DELAWARE GEOSPATIAL DATA COORDINATION STRATEGIC PLANNING

Final Project Report

DATE: NOVEMBER 24, 2010
AGREEMENT NUMBER: G09AC00061
PROJECT TITLE: DELAWARE GEOSPATIAL DATA COORDINATION STRATEGIC PLANNING

ORGANIZATION:

Delaware Office of Management and Budget (OMB)
122 William Penn Street
Haslet Building, Third Floor
Dover, DE 19901
http://stateplanning.delaware.gov

Principal Investigator:
Michael B. Mahaffie
(302) 739-3090
mike.mahaffie@state.de.us

Collaborating Organizations:

Delaware Department of Information and Technology
Kim Cloud
801 Silver Lake Blvd.
Dover, DE 19904
http://dti.delaware.gov

Delaware Department of Natural Resources and Environmental Control
Carl Yetter
89 Kings Highway
Dover, DE 19901
http://www.dnrec.delaware.gov

Delaware Geological Survey
William (Sandy) Schenck
257 Academy Street
Newark, DE 19716
http://www.dgs.udel.edu

Dover/Kent MPO
Jim Galvin
P.O. Box 383
Dover, Delaware 19903
http://www.doverkentmpo.org

City of Dover
Mark Nowak
15 East Loockerman Street
Dover, DE 19903
http://www.cityofdover.com

USGS
Roger Barlow
12201 Sunrise Valley Drive
Reston, VA 20192
http://www.usgs.gov

EXECUTIVE SUMMARY

This project served to bring the Delaware GIS Community together to discuss its progress so far and to face various choices for continuing that progress into the future. The process of discussing, crafting and approving a strategic plan has crystallized the community around the idea of requesting that the state of Delaware formally establish a GIS Coordination Office. The plan has two main goals: creating a GIS Office and establishing a GIS fund that is "dedicated to the expansion and improvement of Delaware's framework data and spatial data infrastructure." The strategic plan and a subsequent business plan spell out the successes so far of GIS in Delaware, the opportunities ahead, the challenges of establishing the Office, and the benefits of the proposed Office.

The strategic planning process has informed not only the members of the Delaware GIS Community but also the leadership of the Delaware Office of State Planning Coordination which has adopted establishment of the GIS Office as a top item in its proposed list of priorities for the next fiscal year. This list has been submitted to the Governor's office for consideration as part of the Governor's agenda for the next fiscal year. Results of this submission will not been known until after the first of the year.

PROJECT NARRATIVE

In the spring of 2009, the Strategic Planning Project Steering Committee (the collaborating organizations) reviewed submissions from and interviewed the principals of two groups that offered to perform strategic planning for Delaware's GIS Community under the grant. The group selected Applied Geographics and a contract was negotiated between Applied Geographics and the Delaware Office of Management and Budget (OMB). While this contract was being finalized, the Steering Committee conducted a survey of the statewide GIS community to determine a list of "Key Stakeholders" to provide to Applied Geographics during the project.

The Steering Committee held a kick-off meeting with staff from Applied Geographics on August 26, 2009 to plan a series of stakeholder meetings and a community-wide workshop. A single workshop was planned since Delaware's size allows all stakeholders to attend a meeting in the center of the state without traveling more than an hour. This approach maximized the amount of time available for the contractor to also hold one-on-one meetings.

By good fortune, the state's new Governor, Jack Markell, was touring the office building in which this meeting was being held and stepped into this meeting for a few moments. Governor Markell is a technically savvy manager and was familiar enough with GIS and spatial data that members of the Steering Committee were able to very quickly brief him on the effort.

The workshop was held on October 20, 2009[1]. There were over 50 attendees from state agencies, county governments, city governments, academia and the private sector. At about the same time, staff from Applied Geographics, and members of the Steering Committee met in smaller groups with County Emergency Operations Center personnel, Local Government stakeholders, the Governor's Economic

[1] See http://dgdc.blogs.delaware.gov/2009/09/24/strategic-planning-workshop/ and http://dgdc.blogs.delaware.gov/2009/10/23/lots-to-chew-on/

Development Ombudsmen, the leadership of the Office State Planning Coordination, the Secretary of the Dept. of Safety and Homeland Security, the State Police IT chief, IT and planning leaders in the Dept. of Transportation, the cabinet secretary (CIO) and senior staff of the Dept. of Technology & Information, and GIS and IT leadership from the University of Delaware.

Based on the comments received at these meetings, Applied Geographic Staff began an authoring process which included several meetings and conference calls with members of the Steering Committee, and others, to discuss and fine-tune the Strategic Plan. A draft was presented to the Executive Council of the Delaware Geographic Data Committee which took ownership and became directly involved in a series of discussions with Applied Geographics staff and the Steering Committee, helping to craft the final version of the Strategic Plan, which was approved by the Executive Council in July, 2010[2], and presented to the DGDC as a whole on September 23, 2010.

During their review of the Strategic Plan, the members of the Executive Council identified a need for a related Business Plan to implement the recommendations of the Strategic Plan and worked with Applied Geographics staff and the Steering Committee on that Business Plan which was approved by the Executive Council in early October, 2010.

The strategic planning process has helped the Delaware GIS Community to better understand the importance of the coordination that they have been practicing on an informal basis and has built a strong level of support for creation of a more formal GIS Coordination effort. While economic and budgetary constraints present obstacles to creation of a new office, the members of the Community and the members of the Executive Council were led through a thoughtful discussion of various options and have crafted a proposal that may lead to establishment of a Delaware GIS Coordination Office.

NEXT STEPS

The proposal for a GIS Coordination office has been included in a policy memo from the Director of State Planning Coordination to the office of the Governor for consideration for possible inclusion in the governor's 2011 Legislative Agenda. Adding this proposal required the added step of discussing how the GIS Office proposal fits into the governor's stated policy goals of making government more efficient and effective, promoting economic growth, improving educational opportunities for Delaware's children, and improving the quality of life for Delaware citizens.

It is possible that this effort will require assistance from the FGDC and from other states in the form of positive examples, letters of support to the legislature, or other "testimony."

ATTACHMENTS

- State of Delaware Geospatial Strategic Plan
- Business Plan for the Development of a GIS Office for Delaware State Government
- Excerpt from a memo from Constance C. Holland, Director, Office of State Planning Coordination, to Governor Jack Markell regarding suggestions for the Governor's 2011 Legislative Agenda

[2] See http://dgdc.blogs.delaware.gov/2010/08/05/geospatial-strategic-plan-approved/

FEEDBACK ON COOPERATIVE AGREEMENTS PROGRAM

What are the CAP Program strengths and weaknesses?

The program does a very good job of bringing each of the states to roughly the same level of understanding of the basic requirements of GIS Coordination. The mandatory workshops are a great help and the staff of FGDC has been most helpful in this process.

Where does it make a difference?

This process has helped move the idea of better GIS Coordination from a general "sense" shared by many at the lower levels of state and county agencies to a serious proposal at the higher levels of government. The process has brought at least one county administrator to the table, as well as a few state cabinet secretaries.

Was the assistance you received sufficient or effective?

The assistance received from the CAP program has been invaluable.

What would you recommend that the FGDC do differently?

I have no additional recommendations.

Are there factors that are missing or additional needs that should be considered?

I have no additional recommendations.

Are there program management concerns that need to be addressed, such as the time frame?

The time frame is tight, but FGDC staff have been helpful in crafting extensions in order to complete the project.

If you were to do this again, what would you do differently?

I have no additional recommendations.

State of Delaware

Geospatial Strategic Plan

July 2010

with support from

This document was produced by Applied Geographics, Inc. (AppGeo) under contract to the Delaware Geographic Data Committee. This project was funded by a Cooperative Assistance Program (CAP) grant provided by the United States Geological Survey (USGS).

[This page intentionally left blank.]

Table Of Contents

Table Of Contents 1

Executive Summary 2

1 Strategic Planning Methodology 3

1.1 Project Team 3

1.2 Project Activities 3

2 Current Situation 5

2.1 Who Is The Delaware GIS Stakeholder Community? 5

2.2 Where Does Delaware Geospatial Development Currently Stand? 6

2.3 Delaware's Geospatial Strengths 11

2.4 Delaware's Geospatial Weaknesses 12

2.5 Delaware Geospatial Opportunities 14

3 Vision & Goals 17

3.1 Problem Statement 17

3.2 Overarching Strategic Goals 17

3.3 Programmatic Goals 18

4 Requirements To Meet The Programmatic Goals 21

4.1 Organizational Needs 21

5 Implementation Program 25

5.1 Phasing & Milestones 25

5.2 Marketing the Program 25

Executive Summary

Delaware has been an innovative user of geospatial technology and geographic information systems (GIS) since the early 1990's. Delaware state government uses GIS on a daily basis in agencies that range from State Planning Coordination to Transportation to Natural Resource and Environmental Control to Safety and Homeland Security. In addition GIS is used throughout the state, by all three counties, and by local governments. Although geospatial governance is provided by the Delaware Geographic Data Committee (DGDC) Executive Council, most activity is found at the departmental level and the DGDC Executive Council has neither staff nor any resources to pursue projects or carry out new initiatives. Thus, when intergovernmental or cross departmental coordination does take place, it happens largely on an *ad hoc* basis and with volunteered staff time.

With GIS use growing rapidly both within state government and with other governmental partners and the private sector, there is an increasing need for both orchestrated coordination and the development of resources that can be shared across multiple agencies. As documented in the accompanying Business Plan, this type of coordinated approach can help to reduce duplication of effort and increase the efficiency of state government geospatial service delivery. As such, this Strategic Plan recommends that Delaware join all of its neighboring states in **establishing small, focused GIS Office** that is dedicated to geospatial coordination and the development and maintenance shared geospatial data and services. The two overarching strategic goals identified in this plan are:

1. *Delaware will establish a formal state government **GIS Office,** led by a state Geographic Information Officer (GIO), that will report into its parent agency and fall under the current geospatial governance framework provided by the Delaware Geographic Data Committee's Executive Council.*
2. *The Delaware **GIS Office** will be provided recurring funding that is dedicated to the expansion and improvement of Delaware's framework data and spatial data infrastructure.*

Such an approach will **leverage** the state's documented geospatial **strengths** of:

- Small, manageable geography and rich existing spatial data infrastructure
- The strong collaborative spirit of the state's vibrant geospatial stakeholder community

While **addressing** the geospatial **weaknesses** identified through this planning effort:

- Lack of a focal point for state government geospatial activity
- Lack of a budget line item for *statewide* (i.e. non-departmental) GIS projects and data

While enabling the state to **capitalize on significant opportunities** that include:

- Increasing involvement and investment in geospatial technology by the Department of Technology and Information (DTI)
- Affordably extending geospatial technology into agencies such as Economic Development, Tourism and Emergency Management that are not currently using it to its full extent
- Extending existing and successful partnerships with Federal agencies that can provide funding support

This strategic plan lays out a practical course of action. The time is right to take this next step in the evolution of the state's geospatial capacity.

1 Strategic Planning Methodology

1.1 Project Team

Delaware assembled a Strategic Planning Steering Committee as a sub-committee of the Delaware Geographic Data Committee. The Committee met on a regular basis – both physically and via electronic technologies – providing project oversight and guidance throughout the duration of the project. Strategic Planning Steering Committee members included:

- **Michael Mahaffie**, Project Manager; Delaware Office of State Planning Coordination, Office of Management and Budget
- **Roger Barlow**, United States Geological Survey
- **Kim Cloud**, Delaware Department of Technology and Information
- **James Galvin**, Dover/Kent County Metropolitan Planning Organization
- **Mark Nowak**, City of Dover
- **William "Sandy" Schenck**, Delaware Geological Survey
- **Carl Yetter**, Delaware Department of Natural Resources and Environmental Control

Delaware engaged Applied Geographics, Inc. from Boston, Massachusetts to provide support throughout the strategic planning process believing that an outside perspective would assist in developing a strategic vision for Delaware. Michael Terner, a partner in the firm, served as the principal consultant and author of this report.

1.2 Project Activities

The following provides a chronology of project activities:

1. **Kickoff & Project Planning Meeting**
   - ✓ Held on Aug. 26, 2009
2. **Stakeholder Workshop**
   - ✓ Held on Oct. 20, 2009 at Kent County Administration Building (please see Appendix #1 for workshop attendance list, and Appendix #2 for presentation materials[1])

[1] Appendices are found at http://stateplanning.delaware.gov/dgdc/strategic_plan/Appendices_FINAL.pdf

3. Key Stakeholder Interviews

- ✓ County Emergency Operations Center personnel
- ✓ Local Government stakeholders
    - Kent County
    - City of Dover
    - Dover/Kent Metropolitan Planning Organization
- ✓ Governor's Economic Development Ombudsmen & Office State Planning Coordination
- ✓ Dept. of Safety and Homeland Security & State Police
- ✓ Dept. of Transportation
- ✓ Dept. of Technology & Information senior staff
- ✓ University of Delaware

4. Report Authoring

- ✓ Development, circulation, review and approval of a draft outline
- ✓ Presentation of a draft document to the DGDC Executive Council for review and comment

5. DGDC Executive Council Approval

- ✓ Following initial review and editing as part of the authoring process, the DGDC Executive Council approves and endorses the plan
- ✓ Release of document to the GIS community

6. Roll-out the plan

- Educational meetings to describe the plan
- Advocacy for carrying out the recommendations
- Internal (Executive Department) meetings to discuss implementation strategies

2 Current Situation

2.1 Who Is The Delaware GIS Stakeholder Community?

The Delaware geospatial stakeholder community is a diverse and engaged group that spans multiple sectors. The attendance from the ½ day Strategic Planning Workshop held on October 20, 2009 reflects this diversity and level of engagement. The full attendance list, including agency affiliation is found as Appendix #1.[2]

At a minimum, the following organizations are represented:

- **State government**

At least 28 people from state government participated in the information gathering workshop conducted as part of this project and are interested in and/or utilize the technology within state government. These personnel represented 16 state agencies including:

1. The Office of State Planning Coordination
2. The Division of Facilities Management
3. The Delaware Geological Survey (DGS)
4. The Department of Transportation (DelDOT)
5. The Delaware Transportation Management Center
6. The Department of Resources & Environmental Control (DNREC)
7. The Delaware State Police
8. The Department of Safety and Homeland Security
9. The Delaware Department of Technology & Information (DTI)
10. The Delaware Health Statistics Center
11. The Division of Public Health
12. The Department of Agriculture
13. The State Forest Service
14. The Division of Historical & Cultural Affairs

[2] Appendices are found at http://stateplanning.delaware.gov/dgdc/strategic_plan/Appendices_FINAL.pdf

15. The Department of Education (DOE)
16. The State Housing Authority

- **Federal government partners**

At least three separate federal agencies are actively engaged with Delaware state government on geospatial matters, including the United States Geological Survey, the US Department of Agriculture and the Department of Defense (e.g. via Dover AFB).

- **County government**

All three of Delaware's county governments take leading roles in geospatial data creation and maintenance. And all three have staff among the leadership in the DGDC.

