Geospatial Coordination Strategic Plan For Pennsylvania

Prepared for:



With support from:





May, 2009

This document was produced by Applied Geographics, Inc. (AppGeo) under contract to the County Commissioners Association of Pennsylvania. This project was funded by a Cooperative Assistance Program (CAP) grant provided by the United States Geological Survey (USGS).

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Project Sponsored by:



Project Funded by:







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The authors would like to acknowledge the outstanding cooperation and input received from the entire Strategic Planning Steering Committee. Their direct and indirect contributions were essential to the successful completion of this document. With a complex environment and a challenging planning process, the entire team hung tough, and stayed together.

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Executive Summary

The Commonwealth of Pennsylvania has a long and rich history with geospatial technology and an active and vibrant GIS stakeholder community. Geospatial technologies are deployed in all levels of government and across many different departments. Academic institutions and private non-profit organizations utilize the technology on a routine basis and the state is served by a strong and engaged private sector that provides geospatial data and services. And, with the advent of GPS navigation and web-based mapping tools such a MapQuest or Google Earth the general public is both more aware of, and has higher expectations for geospatial technologies.

Given the large size of the state and the varied geospatial stakeholder community, coordinating geospatial activity has remained challenging. Across the nation, geospatial coordination has been recognized as valuable component of furthering goals such as:

- Reducing duplication of effort
- Capturing economies of scale in pursuing joint projects
- o Enhancing data access and sharing

Indeed, Pennsylvania has recognized this and has actively pursued geospatial coordination through a variety of existing non-governmental organizations such as the Pennsylvania Mapping and Geographic Information Consortium (PaMAGIC) which has been in existence since 1996. Even so, Pennsylvania remains one of only three states without a *formal* statewide geospatial coordination council that has a defined mission in spite of several unsuccessful efforts aimed at creating such a council. This strategic planning effort was designed to examine the specific needs for this type of council and to recommend a plan of action for creating a council.

This planning effort involved an open and inclusive process aimed at gaining direct geospatial stakeholder input on the need for and potential roles of a council. Toward this end, in the autumn of 2008 six geospatial stakeholder workshops – attended by over 150 stakeholders – were conducted across the state. Additional information gathering was achieved through an on-line survey and individual discussions and interviews. In addition, a multi-jurisdictional steering committee oversaw the strategic planning effort and helped interpret and organize the stakeholder input into a cohesive plan.

The end result is a plan that reflects extremely strong support for the creation of a council. For example, 70% of survey respondents "agreed" that a new geospatial coordination council should be formed. Further, existing geospatial organizations such as PaMAGIC have supported the idea of a new council. This plan presents a new vision statement for a new council:

Complex geospatial technology decisions and investments will be simplified and improved through open communications, collaborative efforts and unified planning.

In addition, based on input gained through the workshops and the survey, the steering committee helped to identify the primary roles that a new council would fulfill. These are:

- o Advocate for statewide geospatial initiatives and programs
- Generate and maintain a statewide geospatial strategic plan
- Advise on the prioritization of statewide geospatial initiatives and programs
- Advocate for **sustainable funding** for geospatial activity
- **Review and comment** on legislation with geospatial provisions
- Serve as the **focal point for statewide geospatial communication** and coordination

The plan goes on to identify an implementation path and a one year timeline for establishing a new council. This plan helps to document that the state has done its homework on council formation over the course of several years. It is now time to move forward to create the council.

1 Introduction & Statement of Purpose

The Commonwealth of Pennsylvania has long been an innovative and productive member of the broader national geospatial community. The Commonwealth has been an actively engaged member of the National Spatial Data Infrastructure (NSDI) for over twelve years, has broad-based geospatial activities at all levels of government, academia, industry, and the non profit sector, and has advanced initiatives in geospatial enterprise architecture and geospatial preparedness. From innovative programs in state and local government data development and geospatial data access, to an exceptional group of stakeholders in business, industry, academia, and the non-profit sector, Pennsylvania has a substantial depth and breadth of experience, knowledge, and capabilities.

The exponential growth in the use of, and need for geospatial technologies has created a broad range of interests and priorities that would benefit from greater communication and collaboration among organizations. With this in mind, the County Commissioners Association of Pennsylvania (CCAP), with support from members of a multidisciplinary Steering Committee (see below for details), applied for and secured a Cooperative Assistance Program (CAP) grant from the USGS, through the Federal Geographic Data Committee (FGDC) in the spring of 2008.

The overall purpose of this grant was to gather input from a broad range of geospatial information stakeholders throughout the Commonwealth to inform the development of a consensus-based mission and vision for a new, Statewide Geospatial Coordination Council. This input would help guide the activities of the proposed SGCC, define the goals and focus of initial work, and set priorities for the Council's first year. In order to achieve these goals, the County Commissioners Association of Pennsylvania issued a request for proposals to secure consulting support for development of the strategic plan. After a competitive process, Applied Geographics, Inc. (AppGeo) of Boston, Massachusetts was selected by the Steering Committee to support this effort.

One of the key reasons cited for the selection of Applied Geographics was their extensive experience with similar FGDC CAP funded strategic planning projects. In addition, the perspective of a firm that had worked with a broad range of states would provide a more comprehensive outside perspective and fresh, yet tested ideas. In addition, as a non-stakeholder in the Pennsylvania geospatial landscape an external consultant would have more objectivity than a Pennsylvania-based consultant. Ultimately, the focus was to listen, observe and learn from the rich Pennsylvania geospatial stakeholder community and to develop a plan that leveraged identified strengths, addressed existing weaknesses and properly reflected the priorities of the Steering Committee and the stakeholder community.

During the fall of 2008 a series of six stakeholder workshops was held across the state (see below for details) and this provided an extremely rich opportunity to directly hear the "state of geospatial" in the Pennsylvania. Through this process a recurring theme emerged of there being a void in geospatial coordination across governmental entities.

This theme was reinforced by the observation that in spite of many attempts, Pennsylvania remains one of only three states without a formal statewide geospatial coordination council¹. Through these reinforcing observations, and with direction from the Steering Committee, the emphasis of the plan evolved away from the original and broader GIS development and framework data topics and towards a very specific focus on the *coordination of strategic geospatial activities*.

2 Strategic Planning Methodology

2.1 Project Oversight

The recipient of the USGS/FGDC CAP grant for the geospatial strategic planning project was the County Commissioners Association of Pennsylvania. As such, the County Commissioners Association of Pennsylvania oversaw the procurement of consulting support services, assembled the multi-disciplinary Steering Committee and acted as the overall project manager.

