

Geospatial Strategic Plan *for* The State of Nebraska



FINAL

September 27, 2012

Prepared for:



Produced by:



This document was produced by Applied Geographics, Inc. (AppGeo) under contract with the State of Nebraska.
This project was funded by a Cooperative Assistance Program (CAP) grant provided by the
United States Geological Survey

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TABLE OF CONTENTS

Executive Summary	2
1 Introduction	4
1.1 Who is the nebraska geospatial stakeholder community?.....	4
2 Vision & Goals	5
2.1 Vision and Strategic Goals	5
2.2 Programmatic Goals	6
3 Requirements for Success.....	14
3.1 Organizational Needs.....	14
3.2 Executive Support.....	15
3.3 Policy.....	15
3.4 Staffing.....	16
4 Implementation Program	17
4.1 Phasing & Milestones	17
4.2 Near Term Funding Approach.....	18
4.3 Marketing The Program.....	19
4.4 Assessing Risks.....	19
4.5 Monitoring & Measuring Success	21
Appendix 1: Strategic Planning Methodology	23
4.6 Project Team.....	23
4.7 Project Activities	23
Appendix 2: Status of State GIS Based on NSGIC 9-Criteria	26
Appendix 3: Strengths, Weaknesses, Opportunities and Threats	27
4.8 Strengths & Weaknesses	27
4.9 Opportunities & Threats	28
Appendix 4: Status of Framework Layers	30
Appendix 5: Status of NebraskaMAP Geospatial Data Clearinghouse	34
Overview.....	34
Appendix 6: Listing of state records board parcels grants, 2005-2012.....	36

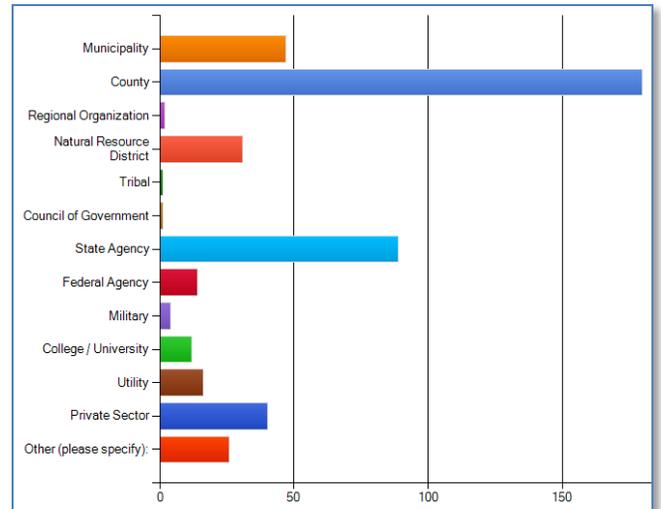
EXECUTIVE SUMMARY

This Geospatial Strategic Plan, was approved by the Nebraska GIS Council in October, 2012 and represents the culmination of a yearlong planning effort.

This planning effort involved extensive outreach to and input from Nebraska's diverse geospatial stakeholder community which included members of local, county, state and federal governments, academia, the private sector and Natural Resource Districts. Outreach included:

- Over **440 responses to a survey** on current uses and maturity of geospatial activity (see image to right for distribution of survey takers by organization type)
- Direct participation by **149 people in stakeholder workshops** conducted throughout the state in February, 2012

These outreach efforts helped to characterize the existing conditions of geospatial activity in Nebraska and also identified two central challenges:



1. In spite of a large and active geospatial stakeholder community there have been **significant communication gaps**, a lack of awareness of the GIS Council and a misunderstanding of state government's interests
2. In spite of well intentioned planning efforts dating from 2007¹, there has **been inadequate progress in building a Nebraska Spatial Data Infrastructure** and making those data available to both public and private sector stakeholders

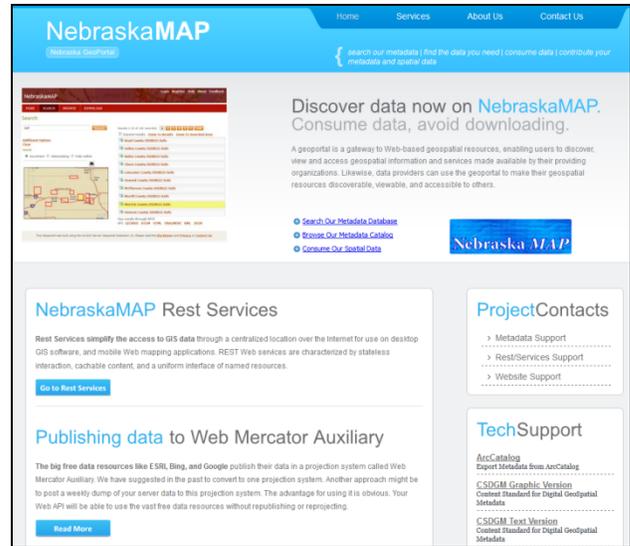
To address these issues the planning process identified an overarching vision for geospatial development in Nebraska:

To foster an environment 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 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.

In order to move forward to realizing this vision the plan four strategic goals that will advance geospatial development, coordination and collaboration in Nebraska.

¹ See the Nebraska Geographic Information Systems Steering Committee annual report from December, 2007 and titled "Building a Spatial Data Infrastructure for Nebraska"
<http://nlc1.nlc.state.ne.us/epubs/G3400/A001-2007.pdf>

1. Facilitate the creation, maintenance, analysis, and publishing of **quality geospatial data**. *In order to help ensure that geospatial stakeholders have reliable and current data and that they know how to obtain it.*
2. Provide **widespread access to data** and services and encourage data sharing. *In order to ensure that government data is readily available through mechanisms such as the NebraskaMAP (see image to the right) and to help the government harvest a larger return on its data creation investments.*
3. Facilitate **technical assistance and education outreach** opportunities for furthering the adoption of Nebraska Spatial Data Infrastructure (NESDI) data layers and geospatial applications. *In order to continue to build awareness of geospatial activity and technology and to lower the barriers to entry for smaller actors who have not yet been able to gain access to geospatial technology.*
4. Achieve sustainable and efficient allocation of **resources to support the implementation and wise governance of GIS** services and geospatial data. *In order to ensure that geospatial technology is adequately supported and that communal costs are equitably shared by all those who benefit.*



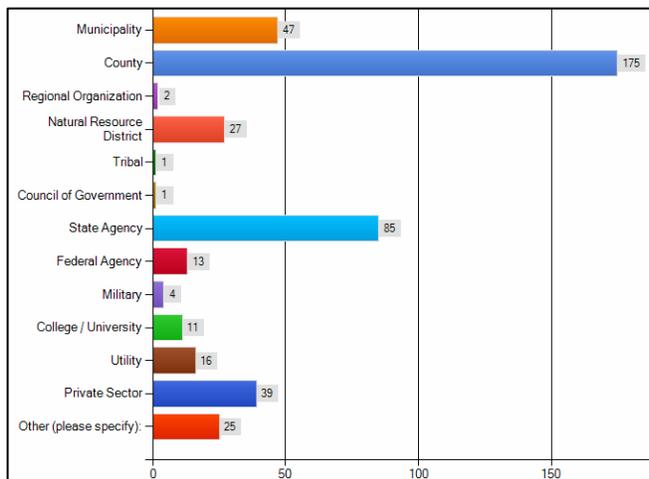
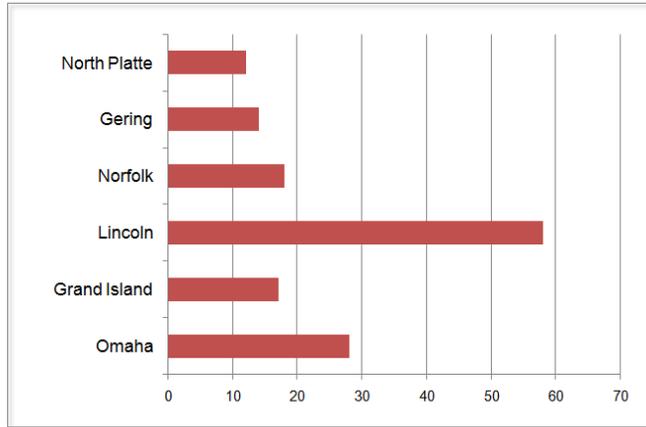
It is understood that achieving these goals will require significant organizational and institutional changes that will take place incrementally and over time. The next step in the process will be the development of three companion Geospatial Business Plan that will support the implementation of the Strategic Plan. The Business Plan will include a detailed business case that documents the benefits resulting from a collaborative statewide approach to geospatial initiatives and it will also provide an implementation plan for achieving long-term efficiency and stability.

