



PASDA

PENNSYLVANIA SPATIAL DATA ACCESS

The Pennsylvania Geospatial Data Clearinghouse

Pennsylvania Data Access
PASDA
2015-2016 Annual Report

July 1, 2015-June 30, 2016

Submitted

by

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OVERVIEW

Pennsylvania Spatial Data Access (PASDA—<http://www.pasda.psu.edu>), the official public geospatial data clearinghouse for the Commonwealth of Pennsylvania marked its 20th year in 2016. PASDA, which has grown from a small website offering 35 data sets in 1996 to the expansive user-centered open data portal that it is today, has become a staple of the GIS community in Pennsylvania.

PASDA is a cooperative project of the Governor's Office of Administration, Office for Information Technology, and Penn State Institutes of Energy and the Environment of the Pennsylvania State University. Funding and support is provided by the Pennsylvania Office for Information Technology. Penn State provides significant contributions to PASDA including system administration support and infrastructure from the Institute for CyberScience and the College of Earth and Mineral Sciences.

PASDA was developed as a service to the citizens of the Commonwealth of Pennsylvania. The purpose of PASDA is to serve as the Commonwealth's comprehensive and coordinated open geospatial data portal that provides free public access to geospatial data and information by, for, and about the Commonwealth of Pennsylvania.

PASDA provides access to credible and authoritative source data. Maintaining PASDA as a coordinated and comprehensive open data portal eliminates the creation of Data Silos that can frustrate and complicate public access to data.

One of the primary purposes of PASDA is to facilitate data sharing in a streamlined environment, making the process fast and easy for data sharing stakeholders. Any state, local, or federal government, non-governmental agency, or academic institution can freely share its geospatial data through PASDA. PASDA serves as Pennsylvania's node on the NSDI and works at the national level to ensure that we meet national and international standards for metadata and data delivery. PASDA provides access to thousands of data files, terabytes of data, and hundreds of Internet Map Services, Google Earth KML files, metadata, mapping applications, and other information like guides and tutorials.

Users come from a broad spectrum of organizations and backgrounds, from teachers and citizens to businesses and government agencies--PASDA provides free access to data, applications, and customization tools to meet the needs of every user.

PASDA saw an increase of use in almost every sector driven in part by factors such as Marcellus Shale exploration, environmental conservation, economic development initiatives, expanded use of geospatial data in universities, non-profits, and the private sector, and the increased interest from average citizens who are able to access geospatial information via PASDA's data previewer and KML files without the need for specialized GIS software.

The PASDA staff include:

- Maurie Kelly, Director
- Ryan Baxter, Information Technology Coordinator
- James Spayd, Database Systems and Data Specialist
- Scott Dane, Data Manager

PASDA Services

PASDA provides a number of key services to the Commonwealth. For more detail, please see Appendix A at the end of this report.

PASDA services include:

- Data Storage
- Data Management and Curation
- Metadata Development
- Metadata Training
- Data Search and Retrieval
- Data Download (in multiple formats)
- Map Services/APIs/KMLs
- Data Preservation and Archiving
- Online Mapping Apps
- Data Previewer
- PA Imagery Navigator
- PA Atlas
- PA Mine Map Atlas
- User Support
- Offline Data Access
- Integration with Additional Resources

The keystones of PASDA

The success of PASDA is based on a long-term vision that incorporates the ideas of free access to data, outreach, and community service. The keystones in the success of the program are:

- **Collaboration**--PASDA understands that collaboration among the geospatial community benefits everyone in the Commonwealth. Collaboration saves money, time, and makes the most of the limited resources of data providers.