- **Municipal government**

The use of geospatial data and GIS tools is increasing among Delaware's municipal governments. Some of the largest cities in the State (including Dover, Wilmington, and Newark) have strong, active GIS programs. Others, though lacking GIS staff, contract for GIS and related services with private sector entities that are themselves members of the Delaware Geographic Data Committee. Mayors, city managers, and elected council members are increasingly aware of the value and importance of GIS data and tools to their constituents.

In addition, Delaware's two Metropolitan Planning Organizations maintain GIS staffs and a strong presence in the DGDC.

2.2 Where Does Delaware Geospatial Development Currently Stand?

2.2.1 Relative to National States Geographic Information Council (NSGIC) "9 Criteria for a Successful Statewide GIS Program"

The National States Geographic Information Council has published a listing of "9 Criteria for a Successful Statewide GIS Program[3]". While these are not firm, binary criteria, and most states "self assess" themselves, they do provide a lens through which state-by-state comparisons become possible. As stated in the Fifty States Initiative Action Plan (see footnote #1 below), the criteria "establish a benchmark for statewide coordination activities…(and) are essential for effective statewide coordination

[3] Please see the NSGIC/FGDC 50 States Initiative NSDI Action plan. Section 3.1.2 of that document describes these criteria in fuller detail. http://www.nsgic.org/hottopics/fiftystates_initiative.pdf

of geospatial technologies. In other words, the most successful states tend to have these criteria in common.

The following provides an overview of how Delaware rates against these criteria. Please note that for several criteria a "yes" or "no" answer is not possible and the Delaware situation reflects some shade of gray.

1. A **full-time, paid coordinator position** is designated and has the authority to implement the state's business and strategic plans:
   - **PARTIAL.** There is not a full-time, paid "statewide geospatial coordinator" in Delaware. However, "departmental people" principally from the Office of State Planning Coordination and the Delaware Geological Survey perform some of these functions on a *de facto* basis. Although the Office of Management and Budget (OMB) is identified by statute (Title 29, Sub-chapter IV, Section 9141) as housing a person who is "assigned the role of State Geospatial Data Coordinator and shall serve as the nonvoting Chair of the Executive Council of the Delaware Geographic Data Committee", this is **not** a *full time* position. Rather, a Principal Planner – Mr. Michael Mahaffie - within the Office of State Planning Coordination (i.e. a sub-division of OMB) currently serves as the State Geospatial Data Coordinator. Mr. Mahaffie has many additional planning duties beyond geospatial coordination.

2. A **clearly defined authority** exists for statewide coordination of geospatial information technologies and data production:
   - **YES**. The Executive Council of Delaware Geographic Data Committee (DGDC) and the DGDC itself, as chartered in statute (Title 29, Sub-chapter IV, Section 9141) serve as the formal "authority" for this function.

3. The statewide coordination office has a **formal relationship with the state's Chief Information Officer** (CIO):
   - **PARTIAL.** The Delaware Department of Technology and Information (DTI) is represented on both the DGDC Executive Council and the DGDC and participates in the meetings. While there is formal *involvement* in geospatial coordination and a formal *association* there is not actually a "statewide coordination office" (see #1 above) to have a formal relationship with. That said,

there is increasing geospatial activity within DTI through their multi-phased Enterprise GIS Program (eGIS).

4. A **champion** (politician, or executive decision-maker) is aware and involved in the process of geospatial coordination:
   - **MARGINAL.** There is awareness at senior staff levels, but currently there is limited direct advocacy for GIS or direct involvement in GIS initiatives.

5. **Responsibilities for developing the National Spatial Data Infrastructure** and a State Clearinghouse are assigned:
   - **YES.** Through their leadership position in coordinating the DGDC Executive Council the OMB, Office of State Planning Coordination (OSPC) has had these responsibilities assigned. The Title 29 statute that creates the DGDC enumerates one of the responsibilities as: "oversight of the Delaware Geospatial Information Clearinghouse." It should also be noted that organizations such as the Delaware Geological Survey (DGS), which hosts the Delaware DataMIL are involved in implementing a clearinghouse by providing public access to data download and metadata for Delaware's framework data layers.

6. The ability exists to **work and coordinate with local governments**, academia, and the private sector:
   - **PARTIAL.** While these abilities exist, and there is local government and academic involvement in the DGDC Executive Council (i.e. one statutory member from local government; one from academia), the lack of a full-time Coordinator and a formal statewide "GIS Office" greatly limits these collaborations. Currently, collaboration and coordination largely take place on *de facto* and opportunistic basis through agency-based projects and involvement.

7. **Sustainable funding** sources exist to meet project needs:
   - **NO.** Delaware does not have a formal identified budget for pursuing a coordinated, enterprise GIS at the state level. While one position from the OMB, Office of State Planning Coordination is identified to lead and support the DGDC Executive Council, there are no other budgetary resources directly at the council's disposal. The two independent areas where *some* funding is available for enterprise level GIS are the ongoing operation of the DataMIL, by DGS, and funding for an ELA with ESRI and for construction and operation of the new Delaware Geospatial Data

Exchange infrastructure at DTI. Both of these efforts, however, are funded with discretionary funds that are not sustained.

8. GIS Coordinators have the **authority to enter into contracts** and become capable of **receiving and expending funds**:

   - **YES.** There are numerous formal, governmental programs involved with GIS in Delaware that can receive grants and expend funds for contracting. These include, but are not limited to OMB-OSPC[4], DGS and DTI.

9. The **Federal Government** works through the statewide coordinating authority:

   - **PARTIAL.** The federal government has a seat on the DGDC Executive Council which is currently filled by the USGS state liaison. While this form of active participation in the coordinating council is a start, State-Federal geospatial coordination is not yet universal across either state, or federal agencies. There continues to be some direct and independent agency-to-agency interactions on geospatial matters outside of the DGDC's view.

2.2.2 Relative to Framework Data Layer Development Status

In addition to the seven, "federal framework" layers associated with the National Spatial Data Infrastructure, Delaware considers "geographic names" and "land use/land cover" to also be "Delaware Framework."

Most *public* framework data are available from the Delaware DataMIL maintained by the Delaware Geological Survey (DGS). In one case, a county government, concerned about the use of outdated parcel data, has removed its public parcel information from download via the DataMIL. Those needing that county's parcel data are directed to county staff for access to the data.

The following synopsizes the status of Delaware's framework data sets, and further details on these data can be found at the DataMIL web-site: http://datamil.delaware.gov. It should be noted that this table reflects what has been an ad-hoc approach to maintaining a centralized collection of framework data. Not all data stewards are active and currently there are no formal agreements between the DataMIL managers and all of the data stewards.

[4] The OMB-OSPC received the CAP Grant funding for this project from the USGS and entered into the contract with Applied Geographics, Inc. to facilitate the strategic planning work.

Framework Layer	Data Steward	Delaware Status
1. Geodetic Control	Federal Government via NOAA-NGS	Geodetic control is maintained by the NOAA National Geodetic Survey (NGS). While considered a "federal framework" data set, these data are not part of the DataMIL and NGS distributes them directly via their own web-site.
2. Parcels	Parcel data are individually maintained by each of the three counties: Kent, Sussex and New Castle.	Statewide parcels are available for viewing via the on-line "map lab" of the DataMIL. New Castle and Sussex County parcels are available for download.
3. Transportation & Roads	DelDOT and TeleAtlas, via contract with DelDOT.	The TeleAtlas road data are presently considered Framework, but will be replaced in the near future by a statewide centerline data set being developed by DelDOT. This new data set will be a joint project of DelDOT and the three counties. The TeleAtlas data set can be shared with public sector partners, based on the terms of the DelDOT/TeleAtlas contract. Only a limited portion is available to the public via DataMIL.
4. Hydrography	DNREC and USGS	USGS and DNREC have collaborated to develop a National Hydrography Data Set (NHD) covering the entire state. These data are available to the public via the DataMIL.
5. Elevation Contours	There is currently **not a formal data steward** for elevation data. The contour data were derived from separate LiDAR data collection efforts coordinated by the Delaware Geological Survey and the DGDC.	Two-foot LiDAR-derived contours are Delaware's elevation framework data and are available statewide. These data are available to the public on a county by county basis via the DataMIL.
6. Aerial Photography	There is currently **not a formal data steward** for orthophotos. The 2007 Project was coordinated by the Delaware Office of Management & Budget.	2007 ¼ meter resolution orthophotos from original 4-band imagery are available statewide. The DataMIL also serves 2002, 1997, 1992, 1968, 1961, 1954, and 1937 statewide aerial imagery. 2010 imagery of New Castle County will be available in 2011 and there are plans for collection of imagery for Kent and Sussex Counties in 2011.
7. Political & Administrative Boundaries	OMB, Office of State Planning Coordination and USGS	State and county boundaries created by USGS. Municipal boundaries created and maintained by OMB, Office of State Planning Coordination. These data are available to the public via the DataMIL.
8. Geographic Names	Counties and USGS	Statewide data set of "place names" comes from a combination of federal and local sources. Names in the database come from the counties and the USGS Geographic Names Information System (GNIS). These data are available to the public via the DataMIL.
9. Land use/ Land Cover	There is currently **not a formal data steward** for land use/land cover data. The 2007 project was coordinated by OMB.	2007 land use/land cover data set with a 56 category classification scheme is available statewide. These data are available to the public via the DataMIL.

2.3 Delaware's Geospatial Strengths

- Delaware's **small size** (i.e. approximately 2,500 square miles), and higher population density leads to lower data acquisition costs per capita. Lower data acquisition costs are a key factor in the strength of Delaware's statewide geospatial data (see below).

- Delaware's small size and relatively strong tax base have led to extensive geospatial data investments that have, in turn, led to **extremely strong statewide data**. In short, Delaware maintains amongst the richest and most detailed statewide data in the country. Of note, Delaware is one of only a very small number of states that have any one of the following, and the only state with all three:
  - Statewide **parcels**
  - Statewide **color orthoimagery with a 1/4-meter pixel** resolution
  - Statewide **2 foot contours**

- The **Delaware Geographic Data Committee** (DGDC) and the associated DGDC Executive Council have provided a critical focal point for statewide geospatial coordination and governance in Delaware. While there are other challenges with the DGDC (see below), the existence of the Committee and Executive Council and the activities of the membership have fostered communication, collaboration, partnership formation and data program coordination across sectors and levels of government.

- There is a **strong collaborative spirit** across the geospatial stakeholder community in Delaware. This community represents a dedicated cadre of GIS developers, users, and collaborators that, in spite of budget limitations, is seeking to improve coordination, share geospatial data and avoid duplication of effort.

- The **University of Delaware** (UD) has been involved in statewide geospatial activities for over ten years and continues to maintain strong geospatial resources in several colleges, departments, and research units to support education, research, and public service. This expertise provides a strong platform for educating a geospatial workforce as well as labs that can directly participate in state sponsored geospatial projects thereby supplementing the state's own capacity. Researchers at the UD remain engaged in statewide activities and interested in expanding collaboration potential.

- As the table in Section 2.2.2 documents Delaware has **well identified data stewards** for most framework data layers. While this does not imply that all data sets are in ideal condition, the responsibilities for update and improvement are largely assigned and well understood. Although Delaware is ahead of most states in this regard, further work is needed to help assign some of the stewardship responsibilities (e.g. orthophotos and elevation) and to formalize others with structured "stewardship agreements."

2.4 Delaware's Geospatial Weaknesses

- There is **not currently a unified focal point for state government geospatial activities**. Rather, staff are located in numerous agencies with a primary allegiance to the agency mission even as agencies work within the DGDC structure to provide some level of coordination. Further, current and increasing geospatial efforts within the Department of Technology and Information (DTI) are focused on the technical infrastructure aspects of the technology and are somewhat disconnected from the data content and stewardship issues. As was mentioned in the stakeholder workshop "collegial and cooperative efforts have gone as far as they can", with the implication being that further improvements in coordination and resource sharing will take a concerted effort.

  Many states have provided this "concerted effort" by providing a centralized staff that performs "communal" work on behalf of the enterprise, i.e., all of state government. The size of these centralized teams can vary from 15 people in Utah to 5 people in Arkansas to 2 people in Rhode Island. These state personnel work in concert with agency personnel on a dedicated basis to develop resources (e.g. technology, data, applications) that are required by everyone. Delaware does not possess a centrally-located office of this nature with coordination efforts coming only from part-time attention from agency personnel. Examples of the kinds of activities that a Delaware GIS Office might perform include, but are not limited to:

  - Planning for regular statewide orthoimagery missions
  - Developing statewide web services, such as a geocoding service
  - Providing public access to geospatial data (via both download and on-line viewers)
  - Collecting, assembling and maintaining current data sets from federal government and neighboring state partners

- Planning for cross-layer (and by association, cross data steward) data integration issues (i.e. ensuring that hydrography, parcels, contours and roads properly overlay one another).
- Updating and maintaining a Geospatial Strategic Plan for the state

- Highly related to the previously described weakness of not having a dedicated "statewide GIS team" is the fact that there is **no budget line for funding GIS statewide projects**. Currently, if there's a need – e.g. for an orthoimagery re-flight – it would be pursued via a onetime "pass the hat" mechanism with one agency voluntarily taking the lead. Whether such a line item is funded centrally on behalf of the state, or whether it is funded via agency "contributions" or assessments, there needs to be a *mechanism* that facilitates collaborative funding for geospatial projects that go beyond a single agency.

- Of all the framework data layers described above (see Section 2.2.2), **statewide roads** is the most problematic for several reasons:

  - Currently, these data are licensed from TeleAtlas (TANA) and there is some **dissatisfaction with the roads data quality** and the timeliness of data updates. For example, Kent County E911 personnel reported that the TANA data were abandoned after only three months and hundreds of errors were corrected by internal staff.
  - The full extent of attribute information associated with the TANA **data are not universally available**. While the state has an enterprise license that makes the data available to all state agencies and to all local governments, only the basic road geometry and a small part of the attribute information is available to the general public or private sector stakeholders.
  - The TANA data are not **fully navigable** for emergency response. Key routing attributes such as one-way streets and speed limits are not available.
  - The TANA data do not have a **linear referencing system** attached. Thus, the Delaware Department of Transportation (DelDOT) maintains a separate and distinct centerline with linear referencing. This means that there is **duplicated road centerline data update** (which probably extends beyond DelDOT and TANA and to some county efforts to maintain their own road files).

It is feasible to envision that in a state the size of Delaware, with only three counties, there could be a single, statewide roads data set that is designed and maintained to meet a variety of needs. Such a resource would be extremely valuable; however, it would take focused coordination efforts, ostensibly led by a statewide GIS office, in association with key stakeholders such as DelDOT. These coordinated efforts would ensure that all state agencies and local governments are appropriately involved.

- Prior to this project there was no institutionalized form of **geospatial strategic planning for the future** within the DGDC governance framework. In this instance, the availability of federal funding catalyzed the strategic planning. Long-term, the DGDC Executive Council should consider future strategic planning an ongoing and recurring activity. Such planning is particularly important in arenas – such as geospatial – that are growing quickly and where there are significant changes based on emerging technology.