This Strategic Plan is the result of hard work from the GIS Council, the Strategic Planning Steering Committee and the State GIS Coordinator, as well as the strong, direct contributions of the broad geospatial stakeholder community. Achieving the vision set out in this plan will result in greater cooperation, collaboration and communication among all stakeholders, leading to greater geospatial productivity, less redundancy, and more informed policy across all disciplines and business lines.

1 INTRODUCTION

1.1 WHO IS THE NEBRASKA GEOSPATIAL STAKEHOLDER COMMUNITY?

Nebraska has a large and active geospatial stakeholder community. Participation in this strategic planning project helps to demonstrate the size and diversity of this community. Over the course of this project, six regional workshops were held across the state and over 140 individuals participated in those half-days sessions (see the attendance by venue graphic to the right).



In addition, an on-line stakeholder survey was taken and over 440 responses were received and evaluated. The distribution of survey takers across work sectors helps to demonstrate the breadth and diversity of geospatial technology users across the state (see the survey response by sector graphic to the left).

Although this community is large, this project uncovered some evidence that it has not acted in a cohesive manner over the past 10 years and that there are opportunities for improving communication and reenergizing the community. This strategic plan attempts to provide a vision for moving Nebraska forward with geospatial technology and improved data while leveraging the strengths of this large and diverse stakeholder community.

While the thrust of this document is focused on **establishing a vision for progress** and detailing specific recommendations for improvement, extensive research was conducted to document the existing conditions in Nebraska so that future plans could be targeted at addressing known shortcomings and

building on known strengths. The appendices of this document detail this research and the existing conditions and should be read to understand the full context of how the vision and recommendations were identified. Specifically:

- **Appendix 1:** Project methodology, including the stakeholder workshops and survey
- **Appendix 2:** State GIS development status using the National States Geographic Information Council (NNSGIC) Nine Criteria
- **Appendix 3:** Catalog of existing strengths, weaknesses, opportunities and threats (*aka* "SWOT analysis")
- **Appendix 4:** Status of Nebraska framework data layers
- **Appendix 5:** Status of the NebraskaMAP geospatial data clearinghouse
- **Appendix 6:** Listing of state records board parcels grants, 2005-2012

2 VISION & GOALS

2.1 VISION AND STRATEGIC GOALS

The following statement represents the overall vision for geospatial activity in Nebraska and sets a target for geospatial stakeholders - in both the public and private sectors - to shoot for. Subsequently, a slate of four strategic goals is presented. These strategic goals represent specific goals that will help Nebraska move forward towards realizing the vision

Vision

To foster an environment 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 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.

Strategic Goals

The following four specific strategic goals represent a consensus of desired characteristics expressed by the geospatial community during the information and analysis phase of the strategic planning process:

5. Facilitate the creation, maintenance, analysis, and publishing of **quality geospatial data**.
6. Provide **widespread access to data**, services and encourage data sharing.
7. Facilitate **technical assistance and education outreach** opportunities for furthering the adoption of Nebraska Spatial Data Infrastructure (NESDI) data layers and geospatial applications.
8. Achieve sustainable and efficient allocation of **resources to support the implementation and wise governance of GIS** services and geospatial data.

2.2 PROGRAMMATIC GOALS

The following sections detail specific programmatic goals that emanate from each of the four strategic goals. The programmatic goals represent specific activities that should be pursued to help achieve each strategic goal.

2.2.1 Strategic Goal #1: Facilitate the creation, maintenance, analysis, and publishing of quality geospatial data.

Pursuing and achieving the following **Programmatic Goals** will help advance Nebraska towards reaching the strategic goal of *creating and maintaining stronger geospatial data sets*.

1. **Define the Nebraska Spatial Data Infrastructure (NESDI):** Following the lead of the Federal Geographic Data Committee (FGDC) and the notion of the National Spatial Data Infrastructure (NSDI), this plan, has carried over the "spatial data infrastructure" and "framework data" terminology to Nebraska. Spatial data infrastructures (SDI) have the following general characteristics:
 - They contain the most common data sets that the vast majority of stakeholders required
 - The data contents are high quality and reliable
 - The data contents are maintained and improved on an ongoing basis
 - The data within the SDI is readily available

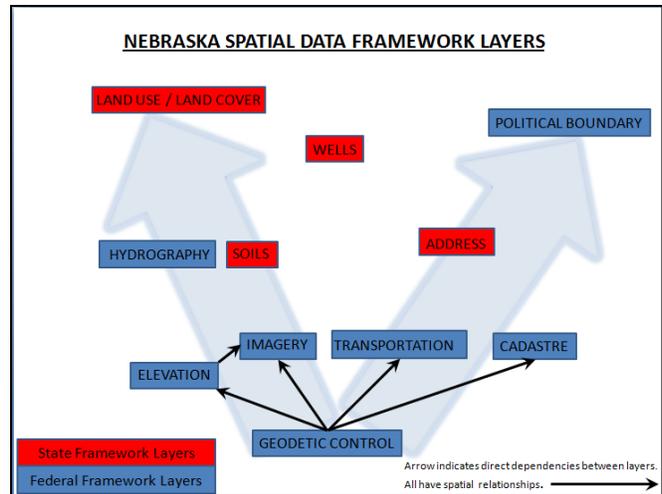
The Federal NSDI has identified "7 framework" data layers that reflect the requirements of Federal stakeholders. They are:

- Geodetic control
- Transportation (roads, rail, air, etc.)
- Cadastral/parcel
- Elevation

- Aerial imagery
- Hydrography
- Political and administrative boundaries

The Nebraska SDI is defined to include the 7 "federal framework" layers as well as five additional layers that are of particular importance to Nebraska:

- Addresses
- Soils
- Groundwater Features
- Watershed boundaries
- Land use/land cover



While this plan provides a general definition of the NESDI, this definition needs to be further detailed as an early implementation activity. Further details that need to be identified include:

- The relative priority of each layer
- The existing quality and already identified requirements for improvement (see Appendix 4)
- Data maintenance and stewardship requirements

2. Identify and prioritize current and future spatial data layers and stewards: With Nebraska identifying and defining its NESDI layers, the next step is to identify organizations and personnel that will be responsible for the stewardship and maintenance of each data set for the long term. For some layers, this is clear and already established. For example, Nebraska DNR has been actively providing for stewardship of the hydrography data set for many years. For other layers, the assignment of stewardship is not so clear and there will need to be active effort aimed at recruiting stewards, or positioning and resourcing the State GIS Coordinator within OCIO to take on this activity. Critically, stewardship cannot be viewed as simply keeping a data set current. For many layers such as elevation, stewardship also involves planning for improvements to enhance the resolution, accuracy and attributes of data sets.

3. Develop business plans for creation, maintenance, and distribution of NESDI layers: Once the highest priority NESDI layers are identified, specific business plans should be developed for achieving required improvements and establishing long term stewardship. The following four data layers have been identified by the Strategic Plan Committee as high priority candidates for having business plans conducted:

- **Elevation:** to improve the relatively coarse existing data and capitalize on increasing volumes of data being collected with newer LiDAR technologies.
- **Parcels:** to begin the process of collecting and aggregating existing county-based data sets into a statewide layer.

- **Street centerlines and addressing:** to help establish a statewide layer that contains all roads and a statewide address data set that can support emergency 911 requirements.
- **Imagery:** to put in place a recurring program that can periodically re-fly the state to make current imagery available

The development of these business plans should be spearheaded by and coordinated through the NITC GIS Council and via newly formed working groups. The business plans should aim to provide the following detailed information:

- **Detail the specific improvements** in the data sets that are required
- Identify the **technological approach** for achieving the improvements
- Establish the **estimated costs** of achieving the improvements
- Develop a **business case that catalogs the benefits** that can be expected and will justify the recommended level of investment
- Identify **potential funding opportunities** for making the investments

4. Develop and implement NESDI layer standards and guidelines: Specific guidelines and/or standards will be developed for each of the NESDI layers. These standards/guidelines should cover a variety of topics, including:

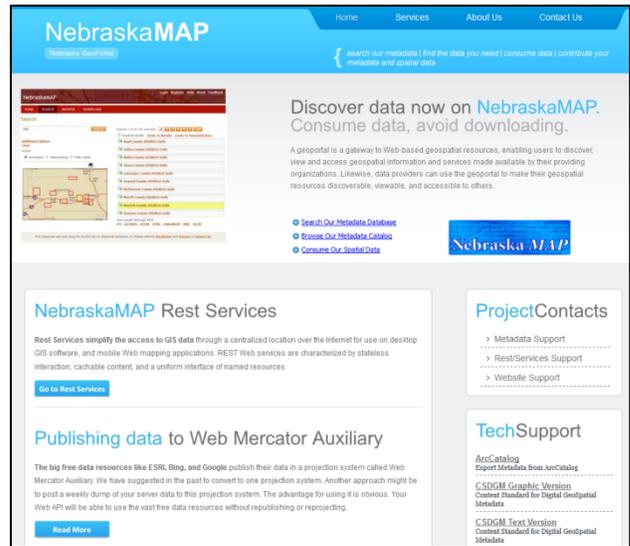
- Data content standards
- Data schema description (for both geometry and attributes)
- Data compilation and accuracy standards
- Metadata/documentation standards

5. Formalize communication and data exchange processes between data stewards and the geospatial community of users: Several of the NESDI layers - for example, parcels, roads, addresses - will involve the collection and aggregation of data emanating from a variety of sources (e.g., counties). This type of data development, and the maintenance of those data will demand clear and effective communication and smooth processes for the regular exchange of data. Communication will need to cover a variety of areas including regular updates on status and information on how to become involved with the initiative.

