State of North Dakota

Geospatial Program Strategic Plan – 2023-2027

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1. EXECUTIVE SUMMARY

The North Dakota Geospatial Program is driven by the State Geospatial Committee (SGC) with the focus of the work being the development and maintenance of the GIS Hub which is funded by a general fund appropriation from the North Dakota Legislature. The GIS Hub is a database of shared agency data and is a web infrastructure which supports state agency geospatial activities and is used to disseminate geospatial data to other levels of government and to the public. The SGC also provides the coordination for state agency geospatial activities, data development, and interaction with local and federal government.

In this document, we use the term "GIS" to denote the use of specialized software and methodologies for storing, managing, analyzing, and visualizing geographically located data (with associated attributes) such as points, lines, polygons, and imagery. Associated with use of GIS are people with specialized knowledge, experience, and training in the in-depth use of GIS. We use the term "geospatial" as a broader term encompassing GIS and technologies that support location awareness and utilization.

2. CURRENT SITUATION

2.1 Mission Statement

The State of North Dakota's GIS Hub will provide the essential infrastructure to share core geographic datasets through an accessible data warehouse among stakeholders with browsing ability to the public. The GIS Hub will leverage the State's existing data, infrastructure, and expertise to implement the core elements of this enterprise solution.

2.2 Business Case for the Geospatial Program

Geographic information is critical in emergency preparation and mitigation and is important in business processes. Two key drivers for the Geospatial Program at the State of North Dakota are:

1) Efficient delivery of geospatial data resulting in cost savings and protection of property and lives.
2) Reduced agency program costs due to the existing infrastructure and data provided by the GIS Hub lowers the barriers to utilization of geospatial technologies.

2.3 Strengths

Small group of dedicated individuals working well together

- The State Geospatial Committee (SGC) leads North Dakota's Geospatial Program including data development, support of state agencies' geospatial initiatives, federal and local government collaboration, strategic planning, and oversight of the GIS Hub.

The GIS Hub utilizes existing infrastructure

- The Information Technology (NDIT) manages the GIS Hub infrastructure including hosting, administration, and security. This results in the GIS Hub being part of the standardized enterprise.

Collaboration with non-state agencies

- Ties to industry, academia, other levels of government, and other states are maintained via individuals that serve on the SGC. This results in relationships that aid in collaborative efforts such as data development.

Legislative Support

- General funding from the Legislature is used to maintain and develop the GIS Hub and is part of the NDIT budget. This avoids the needs for a charge-back model to fund the core system.

2.4 Weaknesses

Storage and Hosting

- Storage costs may place restraints in the growth of sizeable datasets and derived data products. Server hosting fees are an impediment to responding to vendor-recommended software deployment strategies and for implementing full disaster recovery configuration.

Staffing

- The timely development, research, and maintenance of GIS Hub systems and data by agency GIS professionals are constrained by staff levels and their primary agency-related work priorities. States with the most successful geospatial programs are those with sufficient staffing having ample training opportunities.

2.5 Opportunities

Geospatial Evangelization

- Opportunities exist to assist state agencies that do not use geospatial technologies to help them become aware of how geospatial can be of assistance to their programs and to their constituents. This work including registering their geospatial data on the GIS Hub Data Portal to aid in transparency and data discovery.

Application of Technology

- Existing and new capabilities including those utilizing cloud computing need to be leveraged wherever possible to further enhance the user experience in particular, mobile devices, to more fully integrate geospatial technology into state agency business processes and decision-making, and to help make North Dakota government data more resilient, accessible, and discoverable.

Data Development and Maintenance

- The definition and adoption of common standards by all levels of government including tribal will make the development and maintenance of statewide datasets less costly and easier to maintain and utilize.

2.6 Threats

Insufficient Staffing

- Increasing workload and expectations with insufficient staffing results in a triage system applied to incoming work. In addition, recent experiences in North Dakota and observed in other states suggest the pool of staff having "top-to-bottom" knowledge of software stacks and systems is shrinking and is being only partially replaced by staff with less encompassing knowledge. This results in the need to replace highly experienced departing staff with 2-3 individuals.

Flat or Declining Budget

- A reduced or static budget negatively impacts the ability to store data and impacts the number and/or sizing of servers needed to maintain GIS Hub server software and to meet needs of disaster recovery.