- **Cooperation**--PASDA cooperates with all levels of government, non-profits, academia, business, and citizens to support the geospatial data infrastructure and access to data.
- **Innovation**—PASDA continues to be the leader in geospatial data portal operations and services.
- **Continuity**--PASDA works with data providers to ensure continuity of data access and storage.
- **Active Engagement**--PASDA engages the geospatial community to foster understanding and data sharing.
- **Efficiency**--PASDA's streamlined processes make data sharing fast and easy for our partners.
- **Free Access**--PASDA provides data storage, data access and retrieval, and metadata services free of charge.
- PASDA will continue to provide free storage of geospatial data, as well as build partnerships that enhance ease of access and benefit the data provider, and to develop data access resources and innovative tools to enhance the use and benefits of geospatial data for all citizens of the Commonwealth and geospatial community.
- The data made available through PASDA is provided by our data partners to encourage the widespread sharing of geospatial data, eliminate the creation of redundant data sets, and to further build an inventory (through the development and hosting of metadata) of available data relevant to the Commonwealth.
- PASDA serves as a resource for locating data throughout the Commonwealth through its data storage, interactive mapping applications, and metadata/documentation efforts.

PASDA Stats

In the past year, almost **2.5 million** files were downloaded from the PASDA FTP site; while usage on the entire site topped **91.1 million** hits. The PASDA Internet Map Services and applications were accessed almost **71 million times**. The Pennsylvania Imagery Navigator, an application used for viewing and downloading aerial photography, topographic data, DEMs, and LIDAR was accessed over 5.4 million times in FY 2015/2016. The Pennsylvania Mine Map Atlas service which is an application that provides users with both viewing and downloading capabilities for 80,000 underground mine maps was accessed over 1 million times.

The statistics this year demonstrate more than any other that there is a wide range of data that is of great interest to the user community. Data (and map services created from data) from our partners at the PA Department of Environmental Protection, PennDOT, PA Department of Conservation and Natural Resources, Allegheny County, the DCNR PAMAP Program, the Delaware Valley Regional Planning Commission, and the received phenomenal use. In addition, PASDA has created highly significant applications and services that dramatically increase the value of the data available. The Imagery Navigator supported almost **5.5 million** views, the DEP map service **more than 2.5 million** views, PennDOT mapservice over **1.7 million views**, and the PA Fish and Boat Commission with over **1.1 million views**.

PASDA FY 2015/2016 Highlights

Substantial initiatives in the past year involved the design, development and deployment of the new PASDA website and services, engagement in the PA Geospatial Advisory Board, acquisition and integration of additional imagery, and ongoing intensive data loading efforts.

New PASDA Website

The screenshot displays the homepage of the Pennsylvania Spatial Data Access (PASDA) website. At the top, the PASDA logo is featured alongside the text "PENNSYLVANIA SPATIAL DATA ACCESS" and "The Pennsylvania Geospatial Data Clearinghouse". A navigation menu includes links for HOME, ABOUT, ADVANCED SEARCH, APPS & TOOLS, SHARE DATA, TUTORIALS & HELP, and CONTACT US. Below the navigation is a banner image of a rural landscape with the text: "Open GIS Data Access for the Commonwealth of Pennsylvania. Pennsylvania Spatial Data Access (PASDA) is the official public access geospatial information clearinghouse for the Commonwealth of Pennsylvania. [Learn More >>](#)".

The main content area is divided into two columns. The left column, titled "Access Data", contains search and browse options: "SEARCH BY KEYWORD(S)" with a text input and "Submit" button; "SEARCH BY DATA PROVIDER" with a dropdown menu and "Submit" button; and "BROWSE FTP SITE:" with a folder icon. Below this is a "New Additions" section with three items: "PA FISH & BOAT COMMISSION" (updated data including Class A Streams), "PA DCNR" (Explore PA Trails data and other sets), and "City of Philadelphia" (2015 imagery and LIDAR available in the PA Imagery Navigator).

The right column, titled "Data Shortcuts", features a grid of icons representing various data categories: Imagery (airplane), LIDAR & Elevation (mountains), Hydrology (water drop), Transportation (bus), Boundaries (globe), Recreation (person on a boat), Biota (plant), Energy (lightning bolt), Local Governments (capitol building), and NGOs & Academic Organizations (handshake).

The new website design incorporated new functionality and allowed PASDA to be more mobile friendly without sacrificing the desktop user experience as many mobile sites do. PASDA made the data shortcuts more prominent, moved the Access Data functions to the home page, and eliminated or moved significant amount of text to second level pages within the site.

