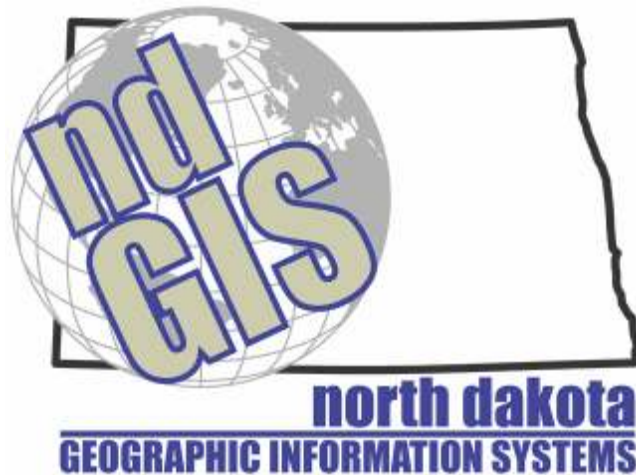


**North Dakota GIS Initiative Report
To Governor John Hoeven**

July 1, 2006 – June 30, 2007



Executive Order 2001-06: “The committee shall issue a report to the Governor's office at the end of each fiscal year, detailing progress, and problems encountered with GIS development in the state.”

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Executive Summary

The North Dakota Geographic Information System (GIS) initiative continued to be successful during the July 1, 2006 – June 30, 2007 reporting period. The GIS Technical Committee (GISTC) actively enhances the GIS Hub by adding new data and maintaining existing data. State agencies and other users of the GIS Hub find value in the GIS Hub as a central repository of data and applications. There are an average 35+ daily concurrent connections to the GIS Hub database from state agencies. During 2006 there were over 1 million hits on the web services and nearly 32,000 data downloads.

There are approximately 185 layers on the GIS Hub consuming 3 terabytes of storage or the equivalent of 638 DVDs. New data that have been loaded onto the GIS Hub over the past year include: Census Bureau roads, civil townships, National Wetlands, and 1-meter and 2-meter statewide aerial photography. Updated data sets include transportation, city boundaries, communications, and water-related data. The GIS Hub database also contains agency-specific data that is maintained and used internally by those agencies.

The GIS Hub, which is hosted within the State Information Technology Department's infrastructure, is the foundation of GIS work at the state agency level. Although the GIS Hub serves state agencies as a first priority, other levels of government and citizens also benefit from the GIS Hub. Agencies can utilize the GIS Hub infrastructure for applications to be used internally or provided to their constituents, saving them from having to build their own duplicated infrastructure. With the GIS Hub, data is available through several standardized interfaces and in a seamless and common format. The GISTC members are the key to promote new and updated GIS Hub data which is important to existing, new, and planned GIS Hub applications.

Major accomplishments include:

- The GIS Initiative received funding for the 2007-2009 Biennium to continue the development and growth of the GIS Hub. The budget was increased by the legislature to accommodate data acquisition needs.
- The GIS Professional Services Contract Pool was put into place. This has the primary benefit of making the procurement of GIS professional services more efficient by leveraging the master contract terms which have already been negotiated with the awarded vendors.
- Centerline Road Study was commissioned by the GISTC to determine the most feasible and cost-effective approach and an estimate of cost to meet the goal of developing and maintaining a statewide road centerline dataset using the best available data. Road centerlines are graphical representations of the actual location of roads.
- Added the Department of Commerce and the Oil and Gas Division as Associate Members to the GISTC. The addition of these two members reflects the expanding use of GIS within state government

Looking to the future, the GISTC will continue to grow the GIS Hub with additional data, functionality and applications while supporting its increased use.

GIS Initiative Governance

The GIS Technical Committee (GISTC) was established by Executive Order 1995-05 and re-affirmed by 2001-06 and is directed to coordinate and direct GIS activities within the state. The membership of the GISTC has grown through the addition of Association Members, reflecting the expanding use of GIS within state government.