3. OUR VISION

"It is the vision of the State Geospatial Committee that the Geospatial Program will continue to grow in value to state agencies and other levels of government which in turn increases the level of service and cost effectiveness to the citizens of the North Dakota. The core of the Geospatial Program is the GIS Hub which will continue to develop through a focus on improved and new data sets and secondarily, through improved and new functionality and applications."

This Strategic Plan adopts the **Run-Grow-Transform** model to assist in aligning the geospatial strategy with state government business processes and strategy. More importantly, this approach clarifies SGC planning and communicates what we need for providing the services our customers have come to expect while building a foundation to meet future needs.

This Strategic Plan focuses on goals and objectives being more data-centric along with lowering barriers to the adoption of and access to geospatial data, tools, and methodologies. We are leveraging the data-centric mission of the SGC, of creating an effective and efficient geospatial data infrastructure for hosting and delivery of common, core geospatial datasets.

In our data-centric focus, our priorities will be shaped by currency, accuracy, and completeness. We already have those capabilities and will leverage them in **Run**. We will **Grow** and elaborate on what we already do with data development, data sharing, data maintenance, and data delivery, and we will strive to **Transform** to new levels of data-centric activities where it makes sense for the State of North Dakota and for its citizens. Current, complete, and accurate data is critical for

existing and future applications. State support is required for additional staff and financial resources to agencies involved in key geospatial data development and maintenance activities.

3.1 RUN

We will continue to do what we do well, while maintaining core functions and meeting customer expectations utilizing existing budget and staffing resources.

Listed in order of priority:

3.1.1 Specific Goal: Parcel Program – Enhance Sustainability of State Parcel Program

Measurable: Establish more robust support of the State Parcel Program with structured oversight of state-county data workflow, assistance, and communication.

Achievable: Leverage the rapport, staffing, and processes in place at the North Dakota Association of Counties (NDACo) and their GIS Program. NDACo will collaborate with the State's Geospatial Program Coordinator and the Parcel Program contractor.

Relevant: As the use of the parcel dataset continues to grow, more timely support and interaction between the State and the counties (and their vendors) is required to ensure a quality and current dataset.

Time frame: 2024 (Began in 2023, full support level early 2024)

Focused business partner(s): State agencies and city and county government

Additional resources required: Continued funding for collaboration with the North Dakota Association of Counties and with the Parcel Program contractor.

3.1.2 Specific Goal: Data Oversight – Data Governance Definition

Measurable: Define and document the definition of data governance as used on the GIS Hub.

Achievable: The SGC will define what is meant by geospatial data governance including the role of data classification (secure, confidential, open), integrating the State's definition of data governance when that becomes available.

Relevant: Data governance + data steward + regulatory authority = improved sustainability. Sustainability includes data currency and assisting in the transition that occurs when the data steward leaves their position. Maintaining high data quality, data currency, data completeness, data standards, metadata, and data access for authoritative geospatial datasets is required for data exchange both within North Dakota's data infrastructure and outside the state's data infrastructure.

Time frame: 2024 (Missed original 2023 estimate)

Focused business partner(s): State agencies

Additional resources required: Collaboration with the CDO vertical

3.1.3 Specific Goal: Data Oversight – Framework Dataset Definition

Measurable: Define and document the definition of a framework dataset as used on the GIS Hub.

Achievable: The SGC will define what is meant by what is meant by a framework dataset in the context of the GIS Hub.

Relevant: Maintaining high data quality, data currency, and data completeness requires focused attention on prioritized datasets. The foundation of priority will be those datasets defined as being a member of the framework dataset.

Time frame: 2023 (Completed November 2023)

Focused business partner(s): State agencies

Additional resources required: Guidance from the SGC

3.1.4 Specific Goal: Maintain Systems – Catalog Agency Data

Measurable: Establish methodology to ensure state agency public geospatial data is referenced on the Hub Data Portal.

Achievable: Review agency websites for data-related resources that are not yet referenced on the Hub Data Portal. Existing web-based resources can simply be referenced via the URL to that resource so that those resources can be discovered via the Hub Data Portal. Agency data stewards will be requested to publish their data to the Hub Data Portal when doing so has benefit to other users.

