

Nebraska Spatial Data Infrastructure Strategic Initiative Action Items 2015-2017

1. Action: Formalize the definition of the Nebraska Spatial Data Infrastructure (NESDI) and data stewardship

GIS assists in solving complex issues by providing the ability to understand spatial relationships among various spatial data sets. In many cases, the spatial analysis capabilities of a GIS can identify trends from among many datasets to solve problems. Selected datasets have such widespread utility in a GIS that they have been identified as “Framework Datasets” and due to their significance are accorded special attention by the GIS community. Traditionally, these data sets have been developed independently for a relatively narrow range of purposes however; the use of geospatial data and the range of applications it is used for is growing rapidly. This places increasing demands on individual data in terms of accuracy and completeness, and especially upon those inherent spatial relationships among datasets.

This action item will begin to better define the NESDI and identify the necessary relationships among the various NESDI data layers. The document will provide an illustration of the “Big picture” of Nebraska’s framework including a:

- Common understanding of framework
- Context for prioritizing the components of the framework
- Context and justification for future funding requests
- Basis for ID of potential stewards and stewardship roles and responsibilities

The context of the framework themes will be explored at the local, state, regional and national levels. This will benefit the overall coordination, development, revision and promulgation of the relationships among various GIS framework data standards. It will aid in development, implementation and revision of stewardship guidance and procedures for the various GIS framework themes. In addition, it will provide additional direction on NESDI governance, management practices, policy development, and outreach with the statewide community.

Lead: State GIS Coordinator, GIS Council Representatives

Participating Entities: GIS Council, NESDI Data Stewards

Timeframe: 2015-2017

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans.

Target/Deliverables:

- 1.1 Establish an ad hoc committee of GIS Council representatives to work on this action item.
- 1.2 Develop a document that defines the NESDI and the role of data stewardship to support the NESDI.

2. Action: Geodetic and Survey Control Inventory and Assessment

Spatial data deployed in an enterprise environment generally has higher requirements for accuracy and quality than does a single-purpose dataset. Geodetic and survey control is essential for the development of spatial data that can be analyzed in combination with other layers. A careful examination of our current survey and geodetic control data across the state based will be conducted on various criteria for its use in the development of NESDI framework layers. Identify methods and linkages through NebraskaMAP to communicate and provide access to relevant data to users and stakeholders.

Lead: State GIS Coordinator, GIS Council Representatives

Participating Entities: Nebraska Department of Natural Resources, Nebraska Department of Roads, State Surveyors Office, various Licensed Land Surveyors, Federal Partners including NOAA – National Geodetic Survey and Army Corp of Engineers

Timeframe: 2015-2017

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans.

Target/Deliverables:

- 2.1 Establish an ad hoc committee involving stakeholders from government, private industry and the survey community.
- 2.2 Develop a current inventory and assessment report of geodetic and survey control in Nebraska.
 - 2.2.1 Summarize scope of geodetic and survey control in the state in terms of coverage, density, and availability of data for use in the development of other NESDI framework layers.
 - 2.2.2 Identify and document recommendations for:
 - Development and improving statewide survey and geodetic control data in Nebraska.
 - Incorporation of recommendations into new and current NITC standards that impact the NESDI framework.
 - Education and training needs to stakeholders for using survey and geodetic control in their applications.
 - Best practices for incorporating data into mapping, GIS, and other GPS related applications.
 - Methods and linkages through data sharing to communicate and provide access to relevant data to users and stakeholders.

3. Action: Nebraska Statewide Elevation Program

Surface elevation databases are a critically important geospatial database for a wide range of GIS applications and as such have been determined to be a priority database for development by the GIS Council. Elevation databases have been determined by the Federal Geographic Data Committee (FGDC) to be a Framework Database because their use by a wide cross-section of geospatial data users. LiDAR (Light Detection and Ranging) is a proven remote sensing technology that enables the efficient collection of highly accurate surface elevation data for large geographic areas. This dataset serves as a basis for other derived geospatial data products in its relationship to the overall NESDI. More importantly, this data set strengthens the geodetic control context for the development of other framework layers. Pursuant to the objectives outlined in the Strategic Plan, the GIS Council is responsible for identifying and coordinating the use of digital elevation LiDAR technologies to develop enhanced surface elevation data for Nebraska. This involves: a) an assessment of the current status and perceived adequacy of existing Nebraska surface elevation data, relative to the perceived short and intermediate-term needs; b) an exploration and documentation of the likely costs and benefits of utilizing LiDAR technology to collect enhanced surface elevation data for large geographic areas of Nebraska; c) recommendations related to possible future Nebraska LiDAR initiatives including technical standards, possible lead agencies, funding strategies, and timelines; and d) identify methods and linkages through NebraskaMAP to communicate and provide access to relevant data to users and stakeholders.