2.5 Delaware Geospatial Opportunities

- The **Department of Technology and Information (DTI) is becoming more involved** with enterprise GIS (eGIS) efforts for state government. This is documented through two recent initiatives:
    1. Funding and oversight of a multi-phased **Enterprise GIS Program (eGIS Program)** , the first phase of which includes the Delaware Geospatial Data Exchange, which will serve as a data gateway for dissemination of state, county, and local GIS data across state government. Expansion of the Geospatial Data Exchange to allow access by other levels of government may be considered at a later date and after the system is fully implemented.
    2. Negotiation and procurement of an **ESRI enterprise license agreement** (ELA) for geospatial software for state government.

  This activity reflects DTI's understanding of geospatial technology as an important enterprise resource that is worthy of investment and is evidence of their willingness to remain involved in the technical infrastructure that underpins enterprise GIS.

- While there are a great number of state agencies currently using GIS technology, as the technology has become more affordable, friendly and ubiquitous there remain additional opportunities for

additional state agencies to become involved with, or further capitalize on geospatial technology. Some examples of agencies and issues that might do more with GIS include:

- **OMB**: Budget analysis, fiscal analysis of proposed projects
- **Economic Development**: Site and business planning, market research, etc.
- **Workforce Development**: Matching workers to jobs by location.
- **Tourism**: Public presentation of tourism sites and opportunities, spatial analysis of shared tourism opportunities
- **Renewable energy development**: Wind and solar siting research and analysis
- **DEMA**: Planning for and response to disasters.

An eGIS approach to GIS can be of great benefit to these types of agencies as they begin, or in some cases, expand, use of GIS. Instead of needing to start from scratch, new agencies would have an existing infrastructure to "plug into" and thus the overall cost of GIS would be lowered. Similarly, a statewide GIS office would be in a position to provide startup technical support to ease adoption of the technology.

- Delaware's neighboring states – Maryland, Pennsylvania and New Jersey – all deploy GIS broadly throughout state government. As a result there are opportunities to develop collaborative pilot projects that aim to improve the quality of framework data for these **neighboring states**. For example, Delaware might work with its neighbors to improve public safety communication and geospatial data exchanges in the event of emergencies and natural disasters.

- Build on and **extend existing federal partnerships** for geospatial activity such as the current USGS partnership that has helped to fund this geospatial strategic planning effort. Other existing opportunities include, but are not limited to:

  - **National Oceanic and Atmospheric Administration (NOAA), Coastal Services Center (CSC)**: with the advent of sea level rise and other environmental issues, the NOAA-CSC is extremely active with geospatial programs and has many partnership opportunities. The Delaware Coastal Program Office could investigate expanding their ties with the CSC to explicitly pursue geospatial activity.
  - Both **Department of Homeland Security (DHS)** and its **Federal Emergency Management Agency (FEMA)** are very active with geospatial technology and provide funding and

partnership opportunities to states. Again, the Delaware Emergency Management Agency (DEMA) could investigate actively pursuing geospatial funding for emergency planning and response.

- The **Army Corps of Engineers (COE)** is a significant geospatial technology user and there may be opportunities for collaboration regarding their major land holdings adjacent to the C&D Canal.

3 Vision & Goals

3.1 Problem Statement

Although Delaware state government has been an effective practitioner of geospatial technology for well over a decade, state government geospatial programs have emerged and evolved principally on an *agency basis.* State government geospatial programs fall within an overall geospatial governance structure established by the formation of the Delaware Geographic Data Committee (DGDC) Executive Council and the broader DGDC membership. While this governance structure exists, there is neither staff nor any resources at the DGDC Executive Council's disposal to carry out its recommendations. Thus, any cross departmental coordination that does take place largely happens on an *ad hoc* basis and with volunteered staff time.

In short, there is no centralized organization that can build shared resources or perform communal geospatial work that would assist multiple agencies. Similarly, efforts aimed at coordinating with partners in the federal government or local governments are sometimes repeated by multiple agencies. This results in funding inefficiencies and duplications of effort and it inhibits increased adoption of the technology by additional agencies. The majority of states, including all states and territories surrounding Delaware (i.e. New Jersey, Maryland, Pennsylvania, Virginia, New York and the District of Columbia) have established "GIS offices" that fulfill these functions on behalf of *state government* and aim to increase both the efficiency and capabilities of geospatial service delivery. In addition to serving internal state government needs, such offices help the state coordinate and cooperate with other stakeholders such as counties, local governments, academia and the private sector. It is time for Delaware to strongly consider the creation of such a GIS office.

3.2 Overarching Strategic Goals

This plan puts forward two simple and related overarching strategic goals:

> Delaware will establish a formal state government **GIS Office,** led by a state Geographic Information Officer (GIO), that will report into its parent agency and fall under the current geospatial governance framework provided by the Delaware Geographic Data Committee's Executive Council.

The Delaware **GIS Office** will be provided recurring funding that is dedicated to the expansion and improvement of Delaware's framework data and spatial data infrastructure.

3.3 Programmatic Goals

The programmatic goals described below identify key decisions that need to be made to properly place the new office within state government and to provide it the direction and resources required for success. Detailed planning needs to take place to determine the precise shape and organizational placement of the new office[5].

3.3.1 Finalize General Characteristics and Mandate for the Office

The general characteristics and mandate of the **new GIS Office** are recommended to include:

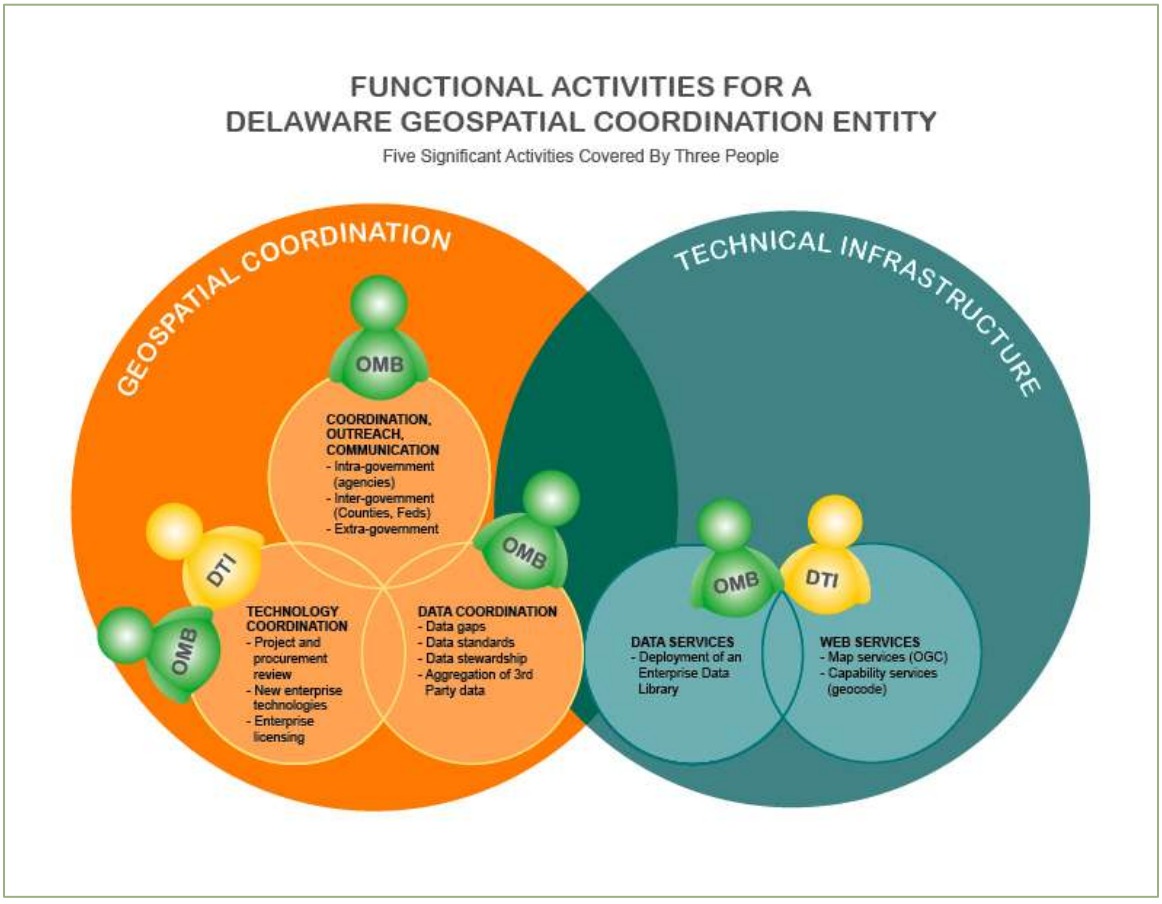
- Having as its director a dedicated, fulltime Statewide **Geographic Information Officer** (**GIO**) to provide support to the DGDC Executive Council.
- Serving as a focal point for statewide geospatial **data initiatives** that benefit multiple departments. Activities may include:
    - Coordination of annual data maintenance funding (e.g. for regularly recurring orthoimagery flyovers)
    - Coordination of agency data stewards, and management of their contributions to the statewide database
    - Management of a distributed statewide geospatial database that contains the best data holdings from a variety of state, federal and local government sources and is accessible to all agencies
- Providing high quality **geospatial services** to all state agencies and local government and other partners without inhibiting agency-based geospatial business activity. Activities may include:
    - Web mapping services
    - Web capability services such as geocoding
    - Application development and hosting technical assistance

[5] Please see the accompanying "Business Plan for the Establishment of a New GIS Office for Delaware" for details

- Facilitate **communication and collaboration** across and between state agencies. Activities may include:
    - Management of statewide enterprise license agreements (e.g., existing enterprise license agreement for ESRI software)

- Facilitate **communication and collaboration with other levels of government** (i.e., local government, neighboring state governments, Federal), academia and the private sector including providing access to public data resources.

The figure below provides a schematic representation of the activities that will need to be pursued to fulfill this mandate.



3.3.2 Size and Organizational Placement of New Statewide GIS Office

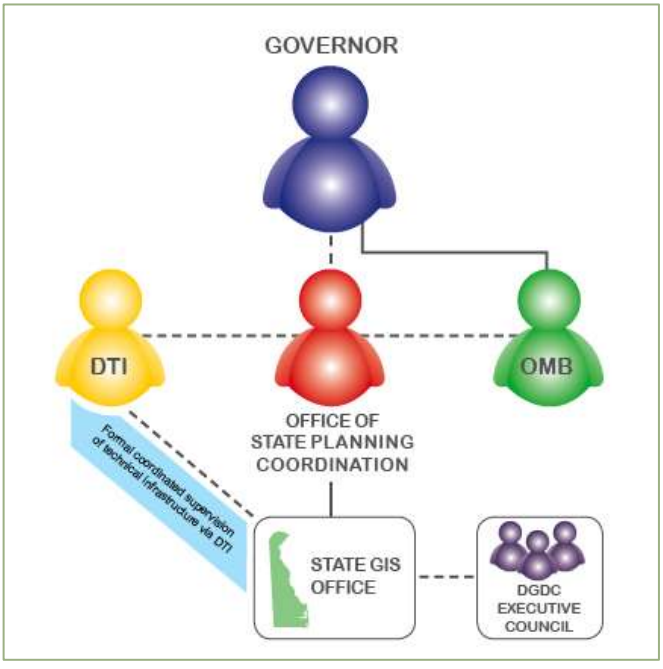
The most likely home for a **new** Delaware Geographic Information Office is within the **Office of State Planning Coordination.** To the extent possible and allowable by the state budget, the new office should

be staffed with three *new* positions. In the event that new positions cannot be created at this time, the office could be staffed with the reassignment of existing positions currently located in other offices.

The new office would be led by a Geographic Information Officer who would report into the OSPC Director and would chair the DGDC Executive Council. In addition to the GIO, one new position would be responsible for managing the enterprise geospatial database, and the other person would be responsible for facilitating application and advanced technology development.

The DGDC Executive Council would serve as a Board of Directors to this office, and the office would carry out the Executive Council's recommendations and priorities. Under this scenario, the DGDC itself would become a more independent and broad-based users' group. If this happened, it would be desirable for the "DGDC users' group" to elect its own chair, who would represent the DGDC on the Executive Council. It should be noted that this type of change in DGDC configuration and governance would likely ***require a change in the DGDC's enabling legislation***.

The GIS Office would be intentionally small and as detailed below, it would be focused on the eGIS requirements of state government for: geospatial data, services and applications. The equipment associated with enterprise GIS would be housed at DTI and there would be a formal relationship with DTI for administration and management of the technical infrastructure. The figure below illustrates this potential organizational structure.



4 Requirements To Meet The Programmatic Goals

The programmatic goals outlined above provide a sensible recommendation for meeting the strategic goals of "creating a new GIS Office" for Delaware. The following sections describe the recommended organizational and resource requirements for carrying out those recommendations.

4.1 Organizational Needs

4.1.1 Executive Support

Senior executive support will be required for the creation of a new office. Ideally, the Governor would provide this support and leadership, but at a minimum the executive management of agencies that are most impacted – in this case, OSPC and DTI – would need to be willing advocates. This will be particularly critical if the new office is staffed with existing personnel who are reassigned to work in the new office on a dedicated, fulltime basis.

With executive support, the organizational changes could be enacted via either Executive Order or Legislative action, perhaps through budgetary language.

4.1.2 Staffing

Ideally, the GIS Office would be comprised of three people with the following roles:

- **Geospatial Information Officer** (GIO): Would serve as the group leader and would be responsible for overall geospatial coordination in Delaware.
- **Geospatial Data Manager:** Would be responsible for the assembly and management of a statewide geospatial data library. The current project to develop the Delaware Geospatial Data Exchange will result in an infrastructure that could house this database. This person is anticipated to work closely with DTI staff who would manage the technical infrastructure. This person would fulfill the role of managing the data contents of that system, as well as the relationship with data contributors. See Appendix #3[6] for a more detailed job description for this role.

[6] Appendices are found at http://stateplanning.delaware.gov/dgdc/strategic_plan/Appendices_FINAL.pdf

- **Geospatial Developer:** Would provide application development and management capabilities to the team. Having this expertise in-house would lessen – but not necessarily eliminate - the reliance on contractors for application development and would enable this office to provide application support to agencies that are newly implementing GIS technology. When the workload is high and funding enables contractors to be involved, this person would serve as a resource in specifying the work for the contractors and assisting agencies in managing and providing quality control of the deliverables. This person would also help to administer the geospatial web services. This person would also work closely with the DTI personnel who manage the technical infrastructure.

If it is not possible to create, or staff via reassignment, all three positions, it is possible that an initial team of two would be sufficient at the outset, and that a Geospatial Data Manager could be found who possessed some application development skills anticipated to be provided by the Geospatial Developer.

It is assumed that DTI currently maintains adequate staff to work with the GIS Office to manage the technical infrastructure which will build off of the Delaware Geospatial Data Exchange project.