New PASDA Data Services

PASDA PENNSYLVANIA SPATIAL DATA ACCESS
The Pennsylvania Geospatial Data Clearinghouse

HOME ABOUT ADVANCED SEARCH APPS & TOOLS SHARE DATA TUTORIALS & HELP CONTACT US

Data Summary

Integrated List Attaining Lakes

2016 - Pennsylvania Department of Environmental Protection

Metadata | Download | Preview | KMZ (GoogleEarth) | Spreadsheet | GeoJSON | Add to ArcMap IMAGE FEATURE

API
 REST: <http://maps.pasda.psu.edu/ArcGIS/rest/services/pasda/DEP2/MapServer>
 WMS: <http://maps.pasda.psu.edu/arcgis/services/pasda/DEP2/MapServer/WMServer?SERVICE=WMS&request=getcapabilities>

ADDITIONAL RESOURCES
 Data Archive: Download historic versions of this dataset

ABSTRACT
 This layer shows only attaining lakes of the Integrated List. The Lakes Integrated List represents lake assessments in an integrated format for the Clean Water Act Section 305(b) reporting and Section 303(d) listing. PA DEP protects 4 lake water uses: aquatic life, fish consumption, potable water supply, and recreation. The 305(b) layers represent lakes that have been evaluated for attainment of those uses. If a lake is not attaining any one of its 4 uses, it is considered impaired. Aquatic Life use attainment - The integrity

The new PASDA website provided an opportunity to deploy new services as well. These include providing access to full KMZ files, spreadsheets, and the open format GeoJSON. In addition, the new PASDA data summary page provides quick access to historic data sets, APIs, and links to additional resources such as the Explore PA Trails website where users can find more information from state agencies.

Historic Aerial Photography Integration

PASDA PENNSYLVANIA IMAGERY NAVIGATOR
View and Download Imagery for Pennsylvania

Display Imagery: Statewide Mosaic 03-06 | Display Tile Index: None | Display Overlays: Roads, Places, etc | Find a County: [dropdown]

PASDA Download Links

2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 1990-2000 1967-1972 1957-1962 1937-1942 Lidar, Topo, DEM

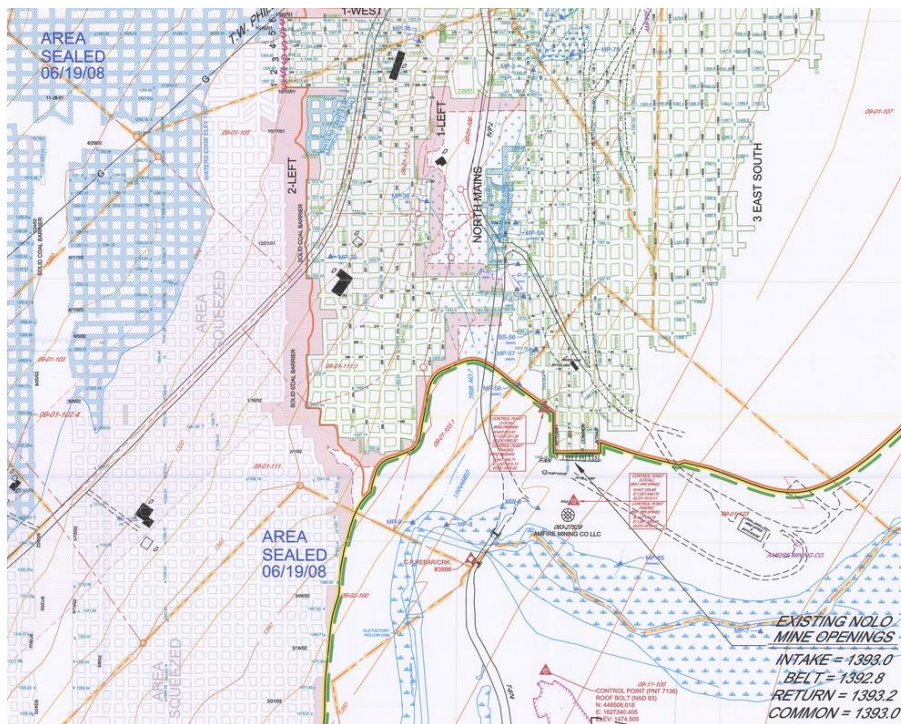
Click a Tile ID to see its location on the map (Total features returned: 7)