2.2.2 Strategic Goal #2: Provide widespread access to data, services and encourage data sharing.

Pursuing and achieving the following **Programmatic Goals** will help advance Nebraska towards reaching the strategic goal of *improving data sharing while enhancing access to geospatial data and services.*

1. **Develop a business plan for NebraskaMAP as a statewide geospatial data clearinghouse:** The NebraskaMAP was built with initial one-time grant funding to serve as the state's GIS clearinghouse (see Appendix 5 for further details), however, in spite of its initial build out it has failed to reach its potential as the primary place to obtain access to Nebraska geospatial data. As documented in the SWOT analysis (see Appendix 2), the NebraskaMAP has failed to gain a critical mass of data and it continues to sit alongside other state government geospatial data access sites, such as DNR's Data Bank. The strategic planning workshops and survey identified that there continues to be demand for a definitive, one-stop shop for Nebraska geospatial data and thus detailed business planning should commence to identify and detail improvements to the NebraskaMAP. This business planning should include:



- **Detail the specific improvements** to NebraskaMAP that are required
- Identify the **technological approaches** and **implementation path** for achieving the improvements
- Establish the **estimated costs** for improving NebraskaMAP
- Develop a **business case that catalogs the benefits** that can be expected and will justify the recommended level of investment
- Identify **potential funding opportunities** for improving NebraskaMAP

The following represents a preliminary list of improvements to NebraskaMAP that emanated from the strategic planning process and the input of the Strategic Planning Committee:

- Expand current holdings and ensure they include all NESDI layers
 - Coordinate with other existing state government geospatial data access sites to assess the feasibility of consolidating into NebraskaMAP
- Provide flexible, consumable web and location based services
- Prioritize documentation on key projects that have utilized NebraskaMAP to help illustrate benefits
- Active communication and education to improve awareness and use of clearinghouse and web services by a broader group of stakeholders

Business planning should be implemented via current NITC GIS Council NebraskaMAP working group. Given that no large, existing funding sources have been identified, it will be particularly important to develop a plan that accommodates an incremental, step-wise series of improvements.

Indeed, as initial improvements are made, it will be easier to demonstrate the benefits of the clearinghouse in an effort to generate further funding support for additional improvements.

2. **Develop and communicate resources that encourage data sharing:** Broad and seamless data sharing can be a tremendous asset in building and maintaining the NESDI. As described above, statewide data sets for layers such as parcels, addresses or roads will include the data contributions from numerous stakeholders at the county and municipal levels. If a framework for sharing is established, then it can be easier to foster a culture where data sharing is the norm. This programmatic goal involves investing time aimed at increasing the extent of data sharing in Nebraska and making it easier to share data:
 - Develop information resources and appropriate messaging to help educate geospatial stakeholders about data sharing:
 - **Importance and benefits** of data sharing
 - Use case that demonstrate those benefits
 - Availability of **web-services** to facilitate data sharing
 - Methods for sharing data while preserving **information security**
 - Status of data sharing activity in Nebraska
 - Sample documents, such as memoranda of understanding (MOU) designed to establish data sharing partnerships
 - Identify and establish appropriate communication, activities and collaboration mechanisms to encourage further stakeholder participation in data sharing.
 - Conduct pilot studies that recruit organizations to share data and test methods for efficient data sharing
 - Partner with higher education in data sharing efforts to test methods to meet needs in research and academic teaching.
3. **Explore and evaluate new technologies that facilitate future data access and sharing opportunities:** The technologies that support data sharing are rapidly evolving and Nebraska should identify and test the most promising technologies to support the state's needs. Examples include:
 - Appropriate use of geospatial data replication for unattended server-to-server data sharing and update. For example, a willing county could replicate changes in its parcel data layer into the statewide parcel data layer.
 - Use of web services to facilitate *shared access* to data in lieu of sharing the data sets themselves. Web services can provide efficiencies, especially for data sets that change frequently, as the data behind the service can be updated without end users of the service needing to make any changes to access the updates.
 - Web services can be particularly effective for mobile devices which have more limited capabilities for downloading and manipulating large geospatial data sets and images.

- Establish appropriate mechanisms for the actual sharing of *data sets* whether through FTP and/or web feature services. There needs to be an appropriate balance where most people's needs are met by web services but where the data themselves are available for download to the smaller population that requires direct data access (e.g., for editing or performing complex analysis).
- Establish partnerships with academic research and industry to explore new and innovative technologies and workflows to support geospatial data sharing.

2.2.3 **Strategic Goal #3: Facilitate technical assistance and educational outreach opportunities for furthering the adoption of NESDI data layers and geospatial applications.**

Pursuing and achieving the following **Programmatic Goals** will help advance Nebraska towards *facilitating further educational and technical assistance that will support a stronger NESDI.*

1. **Develop a Technical Assistance and Education Outreach Plan:** It is clear that one of the factors that has led to a less cohesive GIS stakeholder community in Nebraska was a breakdown in communication between the state and other stakeholders. In the absence of communication, concerns went unanswered and at times people imagined the worst. A key element of the technical assistance and education outreach plan will be a "communications strategy" to ensure that timely and accurate information on geospatial activity is flowing two ways between the state and other stakeholders (i.e., counties, municipalities, private sector, academia, etc.). In addition to traditional media such as meetings and email, the communication strategy should examine other emerging media including social media and blogs. The end goal is enhanced overall communication with stakeholders so that there is no ambiguity about state government geospatial activity and there is clear messaging that the state has an interest in being a good partner on geospatial initiatives.

The following provides an overview of several types of communication that would be valuable and should be further detailed in the plan:

- **Publicize the existence, mission and activity of NITC GIS Council**
 - Evaluate the makeup of the NITC GIS Council to support the broadest possible stakeholder representation and involvement
 - Identify and involve new stakeholders
 - Promote the availability and relevance of Council approved standards and guidelines.
- **Increase overall knowledge of geospatial technology** and activity in the state.
 - Identify and disseminate information geospatial technology resources, training and seminar opportunities
 - Identify and disseminate information on state geospatial resources such as the NebraskaMAP

- Identify, **educate and involve executive and other legislative champions**. Develop working relationships with legislators and administration executives and demonstrate the value of GIS as a decision-making and policy development tool. Raise legislative awareness of the benefits of GIS and disseminate information on cost savings, funding and return on investment (ROI)
- Strengthen the **important role of the private sector** in supporting, advocating and participating in statewide geospatial activity and cooperation.
 - Explore appropriate public-private partnerships for geospatial education and other activities
- Promote opportunities for **closer coordination between state and local governments**
 - Communicate status and activity of agency level and statewide projects
 - Identify existing and potential incentives and support for geospatial activities that may be available from the state
 - Develop and maintain county and state agency geospatial profiles that describe the extent of development and data holdings. This would be available online and in publication format. The profiles would provide information on data currency, resolution, data steward contacts, and future needs.
- **Technical Assistance**
 - Identify specific audiences that need technical assistance (e.g., smaller, rural counties) and then determine the means of providing the necessary assistance to those audiences. Options for providing technical assistance may include:
 - On-line resources that catalog use cases of common geospatial challenges. Resources may include guidance on both technical issues as well as administrative issues such as obtaining funding, documenting benefits and identifying typical uses within county government.
 - Referrals to private sector and academic entities that provide technical assistance as a service.
- **Educational Outreach**
 - Partner with higher education, Nebraska GIS/LIS Association, and other associations to identify and deliver academic teaching and training.
 - Work with higher education as a technical resource to help “discover” advancements in geospatial data and technologies.

2.2.4 **Strategic Goal #4:** Achieve sustainable and efficient allocation of resources to support the implementation and wise governance of GIS services and geospatial data.

Geospatial activity requires resources and some level of investment. Geospatial technologies have proven their value and thus smart spending should yield strong returns on those investments (ROI) over the long term.

Pursuing and achieving the following **Programmatic Goals** will help Nebraska move towards *sustainable, long-term funding for geospatial activity and the NESDI*.