4.1.3 General Budget Requirements

The principal funding requirement is for the staff recommended above in 4.1.2, assuming that new positions are created. If new positions are not created, and instead staff are reassigned from existing positions, then it is assumed that the funding for the positions would be reallocated as well.

The precise salary and benefit levels would need to be determined in association with OMB's human resource management classification system; however, the following provides an estimate for salary levels based on other states and the private sector:

Position	Salary Range
Geospatial Information Officer	$70,000 - $90,000
Geospatial Data Manager	$55,000 - $75,000

Geospatial Developer	$55,000 - $75,000

In addition to salaries, the GIS Office should have a modest budget of perhaps $10,000 - $20,000 that could support routine equipment purchases and some travel to participate in regional and national GIS conferences such as the annual National States Geographic Information Council (NSGIC) conference which has participation from almost all statewide GIS offices.

As per the second strategic goal, the office should also manage a budget expressly for "data investment" which would cover data maintenance, update and the creation of new data sets. An annual data investment of $50,000 - $100,000 would help to ensure the quality and currency of the state's geospatial data holdings.

Please note, more detailed budget information is available in the companion document titled a Business Plan for the Establishment of a GIS Office for Delaware.[7]

4.1.4 Assessing Risk

There are three principal risks to achieving the programmatic goals outlined above:

1. **It will not be possible to increase staff** in the current fiscal climate of tight budgets. Given that the program hinges on the creation of a "new office" with a new mission, it is critical that there be a way to staff this office. If new positions cannot be created, then staffing the office through the reassignment of existing agency personnel remains feasible.
2. There will be a **perceived loss of flexibility with the creation of a new centralized GIS office**. Delaware's GIS has matured in an environment where agencies have moved forward and have made investment independently. Some may view a new centralized GIS office as impinging on agency autonomy in terms of geospatial planning and investment. The intent of the new office is to facilitate increased coordination and efficiency, and to assist agencies that are newly becoming involved with GIS. It is not designed to dictate agency behaviors; rather it is designed to provide agencies access to communal resources that will benefit those agencies. It will be up

[7] This document is being drafted in August 2010 and will be published with the Strategic Plan when completed

to the personnel in the new office to interact in an open fashion and to set a tone of collaboration.

3. Highly related to the previous risk is the objective of **not alienating existing departmental/agency based geospatial programs**. The new office must respect the existing geospatial programs of state agencies and position itself as a resource that can help these program become more effective (e.g. by providing communal resources on which they can capitalize; and, spearheading "group projects" such as orthoimagery re-flights).

5 Implementation Program

5.1 Phasing & Milestones

The timeline below provides an overview of the key activities necessary to create the new GIS Office. In short, the primary activities include coming to consensus on the need for the office and then commencing the advocacy necessary to establish the office as part of the state budget.

Activity	2010		2011				2012			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Finalize Geospatial Strategic Plan and begin education and advocacy for its recommendations										
Work with current Administration and General Assembly to include potential funding and language changes as part of FY2012 budget										
Work with Administration and General Assembly to sustain support for funding of new GIS Office as part of FY2012 budget.										
Establishment of new Delaware GIS Office					*					
Delaware GIS Office commences operations										

5.2 Marketing the Program

The overarching strategic recommendation is singular and straightforward: create a new statewide GIS Office for Delaware. As such, most of the marketing and outreach activities should be directed at generating the political and organizational support within state government that can lead to the legislative and budget language necessary to create the office. This includes:

- **Outreach to state governmental leaders and executives** who will be directly involved in creating the Administration's 2012 budget
- **Outreach to existing state government geospatial programs** who will be indirect beneficiaries of the activities of this office. It will be important to document that there is consensus around this proposal and that the new office *helps* existing programs, and does not compete with them.
- **Outreach to broader geospatial stakeholder community** who will also benefit from the activities of this office. Indeed, as described above, the activities of this office are directly involved in helping the state government stay better connected with its local government, academic and private sector collaborators.

Appendices

1. Attendance list from stakeholder workshop on October 20, 2009
2. PowerPoint slides from stakeholder workshop on October 20, 2009
3. Detailed job responsibility document for the Geospatial Data Manager position

Appendix 1

Delaware Geospatial Strategic Business Plan

Workshop Attendance

20-Oct-09

Denotes walk-in

Attended	Name:	Organization:	Sector
1	Andrew Homsey	University of Delaware	Academia/Education
1	John M. Laznik	University of Delaware	Academia/Education
1	Benjamin Mearns	University of Delaware	Academia/Education
1	Nicole Minni	University of Delaware	Academia/Education
1	Mark Nowak	City of Dover	City/Town Government
1	Paul Eckrid	City of Lewes	City/Town Government
1	Danielle Lamborn	Kent County	County Government
1	Michael Ward	Kent County	County Government
1	SABRINA FITE	KENT COUNTY LEVY COURT	County Government
1	Jason Berry	Kent County Planning	County Government
1	Patrick Susi	NCC	County Government
1	Megan Nehrbas	Sussex County	County Government
1	James Hoff	436 CES/CEPT Dover AFB	Federal Government
1	Diane Shields	USDA Natural Resources Conservation Service	Federal Government
1	phillip s. king	USDA-NRCS	Federal Government
1	Roger Barlow	USGS	Federal Government
1	Mark Nardi	USGS WRD MD-DE-DC Water Science Center	Federal Government
1	michael terner	Applied Geographics, Inc.	Private Sector
1	Steve Smailer	Duffield Associates	Private Sector
1	Brianne Jordan	GeoDecisions	Private Sector
1	Bradley Strittmatter	Herbert, Rowland & Grubic, Inc	Private Sector
1	Howard Hodder	Herbert, Rowland & Grubic, Inc.	Private Sector
1	Erica Rhoades	McCrone Inc./AEGIS	Private Sector
1	Michael J. Hanna	Tidewater Utilities, Inc.	Private Sector
1	J Galvin	Dover/Kent County MPO	Regional Organization
1	Glenn Gladders	DDA Forest Service	State Government
1	Mary I. (Mollie) Raley, AICP	DE Dept. of Transportation	State Government
1	Darin Dell	Delaware Dept of Transportation	State Government
1	Sebastian Carisio	Delaware Geological Survey	State Government
1	William Schenck	Delaware Geological Survey	State Government
1	Barbara Gladders	Delaware Hlth Statistics Center, Div of Public Health	State Government
1	Mike Mahaffie	Delaware OMB	State Government
1	Valerie A Miller	Delaware State Housing Authority	State Government
1	Mary Ann Papili	Delaware State Police	State Government
1	Liam Morris	DelDOT	State Government
1	Jay Gerner	DelDOT	State Government
1	Bruce Allen	DelDOT	State Government
1	Matthew Laick	DelDOT	State Government
1	Josh Thomas	DelDOT Planning	State Government
1	Silvana Croope	DelDOT TMC	State Government
1	Kim Cloud	Dept. Technology & Information	State Government
1	Mary C. Harper	Division of Historical and Cultural Affairs	State Government
1	George Yocher	Division of Public Health	State Government
1	Michael Townshend	DNREC	State Government
1	Deborah Sullivan	DNREC	State Government
1	Dennis Murphy	DNREC	State Government
1	KARISSA HENDERSHOT	DNREC-SIRB	State Government
1	Don Berry	DOE	State Government
1	David Edgell	Office of State Planning Coordination	State Government
1	Terry M. Whitham	Safety & Homeland Security- 9-1-1 Administrator	State Government
1	Doyle Tiller	St of DE OMB/Facilities Management	State Government
1	Miriam Pomilio	UD, Delaware Geological Survey	State Government
1	John Callchan	UD, Delaware Geological Survey	State Government
1	Darrin Gordon	Lewes BPW	Utility Company

54 TOTAL

Appendix 2

Geospatial Strategic Business Plan

for:

Delaware

Stakeholder Workshop

Presented

October 20, 2009

DELAWARE GEOGRAPHIC DATA COMMITTEE

Delaware Office of State Planning Coordination

FederalGeographicDataCommittee fgdc

Agenda

Time	Topic
8:30-9:00	*Registration and sign-in*
9:00-9:45	Overview & Project Background
9:45-10:30	Initial Discussion
10:30-10:50	*** B R E A K ***
10:50-12:00	Additional Discussion

What's this workshop all about?

- **Delaware is developing a Strategic Plan to guide ongoing geospatial development in the state**
  - Plan is not about "state government" but all of Delaware
- **Plan needs to be informed by GIS users in Delaware**
- **This workshop is being held to directly solicit stakeholder input on:**
  - Requirements
  - Approaches
  - Priorities
  - Expected benefits

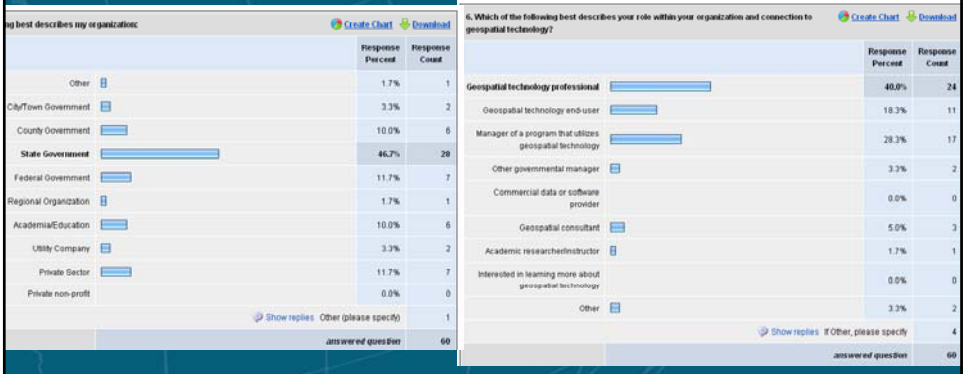
Who are we?

Introductions

- Steering Committee Members
- Mike Mahaffie, OMB
  Project Manager for this effort
- Sandy Schenck, DGS
- Kim Cloud, DTI
- Jim Galvin, Dover/Kent MPO
- Carl Yetter, Coastal Programs
- Roger Barlow, USGS
- Mark Nowak, City of Dover
- Michael Terner
  Applied Geographics, Inc.
  Project consultant

Who are you?

The Delaware Geospatial Stakeholder Community



g best describes my organization:	Response Percent	Response Count
Other	1.7%	1
City/Town Government	3.3%	2
County Government	10.0%	6
State Government	46.7%	28
Federal Government	11.7%	7
Regional Organization	1.7%	1
Academia/Education	10.0%	6
Utility Company	3.3%	2
Private Sector	11.7%	7
Private non-profit	0.0%	0
Show replies Other (please specify)		1
answered question		60

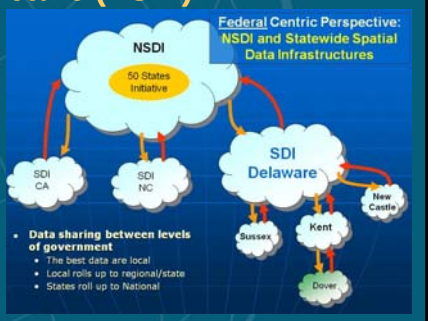
6. Which of the following best describes your role within your organization and connection to geospatial technology?	Response Percent	Response Count
Geospatial technology professional	40.0%	24
Geospatial technology end-user	18.3%	11
Manager of a program that utilizes geospatial technology	28.3%	17
Other governmental manager	3.3%	2
Commercial data or software provider	0.0%	0
Geospatial consultant	5.0%	3
Academic researcher/instructor	1.7%	1
Interested in learning more about geospatial technology	0.0%	0
Other	3.3%	2
Show replies If Other, please specify		4
answered question		60

Project Overview

- **Why? To identify a common vision and priorities of continued geospatial development in Delaware**
- **Federal funding via the USGS/FGDC 50 States Initiative**
  - To date, 43 of 50+ states & territories have received funding
- **Project oversight and cooperation from:**
  - OMB Office of State Planning Coordination
  - Project Steering Committee
  - DGDC
- **Stakeholder Input Workshop**
  - Supplemental one-on-one interviews with key stakeholders/organizations
- **Report Authoring**
  - Strategic Plan that lays out a common vision
  - Initial Business Plan for highest priority initiative
- **Report Presentation**
  - Beginning at 2010 Delaware GIS Conference

The National Spatial Data Infrastructure (NSDI)

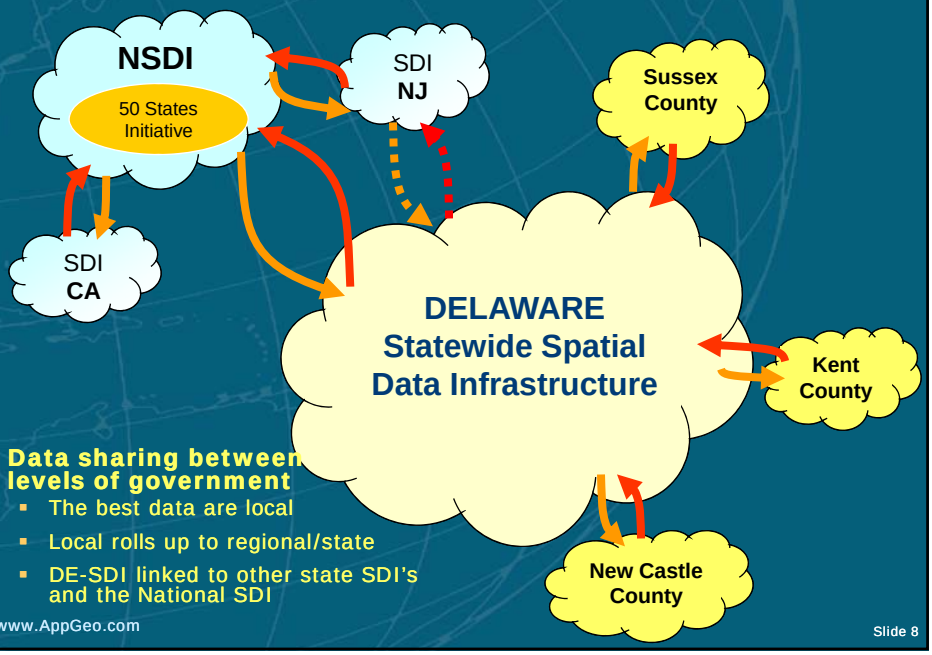
- Compilation and integration of consistent, high-quality nationwide data for:
  - **7 Framework Data Layers**
    1. Geodetic Control
    2. Cadastral (parcels)
    3. Political Boundaries
    4. Hydrography
    5. Imagery (orthos)
    6. Elevation
    7. Transportation (Air, Roads, Inland Waterways, Rail, Transit)



- **50 States Initiative:**
  - Effort to catalyze creation of NSDI
  - Including the CAP grant funding this project

www.AppGeo.com

Statewide Spatial Data Infrastructures & NSDI



- **Data sharing between levels of government**
  - The best data are local
  - Local rolls up to regional/state
  - DE-SDI linked to other state SDI's and the National SDI

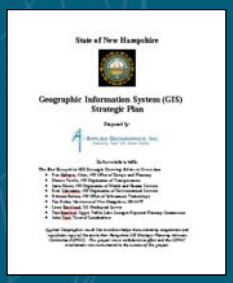
www.AppGeo.com

Slide 8

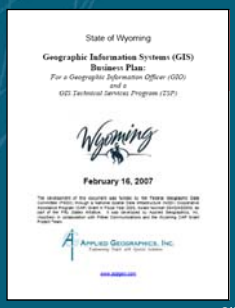
The NSGIC Strategic Planning Process

The one-two punch of Strategic & Business Plans

- **One** Strategic Plan, potentially **many** Business Plans
- **Strategic Plan**
  - **What** and **Why**
  - Vision & Goals
  - The "big picture" and overall context
- **Business Plan**
  - **How, When**, and **How Much**
  - Aimed at those that approve and fund
  - Details of initiative(s) emerge
  - Presented as a business case
- Project Goal: Get the Vision right, move out on business plan for highest priority initiative


State of New Hampshire

Geographic Information System (GIS) Strategic Plan


State of Wyoming

Geographic Information Systems (GIS) Business Plan:

Wyoming

February 16, 2007

Applied Geographics, Inc.