Relevant: The Hub Data Portal is the single source of cataloged and discoverable authoritative state agency data.

Time frame: 2024

Focused business partner(s): State agencies and city and county government

Additional resources required: Guidance from the SGC

3.1.5 Specific Goal: Data Oversight – Identify and Document Framework Datasets

Measurable: Identify and document framework datasets on the GIS Hub and their associated data steward, regulatory authority, and governance.

Achievable: The SGC will 1) define what a framework dataset is in the context of the GIS Hub, 2) identify which of the Hub datasets fit this definition, and 3) for each framework dataset,

document/update the data steward information, document the regulatory authority if present, describe the governance.

Relevant: Maintaining high data quality, data currency, and data completeness requires focused attention on prioritized datasets. The foundation of priority will be those datasets defined as being a member of the framework dataset.

Time frame: 2024

Focused business partner(s): State agencies

Additional resources required: Guidance from the SGC

3.1.6 Specific Goal: Centralized Geospatial Services – Define Disaster Recovery

Measurable: Identify and document perceived potential short term (e.g., power outage) and long term (e.g., major power and/or internet/network outage) issues. For each of these, identify response measures in the current state and in the desired future state. Integrate this with the State's Continuity of Government planning.

Achievable: The SGC will identify and rank in severity short-term and long-term potential impacts to systems, data accessibility, and the ability to provide critical geospatial services.

Relevant: The inability to provide data, maps, and other geospatial services within agencies and to their constituents will negatively impact their critical business functions.

Time frame: 2024 (Missed original 2023 estimate)

Focused business partner(s): State agencies

Additional resources required: Guidance from the SGC and collaboration with the CTO and CISO verticals

3.1.7 Specific Goal: Geospatial Evangelization – Build Awareness and Desire to Use Geospatial

Measurable: Develop twice-per-year webinars showcasing GIS Hub and agency geospatial data and applications, including topics presented by vendor community.

Achievable: Provide learning opportunities to agency staff and agency leadership, introducing them to current and future uses of geospatial technology, including the use of GIS Hub data and applications. This includes: 1) agencies who are already engaged with the use of geospatial technologies and those that are not, 2) assisting agencies to become the stewards of data that is closely aligned to their agency but is currently managed and maintained by another agency, and 3) where appropriate, assisting data sharing among agencies via the State's data lake infrastructure.

Relevant: By mentoring and education, foster the awareness that geospatial data and technology should be an integral part of an agency's business processes.

Time frame: 2024

Focused business partner(s): State agencies

Additional resources required: Guidance from the SGC and participation from the vendor community

3.2 GROW

We will continue to do what we are doing, but better. We will innovate and expand our offerings using existing systems and tools, new products will be created for an improved customer experience. Increased spending will be required.

Listed in order of priority:

3.2.1 Specific Goal: Outreach – Enhance Sustainability of Geospatial Summit

Measurable: Establish the framework of the Geospatial Summit necessary for sustainability – location, venue, budget, structure, and support mechanisms.

Achievable: Previous Geospatial Summits and the earlier GIS Users Conference and GIS Day provide a rich knowledge base that can be utilized to frame the approach for ensuring sustainability of this statewide event.

Relevant: Relationships and knowledge transfer are critical for the successful maintenance and growth of geospatial technologies and use in North Dakota. Past surveys have indicated that the primary desire for attending this event is networking and learning.

Time frame: 2023-2027

Focused business partner(s): State agencies, local government, private sector

Additional resources required: Collaboration with SGC, potential slight increase in funding requirements for venue.

3.2.2 Specific Goal: Outreach – Establish Special Interest Groups

Measurable: Identify the benefits, details, topics, level of interest, and purpose relating to state geospatial coordination between all levels of government and the private sector.

Achievable: Leverage the existing ND GIS email list and attendance list from past Geospatial Summits as a source of gauging interest and participation level. Special Interest Groups (SIGs) could become part of the Geospatial Summit.

Relevant: As in many industries, relationships and knowledge transfer are critical for the successful growth and gained efficiencies. Particularly in a small state having a relatively small and widely dispersed users of geospatial technologies. Particularly applicable to the support of geospatial is North Dakota's solid foundation of technology, state network, industry, and research.