While the County Commissioners Association of Pennsylvania managed the project activities, the development of plan was overseen by a broad-based, multi-discipline Steering Committee that included the following members:

Person	Agency	Sector
Melissia Hinton	County Commissioners Association of Pennsylvania	County Government
Barry Hutchins	Lycoming County Public Safety	County Government
Stacey White	Commonwealth of Pennsylvania Geospatial Technologies Office	State Government
Michael King	Legislative Office for Research Liaison	State Government
Eric Jespersen	Rettew Associates, and representing the Pennsylvania Mapping & Geographic Information Consortium (PaMAGIC) Board of Directors	Private Sector
Ashis Pal	geographIT Inc.	Private Sector
David Terrell	USGS	Federal Government
Maurie Caitlin Kelly	PASDA	Academia

During the course of the project the Steering Committee met periodically both in person and through conference calls. The goal was to ensure that the project was proceeding in a consensus oriented fashion and that there was general agreement about the direction of the project and the findings that were generated. In addition, the Steering Committee reviewed all written material and has agreed to accept the final content of this document. While this agreement represents the consensus of the committee as a whole, some differences of perspective across individual committee members may remain on specific points.

¹ Florida and South Dakota are the other two states.

2.2 Geospatial Stakeholder Information Gathering Workshops

A core element of the project was to reach out to GIS stakeholders across the state, listen to their experiences and gather their ideas for improved geospatial coordination in Pennsylvania. Towards that end, six **Geospatial Stakeholder Information Gathering Workshops**² were conducted during the fall of 2008:

- September 15: Clarion County
- September 16: Westmoreland County
- October 7: Cumberland County
- October 8: Lycoming County
- November 12: Carbon County
- November 13: Chester County

In general there was excellent turnout with an overall attendance of 154 people across the six



sessions. In addition, state agency personnel participated in their own workshop via the Geospatial Technologies Steering Committee meeting of October 10, 2008, which addressed many of the same topics independently. The table below illustrates, there was a representative distribution of participation across stakeholder sectors in the six project sponsored workshops:

	Clarion	Westmoreland	Lycoming	Cumberland	Chester	Carbon	TOTAL	%
Academic/Education		1		4	1		6	4%
City/Town Government		1		1	3	2	7	5%
County Government	12	11	14	17	7	8	69	45%
Federal Government			1	1	1	1	4	3%
Private Non-profit		2		2	1	1	6	4%
Private Sector	2	7	2	11	7	5	34	22%
Regional Organization	3	1	1	3	3	1	12	8%
State Government	2	1	3	8			14	9%
Utility Company	1					1	2	1%
TOTAL	20	24	21	47	23	19	154	100%

² The workshop invitation and the PowerPoint presentation material are found in Attachment #1.

Please note that some individuals attended more than one workshop, and for the purposes of the table above, all such instances were counted (i.e., there was no effort to adjust the statistics). The charts below provide a further illustration of breadth and depth of stakeholder participation across the state.



2.3 Survey

During the spring of 2009 an on-line survey was deployed in an attempt to gain further stakeholder input on forming recommendations and priorities for the strategic plan. The survey attempted to gather information in four categories:

- 1. Characterizing the survey respondent and their organization
- 2. Characterizing the utilization of geospatial technology in the respondent's organization
- 3. Identifying the benefits to the organization of geospatial technology
- 4. Soliciting ideas, opinions and prioritization of potential roles for a statewide geospatial coordination council

The web link to the survey was sent to a variety of GIS mailing lists, including the invitation list used for the stakeholder workshops described above. The final response to the survey was modest³ with 47 being the highest number of responses to an individual question. While the survey was not statistically controlled and does not represent a scientific sample, it did provide a useful, qualitative glimpse into stakeholder opinions on geospatial matters in Pennsylvania. The principal use of the survey in the preparation of this document was the strong validation of a need for a statewide geospatial coordination council and the creation of a preliminary ranking of potential council roles (see Section

³ Please note that state government participation in the survey was intentionally limited to one response. The Geospatial Technologies Office determined that its response would represent state government and the survey link was not distributed more broadly to state government employees.

4.4). The summary results from the survey, across all questions, are presented in Attachment #2.

2.4 Plan Authoring

Following the completion of the workshops, a written summary of each workshop was prepared that described the discussion and key observations. These workshop summaries are found in Attachment #3. As described earlier, observations from the workshop discussions helped focus attention on issues of geospatial coordination. Similarly, the workshop discussions also helped identify the material that is presented below in Section 3.4 (i.e., Strengths, Weaknesses, Opportunities and Challenges).

Following the preparation of these summary materials the project team and the Steering Committee worked together to interpret these observations and to craft the vision and recommendations that are presented in Section 4 (i.e., Vision & Goals). The result of these efforts is this Geospatial Coordination Strategic Plan.

3 Pennsylvania's Current Geospatial Situation

3.1 The Stakeholder Community

Pennsylvania has a rich and diverse geospatial stakeholder community that includes, but is not limited to:

- Strong **state government** GIS programs in many agencies. The Commonwealth has also identified the Geospatial Technologies Office (GTO), within the Office of Administration whose mission includes "coordinat(ing) Executive agency and enterprise geospatial initiatives, and facilitat(ing) geospatial...data sharing across all levels of government...".
- GIS programs in the large majority of **counties.** County activity is represented by the formation of the County GIS Professional Association (County GIS Pros) whose stated objective is "to promote excellence in the deployment of Geographic Information Systems in county government" that includes the maintenance of a "locally independent, but regionally coordinated approach to…enterprise-wide GIS".
- Increasing volume of GIS programs in **local governments** (cities, townships, boroughs)
- Strong **private sector community** that has formed the nation's first state chapter of the geospatial trade organization the Management Association for Private Photogrammetric Surveyors (MAPPS).
- Active and engaged **academic community** within both public and private colleges and universities
- Strong **private non-profit** GIS presence. These non-profits include conservation organizations, human services organizations, artistic and design groups and workforce and economic development organizations. Many of these organizations have been supported in the GIS efforts by grants from state and federal agencies.
- Strong and active **Pennsylvania Mapping and Geographic Information Consortium** (PaMAGIC) that dates back to 1996. PaMAGIC is a volunteer, nonprofit organization whose stated mission is "to provide leadership, coordination and guidance to enhance the development, use and access to spatial information and related services".

3.2 Where are we now?

A number of factors have brought Pennsylvania to a watershed moment for addressing broader geospatial coordination. These factors include:

- Increasing **public awareness** of GIS through GPS-based navigation of cars and boats, election reporting and the popular use of tools such as MapQuest or Google Earth.
- A **long history** of geospatial activity dating to the early 1980's.
- A **strong geospatial data clearinghouse** in the form of the Pennsylvania Spatial Data Access (PASDA) operation that readily makes public geospatial information accessible to the general public.
- Active and engaged organizations such as PaMAGIC, PA chapter of MAPPS and County GIS Pros aimed at promoting and coordinating GIS activity.