Where is Delaware Relative to:

The 50 States Initiative's 9 criteria of a successful statewide GIS program?

1. A **full-time, paid coordinator position** is designated and has the authority to implement the state's business and strategic plans
   - **Not really** – "departmental people" do some of this – it's a *de facto* thing
2. A **clearly defined authority** exists for statewide coordination of geospatial information technologies and data production:
   - ✓ **YES**, DGDC
3. The statewide coordination office has a **formal relationship with the state's Chief Information Officer** (CIO)
   - ✓ **Pretty much.** DTI represented on DGDC Executive Council; and, further emerging as DTI gets more involved in geospatial
4. **A champion** (politician, or executive decision-maker) is aware and involved in the process of geospatial coordination:
   - **Not really.**

Where is Delaware Relative to:

The 50 States Initiative's 9 criteria of a successful statewide GIS program?

5. **Responsibilities for developing the National Spatial Data Infrastructure** and a State Clearinghouse are assigned:
   - ✓ **YES**, via OMB, Office of State Planning Coordination
6. The ability exists to **work and coordinate with local governments**, academia, and the private sector:
   - ✓ **YES**
7. **Sustainable funding** sources exist to meet project needs
   - **Not for coordinated, enterprise GIS** at the state level
8. GIS Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.
   - ✓ **YES**
9. The Federal Government works through the statewide coordinating authority
   - ✓ **For the most part**; as much as any where else

Where is Delaware Relative to:

Framework data development status?

NSDI Framework

1. Geodetic Control
2. Imagery (orthos)
3. Transportation (Air, Roads, Rail, Transit, Inland Waterways)
4. Hydrography
5. Political Boundaries
6. Cadastral (parcels)
7. Elevation

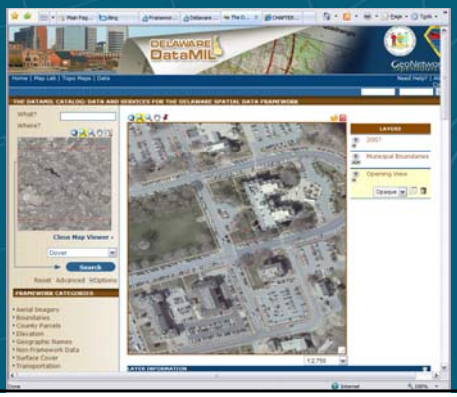
Delaware Framework

1. Geodetic Control
2. Aerial imagery
3. Transportation
   - Road centerlines
   - Rail centerlines
4. Water Features
5. Boundaries:
   - State boundary
   - County boundaries
   - Municipal boundaries
6. Parcels
   - Kent, Sussex, New Castle
7. Elevation
   - 2 foot contours
   - DEM
8. Geographic Names
9. Land use/Land cover

1. Geodetic Control (NOAA National Geodetic Survey)

2. Aerial Imagery

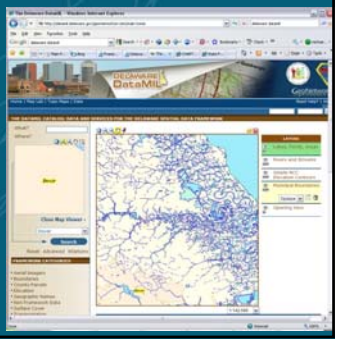
- Orthophotography, 2007 (OMB)
  - Periodic updates. Individual projects led by the state (OMB) and funded by a consortium
  - Latest: 2007, ¼ meter resolution, 4 band



3. Transportation

- Road centerline data (DelDOT)
  - DelDOT/TeleAtlas contract (Expected to end)
  - Needs Data Steward
  - Possible "Open Editing"
- Railroad centerline data (DelDOT)

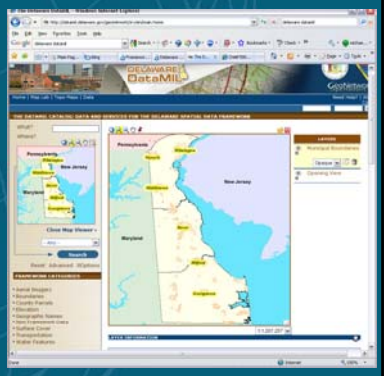
4. Water Features



- Streams and water bodies (DNREC/USGS)
  - National Hydrography Data Set (NHD)
  - DNREC is the data steward in combination with USGS
  - Potential for "Open Editing"

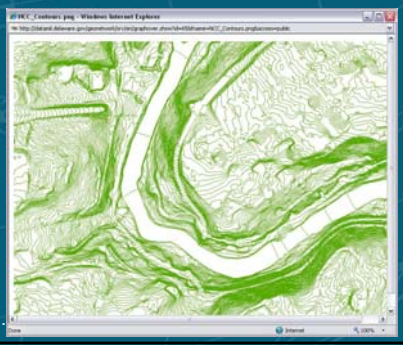
5. Boundaries

- State boundary
  - Maintained by DNREC and SHPO (with DGS)
  - Very highly accurate and monumented
  - Shapefile mathematically derived
- State boundary monuments (DHCA)
- State Outline (DGS)
- County boundaries
  - From USGS DLGs
  - To be updated, led by County staff
  - Partially monumented
- Municipal boundaries (OMB)
  - Maintained, statewide, by OSPC
  - Need better coordination with county Recorder of Deeds offices (Legislation?)
- Others?
  - School Districts
  - Fire Districts



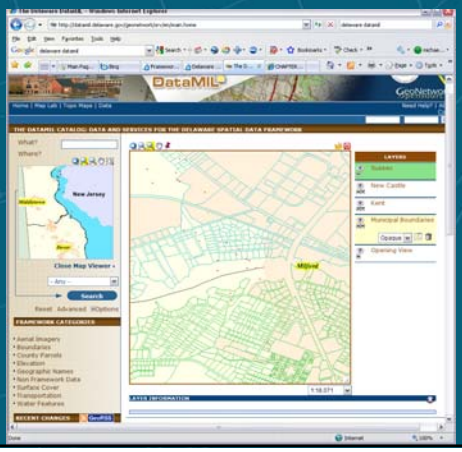
6. Elevation

- Contour lines (DGS)
  - 2-foot contours (2005/2007)
  - From 2007 Ortho/LiDAR project (state/fed/Local funds)
- Digital Elevation Model (DGS)
  - From 2007 Ortho/LiDAR project (state/fed/Local funds)
    - Needs coordination and data steward
    - Workgroup established, data quality variable



7. Parcels

- **Land Parcels – Maintained by each county**
  - New Castle County parcels (New Castle Co.)
  - Kent County parcels (Kent Co.)
  - Sussex County parcels (Sussex Co.)

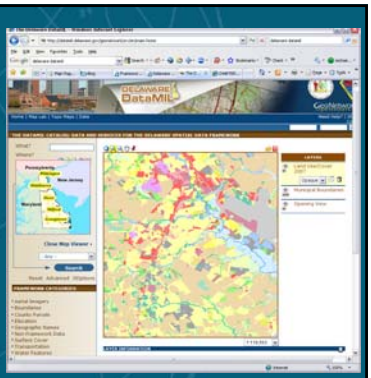


www.AppGeo.com

Slide 17

8. Landuse/Landcover

- Land Use/Lad Cover (OMB)
  - 56 category classification system aggregated to 26 map colors (on the DataMil)
  - Data created and updated as part of Ortho projects



9. Geographic Names

- Place names (DGS)
  - A mix of GNIS (Fed) and County-supplied subdivision names
  - DGS serves as State Names Authority
  - Committee exists, but never meets

www.AppGeo.com

Are these the correct "Framework Layers?"

Think about this for the upcoming discussion

Q8. Of the data you use, which data sets are most important?

	Data Layers (Delaware Framework in bold)	Critical	Moderately important	Nice to have	Unimportant	Rating Average	Response Count
1	**Transportation (roads)**	50	3	0	0	**3.94**	53
2	**Imagery (orthos)**	49	2	1	0	**3.92**	52
3	**Political boundaries**	33	13	2	0	**3.65**	48
4	**Hydrography (streams and water bo**	33	13	3	0	**3.61**	49
5	**Parcels (cadastral)**	40	5	6	2	**3.57**	53
6	Addresses	30	12	5	2	**3.43**	49
7	**Land use/Land cover**	24	15	5	1	**3.38**	45
8	Critical infrastructure	22	14	2	3	**3.34**	41
9	**Elevation**	22	19	4	2	**3.30**	47
10	Utilities	23	8	9	2	**3.24**	42
11	**Geographic names**	17	14	14	1	**3.02**	46
12	Soils	16	9	11	7	**2.79**	43
13	**Geodetic Control**	12	10	11	5	**2.76**	38
14	Geology	7	14	11	9	**2.46**	41
15	3D Buildings	3	5	26	4	**2.18**	38

Delaware Planning Context

- Delaware has made tremendous progress over the past ~20 years
- BUT, "much of the low hanging fruit is gone"
- Delaware has tremendous "small state" opportunities to capitalize on
- And, some challenges to overcome
- What's our Vision?
- What needs to get done to realize that vision?

Proposition: Delaware has an opportunity to be The National Leader in state GIS

Because:

- Small, data rich state
  - For example, statewide parcel and LiDAR availability
  - Filling data gaps is less costly than elsewhere
- Small, tight GIS community
  - More easily coordinated
  - Have worked together effectively already
- Significant investments have been made already

What's Missing:

- Energy/resources to pull all the pieces together
- Fuller enterprise approach for state government
- Your opinion on this…

Discussion topics from the invitation:

- How can we build a state-level "Spatial Data Infrastructure" for Delaware?
- Is our present Delaware Spatial Data Framework adequate?
- What data are most important to you?
- Who should take stewardship responsibility for major data sets?
- What technical resources do you need that are not now available?
- Is there room for organizational improvements?
- Who is not now a part of our GIS Community that maybe should be?
- What should we do first?
- Is there a common vision for where Delaware should be heading?

Discussion topics suggested from the survey:

Paraphrased, organized and grouped…

- **More of an enterprise approach for State Government**

Technically speaking:

- "GIS Enterprise database, where should it be housed, and who will maintain it?"
- Statewide resources such as a "geocoder" (e.g. geocoding service)
- Consistent statewide layers (e.g. aggregated, normalized parcels; "statewide addresses")
- "Cross-utilization of data among different platforms"

Organizationally speaking:

- There is a lack of a "shared GIS organizational structure (GIS is performed primarily within separate agencies)"
- DGDC doesn't have an organization that can implement on its behalf
- Who does the "communal work" that all agencies benefit from?
- "Promoting the collegial atmosphere"

Discussion topics suggested from the survey:

Paraphrased, organized and grouped…

- **Data:**
  - Buildings? Most "requested" layer from the survey w/ 26 people, 65%, voting "Don't have access, but want".
  - Consistent statewide representations of county-based data (parcel, transportation, addresses)
- **The need and quest for "sustainable funding":**
  - "Permanent funding line to support maintenance of the SSDI Framework layers"
  - "Dedicated funding from the Legislature for routine updates to the orthoimagery"

To the discussion

First and foremost – consider this a form of Open Mike…

- What is on your mind?
- What do you need?
- What do we need to hear to get the vision and the strategic plan "right"?

Please be candid and unafraid to be "constructive".
We want to hear both what is working, and what is not.

Please contact me…

- Michael Terner
- mgt@AppGeo.com

Appendix 3

Delaware Geospatial Data Manager

Responsibilities & Activities

- Work closely with the Delaware Geographic Information Officer and the state's data partners in the federal and local governments and academia to identify the contents of the Delaware statewide geospatial database (DSGD).

- Coordinate with the Department of Technology and Information (DTI) on the management of the technical infrastructure for housing the Delaware statewide geospatial database. It is assumed that this will be a further evolution of the DTI data exchange infrastructure that will eventually support:
    - Transactional management of the contents including data update and backup
    - Security and privileged data access
    - Live file and/or RDBMS access for state agencies
    - Web service access for third parties, and the general public

- Meta data management of the DSGD including management of a system for providing open access to meta data as well as vetting and ensuring standards compliance for submitted data.

- Working with/coordinating with the Delaware Geological Survey on a long term strategy for providing a National Spatial Data Infrastructure (NSDI) clearinghouse node, including the future evolution and positioning of the Delaware DataMIL (i.e., the current NSDI clearinghouse node for Delaware).

- Develop and implement data management plans for framework data. Planning and management activities may include:
    - Identifying and working with primary custodians (e.g. agencies, local governments) of framework data
    - Obtaining updated framework data from custodians and preparing them for inclusion in the DSGD (e.g. quality assurance/quality control; data loading; etc.)
    - Standardize county-based data (e.g. parcels, road centerlines) into cohesive, statewide data sets.

- Identifying and implementing strategies for linking geospatial data to state and local government business data (e.g. parcels and CAMA).

- Provide technical assistance and training in data development and management to state agencies that are initiating their GIS programs.

State of Delaware

Business Plan

for the

Development of a GIS Office for Delaware State Government

October 2010

Prepared by

APPLIED GEOGRAPHICS, INC.
Empowering People with Spatial Solutions

This document was produced by Applied Geographics, Inc. (AppGeo) under contract to the Delaware Geographic Data Committee. This project was funded by a Cooperative Assistance Program (CAP) grant provided by the United States Geological Survey (USGS).

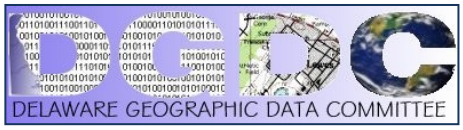


Table Of Contents

Table Of Contents 1

Executive Summary 3

1 **Strategic Planning Methodology** 5

1.1 Context & Relevance To The Strategic Plan 5

1.2 Specific Goals & Success Factor 5

2 **Program Benefits & Justification: The Business Case For A GIS Office For Delaware State Government** 6

2.1 Pattern of Geospatial Investments 6

2.2 Benefits & Efficiencies 7

2.3 Impacts on Agencies 11

3 **Requirements & Costs For Establishing The Delaware GIS Office** 13

3.1 Organizational Approach 13

3.2 Inventory of Existing Infrastructure & Suitability Assessment 22

3.3 Human Resource Requirements 22

3.4 Budget Requirements 23

3.5 Assessing Risk 23

4 **Implementation Phasing & Milestones** 25

[This page intentionally left blank.]