1. Identify and implement partnerships and collaborative efforts that show benefits and potential cost savings.

- Most of the data within the NESDI are required by multiple agencies and thus there are opportunities for collaborative investments that are more affordable to each partner.
- Examine and look for opportunities to optimize workflows between various stakeholders that will bring greater efficiency to the development and maintenance of NESDI framework data layers. For example, streamlined workflows for data sharing between the state and counties for data sets such as parcels and road centerlines.
- Document partnership and collaborative examples and the benefits that are derived in order to help encourage further partnering

2. Explore and incorporate appropriate funding mechanisms.

- State mechanisms
 - Continued use of existing funding from state government programs that support GIS operations and investment
 - Continued support to local government such as the highly successful **State Records Board grant program** that, as documented in Appendix 6, has provided over \$711,000 of funding to 33 counties
 - Evaluate and implement statewide contracts or other master services agreements that leverage the state's buying power and are open to other levels of government
- New and alternative funding approaches
 - Implementation of appropriate service-base fees and/or chargebacks
 - Collaborative funding models (e.g., State-local government, or State-NRD partnership agreements)
 - Identifying external funding, e.g., available federal grants² that consider geospatial an eligible expenditure (e.g., for public safety programs)

² For example, this strategic planning project was funded with United States Geological Service (USGS) Federal Geographic Data Committee (FGDC) Cooperative Assistance Program (CAP) grant.

- Work with executive and other legislative champions to advocate for new funding and partnerships

3. Develop and enhance guidelines and communication necessary for funding, coordination and evaluation of future projects.

- Create resources, guidelines and example templates to assist in effective procurement of geospatial data and technologies. Well written and technically accurate information improves the quality and accuracy of the state's sole source justifications, RFIs, RFPs, and other contracts and can help deliver lower costs by removing vendor uncertainty and encouraging more competition.
- Create evaluation and monitoring tools to assist the state in measuring returns on its geospatial investments.
- Provide proactive communication on potential large-scale projects/investments so that others understand what may be coming and can support those efforts. Broadly available information on investments that are being made can help reduce redundant spending and encourage cooperative funding efforts.

3 REQUIREMENTS FOR SUCCESS

3.1 ORGANIZATIONAL NEEDS

While Nebraska has a solid organizational framework in place for governance, this model is not currently delivering the sustainable support that is required to plug existing gaps and advance new initiatives. The Nebraska Information Technology Council (NITC) is a valuable resource for geospatial initiatives but could benefit from some restructuring of its workgroups to better serve the following priorities:

- Improve coordination and collaboration
 - Intra-governmental Coordination (i.e. between state agencies)
 - Inter-governmental Coordination (i.e., between local, state, federal)
 - Collaboration with private sector
- Increase awareness of the GIS Council and its activities
- Administrative support for geospatial programs and initiatives
- Oversight and accountability for meeting program goals and allocating funding
- Fostering a community of data stewards who facilitate data integration and provide opportunities for collaborative projects

Additionally, the success of the programmatic goals presented in this plan will depend on the effective leadership from the Nebraska GIS Office. This office has been strengthened by recent leadership changes but as it matures and evolves further, it will be essential that NEGIS focus on the following priorities:

- Improve coordination and collaboration
 - Intra-governmental Coordination (i.e. between state agencies)
 - Inter-governmental Coordination (i.e., between local, state, federal)
 - Collaboration with private sector
- Develop and manage funding plan to support program priorities
- Improve the workflow and delivery mechanisms of NebraskaMAP

3.2 EXECUTIVE SUPPORT

One of the largest challenges that Nebraska currently faces is the absence of a strong, legislative or executive champion. Such a champion – whether a department head or legislator - will be necessary to help generate the resources necessary to carry out the recommendations of this plan. Ultimately, this plan describes the challenges that are faced, the opportunities for improvement and a specific program of initiatives to realize the vision. What is needed now is support and advocacy from State Agency executive decision makers and the Legislature that can elevate the program needs and deliver funding. This support should be actively sought through “selling” of the strategic vision and programmatic goals and alignment of these goals with executive priorities.

3.3 POLICY

Long-term success of the program in Nebraska will depend on clearly identified roles for both the GIS Council and the Office of the CIO in terms of geospatial policy. These entities will need to formulate and articulate policies that will support program priorities and the Nebraska Spatial Data Infrastructure. As clearly identified in the Vision and Goals section, the importance of the NESDI cannot be underestimated as they serve as the foundation for all geospatial activity and data development. The stewardship and long-term maintenance of these key data layers is essential to the success of the program. The following policies will need to be articulated:

- Clearly defined data stewardship and accountability that defines maintenance responsibilities, frequency, and requirements for input and feedback from data users
- An endorsement of the Framework data layers by the GIS Council
- Commitment by the user community to defer to framework datasets as authoritative sources
- Commitment by the user community to provide feedback regarding data issues (e.g. spatial accuracy, completeness, currency, attributes)
- Commitment from the agency steward to support the NESDI
- Data sharing policies that provide guidelines, standard documents such as memoranda of understanding (MOU), and address privacy concerns
- Provision of standards that address:
 - Data format, schema, content, accuracy, authoritative source, metadata
 - Application technology preferences: preferred APIs; web services standards, etc.

- Standard procurement vehicles (e.g., pre-approved list)

3.4 STAFFING

To support the implementation of the programmatic goals presented in this plan and coordinate the long-term maintenance and evolution of the GIS program in Nebraska, the Office of the CIO will require, **at a minimum**, the following staffing configuration:

- **A GIS Coordinator** to provide leadership, manage priorities, and conduct outreach and coordination with state agencies, local governments, the federal government, and the private sector. A key role for the GIS Coordinator will be to identify opportunities for coordination and collaboration between state agencies to support NESDI requirements.
- **Data manager/analyst** responsible for the assembly and management of the NESDI including the maintenance, collection, and distribution of data. This person would also provide “hands-on” application maintenance as well as support for special projects.

Ideally, the “minimum staffing” model described above would be supplemented with an additional position:

- **Technical analyst/programmer** to conduct in-house application development/maintenance, as well as additional special projects support

In addition to direct GIS staffing at the OCIO, other resources would supplement the overall GIS capacity:

- **Agency staffing:** Stewardship of any particular layer should be the responsibility of an agency for which the specific layer helps address a significant business need. For example, the DNR has been an active steward of hydrography. Steward agencies should recognize that the layer also serves address the needs of a larger user community and that the user community’s needs should be considered when making decisions about the dataset. The agency should be staffed to produce and maintain the dataset according to those needs.
- **Engaged User Community:** Through the coordination and collaboration of the GIS Council, the user community should support the efforts of the agency stewards with timely input and feedback on data.
- **Additional support via the private sector** on contract basis to provide:
 - Application development
 - Data development
 - Project specific staff augmentation

4 IMPLEMENTATION PROGRAM

4.1 PHASING & MILESTONES

This plan recommends implementation of the programmatic goals within a two-year timeframe. The timeline presented below identifies the activities and milestones required for the success of this plan.

Programmatic Goals	2012		2013				2014	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1. Facilitate the creation, maintenance, analysis, and publishing of quality geospatial data.								
<i>Define the NESDI</i>								
<i>Identify and prioritize current and future spatial data layers and stewards</i>								
<i>Develop business plans for creation, maintenance, and distribution of NESDI layers</i>								
<i>Develop and implement NESDI layer standards and guidelines</i>								
<i>Formalize communication and data exchange processes between data stewards and the primary users</i>								
2. Provide widespread access to data, services and encourage data sharing.								
<i>Develop a business plan for NebraskaMAP as a statewide geospatial data clearinghouse</i>								
<i>Develop and communicate resources to encourage data sharing</i>								
<i>Explore and evaluate new technologies that facilitate future data access and sharing opportunities</i>								
3. Facilitate technical assistance and education outreach opportunities for furthering the adoption of NESDI data layers and geospatial applications.								
<i>Develop a technical assistance and education outreach plan</i>								
<i>Implement technical assistance and education outreach opportunities</i>								
4. Achieve sustainable and efficient allocation of resources to support the implementation and wise governance of GIS services and geospatial data.								
<i>Identify and implement partnerships and collaborative efforts that show benefits</i>								
<i>Explore and incorporate appropriate funding mechanisms</i>								
<i>Develop and enhance guidelines and communication necessary for funding, coordination and evaluation of future projects</i>								

4.2 NEAR TERM FUNDING APPROACH

The recommendations in this plan are intentionally provided as high-level concepts with minimal detail. The goal is to catalog and prioritize the most important initiatives that need to be undertaken over the next 2 years. In the near-term, and given current budget constraints it is not realistic to expect large amounts of new state budget funding for these types of initiatives. Progress will most likely be made through incremental improvements in operations and the reallocation of existing funding sources. In preparation for this, the next step in the overall strategic planning process will be to create Business Plans. The following components will be addressed in the Business Plans.

