



DEPARTMENT OF TECHNOLOGY AND INFORMATION  
STATE OF DELAWARE  
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DOVER, DELAWARE 19904



The Honorable James L. Collins, Chief Information Officer

## NASCIO STATE RECOGNITION AWARDS 2015

DELAWARE DEPARTMENT OF TECHNOLOGY AND INFORMATION'S ENTERPRISE  
GEOGRAPHIC INFORMATION SYSTEM - FIRSTMAP

### CATEGORY

**Information Communications Technology (ICT) Innovations**

**Project Start and Completion – March – September 2014**

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## **FirstMap – Delaware’s Enterprise Geographic Information System Executive Summary**

FirstMap is Delaware’s first self-service Enterprise Geographic Information System that brings the latest geospatial data to anyone who wants it. Whether a researcher at the University of Delaware, a state/local government employee, a member of the Legislature or a citizen looking for hiking trails, FirstMap offers an easily navigable portal to find or add geospatial data.

FirstMap consists of an enterprise geodatabase for data storage, an infrastructure to support geospatial and image services, and is tied into the State’s ArcGIS Online portal for full self-service data discovery and mapping. It is designed to support the GIS needs of all state agencies, counties, municipalities, higher education, and the public.

FirstMap was created through collaboration with the entire Delaware GIS community and is hosted and maintained by the State of Delaware Department of Technology and Information (DTI). The concept of an Enterprise GIS was first presented to the Cabinet Committee on State Planning Issues (CCSPI), which consists of Cabinet Secretaries and government Executives.

In pursuance with the Governor’s Executive Order 20, - More Effectively Utilizing Information Technology Resources to Drive Cost Savings in State Government, calling for state agencies to consolidate information technology and data management projects and resources, the CCSPI supported moving towards an enterprise solution. Following the completion of a Discovery Workshop to identify common themes, business requirements and several areas of redundancy and inefficiency, a small scale infrastructure was implemented as a Proof of Concept to demonstrate the benefits of centralization. Approval to proceed with a full implementation of the enterprise solution was granted by the CCSPI in 2014.

Key partners in the project were the Delaware Department of Natural Resources and Environmental Control (DNREC), Delaware Department of Transportation (DelDOT), Delaware Office of State Planning Coordination (OSPC), and Delaware Department of Safety and Homeland Security (DSHS). Other participants included the statewide Geographic Data Committee which represents state agencies, academia, counties, local government, private industry and the general public. The project team consulted with other states for best practices and availed itself of software guidance from the State’s GIS software vendor, Esri.

The benefits of the FirstMap enterprise GIS are far reaching. With data easily available, state government can create more products for its citizens, such as on-demand applications for large public events and disasters. Data is being collected through mobile devices in the field and viewed by users real-time. FirstMap provides tools that permit governments to focus on their core businesses more efficiently and transparently. Consolidation of hardware and services, reduction in data center support needs and licensing costs means that the State is now saving approximately 25% in GIS investments.

# FirstMap – Delaware’s Enterprise Geographic Information System



## Business Problem and Solution

Imagine trying to provide comprehensive mapping of all Delaware roadways without being able to find the latest version of the data. Imagine fielding wetlands location inquiries from federal, state and local governments, as well as potential homebuilders, without knowing if the existing information is the most current. Imagine planning for a major public event drawing thousands to a specific location and lacking the most updated emergency evacuation routes.

This is exactly where Delaware’s state government was prior to the start of the [FirstMap](#) Enterprise GIS project in 2014. Geospatial data was literally spread about the entire state from Wilmington’s urban area, to Dover, the State Capitol, to the Atlantic Ocean coast of our beach communities. Not only was the data scattered but recognized data owners had difficulty sharing their information with other organizations because of the large file sizes and storage needs. Add to this the problem of “orphan” data, which is information that existed without an identified owner/updater. Countless hours of time were wasted by the GIS and Planning communities simply searching for and validating data.

Due to failing hardware and insufficient resources, the state’s vehicle for sharing the National Spatial Data Infrastructure (NSDI) framework layers was decommissioned in 2013 leaving the State with no way to share critical infrastructure data required for any basic map. This left the state using out of date data from a variety of sources, including from sources outside of the state.

The obvious solution was the creation of an enterprise GIS system. The challenge was making certain that the end result would be a system that truly supports the GIS needs of all state agencies, counties, municipalities, higher education, and also presented

information in a way that was helpful and easily understandable to non-technical Delawareans and other visitors.

Resources, time, funding, and people, would be vital to the project's timely completion and there was no hope of achieving success without complete commitment from the highest level management in the Executive Branch, Delaware's Cabinet Secretaries and Directors. All stakeholders, the GIS community and beyond, would need to be involved in meaningful ways with Executive level approval throughout each phase of the project. This support came in the form of the Cabinet level Committee on State Planning Issues.

The Cabinet Secretaries agreed that an enterprise GIS would be beneficial to their agencies and others in serving Delaware's citizens, creating workforce efficiencies, and reducing redundancies.