Show Tile Extent (approximate)	Source	Metadata	JPG2000
centre_070371_aqq_5ll_12	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download
centre_070371_aqq_5ll_13	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download
centre_070371_aqq_5ll_14	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download
centre_070371_aqq_5ll_15	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download
centre_070371_aqq_4ll_286	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download
centre_070371_aqq_4ll_287	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download
centre_070371_aqq_4ll_288	USDA Farm Service Agency	Statewide 1967-1972 B&W (not georeferenced)	download

The PA Imagery Navigator is the most heavily used PASDA application. It provides easy access to thousands of datasets including aerial photography and elevation data. In addition to acquiring new imagery and LIDAR from the Delaware Valley Regional Planning Commission, York County, Lancaster County, Lehigh Valley Regional Planning Commission, we have also been able to include in the search historic aerial photograph dating back to 1937. In addition, we are collaborating with the Penn State library which is scanning and georeferencing imagery from the 1980s to add to the PASDA collection.

PA Mine Map Atlas

The PA Mine Map Atlas continues to grow in size and in terms of use. The application received over 1.1 million hits and users downloaded more than 43,000 data files. Significant data was added to the Atlas in FY 2015/2016. In addition, new graphics were created and added to the Atlas and tutorials.



Data Preservation

PASDA has been actively working on long term preservation of data that we store. Our first effort was related to developing and deploying a long term preservation system for the PAMAP Program data. This is both for the derived products and the raw PAMAP data and project information. In addition, we are preserving data for the long term by implementing the BagIt data storage specification within the Institute for CyberScience infrastructure. BagIt is a hierarchical file packaging format used by the Library of Congress and the US Copyright Office that ensures data accessibility and helps guard against data loss and corruption by storing archived data in “bags.” The data “bag” is

essentially a base directory containing (1) a set of required tag files in text format that defines the contents of the full archive; (2) a sub-directory named 'data,' called the payload directory; and (3) a set of optional tag files and directories, one of which allows linked URLs to be specified so as to allow rapid parallel transfer of large bags and the data within them (potentially critical given the big data problems this solution addresses). Data stored using the BagIt format is uncompressed, unencrypted, easily checkable for data loss or corruption, and simple to transfer over our networks. Implementing the BagIt system will involve customizing the Library of Congress BagIt Java library to our infrastructure. As part of this solution, we will institute a system of regular fixity assessments to discover any file degradation.

Data Acquisitions

July 2015

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: AML points, AML polys, AML sites, Air Emission Plants, Beneficial Land Uses, Captive Hazardous Waste Operations, Coal Mining Operations, Coal Pillar Location Mining, Coal Pillar Location Oil and Gas, Commercial Hazardous Waste Operations, Encroachment Location, Encroachment Locations Oil Gas, Erosion and Sediment Control Facilities, Industrial Mineral Mining Operations, Integrated List Attaining, Mine Drain Treat Land Recycling Project Locations, Municipal Waste Operations, Oil Gas Locations, Oil Gas Water Pollution Control Facilities, Radiation Facilities, Residual Waste Operations, Storage Tank Locations, Total Maximum Daily Load, Total Maximum Daily Load Lakes, Unpaved Roads, Water Pollution Control Facilities, Water Resources, Conservation Wells, Conservation Wells Plugged, Stormwater 167, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale

- Updated data from DEP California Office:

DEP_California-Active: 168 Archive Tiffs, 168 Ungeoreferenced Sids, and 157 new Georeferenced Sids (plus existing ones).

DEP_Pottsville: 22 Archive Tiffs, 22 Ungeoreferenced MrSids.

DEP_NewStanton: 1195 Archive Tiffs, 1257 Ungeoreferenced Sids, and 413 Georeferenced Sids.

DEP_Cambria: 4 Georeferenced MrSids.

DCNR_Penfield: 133 Georeferenced MrSids.

Other_Collection- Rochester_Pittsburgh: 403 Archive Tiffs, 407 Ungeoreferenced Sids, and 1329 Georeferenced Sids.

Other_Collection- OSM_Anthracite_Folios: 2 Archive Tiffs, and 2 Ungeoreferenced Sids
Updated Index Shapefile (dated 7/14/2015).

August 2015

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated data from DEP California Office:
 - DEP_Pottsville: 829 Archive Tiffs, 829 Ungeoreferenced MrSids, and 526 Georeferenced MrSids.
 - DEP_WilkesBarre: 351 Archive Tiffs, 351 Ungeoreferenced MrSids, and 28 Georeferenced MrSids.
 - DEP_NewStanton: 166 Archive Tiffs, 169 Ungeoreferenced MrSids, and 164 Georeferenced MrSids.
 - Other_Collection- Rochester_Pittsburgh: 14 Georeferenced MrSids.
 - Other_Collection- OSM_Anthracite_Folios: 26 Archive Tiffs, and 26 Ungeoreferenced Sids
 - Updated Index Shapefile (dated 8/6/2015).
 - Updated data from PA Fish and Boat Commission: Access Points, Class A Streams, Fishing Special regulation Lakes Polygons, Fishing Special Regulation Lakes Points, Trout Natural Areas
 - Updated data from PennDOT: Bonded Routes, Posted Routes

September 2015

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated data from USDA: Statewide 2013 NAIP Imagery
- Updated data from PennDOT: Bonded Routes, Posted Routes
- Updated data from the Natural Lands Trust: NLT Preserves
- Updated Data from City of Philadelphia: Philadelphia 1996, 2000, 2004,2005,2008, 2009, 2010, 2011, 2012, 2014 Imagery, Philadelphia 2008, 2010 Digital Elevation Model, Philadelphia Two Foot and Ten Foot Topography Contours, Philadelphia Impervious Surfaces 1996 and 2004, Philadelphia LiDAR 2008 And 2010

October 2015

- Allegheny County Parcels, street centerlines and address points, building footprints.

- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated Data from PA DEP California Mine Office:
 DEP_California-Active: 116 Archive Tiffs, 116 Ungeoreferenced Sids, and 96 new Georeferenced Sids (plus existing ones).
 DEP_California-Abandoned: 63 Archive Tiffs, 63 Ungeoreferenced Sids, and 60 Georeferenced Sids.
 DEP_NewStanton: 421 Archive Tiffs and 432 Ungeoreferenced Sids
 DEP_WilkesBarre: 107 Archive Tiffs, 107 Ungeoreferenced Sids, and 126 Georeferenced Sids.
 Updated PASDA Index Shapefile for the Atlas and FTP(dated 9/21/2015).
 Updated Master Index Shapefile for the FTP(dated 9/21/2015).
 Updated WPA Index Shapefile for the Atlas and FTP(dated 8/17/2015).
- Updated Data from National Aeronautics and Space Administration (NASA) and Univ of Vermont Spatial Analysis Lab: Pennsylvania statewide high-resolution tree canopy dataset
- PennDOT posted routes, bonded routes
- Updated Data from Southeast PA Transportation Authority (SEPTA): Fall routes and stops

November 2015

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated Data from PA DCNR: State Park Boundaries, State Forest Boundaries, State Forest District Offices, State Forest Lands, State Forest Wild and Natural Areas, PA Local Parks, PA Local Parks Access Points
- Updated data from PA Historic and Museum Commission: Historic Markers

December 2015

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated Data from PA DEP California Mine Office:
 DEP_California-Active: 71 Archive Tiffs, 71 Ungeoreferenced Sids, and 61 new Georeferenced Sids (plus existing ones).

DEP_California-Abandoned: 332 Archive Tiffs, 332 Ungeoreferenced Sids, and 233 Georeferenced Sids.

DEP_NewStanton: 203 Ungeoreferenced Sids

DEP_Pottsville: 161 Archive Tiffs, and 161 Ungeoreferenced Sids.

DEP_WilkesBarre: 86 Archive Tiffs, 86 Ungeoreferenced Sids, and 375 Georeferenced Sids.

Updated PASDA Index Shapefile for the Atlas(dated 11/23/2015).

Updated Master Index Shapefile for the FTP(dated 11/23/2015).