Time frame: 2026

Focused business partner(s): State agencies, local government, private sector

Additional resources required: Collaboration with SGC and key individuals from local government and the private sector

3.2.3 Specific Goal: Cloud – Determine Geospatial Cloud Paradigm

Measurable: Identify use cases of geospatial data web services and desktop virtualization technologies which are well-suited for remote work which is hampered by slow Internet connections and/or VPN throttling. Evaluate and obtain estimate of cost of these cloud-centric use cases as a basis for ROI estimates and work efficiencies for both NDIT-managed and third party-managed data, server, and desktop solutions.

Achievable: Leverage opportunities for increased utilization of cloud hosting of geospatial data and related applications and services for enhanced performance, functionality, and cost stabilization. Promote the use of web services in place of database services for both on-premises and virtualized desktop GIS. Utilize desktop virtualization technologies when cost-effective.

Relevant: Remote workers are the primary beneficiaries through less waiting for data to draw on maps and to be processed in analyses.

Time frame: 2024/2025

Focused business partner(s): State agencies

Additional resources required: Collaboration with the CTO vertical and participation from the vendor community

3.2.4 Specific Goal: Enhance Systems – Migration to Hosted Feature Services

Measurable: Develop scheduled advertising and documentation to assist State agency GIS users to utilize hosted feature services as their primary data source in their project files in place of using these data in the enterprise geodatabase.

Achievable: Hosted feature layers are presently available via the GIS Hub Data Portal. This goal is oriented towards leveraging this data source and making GIS practitioners and developers more aware of this through advertising.

Relevant: Remote workers and the public are the primary beneficiaries through less waiting for data to draw on maps and to be processed in analyses. The State's primary software vendor, Esri, appears to be gravitating towards the use of hosted feature services, relegating the enterprise geodatabase to be more commonly used as a platform for managing editing workflows and to meet specific use cases and requirements.

Time frame: 2024

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC, additional .5 FTE

3.2.5 Specific Goal: Centralized Geospatial Services – Assist New Employees Using GIS

Measurable: SGC develop steps and procedures to be used by the NDIT Service Desk to assist agencies when onboarding new employees who will be using GIS in their jobs.

Achievable: The NDIT Service Desk, Customer Success Managers, and Human Resources are already involved with on-boarding processes. Tap into those processes to integrate GIS requirements, including but not limited to basic training, accessing the GIS Hub data sources, software installation and licensing, and proper hardware. In addition, use best-of-breed practices already in place by agencies such as the DES and DOT.

Relevant: Current procedures and steps vary from agency to agency, and in some cases, multiple and inconsistent steps bounce between multiple silos, costing time and creating frustration, and resulting in a variety of outcomes.

Time frame: 2024

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC and collaboration with the CTO vertical

3.2.6 Specific Goal: Centralized Geospatial Services – Improve Access to Esri Software

Measurable: Provide access to GIS desktop and SaaS Esri software to state agencies through a shared license pool managed by NDIT to those agencies that request it.

Achievable: Agencies with existing Esri software licenses and support can choose to continue managing their licenses or move to using the shared license pool while maintaining their own Esri-based support. Software support for these licenses is provided by Esri to these agencies.

Relevant: Streamlines gaining access to GIS software and optimizes the total spend for software.

Time frame: 2025

Focused business partner(s): State agencies

Additional resources required: Guidance from the SGC, assistance from Esri, collaboration with the CTO vertical

3.2.7 Specific Goal: Centralized Geospatial Services – Improve Support Services

Measurable: NDIT support staff become trained and capable of providing Tier 1 GIS support and are supported by Esri Technical Support.

Achievable: NDIT support staff will be trained via Esri instructors and via web-resources. A budget will be required for this training. A definition of the types of support to be provided will be developed.

Relevant: The use of Esri GIS software will grow within agencies already using that software, and growth will substantially grow in agencies not yet embracing the use of the GIS software. Lead agency GIS coordinators will encounter growing GIS support needs that can be mitigated by requests for support being sent to the NDIT Service Desk.

Time frame: 2024 (Missed original 2023 estimate)

Focused business partner(s): State agencies

Additional resources required: Guidance from the SGC, assistance from Esri, collaboration with the CTO vertical

3.3 TRANSFORM

We will do something different. Through innovation we will create new business models and capabilities to accommodate new customer needs and grow the existing customer base.

