PA State Geospatial Coordinating Board

2016 Annual Report

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SHARON P. MINNICH,
SECRETARY

Earlier this year the Commonwealth launched the State Geospatial Coordinating Board with an optimistic eye to the future. I would again like to congratulate all the board members on their appointments. It is quite an honor to be invited to serve. I would also like to thank the board members for their participation and dedication to the citizens of Pennsylvania. In an environment of scarce resources, it is our collective challenge to improve the business outcomes from geospatial capabilities.

Information about location supports a wide range of services and policy decisions in government operations. Everything happens somewhere. The characteristics of place and the needs of people, communities and businesses within places vary widely. For this reason, government has a particular need for quality geospatial information and wants to know its value to public service delivery and the wider public good.

The members of this board represent a variety of stakeholders and perspectives when it comes to geospatial technologies. At the same time, we need to be able to come together and work towards common goals. We must strive for coordination through collaboration. We want the work of this board to continue to be open to the stakeholders we represent and transparent to the people of Pennsylvania.

It was quite a year, all made possible by our extraordinary, engaged members and partners. Thank you so much for your support in so many ways.

Sharon P. Minnich
Pennsylvania Office of Administration

What is the GeoBoard?

Over the past decade state governments have recognized the need for more effective coordination of public investment into computer-based mapping data, systems, and activities. Computer mapping technology is also known as geospatial technology, or Geographic Information Systems (GIS).

In 2014 the Pennsylvania Legislature passed Act 178 establishing the State Geospatial Coordinating Board (GeoBoard) within the Office of Administration. The first GeoBoard meeting was held on March 7, 2016, with follow on meetings on April 29, September 12, and December 2, 2016.

GeoBoard Mission: Provide advice and recommendations to the Governor and the public on geospatial issues, uniform data standards, coordination and efficiency in geospatial policy, and technology across different sectors.

Key Success Factors: Sustainable funding, coordinated investment and prioritization, performance assessment, quantifiable outcomes.

Perhaps most importantly, the GeoBoard is where state and local governments, private industry, and non-profit organizations engage as equals to take advantage of opportunities that only exist because they are working together.

GIS is an integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes.

A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.
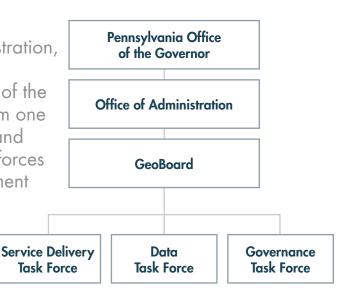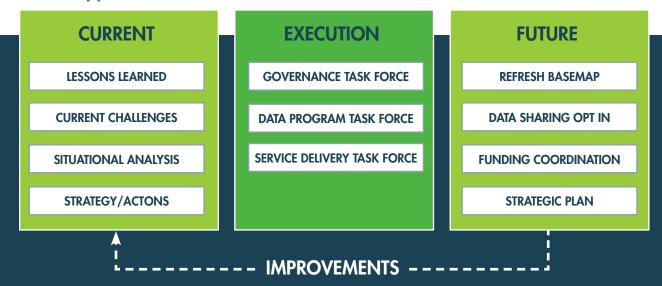
(Source: Wiki.GIS.com)

GeoBoard Composition

GeoBoard Organizational Structure

Coordinating directly with the Office of Administration, the GeoBoard supports overall administration, and three task forces, where the technical work of the board is completed. Task forces can elect to form one or more working groups to focus on key goals and objectives. Representatives comprising the task forces are drawn from local, county and state government agencies, academia, along with private sector professionals.