Nevertheless, the state has also had recent setbacks in the development of a coordinated, statewide spatial data infrastructure for the Commonwealth, including:

- Government-wide funding stresses emanating from the economic downturn that have impacted geospatial programs at all levels of government.
- The elimination of funding for Pennsylvania's innovative statewide base mapping program, PAMAP, before all statewide LiDAR derived deliverables were produced.
- The failure of numerous efforts to create a statewide geospatial coordinating council; most recently the inability of House Bill 1304 to get out of committee.

While a good deal of effort and positive energy has gone into geospatial coordination, there is also some building frustration at the rate of change, and the failure to make substantive progress such as the formation of a formal statewide geospatial coordinating council. Ironically, the large number of entities that are cooperating and coordinating their geospatial activities can also be viewed as a factionalization of coordination. Through this lens, the proliferation of organizations might actually be reflective of a void in a recognized, statewide, cross-governmental focal point for geospatial coordination.

This strategic planning exercise provides the Commonwealth an opportunity for setting a common vision and substantive goals for the future of statewide geospatial coordination in Pennsylvania. The broad vision of improved geospatial coordination should further the goals of:

- Promoting coordination, cooperation and communication on geospatial topics
- Maintaining respect for the necessary independence of many public and private GIS programs
- o Coordinating project efforts to seize economies of scale
- Fostering best practices, standards and information sharing

3.3 GIS Development Status

3.3.1 Relative to "Successful Statewide GIS Program" Criteria

The following table presents an assessment of Pennsylvania's current GIS status using the National States Geographic Information Council's (NSGIC) "Nine Criteria for a

Successful Statewide GIS program". Please note that this assessment presented below *differs* from the NSGIC "self reporting" of status by state government⁴. The intent of this assessment is to simply provide the "big picture" of Pennsylvania GIS, not to offer a standardized NSGIC score. The table below provides an overview assessment that reflects observations made through the stakeholder workshops and focuses on the broader GIS community, not just state government. Several of the individual criteria are elaborated on further below the overview presented in the table.

Criterion	Status	Status Description
1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans.	MEETS	The commonwealth has a full-time paid coordinator. However, the position only has responsibility for activities within state government.
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.	PARTIALLY MEETS	There is no formal statewide GIS/GT coordination outside of state government. Authority does exist to coordinate state government GIS/GT investments. This is done through the Geospatial Technologies Office (GTO).
3. The statewide coordination office has a formal relationship with the state's Chief Information Office (CIO).	MEETS	The GTO falls under the Commonwealth CIO's office. However, GTO only has responsibility for state agencies.
4. A champion (politician, or executive decision-maker) is aware and involved in the process of geospatial coordination.	PARTIALLY MEETS	Many different parties champion geospatial coordination, but no clear leadership has emerged nor been recognized as a definitive champion.
5. Responsibilities for developing the National Spatial Data Infrastructure (NSDI) and a State Clearinghouse are assigned.	MEETS	The state has an extremely effective clearinghouse through PASDA. However, development of a broader SDI is not yet occurring consistently from one fiscal year to the next.
6. The ability exists to work and coordinate with local governments , academia, and the private sector.	PARTIALLY MEETS	There is no formal mechanism for this across all sectors in Pennsylvania. However, much is accomplished voluntarily and collaboratively. In addition, the PAMAP program provides a formal interaction between state and local governments.
7. Sustainable funding sources exist to meet project needs.	DOES NOT MEET	Beyond maintaining PASDA there are no funds available to continue the development of a coordinated statewide SDI.
8. GIS Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.	MEETS	The state GTO office is a formal part of state government and can receive grants and perform contracting.
9. The Federal government works through the statewide coordinating authority.	PARTIALLY MEETS	The federal government, through its USGS liaison, has the ability to actively coordinate with individual state agencies. State/Federal coordination is not yet universal across either state, or federal agencies.

⁴ Pennsylvania's self-reported scoring can be accessed at the following page on NSGIC's web-site: <u>http://www.gisinventory.net/summaries/</u> (Click on Pennsylvania via the map, then go to 2 of the PDF file that is delivered and see the "Scorecard for the 50 States Initiative").

Criteria 1, 2, and 3, *Formal Coordination Mechanisms:* The Geospatial Technologies Office (GTO) within the Office of Administration, does have a full-time, paid coordinator in the GTO Director. The GTO, which falls under the State CIO's organization, was established through Executive Order 2004-08 and is charged with "Coordinating Geographic Information System (GIS) Geospatial Technology (GT) investments." While GTO works cooperatively with many organizations outside of state government, its authority and scope currently involves only formally coordinating GIS/GT investments within state government. So, while there is significant "formal" coordination of state government in GIS/GT, and while there is interaction and cooperation among and between state government and other Pennsylvania geospatial entities, there is no "formal" or "institutionalized" statewide coordination of geospatial activities across all sectors: state government; federal, county and municipal government; business and industry; non-profit organizations; and academia.

Criteria 4, *The Champion:* The table entry states that "*Many different parties champion geospatial coordination, but no clear leadership has emerged nor been recognized as the champion.*" Pennsylvania has many "champions" for GIS, and for the coordination of GIS activities. But there has not emerged a single person or entity, with adequate influence that has assumed strong, active leadership for further statewide coordination and SDI development. It may be that the Pennsylvania geospatial community is simply too complex to be able to collectively accept a single entity or person as its champion. What is clear from the survey and the stakeholder meetings is that Pennsylvania's many existing champions believe there is benefit in being organized into a coordinating entity that can, among other things serve as the state's geospatial champion.

Criteria 5, *The Clearinghouse:* The table entry states that "*The state has an extremely effective clearinghouse through PASDA. However, development of a broader SDI is not yet occurring consistently from one fiscal year to the next.*" PASDA is envied nationally as a data repository. As Pennsylvania's official spatial data clearinghouse and as its node on the National Spatial Data Infrastructure (NSDI), PASDA continues to add broad benefits. That said, PASDA survives based on an annual contract with the GTO and does not have a long-term, sustainable funding commitment. The complete Pennsylvania spatial data remains siloed in other locations – state agencies, county and municipal governments, colleges and universities, and others. In order for PASDA (or any other organization) to effectively "connect" the entire Pennsylvania SDI, it will need resources to not only to sustain current operations but also to further grow its data holdings, including active outreach to additional data custodians who do not yet participate in data sharing. PASDA cannot do all of these things at current funding and staffing levels.

Criteria 6, *Coordinating with Other Sectors:* The statement in the table is: "*There is no formal mechanism for this [coordination] across all sectors in Pennsylvania.*" As observed above, it should be restated that GTO works cooperatively with many organizations outside of state government on a voluntary basis and it is *not* precluded from pursuing further collaborative, multi-jurisdictional efforts. However, given resource limitations and other factors its coordinating focus remains limited to state government activities.

Criteria 7, *Sustainable Funding:* The table entry states that "*Beyond maintaining PASDA there are no funds available to continue the development of a coordinated statewide SDI.*" It should be clarified here that while PASDA's funding has been generally sustained in recent years (with some modest budget reductions), there is no guarantee of long term sustainable funding for PASDA or any other geospatial program. As was the case with PAMAP during the past year, PASDA's funding can be reduced in future budget cycles.

Criteria 9, *Coordinating with the Federal Government:* The federal government through its USGS liaison has the ability to coordinate with individual state agencies. The USGS liaison has in the past, and continues to support and promote geospatial coordination across all sectors of the Pennsylvania geospatial community. For instance, the USGS liaison has been encouraging the establishment of a coordinating council for many years. Another example of positive coordination has been the fact that USGS and other federal government agencies have invested in the state's SDI by supplying significant funding for the completion of PAMAP cycle 1 orthoimagery and LiDAR. That said, it should also be observed that coordination with the federal government is not necessarily universal or comprehensive. The USGS liaison does not represent all federal agencies and indeed there are opportunities for the federal government to improve its coordination with the states to cover a broader range of federal organizations and interests.

3.3.2 Status of 7 Framework Data Layers

The table below, and the accompanying narrative, provides a summary of the status of development of the National Spatial Data Infrastructure's (NSDI) seven statewide framework data layers for Pennsylvania. Please note that this is a high level summary and both the stakeholder community and the steering committee have identified an interest in, and a need for more detailed information on framework data status, including specific data availability at the county-level:

Layer	Data Custodian	Accuracy/ Resolution	Status
Geodetic Control	PENNDOT Counties	"A-orders" specify horizontal positional tolerances of 5 mm + 1:10,000,000 of the observed base line. "B-orders" specify horizontal positional tolerances of 8 mm + 1:1,000,000 of the observed base line, respectively.	Generally static – with some expansion by some Counties
Elevation	DCNR / BTGS	Hi-resolution LiDAR derived The data is collected with a1.4-meter average point spacing (2-meter maximum) with a bare earth surface vertical accuracy of 18.5-centimeters RMSE.	Approximately 80% complete for statewide elevation capable of producing 2 foot contours. No future funding for completing the remaining 20% or for updates.
Cadastral	Counties	This is highly variable among counties but digital files of parcel geometry are most reliably used at scales <1":1200"	Incomplete, although the majority of counties have parcel data layers. Ongoing development by individual Counties. Maintenance by counties is a function of law.
Hydrography	PA DEP / Counties	Developed at 1":24,000". Local resolution NHD is being developed where partners and data exist.	The USGS National Hydrography Database (NHD) is generally used. PA DEP is the data steward working with USGS on NHD and there is some local updating being done by some Counties.
Political Boundaries	PENNDOT / Counties	Intended for use at 1":24,000" or smaller. Digitized from sources conforming to National Mapping Accuracy Standards for 1":24,000" scale maps.	Although political boundary data exists, its accuracy is often incompatible with accuracy of other base layers. PENNDOT is responsible for PA House, PA Senate and US Congressional district boundaries, and maintains the statewide municipal boundary layer. Some local updating is being done by some Counties.
Transportation	PENNDOT / Counties	Digitized from sources conforming to National Mapping Accuracy Standards for 1":24,000" scale maps. Updates and maintenance completed from orthos where available. Estimated accuracy is +/- 100 feet	Ongoing development at PENNDOT and some Counties. Address ranges and other attribution highly variable by County
Orthoimagery	DCNR / BTGS	All imagery with the exception of the 2003 data is 1:2400 scale, 1-foot pixel resolution, color data. The 2003 data is 2-foot pixel resolution.	One statewide cycle (2003-2007) completed as part of PAMAP program but no funding for future re-flights to complete planned 3-year update cycle.

The following provides further details and a few clarifications to the summary table provided above:

1. Geodetic Control: PENNDOT maintains the Photogrammetry Asset Management System (PAMS) to provide access to PENNDOT imagery and NGS horizontal and vertical controls. As of March 2007, only seven counties were adding monumented controls to that system. In addition, PENNDOT and others within Pennsylvania collaborate with the National Geodetic Survey (NGS) in operating a network of continuously operating GPS reference stations (CORS)⁵. The CORS network can be used by the GIS and surveying communities to improve the accuracy of GPSbased measurements. Last, there is an emerging recognition across many agencies that Pennsylvania would benefit from a Height Modernization Project. While the need is recognized, such an effort has not been funded.

2. Elevation: Between 2006 and 2008 the first cycle of lidar data collection was completed by the PAMAP program. Unfortunately, funding to complete the processing and delivery of LiDAR derived elevation products from the 2008 acquisition was not appropriated, leaving the eastern one third of the state with no processed PAMAP elevation data products. The funding problem may resolve itself for the 2008 data, as there is active work to assemble funding from a variety of sources to complete the 2008 processing.

3. Cadastral: Land parcel boundaries and property assessment data collection and compilation are functions of county government in Pennsylvania. There is no statewide parcel dataset at this time and none is anticipated in the near future. As of March 2007, only 43 of 67 Pennsylvania counties had parcel layers developed. Seven others have their layers partially developed and another three have plans for future development.

4. Hydrography: Most users in Pennsylvania use the National Hydrography Dataset (NHD) as their GIS hydrography layer. As of March 2007, only seven counties were making systematic improvements and upgrades to the NHD.

5. Political Boundaries: GIS boundary files of Pennsylvania's 2,563 municipalities and 67 counties have been compiled by PENNDOT and can be considered "legacy" boundaries passed on from a non-digital lineage. High resolution orthoimagery, GPS based surveys, and public awareness has revealed many inconsistencies and errors in the statewide boundary dataset. A few counties are investing in research to correct these problems but for most of the state the legacy boundaries and inconsistencies with more current and accurate base map layers persist. The existing digital boundaries are not based on legal descriptions.

⁵ Further information on the CORS network, including access to a map showing the location for Pennsylvania's CORS stations can be found at: <u>http://www.ngs.noaa.gov/CORS/</u>

6. Transportation (roads/highways): PENNDOT has built and maintains statewide road centerlines for Pennsylvania. This layer is generally complete but lacks the precision needed for large scale mapping (1":1,200" and greater) by counties and municipalities. Attribution of the centerline files do <u>not</u> include address ranges and are therefore not suitable for EMS and 911 applications. Many counties across the state are engaged in building more precise and more fully address attributed datasets to facilitate EMS and 911 applications. Quantifying the status and availability of high quality, county-based road data sets is of great interest to emergency response community and several of the Regional County Task Forces that were established to coordinate counter-terrorism planning are actively investigating county data availability.

7. Orthoimagery: The PAMAP program administered by the Bureau of Topographic and Geologic Survey within the Department of Conservation and Natural Resources, is Pennsylvania's innovative model for a statewide high-resolution orthoimagery program. The program originally included a recurring aspect that would update the base map on a rolling three year basis. Between 2003 and 2007 the first cycle of statewide orthoimagery was completed and the second cycle was commenced with new flights in the spring of 2008. Unfortunately, due to the elimination of the PAMAP budget, no new imagery was flown in spring 2009 and none is scheduled for the foreseeable future. While the statewide effort has been suspended, other regional or county-based efforts may continue to produce additional imagery for their own needs. Similarly, there are several older county/regional data sets (e.g. SEDA-COG's 1995 imagery) that remain available and are useful change detection and planning.

3.4 Strengths, Weaknesses, Opportunities & Challenges

The following strengths, weaknesses, opportunities and challenges were largely gathered through the **direct input** received during the stakeholder workshops (see Attachment #3). Additional observations were gathered from **Steering Committee deliberations** and through the **direct interactions of the consultant** with various participants in this process.

In addition, the Commonwealth's Geospatial Technologies Office (GTO) performed its own strength, weakness and opportunity assessment that was captured in the meeting minutes from the Geospatial Technologies Steering Committee meeting of October 10, 2008. These meeting minutes were provided to the consultant and are available in their entirety in Attachment #4. This was necessary since the direct involvement in the geospatial stakeholder workshops by state government employees was discouraged by the GTO. Instead, as with the survey, the GTO elected to have all state government input consolidated and provided to the project team via the GTO. Thus, in addition to the consultant's synthesized observations from the workshops, the strengths, weaknesses and opportunities sections below includes a summary of state government's perceived strengths, weaknesses and opportunities as recorded by the GTO's complementary efforts and through the meeting minutes.

3.4.1 Strengths

1. Innovative and successful statewide base mapping program: PAMAP

As originally envisioned, the PAMAP program⁶, administered by the Bureau of Topographic and Geologic Survey within the Department of Conservation and Natural Resources, provided an innovative model for a statewide base mapping program. Not only was initial, statewide coverage of high quality orthoimagery and topography envisioned, but the program included a recurring aspect that would update the base map on a regular 3-year basis. In addition, there was an explicit, built-in data sharing component between state government and county partners.

Between 2003 and 2008 the first cycle of statewide orthoimagery was completed and the second cycle was commenced. In addition, the first cycle of



topographic data collection (using LiDAR techniques) was completed. Unfortunately, funding to complete the processing and delivery of LiDAR derived elevation products from the 2008 data acquisition was not appropriated, **leaving the eastern one-third of the state with <u>no</u> PAMAP elevation data.**

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2. Robust spatial data clearinghouse: PASDA

The PASDA data clearinghouse⁷ house at Penn State University has provided an extremely valuable and widely used capability since 1996. Funding to operate PASDA is provided via the Commonwealth's Geospatial Technologies Office (GTO) and through other University resources. PASDA provides data access and distribution for literally thousands of geospatial data sets covering Pennsylvania including all PAMAP products. During the workshops PASDA was given universal praise for the depth of its holdings and its level of service.

To give a sense of the scope of utilization, PASDA reports that **19 terabytes** of data were downloaded

⁶ See <u>http://www.dcnr.state.pa.us/topogeo/pamap/index.aspx</u> for further details on the PAMAP program.

⁷ See <u>http://www.pasda.psu.edu/</u> for further details on the PASDA clearinghouse

from its servers in the year spanning November, 2007 through October, 2008.

PASDA provides a variety of mechanisms for accessing geospatial data including:

- FTP download
- o Web services consumption
- Hosted applications (e.g. Pennsylvania Navigator)

3. Passionate and active geospatial professional community

As described above, Pennsylvania possesses an extremely large and diverse GIS community. This community has shown a willingness to be actively engaged in communication and learning that has spanned decades. Specific examples of this level of engagement include:

- PA GIS Conference has been well attended and held annually since 1993. Attendance for the 2007 and 2008 conferences exceeded 325.
- Regional GIS Conferences in both Western Pennsylvania (2006-2008) and Southeastern Pennsylvania (2008) with attendance exceeding 150 people for each event.
- Information dissemination workshops sponsored by organizations such as the County Commissioners Association of Pennsylvania, Pennsylvania Association of Township Supervisors (PSATS) and County GIS Pros to promote GIS knowledge sharing amongst their constituencies.
- Periodic geospatial technology and policy seminars on topics such as remote sensing, LiDAR, and GIS Policy

The geospatial stakeholder community's strong participation in this strategic planning exercise stands as a further example of the community's level of engagement.

4. Summary of <u>State Government</u> observations on strengths

The following bullets provide a paraphrased summary of state government's perceptions of the Commonwealth's geospatial **strengths**:

- DCNR's PAMAP Program for base mapping
- PA Spatial Data Access (PASDA) for public data dissemination
- Established geospatial standards
- The availability of 2 ESRI Certified Trainers within state government
- Many established GIS data gatherers and data stewards, especially at the state and local government levels
 - Large variety of GIS data assets have been created by state government
- State government securely house GIS data and securely delivers GIS data services
- Strategic redundancy is provided for GIS data assets

- State Government computing power and data storage can be leveraged for GIS purposes
- Useful resources are available across the enterprise as service offerings, including:
 - TeleAtlas North America (TANA) Enterprise License Agreement (ELA) for street centerline data
 - ArcGIS Desktop capabilities delivered via a shared pool of licenses and Citrix
 - Enterprise web service offerings that include: geocoding, address verification, boundary geocoder

3.4.2 Weaknesses & Challenges

1. Size of the Commonwealth and large number of governmental units to coordinate

With 67 counties and over 2,500 cities, townships, and boroughs in Pennsylvania, the act of coordinating anything – including geospatial – is made inherently more complex and time consuming. Simply put, there are a large number of entities to coordinate and thus the resources necessary for coordination are greater. Many jurisdictions (e.g. counties) have concerns about losing control, autonomy, liability, revenue and absorbing unfunded mandates. Higher levels of trust across sectors need to evolve to facilitate broader coordination and cooperation.

2. Loss of funding for PAMAP program

In spite of the program's successes (described above), the PAMAP budget has been entirely eliminated, causing an indefinite suspension of the orthoimagery and elevation programs. While the current economic downturn has impacted geospatial programs at all levels of government, the complete cessation of PAMAP funding before the completion of the statewide elevation products is of particular concern. While suspending or postponing the "cycle 2" activities may make sense in this fiscal climate, cancelling the production of statewide deliverables from cycle 1, that were 90% complete⁸, makes no sense.

In light of PAMAP's record of success, national recognition for innovation, the utility of the data to both state and local governments and a broad constituency of data users, the level of budget cuts remains both disappointing and surprising. And thus, it is fair to speculate whether the existence of an improved, statewide coordination mechanism that could have spoken with a strong and cohesive voice might have provided more effective advocacy for the preservation of some level of PAMAP funding.

⁸ The missing elevation products derived from the raw LiDAR data cover the counties in the eastern onethird of the state (i.e., the 2008 acquisition area). The PAMAP team is actively pursuing a variety of sources, including Federal funds (from USGS and FEMA), to make up the shortfall and complete products for the eastern counties. However, as of April 30, 2009, these resources have not all been secured.

3. Autonomous initiatives have not been coordinated into a statewide spatial data infrastructure

A great deal of excellent data development work has occurred in counties, local governments, state agencies, commissions, and other entities over the years. As described above, PASDA serves as an invaluable repository for disseminating many of these data on behalf of the Commonwealth. Beyond PASDA, however, the development of a broader statewide spatial data infrastructure (SDI)⁹ encompassing multiple levels of government with more integrated functionality and broader data sharing has not yet occurred. While the complexity of the commonwealth and the overall lack of statewide, inter-governmental coordination has hampered efforts, there remains great potential. Effort needs to be devoted to better explaining the apparently unclear value-proposition of a more integrated statewide spatial data infrastructure for individual entities.

4. Organizational competition within state government

Intergovernmental competition and turf wars have hampered progress and have hindered state government efforts to speak with "one voice" on geospatial matters. Those state agencies that have used geospatial technology the longest and make the most use of it possess significant technical expertise and are accustomed to working independently. In effect, these agencies (or individuals within these agencies) may, at times, resist being "coordinated." This phenomena is not unique to Pennsylvania and indeed in many states there can be tension between geospatial coordinating entities that may be relatively small in comparison to the GIS operations within large departments such as Transportation or Natural Resources.

5. State Government resource limitations for coordination

Given the size of Pennsylvania state government and the responsibilities given to the GTO under Executive Order 2004-08, it appears as if the Geospatial Technologies Office may be under resourced in fully meeting both its operational and coordination responsibilities. These resource constraint observations hold even acknowledging that the GTO is only responsible for effectively coordinating Commonwealth agency geospatial activities, without broader responsibilities that involve other levels of government. The GTO is currently staffed with 3 full time equivalents (FTE) with additional support from two contractor positions. While some other states have similarly sized teams, and few states have precisely the same responsibilities assigned to their coordination entity, it is fair to observe that Pennsylvania's GTO staffing is significantly less than both smaller states like Massachusetts (14 FTE) and Utah (17 FTE) as well as larger states such as New York (20 FTE).

⁹ While an SDI that spans multiple levels of government has not yet taken shape, State government has pursued many initiatives that are building its enterprise GIS capacity and are resulting in an SDI. Examples include increased levels of federation of databases, virtualization of GIS related hardware, and enterprise security approaches.

6. Lack of understanding and recognition of the value of geospatial technology by elected officials and decision makers

As with the general public, elected officials are just beginning to understand the value of geospatial technologies, especially at the county level. Many county commissioners have a new appreciation for the value GIS adds to the planning, administration and operation of their counties. Nevertheless, and especially in light of the current economic conditions, they are fiscally limited in what they can do and GIS continues to have insufficient priority to compete for limited resources. Similarly, there is an increasing pool of State legislators that appreciate the value of GIS and there have been some excellent supporters of statewide SDI development. But once again, and as the loss of PAMAP funding demonstrates, geospatial matters are still not high enough on their list of legislative priorities so that they will spend "political capital" on GIS issues.

7. Summary of <u>State Government</u> observations on weaknesses

The following bullets provide a paraphrased summary of state government's perceptions of the Commonwealth's geospatial **weaknesses**:

- Insufficient geospatial technology funding exists
 - Budget limitations
 - Important geospatial programs are either not funded or are inadequately funded. Examples include:
 - PAMAP
 - GIS Training Program
- Issues with Google / Microsoft Virtual Earth licensing prevent/inhibit appropriate adoption
- Data sharing can be difficult
- Communication on geospatial matters can be improved
- Data refresh process for the Enterprise GIS Database needs improvement
- Procurement process for hardware and software needs improvement
- No civil service GIS job classifications currently exist
 - o Leads to an inability to hire and retain adequately skilled GIS employees
- Inter-departmental turf wars exist
- Non-GIS users and managers have difficulty understanding the geospatial technology discipline. Similarly, GIS professionals can have difficulty explaining geospatial disciplines due to jargon and terminology.
 - There is a requirement to better articulate: *who we are, what we offer*, and, *what we do*
 - State government GIS professionals feel over managed and underutilized

- Current Project Management practices are not adequately communicative nor collaborative
- Enterprise TeleAtlas North America (TANA) license agreement for street centerlines does not provide adequate flexibility to meet all requirements¹⁰

3.4.3 Opportunities

1. There is a genuine desire to move forward across the stakeholder community As cataloged above, there is an active and engaged stakeholder community in Pennsylvania. The previously documented volume of geospatial organizations and coordination efforts along with the strong stakeholder participation in this strategic planning project provide ample evidence. Pennsylvania geospatial practitioners understand that there is an emerging and accelerating need to respond to an increasingly spatially aware and demanding public. The stakeholder community understands that geospatial technology is a component of addressing new national challenges such as infrastructure reinvestment and critical infrastructure protection and there is a genuine desire to improve coordination and enhance the state's spatial data infrastructure to address these challenges.

2. Broad-based support for creating a statewide geospatial coordination council

Stakeholder sessions discussed the potential formation of a statewide geospatial coordination council (SGCC) extensively. During these discussions it appeared that a large majority of stakeholders agreed that a SGCC would be valuable and desirable. In addition, the survey results validated this observation. When asked to agree, or disagree with the statement: "A new state-wide geospatial council should be created", **70%** of respondents either "strongly agreed" (40%) or "agreed" (30%).

3. Cooperative, multi-jurisdictional projects have proven effective at controlling GIS costs

During the workshops the discussion identified the potential for significant cost savings in activities such as parcel automation or orthoimagery acquisition when neighboring jurisdictions pursue projects on a regional basis. For example, the Northwest Regional Planning and Development Commission was able to conduct a 4-county, 138,000 parcel automation project and estimated the combined savings were greater than \$200,000 over what it would have cost to conduct four separate county-based projects. Such approaches hold great promise for both lowering costs and expanding the availability of GIS technology to additional counties. In addition to the cost savings, such efforts produce the types of seamless, high-quality, multi-county databases that are necessary to drive regional applications.

The potential for these kinds of approaches extends beyond data or application development. Indeed, multi-jurisdictional GIS departments may be feasible and should

¹⁰ Please note, that in addition to license inflexibility, other non-state stakeholders have observed that there have been some issues with the underlying accuracy and completeness of the TANA data

prove more cost-effective for smaller counties. Recent pilot projects to test the viability of a "federated" approach to GIS development in Pennsylvania have also demonstrated the value of coordinated, multi-county efforts. For instance, due to its success, the North Central Region's Federated GIS Pilot¹¹ has been utilized and expanded upon by three other regional task forces. The National Consortium for Rural Geospatial Innovations in America (RGIS)¹², a program of the U.S. Department of Agriculture's Cooperative State Research, Education and Extension Service, has been an important funding source for these kinds for regional efforts.

¹¹ See the article describing this effort on page 2 of the PDF file found at: <u>http://www.countygispros.org/gis/lib/gis/032706.pdf</u>

¹² Information on RIGIS, including a searchable catalog of projects that includes two active projects for Pennsylvania can be found at: <u>http://www.ruralgis.org/</u>

Pennsylvania Geospatial Coordination Strategic Plan Applied Geographics, Inc.

4 Vision & Goals

As described in the introduction, following the stakeholder sessions it became clear that there were concerns about the void in overall, cross-governmental geospatial leadership and coordination. Further, in light of the extremely limited resources that are available due the current fiscal climate and that prohibit grander plans that would require significant investment, this Strategic Plan has focused on the goal of creating a Statewide Geospatial Coordination Council (SGCC). Efforts towards achieving this direct, practical goal have a high chance of success and should strengthen the state's geospatial coordinated progress.

4.1 Programmatic Goal

This Strategic Plan focuses on a single, affordable programmatic goal:

The successful establishment and implementation of a Pennsylvania Statewide Geospatial Coordination Council within a 1 year time period

While the establishment of such a council will require educational and lobbying efforts, and there will need to be some political will, the cash outlay costs of creating it should be minimal, or non-existent. This plan and the work of stakeholder groups such as PaMAGIC, the County GIS Professionals, GTO and PaMAPP can be used to advance these educational and lobbying activities.

4.2 Vision & Mission for a Pennsylvania Statewide Geospatial Coordination Council

Vision Statement

Complex geospatial technology decisions and investments will be simplified and improved through open communications, collaborative efforts and unified planning.

Mission Statement

To foster communication and provide a forum for shared planning and decision making among public and private entities that create and utilize geospatial data and systems; and to encourage a collaborative, consensus oriented environment for promoting the Commonwealth's geospatial evolution and creating a common vision for future geospatial development in Pennsylvania.

4.3 Establishing the Council

There are numerous ways that a statewide geospatial coordination council might be formed ranging from less formal "self formation" to formal acts of the legislature and governor. Indeed, in reviewing nationwide geospatial council formation (see illustration below) one finds that a variety of mechanisms have been employed.



While there are many mechanisms for creating a council, it should be noted that the vast majority – i.e., 36 of 47 - were formed through either legislation, or gubernatorial executive order. It should also be noted that the red star in Wisconsin denotes their relatively recent council formation in October, 2008 (and post-dating the creation of the image presented above). Wisconsin's council is titled an "interim Council" and was formed as an "informal council" without new legislative or executive action. Nevertheless, Wisconsin's council was formed with the strong written endorsement of the state Department of Administration which houses the state's Geographic Information Officer (GIO). Wisconsin provides a good use case for Pennsylvania to consider as it enters this process¹³. One particularly relevant aspect of Wisconsin's approach is their intentional "informal startup" with an explicit, "interim period" of two years. If the initial structure of the council is found to be ineffective after two years, it may be reviewed, modified and/or made more formal.

¹³Extensive information on the Wisconsin Geographic Information Coordination Council (WIGICC) can be found on their web-site at: <u>http://www.wigicc.org/</u>

Pennsylvania has made several attempts at forming a council including both legislative and executive initiatives. In 2004 the House of Representatives put forward Resolution 882 (HR-882) which identified and clearly stated the needs for coordination and suggested the creation of a council. The language within HR-882 identifies a need for multi-jurisdictional governance and coordination over geospatial matters and outlines why statewide coordination makes sense.

More recently, the Pennsylvania legislature advanced House Bill 1304 (HB-1304) during the 2007-2008 session. This bill never made it out of the House Intergovernmental Affairs Committee. However, one of HB-1304's original sponsors is proposing a similar bill for the current session. During May of 2009, a draft of the proposed new bill was circulated for comment from geospatial stakeholders. Following the receipt and incorporation of comments, a new bill, which will be a modified version of last year's HB-1304, will be introduced and assigned to the House Intergovernmental Affairs Committee for consideration.

While the illustration above documents that there is no single "right" or "wrong" way to form a council, it is recommended that Pennsylvania pursue a *formal mechanism* for creating the SGCC, for the following reasons:

- 1. In spite of the existence of several informally formed geospatial organizations that promote coordination, stakeholders have continued to express a need for a strong, coordination council.
- 2. It is feasible since both gubernatorial administrations and the legislature have already considered council formation, albeit unsuccessfully so far.
- 3. Most other states have concluded that a *formal mechanism* is the best and strongest way to form a council

While there have been previous disagreements between gubernatorial administrations and the legislature that have hindered progress, this plan offers the potential to help clearly define the interest in, and benefits of a SGCC. With focused effort on advocacy and education there are significant opportunities to bridge differences and formally create the SGCC. Given previous unsuccessful attempts at creating a council, t is critical that supporters of an SGCC exhibit energy and persistence in properly educating decision makers and show creativity in resolving any potential disagreements.

4.4 Identifying the Role and Agenda for the Council

As described above, a key element in advocating for a SGCC is properly explaining why it is needed, and what roles it will fulfill. During the stakeholder sessions (and as fully documented in Attachment #3) many *potential* roles for the SGCC were identified.

While all of these potential roles were valid, it would not be feasible for a new council to pursue such a large agenda all at once. Thus, once this initial list was developed, it was important to prioritize the list to identify a manageable set of initial, priority roles. To facilitate this, a series of questions aimed at prioritizing the role of the council were presented to the stakeholder community via the GIS Survey component of this project.

While the survey did not reflect a scientific sample, the Steering Committee found that it provided a useful window into stakeholder opinions on the prioritization of SGCC roles. Indeed, the Steering Committee members concurred with survey results¹⁴ and determined that roles that were identified by >65% of respondents as being a "primary role" for the council would be singled out as "most important". Thus, the following table presents the results of the survey and serves as a **recommendation for the initial activities** that should be on the SGCC's agenda following formation:

Role	% Survey Responses Tagged as Primary Role	Recommended Role
Advocate for statewide geospatial initiatives and programs	89.5%	Primary role
Generate and maintain a statewide geospatial strategic plan	87.5%	Primary role
Advise on the prioritization of statewide geospatial initiatives and programs	80.0%	Primary role
Advocate for sustainable funding for geospatial activity	74.4%	Secondary role
Review and comment on legislation with geospatial provisions	65.0%	Secondary role
Serve as the focal point for geospatial communication and coordination	65.0%	Secondary role

Other choices that were presented in the survey but were <u>not</u> prioritized as "initial activities" by the steering committee included (in no particular order):

- Foster geospatial education, particularly regarding educating county officials and decision makers on the benefits of GIS
- Foster the identification and sharing of best practices (e.g. for data updating) among the professional GIS community
- Advise on GIS policy requirements and priorities.
- Set and approve GIS policies, which may include:
 - Legal issues surround data liability
 - Applicability of open records laws to geospatial data
 - Data security and privacy protection
- Oversee the development (or adoption) and approval of geospatial data and technology standards
- Oversee the development of a Commonwealth-wide geospatial data inventory that spans all levels of government
- Assisting in coordination with related activities that may have geospatial components (e.g. E911 and NG-911).
- Identify opportunities for removing duplication of effort across the geospatial stakeholder community

¹⁴ See Attachment #2 for a summary view of the survey results. Question #28 on the survey represents the "council role prioritization" question.

5 Requirements

Due to funding constraints and the modest nature of the programmatic goal, the requirements for creating a statewide geospatial coordinating council are also modest, and are focused on organizational elements.

5.1 Organizational Needs

5.1.1 Executive Support

As described above, it is recommended that the new statewide geospatial coordinating council be created and authorized through a formal mechanism such as Act of the Legislature, or Gubernatorial Executive Order. In either scenario, there will need to be high-level executive support to properly place this issue on the Executive and/or Legislative agenda, and to broker resolutions to the impasses that have caused previous efforts to fail. The GIS stakeholder community will need to strongly support and advocate for the creation of a SGCC and enlist appropriate executives who can reach out to and educate other decision makers.

5.1.2 Staffing & Budget Requirements

In spite of past difficulties in identifying a "home" for the council, it is recommended that ideally the new statewide geospatial coordinating council will be formed with an existing state agency named as providing an "administrative home". The administrative home would provide modest staff support to the logistics and operations of the SGCC in the form of:

- Meeting logistics: finding a room, sending invitations for quarterly meetings
- Meeting attendance and minute taking
- Post-meeting distribution of materials (e.g. minutes, web-site updates, Powerpoints that were presented, etc.)

With an identified administrative home, the only potential cash outlay for the council would be in the form of travel reimbursement offered to the designated council members who would serve as volunteers. The following provides resource estimates for the administrative home agency to provide required SGCC support.

- **Staff support:** 2 days per meeting of support. Thus, assuming quarterly meetings there would be **8 days per year** of staff support required.
- **Travel reimbursements:** \$1,000 per meeting, or **\$4,000 per year**. This figure will depend on how large the council is and how much regional representation is reflected in council membership (i.e. how many people will be travelling).

The potential long term savings of a better coordinated geospatial community certainly warrant this level of investment. Savings may be achieved through mechanism that may include but are not limited to:

- Less duplication of effort
- Capturing economies of scale in pursuing joint projects
- Enhanced data access and sharing
- o Improved standardization

6 Implementation Program

6.1 Phasing & Milestones

This plan intentionally has focused on the modest but achievable goal of establishing a statewide geospatial coordination council. While modest in nature and scope such a council is a fundamental precursor to the kind of broader, enhanced coordination that will further strengthen the Pennsylvania spatial data infrastructure. Even though a longer term outlook was possible, the steering committee endorses the focus on a single goal and a one-year time horizon.

The following outlines the key activities that will be necessary to advocate for and create a statewide geospatial coordination council within a one year timeframe:

- 1. **Finalization of the Geospatial Coordination Strategic Plan**: This plan identifies the creation of a Statewide Geospatial Coordination Council (SGCC) as a key priority
- 2. Endorsement of the Geospatial Strategic Plan by Key Geospatial Organizations: Endorsements should be sought from organizations such as PaMAGIC, County GIS Pros, PA-MAPPS, CCAP and others. Such endorsements will be important to reflect that there is consensus behind the recommendations – particularly for SGCC formation – contained in the plan. Such endorsements can also reflect an interested constituency that can help enlist the support senior executive champions.
- 3. Education of Senior Executives and Legislators on Requirements for, and Benefits of a SGCC: Given the history of disagreement between the legislative and executive branches on if, and how to form an SGCC, it imperative that focused education efforts begin with both branches. These efforts need to describe the benefits that a SGCC will provide and bridge any misunderstandings that may exist surrounding the very limited powers that the SGCC might possess. Similarly, such efforts can identify common ground and potential compromises for issues of contention.
- 4. **Consensus is Achieved on the Vehicle for Creating the SGCC and on its Administrative Home:** Hopefully, the education efforts from #3 above will be effective and there will be general agreement that proceeding is advantageous. At that point, it will be critical to address the key unanswered question of: "What vehicle (e.g., legislation, executive order, other) will be used to form the SGCC?" Once that core question is answered then the appropriate language can be drafted. The final language will also include other details on SGCC membership, the administrative home and mandate.
- 5. **Formal Creation of the SGCC:** The new SGCC will be formally created through the through the passage of legislation or the execution of an executive order (or through some alternative mechanism).

- 6. **Members of the SGCC are Named:** Once the SGCC is formed, the initial slate of members will be appointed.
- 7. **First SGCC Meeting is Conducted:** It is reasonable to believe that a council can be formed, appointed and can conduct its first meeting by June, 2010.
- 8. Periodic Review of Progress and Evolution of the Strategic Plan and the Coordination Agenda: The SGCC should aim to both document its accomplishments and look forward at the changing political and technological factors that impact geospatial coordination in Pennsylvania. Ultimately, the SGCC should be prepared for an evolving agenda that will continue to change as progress is made. Indeed, one of the prioritized roles for the council is to "generate and maintain a statewide geospatial strategic plan." As with all good strategic plans, this document should be considered a living document that will evolve and adapt over time hopefully under the guidance of a new Pennsylvania Statewide Geospatial Coordination Council.

Activity	Jun 2009	Jul 2009	Aug 2009	Sep 2009	Oct 2009	No∨ 2009	Dec 2009	Jan 2010	Feb 2010	Mar 2010	Apr 2010	May 2010	Jun 2010	
Finalization of Geospatial Strategic Plan														
Endorsement of Strategic Plan (e.g. from PaMAGIC, PA-														ľ
MAPPS, CCAP, County GIS Pros, etc.)														
Education of Senior Executives and Legislators on														
requirements for and benefits of a council														
Consensus achieved on vehicle for council creation and														[
administrative home														
Formal creation of the council														
Members of the council are named														
First meeting is conducted														

6.2 Summary & Conclusion

This plan is the result of an open and inclusive process and represents the hard work of numerous members of the Pennsylvania geospatial community. Nevertheless, this document is simply a plan, and there is no entity that has a mandate to carry out its recommendations. Although it may be relatively easy to put this plan "on the shelf", concerted effort, energy and creativity can succeed in moving forward and towards implementation, and the creation of the council. The same people and organizations that participated in this process – whether through the steering committee, or through a workshop, or as an advocate – will need to mobilize to carry this plan forward. As described above, the key first step is to gather support for this plan and for council formation and to enlist organizations to advocate for its implementation. With enough support, hopefully a strong voice and champion for geospatial coordination will emerge who can build momentum and creatively bridge the disagreements that have so far prevented a council from being formed. This document defines the goals and provides an overall game plan. The geospatial community team now needs to run the plays to execute that game plan.