Transformation recognizes the need to establish an innovative foundation built upon the foundation originally set in place in 2000 when the Geospatial Program began. This expanded foundation will support geospatial data, applications, and integration for the next decade and beyond.

Listed in order of priority:

3.3.1 Specific Goal: Centralized Geospatial Services – Optimize the Geospatial Program

Measurable: Conduct ROI study via vendor selected from the Vendor Pool or via RFP to identify areas of focus with greatest reward for the next 5 years and 10 years. Identify two or more common themes that are applicable to two or more agencies, that they believe would be transformative to their respective agencies. These new themes will be used for a new strategic plan.

Achievable: Relative to when the GIS Hub began, there are double the number of agencies using the GIS Hub meaning that we have more channels of input and ideas. Geospatial and non-geospatial technology has substantially grown, providing more choices and greater opportunities for integration.

Relevant: The Geospatial Program with its core of the GIS Hub has been very successful. Primarily because it originated through a “bottom up” process of being requested and driven by its primary users, state agencies. With tremendous technical change and advancement having incurred since its inception, including how geospatial is being used and can be used by state agencies, we need to step back and identify how we can best utilize geospatial in an optimal and cost-effective manner.

Time frame: 2025

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC, collaboration with the CTO and CDO verticals

3.3.2 Specific Goal: Centralized Geospatial Services – Establish Geospatial Office

Measurable: Establish a Geospatial Office for coordination of State geospatial activities and promotion including responding to geospatial data and application needs and requests. Document the objectives and interaction with state agencies and other levels of government.

Achievable: The challenges of determining the fit within NDIT and the number of staff and other resources required to meet the objectives can be overcome. The Geospatial Office can be modeled after what other states have done and the derived benefits.

Relevant: A Geospatial Office creates an entity that is capable of responding to what already occurs, where state agencies and other levels of government request work to be done because they believe there is a centralized group that is available to respond to geospatial requests. This office supports but does not replace existing GIS agency staff.

Time frame: 2026

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC, collaboration with the CTO, CDO, and CCSO verticals, additional 1.5 FTEs

3.3.3 Specific Goal: Data Oversight – Optimize Data Sources

Measurable: Establish ROI criteria and use that to identify data and hosting sources that are viable alternates to hosting that data on state platforms.

Achievable: Esri's Living Atlas and other sources of data, including data subscription services are now widely available.

Relevant: The term, "necessity is the mother of invention" is applicable to some of the datasets housed in the GIS Hub and within agencies: Some datasets from federal and other sources were originally brought onto the Hub platform to make them more accessible and easier to use. After careful application of criteria to be set, a subset of those datasets will no longer need to be housed at the state, thus freeing up storage and reducing staff time.

Time frame: 2026

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC, additional .5 FTE

3.3.4 Specific Goal: Parcel Program – Grant Program for Data Maintenance

Measurable: Provide formula-based funding provided by the State for counties for use in the maintenance of the parcel data supplied to the State.

Achievable: Define the mechanism for supplying these funds, e.g., a small and new fee attached to the recording fee. A weighted formula needs to be used to help address the disparity between the "have" and "have-not" counties.

Relevant: Counties have limited staff and funding to maintain their parcel data which are contributed to the State Parcel Program. Because of the value of the parcel data for the State and the programs that rely on it, the State should assist in the maintenance of this data to ensure quality and currency. Following the successful implementation of this parcel data funding, this approach could be applied to additional datasets sourced from counties and used by State agencies.

Time frame: 2024

Focused business partner(s): Counties

Additional resources required: Collaboration with SGC, collaboration with the CIO, CDO, and CCSO verticals, collaboration with NDACo, utilize existing FTEs

3.3.5 Specific Goal: Data Maintenance – Formula-Based Funding for County Data

Measurable: The SGC will work with local and tribal government to define priority areas, the shared-interest geospatial datasets to be funded via cost share, and the update frequency of those datasets. The SGC defines the formulas for the funding model.

Achievable: The SGC will have to determine the source of the funds, e.g., general appropriation, a transaction fee assessed by counties, or a combination of both.

