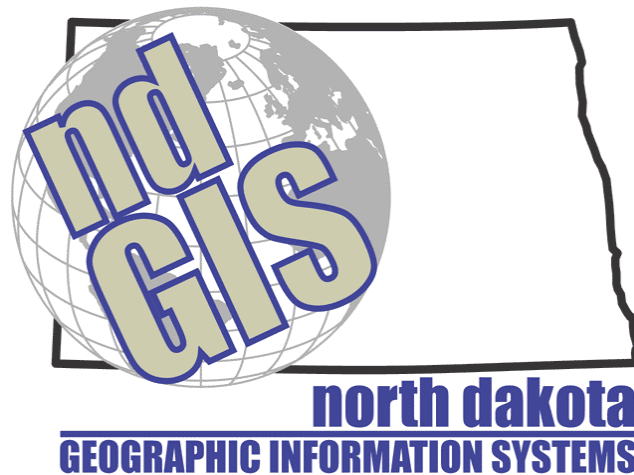


**North Dakota GIS Program Report
To Governor John Hoeven**

July 1, 2009 – June 30, 2010



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) Program continued to be successful during the July 1, 2009 – June 30, 2010 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 is an average of 45+ daily concurrent connections to the GIS Hub database from state agencies. During 2009 there were over 3.1 million hits on the web services which is an increase of 43% compared to 2008.

There are over 200 database layers and other GIS datasets on the GIS Hub which consume over 8.1 terabytes of storage or the equivalent of over 1,700 DVDs. 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, citizens, and the private sector 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 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 Hub Data Portal was released, replacing the Metadata Explorer. The Hub Data Portal is used for browsing and searching for data, web services, and applications. It is also used for viewing and downloading data.
- An updated version of the Hub Explorer was released. The Hub Explorer is used to view, query, and print data.
- The GIS Hub infrastructure was reconfigured by adding failover and redundancy to the database portion. One server was replaced with two and a different database version was used. Even with the addition of the server the monthly costs are now \$1,200 less costly.
- The 2009 North Dakota GIS Users Conference was a big success. 210 people attended the conference which was held in Grand Forks.
- New software was added to the GIS Hub to allow much quicker ingestion and delivery of large imagery datasets.

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 Program 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 Associate 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:

- Land Department
- Oil & Gas Division
- Public Service Commission
- National Guard/Department of Emergency Services

Accomplishments

New Data

- **Aerial photography** – The cities of Grand Forks, Bismarck, Mandan, the North Dakota Department of Transportation, and the U.S. Geological Survey provided high-resolution photography for use on the GIS Hub. Statewide photography was provided by the U.S. Geological Survey and the U.S. Department of Agriculture. Aerial photography is used for many things including detection of change over time, assistance in flood fighting, and as backdrop information to assist people in visualizing data.
- **Scenic Byways** – North Dakota scenic byway data was provided by the Department of Parks and Recreation and is available for viewing and download.
- **Elevation** – The cities of Bismarck and Mandan and the International Water Institute (Red River Basin) provided high-resolution elevation data for use on the GIS Hub. This is LiDAR (Light Detection And Ranging) data which allows for flood planning and pre-engineering work.
- **Health-Related** – The Department of Health provided municipal solid waste facility data for use on the GIS Hub.

Updated Data

- These data include roads, city boundaries, railroads, land classification, state and federal lands, snowmobile trails

New and Updated GIS Hub Applications

- **Information Technology Department** – The GIS Hub Explorer and the Hub Data Portal were released. The Hub Explorer is used to view data and print maps; the Hub Data Portal is used to find data, web services, and applications on the GIS Hub.
- **Historical Society** – This interactive mapping tool, developed by a company in the IT Professional Services Contract Pool, allows Historical Society contractors to view data such as archaeological sites.
- **Department of Agriculture** – Enhanced the Weed Mapper application with additional data layers.
- **Tax Department** – Updated the functionality and updated the data used by the Sales Tax application.

Training and Education

- **2009 Users Conference** – Over 200 people attended the North Dakota GIS Users Conference which was held at the Alerus Center in Grand Forks and hosted by the University of North Dakota. The next conference will be in October 2011.
- **Coordinated GIS training** – The GISTC brings in instructors to Bismarck to teach 2-day up to 5-day GIS courses. This style of training has saved state agencies over \$70,000 in training costs alone and over an estimated \$225,000 in combined training and travel costs since the beginning of this program in 2002. Demand for this type of training has slowed down but these courses will continue to be organized as needed.

Other Activities

- North Dakota does not yet have a seamless, statewide emergency services dataset which is critical for use in emergency services and daily state and local government activities. This dataset consists of road centerlines and address point data. However, the GISTC worked with the Department of Emergency Services (DES) to develop an approach for creating the emergency services dataset using existing data where possible and deriving new data from aerial photography. In the DES “Base Map Program,” the DES is now collaborating with the Department of Transportation (DOT) which is collecting high-resolution aerial photography using their camera and airplane. The DOT will develop the road centerlines from the aerial photography. The DES then plans to issue an RFP to add address information to the road centerlines and to develop the address point data.
- The Department of Emergency Services is using an interactive mapping tool that is tightly integrated to their emergency messaging board. The interactive mapping tool uses data from the GIS Hub.
- The GIS Hub continues to use an email listserv as a means to communicate news and information to various levels of the government and the private sector. Based on what other states are doing, the GIS Hub now also utilizes Twitter to provide this information.
- The Information Technology Department has received a grant from the U.S. Department of Commerce – National Telecommunications Infrastructure Administration to develop a broadband mapping application. This application will display information about the type,

availability, and providers of broadband service in the state. This application will reside on the GIS Hub.

- The GISTC and the State Mapping Advisory Committee (SMAC) will continue working to identify data needs and priorities. The SMAC generally 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

- **Storage** – GIS is only one of several state government systems consuming storage resources. This growth in consumption will continue to grow due to the nature of collection activities (for example, yearly collection instead of every five years) and the content of data (for example, the resolution and natural color along with color infrared). Storage hosting costs and storage needs continue to climb and will eventually drive the need to increase the GIS budget, archive less-used data, avoid acquiring some data, or some combination.
- **Archiving** – As some GIS data becomes less used, cost and storage limitation will dictate that data should be moved from being online to offline (archived). This creates another set of challenges such as determining which datasets should be archived, how the data should be archived, who is responsible for archiving that data, and the frequency of updating the media and file format to ensure access in the years to come. The GISTC is beginning to take this into consideration with the concept of treating GIS data similar to other state data records.
- **Budget** – The GIS budget has been largely flat over the past several bienniums. With the increase in storage needs and increase in hosting costs, unless the GIS budget is increased, the GISTC and the Information Technology Department will need to look for additional methods to contain costs while continuing to provide services at the current level. Storage cost containment will be an important contributor to hold down costs.