Lead: State GIS Coordinator, GIS Council Elevation Working Group

Participating Entities: Nebraska Department of Natural Resources, Nebraska Department of Roads, Nebraska Natural Resource Districts, Public Power Entities, Federal Partners including Army Corp of Engineers, USGS, USDA-NRCS, and USDA-FSA.

Timeframe: 2015-2017

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans. Future funds are required for meeting objectives outlined in the business plan.

Target/Deliverables:

- 3.1 Establish an Elevation Working Group to support this action item,
- 3.2 Identify and develop a set of standards for standard elevation product(s) that will meet the majority of stakeholder requirements and expectations in a cost-effective manner.
- 3.3 Develop a Nebraska Statewide Elevation Program business plan.
- 3.4 Implement a Nebraska Statewide Elevation Program.

4. Action: Nebraska Statewide Imagery Program

Imagery is a required spatial data framework layer needed for a multitude of mapping applications. It is important that imagery is accurate, current, and easily accessible to end users. This dataset serves as a basis for other derived geospatial data products in its relationship to the overall Nebraska Spatial Data Infrastructure (NESDI). The acquisition of updated, orthorectified (corrected for camera tilt and the slope of the earth's surface) imagery requires a significant public investment, but if done collaboratively, on a regular periodic basis, these costs can be minimized and shared across a broad user community. It is expected that this effort will largely be integrated into the larger Nebraska GIS Strategic Planning process. Efforts will be made to learn from, and build on, existing collaborative imagery acquisition efforts such as the Nebraska-Iowa Regional Orthoimagery Consortium (NIROC) and the USDA Farm Services Agency – National Aerial Imagery Program (NAIP). Research and develop recommendations for standards, policies, infrastructure, and funding to support collaborative efforts by state, local and federal agencies to periodically acquire updated orthoimagery. Identify methods and linkages through NebraskaMAP to communicate and provide access to relevant data to users and stakeholders.

Lead: State GIS Coordinator, GIS Council Imagery Working Group

Participating Entities: Nebraska Department of Natural Resources, Nebraska Department of Roads, Nebraska Natural Resource Districts, Public Power Entities, City and County Governments, Federal Partners including USGS and USDA-FSA.

Timeframe: 2015-2017

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans. Future funds are required for meeting objectives outlined in the business plan.

Target/Deliverables:

- 4.1 Establish an Imagery Working Group to support this action item,
- 4.2 Identify and develop a set of standards for standard imagery product(s) that will meet the majority of stakeholder requirements and expectations in a cost-effective manner.
- 4.3 Develop a Nebraska Statewide Imagery Program business plan.
- 4.4 Implement a Nebraska Statewide Imagery Program.

5. Action: Street Centerline-Address Database

Develop and maintain a statewide seamless street centerline and address referencing system used for various transportation, public safety (ie, NexGEN 911), economic development and other related applications. Initiate assessment of current street centerline data. Implement a data model and workflow guidelines for QA/QC of existing and future maintenance of street centerline data. Develop data model for address points and use of data in relationship to street centerlines and other NESDI framework layers. Further develop partnership efforts that support NexGEN 911 or combinations thereof who needs to be involved in the process of using street centerline and address point data. Research and develop recommendations for standards,

policies, infrastructure, and funding to support collaborative efforts by state, local and federal agencies to periodically acquire updated a seamless street centerline-address database. Identify methods and linkages through NebraskaMAP to communicate and provide access to relevant data to users and stakeholders.

Lead: State GIS Coordinator, GIS Council Street Centerline and Address Working Group

Participating Entities: GIS Council, State Government Council, Nebraska Department of Roads, E 9-1-1 community

Timeframe: Implementation timeline determined by Business Plan

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans. Future funds are required for meeting objectives outlined in the business plan.