Executive Summary

This Business Plan was developed to provide a **business case** and further **implementation details** for the major proposal that resulted from the State of Delaware's Geospatial Strategic Plan from July, 2010. That plan put forward the following two "overarching strategic goals:"

1. *Delaware will establish a formal state government **GIS Office,** led by a state Geographic Information Officer (GIO), that will report into its parent agency and fall under the current geospatial governance framework provided by the Delaware Geographic Data Committee's Executive Council.*
2. *The Delaware **GIS Office** will be provided recurring funding that is dedicated to the expansion and improvement of Delaware's framework data and spatial data infrastructure.*

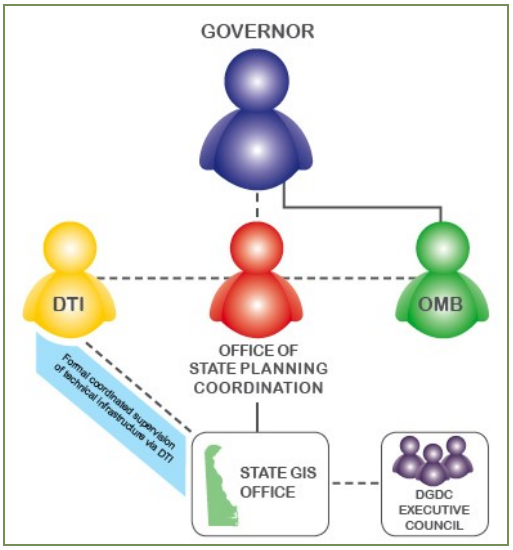
The Business Case:

The business case is predicated on the fact that the state – through a wide variety of agencies - has made substantial investments in geospatial technology over the past ten years and that there is a need to protect and leverage those investments. As an example, the plan identifies over $3.7M of investments from just four significant initiatives made since 2004. With this volume of spending a more coordinated approach to future investments, orchestrated by a dedicated GIS Office, should help to harvest synergies and avoid duplicative spending.

In addition, the business plan identifies three classes of specific "benefits and efficiencies" with specific examples of anticipated savings:

1. **Protecting and leveraging geospatial investments.** Examples include:
   - Ensuring that investments in the Department of Technology and Information's (DTI) Geospatial Data Exchange are protected by staff who manage the content found within the exchange.
   - Planning for the potential consolidation of the Delaware DataMIL with the Geospatial Data Exchange to create a single system with potential annual savings of $60,000.
   - Exploring opportunities for interagency technology sharing for things such as web hosting that would avoid new expenditures by smaller agencies.
2. **Development of shared resources.** Examples include:
   - In 2008 the Delaware Coastal Program with Natural Resources and Environmental Control performed a return on investment study that documented close to $1,000,000 of program savings emanating from their access to shared orthoimagery services. Savings were realized from:
     - $15,000 - $30,000 per year of avoided field work by accessing aerial imagery
     - $925,000 in avoided contracting since aerial imagery is required for routine flood and hydrodynamic modeling projects
3. **Controlling the cost of geospatial technology growth.** Use of geospatial technology within state government continues to grow just as consumers are increasingly using GPS navigation for their private vehicles and location-based services take root on smart phones. As documented in the plan, estimates for public sector geospatial spending growth approach 15%. A more focused

geospatial investment strategy, orchestrated by a dedicated GIS Office, and employing an enterprise-wide approach for state government, has the potential to significantly contain new geospatial spending.



Implementation Details:

Organizational: The business plan recommends that a small, new GIS Office be created as a unit within the Office of State Planning Coordination. The proposed GIS Office would have three staff members and would be led by a Geospatial Information Officer (GIO). The Office would be created under the existing state geospatial governance model whereby the Delaware Geographic Data Committee Executive Council would serve as a form of Board of Directors to the office. In addition, there would be explicit coordination with DTI on technology infrastructure issues.

Mission and activities: The following mission statement was created for the new office:

> *"Managing and fostering the development and maintenance of a **statewide geospatial data infrastructure** and **enterprise geospatial technology platform**. The technology platform and data infrastructure will be available to, and utilized by all units of state government. The state's public geospatial data assets will be made available to the state's public and private sector partners and the general public."*

Specific activities identified in the plan include:

- **Geospatial Coordination, Outreach & Communication**
  - **Intra-governmental** between state agencies
  - **Inter-governmental** between state and federal and local governments
  - **Extra-governmental** between state and private and academic sectors
- **Geospatial Data Coordination**
  - Providing access to state's geospatial data assets
  - Aggregating third-party data from other levels of government for state use
  - Facilitating standards development and enhanced data quality
  - Catalyzing the development of new data, including collaborative funding strategies
- **Geospatial Technology Coordination**
  - Project and procurement review for large GIS expenditures
  - Planning and implementation of new, shared enterprise technologies
  - Enterprise licensing for GIS software and data

While Delaware has already developed substantial GIS capabilities, at the current increased level of activity and with escalating use in the public safety realm, informal coordination and a decentralized implementation model is leading to inefficiencies and lost opportunities for expanded capability. This plan documents that it is both feasible and practical for Delaware to join the large majority of other states in establishing a dedicated GIS Office to coordinate state government geospatial activity.

1 Strategic Planning Methodology

1.1 Context & Relevance to The Strategic Plan

From September of 2009 through May of 2010 Delaware completed a statewide Geospatial Strategic Plan. The overarching strategic goal from that plan was to establish a new state government GIS Office. The plan stated:

> Delaware will establish a formal state government **GIS Office,** led by a state Geographic Information Officer (GIO) that will report into its parent agency and fall under the current geospatial governance framework provided by the Delaware Geographic Data Committee's Executive Council

This business plan aims to clarify the options that the state has for establishing this office and to present a business case for moving forward on implementing this recommendation from the strategic plan.

1.2 Specific Goals & Success Factors

The goal of this business plan is to ensure that the Delaware Geographic Data Committee Executive Council and other decision makers have all the information that they need to make final decisions pertaining to the creation of a new GIS office. These include:

- The administrative location of this office
- The staffing configuration
- The mission and initial priorities

The primary success factor is whether this new GIS Office can be created within the next 1-2 years. This plan contains a strong business case aimed at justifying the creation of this office and the further evolution of an enterprise approach for geospatial technology implementation within Delaware state government.

2 Program Benefits & Justification: The Business Case For A GIS Office For Delaware State Government

The "problem statement" of the Geospatial Strategic Plan[1] describes numerous challenges and inefficiencies that a new GIS Office would help address:

> *…there is no centralized organization that can build shared resources or perform communal geospatial work that would assist multiple agencies. Similarly, efforts aimed at coordinating with partners in the federal government or local governments are sometimes repeated by multiple agencies. This results in funding inefficiencies and duplications of effort and it inhibits increased adoption of the technology by additional agencies.*

Developing a GIS Office for Delaware state government would provide an explicit focal point for state government GIS activities that would supplement the independent efforts of agencies and would replace the current *ad hoc* manner with which geospatial coordination is pursued on a part-time basis, with volunteered staff time. As was said at the Geospatial Strategic Planning Workshop held in Dover in October, 2009, with the continued growth of geospatial technology "collegial and cooperative efforts have gone as far as they can go." Equally, a new GIS Office would provide a resource that could carry out the recommendations and priorities of the DGDC Executive Council.

2.1 Pattern of Geospatial Investments

Before examining the potential benefits and efficiencies that a new GIS Office might add, it is important to look at the volume of geospatial investments that have been made over time. Indeed, the magnitude of these investments and the variety of agencies involved indicate that there are potential synergies and efficiencies to be harvested with more focused coordination and state government-wide investment strategy.

The following does not represent a comprehensive inventory of *all* geospatial investments made in Delaware. Rather, it presents several representative examples of some of the larger investments in Delaware geospatial data and technology over the past decade. Notably, many of these investments were shared by multiple agencies:

[1] See Section 3.1 of State of Delaware, Geospatial Strategic Plan from June 2010.

1. The Delaware DataMIL, 2004-2010 for equipment, professional services and operations, split by Delaware Geological Survey (DGS) and the Department of Technology and Information (DTI), and not including the original development costs which were paid for by Federal grants:
   $954,600

2. Statewide orthophotography and LiDAR, 2002 and 2007, split between Federal, State, County and Municipal contributors:
   2002: $500,000
   2007: $640,000

3. DTI has made a variety of investments in platform technologies, including the Data Exchange that is under development and providing enterprise licensing (ELA) of ESRI GIS software:
   Data Exchange: $294,569
   ESRI ELA 2007-2010: $1,400,000
   ESRI ELA 2010-2013: $1,219,875

Delaware has established a pattern of making regular investments in this important technology. At this juncture, and at this level of investment it is appropriate to consider a dedicated GIS Office that can help to maximally coordinate and leverage these investments for the long term.

2.2 Benefits & Efficiencies

The following catalogs three classes of benefits that a GIS Office, and an attendant enterprise GIS orientation for state government can be expected to provide. Each class of benefits is first described in general, and is then followed by an example that illustrates the benefit in tangible terms. While the scope of this study did not allow for a formal cost-benefit analysis, the information below shows the potential scale of benefits and suggests additional analysis that might be conducted to further quantify returns on investment.

1. **Protecting and leveraging Delaware's geospatial investments.** As evidenced by the pattern of investment presented above, Delaware is continuing to make significant investments in geospatial technology, including DTI's eGIS Program and the Delaware Geospatial Data Exchange project. Admittedly, DTI has great expertise in technology infrastructure, but much less experience with the geospatial *data management* issues of what will be housed on that infrastructure. The human resources represented by the GIS Office will have those exact types of data management skills that will help ensure that the *contents* of the Geospatial Data Exchange are properly maintained and managed. This will help ensure that the resource is as useful as possible, and thus is utilized to the greatest extent possible which will help yield the

largest return on investment. Even solid, well performing infrastructure will not be used if it does not deliver current and relevant content.

Similarly, personnel with an inherent geospatial outlook can work with DTI to plan for the further deployment of that infrastructure into new areas. For example, it is plausible to imagine that the Geospatial Data Exchange might in the future be able to replace, or supplement the Delaware DataMIL managed by DGS (see Section 3.1.4, #4 Data Services, below for additional details). Based on the figures presented above (see Section 2.1, Pattern of Geospatial Investment) the budget for maintaining the DataMIL from 2004 – 2010 was approximately $954,000. This annualizes to approximately $136,000 per year over that seven year span. If the DataMIL and the the Data Exchange could be managed together, by the same people and on the same infrastructure there is the potential to cut those kinds of costs in half. If that was the case, annual savings of $68,000 could potentially be realized. These types of savings would be able to cover the transition costs of moving these capabilities from one platform to another in a short amount of time.

Last, a GIS Office with an enterprise outlook can work with other agencies that have advanced systems (e.g. DelDOT, DNREC, DTI) to explore opportunities for leveraging existing agency resources to smaller government units that do not have their own systems. For example, the State of Minnesota has explored having their "mature adopter" agencies provide hosting of web applications to "new adopter" agencies. Under this model, significant costs could be avoided. For example, commercial web serving software, such as ESRI's ArcGIS Server, can have list prices that approach $20,000 with an additional $5,000 of annual maintenance depending on the licensing level. Such costs would be avoided or minimized with interdepartmental and enterprise-wide sharing of web serving capabilities. Even within an enterprise licensing agreement (ELA) environment – such as Delaware maintains with ESRI - this can lead to cost avoidance since the price of ELA renewal (typically, an ELA will cover a 3-year term) is pegged based on the amount of software being deployed. Strong geospatial web servers that serve the needs of a variety of agencies will help minimize the state's software use and contain the costs of the ELA.

In short, it will be difficult for DTI to fulfill the full promise of enterprise GIS across the state with a focus that is solely on *technical administration* of GIS technology and software contracts. Rather, DTI and the state would benefit from a GIS Office that would be an important partner in geospatial content management and direct interaction with the state's large geospatial community.

2. **Development of shared resources.** States and organizations that have pursued enterprise GIS approaches have developed a variety of "shared resources" that can be accessed by all agencies within the government. Such shared resources are extremely cost effective as **one set of investments can meet multiple purposes**. Equally the availability of such shared resources inhibits the development of duplicated effort, and affords the opportunity to remove existing duplicated effort. The DTI Delaware Geospatial Data Exchange project will create this exact type of infrastructure that is explicitly designed to meet the needs of multiple agencies. Other types of geospatial "shared resources" include, but are not limited to:

    a. **Shared web mapping services**: that can publish data for consumption by a variety of web sites and applications
    b. **Share web capability services**: such as geocoding, that can be utilized by a variety of web-sites and applications
    c. **Enterprise software licenses and/or license pooling**: that allows a fixed number of expensive licenses which are used on an irregular basis to be shared across a wide number of occasional users, from many different agencies
    d. **Common data distribution portal**: that can provide public data to collaborators and the general public thereby freeing individual agencies from this responsibility[2]

    This type of shared infrastructure cannot be easily developed unless there is an explicit focal point for enterprise GIS activity. The GIS Office will provide this focal point and can actively seek opportunities to further this shared resources outlook and to help agencies take advantage of those resources.

    Shared resources have an enormous potential to provide cost efficiencies to Delaware state government. In fact, in 2008 the Delaware Coastal Program (DCP) group within DNREC looked at this exact issue and demonstrated significant returns on investment to the DCP that were generated by the shared 2007 orthoimagery and 2005 LiDAR data acquisition projects. The DCP

[2] Please note, the Delaware DataMIL (http://datamil.delaware.gov) currently fulfills this function for a sub-set of Delaware's geospatial data holdings (i.e., the framework data).

worked with Geospatial Information and Technology Association (GITA) to employ GITA's return on investment (ROI) methodology[3]. Key observations on quantifiable ROI from that assessment[4] included:

- Savings of $15,000 - $30,000 per year in staff time due to a reduced requirement for DCP site visits in conducting Federal Consistency Reviews and PLUS Reviews. In short, the availability of high quality orthoimagery and elevation data reduced the amount of time DCP staff needed to spend in the field, as well as saving fuel.
- Savings of more than $925,000 in avoided contractual expenses (for both DCP and Shoreline and Waterway Management) to acquire elevation data for various flood studies and hydrodynamic modeling projects. In short, when these types of studies were called for, expensive new data acquisition for imagery and elevation was not needed since those data were already available. Thus, those elements of the projects could be removed from the budget.