- Overall project approach
- Technical details of implementation
- Costs for implementation and maintenance
- Funding strategy
- Benefits and business case for proceeding
- Expected return on investment

The majority of costs associated with the recommendations in this strategic plan will be associated with strategic goals 1 and 2 - *data and delivery*. Estimating the funding required to implement these goals will involve input from various data stewards. While existing state agency and local government staff and resources are already devoted to maintaining several NESDI layers, there will be the need for additional resources. Activities that are most likely to require additional funding include:

- Enhancing current NESDI data layers
- Creation of new roles and workflow requirements to support the creation of new layers and the integration and aggregation of existing county-based data into seamless statewide data sets
- Improvements to NebraskaMAP and other mechanisms for data sharing and delivery

As with all efforts to create and maintain the NESDI, sustainable funding will be the result of partnership agreements with state, federal and local government agencies. Funding sources that should be considered during the Business Planning process include, but are not limited to:

- Pursuing the formation of funding consortia by collaborating across all levels of government entities that have similar interests
- Alignment with existing and emerging programs that require GIS data and capabilities (e.g., Next Generation 911, FCC/NTIA broadband mapping program, etc.)
- Pursuit of available funding in the form of grants³

³ Such as the USGS FGDC CAP grant that funded this strategic planning effort.

4.3 MARKETING THE PROGRAM

Marketing and outreach activities should be directed at generating the political and organizational support within the stakeholder community to further the programmatic goals and activities presented in the plan. In general, marketing efforts should be aimed at:

- **Governmental leaders and executives** who will be directly involved in creating the Administration's budget
- **State agencies with existing geospatial capabilities and programs.** It will be important to document that there is consensus around the strategic plan and the intent that it *helps* existing programs, and does not lead to competition among programs.
- **The broader geospatial stakeholder community** who will also benefit from the activities included in the strategic plan. This slate of activities should help all levels of government stay better connected with each other and also with academic and private sector collaborators.

Specifically, it will be essential to craft messaging to effectively communicate the Vision, Goals and Benefits to the following entities:

- The GIS Council
- Decision makers
 - Particularly those less familiar with GIS but in position to influence and fund activities
- State agencies
- Local government
- Federal government
- Academia
- Private sector
- Non-profits
- Data stewards
- Local GIS Coordinators, Assessors

Effective use of social media tools and the NITC GIS Council Website will provide additional opportunities to articulate and amplify messaging.

4.4 ASSESSING RISKS

While the approach presented in this plan is crafted to be a low risk strategy, there remains the overarching risk that the improvements described within the plan will not be funded. The other principal risk is that several of the programmatic goals call for increased collaboration and outreach to other agencies and entities. As such, there is some risk that the overtures aimed at developing these

collaborations may not be successful. Understanding and articulating these risks is the first step towards averting them. The following presents the four strategic goals and the potential risks for each one.

1. **Strategic Goal #1:** Facilitate the creation, maintenance, analysis, and publishing of quality geospatial data.

- Attempts to coordinate GIS activities create additional financial, administrative, or bureaucratic burdens on producers and prove to be a disincentive to collaboration
- Producers (investing agencies) do not get the products and services that they need and paid for
- Consensus is not achieved in the prioritization of programmatic goals
- NESDI is not defined in sufficient detail to provide a complete and common understanding
- The case for stewardship of the framework layers is not made and the data is allowed to become increasingly out of date and out of sync with the other data layers and the needs of the user community
- GIS Council, stakeholders and the legislature fail to endorse the datasets and sanction their development and maintenance
- User community fails to commit to the NESDI data layers:
 - Use it preferentially over other options as an authoritative source
 - No Interaction or communication with data stewards to fix and/or improve the data
- State agencies fail to develop a unified voice on the GIS Council that is proportional to their stake in the enterprise.
- Inability to harmonize data formats/schemas/coordinate systems from disparate sources

2. **Strategic Goal #2:** Provide widespread access to data, services and encourage data sharing.

- Implementation of *Nebraska MAP* outpaces management of its capabilities and understanding of its limitations
- Changes in data delivery are implemented before the technology is proven effective
- Failure to achieve optimal data sharing between various levels of government to meet needs of users
- Perception of revenue “losses” and privacy concerns prove insurmountable
- Failure to engage western 1/3 of state
- Enterprise GIS does not prove economically viable
- Failure to meet user data needs regarding format, accessibility, and ability to integrate with existing applications

3. **Strategic Goal #3:** Facilitate technical assistance and education outreach opportunities for furthering the adoption of NESDI data layers and geospatial applications.
 - Outreach efforts and communication prove ineffective and schisms persists
 - Suspicion of state persists among local government stakeholders
 - There is a failure to engage decision makers and legislative or executive champions
4. **Strategic Goal #4:** Achieve sustainable and efficient allocation of resources to support the implementation and wise governance of GIS services and geospatial data.
 - Duplication of agency data sharing portals and information services (i.e., software, hardware, staff time) increase costs to taxpayers and reveal government inefficiencies
 - Funding constraints limit the progress that can be made (e.g., GIS Council fails to define and implement NebraskaMAP such that it can be supported with available resources; GIS Coordinator does not get organizational and funding support to make improvements.)
 - Coordination and collaboration are insufficient to build the NESDI
 - Failure to fund required data development and maintenance
 - Lack of sustainable funding for the strategic vision from the legislature continues the current financial dependence on ad-hoc, undefined sources
 - Cost recovery/service fees do not generate anticipated revenue and/or serves as a disincentive for involvement in the NESDI
 - Inability to effectively develop and deploy NebraskaMAP as “one stop shop” for data and GIS resources

4.5 MONITORING & MEASURING SUCCESS

Success will be measured by the level to which the functional objectives for each of the four strategic goals are achieved.

1. **Strategic Goal #1:** Facilitate the creation, maintenance, analysis, and publishing of quality geospatial data.

Functional Objectives:

- a. NESDI data layers are defined
- b. Business plan(s) completed for development/enhancements of NESDI data layers
- c. Data stewards are assigned
- d. Data maintenance plans and funding are in place
- e. NESDI framework data layers are completed and ongoing maintenance proceeds
- f. Full implementation of a successful data stewardship program

- g. Evaluation tools and methods in place to identify efficiencies that develop over time

2. Strategic Goal #2: Provide widespread access to data, services and encourage data sharing.

Functional Objectives:

- a. NebraskaMAP contains current versions of NESDI and other common data holdings. It is also considered a primary data repository for accessing local, state, and federal data sources relevant to the Nebraska stakeholder community
- b. Data is readily accessible through data download and consumable web services
- c. Education and promotion of data sharing leads to the formation of new and successful partnerships and collaboration

3. Strategic Goal #3: Facilitate technical assistance and education outreach opportunities for furthering the adoption of NESDI data layers and geospatial applications.

Functional Objectives:

- a. 100% of GIS community knows who the NITC GIS Council is and understands its mission
- b. Relevant GIS activities, collaboration efforts, project cost-savings and training opportunities are presented to the broader GIS community on a timely basis
- c. State GIS Coordinator is actively maintaining NESDI “data profiles” that make current and accurate information on data sets readily available. These data profiles would be simple 1-2 page fact sheets that provide data content description, partners involved in data maintenance, data steward contact information, data maintenance progress, and date of last update. Having good information available that describes both progress and gaps is the first step towards identifying the needs for technical assistance outreach.

4. Strategic Goal #4: Achieve sustainable and efficient allocation of resources to support the implementation and wise governance of GIS services and geospatial data.

Functional Objectives:

- a. Methods of facilitating collaborative efforts are developed including:
 - i. Process is established to identify projects that lend themselves to collaborative efforts
 - ii. Mechanism to administer funds for collaborative efforts is established
- b. Funding plan(s) for all programmatic goals are complete
- c. Sources of funding identified and approved; grants are applied for

APPENDIX 1: STRATEGIC PLANNING METHODOLOGY

4.6 PROJECT TEAM

The project team was comprised of the following:

- The GIS Strategic Planning Project Committee, a sub-committee of the NITC GIS Council. Membership included:
 - ✓ Nathan Watermeier, Office of the CIO, Chair
 - ✓ James Ohmberger, Office of the CIO
 - ✓ Josh Lear, Nebraska DNR
 - ✓ Mike Schonlau, City of Omaha/Douglas County
 - ✓ Jeff McReynolds, City of Lincoln/Lancaster County
 - ✓ Mike Preston, Nebraska GIS/LIS Association
 - ✓ Adam Darbro, Hamilton County
 - ✓ Jim Langtry, USGS
 - ✓ Tim Cielocha, Nebraska Public Power Districts

- Consulting support from Applied Geographics, Inc. including:
 - ✓ Michael Terner, Executive Vice President
 - ✓ Kate Lommen Hickey, Project Director

4.7 PROJECT ACTIVITIES

The following provides a chronology of project activities that supported the development of Nebraska's geospatial Strategic Plan.