Relevant: Numerous state agencies rely on data sourced from counties. Funds provided to counties for geospatial data maintenance will help level the playing field of "have" and "have not" counties. The result of that leveling will include more consistent data completeness and data currency, both of which are required for applications that rely on this data.

Time frame: 2026

Focused business partner(s): Counties

Additional resources required: Collaboration with SGC, collaboration with the CIO, CDO, and CCSO verticals, utilize existing FTEs

3.3.6 Specific Goal: Geospatial Evangelization – Spatially Enable Documents

Measurable: Establish guidelines and legislation to apply x-y and elevation coordinates to documents that reference geographic areas within North Dakota

Achievable: The technology for locating and using documents through geographic searching already exists and will continue to grow. AI technologies coupled with existing ETL tools such as Safe Software's FME will likely assist with scanning documents and associating with them coordinates.

Relevant: By having a focused effort now, North Dakota will be in a much better position as spatial location of documents becomes more mainstream and embedded into state system.

Time frame: 2027

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC, collaboration with the CTO and CDO verticals

3.3.7 Specific Goal: Geospatial Evangelization – Codification of Geospatial

Measurable: North Dakota Century Code will be modified to include reference to geospatial. Particular topics and details will be identified by the State Geospatial Committee (SGC).

Achievable: Century Code already references coordinate systems so there is precedence. The SGC will work with the necessary entities to create the language for the legislative bill. Lessons learned and ideas can be gained from other states who have already done this. Other State initiatives and programs such as SIRN will provide examples that can be leveraged.

Relevant: Geospatial technologies are gaining wider acceptance at all levels of government, including the use of those technologies by applications and users who are not necessarily "GIS users." Referencing geospatial technologies in Century Code will result in more visibility to and awareness of the technology and acknowledgement of its usefulness in the business workflows of the State.

Time frame: 2026

Focused business partner(s): State agencies

Additional resources required: Collaboration with SGC, collaboration with the CTO and CDO verticals

4. REQUIREMENTS FOR OUR VISION

Executive support and coordination are the basic requirements for achieving the goals set forth within each of the **Run**, **Grow**, and **Transform** levels. Status quo budget and staffing levels are necessary for the successful accomplishment of the goals in the **Run** level. Increased budget and staff levels are required to fulfill the **Grow** and **Transform** levels.

4.1 Executive Support

SGC members of each agency need to inform their executive leadership of the importance and value of geospatial within their agency and in general. This awareness will help expand the use

of geospatial technology and data in the mission of their agency and will also help support the continued use and growth of the State's Geospatial Program. Executive Support is critical in particular for the **Grow** and **Transform** levels.

4.2 Coordination

SGC members of each agency need to continue collaborating and coordination geospatial activities that support the State's Geospatial Program, the GIS Hub, and other agencies. To be most effective in this mission, each agency requires an autonomy that allows them to accomplish their primary missions. The data steward must remain positioned within his or her agency to understand the mission's agency and be fully responsive to the agency's geospatial data-related needs.

4.3 Budget

The Geospatial Program budget is a general funds line-item in the NDIT budget. This budget pays server hosting and storage fees, software maintenance, one FTE, limited data development, and the State Parcel Program. The appropriation has varied from one Biennium to another but is relatively flat. For example, the 2011-2013 budget is almost identical to the 2021-2023 budget, the earlier budget being .09% higher. Reduced hosting and storage fees in addition to more efficient software utilization and cuts in training and conferences have offset other increased fees.

Moving beyond the goals of the **Run** level and into the goals of the **Grow** level, and even into the **Transform** level requires an increased appropriation with the majority of that utilized for sufficient staffing.

4.4 Staffing

At minimum, one additional GIS Specialist FTE is needed to research and utilize new and evolving geospatial technologies, assist with GIS Hub software upgrades, respond to questions and data requests, maintain datasets on the GIS Hub, and to begin to address the **Run** level priorities. A second GIS Specialist FTE is needed to address the **Transform** level priorities. Continued staffing shortages will continue the need to utilize the State's Information Technology Professional Services Contract Pool for maintaining the GIS Hub, particularly in the support of day-to-day operations such as support.

5. DEVELOPMENT OF THE PLAN

The Geospatial Program Coordinator developed this Strategic Plan with input from the North Dakota SGC.