Seven agencies listed in the Executive Order:

- Department of Health
- Department of Transportation
- Game & Fish Department
- Geological Survey
- Information Technology Department
- Parks & Recreation Department
- State Water Commission

Associate Members:

- Department of Commerce
- Land Department
- Oil & Gas Division
- Public Service Commission

Accomplishments

New Data

- **Statewide color aerial photography** – produced by the U.S. Department of Agriculture, Farm Service Agency crop compliance program. An important and much-used base map data set used by state and local government.
- **Census Bureau roads** – these include highways and city and county roads, obtained from the U.S. Census Bureau. Used as base map data by multiple state agencies.
- **Civil townships** – governmental sub-divisions of a county, developed by the State Water Commission. Used as base map data by multiple state agencies.
- **National Wetlands Inventory** – areas where soil is periodically saturated or covered with water and are an important habitat, obtained from the Fish and Wildlife Service. Used as base map data and for natural resource planning and management by multiple state agencies.
- **Soils** – detailed soil descriptions, the data from the Natural Resources Conservation Service. Used as base map data by state and local government.

Updated Data

- **Aquifers** – The delineation of near-surface aquifers is nearly complete. This project is managed by the State Water Commission. Used in natural resource planning by state agencies.

- **Watershed boundaries** – the delineation of detailed watershed boundaries is nearly complete. This project is managed by the Department of Health. Base map data used by state and federal agencies involved with natural resource planning and management.
- **Other** – includes roads, city boundaries, water districts, railroads, soils, state lands, federal lands, and several other data sets.

New GIS Hub Applications

- **Tax Department** – GIS data from the GIS Hub and a GIS data provider are used to create downloadable files used by vendors to more accurately assess local sales taxes on purchased items.
- **Department of Transportation** – Right-of-Way application for selection and viewing of DOT right-of-way plats.
- **Department of Agriculture** – Weed Mapper application used for display of noxious and other weed data submitted by county weed boards.

Updated GIS Hub Applications

- **Department of Health** – Enhanced the Facility Profiler and increased security.
- **Department of Commerce** – Updated graphics on the Commerce Internet Mapping Application.
- **Department of Emergency Services** – Added tribal boundaries and new NWS functionality to the Rangeland Fire Index tool.
- **Department of Transportation** – Added new functionality to the Right-Of-Way and Transportation Information applications.
- **Game and Fish Department** – improved, automated data loading onto the Hub

GIS Professional Services Contract Pool

- Effective July 1, 2006, several categories of GIS professional services have been added to the North Dakota State Term Contract 095. The North Dakota GIS Technical Committee, working in cooperation with the Information Technology Department and the Office of Management and Budget, State Procurement Office awarded contracts to GIS vendors in seven professional service categories.
- State and local government agencies may use a structured work order request process to obtain GIS professional services through this contract.
- The GIS Professional Services Contract Pool has been used several times since its implementation. There are plans to renew this during 2008.

Training and Education

- **Workshop** – The GISTC sponsored a workshop detailing new features of geodatabases that are used to store GIS data. Attendees represented both state and local government.
- **2006 Users Conference** – This had record attendance, presentations, and workshops. The theme was "Spatial Strategies" with a focus on industry trends, new technologies, data sharing and distribution, and practical application of GIS. Attendees were from state

agencies, local government, the business sector including utilities, tribal, and federal agencies. The keynote presentation was provided by former Wyoming Governor, Jim Geringer.

- **Coordinated GIS training** – The GISTC brings in an instructor to Bismarck to teach a 2 to 5-day course. This style of training has saved state agencies over \$65,000 in training costs alone. Demand for this type of training has slowed down some but will continue as needed.