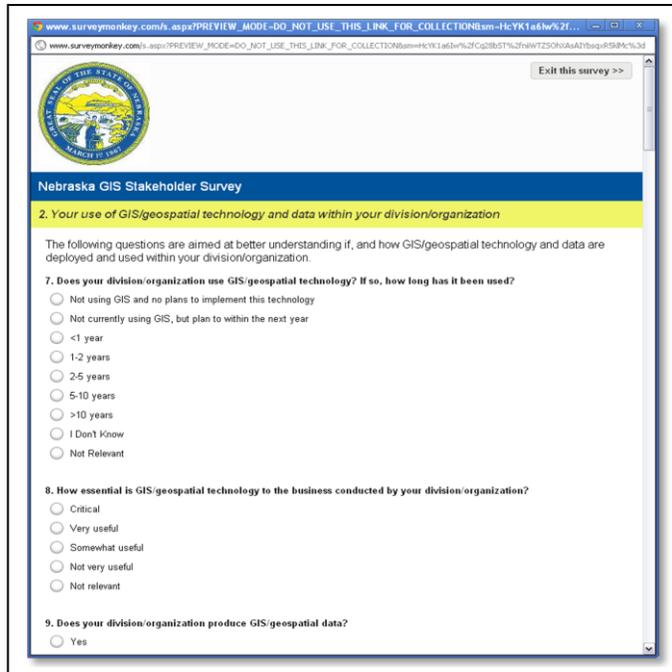
1. Kickoff & Project Planning Meeting

- ✓ September 23, 2011

2. Nebraska GIS Stakeholder Survey

- ✓ Launched January 9, 2012
- ✓ Received 446 responses across many sectors
- ✓ Presented results at regional workshops

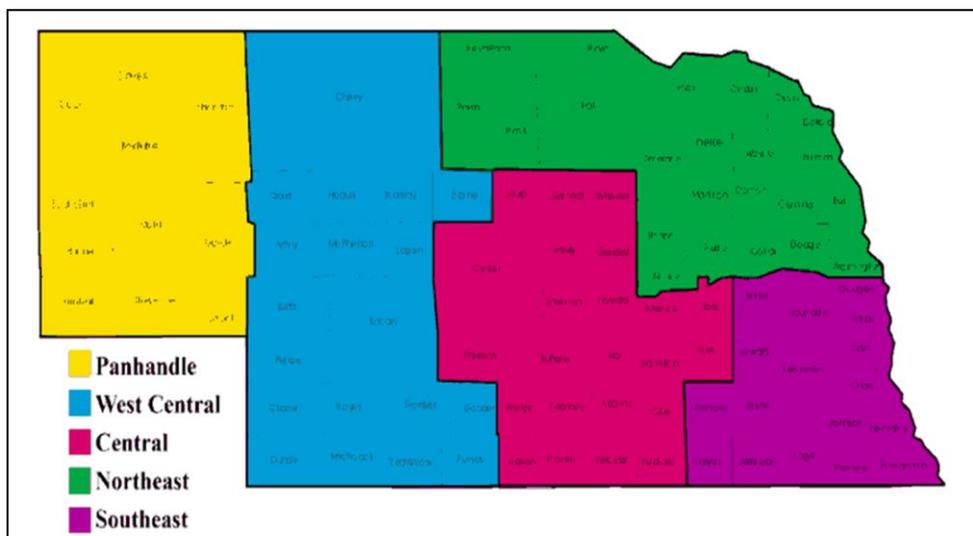
- ✓ Analyzed survey results and incorporated input into final Strategic Plan recommendations



3. Stakeholder Workshops

Six stakeholder workshops were held across the state with participation from each of the geographic regions. Workshop locations and dates were as follows:

- ✓ Omaha (Southeast region): February 7, 2012
- ✓ Lincoln (Southeast region): February 8, 2012
- ✓ Grand Island (Central region): February 8, 2012
- ✓ Norfolk (Northeast region): February 9, 2012
- ✓ Gering (Panhandle region): February 21, 2012
- ✓ North Platte (West Central region): February 22, 2012



4. GIS Strategic Planning Steering Committee meetings

AppGeo and Strategic Planning Steering Committee members participated in monthly meetings throughout the planning process.

5. Strategic Planning Retreat and Workshop

The Strategic Planning Retreat and Workshop presented the initial Vision and Recommendations for development of the NESDI to the stakeholder community and key decision makers.

- ✓ June 26, 2012

6. Report Authoring

- ✓ Development, circulation, review and approval of a draft SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis and Strategic Plan outline
- ✓ Presentation of a draft Strategic Plan document to the GIS Strategic Planning Steering Committee for review and comment

7. NITC GIS Council Approval

- ✓ Following initial review and editing as part of the authoring process, the DGDC Executive Council approves and endorses the plan
- ✓ Release of document to the stakeholder community

8. Roll-out the Nebraska GIS Strategic Plan

- ✓ Education and outreach meetings to begin sharing and describing the plan to the broader stakeholder community
- ✓ Advocacy for carrying out the recommendations
- ✓ Internal meetings to discuss and act upon implementation strategies

APPENDIX 2: STATUS OF STATE GIS BASED ON NSGIC 9-CRITERIA

The National States Geographic Information Council has published a listing of “9 Criteria for a Successful Statewide GIS Program.” While these are not firm, binary criteria, they provide a measure by which different states can be compared. In general, the most successful states tend to have these things in common.

Criterion	Status
1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans:	Partially meets criterion. NITC has a full-time State GIS Coordinator. Authority to implement Business and Strategic Plans will come through NITC and Office of the CIO.
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production:	Partially meets criterion. NITC GIS Council provides governance to statewide coordination efforts along with the Office of the CIO based on statutory authority.
3. The statewide coordination office has a formal relationship with the state's Chief Information Officer (CIO):	Meets criterion. The State GIS Coordinator is positioned in the Office of the CIO.
4. A champion (executive and other legislative champions) is aware and involved in the process of geospatial coordination:	Does not meet criterion. There are no strong, active champions currently involved in the process.
5. Responsibilities for developing the National Spatial Data Infrastructure and a State Clearinghouse are assigned:	Partially meets criterion. A complete Nebraska Spatial Data Infrastructure (NESDI) has not been defined and not all framework data layers have been developed. The NebraskaMAP state clearinghouse exists, but has limited capability and lags behind other states.
6. The ability exists to work and coordinate with local governments, academia, and the private sector:	Partially meets criterion. These entities are represented on the NITC GIS Council. There is some evidence of local government involvement with state functions, but overall GIS adoption across the state remains low.
7. Sustainable funding sources exist to meet project needs:	Partially meets criterion. There is funding for the state State GIS Coordinator and various funding for projects through other agencies. However, long-term, sustainable funding and allocation of resources is still needed.
8. GIS Coordinator has the authority to enter into contracts and become capable of receiving and expending funds:	Meets criterion. The State GIS Coordinator in the Office of the CIO can enter into contracts.
9. The Federal Government works through the statewide coordinating authority:	Partially meets criterion. The Federal Government recognizes the Nebraska GIS Council and their efforts and has worked with the state (e.g. via NAIP, Homeland Security, FEMA)

APPENDIX 3: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

4.8 STRENGTHS & WEAKNESSES

4.8.1 Strengths

- Existing **State GIS Coordinator** position in Office of the CIO
- Existing **governance structure**
 - Current NITC Council and GIS/LIS Association
- Digital **parcels are prevalent**
 - Nearly every County has and maintains digital parcels
- **Existing roads data**
 - NDOR Highway System Network Database meets 1:24,000 National Map Accuracy Standards
 - Incorporates NDOR feature identifiers and attributes
- NE in good position to **learn from other states**
 - Many have grappled with similar issues
- Several **strong state agency GIS programs**
- Many **strong local government GIS programs**
 - Through direct county efforts
 - Through relationships with private sector
- Existing use cases demonstrate **benefits of data sharing**

4.8.2 Weaknesses

- Lack of a **cohesive GIS community**
 - Lack of overall communication between/amongst stakeholders
- History of **poor communication** between State and Locals
- **No “one-stop-shop”** for GIS data
 - Nebraska Map does not have relevant or complete holdings
- Lack of **awareness of GIS Council**
- **No Legislative Champion**
- Not all data framework layers have been developed