Target/Deliverables:

- 5.1 Establish a Street Centerline and Address Working Group to support this action item,
- 5.2 Identify and develop a set of standards for standard street centerline and address product(s) that will meet the majority of stakeholder requirements and expectations in a cost-effective manner.
- 5.3 Develop a Nebraska Street Centerline Database (NSCD) and a Nebraska Address Database (NAD) business plan.
- 5.4 Implement a Nebraska Street Centerline Database (NSCD) and a Nebraska Address Database (NAD).

6. Action: Statewide Land Record Information System

Develop an integrated statewide land records system capable of providing reliable online access to this critical data, maintaining restricted privacy access as necessary, and supporting a variety of applications by multiple agencies. Develop guidelines for a common geodatabase model that can provide public data for use in a multitude of state government applications. Implement a geodatabase model to maintain baseline data. Work with local governments, state agencies, and the private sector to develop a collaborative plan, standards/guidelines, and the infrastructure necessary to encourage and facilitate the ongoing integration of separately-maintained state, city, and county land records. Develop data workflows with local county assessors to obtain parcel (spatial and attribute) data for use in various state government applications. Revise the current NITC Land Record Information and Mapping Standards that have been adopted with the goal of enabling the integration of local government land records into a statewide dataset. Identify methods and linkages through NebraskaMAP to communicate and provide access to relevant data to users and stakeholders.

Lead: State GIS Coordinator, GIS Council Land Records Working Group

Participating Entities: GIS Council, State Surveyors Office, Department of Revenue, County Assessors, and various licensed Land Surveyors

Timeframe: Implementation timeline determined by Business Plan

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans. Future funds are required for meeting objectives outlined in the business plan.

Target/Deliverables:

- 6.1 Establish a Land Records Working Group to support this action item,
- 6.2 Update the current NITC 3-202 Land Record and Information Mapping Standards for standard land record product(s) that will meet the majority of stakeholder requirements and expectations in a cost-effective manner.
- 6.3 Develop a Nebraska Statewide Parcel Geodatabase Development and Maintenance Plan.
- 6.4 Implement the Nebraska Statewide Parcel Geodatabase Development and Maintenance Plan.
- 6.5 Develop a Nebraska Land Records business plan.
- 6.6 Implement the Nebraska Land Records business plan.

7. Action: NebraskaMAP - A Geospatial Data Sharing and Web Services Network

Enhance NebraskaMAP beyond its current geoportal status to an enterprise-level geospatial platform. Provide necessary communication and mechanisms for public and private access to peer-reviewed Nebraska SDI data, maps, and GIS web services. NebraskaMAP started as a metadata portal to inventory and provide linkages to several data sets. Enhancements will involve expanding services to upload, review and share NESDI data either through direct download, REST services, or accessing through web services. This system would also provide conduit to authoritative data sets, linked and shared base maps to reduce data storage costs, and a coordinated security system, including the possibility for limited data access and password protection for specific data sets. The State agencies are developing a statewide GIS Enterprise system in order to conduct daily business operations. This systems will also coincide with the interoperability, data sharing, and workflows planned for NebraskaMAP.

Lead: State GIS Coordinator, GIS Council NebraskaMAP Working Group

Participating Entities: GIS Council, State Agencies, State Government Council

Timeframe: 2015-2017

Funding: No initial funding required for this action item other than personnel time to meet, develop and communicate plans. Future funds are required for meeting objectives outlined in the business plan.

Target/Deliverables:

- 7.1 Establish a NebraskaMAP Working Group to support this action item,
- 7.2 Develop NebraskaMAP Geospatial Data Sharing and Web Services Network Business Plan.
- 7.3 Develop and implement NebraskaMAP into a statewide data clearinghouse enterprise platform.

