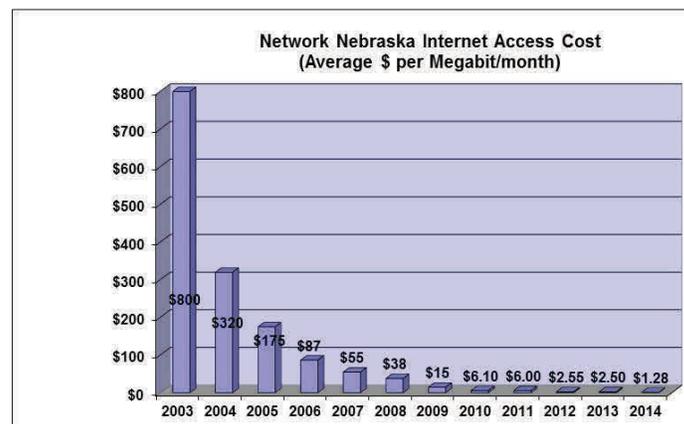
**Education.** The state's education network, Network Nebraska-Education, has enabled the exchange of video distance learning classes and decreased the cost of commodity Internet for participating K-12 entities. Nebraska K-20 education now enjoys one of the lowest unit costs for commodity Internet in the entire country. The deployment of 1:1 computing devices in schools and the migration to digital content and online assessments are significantly increasing broadband utilization by schools. The federal E-rate program provides discounts to assist most schools and libraries in the United States to obtain affordable telecommunications and broadband access.

Network Nebraska-Education acts as an anchor tenant by leasing facilities from telecommunications providers. As a result, investments made in the state's telecommunications infrastructure by the private sector to support Network Nebraska-Education benefit other customers as well.

Schools also play a role in providing opportunities for students to learn computer applications and coding. IT focus programs and career academies can encourage students to choose a career in IT and help students develop the necessary skills to enter the IT workforce.



Network Nebraska-Education was recognized by the National Association of State CIOs as an outstanding collaborative project in 2013. Tom Rolfes and Jayne Scofield are pictured receiving the award. The graph below shows the average Internet access cost from 2003-2014.



*The state's education network, Network Nebraska-Education, has enabled the exchange of video distance learning classes and decreased the cost of commodity Internet for participating K-12 entities.*

# Priority Areas and Recommendations

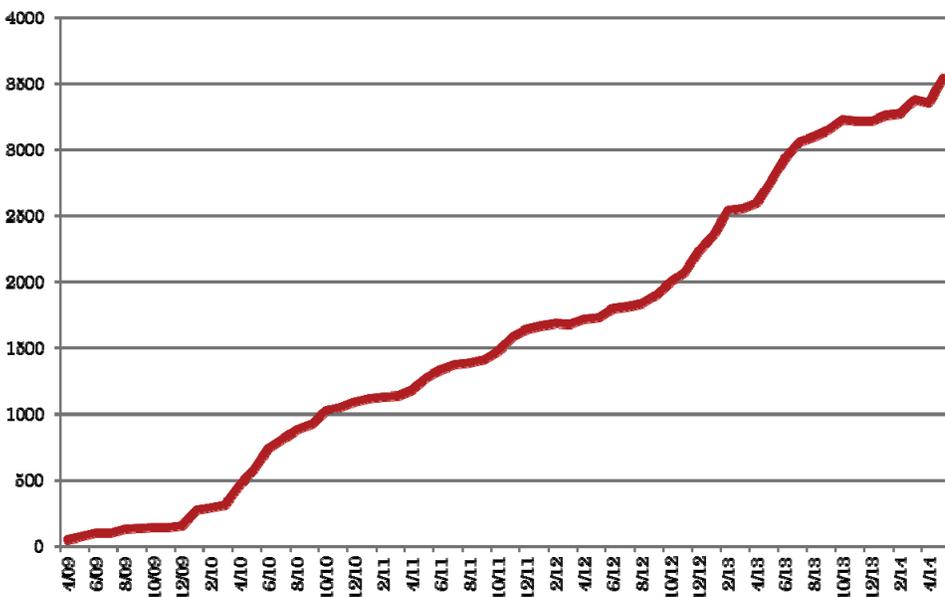
**Health Care.** Health IT is impacting the way health care is delivered and managed. Electronic health records and health information exchange are making it easier for physicians and other health care providers to have more complete patient information at the point of care. Telehealth is making consultations with specialists more accessible to those living in rural Nebraska. Remote monitoring technologies are helping to reduce hospital readmissions. Patient portals, personal health records, and other applications are helping patients better manage their health care. Several of these emerging health applications will require patients and/or their care givers to have broadband access and the skills to use these applications. As these technologies mature and become more widely adopted, health IT may become broadband's next killer app.

The [Nebraska Statewide Telehealth Network](#) connects nearly all of the state's hospitals and all of the state's public health departments. The network is used for patient consultations via interactive video, teleradiology, administrative meetings and continuing medical education.

Nebraska is a leader in exchanging health information. [NeHII](#) (the Nebraska Health Information Initiative) is one of the largest statewide health information exchanges in the country. By using NeHII, a doctor in an emergency room can view a patient's medication history, avoiding an adverse drug event. A patient's primary care physician and any specialists involved in his/her care can both have access to a patient's latest lab results and medications. The following graph shows the growth in the number of NeHII users since 2009.

*Health IT is impacting the way health care is delivered and managed.*

**NeHII Virtual Health Record Users**



## Priority Areas and Recommendations

### Support the Use of Broadband by Government and Public Safety Entities

From driver's licenses to marriage licenses to pet licenses to property taxes and parking tickets, citizens and residents interact with local governments on a regular basis. Citizens expect to find information online and to complete transactions online. Local government websites also often serve as a source of more general community information for residents, visitors, and prospective residences.

**C**itizens expect to find information online and to complete transactions online.

Funding and the ability to accept payment by credit card are two of the major barriers to implementing e-government services by Nebraska municipalities and counties, according to 2012 surveys of members of the Nebraska Association of County Officials and Nebraska League of Municipalities.<sup>31</sup>

Two public safety-related initiatives—FirstNet and Next Generation 911—are also impacting first responders and public safety entities. FirstNet is a federal initiative to provide mission-critical, high-speed data services to supplement the voice capabilities of current Land Mobile Radio (LMR) networks. It will be used to send data, video, images, and text. FirstNet will also carry location information and eventually support streaming video. FirstNet also plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives. Nebraska received \$1.5 million in federal funding from the U. S. Department of Commerce National Telecommunications and Information Administration to support planning, consultation, and data collection activities.

Next Generation 911 is the next stage in developing a 911 system compatible with today's communications technologies. The Internet Protocol (IP)-based Next Generation 911 system is designed to enable dispatchers to move data including photos and video to responders without negatively impacting response time.

# Priority Areas and Recommendations

## Support Efforts to Attract New Residents and Retain Youth

Broadband availability and technology-related development are seen by many—especially in Nebraska’s rural areas—as key components for attracting new residents and retaining youth. Survey research conducted through the Nebraska broadband initiative supports the importance of broadband to retain and attract both youth and businesses. A survey of Nebraska businesses in the fall of 2013 found that over one-half of the businesses rated the availability of broadband Internet access as either very essential (38%) or very important (14%) in selecting their location. Furthermore, 64% of respondents said broadband is essential for remaining in their current location. A survey of Northeast Nebraska high school students in the spring of 2012 indicated that the lack of broadband capacity and speed could inhibit this population from staying or returning to the region. Over one-half (57%) of Northeast Nebraska high school students who answered the online survey reported that having broadband in their community would help entice them to live and work here.

Strategies to attract new residents and retain youth include:

- Recruiting technology companies. Xpansion has rural sourcing locations in Kearney and Loup City and Phynd Technologies recently located in Kearney.
- Attracting lone eagles and telecommuters who can work anywhere remotely.
- Helping local businesses increase revenue and create jobs by utilizing broadband technologies.
- Facilitating recruitment by developing an effective web and social media presence which highlights available jobs and provides community information
- Supporting the development of new businesses.
- Making the community more welcoming and attractive to new residents and youth.

**B**roadband availability and technology-related development are seen by many—especially in Nebraska’s rural areas—as key components for attracting new residents and retaining youth.

# Priority Areas and Recommendations

## Increase Digital Literacy and Broadband Access to the Internet

Technology-related development requires widespread adoption of broadband technologies. Most households in Nebraska (82%) have broadband access to the Internet, according to a 2014 survey of Nebraska households. However, there are significant rural-urban differences in broadband adoption. Ninety percent of households in the Lincoln area and 87% of households in the Omaha have broadband access to the Internet. In comparison, the percentage of households with broadband access to the Internet in other regions of the state ranges from 72% to 77%.<sup>32</sup>

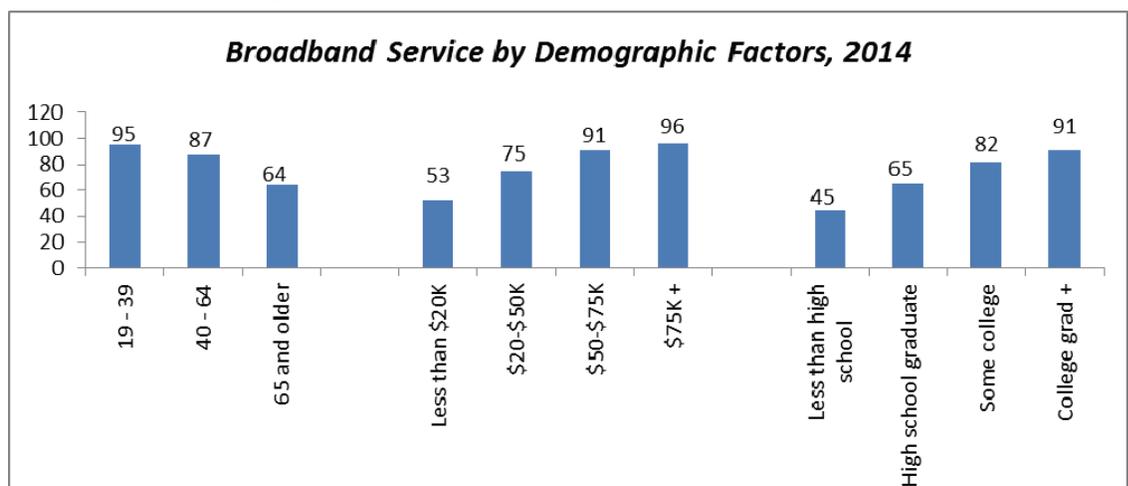
**T**echnology-related development requires widespread adoption of broadband technologies.

Older adults, those with lower incomes and those with lower levels of income are also less likely to have broadband access to the Internet at home as shown in the graph below.

Public libraries and other organizations play a vital role in providing public access to computers and the Internet. Access to the Internet and a computer has now become necessary for a whole range of activities from applying for jobs to downloading tax forms. Public libraries also often provide much-needed training to those new to computers and those who want to update their skills. Innovative partnerships between libraries, community colleges, and other entities can also help small businesses whose employees need training on basic computer applications. Additionally, some telecommunications providers offer low-cost broadband service and free training to low-income consumers.

Broadband Access to the Internet at Home	2014
Nebraska Households with Broadband Access to the Internet at Home	82%
<b>By Region</b>	
Lincoln Area	90%
Omaha Area	87%
Southeast	77%
South Central	76%
West Central	74%
Panhandle	73%
Central	73%
Northeast	72%

\*For the survey, broadband was defined as anything faster than dial-up.



# References

- <sup>1</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>2</sup>Whitacre, B., Gallardo, R., Stover, S. (March 26, 2013). Broadband's contribution to economic health in rural areas: A causal analysis and an assessment of the 'Connected Nation' program. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2239876](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239876)
- <sup>3</sup>National Broadband Map ([www.broadbandmap.gov](http://www.broadbandmap.gov)) accessed August 1, 2014. Data from Dec. 31, 2013.
- <sup>4</sup>Map created by Cullen Robbins, Nebraska Public Service Commission.
- <sup>5</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>6</sup>Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>
- <sup>7</sup>Vogt, R., Narjes, C., Byers, A. & Hancock, C. (July 16, 2014). Technology use in agriculture. Cornhusker Economics. Retrieved from <http://agecon.unl.edu/cornhuskereconomics>
- <sup>8</sup>Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>.
- <sup>9</sup>Data from broadbandmap.gov. Data as of Dec. 31, 2013.
- <sup>10</sup>National Center for Educational Statistics IPEDS Data Center <http://nces.ed.gov/ipeds/datacenter/Default.aspx>. Data accessed and analyzed by the Nebraska Department of Economic Development.
- <sup>11</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>12</sup>Google. (2014). Economic Impact Report-Nebraska 2013. Retrieved from <http://www.google.com/economicimpact/reports/ne.html>
- <sup>13</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>14</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>15</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>16</sup>Ericsson. (2011). Analyzing the effect of broadband on GDP. Retrieved from <http://www.ericsson.com/res/thecompany/docs/corporate-responsibility/2013/socioeconomic-effect-of-broadband-speed.pdf>
- <sup>17</sup>Whitacre, B., Gallardo, R., Stover, S. (March 26, 2013). Broadband's contribution to economic health in rural areas: A causal analysis and an assessment of the 'Connected Nation' program. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2239876](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239876)
- <sup>18</sup>Whitacre, B., Gallardo, R., Stover, S. (March 26, 2013). Broadband's contribution to economic health in rural areas: A causal analysis and an assessment of the 'Connected Nation' program. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2239876](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239876)
- <sup>19</sup>National Broadband Map ([www.broadbandmap.gov](http://www.broadbandmap.gov)) accessed August 1, 2014. Data from Dec. 31, 2013.
- <sup>20</sup>Map created by Cullen Robbins, Nebraska Public Service Commission
- <sup>21</sup>Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>22</sup>Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>

# References

---

- <sup>23</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>24</sup> Vogt, R., Narjes, C., Byers, A. & Hancock, C. (July 16, 2014). Technology use in agriculture. Cornhusker Economics. Retrieved from <http://agecon.unl.edu/cornhuskereconomics>
- <sup>25</sup> Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov> and Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>26</sup> See <https://code.org/action>.
- <sup>27</sup> Strategic Networks Group. (Jan. 31, 2014). Nebraska broadband eSolutions benchmarking report. Retrieved from <http://broadband.nebraska.gov>
- <sup>28</sup> Vogt, R., Narjes, C., Byers, A. & Hancock, C. (July 16, 2014). Technology use in agriculture. Cornhusker Economics. Retrieved from <http://agecon.unl.edu/cornhuskereconomics>
- <sup>29</sup> Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>
- <sup>30</sup> Grimes, J., Bertot, J., & Lincoln, R. (May 14, 2012). Public libraries and the national broadband map: Findings and Recommendations. Retrieved from [http://ipac.umd.edu/Files/CAI\\_NBM\\_final\\_15May2012.pdf](http://ipac.umd.edu/Files/CAI_NBM_final_15May2012.pdf)
- <sup>31</sup> See <http://broadband.nebraska.gov/economicssurveys>.
- <sup>32</sup> Vogt, R., Byers, A., Hancock, C., Narjes, C., & Terry, R. (April 2014). Internet connectivity and use in Nebraska: A follow up study. Retrieved from <http://broadband.nebraska.gov>

# NITC Commissioners and Staff

---

## Commissioners

**Governor's Designee**, Chair

**Dr. Terry Haack**, Superintendent, Bennington Public Schools

**Donna Hammack**, Chief Development Officer, Saint Elizabeth Foundation

**Dorest Harvey**, USSTRATCOM/AFLCMC-HBCC

**Randy Meininger**, Mayor, City of Scottsbluff

**Brad Moline**, President, Allo Communications

**Dan Shundoff**, Chief Executive Officer, Intellicom

**Gary Warren**, President of Services Corporation, Hamilton Telecommunications

**Senator Dan Watermeier**, Nebraska Legislature

**Walter Weir**, Chief Information Officer, University of Nebraska

## Staff

**Brenda Decker**, Chief Information Officer

**Rick Becker**, Government Information Technology Manager

**Anne Byers**, eHealth and Community Information Technology Manager

**Tom Rolfes**, Education Information Technology Manager

**Nathan Watermeier**, State GIS Coordinator

**Lori Lopez Urdiales**, Administrative Assistant

# NITC Community Council Members

---

**Rod Armstrong, Co-Chair**, AIM, Lincoln

**Phil Green, Co-Chair**, City of Blair

## **Rural and Community IT Development**

**Jay Anderson**, NebraskaLink (nominated)

**Norene Fitzgerald**, Community Developer (retired)

**Darla Heggem**, Twin Cities Development

**Joan Modrell**, Department of Labor

**Pam Adams**, American Broadband

**Randy Bretz**, TEDxLincoln Curator

**Dave Hahn**, Nebraska Information Network

**Connie Hancock**, University of Nebraska-Lincoln Extension

**Jacob Knutson**, Department of Economic Development

**David Lofdahl**, IT Consultant

**Monica Lueking-Crowe**, Furnas Harlan Partnership

**Marion McDermott**, Kearney Area Chamber of Commerce

**Megan McGown**, City of Sidney

## **Local Government and Libraries**

**Chris Anderson**, City of Central City

**Brett Baker**, City of Seward

**Jessica Chamberlain**, Norfolk Public Library

**Steve Fosselman**, Grand Island Public Library

**Steve Henderson**, City of Lincoln

**Holly Woldt**, Nebraska Library Commission

# Broadband Plan Work Group Members

---

## **Economic Development Work Group**

**Pam Adams**, American Broadband  
**Rod Armstrong**, AIM  
**Brett Baker**, City of Seward  
**Randy Bretz**, TEDxLincoln Curator  
**Anne Byers**, Nebraska Information Technology Commission  
**Kathy Carstenson**, Pinpoint  
**Deb Cottier**, Nebraska Northwest Development Corporation  
**Keith Ellis**, Nebraska Public Power District  
**Terry Eriksen**, Northeast Nebraska Telephone Company  
**Connie Hancock**, University of Nebraska-Lincoln Extension  
**Jacob Knutson**, Nebraska Department of Economic Development  
**Kim Kuhle**, US Bank  
**David Lofdahl**, RYG Consulting  
**Monica Lueking-Crowe**, Furnas Harlan Partnership  
**Marion McDermott**, Kearney Area Chamber of Commerce  
**Megan McGown**, City of Sidney  
**Roger Meeks**, USDA  
**Tim Miller**, St. Francis Medical Center  
**Joan Modrell**, Nebraska Department of Labor  
**Charlotte Narjes**, University of Nebraska-Lincoln  
**Al Selby**, Glenwood Telephone Company  
**Alyssa Silhacek**, Nebraska Northwest Development District  
**Rebecca Vogt**, University of Nebraska-Lincoln  
**Carroll Welte**, University of Nebraska-Lincoln Extension  
**Roger Wess**, Chadron State College (retired)