- No seamless statewide parcel, street centerline, or address data
- Need for coordinated aerial image capture
- Need for identifying necessary imagery for use in other spatial data generation in respect to spatial accuracy, resolution, temporal, currency, leaf-on/leaf-off, NIR, black and white, Oblique, projections, coordinates, etc.
- No common data model for key data layers
- Different counties use different coordinate systems
- Geodetic Control data is difficult to locate and not in digital form
 - NDOR, NDNR, and County Surveyors maintain records of monuments but are not submitted to National Geodetic Survey (NGS)
- No comprehensive and integrated statewide transportation database including railroads, intersections, and other segments (e.g. bridges, overpasses)
- County GIS often remains within a **single department**
- Lack of **GIS Education** at all levels of Government
- Locals need better **GIS resources from state**
 - Training/education, contact info for “peers”, tools, “best practices”, data standards, grant/funding opportunities
- Need for improved workflow, scheduling and best practices from data acquisition to implementation

4.9 OPPORTUNITIES & THREATS

4.9.1 Opportunities

- Lots of **GIS activity** in Nebraska!
 - And lots of opportunities for **data & resource sharing**
- **New face** in the GIS Coordinator role
- To **improve representation** on GIS Council
- Potential **collaboration with NRD**
 - NRD is interested in parcel development (e.g. built ¾ of Saunders County)
- **Buy-up program for orthoimagery** would be popular
- Roads are biggest issue in the Panhandle
 - Will get attention of decision makers
- **Existing orthoimagery capture programs**

- Nebraska-Iowa Regional Orthoimagery Consortium (NIROC)
 - USDA Farm Services Agency NAIP
- Room for improvement with The **NebraskaMap** state clearinghouse
 - Exists but has limited capability, and lags behind other states
- To **engage Assessors** as key leaders at local level
- To **engage NRDs, EMAs, Public Health** as a unique, GIS-savvy level of government with a regional outlook
- For **creative partnerships**
 - Public Utilities, Environmental Trust, DOR?
- Potential to **increase private sector business activity**

4.9.2 Threats (Vulnerabilities)

- **Suspicion of State** persists
 - Viewed as “Disconnected” & “Irrelevant”
 - Perception that State will “pull plug” on support
- Perception that **revenue will be “lost”** with data sharing
- The **privacy issue**
- Some locals view **GIS as overwhelming, costly**
- Failure to **engage western 1/3 of state**
 - “Too many people think the state stops at Grand Island”
- GIS Coordinator does not get **organizational & funding support** to make improvements
- Failure to **engage decision-makers**
- Reluctance to share local data
 - Fear of revenue loss if parcels are freely shared
- **Data maintenance and sustainability is concern**
- **The privacy issue**
 - FOI laws vs. respecting sensitivities
- Mix and match of data sources/formats/schemas will be **difficult to harmonize**
 - Metadata is key to sharing and appropriately combining data from disparate sources

APPENDIX 4: STATUS OF FRAMEWORK LAYERS

The following provides a high-level overview of the development status of the 12 "framework" data sets that constitute the Nebraska Spatial Data Infrastructure (NESDI) as introduced earlier in section 2.2.1. Work on these data sets is ongoing and it can be expected that this "status appendix" will continue to evolve and grow independently from this document. It is anticipated that this information will be updated in a format that is consistent with the **Building a Spatial Data Infrastructure for Nebraska** report completed December 2007⁴.

1. Geodetic Control

- All current data has been submitted to NGS.
- NDOR, NDNR, and County Surveyors maintain records of monuments but are not submitted for inclusion in the NGS set. Much is difficult to locate and not available in digital form.

2. Cadastral (Parcels)

- No seamless parcel and/or land records modernization exists in the state.
- Local County Assessors and State Records Board Land Record Information and Mapping Projects exist.
- Two low-resolution Public Land Survey System (PLSS) Databases
 - NDNR – early 1990s, US BLM – 1997
 - Different methodologies, both derived from digitizing section corners on the USGS 1:24,000 topographic quad maps
 - Both crosschecked & adjusted for errors beyond ± 50 ft.

3. Political Boundaries

- Updated redistricting for various city and state intergovernmental boundaries with Census data in 2010-2011.

4. Hydrography

- Streams and Water Bodies (NDNR/USGS)
- National Hydrography Data Set (NHD) - Statewide high-resolution digital mapping of Nebraska's surface water features
- Database design incorporates numerous intelligent features, including river and stream addressing schema

⁴ See: <http://nlc1.nlc.state.ne.us/epubs/G3400/A001-2007.pdf> for a copy of the 2007 report.

- USGS migrating to new data model and NHD Community working on value –added attributes (VAAs)
- Dataset completed 2006
- Stewardship in place
- User group promotes and facilitates use of new database

5. Imagery

- Nebraska-Iowa Regional Orthoimagery Consortium (NIROC)
 - Latest acquisition in 2010, organizing for 2013
 - Focused on acquiring high-resolution imagery (6" & 12")
 - Local government led consortium of cities, counties, NRDs, state / federal agencies
 - Core NE-IA urbanized area but open to others
 - Three year acquisition cycle -2010 4th cycle
- Central Nebraska Consortium
 - Eight cities and two counties in 2010, organizing for 2013
 - High-resolution imagery (6" & 12")
- USDA Farm Services Agency NAIP
 - Acquired for Years 2003 1m, 2004-2005 2m, 2006 m, 2007 2m Partial, 2009 1m 4-band, 2010 1m 4-band , 2012 1m 4-band

6. Elevation

- Statewide from USGS 10-foot contours (1:24,000-scale DEMs, 1998 - NDNR and USGS)
- Lincoln – Enhanced DEM in 2004 LiDAR (USGS project), 2-foot contours from digital terrain model (DTM) in 1997
- NIROC area - Enhanced DEM, LiDAR and multi-resolution DOQs in 2004, 2-foot contours
- Nearly half of Nebraska has LiDAR coverage between 2010-2011. Coverage is mainly south and eastern parts of Nebraska. Additional LiDAR is being planned for 5,000 sq. miles between September 2012 and March 2013.

7. Transportation (Road Centerlines)

- No comprehensive and integrated statewide transportation database
- NDOR Highway System Network Database meets 1:24,000 National Map Accuracy Standards. Incorporates NDOR route number and reference posts
- Public Service Commission developed E911 centerline data to fit 2003 statewide 1-meter DOQs

- Nebraska State Patrol database conversion effort through their Computer-Aided Dispatch system.
- Omaha, Lincoln, and other cities centerline data collected from other sources

8. Groundwater Features (Nebraska Framework Layer)

Developed through Conservation and Survey Division (CSD). Primary datasets include: **Configuration of the Water Table** 1979 and 1995 (updates forthcoming for 2010); **Generalized Depth to Water** 1996 (updates forthcoming for 2010); and, **Thickness of the Principal Aquifer** 1980. These maps have been developed by CSD geologists and compiled at a scale of 1:250,000. Forthcoming updates incorporate digital mapping techniques and are generally compiled at a scale of 1:500,000. The CSD compiles the Nebraska Statewide Groundwater Level Monitoring Report annually with representative maps compiled at the scale of 1:500,000. The CSD also maintains a real time groundwater level monitoring network.

For **water wells**, different agencies have developed and maintained separate identification schemes that are used to index the data they collect and maintain. The best available universal well identifier system is the Registered Well ID maintained by NDNR.

9. Soils (Nebraska Framework Layer)

Statewide Digital Soil Survey data is provided through the Federal Natural Resource Conservation Service (NRCS) and updated on an annual basis.

10. Land Use Land Cover (Nebraska Framework Layer)

No entity is currently charged with inventory or assessment of Nebraska's land use or land cover (although CSD's charter could be interpreted to include such work). All recent efforts to assess and map Nebraska's land cover or land use have been project to project and grant-funded. Land use and land cover are distinctly different and are best presented as two separate databases. Land cover is defined as the type of material that covers the earth's surface at a specific location at a specific time. Land use is the manner in which human beings utilize a specific tract of the earth's surface at a specific time. A survey conducted by UNL CALMIT in 2007 for the Nebraska GIS Council indicated at least 54 agencies/organizations have a need for land use and/or land cover information (e.g., for wildlife habitat assessment, conservation planning, facilities siting, utilities routing, emergency preparedness and response, water quality assessment, environmental hazard assessment, property valuation and appraisal, and municipal and county planning and zoning). CALMIT has a record in land use and land cover mapping that goes back over 35 years. Land use/land cover products have never been systematically archived, documented or made available to the public.