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Operational Approach

CURRENT	EXECUTION	FUTURE
LESSONS LEARNED	GOVERNANCE TASK FORCE	REFRESH BASEMAP
CURRENT CHALLENGES	DATA PROGRAM TASK FORCE	DATA SHARING OPT IN
SITUATIONAL ANALYSIS	SERVICE DELIVERY TASK FORCE	FUNDING COORDINATION
STRATEGY/ACTONS		STRATEGIC PLAN

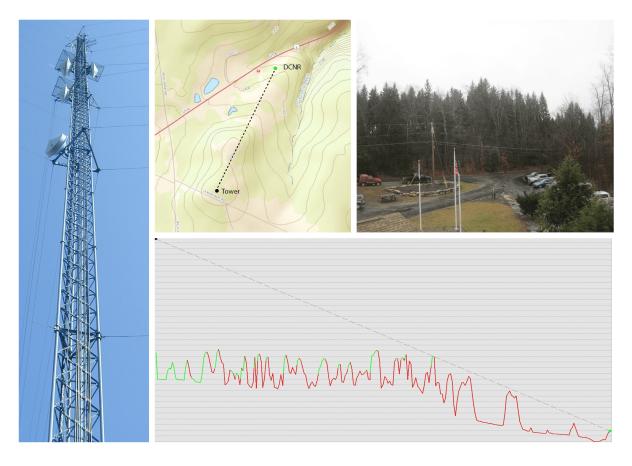- - - - - - - - - - IMPROVEMENTS - - - - - - - - - -

Overall Activities and Accomplishments

The GeoBoard met four times during 2016 with over 30 participants at each meeting, and made significant progress towards its initial goals and objectives. The GeoBoard drafted and formally adopted Task Force charters. Task Force meetings progressed monthly, and multiple joint task force meetings fostered successful horizontal communication and planning. A comprehensive questionnaire was distributed throughout the Commonwealth's GIS community from August 1-19, 2016 to identify key needs, information gaps, and to validate assumptions, resulting in more than 150 responses. The GeoBoard also made an outreach and education presentation at this year's PA GIS Conference in State College.

Early GeoBoard Success

Directly due to the GeoBoard's existence and coordination, and as part of the interagency coordination effort under the direction of the Public Safety Communication Council, the Department of Conservation and Natural Resources (DCNR), and the Pennsylvania State Police (PSP) have partnered to increase telecommunication bandwidth at two DCNR forest district sites. The collaborative cross-agency team leveraged GIS visibility analysis tools to identify a clear line of sight between PSP tower sites and DCNR field offices. GIS line of sight analysis was used to understand the visible and obstructed points in terrain which contain significant changes in elevation.

The Next Generation 9-1-1 (NG9-1-1) program dramatically enhances the ability for public safety agencies in PA to respond to emergencies. NG9-1-1 must rely on accurate GIS data to validate the location of an E911 call and route a dispatched emergency vehicle. The Pennsylvania Emergency Management Agency (PEMA) has overall responsibility to prepare for and enable NG9-1-1 in PA. The GeoBoard collectively has the GIS knowledge to support this objective. Direct and ongoing collaboration between PEMA and the GeoBoard accelerates the readiness for NG9-1-1 implementation.

Data Program Task Force

Mission

Identify initiatives and approaches that remove barriers to sharing geospatial data across the commonwealth and promote cost-effective approaches to data sharing driving operational efficiencies and value-add solutions.

Key Focus Areas, Challenges, Opportunities

Key Focus Areas:
1. Basemap for Authoritative Data Themes
2. Data Sharing Agreements
3. Ensuring that Existing GIS Clearinghouses and Services Promote Sharing

Challenges	Opportunities
No official basemap exists today that houses authoritative data layers	• Creation of an official basemap will ensure that work products are consistent across various entities. • Reduction of redundant efforts • Promotion of data standards
No single data sharing agreement exists between government entities within the commonwealth	• Encourage sharing • Simplify the task of open sharing of data • Save time and effort by allowing for one master agreement to be used commonwealth-wide
Do the current GIS clearinghouses (e.g. PASDA) meet the goals of facilitating data sharing in an effective and efficient manner?	• Review the capabilities of the existing clearinghouses • Perform a gap analysis between recommendations of the task forces and the capabilities • Consider financial benefits