The DCP assessment also included a listing of numerous non-quantifiable benefits such as improved abilities to do new work and analysis involving sea level rise and hydrodynamic modeling. It is important to understand that these two returns on investment only reflect the activities of two relatively small offices within a single department (DNREC). It is highly likely that these kinds of benefits and efficiencies might be repeated throughout dozens of other units of the state government and the state's partners, such as counties, that utilize shared data and services.

Given the potential efficiencies of a "shared resources" perspective, the GIS Office can be viewed as a key focal point for ensuring that the correct set of shared resources are properly constructed and that the infrastructure for maximizing sharing is in place. Indeed, the GIS Office will help to ensure that when geospatial investments are made – even by an agency – there is some thought as to how that investment may have broader, unanticipated benefits to the entire enterprise of state government.

[3] See www.gita.org for a description of the organization and http://www.gita.org/gita-in-action/roi_workbook.asp for a summary of their ROI approach

[4] See Appendix 1 for DCP's summary of the ROI study.

3. **Controlling the cost of geospatial technology growth.** Controlling costs is one of the principal drivers for an enterprise approach to GIS. Even in a state like Delaware that has been using GIS technology for decades, geospatial activity at the agency level continues to grow rapidly. Driven by consumer-oriented location technologies, such as GPS navigation for cars and boats and web-based direction finding from MapQuest, Google and Bing, a growing awareness of the benefits of GIS has resulted in a demand for GIS within agencies that are only beginning to develop their capabilities. Interestingly, some of these are larger agencies – such as the Department of Safety and Homeland Security (DSHS) and the Department of Health and Social Services (DHSS) – with a wide variety of potential applications.

   With increasing use and adoption, it can be expected that costs will continue to grow. Daratech, as reported by GIS Café[5], estimated that GIS "growth in the public sector averaged 15% per year for 2004 – 2006"[6]. An enterprise approach to deploying geospatial technologies has the potential to significantly reduce the rate of increase of GIS costs through the deployment of shared enterprise services, reduced redundancies and other operational efficiencies. As the state builds common geospatial infrastructure, such as the Geospatial Data Exchange, the barriers to entry – including cost – for new geospatial participants will be drastically lowered. As the state further develops enterprise infrastructure, new agencies will not face the costs of building or expanding their *own* infrastructures, rather they will absorb the far lower costs of "plugging in" to, and leveraging existing *enterprise* resources. Thus, a GIS Office focused on building and maintaining the right infrastructure and nurturing agencies that use that infrastructure has great potential to help both in controlling current costs, and avoiding future costs.

2.3 Impacts on Agencies

It is important to understand that the small GIS Office that is being proposed should not be viewed as an alternative to existing and future agency-based GIS personnel. This office is not viewed as a service

[5] The GIS Café is a web-site that bills itself as a "GIS weekly magazine" that "…delivers to its readers news concerning the latest development in the GIS industry…" Please see: www.giscafe.com for further information.

[6] See: http://www10.giscafe.com/nbc/articles/view_weekly.php?section=Magazine&articleid=301162 for the full text of the GIS Café article from September 4, 2006.

bureau that provides direct services and products on behalf of agencies. Rather, this office is envisioned as a focused team that builds and maintains shared resources and that *facilitates* agency activity and enterprise efficiencies.

Depending on the level of geospatial maturity, agencies may interact with and benefit from the GIS Office in a variety of ways:

- **New geospatial adopter agencies**: the availability of technical support and the creation of shared resources lowers the barriers to entry for developing GIS capabilities and lowers agency costs for geospatial investment.
- **Operational geospatial agencies**: the availability of shared resources provides an infrastructure to tap into and helps extend capabilities while controlling costs.
- **Mature geospatial adopter agencies**: these agencies may have the fewest direct benefits, however, the enterprise benefits as their existing investments have the potential to be further leveraged.

3 Requirements & Costs For Establishing The Delaware GIS Office

3.1 Organizational Approach

3.1.1 Agree on Organizational Form of the GIS Office

There are two principal options for creating a new GIS Office. The Geospatial Strategic Plan recommended Option 1 – creating and staffing a new office – however, the current fiscal climate requires that a second option be considered, potentially as contingency, or as an interim measure until funding for Option 1 becomes available.

OPTION 1: CREATION OF A NEW GIS OFFICE

Create and staff a small, new office as an independent unit. Most likely, this unit would be placed inside of an existing agency (see Section 3.1.2 below for an enumeration of options). The creation of a new office will help to clearly articulate the mission of providing a focal point for statewide geospatial initiatives. The office and the personnel within it can be unambiguously focused on the new mission and activities that are outlined below (see Section 3.1.3). In addition, a new office will have the opportunity to create its own brand and identity that can be associated with statewide geospatial activity and coordination.

OPTION 2: GIS OFFICE STAFFED WITH EXISTING PERSONNEL THAT ARE REASSIGNED

Given the current fiscal climate it must be recognized that the creation of a "new office" and more specifically *new positions* might be very difficult. One option is to create the new office but have it staffed through the use of existing agency personnel whose positions would be reassigned into the new office where they could be dedicated to the mission and activities described below (see Section 3.1.4), but funded through their current organizations[7].

Examples of staff that might be considered for reassignment might include existing personnel from the Office of state Planning Coordination, whose staff are already involved in geospatial coordination and who are identified in the DGDC's enabling legislation as having a person "assigned the role of State

[7] It should be noted that the current Office of State Planning Coordination was created in a similar manner when it was resurrected in 1995. The State Planning Coordinator position and two others were created anew (or reclassified) and the rest of the staff were reassigned from other agencies.

Geospatial Data Coordinator and [who] shall serve as the nonvoting Chair of the Executive Council of the Delaware Geographic Data Committee." Staff from other agencies who are already and similarly involved in GIS coordination and support activities might also be candidates for inclusion in the new Office.

In this manner, a federation of personnel from different agencies would team to fulfill the new mission described below. The key difference from the current situation would be that these personnel would be *formally directed* to work on this new mission on a *fulltime basis.* Obviously, this would be administratively delicate and it would be potentially difficult for agencies to give up their own personnel "on behalf of the enterprise," even if they experienced other benefits from this office coming into being (e.g., current work they are responsible for would be undertaken by the new office). If this were to happen, it would take strong support and creativity from the highest levels of the current administration.

3.1.2 Agree on Organizational Location of the GIS Office

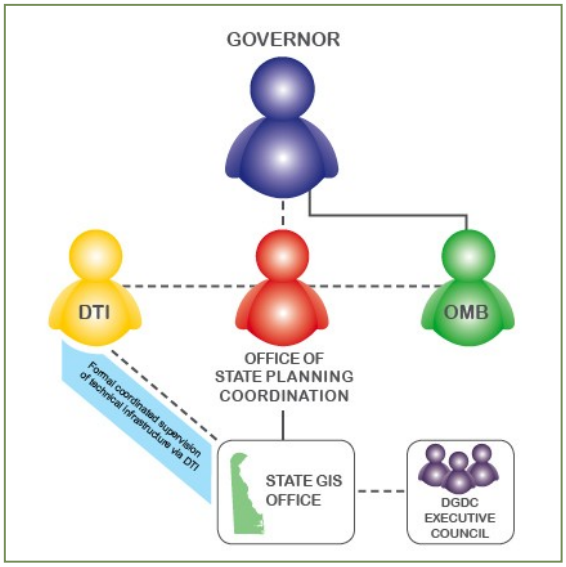
If the option of forming a new office is pursued, there are two leading options for where a Delaware GIS Office might organizationally reside.

1. **Department of Technology & Information (DTI).** The most common location for GIS Offices across the country is the equivalent of the DTI. This makes sense since geospatial activity is technology oriented and DTI already maintains this type of technology focus. In addition, DTI already provides support across multiple state agencies and maintains an "enterprise outlook". Similarly, DTI is currently engaged in implementing an eGIS Program and the Delaware Geospatial Data Exchange project. However, it must be recognized that while geospatial activity is technology *oriented,* statewide GIS administration also contains other critical non-technological components such as geospatial *data* administration and interagency *coordination* and collaboration.

   During this project this option was discussed with DTI Senior Staff, including the Chief Information Officer, Secretary Jim Sills. While recognizing the precedent from other states, the current DTI team prefers to view their role as supporting shared geospatial *technology infrastructure*. At present, DTI is not prepared to take on the additional data and human coordination roles that a statewide GIS Office would carry out.

2. **The Office of State Planning Coordination.** The Office of State Planning Coordination (OSPC) resides as an independent office within the Office of Management & Budget[8] (OMB) and could serve as a home for the GIS Office[9]. The OMB is already identified by statute (Title 29, Sub-chapter IV, Section 9141) as housing a person who is "assigned the role of State Geospatial Data Coordinator and [who] shall serve as the nonvoting Chair of the Executive Council of the Delaware Geographic Data Committee." Thus, this office provides a logical home for the GIS Office since OMB/OSPC already has linkages to the DGDC and is named in statute as being involved with geospatial activities. The Office of Management and Budget also includes the capacity to manage any data maintenance funds to be coordinated by the new Office. Finally, the Office of State Planning Coordination has significant linkages to local governments and academic partners who are important geospatial stakeholders.

Given DTI's reluctance to take on this type of office, the geospatial strategic plan suggested the Office State Planning Coordinating as the administrative home for the new GIS Office. The image to the right presents an organizational and governance model for this option.



3.1.3 Governance

The overall geospatial governance model for Delaware would not need to change radically with the development of a new GIS office. The Geographic Information Office would be within the Office of State Planning Coordination and would report to the State Planning Coordinator, operating under the guidance of the DGDC Executive Council. In this manner, the DGDC Executive Council would serve as a policy-setting body, and would act as "board of directors" to help the new GIS office determine statewide priorities in pursuing its mission. The GIS Office will work closely with and through the DGDC

[8] In Section 80 of the 2011 state budget submitted by the Governor, the Office of State Planning Coordination has (OSPC) was changed so that it reports directly to the Office of the Governor, with it "remaining in the Office of Management and Budget for structural and budgetary purposes".

[9] Rhode Island's 2-person GIS Office is situated within the Division of Planning within the Department of Administration.

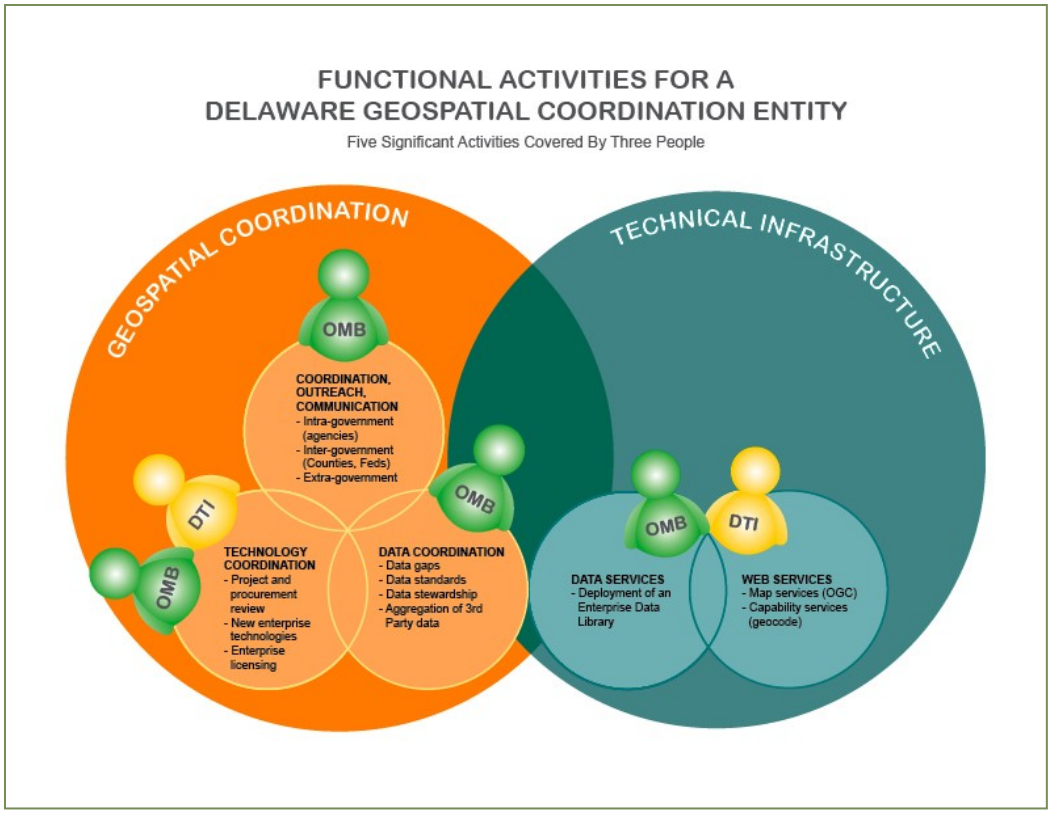
as a GIS user's group. Thus, the existing DGDC and DGDC Executive Council, will play important roles in ongoing coordination, outreach and communication.

3.1.4 Mission & Activities

The mission of the GIS Office can be characterized as follows:

> Managing and fostering the development and maintenance of a **statewide geospatial data infrastructure** and **enterprise geospatial technology platform**. The technology platform and data infrastructure will be available to, and utilized by *all units* of state government. The state's public geospatial data assets will be made available to the state's public and private sector partners and the general public.

The graphic below provides a *preliminary* overview of the **activities** that the new Delaware GIS Office would perform in order to fulfill this mission. This series of activities has been constructed based on the



assumption that the GIS Office would include only a small team of 3 people, with available assistance from DTI for technical infrastructure. The diagram below also identifies the activities in which DTI is expected to be involved.

The following provides a more detailed description of the specific activities that the GIS Office would carry out.

GEOSPATIAL COORDINATION ACTIVITIES

1. **Coordination, Outreach & Communication.** The GIS Office would help fill the gap between agency-specific missions and the need for coordination. The office would provide leadership for state agencies and active outreach to the state's partners and customers. Primary benefits would include leveraged investments that benefit all state agencies, reduced duplication, and stronger adherence to standards. Numerous other benefits such as increased public access to information would also result from a more coherent and strategic approach to investing in, and deploying GIS within state government. Three principal forms of outreach and coordination would be undertaken:

    - **Intra-governmental** coordination between state agencies
        - Shared funding of significant investments (e.g. statewide orthophotos)
        - Development of communal resources available to all agencies (e.g. statewide geocoding services)
        - Lower barriers to entry, and assistance to agencies commencing GIS for the first time
        - Removal of unnecessary redundancy
    - **Inter-governmental** coordination between the state and other levels of government (i.e. local government, federal government, neighboring states)
    - **Extra-governmental** coordination between the state and non-government institutions (e.g. private sector, utilities, non-profits, academia)

2. **Data Coordination.** Geospatial data represent the largest investments that state government has made in GIS infrastructure. Thus, it becomes key that existing data investments are widely available to all state government users and that future investments become well coordinated between agencies. Formal geospatial data coordination would help address many existing challenges and would provide several benefits that include:

- Facilitating common **access to the GIS data assets** of the enterprise (i.e., full deployment and maintenance of the Delaware Geospatial Data Exchange effort)
- Facilitating increased levels of **standardization** and quality for newly created data
- Catalyzing the development of **new data** – for example, improved statewide street centerline – to **fill existing data gaps** and to support agency business requirements
- Clarifying **data stewardship** and user expectations for data reliability and the frequency of data update
- Streamlining the process for collecting, aggregating and standardizing data obtained from commercial and/or **third party data sources** (e.g. parcels collected from counties; US Census data collected from the Federal government)

3. **Technology Coordination.** As described above, one of Delaware's GIS strengths is the strong departmental efforts that have matured over the past two decades in agencies such as DelDOT, DNREC, DGS and OSPC. These efforts represent a major knowledge base and some infrastructure that can potentially be leveraged beyond one agency to benefit the entire enterprise of state government. With new agencies just getting started with GIS, there is great potential for new adopters to learn from the technology leaders and to share baseline GIS infrastructure. However, this is less likely to happen without an explicit focal point for coordination.