Land Cover/Land Use Data Produced by UNL CALMIT

- Land Cover of Nebraska (Gap) - 1992-3
- Platte River watershed west of Columbus (COHYST) - 1997
- Platte River watershed west of Columbus (COHYST II) – 2001

- Platte River watershed west of Columbus (COHYST II) – Change analysis 2001-1997
- Statewide Agricultural Land Use (COHYST II) – 2005
- Niobrara River Watershed - 2000
- Republican River Watershed - 1995
- Rainwater Basin Joint Venture - 2000
- Standardized Vegetation Index - 2000

Other Land Cover and Related Datasets

- NRD land use maps (produced by CSD ca. 1972)
- Land use of Nebraska (1:1,000,000) - produced by CSD 1974
- Historical vegetation of Nebraska (CSD)
- USGS Land Use/Land Cover Data (“LUDA”) -1980's
- USGS National Land Cover Dataset - 1993
- USGS National Land Cover Dataset – 2001 and 2006
- USGS GAP Land Cover Dataset (with focus on vegetation classification) - 2001
- USDA NASS Crops and Land Cover - Nebraska (2002-present)
 - USDA National Resources Inventory
- National Wetlands Inventory
- EPA - Omernik’s Ecoregions of Nebraska
- USDA - Major Land Resource Areas
- USFS - Bailey’s Ecoregions of Nebraska

11. Address (Nebraska Framework Layer)

There is currently no statewide framework for addressing for state business needs other than data used by PSC and E911 purposes. NebraskaMAP currently provides access to ESRI’s free geocoding service but is not accurate enough for state needs. Individual departments obtain additional address data to fit their needs.

12. Watershed Boundary (Nebraska Framework Layer)

- Developed by USDA NRCS and incorporated into the National Hydrography Data Set.

APPENDIX 5: STATUS OF NebraskaMAP GEOSPATIAL DATA CLEARINGHOUSE

OVERVIEW

NebraskaMAP (www.NebraskaMAP.gov) is a collaborative, intergovernmental geospatial data sharing and web services access point clearinghouse for Nebraska. It is a collaborative project initiated by the Nebraska NITC GIS Council and has been endorsed as an enterprise “shared services” project for state operations.

The goal of the NebraskaMAP is to develop an enterprise-level geospatial data sharing network for providing online access to Nebraska-related geospatial (GIS) data available from a wide range of state, local and federal agencies. Another goal of this data sharing network is to provide a wide range of geospatial data services that could be developed collaboratively at the enterprise-level and then used and/or consumed by a range of public agencies and thereby avoiding unnecessary duplicate of effort to develop and maintain these data services in multiple public agencies. The clearinghouse will provide state agencies with the opportunity to make their data available through the data-sharing network while accessing other online data and mapping services.

This geospatial data clearinghouse helps users find existing data, and arrange for interactive data access and exchange between state, local, federal agencies, the private sector and the general public. The clearinghouse utilizes the latest online GIS (Geographic Information System) technologies to provide a foundation upon which public agencies can build their own agency-specific online public information mapping and geo-analytical applications.

This project was initiated as a two-year pilot project between various state partners and guidance from the NITC GIS Council. The design and testing environment from the pilot project was implemented through the University of Nebraska Center for Advanced Land Management Information Technologies (CALMIT). During this time, the concept of an online GIS data sharing and web services network was demonstrated and the core architecture was deemed appropriate to meet the needs for Nebraska. Results of this pilot project are summarized in more detail and can be located at the NITC GIS Council web site (<http://nitc.ne.gov/gisc/>).

At the completion of the pilot project a decision was made by the NITC GIS Council and UNL CALMIT to move the entire system to the OCIO for full implementation and operation. A development and production environment currently exists on separate dedicated virtual environments with the latest enterprise software at the OCIO. One of NebraskaMAP’s functions is operating as a metadata portal. There are currently 242 metadata files being shared through the geoportal server and it continues to grow. This metadata comes from various city, county, state, federal, and industry providers. The OCIO staff has been working to maintain the current metadata portal and prepare components for expanding the enterprise architecture for NebraskaMAP. Customized online tools have been developed to assist in the development of metadata to document GIS datasets and several agencies trained in their use.

Metadata is the formal documentation of GIS datasets and is required for most online data sharing tools to function. The following are additional features available through NebraskaMAP.

- A statewide street centerline database was uploaded and is available as a web mapping service.
- An online geocoding service was implemented to support mapping database elements that have associated street addresses.
- A statewide base map was integrated involving common map features used in tandem (i.e., roads, streams, political boundaries, etc.). This provides a visual mapping backdrop reference for a wide variety of mapping applications.
- The most recent statewide aerial imagery is available through the data repository and serves as an online image service. This feature demonstrates the feasibility of serving very large imagery datasets from a common enterprise location as opposed to copying these large datasets onto multiple agency systems.

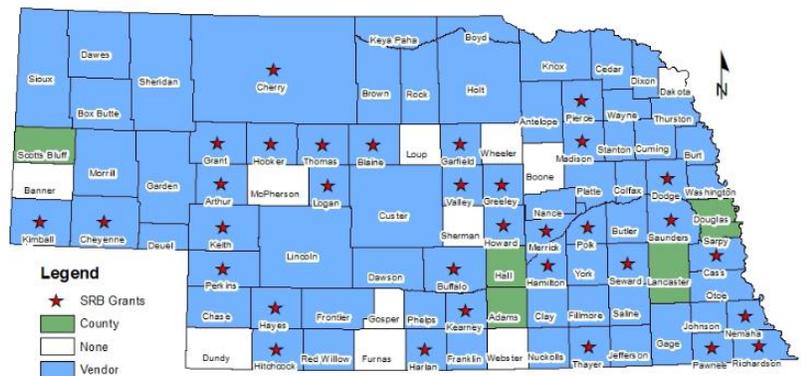
All of these datasets can be embedded into an agency's website or desktop application to support a variety of functions. A GIS data repository is currently being developed to host and serve GIS datasets of interest for which other agencies are not currently providing online data access. As newer geo-referenced data becomes available and future business plans are in place to enhance the Nebraska Spatial Data Infrastructure (NESDI) this data will become available on NebraskaMAP. Several new pilot projects are underway to test and evaluate advanced technologies using mobile and other web mapping services components.

During the pilot project, solid funding was not achieved for sustaining future enhancements and the long-term sustainability of the project. This came about during a time of state budget shortfalls. One of the pilot project objectives was to research and make recommendations relative to the requirements for on-going support of the project. Consistent with this objective, the NebraskaMAP Working Group formally recommended that a minimum of one FTE, with fairly high level GIS technical skills, would be required to provide ongoing support for the NebraskaMAP and its related online GIS services. In the interim, some of the NebraskaMAP partner agencies are providing temporary technical support to maintain the current infrastructure. A business plan is currently being developed to outline future plans and resource requirements to sustain NebraskaMAP as an enterprise-level service. The OCIO is also identifying shared service costs and methods for cost recovery for NebraskaMAP. It is expected to have cost recovery model in effect for FY 2013.

APPENDIX 6: LISTING OF STATE RECORDS BOARD PARCELS GRANTS, 2005-2012

County	Date	Amount
Arthur	12/2/2009	\$15,612.00
Blaine	12/2/2009	\$13,742.00
Buffalo	7/20/2011	\$25,000.00
Cass	7/30/2012	\$20,706.50
Cherry	7/20/2011	\$25,000.00
Cheyenne	7/30/2012	\$19,757.50
Dodge	7/30/2012	\$23,742.00
Garfield	7/30/2012	\$23,742.00
Grant	12/2/2009	\$20,412.00
Greeley	7/30/2012	\$23,742.00
Hamilton	9/15/2009	\$25,000.00
Harlan	7/30/2012	\$23,742.00
Hayes	5/27/2009	\$25,000.00
Hitchcock	7/30/2012	\$23,742.00
Hooker	12/2/2009	\$25,000.00
Howard	12/2/2009	\$25,000.00
Kearney	5/10/2005	\$25,000.00
Keith	7/20/2011	\$25,000.00
Kimball	7/20/2011	\$23,000.00
Logan	12/2/2009	\$22,896.00
Madison	7/20/2011	\$17,500.00
Merrick	1/26/2006	\$25,000.00
Nemaha	4/29/2008	\$25,000.00
Pawnee	7/20/2011	\$25,000.00
Perkins	7/20/2011	\$12,500.00
Pierce	7/30/2012	\$12,300.00
Polk	7/20/2011	\$17,500.00
Richardson	9/15/2009	\$25,000.00
Saunders	7/30/2012	\$23,742.00
Seward	7/30/2012	\$7,300.00
Thayer	7/30/2012	\$23,742.00
Thomas	5/27/2009	\$25,000.00
Valley	9/15/2009	\$15,000.00
Total		\$709,420.00

The table to the left provides a listing of the 33 counties that have received a Nebraska State Records Board (SRB) grant⁵ for the automation of parcel data. The image below shows the overall extent of parcel development in Nebraska and the extent to which the parcel grants have played a role. Green shading indicates that the county maintains and hosts its own data. Blue shading indicates that a private sector vendor assists the county in parcel data maintenance and hosting.



⁵ For further information on the grants, see: <http://www.staterrecordsboard.ne.gov/grants.html>