### **Significance of the Project**

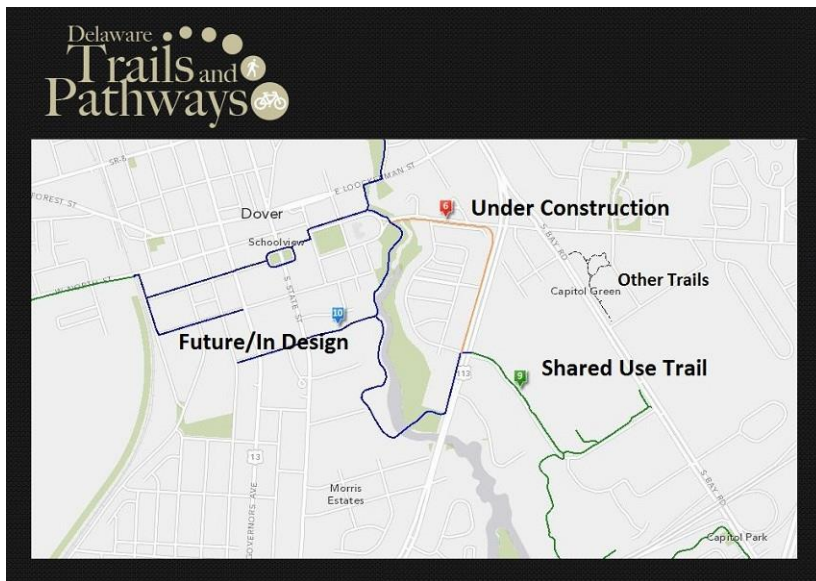
FirstMap provides a centralized location for authoritative GIS data and services and reduces the amount of licensing and hardware required to support GIS applications. This supports Governor Markell's Governor's Executive Order 20, - More Effectively Utilizing Information Technology Resources to Drive Cost Savings in State Government, which calls for the optimization of IT operations and staffing statewide.

The project reduces the costs for agency customers to create new GIS applications, lessens the amount of time required to find data and improves speed to market for new applications. Applications created can be re-used time and again. Old hardware is being decommissioned as data is moved to the more scalable virtual environment. The Delaware Department of Transportation alone has decommissioned 75% of their old GIS servers to date.

The project kicked off with a Discovery Workshop focusing on state agencies with the heaviest GIS use, including the departments of Transportation, Natural Resources and Environmental Control, Homeland Security and the Department of Technology and Information. All of these agencies consistently require easy access to commonly shared services and the ability to share data with customers and collaborating agencies. The Department of Health and Social Services and the Department of Agriculture were also key stakeholders in presenting and clarifying data needs in the areas of public health and economic viability.

The Discovery Workshop identified several areas of inefficiency and redundancy that would be improved by creating a statewide enterprise GIS. With the support of the Cabinet Committee on State Planning Issues, the team implemented a small scale infrastructure as a Proof of Concept to validate the benefits of centralization. The success of the Proof of Concept led to the full implementation of the enterprise system.

The approval of the Proof of Concept was granted in spring 2014. The full implementation project for FirstMap began in March of 2014 and was formally launched in September 2014. This enterprise system is now the authoritative geospatial data repository for all state agencies, all Delaware's county governments, and 20% of local governments including Delaware's corporate capital, Wilmington.



## Benefit of the Project

This project has a number of quantitative benefits, and others not as easily measurable, including increased efficiencies, continuity of operations, transferability, transparency, collaboration, speed, and improved availability of information for Delaware's citizens.

Delaware state government had been incurring over \$3 million

annually in GIS costs, including hardware and personnel. With the launch of FirstMap with its shared infrastructure and resources, these costs have been reduced by 25%. Aging hardware that was prone to failures is being eliminated with the implementation of the virtual a scalable infrastructure.

With GIS data more available, government agencies are now able to create products to reach Delaware's residents more easily. Aerial imagery of the entire state is easily available as are other data sets including elevations, contour, and land use cover. FirstMap is currently hosting several publicly accessible applications including Trails and Pathways Story Map, Adopt-a-Wetland map, and "How do I Find My State Legislator?" maps. Mobile applications are also being used for field data collection.

- FirstMap supports the National Spatial Data Infrastructure by serving the seven core framework layers including boundary monuments, orthoimagery dating as far back as 1937, elevation data including contours and Lidar Digital Elevation Model (DEM), transportation layers, statewide parcels as well as state, city and county boundaries.
  - The most used data are the framework layers mentioned above, with boundaries, current and historic imagery receiving hundreds of hits per day, generating tens of thousands of transactions for viewing, panning and zooming as well as application uses.
- Business data that is served by FirstMap includes, but is not limited to, census data, election and legislative boundaries, schools, land use, sea level rise and recreation facilities.
- Users represent the University of Delaware, Delaware Technical & Community College, all of our county governments and 20% of our municipalities including the three largest cities Wilmington, Newark and Dover.
- Delaware has participation from 100% of our county governments.

An example of a specific use of FirstMap is the Departments of Homeland Security and Transportation are leveraging the system for a variety of applications.

The **C**rash **A**nalysis **R**eporting **S**ystem, 'CARS' is a web application used to generate accident studies. These studies are used to develop Transportation Safety projects, acquire reimbursement for damaged Transportation assets, provide a visual of accident locations and provide a means to justify appropriating Federal /State moneys for Transportation Projects. This application requires GIS data which before FirstMap had to be manually loaded to the database to keep the data current. All of this data now is using the Feature Web Services from FirstMap such as aerials, tax parcels, addresses and roadway centerline. FirstMap has made the data in CARS application much more reliable and reduced maintenance and downtime for this application.

The development of this project overall has introduced state government's GIS staff to the importance of stakeholder buy-in and the workings of government at the highest management levels. GIS professionals are now working with various agencies to meet their needs for data and custom developed applications that help government business operations as well as providing customer friendly self-service applications for citizens.

State government leaders have learned of far-reaching benefits of information that in the past has seemed too technical for anyone other than planners, engineers and IT types. GIS professionals have developed face-to-face working relationships with their counterparts, and knowledge transfer among this select group of technical experts has increased exponentially.