
UTAH'S STATEWIDE GEOGRAPHIC INFORMATION DATABASE

Data Information and Knowledge Management

State of Utah

NASCIO Awards

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STATE GEOGRAPHIC INFORMATION DATABASE

B. EXECUTIVE SUMMARY

Utah has developed one of the most comprehensive statewide GIS resources in the nation. Known as the SGID or State Geographic Information Database, this resource has been heavily used by Utah's GIS community. With new interest in GIS by citizens and businesses, the SGID has expanded its mission and become incredibly valuable to all citizens of Utah.

Over the past 3 years, the State's Automated Geographic Reference Center (AGRC) has expanded the SGID, updated key information, coordinated with local and federal agencies, and developed new services in order to respond to growing demand and interest. The result of this effort is that the SGID is now much more than just data. It also includes a robust set of services and products that set it apart from most other data repositories and make it extremely valuable to agencies, citizens and businesses. These services make it easier to access the data and also provide a place of social interaction for users of the services, thus generating additional creativity and innovation in the way that the resource is leveraged.



C. DESCRIPTION OF THE BUSINESS PROBLEM

Utah's mature statewide GIS repository, known as the SGID or State Geographic Information Database has been evolving for many years. The SGID is a state-owned asset that is freely accessible. It contains both public and protected data. The state of Utah recognized a need to provide better access to this data for use by citizens and businesses. Although the data was available in standard GIS formats, changes in the way users accessed data via the internet have evolved significantly in the past 5 years. It was important for the state to recognize this and leverage its vast GIS data resources to provide informational services and opportunities based on the data.

The growing demand for geographic data and information meant that the Utah Automated Geographic Resource Center (AGRC), who managed the resource, needed to re-evaluate the way that they managed this valuable asset. There was a need to understand the types of data that citizens and businesses were looking for and determine if these demands could be supported by the SGID.

The cost associated with gathering and standardizing the data often exceeded the capability of individual city, county, or state agencies to collect. There was also the potential for this data to be scattered across the state and difficult to access since it was created in any one of hundreds of state, local, and federal jurisdictions.



Solution Description

Citizens have become much more oriented toward information based on geography. Utah is able to respond to this demand because of the investment in both the data and the technology by providing unique services that integrate disparate data sources. This infrastructure of data and web services extends the capacity of the state to local government creating a multiplier effect on the value of the data.

In providing governance for GIS resources, AGRC has supported the Utah Geographic Information Council (UGIC – see <http://gis.utah.gov/ugic>) and the GIS Advisory Council (GISAC – please see <http://gis.utah.gov/gisac>) to ensure that users and creators have an opportunity to help determine how the SGID is developed and managed. The new online community at GIS.utah.gov has mushroomed during its two years of existence.

The Utah SGID now includes 25 thematic categories with **over 400 data layers**.

- Bioscience
- Boundaries
- Cadastre
- Climate
- Economy
- Elevation
- Energy
- Environment
- Farming
- Geoscience
- Health
- History
- Indices
- Location
- Military
- Planning
- Recreation
- Structures
- Transportation
- Utilities
- Water

The solution includes many end-user support tools, including

- Integral support of the KML format, allowing users direct integration opportunities with Google Earth, Google Maps, and Yahoo Maps. This will allow citizens and businesses the opportunity to create all kinds of mashups using SGID data.
- Integral support of Virtual Earth
- Faster, more flexible and interoperable GIS servers
- Access to the most current GIS data in the State of Utah
- Regular updates from counties, cities, as well as State and Federal agencies
- The creation of governance processes to ensure adequate coordination of statewide GIS efforts
- The ability to create PDF “finished maps” dynamically from any user-generated map
- The development of a new GIS portal in 2007 at <http://gis.utah.gov>
- The creation of standard web services that can be used by citizens and businesses, as well as government agencies. These services allow the user to send a simple query and return specific results based in geographic information.

