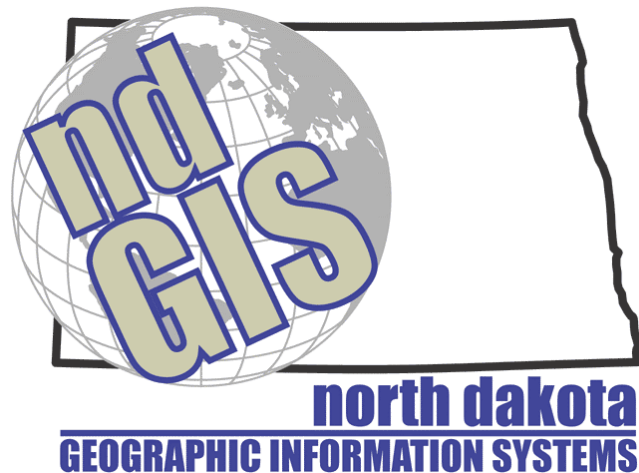


**North Dakota GIS Program Report  
To Governor John Hoeven**

**July 1, 2008 – June 30, 2009**



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, 2008 – June 30, 2009 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 2008 there were over 2.2 million hits on the web services which is an increase of 57% compared to 2007 and over 58,000 data downloads which represents a 26% increase from 2007.

There are over 200 layers on the GIS Hub consuming over 3.5 terabytes of storage or the equivalent of nearly 750 DVDs. New and updated data that have been loaded onto the GIS Hub over the past year include: watershed boundaries, roads, Public Land Survey System information, Fargo and Devils Lake aerial photography, fire districts, detailed railroad locations, state lands, and communication information from the FCC. 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 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:

- During March 2009 flood fighting efforts the GIS Hub web services experienced record-breaking usage of nearly 642,000 hits. These web services were used by the private sector, federal agencies, North Dakota state agencies, and Minnesota.
- The GISTC worked with the U.S. Geological Survey to complete the statewide coverage of digital elevation model data. The U.S. Geological Survey funded half of this work

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

## **Accomplishments**

### New Data

- **Digital elevation data** – The GISTC used a Joint Funding Agreement to work with the U.S. Geological Survey for completing the statewide coverage of digital elevation model data. The U.S. Geological Survey funded half of this work. Elevation data is used as base map data to display elevation information such as contours and shaded relief, and is used to develop additional data sets such as aerial photography.
- **Aerial photography** – The cities of Devils Lake and Fargo provide high-resolution photography for use on the GIS Hub. Aerial photography is used for many things including detection of change over time and as backdrop information to assist people in visualizing data.

### Updated Data

- **Hydrologic Unit boundaries** – The detailed hydrologic unit boundaries became fully certified by in January. This project was managed by the Department of Health. The data will be used by state and federal agencies involved with natural resource planning and management.
- **Railroad data** – the GISTC completed the project to upgrade the railroad data, merging in multiple data sets from the NDDOT and the USDOT to create a single, updated data layer.
- **Other data** – includes roads, city boundaries, fire districts, state lands, Public Land Survey System information, and communications.

### New and Updated GIS Hub Applications

- **Information Technology Department** – The GIS Hub Explorer received a new look and new functionality. This is the primary interactive mapping tool that is used by the public to view data, download data, and to print maps.

- **Game and Fish Department** – Four web-based applications were developed, two internal and two public. The public sites display general information and PLOTS Guide data.
- **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** – Planning is underway for the next North Dakota GIS Users Conference which will be held in Grand Forks in November 2009. This conference is hosted by the University of North Dakota.
- **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 about \$71,500 in training costs alone since their inception 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 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. 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. The DES was successful in obtaining funding for this project during the 2009 Legislative Session.
- The Department of Emergency Services used the EmerGeo mapping software during an emergency exercise that involved flooding at Devils Lake. This was the first time that mapping was used at the Emergency Operation Center (EOC).
- The GISTC is working to update the GIS Hub infrastructure to increase throughput, enhance failover, and to develop a dedicated storage system for GIS that will be better suited for storing large datasets.
- 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

- **Emergency Services Dataset** – There are a number of challenges that include efficient and timely collection of the data, how to best maintain the data, and equalization between counties with existing data and those without. The Department of Emergency Services is the lead on this work.

- **Disaster Recovery** – The flood support activities demonstrated that the GIS Hub can be heavily used during times of emergency. The GISTC is working to add redundancy to the GIS Hub infrastructure. Additional work will be needed to ensure that data is stored at an offsite location and is accessible by both state agencies and other entities.

### Resources

- **Developer resources** – GIS application development and assistance will be provided by the Information Technology Department software development group as much as possible. Where there is a shortage of local developers, agencies will use GIS categories within the IT Professional Services Contract Pool.
- **Integration of GIS systems** – Several state agencies are active developers of GIS applications and systems that meet their internal technical and business requirements. The GISTC will continue to be challenged to work hard to meet their needs of access and use of the GIS Hub.