Core Basemap Themes

#	Theme	Description
1	Transportation – Road and Rail Centerlines, Mile Markers	Represents the transportation network based on a line feature and associated attribute data.
2	Municipal Boundaries	Dividing lines between countries, states, counties, municipalities, and cities.
3	Landmarks	Any prominent natural or artificial object in a landscape used to determine distance, bearing, or location.
4	Hydrography – Catchment, NHD Area, Flowline, Schematics, Waterbody, Junction Points	Represents the drainage network with features such as rivers, streams, canals, lakes, ponds, coastline, dams, and stream gages. It also represent watershed boundaries.
5	Remote Sensing (Imagery)	Uniform-scale image where corrections have been made for feature displacement such as building tilt and for scale variations caused by terrain relief, sensor geometry, and camera tilt.
6	Elevation	Contours, digital elevations models (DEMs), and light detection and ranging (LIDAR)/SPOT data
7	Structures	A constructed item (e.g., building, tower, etc.) that can have an address assigned to it.
8	Land use	Defined as a series of operations on land, carried out by humans, with the intention to obtain products and/or benefits through using land resources.
9	Land cover	Defined as the vegetation (natural or planted) or man-made constructions (buildings, etc.) which occur on the earth surface. Water, ice, bare rock, sand and similar surfaces also count as land cover.
10	Geographic names	Information describing the location and attributes of things, including their shapes and representation. Geographic data is the composite of spatial data and attribute data.
11	Tax parcels/ assessment data	A representation of the boundaries of legal ownership of a single tract or plot of land or real property. It may or may not be spatially accurate.
12	Monumentation	Permanent marking of positions so that the location of the surveyed lands may always be definitely known.

Activities and Accomplishments

A basemap sub-task force was formed to begin defining the core basemap themes (e.g., transportation, political boundaries, hydrography) that become the focus of standardized data sharing within the Commonwealth. This unprecedented goal was collaboratively achieved by the GeoBoard's vote to approve the above core basemap themes table. A data sharing agreement sub-task force was formed to begin collecting and reviewing the diversity of existing data sharing agreements that are in use throughout the Commonwealth and by other states, with the goal to develop a single standard data sharing agreement for adoption Commonwealth-wide. The Task Force also attended and presented at various GIS events fostering discussion around data sharing.

Services Delivery Task Force

Mission

Evaluate how geospatial services are delivered today in the commonwealth, evaluate how other states and counties deliver geospatial services and identify recommendations for how geospatial services should be delivered in the commonwealth to maximize investments.

Key Focus Areas, Challenges, Opportunities

Key Focus Areas:

1. Identify existing challenges and formulate recommendations to improve the current environment
2. Assess existing center of excellence models to improve geospatial service delivery as cost effectively as possible
3. Establish a service delivery framework to improve geospatial service delivery in the commonwealth

Challenges	Opportunities
Limited data sharing across boundaries among state, counties, and municipalities	• Avoid redundant investments • Enhance cross boundary data exchange and interoperability
Ineffective data duplication and incomplete datasets	• Establish framework to share data • Expose new channels to better service and delivery effective data services • Recommend establishing core metadata standards for service offerings to facilitate the discovery of relevant data and increase usefulness and improve data equality
Data silos and information isolation	• Define Extract, Transform and Load (ETL) services that enable data stewards to update and maintain respective information • Explore Open Data initiative to enhance GIS capabilities to include services for public consumption

Activities and Accomplishments

A cloud services sub-task force was formed to research and evaluate technical capabilities and financial viability for cloud service providers that provide GIS services with the goal of maximizing public investments, driving innovation, and improving operational efficiency. The Task Force completed an assessment of existing service providers informing their efforts to develop decision criteria for a provider selection process. Ongoing research into and discussions with regards to existing centers of excellence proceeded throughout the year, as well.

*In August 2016, the GeoBoard questionnaire asked data consumers to identify services and service providers they commonly use and the word cloud above represents the summary of the response.