NITC Strategic Initiatives Status Report			
Strategic Initiative, Action Item and Deliverable Target		Status	Notes
Nebraska Spatial Data Infrastructure (NESDI)			
1	Formalize the definition of the Nebraska Spatial Data Infrastructure (NESDI) and data stewardship		
1.1	Establish an ad hoc committee of GIS Council representatives	Completed	
1.2	Develop a document that defines the NESDI and the role of data stewardship	In Progress	The definition for the NESDI and data stewardship has drafted. Further recommendation was to expand upon the definitions and provide additional information through this document. Several of the priority NESDI layers are currently developing and implementing business plans. It is recommended by the GIS Council to make this document agile in the development process.
2	Geodetic and Survey Control Inventory and Assessment		
2.1	Establish an ad hoc committee involving stakeholders from government, private industry and the survey community	Completed	
2.2	Develop a current inventory and assessment report of geodetic and survey control	In Progress	Recommendations are already being implemented. Survey and geodetic control recommendations have been identified and included into recent NITC standards for elevation, imagery, street centerline, and address points.
3	Nebraska Statewide Elevation Program		
3.1	Establish an Elevation Working Group	Completed	
3.2	Identify standard elevation product(s) and develop a set of standards	Completed	Developed and adopted on October 28, 2014
3.3	Develop a business plan	Completed	Developed and approved on March 26, 2015
3.4	Implement the program	In Progress	The Working Group began implementation efforts in 2014 and successfully secured a cost-share contract with the United States Geological Survey (USGS) Digital Elevation Program (3DEP) to begin

			acquiring LiDAR data in western Nebraska. This project covers approximately 4,500 square miles using \$1.3 million among several stakeholders including a 50% match from the USGS. Additional flight acquisition project areas are currently being planned by the USDA NRCS that could also begin the same time. These projects can begin acquisition as soon as the fall of 2015.
4	Nebraska Statewide Imagery Program		
4.1	Establish an Imagery Working Group	Completed	
4.2	Identify standard imagery product(s) and develop a set of standards	Completed	Developed and adopted on October 28, 2014
4.3	Develop a business plan	In Progress	Current costs for data acquisition and services are being sought through a Request for Information (RFI) process.
4.4	Implement the program	Not Started	
5	Street Centerline-Address Database		
5.1	Establish a Street Centerline and Address Working Group	Completed	
5.2	Identify standard street centerline and address product(s) and develop a set of standards	Completed	Developed and adopted on March 27, 2015
5.3	Develop a business plan	In Progress	Additional criteria is being defined include data stewardship, data processing and workflows, costs, and plans with current E-911 and future NG9-1-1 coordination efforts.
5.4	Implement the program	Not Started	
6	Statewide Land Record Information System		
6.1	Establish a Land Records Working Group	Completed	
6.2	Update the current NITC 3-202 Land Record and Information Mapping Standards	In Progress	Original standards adopted on January 27, 2006 and amended on March 1, 2011.
6.3	Develop a Nebraska Statewide Parcel Geodatabase Development and Maintenance Plan	Completed	Developed and approved on May 27, 2015

6.4	Implement the program	Not Started	The Nebraska Statewide Parcel Geodatabase workflow, data schema/model, and appropriate map services have been developed. Data gathering from counties began in June 2015. We are currently in Phase III of the Phase IV plan and have more than 80% of data received from the counties. We currently half way through the final assembly of the data. An online parcel web viewer was developed in July and is currently providing state agencies access to this data as it gets assembled into the geodatabase.
7	NebraskaMAP - A Geospatial Data Sharing and Web Services Network		
7.1	Establish a NebraskaMAP Working Group	Completed	
7.2	Develop NebraskaMAP Geospatial Data Sharing and Web Services Network Business Plan	In Progress	Additional criteria are being defined to include metadata, data processing and workflows, costs, and relationship to the State of Nebraska GIS Enterprise System. A draft geospatial data and content management policy has been drafted and will be shared with the GIS Council for their review.
7.3	Develop and implement NebraskaMAP data clearinghouse enterprise platform	In Progress	The inventory process of evaluating geospatial data for inclusion on NebraskaMAP is one of the initial requirements before implementing the system. There are many geospatial data sets that are not meeting the NITC Metadata standards. The team deemed appropriate to begin education and training on Metadata. A training event is scheduled for November 18, 2015. This is one of the requirements to be fulfilled before data can be made publicly available through the new clearinghouse. A brand, logo, and color theme for NebraskaMAP has been completed. A data management and cataloging system designed specifically for geospatial data has been assembled and is undergoing initial testing.