Other Activities

- North Dakota does not have a road centerline dataset which is critical for use in many different applications such as emergency response, 9-1-1, taxation, and transportation. A “Road Centerline Study” was commissioned by the GISTC to determine the most feasible and cost-effective approach and an estimate of cost to meet the goal of developing and maintaining a statewide road centerline dataset using the best available data. The next step is to convene a Steering Committee composed of state and local representatives to determine the next steps and funding mechanisms. More information can be found at <http://www.nd.gov/gis/news/20061117.html>.
- The State of North Dakota through its Department of Emergency Services (DES) is working with local officials and a contractor for the National Geospatial-Intelligence Agency (NGA) to collect critical infrastructure information throughout the state. Data being collected includes ambulance, fire stations, hospitals, clinics, prisons, sheriffs, and others. One of the benefits of this work is that much of this data is already being used by the NGA and other federal agencies for Homeland Security activities, but those data are commonly dated, incomplete, and inaccurate. North Dakota stands to benefit by helping to improve the quality of this information.
- The GISTC is working with ITD to develop a new storage tier that will be better suited for storing large datasets that change infrequently and thus require less administration. A large portion of the GIS budget is consumed by storage. Once the new storage tier is in place, the GISTC will place the appropriate data sets onto the appropriate storage tiers. Each tier corresponds to a different storage rate and associated levels of service such as backups.
- The GISTC has endorsed the Imagery for the Nation initiative that has been developed by the National States Geographic Information Council (NSGIC). This initiative is currently under review in Washington, D.C. The Imagery for the Nation initiative will provide a sustainable and flexible digital imagery program that meets the needs of local, state, regional, tribal and federal agencies and will have a direct and positive impact upon all levels of government and the public in North Dakota.
- The GISTC and the State Mapping Advisory Committee (SMAC) will continue working to identify data needs and priorities. The SMAC meets on an annual basis. The GISTC meets monthly and has an annual meeting that includes the executive membership and all other interested persons.

Challenges

Data

- **Road centerlines** – In order for North Dakota to have this critical statewide dataset, some of the key issues to be dealt with include accuracy of the data, how to best maintain the data, and equalization between counties with existing data and those without.
- **Land parcels** – North Dakota lacks a statewide land parcel dataset where the parcels reflect land ownership. This data is used in many ways including real estate transactions, oil & gas exploration, 9-1-1, emergency management, and taxation. The recently passed HB1303 relating to property tax assessment on agriculture lands, will drive the need to develop parcels in many North Dakota counties. Funding for the development of these parcels, standards, best practices, and overall direction to counties is currently lacking.
- **Color aerial photography** – Since 2003 North Dakota has been fortunate to have access to this data from the U.S. Department of Agriculture, Farm Service Agency. Beginning with 2007, due to federal budget cuts, our state will not have this important and widely-used data. The GISTC will attempt to form a coalition of state, local, federal, tribal, and the private sector funding partners to come up with approximately 1/3 of the total cost of this data for collection in 2008. If successful with the fund-raising, we have a chance at acquiring the data.
- **Red River Basin LiDAR** – The GISTC recognizes the importance and need for a detailed elevation dataset for the Red River basin as proposed by the International Water Institute in Fargo. A basin-wide elevation collection would probably eliminate duplication of costs and allow for a coordinated and seamless dataset on the U.S. side of the Red River basin. However, the GISTC believes there are higher statewide data priorities that should be addressed and there are a number of technical issues that need to be resolved before the project begins.
- **Local Update of Census Addresses (LUCA) program** – This program is administered by the U.S. Census Bureau and is a program that allows state, local, and tribal governments an opportunity to review and update the Census Bureau's address list used in the Census. Although the address information cannot be used by our state because of Title 13 of the U.S. Code, the state benefits from participation to help ensure an accurate census. The GISTC will assist wherever possible.

Resources

- **Developer resources** – The GIS budget submitted prior to the beginning of the 2007 Legislative Session included funds for GIS application development and assistance from the Information Technology Department software development group. Those funds were eliminated from the GIS budget before entering the legislative session. In the future, the GISTC will try again to get sufficient funding for GIS application development and assistance. With the budget that is currently in place, the GISTC intends to use the GIS Professional Services Contract Pool as funds allow.

- **Integration of GIS systems** – Agencies such as the Oil and Gas Division, Public Service Commission, State Water Commission, Game and Fish Department, and the Department of Transportation are active developers of GIS applications and systems that meet their internal technical and business requirements. The GISTC will continue to be challenged to meet their needs of system access and software versions with the GIS Hub while balancing the requirements of IT consolidation. Using functionality found in new versions of the GIS Hub software and working together most if not all of these challenges can be met.