## **Adoption and Digital Literacy Work Group**

**Pam Adams**, American Broadband  
**Brett Baker**, City of Seward  
**Jessica Chamberlain**, Norfolk Public Library  
**Anne Byers**, Nebraska Information Technology Commission  
**Deb Cottier**, Nebraska Northwest Development Corporation  
**Terry Eriksen**, Northeast Nebraska Telephone Company  
**Patrick Haggerty**, CenturyLink  
**Connie Hancock**, University of Nebraska-Lincoln Extension  
**Steve Henderson**, City of Lincoln  
**David Lofdahl**, RYG Consulting  
**Tim Miller**, St. Francis Medical Center  
**Roger Meeks**, USDA  
**Joan Modrell**, Nebraska Department of Labor  
**Charlotte Narjes**, University of Nebraska-Lincoln  
**Carroll Welte**, University of Nebraska-Lincoln Extension  
**Roger Wess**, Chadron State College (retired)

# Broadband Plan Work Group Members

---

## **Broadband Availability and Affordability Work Group**

**Chris Anderson**, City of Central City  
**Brett Baker**, City of Seward  
**Anne Byers**, Nebraska Information Technology Commission  
**Kathy Carstenson**, Pinpoint  
**Jessica Chamberlain**, Norfolk Public Library  
**Deb Cottier**, Nebraska Northwest Development Corporation  
**Patrick Haggerty**, CenturyLink  
**Dave Hahn**, Nebraska Information Network  
**Connie Hancock**, University of Nebraska-Lincoln Extension  
**Gene Hand**, Nebraska Public Service Commission  
**Steve Henderson**, City of Lincoln  
**Ryan Kuesler**, Skywave  
**Debby Larson**, Al Larson Dist.  
**David Lofdahl**, RYG Consulting  
**Paul Ludwick**, NebraskaLink  
**Joselyn Luedtke**, Nebraska Legislature  
**Roger Meeks**, USDA  
**Tim Miller**, St. Francis Medical Center  
**Joan Modrell**, Nebraska Department of Labor  
**Cullen Robbins**, Nebraska Public Service Commission  
**Tom Rolfes**, Nebraska Information Technology Commission  
**Tom Schommer**, Telebeep Wireless  
**Al Selby**, Glenwood Telephone Company  
**Troy Stickels**, Glenwood Telephone Company  
**Art Tanderup**, Farmer  
**Carroll Welte**, University of Nebraska-Lincoln Extension  
**Roger Wess**, Chadron State College (retired)  
**Holly Woldt**, Nebraska Library Commission

# Broadband Plan Work Group Members

---

## **Broadband and Agriculture Work Group**

**Brett Baker**, City of Seward

**Lou Bohn**, Nebraska Agriculture Technology Association

**Brittany Bolte**, Yield Plus Agronomics

**Anne Byers**, Nebraska Information Technology Commission

**Kathy Carstenson**, Pinpoint

**Patrick Cast**

**Rich Douglass**, Nebraska Agriculture Technology Association

**Terry Eriksen**, Northeast Nebraska Telephone Company

**Connie Hancock**, University of Nebraska-Lincoln Extension

**Jay Jenkins**, University of Nebraska-Lincoln Extension

**Dennis Kahl**, University of Nebraska-Lincoln Extension

**David Lofdahl**, RYG Consulting

**Beau Matthewson**, Ag Producer/Rancher

**Roger Meeks**, USDA

**Charlotte Narjes**, University of Nebraska

**Duane Nelson**, NMC Technologies

**Dave Olsen**

**Tom Rolfes**, Nebraska Information Technology Commission

**Randy Saner**, University of Nebraska-Lincoln Extension

**Art Tanderup**, Farmer

**Roger Terry**, University of Nebraska-Lincoln

**Carroll Welte**, University of Nebraska-Lincoln Extension

**Roger Wess**, Chadron State College (retired)

# Nebraska Broadband Initiative

---

**The Nebraska Broadband Initiative** ([broadband.nebraska.gov](http://broadband.nebraska.gov)) promotes the adoption and utilization of broadband in Nebraska. Project partners include the Nebraska Public Service Commission, University of Nebraska-Lincoln, Nebraska Information Technology Commission, Nebraska Department of Economic Development, and AIM. Activities include the development of a state broadband map ([broadbandmap.nebraska.gov](http://broadbandmap.nebraska.gov)), state broadband conferences, videos highlighting how broadband is being used in Nebraska communities, surveys of households and businesses, regional broadband plans, community planning materials, and these recommendations.

## **Nebraska Broadband Initiative Planning Team**

**Rod Armstrong**, AIM

**Anne Byers**, Nebraska Information Technology Commission

**Connie Hancock**, University of Nebraska-Lincoln Extension

**Gene Hand**, Nebraska Public Service Commission

**Alison Hatch**, Nebraska Department of Economic Development

**Jan Jackson Cejka**, University of Nebraska-Lincoln

**Jim Keeler**, University of Nebraska-Lincoln

**Charlotte Narjes**, University of Nebraska-Lincoln

**Cullen Robbins**, Nebraska Public Service Commission

**Roger Terry**, University of Nebraska-Lincoln

**Rebecca Vogt**, University of Nebraska-Lincoln





## Broadband in Nebraska

### Current Landscape and Recommendations

2014



October 22, 2014

**To:** NITC Commissioners  
**From:** Anne Byers  
**Subject:** eHealth Council Report

**NeHII Update.** In mid-October, the Centers for Medicare and Medicaid Services (CMS) approved the request for 90/10 matching Medicaid funding to support the expansion of NeHII and development of new functionality. The request was originally submitted to the Centers for Medicare and Medicaid Services by Nebraska's Medicaid program in July 2013. The funding will be used to bring on additional hospitals, practices, and federally qualified health centers. New functionality funded by the request includes:

- Enabling additional hospitals and providers to exchange data with the immunization registry;
- Enabling a facility or ambulatory practice to send a Transition of Care document to the health information exchange;
- Setting up the public health gateway which will enable syndromic surveillance and lab reporting through NeHII;
- Enabling diagnosis and allergy information to be displayed for NeHII participants.

NeHII has recently begun implementing Direct secure messaging. Forty-five Direct users are currently signed up.

**eHealth Council Update.** For the past five years, the eHealth Council has focused on preparing for and implementing the \$6.8 million State Health Information Agreement received from the U.S. Department of Health and Human Services Office of the National Coordinator for Health IT. Now that the grant has been completed, the Council needs to refocus and reexamine its membership. The eHealth Council will discuss those issues at their next meeting on Nov. 13.

October 23, 2014

**To:** NITC Commissioners

**From:** Nathan Watermeier, State GIS Coordinator  
Josh Lear, Chair, GIS Council  
Bill Wehling, Vice-Chair, GIS Council

**Subject:** GIS Council Report

### **Approval of Standards**

**Action: Approve modifications to existing NITC 3-201 Geospatial Metadata Standards**

**Technical Panel Recommendation: Approve**  
**GIS Council Recommendation: Approve**

Metadata standards have been developed specific to the needs of Nebraska stakeholders while maintaining compliance with the metadata standards from the Federal Geographic Data Committee (FGDC). These standards were originally adopted on September 23, 2005 in have recently been updated to include changes in ISO data standards endorsed by the FGDC. No comments were received through the recent 30-day public review process initiated by the Technical Panel.

**Action: Approve NITC 3-203 Elevation Acquisition Using LiDAR Standards**

**Technical Panel Recommendation: Approve**  
**GIS Council Recommendation: Approve**

These standards are new and are intended for entities participating in collaborative efforts to acquire airborne LiDAR elevations that may contribute to a comprehensive statewide elevation dataset in Nebraska. The standards are derived from the U.S. Geological Survey (USGS) National Geospatial Program's (NGP) LiDAR Base Specification Version 1.0. In addition, the standard emphasizes particular requirements and needs for Nebraska that are not available in USGS standards and where additional clarity is needed. No comments were received through the recent 30-day public review process initiated by the Technical Panel.

**Action: Approve NITC 3-204 Imagery Standards**

**Technical Panel Recommendation: Approve**  
**GIS Council Recommendation: Approve**

These standards are new and are designed for future statewide aerial imagery acquisition efforts that meet verified minimum horizontal accuracy requirements for a spatial resolution of 12 inch, preferably flown during the "leaf-off" period for trees. The requirements from federal standards (i.e., National Emergency Number Association) are also driving the need for greater spatial accuracy of imagery in order to meet needs to develop and create street centerline and address points. No comments were received through the recent 30-day public review process initiated by the Technical Panel.

### **Street Centerline and Address Standards**

Standards have been developed for Street Centerline (NITC 3-205) and Address (NITC 3-206). These standards were sent out for public review during the summer and received no comments. The GIS Council made additional changes to these standards and sent out again for another 30-day review. A couple of comments were received during that review period at the deadline date but it did not provide ample time to review before the Technical Panel meeting. These standards have been tabled until the Technical Panel meets again.

## **Membership**

**Action: Approve nomination of Eric Herbert of Sarpy County to fill Omaha Metro GIS Council seat.**

The Omaha Metro seat expired in September 2014. The Omaha Metro seat is nominated by representatives of the Omaha Metro area then nominated to the NITC. A selection committee has been formed and nominations have been provided to the committee. The selection committee is putting the nomination forward for Eric Herbert, Sarpy County to fill the seat of Omaha Metro.

## **Strategic Initiative Update**

Elevation – The Elevation Business Plan is in a draft version and is currently out for initial review. The working group also submitted a pre-proposal for LiDAR acquisition through the new United States Geological Survey (USGS) 3D Elevation Program. The proposal covers almost a 4,500 square mile area in western Nebraska that abuts Colorado and Wyoming. A dialogue has started with various partners in western Nebraska to support future LiDAR acquisition projects.

Land Records – Progress continues on the few counties willing to share data with the state for the statewide parcel database. This database has many uses and applications to support state business needs. There were several concerns raised by the GIS Council at their last meeting on the lack of response and misinterpretation of information about our public records request for this data back in June. The working group will be meeting in November to continue to identify next steps to follow-up on the public records request and educating the counties on the effort.

Street Centerline Address Database - The State has acquired a statewide site license for all consumer and business address and demographic data to fulfill current state government business needs. This will not only support general needs across all agencies but also assist the future development of addressing points to be used in combination with the street centerline database. A subset of this data for several counties was provided early on to us to support team efforts on the ground following the Pilger tornado.

NebraskaMAP - OCIO has hired a new temporary person to assist the inventory and assessment of the NESDI data layers. This person is also working to enhance components of NebraskaMAP. The working group is currently working on the business plan draft. An initial review of the draft will be made available in November to the GIS Council.

# NITC 3-201

# Geospatial Metadata Standard

---

**Review Version 2.0**  
**(Date 9.3.2014)**

Category: Data and Information Architecture

Applicability: See Each Section of Standards

History: Adopted on June 23, 2005, URL links updated on June 27, 2013



**NEBRASKA INFORMATION TECHNOLOGY COMMISSION GIS COUNCIL**

---

# TABLE OF CONTENTS

---

<b>1.0 Standard</b> .....	<b>1</b>
1.1 Steps/Timeline for Implementation .....	1
1.2 Maintenance.....	1
<b>2.0 Purpose and Objectives</b> .....	<b>1</b>
2.1 Background .....	<del>11</del>
2.2 Objectives .....	<del>22</del>
<b>4.0 Applicability</b> .....	<b><del>43</del></b>
4.1 State Government Agencies .....	<del>43</del>
4.2 State Funded Entities .....	<del>43</del>
4.3 Other .....	<del>43</del>
<b>5.0 Responsibility</b> .....	<b><del>54</del></b>
5.1 NITC.....	<del>54</del>
5.2 State Agencies.....	<del>54</del>
5.3 Granting Agencies and Entities .....	<del>54</del>
5.4 Other .....	<del>54</del>
<b>6.0 Authority</b> .....	<b><del>54</del></b>
6.1 NITC GIS Council.....	<del>54</del>
<b>7.0 Related Documents</b> .....	<b><del>55</del></b>

## 1.0 Standard

All state agencies and entities that receive state funding used, directly or indirectly, for geospatial data development or maintenance shall ensure that geospatial data it collects, produces, maintains, or purchases and which is used for policy development, implementation, or compliance review is documented with metadata compliant with the latest version of the [ISO 19115:2003 group of metadata standards for geographic information](#). Metadata created for datasets using Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata [or other standards will need to be translated, updated, or recreated using the ISO 19115 standards.](#)

### 1.1 Steps/Timeline for Implementation

- a. State agencies and other applicable state funded entities shall institute procedures for complying with standard for new geospatial data development or acquisition upon adoption of standard by the NITC.
- b. State agencies shall complete initial listing of existing, applicable geospatial data holdings within three months of the adoption of standard by NITC.
- c. State agencies shall complete metadata-lite documentation of existing, applicable geospatial data holdings within six months of the adoption of standard by NITC. [More information about metadata-lite is identified in section 3.0 Definitions.](#)
- d. State agencies shall complete [FGDC ISO 19115](#)-compliant metadata documentation of existing and applicable geospatial data holdings within 12 months of the adoption of standard by NITC.

### 1.2 Maintenance

[The reporting of maintained metadata is important to assure correct documentation and support for intended uses of the data. Entities responsible for creating geospatial data will need to assure metadata is updated and maintained on an ongoing basis and in a timely manner. When modifications to the spatial or attribute data is completed the metadata information will also need to be updated. If necessary, these changes will need to be provided to the appropriate entity\(s\) responsible for performing quality control and maintenance of the metadata.](#)

#### 1.2.1 Reporting Errors and Handling Updates

[The reporting of errors need to be directed to the primary contact identified in the metadata in a timely manner. Updated spatial and attribute information in the data will also need to be redistributed. The date field in the metadata when the last record was modified will also need to be updated to ensure proper records management and communication with others in the workflow.](#)

## 2.0 Purpose and Objectives

The purposes of this standard is to preserve the public's investment in geospatial data, to save public resources by avoiding unnecessary duplication of expensive geospatial data acquisition, to minimize errors through inappropriate application of geospatial data, and to facilitate harmonious trans-agency public policy decision-making and implementation through the use of shared geospatial data.

### 2.1 Background

Broadly defined, geospatial data is any data that includes locational or positional information about features in the dataset. Geospatial data provides the data foundation for applications of Geographic Information System (GIS) technology.

The development and maintenance of geospatial data is usually the most expensive component in the implementation of GIS technology. In most cases, this high initial investment is justifiable because of the powerful capabilities of the technology and the fact that, if appropriately maintained, the data will be useful for a very long period, and in many cases, for a wide range of applications.

Most geospatial datasets include numerous attributes and parameters that relate to data variables, methodologies and assumptions. Knowledge and understanding of the implications of these variables is a key to the appropriate utilization of that data. Without appropriate documentation, this specialized knowledge usually resides only in the memory of the GIS specialist(s) who developed the original data. Because of the power of the GIS technology, geospatial analysis is increasingly being used to develop and implement a wide range of public policy. In many cases, these public policy applications endure long past the availability of the GIS-specialist(s) who developed one or more of the original geospatial datasets upon which the public policy and its subsequent implementation are based. Without appropriate documentation of attributes and parameters of a geospatial dataset assumptions and variables, it may be difficult for an agency to determine the appropriate use of a dataset after the GIS specialist who originally created the data is no longer available. Without this documentation, it may also be difficult to appropriately maintain the dataset and therefore maintain the value of the original public investment in the data. In the case of a legal challenge to a public policy or its implementation, for which geospatial data application is integral, it may be difficult to defend that application if the original data developer is no longer available and the dataset was not appropriately documented.

Due to the relatively high costs of developing and maintaining many geospatial datasets, it is important that public investments in this data are undertaken in a manner to maximize the long-term return on these public investments. Appropriately documenting a dataset is one way to ensure a dataset's long-term usability. It is also a key to enabling the use of that dataset for multiple applications by multiple users. Without documentation, it is difficult for other users within the same agency, in other state agencies, or other public entities at various levels of government to be confident they are appropriately utilizing a geospatial dataset.

One of the great strengths of GIS technology is the ability to integrate and analyze disparate data based on its common or adjacent location. GIS has evolved to be a mainstream technology, used for a very wide range of applications, highly integrated with other information technology, and employed by users with a wide range of technical expertise and knowledge. As GIS has evolved, users now routinely access geospatial data, via the Internet, from multiple sources and integrate that data with other geospatial data and make public policy decisions based on analysis of the interaction of those datasets. Only when a geospatial dataset is adequately documented is it prudent to incorporate that data into a GIS analysis.

To address this wide range of concerns and needs for geospatial data documentation, the Federal Geographic Data Committee (FGDC) has worked with a wide spectrum of geospatial data users to develop a national standard for documenting geospatial data. ~~This standard is The FGDC has endorsed and are transitioning users from the known as the Content Standard for Digital Geospatial Metadata (CSDGM) to the ISO Metadata Standards. This standard has gone through a couple revisions and will be reviewed and updated as necessary.~~

## 2.2 Objectives

This standard requiring the documentation of geospatial data with standardized metadata has the following objectives:

- 2.2.1 Preserve public investment in data collection/development beyond the tenure or availability of the original data developer.
- 2.2.2 Preserve the background geospatial information used to justify and make public policy decisions and preserve the information needed to guide appropriate implementation of those decisions beyond the tenure of a particular data developer.
- 2.2.3 Save public resources by facilitating the sharing of expensive geospatial data among public agencies or sub-divisions of agencies and avoid the costly duplication of developing similar geospatial datasets.
- 2.2.4 Minimize problems and potential liability ~~the-that~~ might be caused by the inappropriate use of undocumented geospatial data.
- 2.2.5 Facilitate harmonious, trans-agency public policy decision-making and implementation by enabling multiple agencies and levels of government to access and appropriately use common geospatial datasets and thereby make it more likely that intersecting public policy decisions, across levels of government, will be based on the same information.

### 3.0 Definitions

[Content Standard for Digital Geospatial Metadata - A comprehensive national metadata standard developed and adopted by the Federal Geographic Data Committee \(FGDC\) under the authority of Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure," which was signed on April 11, 1994, by President William Clinton. Section 3, Development of a National Geospatial Data Clearinghouse, paragraph \(b\) states: "Standardized Documentation of Data, ... each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC, and make that standardized documentation electronically accessible to the Clearinghouse network." This standard is the data documentation standard referenced in the executive order. Since its initial development, this metadata content standard has undergone revision as deemed necessary by the FGDC, and will like undergo further revisions in the future.](#)

Geospatial Data - A term used to describe a class of data that has a geographic or spatial nature. The data will usually include locational information (latitude/longitude or other mapping coordinates) for at least some of the features within the database/dataset.

[ISO 19115:2003 – International Standards Organization \(ISO\) defines the schema required for describing geographic information and services. It provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data. It is applicable to: the cataloguing of datasets, clearinghouse activities, and the full description of datasets; and geographic datasets, dataset series, and individual geographic features and feature properties. It defines: mandatory and conditional metadata sections, metadata entities, and metadata elements; the minimum set of metadata required to serve the full range of metadata applications \(data discovery, determining data fitness for use, data access, data transfer, and use of digital data\); optional metadata elements - to allow for a more extensive standard description of geographic data, if required; and a method for extending metadata to fit specialized needs. It is applicable to digital data, its principles can be extended to many other forms of geographic data such as maps, charts, and textual documents as well as non-geographic data.](#)

Metadata - Data describing a GIS database or data set including, but not limited to, a description of a data transfer mediums, format, and contents, source lineage data, and any other applicable data processing algorithms or procedures.

Metadata-lite - A subset of the full FGDC-compliant metadata (data title, data subject matter, map projection, geographic extent, data owner and access information, etc.) used primarily for the purposes of cataloging and enabling the use of automated search tools to find and access available geospatial data. Does not fully document the dataset's variables, assumptions or development process that is commonly needed to guide appropriate use. [An online metadata-lite development tool is available through the Nebraska Department of Natural Resources website.](#)

~~Content Standard for Digital Geospatial Metadata—A comprehensive national metadata standard developed and adopted by the Federal Geographic Data Committee (FGDC) under the authority of Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure," which was signed on April 11, 1994, by President William Clinton. Section 3, Development of a National Geospatial Data Clearinghouse, paragraph (b) states: "Standardized Documentation of Data, ... each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC, and make that standardized documentation electronically accessible to the Clearinghouse network." This standard is the data documentation standard referenced in the executive order. Since its initial development, this metadata content standard has undergone revision as deemed necessary by the FGDC, and will like undergo further revisions in the future.~~

## 4.0 Applicability

### 4.1 State Government Agencies

All State agencies are required to comply with this standard. State agencies that have the primary responsibility for geospatial data development, maintenance, or purchasing data which is used for policy development, implementation, or compliance review for a particular jurisdiction(s) or geographic area (e.g. for counties for which it has assumed the primary role) are required to comply with the standards as described in this standard. Those state agencies with oversight responsibilities in this area are required to ensure that their oversight guidelines, rules, and regulations are consistent with these standards.

### 4.2 State Funded Entities

Entities that are not State agencies but receive State funding, directly or indirectly, for geospatial data development (i.e. Legislative appropriations, Enhanced Wireless 911 Fund, Infrastructure Fund, etc.) are required to comply with this standard.

### 4.3 ~~Exemption~~Other

Other entities, such as city and local government agencies that receive state funds for geospatial data development, maintenance, or purchasing geospatial data which is used for policy development, implementation, or compliance review are required to comply with this standard.

~~Exemptions may be granted by the NITC Technical Panel upon request by an agency.~~

#### 4.3.1 Exemption Process

~~Any agency may request an exemption from this standard by submitting a "Request for Exemption" to the NITC Technical Panel. Requests should state the reason for the exemption. Reasons for an exemption include, but are not limited to: statutory exclusion; federal government requirements; or financial hardship. Requests may be submitted to the Office of the NITC via e-mail or letter (Office of the NITC, 521 S 14th Street, Suite 301, Lincoln, NE 68508). The NITC Technical Panel will consider, in consultation with representatives of the Nebraska GIS Steering Committee, the request and grant or deny the exemption. A denial of an exemption by the NITC Technical Panel may be appealed to the NITC.~~

## **5.0 Responsibility**

### **5.1 NITC**

The NITC shall be responsible for adopting minimum technical standards, guidelines, and architectures upon recommendation by the technical panel. Neb. Rev. Stat. § 86-516(6)

### **5.2 State Agencies**

Each state agency will be responsible for ensuring that geospatial data developed, maintained, or purchased and which is used for policy development, implementation, or compliance review with will be documented consistent with this standard. The State of Nebraska, Office of the CIO (OCIO) GIS Shared Services will be responsible for assuring that metadata is completed and the data is registered and available for distribution through NebraskaMAP.

### **5.3 Granting Agencies and Entities**

State granting or fund disbursement entities or agencies will be responsible for ensuring geospatial metadata documentation requirements are included in requirements and regulations related to fund disbursements.

### **5.4 Other**

Local government agencies that have the primary responsibility and authority for developing geospatial datasets with state appropriated funds will be responsible for ensuring that those sub-sections defined in Section 1 will be incorporated in the overall data development efforts and publishing of metadata prior to distribution.

## **6.0 Authority**

### **6.1 NITC GIS Council**

According to Neb. Rev. Stat. § 86-572(2), the GIS Council shall: Establish guidelines and policies for statewide Geographic Information Systems operations and management (a) The acquisition, development, maintenance, quality assurance such as standards, access, ownership, cost recovery, and priorities of data bases; (b) The compatibility, acquisition, and communications of hardware and software; (c) The assessment of needs, identification of scope, setting of standards, and determination of an appropriate enforcement mechanism; (d) The fostering of training programs and promoting education and information about the Geographic Information Systems; and (e) The promoting of the Geographic Information Systems development in the State of Nebraska and providing or coordinating additional support to address Geographic Information Systems issues as such issues arise.

## **67.0 Related Documents**

- 7.1 Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata (FGDC-STD-001-1998). <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/index.html>
- 7.2 Federal Geographic Data Committee (FGDC) Geospatial ISO Metadata Standards Transition. <http://www.fgdc.gov/metadata/geospatial-metadata-standards>
- 7.3 ISO 19115:2003(E) North American Profile (NAP) Metadata Standards. National Oceanic and Atmospheric Administration (NOAA). January 2012.
- 7.4 International Standards Organization (ISO). ISO 19115:2003. <http://www.iso.org>
- 7.5 Technical Support Guides at NebraskaMAP.gov. Guides to translate existing metadata to the new standard, required core elements, and workbook for ISO standards.

# NITC 3-203

## Elevation Acquisition using LiDAR Standards

---

**Review Version 7  
(Date 9.3.2014)**

Category: Data and Information Architecture  
Applicability: See Each Section of Standards  
History: Adopted on [Month Day, Year]



**NEBRASKA INFORMATION TECHNOLOGY COMMISSION GIS COUNCIL**

---

# TABLE OF CONTENTS

---

<b>1.0 Standards</b> .....	<b>1</b>
1.1 Federal Connection.....	1
1.2 Technical and Operation.....	1
1.3 Maintenance.....	2
<b>2.0 Purpose and Objectives</b> .....	<b>2</b>
2.1 Purpose.....	2
2.2 Objectives.....	4
<b>3.0 Definitions</b> .....	<b>4</b>
<b>4.0 Applicability</b> .....	<b>6</b>
4.1 State Government Agencies.....	6
4.2 State Funded Entities.....	6
4.3 Other.....	6
<b>5.0 Responsibility</b> .....	<b>6</b>
5.1 NITC.....	6
5.2 State Agencies.....	6
5.3 Granting Agencies and Entities.....	6
5.4 Other.....	7
<b>6.0 Authority</b> .....	<b>7</b>
6.1 NITC GIS Council.....	7
<b>7.0 Related Documents</b> .....	<b>7</b>
<b>8.0 Appendices</b> .....	<b>8</b>
8.1 Nebraska LiDAR Base Specifications.....	8

## 1.0 Standards

These standards are intended for entities participating in collaborative efforts to acquire airborne LiDAR (Light Detection and Ranging) elevations that may contribute to a comprehensive statewide elevation dataset in Nebraska. The standards provide a consistent structure for data producers and users to ensure compatibility of datasets within the same framework layer and among other framework layers.

### 1.1 Federal Connection

At the national level, the 3D Elevation Program (3DEP) initiative is being developed to respond to growing needs for high-quality topographic data and for a wide range of other three-dimensional representations of the Nation's natural and constructed features. The primary goal of 3DEP is to systematically collect enhanced elevation data in the form of high-quality LiDAR data over the conterminous United States, Hawaii, and the U.S. territories, with data acquired over an 8-year period.

The U.S. Geological Survey (USGS) National Geospatial Program's (NGP) has published LiDAR Base Specification Version 1.0 to create consistency across NGP and partner funded LiDAR collections. The intent of Nebraska's standards is also to facilitate participation in collaborative efforts to acquire airborne LiDAR elevations and thus the LiDAR Base Specification Version 1.0 is adopted as the basis of the standards, guidelines, and recommendations in this document. The following Technical and Operation section provides additional detail to the Base Specification where Nebraska's requirements depart from the specifications in the document or where additional clarity is necessary. All such standards/guidelines, not specifically addressed in the body of this document are subject to the specifications in the LiDAR Base Specification Version 1.0.

### 1.2 Technical and Operation

The following standards are intended to provide additional detail specifically related to LiDAR projects in Nebraska:

#### 1.2.1 Collection

##### 1.2.1.1 Nominal Pulse Spacing (NPS)

- a) Required: An NPS of 1.4 meters or less
- b) Recommended: An NPS of 0.7 meters

##### 1.2.1.2 Vertical Accuracy

- a) Required: Fundamental Vertical Accuracy  $\leq 24.5$  centimeters (cm) AccuracyZ(Acc<sub>z</sub>), 95 percent (12.5 cm Root Mean Square Error (RMSE)<sub>z</sub>) for LiDAR acquired at a NPS greater than one meter.
- b) Required: Fundamental Vertical Accuracy  $\leq 18.2$  centimeters (cm) AccuracyZ(Acc<sub>z</sub>), 95 percent (9.25 cm Root Mean Square Error (RMSE)<sub>z</sub>) for LiDAR acquired at a NPS of 1.0 meters or less.

##### 1.2.1.3 Data Processing and Handling

- a) Recommended: Coordinate Reference System - Nebraska State Plane, NAD83 HARN, NAVD88, U.S. Survey feet.
- b) Optional: Hydro-Flattening – Optional (USGS required).

- c) Optional: Hydro-Enforced – The state of Nebraska recommends collection of breaklines for the development of a *Hydro-enforced*, Bare-earth Digital Elevation Model (DEM).

1.2.1.4 Deliverables—In addition to the raw and classified point cloud and the metadata, deliverables will include:

- a) Required: Bare-Earth DEM
  - i. Cell size 2 meters for LiDAR acquired at greater than 1.0 meter NPS
  - ii. Cell size 1 meter for LiDAR acquired at 1.0 meter or less NPS
- b) Recommended: Hydro-Enforced, Bare-Earth DEM
  - i. Cell size 2 meters for LiDAR acquired at greater than 1.0 meter NPS
  - ii. Cell size 1 meter for LiDAR acquired at 1.0 meter or less NPS
  - iii. Breaklines used for Hydro-Enforcement (required if hydro-enforced)

### 1.3 Maintenance

Entities responsible for data acquisition and deliverables will need to assure data meets standards and are updated and maintained in a timely manner. After spatial and attribute updates and/or modifications are performed to the data it shall be submitted to the appropriate entity(s) responsible for performing quality control and maintenance of the data acquisition.

Maintenance of elevation data determines the suitability to support the greatest range of applications. Many projects require up-to-date, accurate and consistent elevation data and maintenance of this data is necessary to provide the maximum return on investment.

#### 1.3.1 Reporting Errors and Handling Updates

The reporting of errors need to be directed to the appropriate entity in a timely manner. Updated spatial and attribute information in the data will also need to be redistributed. The date field in the metadata when the last record was modified will also need to be updated to ensure proper records management and communication with others in the workflow.

## 2.0 Purpose and Objectives

### 2.1 Purpose

The primary purpose of these standards/guidelines is to realize the maximum long-term benefit of elevation data acquisitions, and in doing so, help protect the public's investment in Nebraska's geospatial infrastructure. These standards will help ensure that elevation data acquisitions are current, consistent, accurate, high-resolution, accessible, and cost-effective.

#### *Background*

Elevation data is foundational to the development of the Nebraska Spatial Data Infrastructure (NESDI). First, it is required for the rectification of imagery which is the foundation for most of the other geospatial data layers in the NESDI and is a valuable base map in its own right. The accuracy of infrastructure data layers, in part, determines the extent to which they can be integrated and ultimately their suitability to support the greatest range of applications. Additionally, many projects and programs in Nebraska require up-to-date, accurate and consistent elevation data.

LiDAR has been collected for approximately 59% of the state on a project by project basis. Applications that require high-quality elevation data have been limited in that the data is not always consistent across project boundaries, and the fact that LiDAR elevations are not available for the whole state, thus falling short of the maximum return on investment. A statewide elevation dataset would provide instantaneous access to accurate elevation data, reducing costs and time required to merge together projects, or worse, to acquire missing data via less cost-effective methods. A sample of applications that rely on high quality elevation data in Nebraska include:

2.1.1 Hydrology and hydraulics

- a) Base Flood Elevation (BFE) determinations
- b) Floodplain and flood inundation mapping
- c) Dam breach analysis and hazard potential classification

2.1.2 Engineering design and design reviews

- a) Bridge and roadway design
- b) Siting of transmission lines, power lines, cell towers, pipelines
- c) Flood control structures
- d) Conservation structures

2.1.3 Emergency Management

- 2.1.3.1 The Hazards U.S. Multi-Hazard (HAZUS-MH) estimates of potential dollars lost during flood disasters

2.1.4 Natural resources applications

- 2.1.4.1 Sediment erosion and transport
- 2.1.4.2 Watershed delineation and flow analyses
- 2.1.4.3 Suitability analyses for plants, animals and other species

2.1.5 Conservation planning

- 2.1.5.1 Modeling of landforms, habitat, vegetation, etc.
- 2.1.5.2 Channel topography
- 2.1.5.3 Vegetation and land cover studies
- 2.1.5.4 Precision agriculture

2.1.6 Cartographic applications

- 2.1.6.1 Soil survey
- 2.1.6.2 Imagery rectification
- 2.1.6.3 Building and other structural footprints

## 2.1.7 Fire Modeling

### 2.1.7.1 Vegetative density and their placement in the landscape

## 2.2 Objectives

These standards and guidelines to guide the acquisition and development of LiDAR data in Nebraska have the following objectives.

- 2.2.1 Provide guidance to state and local officials as they work, either in-house or with private contractors, to develop and/or acquire LiDAR elevation data and thereby increase the likelihood that the data acquired and/or developed will be suitable for the range of intended applications and likely future applications. The maintenance of elevation data is necessary for the data to be current and accurate. The requirements of maintenance involving stewardship and reporting of errors and handling updates is located in the NESDI Governance Plan and current Elevation Business Plan. These plans are currently in draft and are forthcoming.
- 2.2.2 Improve public policy development and implementation by helping to make elevation data more current and readily accessible.
- 2.2.3 Enhance coordination and program management across jurisdictional boundaries by insuring that elevation data can be horizontally integrated across jurisdictional and/or project boundaries for regional or statewide applications.
- 2.2.4 Save public resources by facilitating the sharing of elevation data among public agencies or sub-divisions of agencies by incorporating data standards and following guidelines which will make it more likely that the elevation data developed by one entity will also be suitable to serve the multiple needs of other entities and thereby avoid the costly duplication of developing and maintaining similar elevation data.
- 2.2.5 Make elevation data more readily accessible to the wide range of potential users.
- 2.2.6 Facilitate harmonious, trans-agency public policy decision-making and implementation by enabling multiple agencies and levels of government to access and appropriately use common geospatial datasets and thereby make it more likely that intersecting public policy decisions, across levels of government, will be based on the same information.
- 2.2.7 Lay the foundation for facilitating intergovernmental partnerships for the acquisition and development of high-quality elevation data by defining standards and guidelines that increase the likelihood that the elevation data will meet the needs of multiple users.
- 2.2.8 Establish and promote the integration and interrelationships of elevation data with related NESDI framework layers through geometric placement and attributes.

## 3.0 Definitions

Refer to the LiDAR Base Specification Version 1.0 glossary for a more complete set of definitions.

- 3.1 Accuracy<sub>z</sub> (ACC<sub>z</sub>) (Vertical Accuracy) - The NSSDA reporting standard in the vertical component that equals the linear uncertainty value, such that the true or theoretical vertical location of the point falls within that linear uncertainty value 95 percent of the time.  $ACC_z = 1.9600 \times RMSE_z$ .

- 3.2 Bare earth - Digital elevation data of the terrain, free from vegetation, buildings and other man-made structures. Elevations of the ground.
- 3.3 Breakline - linear feature that describes a change in the smoothness or continuity of a surface.
- 3.4 Contour - Lines of equal elevation on a surface. An imaginary line on the ground, all points of which are at the same elevation above or below a specified vertical datum. (FEMA's Definition)
- 3.5 Digital Elevation Model (DEM) - the digital cartographic representation of the elevation of the land at regularly spaced intervals in x and y directions, using z-values referenced to a common vertical datum.
- 3.6 Digital Surface Model (DSM) - Similar to Digital Elevation Models (DEMs) or digital terrain models (DTMs), except that they may depict the elevations of the top surfaces of buildings, trees, towers, and other features elevated above the bare earth.
- 3.7 Fundamental Vertical Accuracy (FVA) - The value by which vertical accuracy of LiDAR can be equitably assessed and compared among datasets. The fundamental vertical accuracy of a dataset must be determined with well-distributed checkpoints located only in open terrain, free of vegetation, where there is a high probability that the sensor will have detected the ground surface. It is obtained using standard tests for Root Mean Square Error (RMSE), where  $FVA = ACCz = RMSEz \times 1.9600$ .
- 3.8 Hydrologically-conditioned (hydro-conditioned) - Processing of a DEM or Triangulated Irregular Network (TIN) so that the flow of water is continuous across the entire terrain surface, including the removal of all spurious sinks or pits.
- 3.9 Hydrologically-enforced (hydro-enforced) - Processing of water bodies so that lakes and reservoirs are level and streams flow downhill. For example, a DEM, TIN or topographic contour dataset with elevations removed from the tops of selected drainage structures (bridges and culverts) so as to depict the terrain under those structures. Hydro-enforcement enables hydrologic and hydraulic models to depict water flowing under these structures, rather than appearing in the computer model to be dammed by them because of road deck elevations higher than the water levels. Hydro-enforced TINs also use breaklines along shorelines and stream centerlines. An example of this is where breaklines form the edges of TIN triangles along the alignment of drainage features. Shore breaklines for streams would be 3-D breaklines with elevations that decrease as the stream flows downstream; however, shore breaklines for lakes or reservoirs would have the same elevation for the entire shoreline if the water surface is known or assumed to be level throughout.
- 3.10 Hydrologically-flattened (hydro-flattened) - Processing of a LiDAR-derived surface DEM or TIN Model so that mapped water bodies, rivers, reservoirs, and other cartographically polygonal water surfaces are flat, and where appropriate, level from bank-to-bank.
- 3.11 LiDAR - An instrument that measures distance to a reflecting object by emitting timed pulses of light and measuring the time difference between the emission of a laser pulse and the reception of the pulse's reflection(s). The measured time interval for each reflection is converted to distance, which when combined with position and altitude information from Global Positioning System (GPS), Inertial Measurement Unit (IMU), and the instrument itself, allows the derivation of the 3-dimensional point location of the reflecting target's location.
- 3.12 Nebraska Spatial Data Infrastructure - A framework of geospatial data layers that have multiple applications, used by a vast majority of stakeholders, meet quality standards and

have data stewards to maintain and improve the data on an ongoing basis. These layers are also consistent with the Federal National Spatial Data Infrastructure (NSDI).

- 3.13 Nominal Point Spacing (NPS) - A common measure of the density of a LiDAR dataset, it is the typical or average lateral distance between points in a LiDAR dataset, most often expressed in meters. Often it is simply calculated as the square root of the average area per point. This value is predicted in mission planning and empirically calculated from the collected data. In high-density collections (<1 meter NPS), this may be directly expressed as Points per Square Meter (PPSM).  $PPSM = 1/NPS^2$ .
- 3.14 Points – In the context for elevation, points are geospatial objects that represent spot elevations of randomly intersected features. Attributes are X, Y, and Z coordinates at a minimum, but may also include pulse number, return number, intensity, flight line number, scan angle, GPS time and feature class.

#### **4.0 Applicability**

##### 4.1 State Government Agencies

State agencies that are involved in the acquisition of elevation data are required to comply with the standards as described in Section 1.

##### 4.2 State Funded Entities

Entities that are not state agencies but receive direct or indirect state funding for acquisition of elevation data are also required to comply with the standards as described in Section 1.

##### 4.3 Other

Other entities, such as local government agencies (e.g. County Offices, Natural Resources Districts, municipalities) involved in the acquisition of elevation data are required to comply with the standards as described in Section 1.

#### **5.0 Responsibility**

##### 5.1 NITC

The NITC shall be responsible for adopting minimum technical standards, guidelines, and architectures upon recommendation by the technical panel. Neb. Rev. Stat. § 86-516(6)

##### 5.2 State Agencies

The OCIO GIS Shared Services will be responsible for assuring that metadata is completed and the data is registered and available for distribution through NebraskaMAP.

##### 5.3 Granting Agencies and Entities

State granting or fund disbursement entities or agencies will be responsible for ensuring that these standards are included in requirements and regulations related to fund disbursements as they relate to LiDAR acquisition.

## 5.4 Other

Local government agencies will be responsible for ensuring that these standards are included in requirements and regulations related to fund disbursements as they relate to LiDAR acquisition.

## 6.0 Authority

### 6.1 NITC GIS Council

According to Neb. Rev. Stat. § 86-572(2), the GIS Council shall: Establish guidelines and policies for statewide Geographic Information Systems operations and management (a) The acquisition, development, maintenance, quality assurance such as standards, access, ownership, cost recovery, and priorities of data bases; (b) The compatibility, acquisition, and communications of hardware and software; (c) The assessment of needs, identification of scope, setting of standards, and determination of an appropriate enforcement mechanism; (d) The fostering of training programs and promoting education and information about the Geographic Information Systems; and (e) The promoting of the Geographic Information Systems development in the State of Nebraska and providing or coordinating additional support to address Geographic Information Systems issues as such issues arise.

## 7.0 Related Documents

- 7.1 United State Geological Survey (USGS) National Geospatial Program (NGP) LiDAR Base Specification Version 1.0: <http://pubs.usgs.gov/tm/11b4/>
- 7.2 American Society for Photogrammetry and Remote Sensing (ASPRS) LAS Specification Version 1.4. November 2011.

## 8.0 Appendices

### 8.1 Nebraska LiDAR Base Specifications

The following is an adaptation of the LiDAR Base Specification Version 1.0 specific to Nebraska LiDAR acquisitions. Specific differences between the LiDAR Base Specification Version 1.0 and Nebraska specifications include:

#### Collection

- Nebraska requires a NPS of 1.4 meters or less.
- Nebraska projects typically collect LiDAR points at 1 of 2 Nominal Pulse Spacings, 0.7 and 1.4 meters. Each has specific accuracy requirements.

#### Data Processing and Handling

- Preferred CRS is Nebraska State Plane, NAD83, Feet, NAVD88, Feet
- Nebraska does not require Hydro-Flattening of DEMs

#### Deliverables

- Recommends 2 DEMs,
  - Bare-Earth topographic DEM (Required. Hydro-flattening not required)
  - Bare-Earth Hydro-conditioned DEM (Optional)

#### Collection

##### Multiple Discrete Returns

Data collection must be capable of at least three returns per pulse. Full waveform collection is acceptable.

##### Intensity Values

Intensity values are required for each return. The values are to be recorded in the .las files in their native radiometric resolution.

##### Nominal Pulse Spacing (NPS)

An NPS of **1.4** meters or less is required. Assessment of the NPS will be made against single swath, first-return only data, located within the geometrically usable center portion (typically 90 percent) of each swath, acceptable data voids excluded. NPS will be calculated as the square root of the average area per point. Average along-track and cross-track point spacing should be comparable (within 10 percent).

In general, the target NPS for a project should not be achieved through swath overlap or multiple passes. Such collection techniques may be permitted with prior approval.

##### Data Voids

Data voids within a single swath are not acceptable, except in the following circumstances:

- Where caused by water bodies,
- Where caused by areas of low near infra-red (NIR) reflectivity such as asphalt or composition roofing, or
- Where appropriately filled-in by another swath.

##### Spatial Distribution

The spatial distribution of geometrically usable points is expected to be uniform. Although it is understood that LiDAR instruments do not produce regularly gridded points, collections should be planned and executed to produce a first-return point cloud that approaches a regular lattice of points, rather than a collection of widely spaced high density profiles of the terrain. The uniformity of the point density throughout the dataset is important and will be assessed using the following steps:

- Generating a density grid from the data with cell sizes equal to the design NPS times 2, using a radius equal to the design NPS.

- Ensuring at least 90 percent of the cells in the grid contain at least one LiDAR point.
- The assessment is to be made against individual (single) swaths, using only the first-return points located within the geometrically usable center portion (typically 90 percent) of each swath.
- Excluding acceptable data voids previously identified in this specification.

Note: This requirement may be relaxed in areas of substantial relief where it is impractical to maintain a consistent and uniform distribution.

Note: The process described in this section relates only to the uniformity of the point distribution. It in no way relates to, nor can it be used for the assessment of point density or NPS.

### **Scan Angle**

Scan angle will support horizontal and vertical accuracy within the requirements as specified in the next two sections. Note: This requirement primarily is applicable to oscillating mirror LiDAR systems. Other instrument technologies may be exempt from this requirement.

### **Vertical Accuracy**

Vertical accuracy of the LiDAR data will be assessed and reported in accordance with the guidelines developed by the National Digital Elevation Program (NDEP) and subsequently adopted by the American Society for Photogrammetry and Remote Sensing (ASPRS). Complete definitions for vertical accuracy assessments are in Section 1.5 of the NDEP Elevation Guidelines (NDEP, 2004). The minimum vertical accuracy requirement for the unclassified LiDAR point cloud, using the NDEP/ASPRS methodology, is listed below:

- Fundamental Vertical Accuracy (FVA)  $\leq$  24.5 centimeters (cm) Accuracyz (ACCz), 95 percent (12.5 cm Root Mean Square Error (RMSE)z).
- The minimum vertical accuracy requirements for the derived DEM, using the NDEP/ASPRS methodology are listed below:
  - Fundamental Vertical Accuracy (FVA)  $\leq$  24.5 cm ACCz, 95 percent (12.5cm RMSEz);
  - Consolidated Vertical Accuracy (CVA)  $\leq$  36.3cm, 95th percentile, and
  - Supplemental Vertical Accuracy (SVA)  $\leq$  36.3 cm, 95th percentile.
- The minimum vertical accuracy requirement for the unclassified LiDAR point cloud for LiDAR collected at 0,7 m NPS, using the NDEP/ASPRS methodology, is listed below:
  - Fundamental Vertical Accuracy (FVA)  $\leq$  18.5 centimeters (cm) Accuracyz (ACCz), 95 percent (9.25 cm Root Mean Square Error (RMSE)z).
  - The minimum vertical accuracy requirements for the derived DEM, using the NDEP/ASPRS methodology are listed below:
    - Fundamental Vertical Accuracy (FVA)  $\leq$  18.5 cm ACCz, 95 percent (9.255cm RMSEz);
    - Consolidated Vertical Accuracy (CVA)  $\leq$  27.7 cm, 95th percentile, and
    - Supplemental Vertical Accuracy (SVA)  $\leq$  27.7 cm, 95th percentile.

Point cloud data accuracy is to be tested against a Triangulated Irregular Network (TIN) constructed from LiDAR points in clear and open areas. A clear and open area can be characterized with respect to topographic and ground cover variation such that a minimum of 5 times the NPS exists with less than 1/3 of the RMSEz deviation from a low-slope plane. Slopes that exceed 10 percent should be avoided. Ground that has been plowed or otherwise disturbed is not acceptable. All tested locations should be photographed showing the position of the tripod and the surrounding area ground condition.

Each land cover type representing 10 percent or more of the total project area must be tested and reported with an SVA.

In areas where a land cover category is something other than forested or dense urban, the tested point should not have any obstructions 45 degrees above the horizon to ensure a sufficient TIN surface. Additionally, tested areas should not be in proximity to low NIR reflective surfaces such as asphalt or composition roofing materials.

The SVA value is provided as a target. It is understood that in areas of dense vegetation, swamps, or extremely difficult terrain, this value may be exceeded.

The CVA value is a requirement that must be met, regardless of any allowed “busts” in the SVA(s) for individual land cover types within the project.

Checkpoints for each assessment (FVA, CVA, and all SVAs) are required to be well-distributed throughout the land cover type, for the entire project area. See Glossary for definition of well-distributed.

Exceptions: These requirements may be relaxed in cases:

- Where there exists a demonstrable and substantial increase in cost to obtain this accuracy.
- Where an alternate specification is needed to conform to previously contracted phases of a single larger overall collection effort, for example, multi-year statewide collections.
- Where the USGS agrees that it is reasonable and in the best interest of all stakeholders to use an alternate specification.

### **Relative Accuracy**

The requirements for relative accuracy are listed below:

- Within individual swaths:  $\leq 7$  cm RMSEz
- Within overlap between adjacent swaths:  $\leq 10$  cm RMSEz

### **Flightline Overlap**

Flightline overlap of 10 percent or greater is required to ensure there are no data gaps between the usable portions of the swaths. Collections in high relief terrain are expected to require greater overlap. Any data with gaps between the geometrically usable portions of the swaths will be rejected.

### **Collection Area**

- Data collection for the Defined Project Area, buffered by a minimum of 100 meters, is required. The buffered boundary is the Buffered Project Area.
- In order that all products are consistent to the edge of the Defined Project Area, all products must be generated to the limit of the Buffered Project Area. Since these areas are being generated, they shall also be delivered.

### **Collection Conditions**

- Atmospheric conditions must be cloud and fog-free between the aircraft and ground during all collection operations.
- Ground conditions must be snow free. Very light, undrifted snow may be acceptable in special cases, with prior approval.
- Water conditions must be free of any unusual flooding or inundation, except in cases where the goal of the collection is to map the inundation.
- Leaf-off vegetation conditions are preferred, however, as numerous factors beyond human control may affect the vegetative condition at the time of any collection, the USGS NGP only requires that penetration to the ground must be adequate to produce an accurate and reliable bare-earth surface suitable for incorporation into the 1/9 (3-meter) NED. Collections for specific scientific research projects may be exempted from this requirement, with prior approval.

## **Data Processing and Handling**

### **ASPRS LAS File Format**

All processing should be carried out with the understanding that all point deliverables are required to be in fully compliant LAS format, either v1.2 or v1.3. The version selected must be used for all LAS deliverables in the project. Data producers are encouraged to review the LAS specification in detail (ASPRS, 2011).

### **Full Waveform**

If full waveform data are collected, delivery of the waveform packets is required. LAS v1.3 deliverables with waveform data are to use external auxiliary files with the extension .wdp for the storage of waveform packet data. See the LAS v1.3 Specification for additional information (ASPRS, 2011).

### **Global Positioning System (GPS) Times**

GPS times are to be recorded as Adjusted GPS Time, at a precision sufficient to allow unique timestamps for each pulse.

Adjusted GPS Time is defined to be Standard (or satellite) GPS time minus  $1 \times 10^9$ . See the LAS v1.4 Specification for more detail (ASPRS, 2011).

### **Datums**

All data collected must be tied to the datums listed below:

- Horizontal datum reference to the North American Datum of 1983/HARN adjustment (NAD83 HARN) is required.
- Vertical datum reference to the North American Vertical Datum of 1988 (NAVD 88) is required.
- The most recent National Geodetic Survey (NGS)-approved geoid model is required to perform conversions from ellipsoidal heights to orthometric heights.

### **Coordinate Reference System**

- The Nebraska preferred Coordinate Reference System for projects conducted within the state is Nebraska State Plane, NAD83 HARN, Feet; NAVD88, Feet.
- The USGS preferred Coordinate Reference System for the Conterminous United States (CONUS) is Universal Transverse Mercator UTM, NAD83 HARN, Meters; NAVD88, Meters and this Coordinate Reference System may be used. Each discrete project is to be processed using the single predominant UTM zone for the overall collection area.

### **Units of Reference**

All references to the unit of measure “Feet” and “Foot” must specify “International”, “Intl”, “U.S. Survey”, or “US”.

### **Swath Identification**

Each swath will be assigned a unique File Source ID. It is required that the Point Source ID field for each point within each LAS swath file be set equal to the File Source ID before any processing of the data. See the LAS v1.3 Specification (ASPRS, 2011).

### **Point Families**

Point families (multiple return “children” of a single “parent” pulse) shall be maintained intact through all processing before tiling. Multiple returns from a given pulse will be stored in sequential (collected) order.

### **Swath Size and Segmentation**

Swath files will be 2 gigabytes (GB) in size or less. Long swaths (those which result in a LAS file larger than 2 GB) will be split into segments no greater than 2 GB each.

- Each sub-swath will retain the original File Source ID of the original complete swath.
- Points within each sub-swath will retain the Point Source ID of the original complete swath.
- Each sub-swath file will be named identically to the original complete swath, with the addition of an ordered alphabetic suffix to the name (“-a”, “-b” ... “-n”). The order of the named sub-swaths shall be consistent with the collection order of the points (“-a” will be the chronological beginning of the swath; “-n” will be the chronological end of the swath).
- Point families shall be maintained intact within each sub-swath.
- Sub-swaths should be broken at the edge of the scan line.
- Other swath segmentation approaches may be acceptable, with prior approval.

### **Scope of Collection**

- All collected swaths are to be delivered as part of the Raw Data Deliverable. This includes calibration swaths and crossties.
- This in no way requires or implies that calibration swath data are to be included in product generation. All collected points are to be delivered. No points are to be deleted from the swath LAS files. Excepted from this are extraneous data outside of the buffered project area (aircraft turns, transit between the collection area and airport, transit between fill-in areas, and the like).
- These points may be permanently removed. Busted swaths that are being completely discarded by the vendor and re-flown do not need to be delivered.

### **Use of the LAS Withheld Flag**

- Outliers, blunders, noise points, geometrically unreliable points near the extreme edge of the swath, and other points the vendor deems unusable are to be identified using the Withheld flag, as defined in the LAS specification.
- This applies primarily to points that are identified during pre-processing or through automated post-processing routines.
- If processing software is not capable of populating the Withheld bit, these points may be identified using Class=11.
- Noise points subsequently identified during manual Classification and Quality Assurance/Quality Control (QA/QC) may be assigned the standard LAS classification value for Noise (Class=7), regardless of whether the noise is “low” or “high” relative to the ground surface.

### **Point Classification**

- ALL points not identified as Withheld are to be classified.
- No points in the Classified LAS deliverable will be assigned Class=0.
- Use of the ASPRS/LAS Overlap classification (Class=12) is prohibited.
- If overlap points are required to be differentiated by the data producer or cooperating partner, they must be identified using a method that does not interfere with their classification:
- Overlap points are tagged using Bit:0 of the User Data byte, as defined in the LAS specification. (SET=Overlap).
- Overlap points are classified using the Standard Class values + 16.
- Other techniques as agreed upon in advance.

The technique used to identify overlap must be clearly described in the project metadata files.

Note: A standard bit flag for identification of overlap points has been included in LAS v1.4, released on November 14, 2011.

### **Positional Accuracy Validation**

Before classification of and development of derivative products from the point cloud, verification of the vertical accuracy of the point cloud, absolute and relative, is required. The Fundamental Vertical Accuracy (absolute) is to be assessed in clear, open areas as described in the section called Vertical Accuracy above. Swath-to-swath and within swath accuracies (relative) are to be documented. A detailed report of this validation process is a required deliverable.

### **Classification Accuracy**

It is required that due diligence in the classification process will produce data that meet the following tests:

- Following classification processing, no non-withheld points should remain in Class 0.
- Within any 1 kilometer (km) x 1 km area, no more than 2 percent of non-withheld points will possess a demonstrably erroneous classification value.
- Points remaining in Class 1 that should be classified in any other required Class are subject to these accuracy requirements and will be counted towards the 2 percent threshold.

Note: These requirements may be relaxed to accommodate collections in areas where the USGS agrees classification to be particularly difficult.

### **Classification Consistency**

Point classification is to be consistent across the entire project. Noticeable variations in the character, texture, or quality of the classification between tiles, swaths, lifts, or other non-natural divisions will be cause for rejection of the entire deliverable.

### **Tiles**

Note: This section assumes a projected coordinate reference system.

A single non-overlapped tiling scheme (the Project Tiling Scheme) will be established and agreed upon by the data producer and the USGS before collection. This scheme will be used for ALL tiled deliverables.

- Tile size is required to be an integer multiple of the cell size of raster deliverables.
- Tiles are required to be sized using the same units as the coordinate system of the data.
- Tiles are required to be indexed in X and Y to an integer multiple of the tile's X-Y dimensions.
- All tiled deliverables will conform to the Project Tiling Scheme, without added overlap.
- Tiled deliverables will edge-match seamlessly and without gaps.

### **Hydro-Enforcement**

Processing of mapped water bodies so that streams flow downhill. Specifically, Nebraska Digital Elevation Models (DEMs) are derived with elevations removed from the tops of selected drainage structures (bridges and culverts) so as to depict the terrain under those structures. Hydro-enforcement enables hydrologic and hydraulic models to depict water flowing under these structures, rather than appearing in the computer model to be dammed by them because of road deck elevations higher than the water levels.

### **Hydro-Flattening**

Note: Hydro-Flattening is not required for any known Nebraska application and imposes a significant increase in costs. This section applies only to LiDAR acquisitions in which USGS participation covers this cost increase in its entirety.

Hydro-flattening pertains only to the creation of derived DEMs. No manipulation of or changes to originally computed LiDAR point elevations are to be made. Breaklines may be used to help classify the point data. The goal of the NGP is for the delivered DEMs to represent water bodies in a cartographically and aesthetically pleasing manner. It is not the goal of the NGP to accurately map water surface elevations within the NED. The requirements for hydro-flattening are listed below.

### **Inland Ponds and Lakes**

- 2 acres or greater surface area (approximately equal to a round pond 350 feet in diameter) at the time of collection.
- Flat and level water bodies (single elevation for every bank vertex defining a given water body).
- The entire water surface edge must be at or below the immediately surrounding terrain. The presence of floating water bodies will be cause for rejection of the deliverable.
- Long impoundments such as reservoirs, inlets, and fjords, whose water surface elevations drop when moving downstream, are required to be treated as rivers.

### **Inland Streams and Rivers**

- 100 feet nominal width: This should not unnecessarily break a stream or river into multiple segments. At times it may squeeze slightly below 100 feet for short segments. Data producers should use their best professional cartographic judgment.
- Flat and level bank-to-bank (perpendicular to the apparent flow centerline); gradient to follow the immediately surrounding terrain. In cases of sharp turns of rapidly moving water, where the natural water surface is notably not level bank- to- bank, it is appropriate to represent the water surface as it exists in nature, while maintaining an aesthetic cartographic appearance.
- The entire water surface edge must be at or below the immediately surrounding terrain.

- Stream channels are required to break at road crossings (culvert locations). The roadway over a culvert should be continuous.
- A culvert, regardless of size, is defined as having earth between the road surface and the top of the structure.
- Bridges are required to be removed from the DEM. Streams and rivers should be continuous at bridge locations. Bridges are defined as having an elevated deck structure that does not rest on earth.
- When the identification of a structure such as a bridge or culvert cannot be made reliably, the feature should be regarded as a culvert.

### **Non-Tidal Boundary Waters**

- Represented only as an edge or edges within the project area; collection does not include the opposing shore.
- Water surface is to be flat and level, as appropriate for the type of water body (level for lakes; gradient for rivers)
- The entire water surface edge must be at or below the immediately surrounding terrain.

### **Tidal Waters**

- Tidal water bodies are defined as water bodies such as oceans, seas, gulfs, bays, inlets, salt marshes, large lakes, and the like. This includes any water body that is affected by tidal variations.
- Tidal variations over the course of a collection or between different collections will result in lateral and vertical discontinuities along shorelines. This is considered normal and these anomalies should be retained. The final DEM is required to represent as much ground as the collected data permits.
- Water surface is to be flat and level, to the degree allowed by the irregularities noted above.
- Scientific research projects in coastal areas often have specific requirements with regard to how tidal land-water boundaries are to be handled. For such projects, the requirements of the research will take precedence.

### **Islands**

- Permanent islands 1 acre or larger shall be delineated within all water bodies.

### **Single-Line Streams**

Cooperating partners may require collection and integration of single-line streams within their LiDAR projects. Although the USGS does not require these breaklines be collected or integrated, it does require that if used and incorporated into the DEMs, the following guidelines are met:

- All vertices along single-line stream breaklines are at or below the immediately surrounding terrain.
- Single-line stream breaklines are not to be used to introduce cuts into the DEM at road crossings (culverts), dams, or other such features. This is hydro-enforcement and as discussed in appendix 3 will create a non-topographic DEM that is unsuitable for integration into the NED.
- All breaklines used to modify the surface are to be delivered to the USGS with the DEMs.

### **Deliverables**

The USGS requires unrestricted rights to all delivered data and reports, which will be placed in the public domain. This specification places no restrictions on the data provider's rights to resell data or derivative products as they see fit.

### **Metadata**

The term "metadata" refers to all descriptive information about the project. This includes textual reports, graphics, supporting shapefiles, and Federal Geographic Data Committee (FGDC)-compliant metadata files. Metadata deliverables include the following items:

- Collection report detailing mission planning and flight logs.

- Survey report detailing the collection of control and reference points used for calibration and QA/QC.
- Processing report detailing calibration, classification, and product generation procedures including methodology used for breakline collection and hydro-flattening.
- QA/QC Reports (detailing the analysis, accuracy assessment and validation of the following):
- Point data (absolute, within swath, and between swath)
- Bare-earth surface (absolute)
- Other optional deliverables as appropriate
- Control and calibration points: All control and reference points used to calibrate, control, process, and validate the LiDAR point data or any derivative products that are to be delivered.
- Georeferenced, digital spatial representation of the precise extents of each delivered dataset. This should reflect the extents of the actual LiDAR source or derived product data, exclusive of TIN artifacts or raster NODATA areas. A union of tile boundaries or minimum bounding rectangles is not acceptable. ESRI Polygon shapefile or geodatabase is preferred.
- Product metadata [FGDC compliant, eXtensible Markup Language (XML) format metadata]. Metadata files for individual files are not required. One XML file is required for the following examples:
  - The Overall Project: Describing the project boundary, the intent of the project, the types of data collected as part of the project, the various deliverables for the project, and other project-wide information.
  - Each Lift: Describing the extents of the lift, the swaths included in the lift, locations of GPS base stations and control for the lift, preprocessing and calibration details for the lift, adjustment and fitting processes applied to the lift in relation to other lifts, and other lift-specific information.
  - Each tiled deliverable product group:
    - Classified point data
    - Bare-earth DEMs
    - Breaklines (if used)
    - Other datasets delivered under the contract (Digital Surface Models (DSM), intensity images, height surfaces, and others)
  - FGDC compliant metadata must pass the USGS metadata parser (mp) with no errors.

### **Raw Point Cloud**

Delivery of the raw point cloud is a standard requirement for USGS NGP LiDAR projects. Raw point cloud deliverables include the following items:

- All swaths, returns, and collected points, fully calibrated and adjusted to ground, by swath.
- Fully compliant LAS v1.2 or v1.3, Point Data Record Format 1, 3, 4, or 5.
- LAS v1.3 deliverables with waveform data are to use external auxiliary files with the extension .wdp for the storage of waveform packet data. See the LAS v1.3 Specification for additional information.
- Correct and properly formatted georeference information must be included in all LAS file headers.
- GPS times are to be recorded as Adjusted GPS Time, at a precision sufficient to allow unique timestamps for each pulse.
- Intensity values (native radiometric resolution).
- One file per swath, one swath per file, file size not to exceed 2 GB, as described under the section called Swath Size and Segmentation above.
- Vertical accuracy of the LiDAR point data will be assessed and reported in accordance with the guidelines developed by the NDEP and subsequently adopted by the ASPRS. The complete guidelines on vertical accuracy are in Section 1.5 of the NDEP Guidelines (NDEP, 2004).
- Vertical accuracy requirements using the NDEP/ASPRS methodology for the point cloud are  $FVA \leq 24.5 \text{ cm ACC}_z$ , 95-percent confidence level (12.5 cm  $RMSE_z$ ) or, 18.5 cm  $ACC_z$  95-percent confidence level (9.25cm  $RMSE_z$ ) for LiDAR collected at 0.7m NPS

### **Classified Point Cloud**

Delivery of a classified point cloud is a standard requirement for USGS NGP LiDAR projects. Specific scientific research projects may be exempted from this requirement. Classified point cloud deliverables include the following items:

- All project swaths, returns, and collected points, fully calibrated, adjusted to ground, and classified, by tiles. Project swaths exclude calibration swaths, cross-ties, and other swaths not used, or intended to be used, in product generation.
- Fully compliant LAS v1.2 or v1.3, Point Data Record Format 1, 3, 4, or 5.
- LAS v1.3 deliverables with waveform data are to use external auxiliary files with the extension .wdp for the storage of waveform packet data. See the LAS v1.3 Specification for additional information.
- Correct and properly formatted georeference information must be included in all LAS file headers.
- GPS times are to be recorded as Adjusted GPS Time, at a precision sufficient to allow unique timestamps for each pulse.
- Intensity values (native radiometric resolution).
- Tiled delivery, without overlap, using Project Tiling Scheme.
- Classification Scheme (minimum) as listed in table 1.

### **Bare-Earth Surface (Raster DEM)**

Delivery of a bare-earth DEM is a standard requirement for USGS NGP and Nebraska LiDAR projects. Specific scientific research projects may be exempted from this requirement. Bare-earth surface deliverables include the following items:

- Bare-earth DEM, generated to the limits of the Buffered Project Area.
- Cell size no greater than 2 meters or 6 feet, and no less than the design Nominal Pulse Spacing (NPS).
- Delivery in an industry-standard, GIS-compatible, 32-bit floating point raster format (ERDAS .IMG preferred).
- Delivery of a hydro-enforced, bare-earth DEM is a requirement for Nebraska LiDAR projects. Bare-earth surface deliverables include the following items:
  - Bare-earth DEM, generated to the limits of the Buffered Project Area.
  - Cell size no greater than 2 meters or 6 feet, and no less than the design Nominal Pulse Spacing (NPS).
  - Delivery in an industry-standard, GIS-compatible, 32-bit floating point raster format (ERDAS .IMG preferred).

**Table 1.** Minimum Classified Point Cloud Classification Scheme.

#### **Code Description**

1 Processed, but unclassified

2 Bare-earth ground

7a Noise (low or high; manually identified; if needed)

9 Water

10b Ignored Ground (Breakline proximity)

11 Withheld (if the Withheld bit is not implemented in processing software)

- a. Class 7, Noise, is included as an adjunct to the Withheld bit. All noise points are to be identified using one of these two methods.
- b. Class 10, Ignored Ground, is for points previously classified as bare-earth but whose proximity to a subsequently added breakline requires that it be excluded during Digital Elevation Model (DEM) generation.
  - Georeference information shall be included in each raster file.
  - Tiled delivery, without overlap.
  - DEM tiles will show no edge artifacts or mismatch. A quilted appearance in the overall project DEM surface, whether caused by differences in processing quality or character between tiles, swaths, lifts, or other non-natural divisions, will be cause for rejection of the entire deliverable.

- Void areas (for example, areas outside the Buffered Project Area but within the tiling scheme) shall be coded using a unique NODATA value. This value shall be identified in the appropriate location within the raster file header or external support files (for example, .aux).
- Vertical accuracy of the bare-earth surface will be assessed and reported in accordance with the guidelines developed by the NDEP and subsequently adopted by the ASPRS. The complete guidelines are in Section 1.5 of the NDEP Guidelines (NDEP, 2004).
- The following thresholds represent the minimum vertical accuracy requirements using the NDEP/ASPRS methodology:
- For LiDAR collected at 1.4 meter NPS:
  - FVA<= 24.5 cm ACCz, 95 percent Confidence Level (12.5 cm RMSEz)
  - CVA<= 36.3 cm, 95th percentile
  - SVA<= 36.3 cm, 95th percentile
- For LiDAR collected at 0.7 meter NPS:
  - FVA<= 18.5 cm ACCz, 95 percent Confidence Level (9.255 cm RMSEz) for LiDAR collected at 0.7M NPS
  - CVA<= 27.7 cm, 95th percentile
  - SVA<= 27.7 cm, 95th percentile
- All QA/QC analysis materials and results are to be delivered to the USGS.
- Depressions (sinks), natural or man-made, are not to be filled (as in hydro-conditioning and hydro-enforcement).
- Water bodies (ponds and lakes), wide streams and rivers (double-line), and other non-tidal water bodies as defined in the section called Hydro-flattening are to be hydro-flattened within the DEM. Hydro-flattening shall be applied to all water impoundments, natural or man-made, that are larger than 2 acres in area (approximately equal to a round pond 350 feet in diameter), to all streams that are nominally wider than 100 feet, and to all non-tidal boundary waters bordering the project area regardless of size. The methodology used for hydro-flattening is at the discretion of the data producer.

Note: Please refer to the section called Hydro-Flattening and appendix 3 for detailed discussions of hydro-flattening.

### **Breaklines**

Breaklines are not required to meet the Nebraska LiDAR standards. Delivery of the breaklines used in hydro-flattening is a standard requirement for USGS NGP LiDAR projects. If LiDAR is collected as part of a USGS NGP LiDAR project and hydro-flattened with breaklines, breakline deliverables include the following items:

- Breaklines shall be developed to the limit of the Buffered Project Area.
- All breaklines developed for use in hydro-flattening shall be delivered as an ESRI feature class (PolylineZ or PolygonZ format, as appropriate to the type of feature represented and the methodology used by the data producer). Shapefile or geodatabase is required.
- Each feature class or shapefile will include properly formatted and accurate georeference information in the standard location. All shapefiles must include a correct and properly formatted \*.prj file.
- Breaklines must use the same coordinate reference system (horizontal and vertical) and units as the LiDAR point delivery.
- Breakline delivery may be as a continuous layer or in tiles, at the discretion of the data producer. In the case of tiled deliveries, all features must edge-match exactly across tile boundaries in both the horizontal (X-Y) and vertical (Z) spatial locations.

# NITC 3-204

## Imagery Standards

---

**Review Version 2**  
**(Date 9.3.2014)**

Category: Data and Information Architecture  
Applicability: See Each Section of Standards  
History: Adopted on [Month Day, Year]



**NEBRASKA INFORMATION TECHNOLOGY COMMISSION GIS COUNCIL**

---

# TABLE OF CONTENTS

---

<b>1.0 Standard</b>	<b>1</b>
1.1 Description	1
1.2 Acquisition and Processing	2
1.3 Data Format	7
1.4 Maintenance	7
1.5 Quality Control	7
1.6 Integration with other Standards	8
1.7 Metadata	8
<b>2.0 Purpose and Objectives</b>	<b>9</b>
2.1 Purpose	9
2.2 Objectives	9
<b>3.0 Definitions</b>	<b>9</b>
<b>4.0 Applicability</b>	<b>12</b>
4.1 State Government Agencies	12
4.2 State Funded Entities	12
4.3 Other	12
<b>5.0 Responsibility</b>	<b>12</b>
5.1 NITC	12
5.2 State Agencies	12
5.3 Granting Agencies and Entities	13
5.4 Other	13
<b>6.0 Authority</b>	<b>13</b>
6.1 NITC GIS Council	13
<b>7.0 Related Documents</b>	<b>13</b>

## 1.0 Standard

### 1.1 Description

This standard provides requirements necessary for the creation, development, delivery, and maintenance of aerial imagery acquisition to support a statewide Nebraska Imagery Program. There are multiple uses for imagery and data acquisition is expensive and requires preplanning. These standards are set at a minimum such that the majority of applications and needs are met across the state.

It is important to collect ortho-rectified imagery so that ground features can be measured and other data layers can be created from the data source which has a strong relationship to ground control. The data required for ortho-rectification include orientation parameters for the source image(s) and a digital elevation model (DEM) of the geographic area to be covered by the imagery. Ortho-rectification corrects for tip and tilt of the aircraft and displacement in the photograph caused by changes in the ground elevation.

Generally, the development of ortho-rectified imagery requires the acquisition of overlapping photography of the same geography and some combination of surveyed ground control and airborne (Global Positioning System) GPS collection at the time of photography. A photogrammetrist performs image correlation techniques and aero-triangulation on the resulting block of photographs to establish the orientation parameters of the individual image. Using a most recent DEM source or new LiDAR DEM provides the base for which the new imagery is rectified. These operations make ortho-rectified imagery more expensive than uncorrected aerial photography, but also make it far more accurate and useful.

Ultimately, accurate base maps can be derived from ortho-rectified imagery because the image has been geometrically corrected such that the scale is uniform. Streets and roads, curbs, manholes, water edge, tree inventories, fire hydrants, and numerous other features can be accurately mapped from the imagery. This also allows for accurate measurements of features and relationships between features, directly on the photograph.

The standard provides a consistent structure for data producers and users to ensure compatibility of datasets within the same framework layer and when used between other Nebraska Spatial Data Infrastructure (NESDI) framework layers such as survey and geodetic control and LiDAR.

This standard does not restrict or limit additional buy-ups of imagery data and services. These standards are meant to be a minimum set of standards and are subject to be updated based on technology enhancements, necessary workflow changes, and other data requirements. Other imagery data that is available at specifications that are above the minimum standard will be evaluated on a case-by-case basis.

The standard is not intended to be a substitute for an implementation design. These standards can be used at local, state and federal level to ensure interdisciplinary compatibility and interoperability with other framework layers. These standards integrate with existing standards such as the American Society for Photogrammetry and Remote Sensing (ASPRS) and other NITC related standards.

## 1.2 Acquisition and Processing

### 1.2.1 Flight Specifications

Proper planning and pre-flight requirements are necessary steps prior to acquiring imagery. This includes consideration of temporal requirements, proper flight planning, and ensuring that the characteristics of the sensors used in acquisition of imagery meet these requirements.

#### 1.2.1.1 Temporal Requirements

Time of Day: Imagery will need to be acquired during minimal shadow conditions. Image acquisition shall occur when the sun angle is equal to or greater than 30-degrees.

Time of Year: All imagery shall be collected during the late-Winter / early-Spring flying season during leaf-off conditions for deciduous vegetation in Nebraska. Exceptions can be made on a case-by-case basis for certain applications requiring leaf-on imagery.

#### 1.2.1.2 Flight Plans

Flight line orientation for all flight lines shall be in a cardinal direction, either north-south or east-west orientation when feasible. Flight plans must be approved prior to imagery acquisition. Information will need to be provided including project boundary, flight line numbers, flight line locations, and recommended ground control locations. If a frame sensor is used, exposure numbers should be included as well. For quality assurance purposes, the vendor shall submit copies of flight logs as part of the preliminary imagery deliverables.

#### 1.2.1.3 Sensor Characteristics

The entire mission in a given year must be flown with sensors having the same specifications. The system shall use square pixels (ground footprint) at all times during processing. The technique of using aggregated detectors resulting in a rectangular pixel before blending with other channels shall not be used. The aerial camera shall be a precision aerial mapping camera equipped with a low distortion, high resolution lens. Camera characteristics shall be such that the aerial photographs taken can be satisfactorily used with the vendor's proposed photogrammetric compilation equipment and environment. Calibration certificates for all systems to be used for acquisition will need to be provided.

#### 1.2.1.4 Sun Angle

The images should be acquired only during the portion of the day when the sun angle exceeds the minimum of 30 degrees. To expedite acquisition within the photo periods, different sun angles may be permitted, provided the image does not have excessive shadows that preclude interpretation and data collection.

### 1.2.2 Ground Control

Ground control needs to be established of sufficient density and accuracy to meet the accuracy requirements of the ortho-rectified imagery.

Ground controls points used for aerial triangulation should be at least three times better than the expected accuracy of aerial triangulation solution. For example, in order to produce an orthophoto with an  $RMSE_r$  of 15cm, the aerotriangulation results should have an  $RMSE_{xyz}$  of 7.5 cm and the ground control used should have  $RMSE_{xyz}$  of 2.5 cm. The control shall be sufficient to supplement the airborne GPS and Inertial Measurement Unit (IMU) in order to meet the required product accuracies.

For all photogrammetric data sets, the accuracy of the aerial triangulation or INS orientation (if used for direct orientation of the camera) should be at least twice the accuracy of derived products, as evaluated at higher accuracy check points using stereo photogrammetric measurements. Ground control and blind quality control points shall be required for softcopy aero- triangulation and ortho-photography generation to meet the accuracies specified.

Both ground control and quality control points will be based on a county or project area size depending on the scope of the project to be flown. The control diagrams, indicating the anticipated vertical and horizontal accuracies, will be reviewed before imagery collection begins.

The availability and/or quality of any existing ground control will need to be determined prior to flight acquisition. Any new control established for a project area will be delivered including sketches, pictures of control locations, and an ISO 19115 compliant metadata file. Those responsible for evaluating ground control should not assume that control exists, but it could be beneficial to use existing control if possible.

#### 1.2.2.1 Global Positioning Systems (GPS)

If additional ground control needs to be established, the ground control shall be established with survey grade instrumentation. The GPS control survey needs to be conducted with a licensed surveyor or engineer representing the quality control process. A plan will need to be provided to recommend and coordinate the placement of ground control target locations of a sufficient quantity and size to control the photogrammetric accuracy specifications. Any new ground control established must be tied to the Nebraska NAD83 horizontal datum. All ground control points must be documented as such so that they are easily located by other surveyors throughout the duration of the project.

The horizontal root-mean-square error (RMSE) of the airborne GPS control data shall not exceed 0.2m. The vertical RMSE of the Airborne GPS control shall not exceed 0.3m.

#### 1.2.2.2 Digital Elevation Model (DEM)

Elevation data is necessary for ortho-rectifying imagery. A digital elevation model (DEM) shall be developed at a density level necessary to support the imagery ortho-rectification process.

The elevation data may come from various sources to build a DEM. Elevation data may be derived from LiDAR, photogrammetry or autocorrelation as long as it provides sufficient accuracy and precision to support imagery horizontal accuracy requirements. Preference is to use LiDAR where it is available in the state. The DEM shall consist of points spaced at regular intervals along a grid, points of significant high or low elevations, and ortho-photography specific breaklines at all significant terrain breaks. In cases, where breaklines are not available suitable breaklines will need to be created to support an elevation dataset. It is not necessary to capture break lines at all curbs, ditches, stream banks, or other similar minor terrain breaks. The DEM shall be free of artifacts and data voids. The vertical accuracy of the DEMs developed to support production of the ortho-rectified imagery shall be sufficient to guarantee the horizontal accuracy specified in these standards.

The U.S. Geological Survey's National Elevation Dataset (NED) has 1/3 arc-second digital elevation model (DEM) data. Unless an area is very flat, the NED should not be used for less than 12 inch resolution data where higher accuracy is required.

There is no guarantee that the available DEM will be adequate to meet the final product accuracy specifications. An updated DEM is necessary in order to support the ortho-rectification production specifications and accuracy standards. This may require the acquisition of LiDAR to complete this task.

Updates to the existing DEM need only support the ortho-rectification process and are not required to support contour modeling or other applications. The DEM data is not to be stored as a record (Z component) for each pixel of the ortho-rectified image.

### 1.2.3 Ground (Spatial) Resolution

The final imagery output needs to be at a minimum of 12 inch ground sample distance (GSD). GSD is referred to as spatial resolution. This orthoimagery should meet ASPRS Class II horizontal accuracy standards for digital Orthoimagery and 1:2,400 Digital Planimetric Data.

A scale that equivalent higher resolutions (i.e., 6 inch) can be acquired as long as it meets the respective scales and horizontal accuracies associated to its desired spatial resolution found in section 1.2.6.

### 1.2.4 Spectral Resolution

Imagery will need to be provided in four primary spectral bands at 12 bit including Red (R), Green (G) and Blue (B) and Infrared (IR). All color imagery shall be the equivalent of natural true color, to include 256 levels of value for each color band for RGB. The sensor or camera shall save the bands in the following order: Red, Green, Blue, and infrared.

### 1.2.5 Radiometric Resolution

The digital aerial images shall be clear and sharp in detail and of high radiometric quality. The sensor shall capture the images in an uncompressed "lossless" image format. The

sensor shall, at minimum, utilize 12 bits per pixel radiometric resolution. Up-sampling from a lower bit depth to a higher bit depth is not allowed (e.g. resampling 8 bit data to 12 bit data). Color balancing shall result in colors which appear natural to a human observer. Image contrast and brightness shall be adjusted to minimize perceptible differences within and between adjacent images.

### 1.2.6 Horizontal Accuracy

Horizontal accuracy assessment will be required for both in absolute and relative conditions. The pixel size of the final digital orthoimagery is being considered for this assessment not the GSD of the raw image that is used to establish the horizontal accuracy class.

- Absolute requires the use of ground control points for testing purposes. These points, found in the image and coordinates from the ortho-rectified image, are compared to the published coordinates.
- Relative horizontal accuracy assessment involves the visual inspection of adjacent images for edge matching, and the comparison of the ortho-rectified image to planimetric data. The relative displacement would be quantified.
- Recommendations for achieving the horizontal accuracy assessment shall be provided prior to acquisition including the number of and the distribution of check points within the project. QC points should be included in flight and control layout prior to acquisition.

The final imagery output needs to meet horizontal accuracy requirements established by ASPRS Class II accuracy for a minimum 12 inch GSD as defined in the following table.

<b>Horizontal Data Accuracy Class</b>	<b>RMSE<sub>x</sub> and RMSE<sub>y</sub></b>	<b>Orthophoto Mosaic Seamline Maximum Mismatch</b>	<b>Aerial Triangulation or INS-based RMSE<sub>x</sub> RMSE<sub>y</sub> and RMSE<sub>z</sub></b>
I	Pixel size x 1.0	Pixel size x 2.0	Pixel size x 0.5
II	Pixel size x 2.0	Pixel size x 4.0	Pixel size x 1.0
III	Pixel size x 3.0	Pixel size x 6.0	Pixel size x 1.5
...			
N	Pixel size x N	Pixel size x 2N	Pixel size x 0.5N

When producing digital orthoimagery, the GSD as acquired by the sensor (and as computed at mean average terrain) should not be more than 95% of the final orthoimagery pixel size. In extremely steep terrain, additional consideration may need to be given to the variation of the GSD across low lying areas in order to ensure that the variation in GSD across the entire image does not significantly exceed the target pixel size.

The following table serves as a guide for three common ASPRS horizontal accuracy standards for planimetric maps intended for use at common map scales.

<b>Orthophoto Pixel Size</b>	<b>Horizontal Data Accuracy Class</b>	<b>RMSE<sub>x</sub> or RMSE<sub>y</sub> (cm)</b>	<b>RMSE<sub>r</sub> (cm)</b>	<b>Orthophoto Mosaic Seamline Maximum Mismatch (cm)</b>	<b>Horizontal Accuracy at the 95% Confidence Level (cm)</b>
7.5-cm (~3 in)	I	7.5	10.6	15.0	18.4
	II	15.0	21.2	30.0	36.7
	III	22.5	31.8	45.0	55.1
15-cm (~6 in)	I	15.0	21.2	30.0	36.7
	II	30.0	42.4	60.0	73.4
	III	45.0	63.6	90.0	110.1
30-cm (~12 in)	I	30.0	42.4	60.0	73.4
	II	60.0	84.9	120.0	146.9
	III	90.0	127.3	180.0	220.3

### 1.2.7 Projection and Datum

Imagery for the project will be referenced to the North American Datum of 1983 (NAD83) using the 2007 HARN adjustment, and the North American Vertical Datum of 1988 (NAVD 88) with the latest ellipsoid and Geoid09 adjustments. Imagery shall be oriented to the appropriate Nebraska State Plane using U.S. Feet.

### 1.2.8 Pixel Clarity

Pixel clarity is defined by pixel size and relation to the ground sample distance (GSD) of the specified pixel size. It is not recommended to resample from a coarser image to obtain a finer image resolution. The image can be resampled from a sharper image for a coarser image (i.e., obtaining an 18-inch pixel resolution from one foot).

### 1.2.9 Image Quality

Images shall be tonally balanced and image mosaics shall be uniform in contrast without abrupt variations between image tiles. Imagery shall be free of blemishes, and artifacts that obscure ground feature detail. Pixel resolution shall not be degraded by excessive image smear. Imagery shall have a tonal range that prevents the clipping of highlights or shadow detail from the image.

### 1.3.0 Environmental Conditions and Obstructions

To the extent possible, no clouds, snow, fog, haze, smoke, or other ground obscuring conditions shall be present at the time of the flights. Ground conditions are free of snow, flooding and excessive soil moisture. Streams and rivers should be within their normal banks, unless otherwise negotiated. Spectral reflectance from water must be minimized and should not obscure shoreline features. In no case will the maximum cloud cover exceed 5% per image.

### 1.3.1 Edge Effects

Sufficient end and side laps need to be taken into consideration to prevent any gaps in coverage and to provide all necessary coverage for accurate ortho-rectification and visual

interpretation. The crab shall not be in excess of three (3) degrees; and, tilt of the camera from verticality at the instant of exposure shall not exceed three (3) degrees.

#### 1.3.2 Building Lean

Additional supplemental flight lines should be acquired in areas of tall buildings to limit building lean in city blocks. Recommended supplemental flight lines should be provided in preliminary flight layout for prior review and approval.

### 1.3 Data Format

The data format provided will need to be in uncompressed tiles in a GeoTIFF format that can be interpreted by commercial imagery and GIS software. Tile schemes will need to be provided at 5,000 feet x 5,000 feet. If mosaic imagery is suggested, the area of interest (AOI) or collection area (i.e., county, quadrangle, city, etc) will need to be provided. The mosaic imagery need to be compressed and provided as JPEG2000 with a compression ratio of 20:1.

### 1.4 Maintenance

Entities responsible for data acquisition and deliverables will need to assure data meets standards and are updated and maintained in a timely manner. After spatial and attribute updates and/or modifications are performed to the data it shall be submitted to the appropriate entity(s) responsible for performing quality control and maintenance of the data acquisition.

Maintenance of elevation data determines the suitability to support the greatest range of applications. Many projects require up-to-date, accurate and consistent elevation data and maintenance of this data is necessary to provide the maximum return on investment.

#### 1.4.1 Reporting Errors and Handling Updates

The reporting of errors need to be directed to the appropriate entity in a timely manner. Updated spatial and attribute information in the data will also need to be redistributed. The date field in the metadata when the last record was modified will also need to be updated to ensure proper records management and communication with others in the workflow.

### 1.5 Quality Control

A quality control process is required by a third-party to ensure the delivery of an image product that satisfies the requirements as defined by these standards. The quality of imagery acquisition is evaluated based on the overall functional correctness and completeness of the technical requirements that also include a horizontal accuracy test. In the event that data does not meet specific requirements of these standards, the imagery will be rejected and the vendor will be required to either reacquire or re-process data appropriately to meet these standards.

#### 1.5.1 Horizontal Accuracy Test

A number of check points will need to be collected within each area of interest to verify the horizontal accuracy of the ortho-rectified production process. The check points must be completely independent of ground control used during aero-triangulation and data

production. The recommended number of check points based on the size of area will follow ASPRS guidelines.

#### 1.5.2 Re-Flights

A plan for re-flights of areas will need to be provided in the event of image rejection during the quality control process, or where original imagery could not be collected because weather or ground cover conditions, or other factors outside the control of the vendor precluded collection at the scheduled time of the flyover. Mechanical or technical problems shall not be considered a legitimate reason for non-collection.

### 1.6 Integration with other Standards

#### 1.6.1 Street Centerline Standards (NITC 3-205)

These minimum standards for imagery acquisition are designed to ensure the acquisition of imagery sufficient to meet the requirements for digitizing street centerlines as required in the Street Centerline Standards NITC 3-205.

#### 1.6.2 Address Standards (NITC 3-206)

These minimum standards for imagery acquisition are designed to ensure the acquisition of imagery sufficient to meet the requirements for digitizing street centerlines as required in the Address Standards NITC 3-206.

### 1.7 Metadata

Complete and comprehensive metadata is required for the acquired imagery. The metadata will require detailing the characteristics and quality of submitted imagery files. Information needs to be provided to allow the user sufficient information so they can determine the data's intended purpose as well as how to access the data. The metadata requires a process description summarizing collection parameters such as: contact information, data source, scale, accuracy, projection, use restrictions, and imagery acquisition dates. The process description will also need to be included to describe methodology towards the deliverable products.

#### 1.7.1 Federal Metadata

The ISO 19115:2003(E) North American Profile (NAP) Metadata Standards should be used when feasible and in every effort possible to assure high quality rigorous standards. Metadata will need to be supplied for each tile and be provided in an XML format. All imagery datasets, and their associated attribute databases should be documented with ISO 19115 compliant metadata. Supplemental metadata information includes the following: (1) tested horizontal accuracy statement, (2) lineage, including, but not limited to: flight height, photo acquisition dates (and re-flights if any), overlap, sidelap, number of flight lines, number of exposures, direction of flight lines, control, resolution, tiling scheme, file sizes, description of the process used to create digital orthophotos, source of DEM, and (3) spatial reference information: projection, ellipsoid, horizontal and vertical datum, and horizontal and vertical units.

#### 1.7.2 State Metadata

These standards need to apply to Nebraska's metadata standards located within NITC 3-201 Geospatial Metadata Standard. All metadata from imagery files will need to be registered through the metadata portal at NebraskaMAP (<http://NebraskaMAP.gov>). All developers of Nebraska-related geospatial data are encouraged to use the site to either

upload existing metadata and/or use the online tools available on the site to create the metadata for imagery.

## 2.0 Purpose and Objectives

### 2.1 Purpose

The purpose of this standard is to provide the necessary requirements for the creation, development, delivery, and maintenance of aerial imagery data and services to support the Nebraska Spatial Data Infrastructure (NESDI). These standards will help ensure that imagery acquisition is consistent, accurate, publicly accessible, and cost-effective.

### 2.2 Objectives

These standards will guide the statewide imagery program having the following objectives:

- 2.2.1 Provide guidance and necessary workflows to state and local officials as they work, either in-house or with private vendors, to create, develop and maintain aerial imagery data and services. This can increase the likelihood that the data created will be suitable for the range of intended applications and likely future applications. The maintenance of aerial imagery data is necessary for the data to be current and accurate.
- 2.2.2 Enhance coordination and program management across jurisdictional boundaries by insuring that aerial imagery data can be horizontally integrated across jurisdictional and/or project boundaries, and other framework data layers for regional or statewide applications.
- 2.2.3 Save public resources by facilitating the sharing of aerial imagery data among public agencies or sub-divisions of agencies by incorporating data standards and following guidelines. Data that is developed by one entity can be done in a way that is suitable to serve the multiple needs of other entities. This avoids the costly duplication of developing and maintaining similar data in the state.
- 2.2.4 Make aerial imagery data current and readily accessible to the wide range of potential users through NebraskaMAP and other necessary resources.
- 2.2.5 Facilitate harmonious, trans-agency and public policy decision-making and implementation by enabling multiple agencies and levels of government to access and appropriately use current aerial imagery data. This can make it more likely that intersecting public policy decisions, across levels of government, will be based on the same information.
- 2.2.6 Lay the foundation for facilitating intergovernmental partnerships for the acquisition and development of high-quality aerial imagery data by defining standards that increase the likelihood that this data will meet the needs of multiple users.
- 2.2.7 Establish and promote the integration and interrelationships of aerial imagery data with related NESDI framework layers through geometric placement and attributes.

## 3.0 Definitions

### Accuracy

*Absolute* - A measure of the location of features on a map compared to their true position on the face of the earth.

*Relative* - A measure of the accuracy of individual features on a map when compared to other features on the same map.

Band - A range of wavelengths of electromagnetic radiation.

Check Point – One of the surveyed points in the sample used to estimate the positional accuracy of the data set against an independent source of higher accuracy.

Confidence Level – The percentage of points within a data set that are estimated to meet the stated accuracy; i.e., accuracy reported at the 95% confidence level means that 95% of the positions in the data set will have an error with respect to true ground position that are equal to or smaller than the reported accuracy value.

Datum – A set of values used to define a specific geodetic system.

Digital Elevation Model - A digital cartographic representation of the elevation of the land at regularly spaced intervals in x and y directions, using z-values referenced to a common vertical datum. A DEM also assumes bare-earth terrain, void of vegetation and manmade features. The USGS DEMs archived in the National Elevation Dataset (NED) have different formats based on 1-arc-second, 1/3-arc-second, and 1/9-arc-second grid spacing.

Forward Lap or End Lap - The extent to which sequential exposures in a flight line overlap

Ground Sample Distance (GSD) – The linear dimension of a sample pixel's footprint on the ground. Within these standards GSD is used when referring to the collection GSD of the raw image, assuming near-vertical imagery. The actual GSD of each pixel is not uniform throughout the raw image and varies significantly with terrain height and other factors. The GSD is assumed to be the value computed using the camera focal length and camera height above average mean terrain.

Ground (spatial) resolution or pixel size – As used within these standards, pixel size is the ground size of a pixel in a digital ortho-rectified imagery product, after all rectifications and resampling procedures.

Horizontal Accuracy - The horizontal component of the positional accuracy of a data set with respect to a horizontal datum, defined at the 95% confidence level.

Image Correlation – Directly comparing hardcopy or softcopy images, or patches of pixels on conjugate digital images, or indirectly comparing information derived from the stereo images, to determine that points on stereo images (viewed from different perspectives) represent the same points on the imaged surface. Automated image correlation is a computerized technique to match the similarities of pixels in one digital image with comparable pixels in its digital stereo image in order to automate or semi-automate photogrammetric compilation. Automated image correlation provides an efficient method for generating DEMs photogrammetrically, but automated correlation normally results in Digital Surface Models (DSMs) instead of DEMs because such correlation generates elevations of rooftops, treetops and other surface features as imaged on the stereo photographs.

Inertial Measurement Unit (IMU) - An electronic device that measures and reports velocity, orientation, and gravitational forces, using a combination of accelerometers and gyroscopes, sometimes also magnetometers. IMUs work to detect changes in pitch, roll, and yaw of an aircraft. IMUs are typically used to maneuver aircraft, including unmanned aerial vehicles (UAVs), among many others, and spacecraft, including satellites and landers.

Leaf-Off / Leaf-On - Leaf-off and leaf-on refer to the presence or lack of the foliage of woody species. Leaf-off means that there is no foliage or a reduced amount of foliage on the tree or shrub species. Leaf-on imagery means that there is foliage on the tree or shrub species (or the species of interest). Sometimes it is beneficial to have leaf-off imagery so that you can see ground features more distinctly. This is helpful for mapping features such as buildings and roads, which may be obscured by tree foliage during the growing season. Leaf-off imagery is also used in forestry applications because the lack of leaves on some trees facilitates the classification of tree types. There are times when you might want leaf-on imagery, especially if the tree or shrub species has a distinctive spectral reflectance that can be distinguished from other vegetation. Leaf-on imagery is also used in agricultural applications to measure the quantity and health of crops. Many woody species may have similar spectral reflectance or structure that may benefit from either a leaf-off or leaf-on flyover.

Map or Cartographic Scale - The relationship between a given distance on the ground and the corresponding distance on a photograph or image. Scale is expressed in at least two different ways. Both are ratios. In the first, commonly used measuring systems are compared; for example 1" = 200' (one inch on the map equals 200 feet on the earth). In the second, the map unit is arbitrary; for example, 1:200 means that one of anything (an inch, a foot, a centimeter, etc.) on the map equals 200 of that same unit on the earth. (1"=200' is the same scale as 1:2400). Scale is presented in several ways: as a bar at the bottom of the map, as a ratio (1:200), or as an equation (1"=200').

Nebraska Spatial Data Infrastructure (NESDI) - A framework of geospatial data layers that have multiple applications, used by a vast majority of stakeholders, meet quality standards and have data stewards to maintain and improve the data on an ongoing basis. These layers are also consistent with the Federal National Spatial Data Infrastructure (NSDI).

Ortho-rectification - The process by which a photograph is prepared from a perspective photograph by removing displacements of points caused by tilt, relief and perspective.

Planimetric - Data about non topographic features on the earth surface that are represented only by their horizontal position.

Projection – A map projection flattens the earth, allowing for locations to be systematically assigned new positions so that a curved surface can be represented on a flat map.

Resolution – The smallest unit a sensor can detect or the smallest unit an ortho-rectified image depicts. The degree of fineness to which a measurement can be made.

Root Mean Square Error (RMSE) – The square root of the average of the set of squared differences between data set coordinate values and coordinate values from an independent source of higher accuracy for identical points.

RMSEr – The horizontal linear RMSE in the radial direction that includes both x- and y-coordinate errors.

RMSEx – The horizontal linear RMSE in the X direction (easting).

RMSEy - The horizontal linear RMSE in the Y direction (northing).

RMSEz - The vertical linear RMSE in the Z direction (elevation).

Side Lap - The extent to which the exposures of adjacent flight lines overlap, typical side lap for a block of aerial photography is 30%.

State Plane Coordinate System - The State Plane Coordinate System is a set of 124 geographic zones or coordinate systems designed for specific regions of the United States. It uses a simple Cartesian coordinate system to specify locations rather than a more complex spherical coordinate system (the geographic coordinate system of latitude and longitude). By thus ignoring the curvature of the Earth, "plane surveying" methods can be used, speeding up and simplifying calculations. The system is highly accurate within each zone (error less than 1:10,000). Outside a specific state plane zone, accuracy rapidly declines, thus the system is not useful for regional or national mapping.

## **4.0 Applicability**

### **4.1 State Government Agencies**

State agencies that have the primary responsibility for developing and maintaining aerial imagery data for a particular jurisdiction(s) or geographic area (e.g. for counties for which it has assumed the primary role) are required to comply with the standards as described in Section 1. Those state agencies with oversight responsibilities in this area are required to ensure that their oversight guidelines, rules, and regulations are consistent with these standards. The Nebraska Department of Roads has other imagery acquisition requirements for wetland and reconnaissance projects. They will continue to adhere to their independent photogrammetry requirements as suggested in the NDOR On-Call Digital Aerial Photography, Photogrammetric and Airborne LiDAR Services.

### **4.2 State Funded Entities**

Entities that are not State agencies but receive State funding, directly or indirectly, for aerial imagery development and maintenance for a particular jurisdiction or geographic area are required to comply with the standards as described in Section 1.

### **4.3 Other**

Other entities, such as city and local government agencies (e.g. County Engineer, assessors, and municipalities) that receive state funds have the primary responsibility for developing and maintaining aerial imagery data are required to comply with the standards as described in Section 1.

## **5.0 Responsibility**

### **5.1 NITC**

The NITC shall be responsible for adopting minimum technical standards, guidelines, and architectures upon recommendation by the technical panel. Neb. Rev. Stat. § 86-516(6)

### **5.2 State Agencies**

The State of Nebraska, Office of the CIO (OCIO) GIS Shared Services will be responsible for assuring that metadata is completed and the data is registered and available for distribution through NebraskaMAP.

### 5.3 Granting Agencies and Entities

State granting or fund disbursement entities or agencies will be responsible for ensuring that these standards are included in requirements related to fund disbursements as they relate to aerial imagery.

### 5.4 Other

Local government agencies that have the primary responsibility and authority for aerial imagery acquisition will be responsible for ensuring that those sub-sections defined in Section 1 will be incorporated in the overall NSCD data development efforts and contracts.

## 6.0 Authority

### 6.1 NITC GIS Council

According to Neb. Rev. Stat. § 86-572(2), the GIS Council shall: Establish guidelines and policies for statewide Geographic Information Systems operations and management (a) The acquisition, development, maintenance, quality assurance such as standards, access, ownership, cost recovery, and priorities of data bases; (b) The compatibility, acquisition, and communications of hardware and software; (c) The assessment of needs, identification of scope, setting of standards, and determination of an appropriate enforcement mechanism; (d) The fostering of training programs and promoting education and information about the Geographic Information Systems; and (e) The promoting of the Geographic Information Systems development in the State of Nebraska and providing or coordinating additional support to address Geographic Information Systems issues as such issues arise.

## 7.0 Related Documents

- 7.1 American Society for Photogrammetry and Remote Sensing (ASPRS), ASPRS Accuracy Standards for Digital Geospatial Data (2014).
- 7.2 FGDC Content Standard for Digital Geospatial Data Version 2 (FGDC-STD-001-1998).
- 7.3 ISO 19115:2003(E) North American Profile (NAP) Metadata Standards. National Oceanic and Atmospheric Administration (NOAA). January 2012.

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

Project: <b>LINK – Procurement</b>		Contact: <b>Bo Botelho</b>				
Start Date	01/14/2013	Orig. Completion Date	10/31/2013	Revised Completion Date	01/06/2014 Pending	
	October	September	July	May	March	February
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
<p>Workday Procurement standardizes business processes for procurement documents. Workday Procurement will be the data entry location for all procurement documents (requisitions, purchase orders and contracts). Approvals and printing of the documents will be processed in Workday. Selected supplier websites will be available for access to state contracted pricing through punch-out capability. Purchase Orders will be interfaced in to the State’s financial system for encumbering, receipts, and accounts payable. Suppliers will be available for selection in Workday and their associated commodities and procurement contact information will be maintained within Workday.</p> <p>Project Estimate: \$1,895,800 (\$1,624,009.27 has been expended)</p>						
<b>Comments</b>						
<p><b>October update:</b>  The Workday Procurement project has been suspended. The Department will continue to prioritize the current upgrading of the EnterpriseOne financial system and ongoing support of the existing HCM solution.</p> <p><b>September update:</b>  The Workday solution is currently in the development and testing phase. However, development and implementation has been delayed by the Administrative Services HCM project as well as the current EnterpriseOne upgrade. Further, it has been determined that the Department does not have sufficient resources, staff or appropriations, to expand the original statement of work for this project enterprise wide, address the integration costs associated with the layering of Workday procurement onto the existing EnterpriseOne system, and sustain the integration costs on an ongoing operational basis. The Department will continue to prioritize the current upgrading of the EnterpriseOne financial system and ongoing support of the existing HCM solution.</p> <p>Any further significant or future work or timelines related to the improvement or altering of the State’s current EnterpriseOne based procurement process will be determined via the upcoming 2015-2017 biennial budget process; departmental request, Governor’s recommendations, and legislative appropriations.</p> <p><b>Additional Comments/Concerns:</b>  None</p>						

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

Project: <b>Network Nebraska Education</b>		Contact: <b>Tom Rolfes</b>				
Start Date	05/01/2006	Orig. Completion Date	06/30/2012	Revised Completion Date	08/01/2015	
	October	September	July	May	March	February
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
<p>Network Nebraska-Education is a statewide consortium of over 260 K-12 and higher education entities working together to provide a statewide backbone, commodity Internet, distance education, and other value-added services to its participants. Network Nebraska-Education is managed by the State Office of the CIO partnering with the University of Nebraska Computing Services Network (UNCSN).</p> <p>Project Budget (2014-15): \$681,546 (\$23,561 has been expended)</p>						
<b>Comments</b>						
<p><b>October update:</b>            Looking ahead to the fall 2014 procurement, Omaha commodity Internet will be rebid, and there will be possible rebid of some WAN circuits and some segments of the statewide backbone. A provider information meeting was held on 8/19/2014 at Varner Hall, informing them of public safety and Network Nebraska-Education developments. After hearing from the FCC that there will be no national preferred master contracts for internal connections equipment, the ESU-NOC voted to have the Office of the CIO and State Purchasing procure maximum discounts on up to 9 different types of equipment such as wireless access points, cabling, switches/routers, etc... This will presumably be an invitation to bid to extend over the life of the FCC equipment funding (2015-2020) with a possible fiscal impact of \$52 million for Nebraska K-12 schools.</p> <p><b>September update:</b>            Recapping the Summer 2014 network upgrade, 14 new K-12 entities in Southeast Nebraska were routed to Network Nebraska-Education over two new aggregation circuits, to ESU 6 (Milford) and a second aggregation circuit to ESU 5 (Beatrice). Over 40 school districts in central and south central Nebraska changed contracts to a new provider and are being directly routed to the Grand Island College Park aggregation point. Backbone bandwidth capacity will be purchased at 2Gbps on all main transport segments as per the current contract with NebraskaLink, but burstable to 5Gbps through the life of the backbone contract, 6/30/2016. UNCSN network engineers have gone live with the Internet2 Commercial Peering Service and are monitoring bandwidth demands. Work is continuing on the dark fiber project to Grand Island/Kearney. A second Internet provider, Windstream, was activated on 7/1/2014 with egress out of Lincoln-Nebraska Hall, with approximately 12.5Gbps of bandwidth. Looking ahead to the fall 2014 procurement, Omaha commodity Internet will be rebid, and possible rebid of some WAN circuits and some segments of the statewide backbone. A provider information meeting was held on 8/19/2014 at Varner Hall, informing them of public safety and Network Nebraska-Education developments.</p> <p><b>Additional Comments/Concerns:</b>            The Network Nebraska-Education Participation Fee fund account will be updated with the 2014-15 estimated costs and the 1<sup>st</sup> quarter UNCSN invoice should be submitted shortly.</p> <p>Even though the Chief Information Officer fulfilled the Legislative benchmark of “providing access (the ability to connect) to every public K-12 and public higher education entity at the earliest date and no later than July 1, 2012” [Neb. Rev. Stat. 86-5,100], the NITC Technical Panel has extended the enterprise project designation for Network Nebraska-Education until 8/1/2015 so that all public school districts that want to participate have actually connected.</p>						

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

<b>Project:</b>	<b>Nebraska Statewide Radio System (formerly Public Safety Wireless)</b>	<b>Contact:</b>	<b>Mike Jeffres</b>			
Start Date	06/01/2009	Orig. Completion Date	09/30/2013	Project Completion Date	09/09/2014	
	September	July	May	March	February	November
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
<p>The Nebraska Statewide Radio System project is to establish a modern public safety communications system for state agencies. To improve coverage over 95% of the state, superior voice quality, and improved reliability, and to consolidate the state onto a common P25 digital radio standard.</p> <p>Project Estimate: \$11,038,000 (\$10,158,000 has been expended)</p>						
<b>Comments</b>						
<p><b>October update:</b> The project is complete.</p>						

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

<b>Project:</b>	<b>Nebraska State Accountability (NeSA) (formerly Statewide Online Assessment)</b>			<b>Contact:</b>	<b>John Moon</b>	
Start Date	07/01/2010	Orig. Completion Date	06/30/2011	Revised Completion Date	6/30/2015	
	October	September	May	March	February	November
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
<p>Legislative Bill 1157 passed by the 2008 Nebraska Legislature required a single statewide assessment of the Nebraska academic content standards for reading, mathematics, science, and writing in Nebraska’s K-12 public schools. The new assessment system was named Nebraska State Accountability (NeSA), with NeSA-R for reading assessments, NeSA-M for mathematics, NeSA-S for science, and NeSA-W for writing. The assessments in reading and mathematics were administered in grades 3-8 and 11; science was administered in grades 5, 8, and 11; and writing was administered in grades 4, 8, and 11.</p> <p>Project Estimate: \$5,364,408 (\$821,296.75 has been expended)</p>						
<b>Comments</b>						
<p><b>October update:</b>            During September, Nebraska Department of Education (NDE) staff members along with Data Recognition Corporation (DRC) test specialists constructed test forms for all NeSA - Reading, Math, and Science (NeSA-RMS) alternate and regular assessments for 2015. Students will take the tests between March 23<sup>rd</sup> and May 1, 2015.</p> <p>DRC INSIGHT and Testing Site Manager Installation Training for NESA technology assessment contacts were completed on September 3-4, 2014. In addition, training on INSIGHT and Testing Site Management &amp; Capacity/Load Testing was completed for N-TACs on September 16-17, 2014. Webex sessions were presented for eDIRECT Enrollments on Oct. 1-2.</p> <p>Updated manuals for C4L User Guide for Administrators and State Users became available on September 30, 2014. Updated version of Installing and Configuring INSIGHT on iPads and Chromebooks were posted on Oct 1, 2014.</p> <p>Issues reported by districts are being addressed by Ryne Keel and DRC helpdesk. NDE and Ryne of DRC are working to be present in districts to meet their needs for NeSA testing.</p> <p><b>September update:</b>            NeSA - Reading, Math, and Science (NeSA-RMS) reports for 2014 were reported to schools on July 16, 2014. The new contract was signed by Data Recognition Corporation (DRC) and Nebraska Department of Education (NDE) for the 2014-2015 school year, starting July 1, 2014 through June 30, 2015.</p> <p>WebEx Training for N-TACs on INSIGHT and TSM (Testing Site Manager) Installation will be September 3-4 followed by INSIGHT and TSM Management and Capacity/Load Testing training on September 16-17. DRC INSIGHT and TSM software was released on August 29<sup>th</sup>.</p> <p>Ryne Keel has joined DRC’s Level II Technical Support Team and will work remotely for DRC in Lincoln, Ne. He will provide technical support and assist with technical training for NeSA and C4L online testing</p> <p>NeSA Technology Trial to take place October 27 – November 7 will provide an opportunity for districts to vet their online testing systems, especially iPads and Chromebooks, using NeSA practice tests in the secure INSIGHT environment.</p> <p>DRC has identified the following devices will be supported in Spring 2015 administration of NeSA-RMS.</p> <ul style="list-style-type: none"> <li>• Chromebooks</li> </ul>						

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

- iPads
- Windows 8.1 Tablets (non-touch)

The following devices will be supported for all NeSA testing in Spring 2016.