Governance Task Force

Mission

Document the geospatial governance process in the commonwealth (to include all governmental entities), establish a list of major priorities or initiatives to address the needs of the broader geospatial community, evaluate approaches to accomplishing initiatives within existing budget constraints, identify opportunities for collaboration to meet common objectives and coordinate activities across other geospatial governing bodies.

Key Focus Areas, Challenges, Opportunities

Key Focus Areas:

1. Assessment of key funding opportunities and a means to disseminate this information
2. Evaluation of the current state of GIS in PA
3. GIS Strategic Plan for PA that is concise, accessible and updateable on a regular/recurring basis

Challenges	Opportunities
Effective communication about GIS related initiatives and products	• Awareness of GIS activities • Initiative collaboration • Strategic focus to GIS efforts • Reduce duplication • Common datasets and applications repurposed for many needs
There is not a centralized assessment of the current state of GIS across the commonwealth	• Governance ineffective without a clear "state of the state" across all organization types • Potential for major impacts on key issues such as emergency response to natural disasters, impact assessments of natural gas development, cost effectiveness of GIS programs among many other benefits.
Budgets and funding are too limited in order to make major changes to GIS approaches in PA	• Planning and implementation of changes to PA's GIS infrastructure and management unattainable • For organizations to work collaboratively on a common data and services framework, resources will need to be outlaid to make that happen
Lack of consistent statewide standards for data and dissemination of relative services	• NG911 requirements • Data sharing across all levels of government • Services sharing and integration across all levels of government

Activities and Accomplishments

The Governance Task Force maintained a busy agenda focused on researching and assessing potential funding streams for geospatial investment. An initial GIS Governance Framework depicting the decision-making system guiding the GeoBoard was derived. Research and review of existing GIS strategic plans of other states was conducted, leveraging these precedents to define recommendations for PA's plan. Additionally, the Task Force coordinated with the Office of Administration to complete an open procurement for the services of an experienced Pennsylvania-based GIS consulting firm to develop the GeoBoard GIS Strategic Plan, which will guide the work of the board for the next three years and framework beyond that time period, a project now underway.

GIS GOVERNANCE FRAMEWORK

Definition: Specification of the decision rights and accountability framework to encourage desirable behavior in the use of Geographic Information Systems (GIS).

GIS PRINCIPLES
High level statements about how GIS is used in the organization

GIS Architecture	Business Applications	GIS Investment and Prioritization
Organizing logic for data, applications and infrastructure captured in a set of policies, relationships and technical choices to achieve desired business and technical standardization and integration.	Specifying the business need for purchased or internally developed GIS applications	Decisions about how much, where to invest, when to invest in GIS, including project approvals and justification techniques.
	GIS Infrastructure Centrally coordinated, shared GIS services that provide the foundation for the organization's GIS capability.	

Value of GIS

The value of GIS is Clean, Inexpensive Drinking Water
GIS allows environmental agencies to locate and resolve pollution sources, and utility companies to know where their underground infrastructure exists for quick repair.

The value of GIS is Fast Emergency Care
GIS assists emergency dispatch centers throughout Pennsylvania to efficiently send police, fire, and emergency services to the caller's location.

The value of GIS is Strong Economic Development
Local governments use GIS to attract businesses to Pennsylvania by its unique ability to integrate and visualize many types of information (e.g., building site specifications, transportation networks, skilled labor statistics, and customer details) facilitating business location analysis and marketing.

The value of GIS is Safer Roads
PennDOT uses GIS to optimize the routing of snow plows during snow events, as well as analyze accident data to inform roadway design and real-time notification improvements.