Examples of web services developed by the AGRC include: get elevation (send location, returns elevation), get jurisdiction (send location, returns city, school district, special service districts, legislative district), request imagery (send location, return imagery)

A new web resource, mapserv.utah.gov, was developed in 2007 using the SGID that includes examples of how vast data resource can be used. For example:

- Oil and gas maps show the location of thousands of wells across the state, including detailed information about each well. Well drilling and

exploration companies are able to access the data via the state's services or download it to their own system.

- Cemetery maps help citizens quickly find the location of their deceased ancestors
- A statewide energy resource map provides an overall understanding of the State's energy potential, including power plants, coal seams, gas fields, geothermal and wind resources, etc.
- Environmental impact maps with local soil, water, and other environmental impacts help businesses and citizens make important siting and property purchase decisions.

Over the past 4 years, the SGID has truly emerged as a comprehensive end-to-end GIS service that addresses not only the need for a centralized data repository for GIS professionals, but also the growing demands of citizens and businesses in the state for accessible GIS data.

Length of Time in Operation

Although the SGID was created about 15 years ago, many of current components of this initiative have been implemented in the past 1-4 years.

D. SIGNIFICANCE TO THE IMPROVEMENT OF THE OPERATION OF GOVERNMENT

The development of the State Geographic Information Database as a shared, freely available resource has produced tremendous benefits for the state of Utah. Most state agencies rely on access to the data in the SGID to meet program needs.



GIS in Action

Through the GIS.utah.gov portal, the state's GIS experts have developed a community of SGID users that now numbers over 2300. The collaboration that occurs between the users of this resource has led to many new innovations.

E. BENEFIT OF THE PROJECT

Operational Benefits

State agencies use geospatial web application in the daily business processes and realize a significant savings of staff time. In addition using the geospatial interface allows citizens to easily access data for a broad variety of government collected information and can be based on location of home or business. The SGID provides an approach for transparency in government that allows data from different agencies to be accessed in a common view. Agencies save time by not having to respond to individual requests for information. This project improved government operation by eliminating redundancy and data silos, and allowing agencies to access a wide range of data and web services.

The introduction of GIS.Utah.gov in 2008 included a website that was much more interactive. The new site includes forums, RSS feeds, and other subscription services. Subscribed members now number over 2000 and weekly downloads of SGID data now regularly exceed 10,000. In some periods, the download volume has exceeded a terabyte of data in a single week.

Financial Benefits

There are many financial benefits due to the State's coordinated approach to data acquisition. For example, in 2006 the AGRC coordinated a statewide imagery data purchase which included state, federal, and local partners in 27 of the 29 counties in Utah. If each county had acquired the imagery independently (15,381 sq miles) it would have cost \$2,215,780 but through a coordinated effort it cost \$1,429,860 and if municipalities had purchased imagery separately (1,490 sq miles), it would have cost \$1,123,464 but through a coordinated effort, it cost \$108,301 for the same area.



Utilization

The SGID is a heavily utilized resource. An average of 10,000 data files (approximately 400 GB) are downloaded from the Utah GIS Portal each week. During the average work week the SGID database server handles an average of 175 concurrent user & application connections and an additional 50 concurrent connections to the Aerial Photography and Map Imagery Server.

Summary

This project has already yielded immeasurable benefits to the citizens of Utah. Large amounts of information that was previously difficult or, in some cases, impossible to find on the internet is now readily accessible. Examples of data included in the project included the state's job database, Utah burials, State Library publications, oil and gas production data, and workforce statistical data. Here are a few others:

- Economic Development – GIS resources are critical for businesses in developing siting and business development plans
- Land-Use Planning – Cities and towns across the state use the SGID in planning their communities
- Citizen Services – Citizens are able to create all kinds of mashups using SGID data
- Resource Identification – Statewide plans for critical areas like environmental quality and energy are dependent on SGID information
- Government to Government Services – Services like the statewide fuel network create their service maps using the SGID

Additional resources integrated with SGID include:

- Atlas.utah.gov
- Maps.utah.gov
- GIS.utah.gov
- Mapit.utah.gov
- Mapserv.utah.gov