- Windows 8.1 Tablets with touch
- Android

**Additional Comments/Concerns:**

Nebraska State Accountability (NeSA) is a statewide assessment system mandated by Nebraska Statute. Nebraska Department of Education has contracted with Data Recognition Corporation (DRC) to continue the development of the assessment system including management, development, delivery, administration, scanning/imaging, scoring, analysis, reporting, and standard setting for the online and pencil/paper reading, science, writing, and mathematics tests (NeSA-RMS) for July 1, 2014 through June 30, 2015. DRC will facilitate the delivery, administration, scanning/imaging, scoring, analysis, and reporting for the alternate pencil/paper reading, science, and mathematics tests during the same assessment window. DRC will deliver the online writing assessment (NeSA-W) for grades 8 and 11 and the pencil/paper writing assessment for grade 4 as well.

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

<b>Project: Nebraska Regional Interoperability Network (NRIN)</b>		<b>Contact: Sue Krogman</b>				
Start Date	10/01/2010	Orig. Completion Date	06/01/2013	Revised Completion Date	09/30/2015	
	October	September	July	May	March	February
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
<p>The Nebraska Regional Interoperability Network (NRIN) is a project that will connect a majority of the Public Safety Access Points (PSAP) across the State by means of a point to point microwave system. The network will be a true, secure means of transferring data, video and voice. Speed and stability are major expectations; therefore there is a required redundant technology base of no less than 100 mbps with 99.999% availability for each site. It is hoped that the network will be used as the main transfer mechanism for currently in-place items, thus imposing a cost-saving to local government. All equipment purchased for this project is compatible with the networking equipment of the OCIO.</p> <p>Project Estimate: \$9,354,009 (\$8,175,337.50 has been expended)</p>						
<b>Comments</b>						
<p>NEMA is struggling with issues of governance and maintenance of the network. Governance would be needed at the local jurisdiction and not at the state agency (there is no state agency heading the project, it's all run at the local jurisdiction). There is no formal governance heading the project.</p> <p><b>October update:</b>  Progress is slow because of the process of the Master Service Agreements with the OCIO. However, we are figuring out the system and expect for things to go much smoother in the near future. Estimated time for completion of the EC911 requirements for the East Central Region is 24 October 2014. At that time, both contractors will move to finish up links in the SE and NE Regions.</p> <p><b>September update:</b>  Because of a Master Service Agreement with the State OCIO, we were able to hire two contractors that both have experience with Ceragon Radio's. The contractors are working in conjunction with each other, one doing the equipment install and the other doing the alignment and configuration of all racked items. The OCIO will be configuring the routers for each of the places and working alongside the other two contractors.</p> <p><b>Additional Comments/Concerns:</b>  It's possible that upcoming target dates might be missed. Based on the uncertainty of the infrastructure needed for the project and the time involved in obtaining the environmental approvals to proceed with the project, any target dates are fluid. Delays are inevitable due to the difficulty in locating adequate tower sites and negotiating leasing agreements and/or MOU's.</p>						

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

Project: <b>MMIS</b>		Contact:						
Start Date	N/A	Orig. Completion Date			N/A	Revised Completion Date		N/A
	October	September	July	May	March	February		
Overall Status								
Schedule								
Budget								
Scope								
Comments								
<p>Project On Hold until renewed</p> <p>Funding has been appropriated for a MMIS replacement in the current biennial budget starting July 1, 2014. Once the project moves forward (a RFP will be developed) DHHS will resume monthly reporting.</p>								

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

Project: <b>District Dashboards</b>							Contact: <b>Dean Folkers</b>
Start Date	07/01/2013	Orig. Completion Date	06/30/2015	Revised Completion Date			
	October	September	July	April	March	February	
Overall Status							
Schedule							
Budget							
Scope							
<b>Project Description</b>							
<p>Made possible by a Statewide Longitudinal Data System (SLDS) grant from the United States Department of Education in 2012, the focus of the Nebraska Ed-Fi Dashboard initiative is to provide readily available data to the Nebraska classrooms to facilitate informed decision-making. Potential users include teachers, counselors, and administrators. NDE intends to leverage the Ed-Fi dashboard solution made available by the Michael &amp; Susan Dell Foundation to provide Nebraska with an advanced student performance dashboard system to be customized for Nebraska needs. The Ed-Fi data standard will serve to define the initial data elements powering the Nebraska Ed-Fi dashboard.</p> <p>Our Plan of Work for design, development, and piloting of the Nebraska Dashboards will commence in three phases, each to proceed subsequently upon successful completion of the previous phase, between the months of September 2013 and December 2014. The phases include: Phase I - Dashboard Readiness (September 2013-February 2014), Phase II – Dashboard Development (February 2014-June 2014), and Phase III – Dashboard Deployment (June 2014-December 2014).</p> <p>Project Estimate: \$466,623.75 has been expended, grant funds only</p>							
<b>Comments</b>							
<p><b>October update:</b>  Overall the project is running behind schedule by about four months for vendor implementation, SSO implementation, Ed-Fi v.Next on premise support and planned co-development/ knowledge transfer activities with Nebraska Department of Education staff. The project and sponsor have agreed to adjust the dashboard schedule due to vendor delays in development activities. The revised plan is to start staging activities in late fall 2014, dependent upon vendor progress, and reschedule the dashboard pilot testing for early 2015. Delays in vendor implementation and data staging will have an impact on the planned start of data warehouse validation. However, the project is still on schedule for data warehouse and accountability data mart pilot testing in the spring of 2015. The delay in co-development will not have an impact on planned staging activities with vendors nor the start of pilot testing.</p> <p><b>September update:</b>  Overall the project is running behind schedule by about three to four months for vendor implementation, SSO implementation, Ed-Fi v.Next on premise support and planned co-development/ knowledge transfer activities with NDE staff. The project team and sponsor are evaluating a revised timeline with a delay in the start of fall pilot testing until early 2015. The delay in co-development will not have an impact on planned staging activities with vendors nor the start of pilot testing. However, this delay could impact planned knowledge transfer and require a longer duration for planned co-development. NDE and DLP plan for extended period for co-development activities is being evaluated.</p> <p><b>Additional Comments/Concerns:</b>  None</p>							

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

Project: <b>EnterpriseOne System Upgrade</b>		Contact: <b>Lacey Pentland</b>				
Start Date	10/01/2013	Orig. Completion Date	10/03/2014	Revised Completion Date	TBD	
	October	September	July	May	March	February
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
<p>The State of Nebraska has been using JD Edwards to support the State’s agencies for over ten years. The current EnterpriseOne 9.0 system is relatively stable with a medium level of modifications. The program is planned, as much as possible, to be a technical upgrade with minimal impact on the existing business processes, interfaces and the related applications. The current applications landscape is proposed to be upgraded as follows:</p> <ul style="list-style-type: none"> <li>• Upgrade from E1 9.0 to E1 9.1 to stay current with the JD Edwards technology stack</li> <li>• Migrate/Retrofit required customizations to E1 9.1 based on the keep drop analysis</li> <li>• Be on the latest stack</li> <li>• Simplification of the existing ecosystem – minimize customization, expand usage of JDE application</li> <li>• Leverage standard functionalities provided by new features of E1 9.1</li> </ul> <p>Project Estimate: \$2,250,000 (\$917,449.60 has been expended)</p>						
<b>Comments</b>						
<p><b>October update:</b>  Adjustment to project dates is needed to get EnterpriseOne 9.1 code current and testing. The go-live date will be impacted.</p> <p><u>Current work completed:</u></p> <ul style="list-style-type: none"> <li>• Completed installing EnterpriseOne 9.1 code to bring the system current 9/15/2014.</li> <li>• Developers were given access to proceed with checking in code on 9/18/2014.</li> <li>• PY910 Full Package was built and deployed on 10/3/2014.</li> <li>• PY910 was released to the Functional Team on 10/01/2014 for data validation (completed on 10/06/2014).</li> <li>• Development is almost complete with BI Publisher objects still pending (approximately 145).</li> <li>• Functional Testing started week of 10/06/2014.</li> </ul> <p><u>Next Steps:</u></p> <ul style="list-style-type: none"> <li>• An action plan to be created to get BI Publisher objects in sync so development can be completed.</li> <li>• Complete the analysis of objects not in projects and get them promoted to PY910 for functional testing (Approximately 1000+).</li> <li>• Complete pending CNC items found in further analysis. This includes syncing BI Publisher objects across environments; install dCLINK ASU in PS910 and PD910, complete JDE.INI, Data Dictionary and UDC changes.</li> <li>• Continuation of Functional Testing.</li> <li>• Review plan for onboarding additional Wipro resource for FA/CAMS.</li> </ul> <p><b>September update:</b>  The CNC (Configurable Network Computing, a term specific to JD Edwards architecture and methodology) work is behind to make sure EnterpriseOne is code current. Wipro has brought in additional resources starting August 11, 2014. There may be project delays to ensure all the objects to be retested based on the updated coded installed. Overall Project at risk in regards to development and retrofit, functional and UAT testing will be impacted to make the system code current.</p> <p><u>Current work completed:</u></p> <ul style="list-style-type: none"> <li>• Developed a plan to get EnterpriseOne 9.1 code current</li> <li>• PD910 pathcode installation complete and is code current</li> <li>• DV910 pathcode is complete (copy from PD910) and is code current</li> </ul>						

**Nebraska Information Technology Commission**  
**Enterprise Project Status Dashboard – as of October, 2014**

**Next Steps:**

- Validation of PD910 & DV910 by SON CNC team
- Update PY910 and PS910 (Pristine) to code current
- Retrofit of modifications by development (this work has to be completed again since DV910 has been reinstalled to get code current)
- Functional and UAT testing needs to be scheduled

**Nebraska Information Technology Commission  
Enterprise Project Status Dashboard – as of October, 2014**

The project(s) listed below are reporting voluntarily and is not considered as an Enterprise Project by the NITC.

<b>Project: NeSIS PeopleSoft Campus Solutions</b>		<b>Contact: Jim Zemke</b>				
<b>ADA Compliance</b>						
Start Date	08/01/2010	Orig. Completion Date	12/31/2011	Project Completion Date	09/09/2014	
	September	July	May	March	February	November
Overall Status						
Schedule						
Budget						
Scope						
<b>Project Description</b>						
Requested						
Project Estimate: TBD						
<b>Comments</b>						
<p><b>September update:</b> The project is complete.</p>						

Color Legend	
	<p><b>Red</b>     <b>Project has significant risk to baseline cost, schedule, or project deliverables. Current status requires immediate escalation and management involvement.</b> Probable that item will <b>NOT</b> meet dates with acceptable quality without changes to schedule, resources, and/or scope.</p>
	<p><b>Yellow</b>     <b>Project has a current or potential risk to baseline cost, schedule, or project deliverables. Project Manager will manage risks based on risk mitigation planning.</b> Good probability item will meet dates and acceptable quality. Schedule, resource, or scope changes may be needed.</p>
	<p><b>Green</b>     <b>Project has no significant risk to baseline cost, schedule, or project deliverables.</b> Strong probability project will meet dates and acceptable quality.</p>
	<p><b>Gray</b>     <b>No report for the reporting period or the project has not yet been activated.</b></p>

# Project Status Form

General Information					
Project Name				Date	
Medicaid Eligibility & Enrollment Solution (EES) Phase II				10/14/2014	
Sponsoring Agency					
Nebraska Department of Health and Human Services (DHHS)					
Contact		Phone	Email	Employer	
Eric Henrichsen		402-471-8554	<a href="mailto:Eric.Henrichsen@nebraska.gov">Eric.Henrichsen@nebraska.gov</a>	DHHS	
Project Manager/Executive		Phone	Email	Employer	
Ruth Vineyard		402-471-9567	<a href="mailto:Ruth.Vineyard@nebraska.gov">Ruth.Vineyard@nebraska.gov</a>	DHHS	
<b>Project Start Date</b>	08/28/2014	<b>Project End Date</b>	06/30/2016	<b>Revised End Date</b>	mm/dd/yyyy
Key Questions				Explanation (if Yes)	
1. Has the project scope of work changed?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2. Will upcoming target dates be missed?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3. Does the project team have resource constraints?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				Many state resources are not full-time on the project and have other duties including other Legislative mandates to implement	
4. Are there problems or concerns that require stakeholder or top management attention?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Summary Project Status						
Any item classified as red or yellow requires an explanation in the Status box that follows this section. Additional priority items can be added to the list for status reporting.						
Select one color in each of the Reporting Period columns to indicate your best assessment of:	Last Reporting Period [MM/DD/YYYY]			This Reporting Period [10/14/2014]		
1. Overall Project Status	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Red	<input checked="" type="checkbox"/> Yellow	<input type="checkbox"/> Green
2. Schedule	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Red	<input checked="" type="checkbox"/> Yellow	<input type="checkbox"/> Green
3. Budget (capital, overall project hours)	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input checked="" type="checkbox"/> Green
4. Scope	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input checked="" type="checkbox"/> Green
5. Quality	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Red	<input checked="" type="checkbox"/> Yellow	<input type="checkbox"/> Green

Color Legend	
	Project has significant risk to baseline cost, schedule, or deliverables. Requires immediate escalation and management involvement.
	Project has a current or potential risk to baseline cost, schedule, or deliverables. PM will manage based on risk mitigation planning.
	Project has no significant risk to baseline cost, schedule, or project deliverables.

Monthly Status Summary
Provide a summary of the project status since the last reporting period. (This summary will become part of the monthly NITC Dashboard.)
The official kick-off for the project occurred on 8/28/2014. A four month contracting period impacted Wipro's ability to keep Key Personnel on the project. 4 of 6 Key Personnel have been replaced due to the start gap generated by the contracting process. Once the project started the project was hindered by the lack of a fully developed Integrated Project Plan, as well as a documented approach (beyond what was stated in the RFP) for how the project would be organized and the scope of the working groups. The project manager from Wipro has been changed and corrective actions are under way to finalize the Project Plan and Approach.

Significant Milestones (Met, Not Met, Scheduled) Insert additional lines as necessary.						
Milestone	Met	Not Met	Scheduled	Original Date	Actual Date	Impact (if late)
Project Kickoff	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	08/28/2014	08/28/2014	
Integrated Project Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	09/27/2014		Being Determined
Remaining Milestones being defined as part of Integrated Project Plan development)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Project Issues Insert additional lines as necessary.				
Description	Impact on Project - (H,M,L)	Date Resolution is Needed	Issue Resolution Assigned to	Date Resolved
Project Manager Performance	H	10/2/2014	Wipro, Project Board	10/2/2014
Integrated Project Plan Needed	H	10/10/2014	Wipro, Domain Leads	
Workgroup scope and approach needs to be defined	H	10/10/2014	Wipro, Domain Leads	

Impact: **H=High** - major impact on time, scope, cost. Issue must be resolved. **M= Medium**- moderate impact to time, scope, cost. **L=Low**- Issue will not impact project delivery

**Project Risks** Insert additional lines as necessary.

Major Risk Events	High Medium Low	Risk Mitigation	Mitigation Responsible Party
4 of 6 key names resources in the proposal are not available for the project.	Medium	Wipro to present resumes of replacements that have equal or better qualifications. State to review resumes and interview candidates if deemed necessary.	Project Board
No Integrated project plan.	High	Wipro to build WBS and project plan.	Wipro
The State does not currently have enough transparency on the activities that are underway by Wipro.	Medium	Wipro to build WBS and project plan.	Wipro
Project management site/tools are not yet available.	Low	Risks and concerns will be tracked outside the project tools until the tools are ready.	Wipro
The approach to requirements verification and work streams had too much focus on defining the as-is state.	Medium	Wipro will bring IBM into the conversation so the State can discuss the approach it would like to take per the RFP. Namely, Wipro/IBM is expected to bring their COTS Medicaid eligibility solution with best-practice business processes and allow the State to adopt their business processes to the software where practical.	Wipro, IBM, Domain Leads

**Decision Points** Insert additional lines as necessary.

Use this section to document any major decisions that impact target dates, scope, cost, or budget.

Decision Point	Decision Due Date	Decision made by (name or names)	Decision's Impact on Project

**Comparison of Budgeted to Actual Expenditures**

Use a chart like the following to show actual expenditures compared to planned levels. Break the costs into other categories as appropriate.

Fiscal Year [2015-2016]				
Budget Item	Actual Costs to Date	Estimate to Complete	Total Estimated Costs	Total Planned Budget

Salaries	\$10,569	\$9,298,020	\$9,308,589	\$9,308,589
Contract Services	\$938,440	\$36,962,788	\$37,901,228	\$37,901,228
Hardware	\$1,782,468	\$196,124	\$1,978,592	\$1,978,592
Software	\$6,218,151	\$2,306,718	\$8,524,869	\$8,524,869
Training	\$0	\$28,286	\$28,286	\$28,286
Other Expenditures*	\$1	\$0	\$1	\$0
Total Costs	\$8,949,629	\$48,791,935	\$57,741,565	\$57,741,564
Other Expenditures include supplies, materials, etc.				

**Additional Comments / Concerns** Use this section to insert comments / concerns not included in any other section.