Looking Forward

2017 will witness substantial activity on the part of the GeoBoard as it seeks to accomplish several major tasks. The following list provides some of these upcoming activities:

- Complete the GeoBoard GIS Strategic Plan
- Supporting PEMA's upcoming remote sensing procurement preparation
- Identify authoritative spatial data layers and their stewards supporting the Core Basemap Themes
- Decide approach to resolving local municipal boundary discrepancies
- Define a single data sharing agreement that can be utilized throughout PA
- Determine a strategy for coordinated funding of statewide GIS programs
- Define the strategy for leveraging cloud-based services
- Implement the GIS Governance Framework
- Continue outreach and education at industry events

GeoBoard Membership

Many thanks to all the designees, alternates and volunteers who make the GeoBoard possible and successful.

Current Designee	Organization	Representing
John MacMillan (Chair) Commonwealth CIO	Pennsylvania Office of Administration	Secretary of Administration Sharon Minnich
Sean Crager (Vice Chair) CIO	Pennsylvania Department of Environmental Protection	Secretary of Environmental Protection Patrick McDonnell
Stephen Aux, CIO **Michael Bialousz**, GIS Director	Pennsylvania Department of Conversation and Natural Resources	Secretary of Conservation and Natural Resources Cindy Dunn
Jeff Thomas, Executive Deputy Director	Pennsylvania Emergency Management Agency	Director of the Pennsylvania Emergency Management Agency Richard Flinn, Jr.
Laine Heltebridle, Director, Bureau of Planning & Research	Pennsylvania Department of Transportation	Secretary of Transportation Leslie Richards
Matthew Bembenick, Chief of Staff	Pennsylvania Department of General Services	Secretary of General Services Curtis Topper
Danny Ramer, General Manager	City of Sunbury	Pennsylvania Senate, municipal authority
William Hunt II, Director of Planning and GIS	Potter County	Pennsylvania Senate, rural local government
Phil Colvin, Deputy Director, Emergency Management	Lancaster County	Pennsylvania House, county emergency management agency
Justin Klos, Director	Democratic Office of Demographic Analysis	Pennsylvania House, geospatial technology expertise
Kathi Cozzone, Commissioner	Chester County	Governor of Pennsylvania, County Commissioner
Matthew Warner, Geomatics Regional Service Group Manager	HRG, Inc.	Governor of Pennsylvania, Pennsylvania Society of Land Surveyors
Kenneth Juengling, GIS Manager	Pennsylvania Turnpike Commission	Governor of Pennsylvania, data development/sharing expertise
Barry Hutchins, Sr. Public Safety GIS Program Manager	Lycoming County	County Geographic Information Systems Professionals Association of Pennsylvania
Dave Gilbert, Senior Project Manager	GeoDecisions	Pennsylvania Mapping and Geographic Information Consortium
Erick Coolidge, Commissioner	Tioga County	County Commissioners Association of Pennsylvania

GeoBoard Membership

Howard Hodder, Director of Geomatics	HRG, Inc.	Pennsylvania Chapter of the Management Association for Private Photogrammetric Surveyors

Non-voting ex officio members		
Current Designee	**Organization**	**Representing**
Scott Hoffman, Geographer	United States Geological Survey	United States Geological Survey
Bill Kiger, President/CEO	PA One Call System, Inc.	Pennsylvania One Call System
Paul Metro, Gas Safety Manager	Pennsylvania Public Utility Commission	Chairman of Pennsylvania Public Utility Commission Gladys Brown
Andrew Shears, Assistant Professor of Geography	Mansfield University	Geographic Information System Consortium of the Pennsylvania State System of Higher Education
Craig Thomas, Field Engineering and Operations Manager	Chester County Water Resource Authority	Pennsylvania Municipal Authorities Association
Brian Traylor, Senior Planner	Wallace, Roberts & Todd, LLC	American Planning Association, Pennsylvania Chapter
Maurie Kelly, Director of Informatics and Senior Research Associate	Penn State University	Director of Pennsylvania Spatial Data Access
Adam Repsher, GIS Coordinator	PA State Police	Commissioner of Pennsylvania State Police

GIS In Action

For more information about the GeoBoard and its activities please visit us at:
http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx