

Commonwealth of Pennsylvania

State Geospatial Coordinating Board Meeting

September 12, 2016

Content

- Progress since last meeting
- Questionnaire
- PASDA overview
- Task Force updates
- New business and open discussion
- Adjourn

Activity Since Last Meeting

- Ongoing Task Force meetings
 - Creation of sub-task forces to work on specific goals
 - Research and data collection
- State-wide GIS questionnaire was issued and results gathered
- GeoBoard presentations and presence at the PA GIS Conference at State College in May
- Joint Task Force Meetings
 - PA GIS Conference in State College
 - PA Turnpike Commission

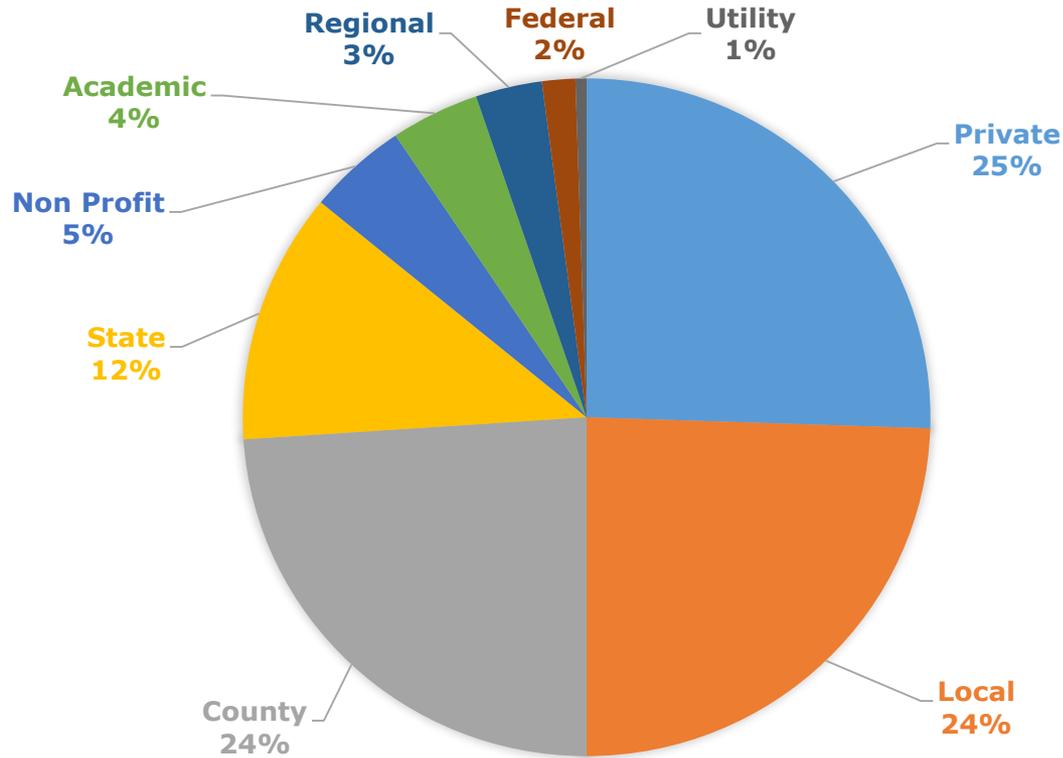
Questionnaire Report Out

Task Force Leads

Background

- Duration: 8/1/16 → 8/19/16
- Sent to GIS Community largely thru GIS groups (i.e. GTSC, County Pros, PaMAGIC etc.)
- Questions developed by Task Forces during Joint Meeting in July
 - Focus Area Needs
 - Information Gaps
 - Validating Assumptions

Participant Response



- 37 Counties
- 13 State Agencies
- 26 Townships
- 16 Boroughs
- 4 Cities
- 8 Universities
- 49 Private Sector

Questionnaire Summary

- There is a strong need for a Pennsylvania base map to support many different business related activities
- It is about evenly split between entities that use a data sharing agreement, but most sharing is done with other government agencies while the private sector pays a majority of the fees to acquire the data
- GIS is centralized in about half of the respondents but only a third have developed a strategic plan
- Respondents are largely unaware of external funding opportunities for GIS but almost a third have unmet funding needs for GIS related activities
- About half of the respondents provide some form of GIS service delivery
- An overwhelming majority of those services are consumed both internally and externally

Service Delivery

FINDINGS

- **69% Service Providers**
- **78% offer web services**
- **49% offer paid subscriptions or memberships**
- **75% of all responses said they consume GIS services**

IN THE FUTURE, WHAT SERVICES DO YOU PLAN TO PROVIDE?

service delivery provider

COMMON THEMES

- ➔ More web based applications
- ➔ Open data portal
- ➔ Share all base maps through services
- ESRI ArcGIS government apps and data services
- Self service data extraction
- Plan to offer subscription based services
- Free Data viewers
- Unmanned aerial systems (UAS)

SERVICE (application) TYPES

- | | |
|--|--|
| <input type="checkbox"/> Market analysis | <input type="checkbox"/> Water quality monitoring data |
| <input type="checkbox"/> Outreach programs | <input type="checkbox"/> Water withdrawal data |
| <input type="checkbox"/> Economic development | <input type="checkbox"/> Drought related data |
| <input type="checkbox"/> Maps of health statistics | <input type="checkbox"/> Cached and vector tile base maps |
| <input type="checkbox"/> Election administration | <input type="checkbox"/> Online parcel viewer |
| <input type="checkbox"/> Flood inundation mapping | <input type="checkbox"/> Direct field access to first responders |

SERVICE CATEGORIES

- DATA** -> (present/access something)
- GEOPROCESSING & ANALYSIS** -> (do something)
- TRANSFORMATION & REPLICATION** -> (aggregate something)
- GEOCODE** -> (find something)

AS A SERVICE PROVIDER, WHAT ARE THE ISSUES AND CHALLENGES THAT YOU FACE TODAY?

service delivery provider

COMMON CHALLENGES

- Sustainable funding
- Data accuracy (spatial and attribute)
- Data collection: updating data from disparate sources
- Data security
- Application performance and availability
- Network limitations
- Ability to share data (lack of data sharing agreements)
- Cost of application development (mobile)
- Complex datasets

ORGANIZATIONAL CHALLENGES

- Constantly changing technology
- Demonstrating the value of GIS
- Adoption and understanding
- Education (both internal and external users)
- Lack of collaboration
- Limited staff, limited budget
- Maintaining support (hardware and software)

WHAT GIS SERVICES DO YOU CONSUME?

service delivery consumer

COMMON SERVICES CONSUMED

- ➔ Basemap imagery
- Legislative boundaries
- GeoJSON
- REST
- US Census (population data)
- Weather
- Property and ROW information
- Pipelines (cadastral bases)
- LIDAR Contours
- Pictometry
- Tax Parcel Data
- CAD files of topography and planimetrics

COMMON SERVICE PROVIDERS

- ➔ PASDA (aerials, topos)
- ➔ ArcGIS Online / ESRI (base maps, REST, GeoJSON, World Geocoding)
- Federal Government / FEMA (flood mapping)
- PENNSHARE (PDOT Open Data Portal)
- DCNR Open Data Portal
- DEP (Abandoned Mine Lands, water pollution)
- County data portals (CAMA files from various counties and townships)
- Other states: (NJ imagery)
- Google

AS A SERVICE CONSUMER, WHAT ARE THE ISSUES AND CHALLENGES THAT YOU FACE TODAY?

service delivery consumer

COMMON THEMES

- ➔ Data reliability (superficially spatial data)
- ➔ Data availability (e.g. county parcel data)
- ➔ Data quality (outdated imagery, no authoritative data sources, inconsistent boundary information)
- ➔ Network availability and bandwidth limitations
- Finding the right services among many service providers
- Data duplication
- No data standardization (e.g. tax parcel data for counties)
- Data access restrictions (e.g. organizational restrictions, firewall access control)
- Secure access to data

ORGANIZATIONAL CHALLENGES

- ➔ Rapid change in technology
- No data aggregation mechanism
- Lack of defined responsible parties for authoritative sources or designated layers
- Lack of infrastructure
- Lack of funds
- Lack of training
- Procurement mechanism

WHAT GIS SERVICES SHOULD BE OFFERED TODAY?

service delivery

COMMON THEMES

- ➔ PA base map (includes: remote sensed data and core layers)
- ➔ Web based mapping services
- ➔ Geoprocessing services (analysis)
 - Data aggregation services (ETL tools)
 - ESRI training services / educational workshops
 - Reliable REST services
 - Data clearing house like PASDA
 - Authoritative services for key datasets
 - Historical imagery
 - Support for multiple tools/platforms (e.g. open source)

IN THE FUTURE, WHAT SERVICES SHOULD BE OFFERED AND WHAT IS THE BEST WAY FOR YOU TO CONSUME THEM?

service delivery

COMMON THEMES

- ➔ Web mapping services (WMS) (*DATA SERVICES*)
- ➔ ESRI ArcGIS Online
- ➔ Statewide standardized set of base map services (including cadastral) (*DATA SERVICES*)
 - Open Data Portals
 - Geoprocessing services
 - Remote Sensed Data Services (e.g. ortho and oblique imagery, elevation and point mesh, multispectral) (*DATA SERVICES*)
 - GeoJSON, REST service formats (*DATA SERVICES*)
 - Cadastral data base
 - Universal access to public data
 - PA high resolution land use and land cover
 - 3D GIS (web or app based)
 - GIS modeling (e.g. Mapshed, Wikiwatershed, SRAT online) (*GEOPROCESSING SERVICES*)

- Training / Educational workshops

Data

FINDINGS

- 62% want to use a GIS base map to perform planning analysis
- 60% do not utilize data sharing agreements today
- Sharing is primarily with other gov't entities and the private sector
- Data fees are primarily for the private sector
- 81% waive fees for data exchange
- 38% place restriction on the use of the data

5. Are you currently the authoritative source of any of these base map layers? Authoritative defined as being the original creator of the data.

		Response Total	Response Percent	Points	Avg
Cadastral		50	23%	n/a	n/a
Elevation		23	10%	n/a	n/a
Geodetic Control		26	12%	n/a	n/a
Governmental Units		31	14%	n/a	n/a
Hydrography		23	10%	n/a	n/a
Orthoimagery		26	12%	n/a	n/a
Transportation		41	19%	n/a	n/a
Address Points		44	20%	n/a	n/a
Total Respondents (For this Question)		220			

6. What needs do you have regarding a base map?

		Response Total	Response Percent	Points	Avg
Engineering		67	30%	n/a	n/a
Planning Analysis		137	62%	n/a	n/a
Cartographic Map Development		83	38%	n/a	n/a
Public Safety		86	39%	n/a	n/a
Economic Development		57	26%	n/a	n/a
Education		42	19%	n/a	n/a
Assessments		68	31%	n/a	n/a
Other, please list <input type="button" value="view"/>		40	18%	n/a	n/a
Total Respondents (For this Question)		220			

7. Do you currently have a data sharing agreement that you use when an outside entity requests your data?

		Response Total	Response Percent	Points	Avg
Yes		74	40%	n/a	n/a
No		111	60%	n/a	n/a
Total Respondents (For this Question)		185			

8. With whom do you share data?

		Response Total	Response Percent	Points	Avg
Other government entities		125	57%	n/a	n/a
Non-Profits		77	35%	n/a	n/a
Education		69	31%	n/a	n/a
Private sector		102	46%	n/a	n/a
Other view		33	15%	n/a	n/a
Total Respondents (For this Question)		220			

9. Of the following groups, do you impose a fee for your data?

		Response Total	Response Percent	Points	Avg
Other government entities		15	7%	n/a	n/a
Non-Profits		15	7%	n/a	n/a
Education		10	5%	n/a	n/a
Private sector		60	27%	n/a	n/a
Other view		32	15%	n/a	n/a
Total Respondents (For this Question)		220			

10. Do you waive fees for data sharing if the ability to exchange data with the requesting entity is possible?

		Response Total	Response Percent	Points	Avg
Yes		88	81%	n/a	n/a
No		20	19%	n/a	n/a
Total Respondents (For this Question)		108			

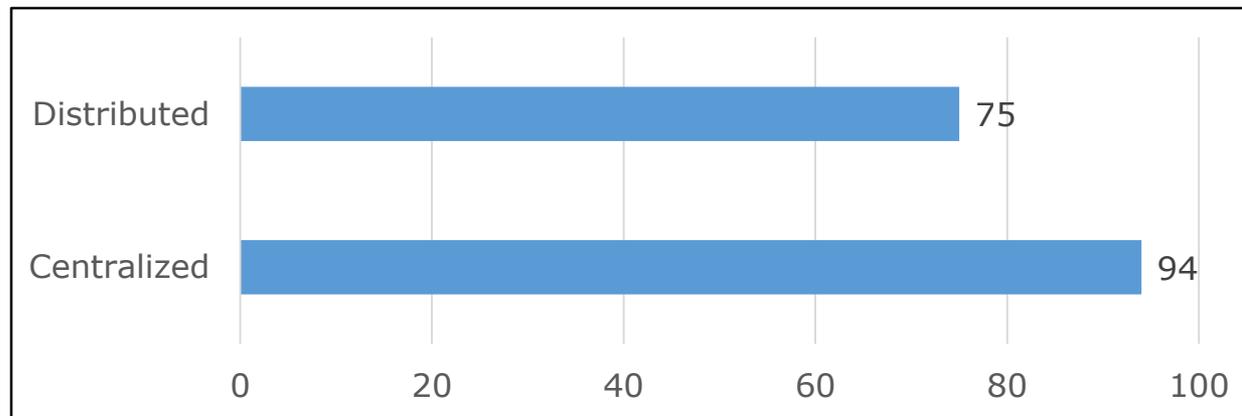
11. Do you place restrictions on the data that you share?

		Response Total	Response Percent	Points	Avg
Yes		83	38%	n/a	n/a
No		57	26%	n/a	n/a
Explain view		73	33%	n/a	n/a
Total Respondents (For this Question)		220			

Governance

FINDINGS

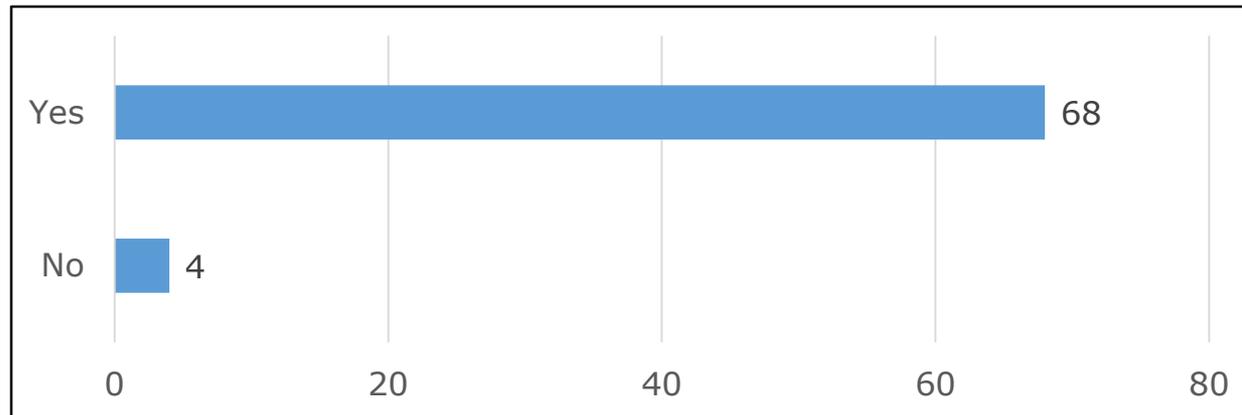
- GIS Department/Capacities



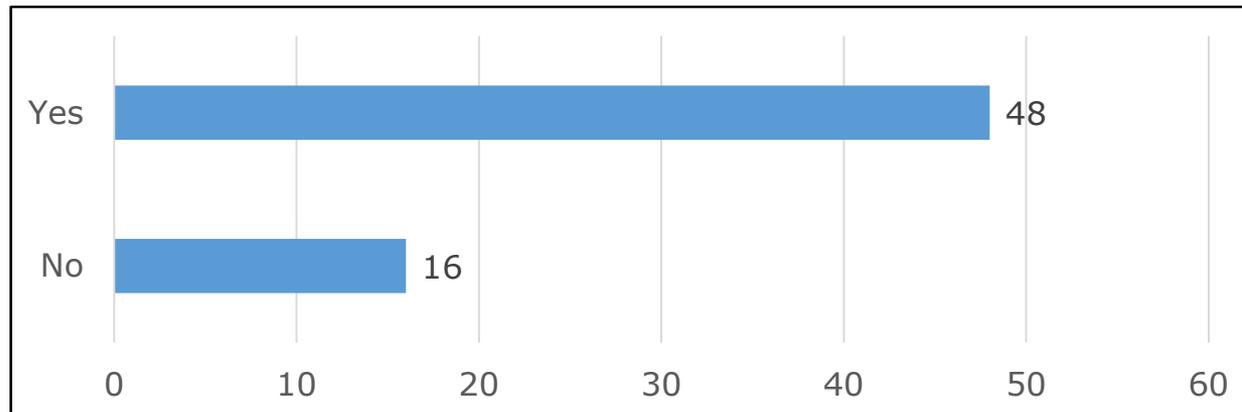
- Counties: 18 Distributed/19 Centralized
- Local Government: 9 Distributed/19 Centralized/19 No answer
- State Agencies: 14 Distributed/8 Centralized

Governance

- GIS data sharing between departments



- Data sharing strategy successful



Governance

• Options to best help GIS Strategic Planning

	1	2	3	4
Regional Organization	35%	40%	13%	12%
Locally Managed	40%	23%	25%	12%
Statewide organization and sharing	47%	23%	19%	11%
None	9%	2%	6%	83%

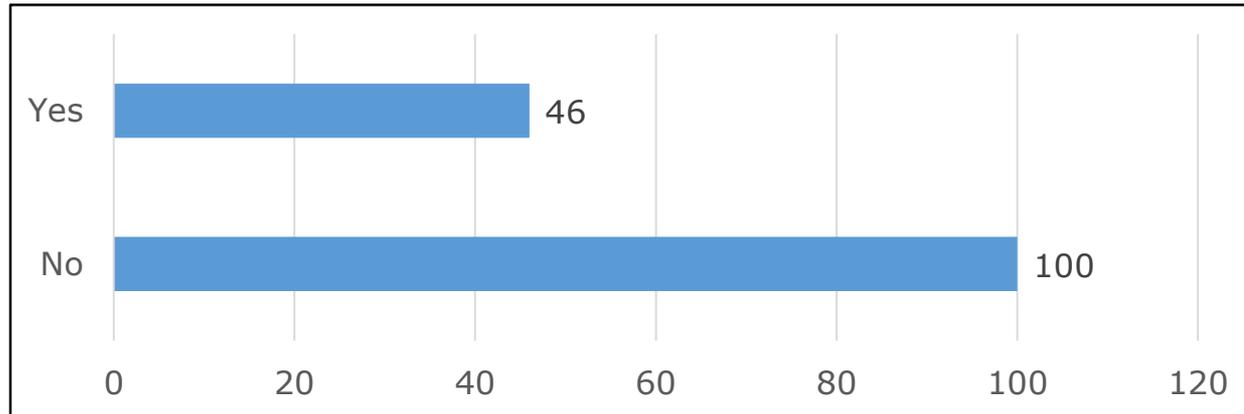
- *1 = most important; 4 = least important*
- *Options could be assigned the same importance*

• What else would help current state of PA GIS?

- **County:** Program like PA Map; open communication; data sharing; maintain data locally – store/serve centrally; funding; ESRI ELA
- **State:** GIS classifications; GIS advocacy; centralization
- **Local:** Standardization; data sharing; coordination
- **Non-Profit:** PASDA; readily available data/services
- **Private:** Standards; education; regular updates
- **Academic:** Collaboration; communication statewide

Governance

- Does your organization have a GIS strategic plan?

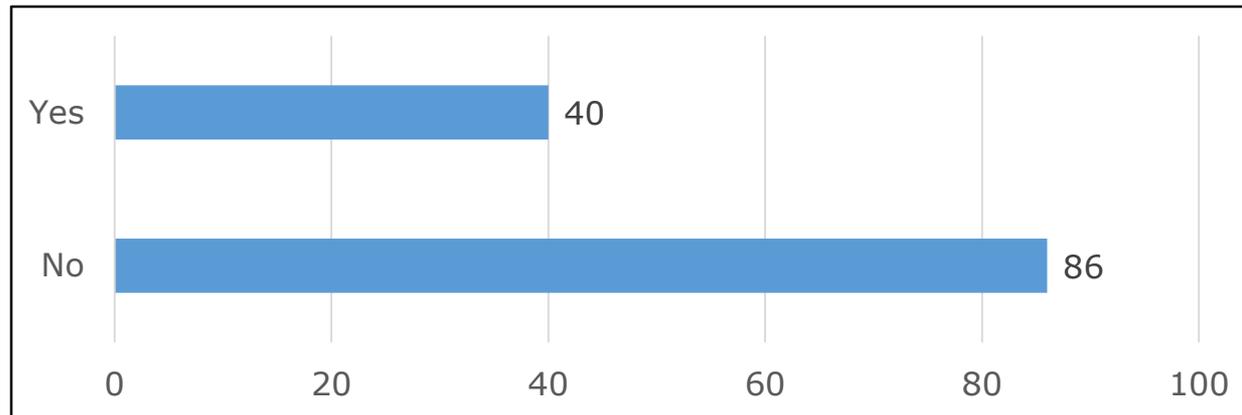


Governance

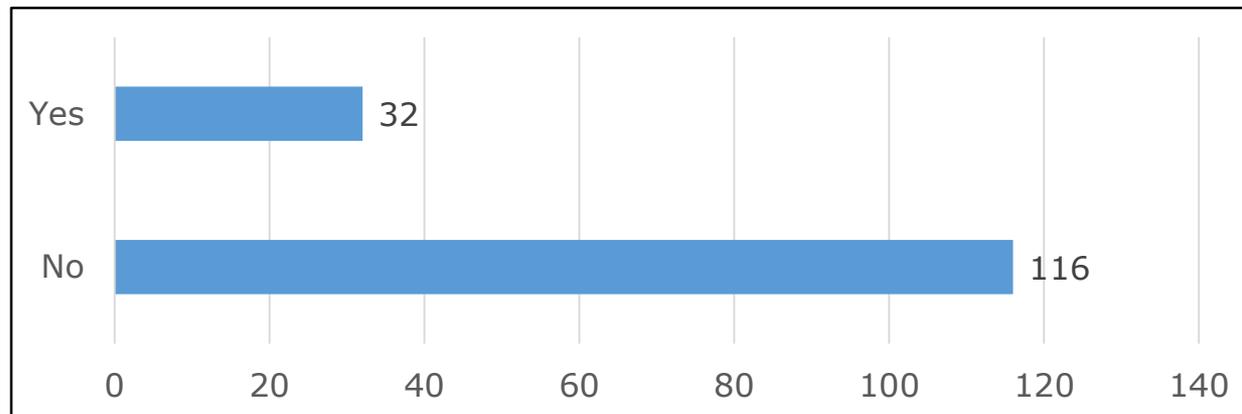
- Typical source of funding for GIS department
 - *Options: Federal grants; Local Taxes; NGO Funding; State Grants; UPI; Data Sales; Other*
 - **County**
 - Only 6 mention Federal Grants
 - Local Taxes: 20% - 100%; average ~ 75%; 16 Counties 80%+
 - Only 6 Counties report GIS funding from UPI fees
 - Data sales mentioned by 16 Counties, ranging from 10%-20%, averaging 12%
 - **State**
 - ~ 50% agencies use federal or state grant funds
 - **Local**
 - *Philadelphia* - Federal Grants = 10%; Local Taxes = 70%; State Grants = 10%; UPI = 0%; Data Sales = 0%; Other = 10%
 - *Pittsburgh* - Local Taxes = 100%

Governance

- Unmet funding needs for GIS



- Aware of external funding opportunities



PASDA Overview

Maurie Kelly, Director

Task Force Updates

Task Force Leads

Data Task Force Update

- Many of the future activities of the other task forces are predicated on the direction of the Data Task Force
 - Decision and direction from this task force will drive the way we govern and deliver services
- Basemap Sub-Task Force
- Data Sharing Agreement Sub-Task Force

Pennsylvania Base Map

- Definition, Need, Purpose
- Determine outline of submittal (GeoSpatial Board and to Governor)
 - Define benefits / opportunities
 - Recommendations - Short Term / Long Term
 - Appendix of supporting information
- Schedule for completion

Definition of Base Map

Base map is

- A consistent set of data that can be used collectively and too costly to duplicate.
- Provided in a single authoritative source (collected from others)*
- A collection of core data layers that meet a the needs of distinct end users (such as State Government Agencies or County and Local Government or Public / Private consumers)
- “Basemaps” can be rendered from these layers

*The authoritative source may be different for the attribute or relational data from the geometry

Considerations

- Scale- precision, resolution
- Availability / Gaps
- Governance (current / future)
- Timeliness
- Consistency: (intrastate/ interstate)
- Attribute richness
- State of readiness
- Data sensitivity, liability

Can we identify a universal set of criteria that meet most end user needs?

Draft Criteria

PA	NGIMLink	Data Layer	User					Scale	Minimum Timeliness of update	R i c h n e e s s y	o c c u r r e n c e s	a v a i l a b i l i t y	Recommended Governance	Recommended Delivery System	
			Groups: NG 911	National Map	State agencies	County / regional	Public								
	http://solutions.arcgis.com/transportation	Road Centerlines / transportation	x	x	x	x	x	2400 (+13.89 ft)	30 hours				PennDOT/ Counties	Feature Service	
	http://solutions.arcgis.com/transportation	PSAP Boundary	x		x	x			Annually				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Emergency Service Boundary (could be multiple layers, Fire, EMS, PD, etc.)	x		x	x			Annually				PEMA	Feature Service	
	http://pro.arcgis.com/pro/arcgis.com	Street Name Alias	x		x	x	x		Monthly				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Site/Structure Address Points	x		x	x	x		30 hours				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Landmarks	x		x	x	x		Annually				DCNR	Feature Service	
	http://solutions.arcgis.com/transportation	States or equivalents	x	x	x	x			Monthly				DCNR	Feature Service	
	http://solutions.arcgis.com/transportation	Counties or equivalents	x	x	x	x			Monthly				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Municipal Boundary (incorporated/unincorporated)	x		x	x	x	2400	Annually				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Neighborhood Boundary	x		x	x			Annually				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Railroad Centerlines	x		x	x	x	2400	Monthly				PennDOT	Feature Service	
	http://solutions.arcgis.com/transportation	Hydro Lines/ hydrology	x	x	x	x	x	2400	Monthly				DEP	Feature Service	
	http://solutions.arcgis.com/transportation	Hydro Polygon	x		x	x	x	2400	Monthly				DEP	Feature Service	
	http://solutions.arcgis.com/transportation	Cell Site Location	x		x	x	x		Monthly				DEP	Feature Service	
	https://www.arcgis.com	Mile Marker Location	x		x	x	x		Annually				PennDOT	Feature Service	
	http://solutions.arcgis.com/transportation	Orthoimagery		x	x	x	x	2400	Annually				DCNR	Tile or map service	
	http://solutions.arcgis.com/transportation	Elevation	x	x	x	x	x	2400	Annually				DCNR	Tile or map service	
	http://solutions.arcgis.com/transportation	Structure Points		x	x	x	x	2400	Monthly				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Structure Polygons			x	x	x	2400	Monthly				Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Land Cover		x	x	x	x	2400	Annually				DCNR	Feature Service	
	http://geonames.us	Geographic Names		x	x	x	x	2400	Annually				DCNR	Feature Service	
	http://solutions.arcgis.com/transportation	PARCELS			x	x	x	2400	Daily/weekly	Ow	Not in r	No	Counties	Feature Service	
	http://solutions.arcgis.com/transportation	Monumentation			x	x	x								
		Land Use https://www.usgs.gov/science/													
A few layers mentioned are found in several locations within the LGIM															
	NG911 (FCC E911)	_+13.89 ft 1:5000 wgs84	strongly recommended required recommended												

Next Steps

- Finalize recommendations
- Determine submittal format (s)
- Seek additional input (detailed survey)
- Present to GeoSpatial Board

Data Sharing Agreements

- Pennsylvania Examples
- We acquired sample data sharing agreements from:
 - PA Office of Administration
 - Mifflin County
 - Clarion County
 - Berks County
 - Huntingdon County
 - Lancaster County
 - Potter County
- We reviewed these agreements for similarities and differences.

	Clarion	Huntingdon	Mifflin	Importance High-10, Low-0	OA
By signing agreement customer agrees to abide by all terms of agreement	X	X	X	10	
Constitutes entire agreement and supersedes prior agreements	X			6	
Disclaims all liability or responsibility for damage, injury, loss, claim, from any errors, inaccuracy.....	X	X	X	10	d
May create one backup copy to replace the original if damaged.	X	X	X	8	2b
GIS data will not be reformatted, copied, or further reproduced or distributed to anyone.	X	X	X	10	c
Data supplied "AS IS"	X	X	X	10	e
indemnify and hold harmless	X	X	X	10	
Remain property of the maker.	X	X	X	9	f
Termination clause		X		7	g
Agreement will not include an "ink" signature by the Commonwealth. Copies shall have same binding force as original.		X		7	h
Please state how you intend to use GIS data			X	7	
If customer determines that it is necessary to share -- must get prior written consent.			X	9	
Requirement to place a statement sighting the original source on the face of any derived document Created by County			X	8	

PA Local Data Sharing

- Counties that publicly share their data (for download):
 - Chester
 - Lancaster
 - Philadelphia
 - Allegheny
- Other counties provide access to viewers and online mapping services.

Other States

- We also spoke with Chief Geographic Information Officers (GIOs) and/or GIS Directors of the following states:
 - Indiana
 - New Jersey
 - Maryland
 - New York
 - Massachusetts
 - West Virginia

Findings

- New York
 - Counties in NY now share parcels and roads with the state internally for emergency and state police purposes. This includes all counties including two that did not share until summer of 2015 emergency situation. No official data sharing agreement. Some counties sell data.
 - They created a statewide address point location data set for all buildings in NY for NextGen 911. It is shared back to all the counties. They have a parcel web service. They also provide free access to imagery and LIDAR which is used heavily by counties.
- New Jersey
 - GIS data is considered a public record. It is shared with the state. No sharing agreement.
 - State GIS initiatives and sharing are driven in part by NextGen 911.
- West Virginia
 - GIS data sharing is limited. It is on a case by case basis. No single data sharing agreement.
 - They try to provide value back to the counties by providing data to them like statewide imagery and LIDAR.

Findings

- Indiana
 - Indiana has an open records law, Access to Public Records Act, which includes GIS data.
 - State GIO did significant outreach to local governments. Contacted each county commissioner personally to invite them to participate in data sharing efforts. By 2014 all counties were participating in sharing with the state. They created a statewide parcel layer, street centerlines, boundaries that are publicly available.
- Massachusetts
 - GIS data is considered a public record. It is shared with the state. No data sharing agreements.
 - State GIS initiatives and sharing are driven in part by NextGen 911. Data is shared back to the local governments including imagery and LIDAR.
- Maryland
 - Multiple types of data sharing agreements. GIO is looking to develop an umbrella MOU among state and counties. She will be going to all MD counties to discuss this MOU.
 - Open Data Act 2015 changed data sharing landscape requiring all data to be shared.
 - They try to provide value back to the counties by providing data to them like statewide imagery and LIDAR and other statewide datasets as well as undertaking statewide initiatives such as the address point and centerline “Snap to Point” initiative.

Barriers

- Unfunded mandate is a common concern—will this cost the county time and money?
- Parcels vs. Assessment information—parcels are of less concern than assessment information.
- Lack of understanding and knowledge about the implications of sharing.
- What levels of exposure—who will see and use my data?
- Have to change how they create data—does the data have to be to a different standard?

Opportunities

- Next Gen 911 is a key driver of the need to share data. As one state GIO said “Lives are in the balance”.
- Using existing tools to create statewide data from local data. Provide services out that can build data—similar to the Maryland Snap To Point effort.
- Create a resource that is valuable across jurisdictions and purposes—resource that enhances economic development, supports emergency management, fosters environmental knowledge, enables education.
- Transparency—we can become more open and transparent.
- Open data efforts makes data more usable for broader user group like providing access to spreadsheets, GeoJSONs, and KMLs.
- Leverage existing initiatives and efforts at collaboration.
- Relationships matter. Work to build more positive relationships between the state and local governments.

Service Delivery Task Force Update

Service Delivery Subcommittee: Explore GIS Cloud Services

Recommendation: Develop a sub-committee, under the direction of the Service Delivery Task Force, to research and evaluate the technical capabilities and financial viability for cloud service providers that provide GIS services.

Primary objectives for the sub-committee:

1. Provide recommendations on how cloud services and applications could be delivered to maximize investments, drive innovation and improve efficiency.
2. Explore how the commonwealth can maximize provider discounts and greater cost efficiencies by leveraging cloud services. (e.g. economies of scale)
3. Explore the benefit of cloud services as an alternative to existing solutions or as a part of a disaster recovery or business continuity plan.
4. Provide recommendations for operational efficiencies and value-add solutions while advancing the commonwealth's delivery of geospatial services.

Governance Task Force Update

- Met four times since April 29 GeoBoard Meeting
- Further refined Focus Areas with Goals & Objectives
 - Assessment of key funding opportunities
 - Evaluation of the current state of GIS in PA
 - GIS Strategic Plan for PA

Governance Task Force Update

- Strategic Plan Subcommittee
 - Review other states plans
 - Follow up on what we learned from survey
 - Review local plans
 - Review past statewide plans
 - Do models/best practices exist?
 - Can we use these as resources to move forward?
- Funding Subcommittee (Future)
 - What's available?
 - How do we gather and disseminate info?

New Business

Open Discussion

Next Meeting

- December 2, 2016, 2-3pm
333 Market Street
Harrisburg, PA 17126-0333

Adjourn