   Similarly, several agencies may be exploring or investing in similar *new* technologies, such as mobile computing or GPS. When agencies make investments in identical, or similar, technology without coordinating with one another, redundant or incompatible investments may result. Active coordination provides an opportunity to reduce duplicated efforts and for agencies to benefit from the experiences and investments made by other agencies.

   A GIS Office can provide a holistic view of GIS related projects across multiple agencies. The GIS Office will perform and expedite *technology coordination* through the following activities:

   - **Project and procurement review** for geospatial activities that are above a certain dollar threshold (e.g., $50,000). The idea is not to provide an approval process, but

rather to help gain a holistic view of the state's GIS activities and investments and to identify synergies with other agencies that a project proponent might explore. This function might work in a manner similar to how some of DTI's existing committees – such as the Technology Investment Council (TIC) – operate[10]. Alternatively, the TIC might even perform this function with explicit input from the new GIO for geospatial matters. If this course is pursued, then DTI might consider having the Geographic Information Officer become a formal member of the TIC.

- **Planning and implementation of new enterprise technologies** that may benefit multiple agencies. Some of these activities may be matters of infrastructure such as a shared web service. In other cases, there may be planning for enterprise investments in applications – such as Automated Vehicle Location (AVL) – that may be required by more than one agency.
- **Pursuing enterprise licensing** for GIS software and commercial data sets.

TECHNICAL INFRASTRUCTURE FOR ENTERPRISE GIS FOR STATE GOVERNMENT

4. **Data Services.** One of the core roles of the GIS Office would be ensuring that there is a smooth and, when required, secure flow of data between state government agencies and also between the state government enterprise and other public and private sector partners. Delaware's data assets represent the State's largest GIS investments and ensuring that all parts of state government have access to these data will help the State derive the largest returns on its data investments. The current DTI Delaware Geospatial Data Exchange project provides a strong starting point to providing a data services infrastructure. The GIS Office would work with this infrastructure while pursuing the following activities:

    - **Deployment of an enterprise geospatial data library** that builds on the Delaware Geospatial Data Exchange project. This includes the management and maintenance of the technical infrastructure in association with DTI as well as **management of the *data holdings***. Data management activities include active outreach and coordination with data custodians and contributors and ensuring that all data are

[10] See http://dti.delaware.gov/information/committees.shtml#tic for further information on DTI oversight committees.

properly documented with metadata. The data library can be expected to hold several types of geospatial data:

- **State data** that is created and managed by state agencies
- **Federal data**, for example National Geodetic Survey control points, obtained from federal partners
- **Local government data**, collected, aggregated and standardized from county data sources
- **Commercial data** that is licensed to the state (e.g. the TeleAtlas road centerlines)

With an enterprise orientation for a geospatial data library, planning can commence on the long-term future of the Delaware DataMIL. With further enterprise infrastructure in place, there is the potential for the DataMIL to be more closely aligned with Geospatial Data Exchange and this could help to both modernize the DataMIL and consolidate the state's geospatial data publication and distribution capabilities.

- **Providing rich access to the geospatial data library** including both open access and secure access to sensitive data. Over time, this may involve working with the DGS on the future evolution and management of the Delaware DataMIL which could potentially become a part of the data library. In addition, over time the data library could be designed to become a formal NSDI clearinghouse node. Ultimately, the geospatial data library should be expected to provide the following types of access to the state's geospatial data assets:

  - **Network based access** for high performance connections from agency desktop systems
  - **Web mapping services** (see below) allowing web applications to gain access to map layers
  - **Data download** for public dissemination of data
  - **Data viewers** for providing visual access to data contents
  - **Data synchronization** services that would allow for the automated update of data sets that are maintained by agency, or partner custodians via technologies such as replication

5. **Web Services.** Geospatial web services can be broadly defined as relatively small network based applications that provide geospatial data, maps and discrete GIS functionality (e.g.,

geocoding) based on simple, standards-based (e.g. Open GIS Consortium[11] standards) application programming interfaces (APIs). Web services can be consumed by web sites, enterprise applications as well as by desktop GIS software. Web services offer the potential to provide GIS users across the state with the ability to easily access common geospatial data and basic GIS functionality with minimal amounts of hardware and software. Thus, web services are an efficient way of providing geospatial data access and are becoming an increasingly common element of statewide geospatial programs. Indeed, both DelDOT's INFORM and DNREC's EIS efforts currently employ geospatial web services.

The GIS Office might oversee the development and deployment of two types of geospatial web services:

- **Map and feature services:** In general, map and feature services are accessed via requests for data layers for a specific area (e.g. identified through a bounding box). Map services provide an image (e.g. JPG, PNG) depicting the requested layers. Feature services deliver the geometry of those layers, typically in a simple, standard format (e.g. GML). The Delaware DataMIL currently provides some of these services.
- **Geospatial capability services:** In general, capability services are accessed through requests, and return *data* to the requesting application. For example, a **geocoding service** would accept a request that included an address, and the service would deliver back to the application the "data" containing the latitude/longitude coordinate pair of the address. The following provides examples of other types of capability services beyond geocoding:
  - **Reverse geocoding,** i.e., a coordinate is provided and the nearest address is returned
  - **Mailing label production** from a set of selected parcels or set of address points
  - **Shortest path routing** between two points
  - **Point-in-polygon** to determine whether a given point falls within the border of a specified polygon

[11] See: http://www.opengeospatial.org for further information.

3.2 Inventory of Existing Infrastructure & Suitability Assessment

Creating the office is largely an administrative exercise and there are no major requirements for new technological infrastructure. Rather, the personnel will require office space in the parent agency, and appropriate computer and telecommunications equipment and connectivity.

3.3 Human Resource Requirements

As identified in the Geospatial Strategic Plan, ideally, the GIS Office would be comprised of three people with the following roles:

- **GEOSPATIAL INFORMATION OFFICER** (GIO): Would serve as the group leader and would be responsible for overall geospatial coordination in Delaware.
  Salary range: $70,000 - $90,000

- **GEOSPATIAL DATA MANAGER:** Would be responsible for the assembly and management of a statewide geospatial data library. The current project to develop the Delaware Geospatial Data Exchange will result in an infrastructure that could house this database. This person is anticipated to work closely with DTI staff who would manage the technical infrastructure. This person would fulfill the role of managing the data contents of that system, as well as the relationship with data contributors. See Appendix #2 for a more detailed job description for this role.
  Salary range: $55,000 - $75,000

- **GEOSPATIAL DEVELOPER:** Would provide application development and management capabilities to the team. Having this expertise in-house would lessen – but not necessarily eliminate - the reliance on contractors for application development and would enable this office to provide application support to agencies that are newly implementing GIS technology. When the workload is high and funding enables contractors to be involved, this person would serve as a resource in specifying the work for the contractors and assisting agencies in managing and providing quality control of the deliverables. This person would also help to administer the geospatial web services. This person would also work closely with the DTI personnel who manage the technical infrastructure.
  Salary range: $55,000 - $75,000

If it is not possible to create (or staff via reassignment) all three positions, it is probable that an initial team of two would be sufficient at the outset, and that a Geospatial Data Manager could be found who possessed some application development skills anticipated to be provided by the Geospatial Developer. Obviously, a smaller team would have more limited capabilities.

3.4 Budget Requirements

The table below, taken from the Geospatial Strategic Plan, summarizes the anticipated annual costs of creating a new, GIS Office through the creation of new positions. The estimates below Costs are presented as ranges.

Item	Low-cost	High-cost
Staff Salaries		
Geospatial Information Officer*	$88,739	$114,093
Geospatial Data Manager*	$69,724	$95,078
Geospatial Developer*	$69,724	$95,078
Staff Sub-total	**$228,186**	**$304,248**
Office discretionary budget	$10,000	$15,000
Data improvement budget	$50,000	$100,000
GRAND TOTAL	**$288,186**	**$419,248**

* Please note, cost estimates include the salary ranges from Section 3.3 above as well as the 26.77% state OEC rate.

3.5 Assessing Risk

There are several significant risks that must be accounted for and managed.

1. **Creating a new GIS Office involves fundamental change:** Delaware has been practicing geospatial technology for over two decades, and the capabilities and organization have evolved organically and incrementally. Creating a new GIS Office will be a major change, and there are really no incremental "half measures." Either this set of recommendations moves forward and the GIS Office is established in some fashion, or the status quo remains. If progress is not possible at this juncture, there will be a future need to address these issues, or a requirement to devise an alternative strategy.

2. **Maintaining state agency GIS support for this effort:** As documented, many state agencies are effective and self-sufficient practitioners of GIS. They may see some potential risks to new

players becoming involved. From their perspective, there may be less reason to fix something that is not perceived as being broken. Equally, and as documented, there are additional administrative and interagency complexities if new positions are not created and the GIS Office is created through the reassignment and/or federation of existing personnel. Regardless, it will be important to keep state agencies proactively informed and to seek their input and support for moving forward. If such an effort is to be successful, the DGDC Executive Council will need to take an active role in building and sustaining consensus, and in advocating for action.

3. **Short term costs, for longer term savings:** As with replacing the windows on an older home, this proposed program involves short term costs and investment to yield longer term savings and efficiencies. In spite of a long term return on investment, advocating for near term dollars within a tight fiscal situation can be difficult and there is some considerable risk that funding for this effort may prove elusive.

4 Implementation Phasing & Milestones

The timeline presented below is repeated from the Geospatial Strategic Plan and remains feasible in the context of this business plan. While this timeline is aimed at obtaining funding for the FY2012 budget, if required the schedule could be extended for one year to seek funding in a later fiscal year. Under that scenario, the activity titled "Work with Administration to sustain support for funding of new GIS Office as part of FY2012 budget" would likely need to be both broadened and extended. It would be extended for the full year leading to the FY2013 budget cycle, and it would be broadened to include:

- Work and advocacy with the current Administration
- Work and advocacy within the DGDC Executive Council
- Education and advocacy with the broader Delaware GIS community, including the DGDC

	2010			2011				2012			
Activity	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Finalize Geospatial Strategic Plan and begin education and advocacy for its recommendations											
Work with current Administration to include potential funding and language changes as part of FY2012 budget											
Work with Administration to sustain support for funding of new GIS Office as part of FY2012 budget.											
Establishment of new Delaware GIS Office						*					
Delaware GIS Office commences operations											

Memo

To: The Honorable Jack Markell, Governor

From: Constance C. Holland, Director, Office of State Planning Coordination

CC: Cleon Cauley
Mike Barlow

Date: 10/1/2010

Re: 2011 Policy Memo

The Office of State Planning Coordination respectfully submits this memo detailing our Land Use Agenda for Fiscal Year 2011. In order to implement the goals of your administration we propose to:

- **Make Government More Efficient and Effective** by coordinating local land use actions with State infrastructure and service delivery, largely through implementing the *Strategies for State Policies and Spending.*
- **Promote Economic Growth** by enabling a predictable and transparent land use review and permitting process and leveraging State and local investments in infrastructure.
- **Improve Educational Opportunities for Delaware's Children** by working with school districts and local governments to locate new schools in cost effective neighborhood settings in accordance with the *State Strategies* and local government comprehensive plans.
- **Improve the Quality of Life for Delaware Citizens** by creating complete communities rich in amenities and services, encouraging a range of choices for residence and businesses, and protecting natural resources and our agricultural economy.

In order to help you achieve these goals, we offer the following details of policies and programs to implement these ideals in FY 2011.

Section 1 – Governor's Agenda

- snip -

2. Establish a Geographic Information System (GIS) Office

This proposal would help meet the following of the Governor's goals:

a. Making Government More Efficient and Effective
b. Promoting Economic Growth
c. Improving Educational Opportunities for Delaware's Children
d. Improving the Quality of Life for all Delaware citizens

The state should establish a GIS Coordination Office to organize and make more efficient the use and sharing of GIS data and information important to state, county and local governments. This action is called for in the *Geospatial Strategic Plan for Delaware*[1] developed by a GIS coordination stakeholder group and based on national standards for state GIS coordination.

State and local government agencies depend on accurate and up to date geospatial data to guide economic development, land use planning, and resource management efforts. Government efficiency and effectiveness at all levels can be greatly improved by full coordination of these data sets; by all levels of government sharing data and supporting data development. State and local agencies now work together collegially on GIS data and projects. However, coordination and organization can be greatly improved by becoming more formally organized.

What is the problem this proposal is trying to solve? Delaware agencies have done well in creating and sharing GIS data and information as a collegial body, but this group lacks clear authority, a data maintenance budget, and the full-time staff needed to carry-out statewide, multi-agency projects and to work with DTI on the development of shared data and software infrastructure.

How will it be implemented? Create a GIS Coordination Office Executive Order. Assign an existing OSPC position the role of GIS Coordinator. Set the first task of the Coordinator as proposing changes to *Subchapter IV of 29 Del. Code, Chapter 91*[2] using information from the *Strategic Plan* and the business plan under development to meet the goals of that plan. The GIS Coordination Office would network with GIS staff in state agencies (and external stakeholders) to share data, information and tools. Add a GIS Coordination line to the state budget to support needed, shared data and GIS infrastructure projects, including:

- Regular updates of statewide aerial photography
- Regular updates of land use/land cover data
- Regular updates of statewide elevation data
- An Enterprise License Agreement to provide shared GIS software licenses broadly among state agencies

[1] http://stateplanning.delaware.gov/dgdc/strategic_plan/delaware_gis_strategic_plan_final.df

- A data catalogue site for publication of data sets and metadata

Because the data products and GIS infrastructure would be shared among many agencies, the GIS Coordination budget line should be funded by annual contributions from those agencies benefitting from the work of the GIS Coordination Office.

What is the fiscal impact? This office can be created and staffed without fiscal impact, but should be provided a small budget to support a phased, annual program of data maintenance.

What is the priority of this item? This is a high priority item and should be addressed in January.

What will stakeholders say? The main stakeholders (state agencies, county governments, UD and some private sector) have been part of a year's worth of discussion that has led to the *Strategic Plan.* This has laid the groundwork of support for a formal GIS Coordination Office.

- snip -

[2] http://delcode.delaware.gov/title29/c091/sc04/