- Updated data from PennDOT: Posted and Bonded Routes
- Updated data from the Southwest PA Commission: Land Use/Land Cover

January 2016

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: AML points, AML polys, AML sites, Air Emission Plants, Beneficial Land Uses, Captive Hazardous Waste Operations, Coal Mining Operations, Coal Pillar Location Mining, Coal Pillar Location Oil and Gas, Commercial Hazardous Waste Operations, Encroachment Location, Encroachment Locations Oil Gas, Erosion and Sediment Control Facilities, Industrial Mineral Mining Operations, Integrated List Attaining, Mine Drain Treat Land Recycling Project Locations, Municipal Waste Operations, Oil Gas Locations, Oil Gas Water Pollution Control Facilities, Radiation Facilities, Residual Waste Operations, Storage Tank Locations, Total Maximum Daily Load, Total Maximum Daily Load Lakes, Unpaved Roads, Water Pollution Control Facilities, Water Resources, Conservation Wells, Conservation Wells Plugged, Stormwater 167, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale
- Updated Data from PA DEP California Mine Office:
 - DEP_California-Active: 35 Archive Tiffs, 35 Ungeoreferenced Sids, and 35 new Georeferenced Sids (plus existing ones).
 - DEP_California-Abandoned: 271 Archive Tiffs, 271 Ungeoreferenced Sids, and 159 Georeferenced Sids.
 - DEP_Pottsville: 543 Archive Tiffs, 543 Ungeoreferenced Sids, and 106 Georeferenced Sids.
 - DEP_WilkesBarre: 629 Archive Tiffs, and 629 Ungeoreferenced Sids.
 - Updated PASDA Index Shapefile for the Atlas(dated 12/18/2015).
 - Updated Master Index Shapefile for the FTP(dated 12/18/2015).
- Updated data from PA Fish and Boat Commission: Approved Trout Waterbodies, Approved Trout Waterbodies Points, Approved Trout Waters, Boating Special regulation Lakes Polygons, Boating Special Regulation Lakes Points, Boating Special Regulation Streams, Fishing Special Regulation Lakes Points, Fishing Special Regulation Streams, Fishing Special Regulation Lakes

- Updated data from PA DCNR: Explore PA Trails
- Updated data from PennDOT: PennDOT - Bonded Roads
 - PennDOT—Posted Roads
 - PennDOT - Facilities Locations
 - PennDOT - Intermodal
 - PennDOT - Pennsylvania Roads with Posted Weight Restrictions
- Pennsylvania Airports Part 77 Surface Areas
- Pennsylvania Airports Part 77 Surface Areas - Line
- Pennsylvania congressional boundaries (Act 34)
- Pennsylvania county boundaries
- Pennsylvania engineering district boundaries
- Pennsylvania Interstate Highway Exits
- Pennsylvania Interstate Mile Markers
- Pennsylvania local roads
- Pennsylvania municipality boundaries
- Pennsylvania school districts
- Pennsylvania senatorial boundaries
- Pennsylvania state boundary
- Pennsylvania state house district boundaries
- Pennsylvania state roads
- Pennsylvania state roads administrative
- Bridges
- Pennsylvania traffic counts
- Pennsylvania Turnpike
- Pennsylvania urban area boundary
- Planning Agencies Boundaries (MPO/RPO)
- Rail Lines

February 2016

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated data from Delaware Valley Regional Planning Commission (DVRPC) 4-band (natural color & color IR), 1' pixel resolution, 8-bit imagery for the PA portion of the project area), Orthotile formats – GeoTIFF and MrSID (MG4 format, 10:1 compression ratio), Individual MrSID county mosaics for the 9-county DVRPC region (Bucks, Chester, Delaware, Montgomery & Philadelphia in PA)
- Updated data from the PA Game Commission: Gameland boundaries
- Updated data from Lancaster County: Buildings, Drives, Hydroarcs, Hydropoly, Land Use Land Cover, Municipal Boundary, Parking Lots, road centerlines and types, Road Edge arc, Road Edge Poly, Urban Growth Area – Polygon
- Updated data from Lehigh Valley Planning Commission: MrSID mosaic for the LVCP 2-county region (MG4, 50:1 compression ratio).

- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated data Philadelphia: Bike Network, Empowerment Zone, Evacuation Routes, Fire Stations, Land Use, Planning Districts, Schools, Transparcels, Zoning, Curb Edges, Enterprise Zones, Fairmount Park, Impervious Surfaces, Parcels, Rubbish/Recycling, Street Centerline, Ward Divisions, Libraries, Bike Racks, Buildings, Sewer, Council Districts, Railroads, Geographic market areas, Stormwater, Corner stores, Highway district boundaries, Hydrol, Trails, Watersheds, Legislative Boundaries, Parks, Historic_Streets, Correctional_Facilities, Police Districts, Playgrounds, Commercial_Corridors, Neighborhoods, Promise Zone, Park/Recreational Districts, Traffic Districts, Solar, Neighborhoods
- Updated data from Penn State University: Imagery and Lidar
- Updated data from York County: 4-band (natural color & color IR), 1' pixel resolution, 8-bit imagery, Orthotile formats – GeoTIFF and MrSID (MG4 format, 10:1 compression ratio) for York County, PA
- Updated data from USDA : 2015 NAIP Imagery

March 2016

- Updated data from SEPTA: routes, stops, stations.
- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated data from PA Dept of Health: hospitals, nursing homes, ambulatory surgical centers.
- Updated data from the PA Fish and Boat Commission: Class A Streams, Erie Tributaries Fishing Polygons, Trout Natural Reproduction, Trout Stocked Streams, Erie Tributaries Fishing Points, Class A Streams Points.
- Updated data for the PA Mine Map Atlas: DEP_California-Active: 15 Archive Tiffs, 15 Ungeoreferenced Sids, and 15 new Georeferenced Sids (plus existing ones), DEP_California-Abandoned: 171 Archive Tiffs, 171 Ungeoreferenced Sids, and 164 Georeferenced Sids, DEP_Pottsville: 242 Archive Tiffs, and 242 Ungeoreferenced Sids, DEP_NewStanton: 1213 Archive Tiffs, 1250 Ungeoreferenced Sids, and 585 Georeferenced Sids, DEP_WilkesBarre: 1192 Archive Tiffs, and 1192 Ungeoreferenced Sids, and 149 Georeferenced Sids, DCNR_Middletown: 167 Archive Tiffs, and 167 Ungeoreferenced Sids, Other_Collections\Alpha_Natural_Resources: 33 Georeferenced Sids, Other_Collections\Blue_Coal: 363 Archive Tiffs, and 363 Ungeoreferenced Sids, Other_Collections\Rochester_Pittsburgh: 6 Georeferenced Sids, Updated PASDA Index Shapefile for the Atlas(dated 2/5/2016), Updated Master Index Shapefile for the FTP(dated 2/5/2016).

- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes

April 2016

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated data from the PA Fish and Boat Commission: Class A Streams, Trout Stocked Streams, Class A Streams Points.
- Updated data for the PA Mine Map Atlas: DEP_California-Active: 66 Archive Tiffs, 66 Ungeoreferenced Sids, and 66 new Georeferenced Sids (plus existing ones), DEP_California-Abandoned: 403 Archive Tiffs, 413 Ungeoreferenced Sids, and 330 Georeferenced Sids, DEP_Pottsville: 9 Archive Tiffs, 12 Ungeoreferenced Sids, and 22 Georeferenced Sids, DEP_NewStanton: 98 Archive Tiffs, 98 Ungeoreferenced Sids, and 1 Georeferenced Sid, DEP_WilkesBarre: 2 Archive Tiffs, 2 Ungeoreferenced Sids, and 120 Georeferenced Sids, DCNR_Middletown: 481 Archive Tiffs, and 481 Ungeoreferenced Sids, Other_Collections\Blue_Coal: 452 Archive Tiffs, 452 Ungeoreferenced Sids, and 51 Georeferenced Sids, Other_Collections\Larson_Design_Group: 43 Archive Tiffs, and 43 Ungeoreferenced Sids, Updated PASDA Index Shapefile for the Atlas(dated 3/31/2016), Updated Master Index Shapefile for the FTP(dated 3/31/2016).
- Updated Data Sets from DEP: : AML points, AML polys, AML sites, Air Emission Plants, Beneficial Land Uses, Captive Hazardous Waste Operations, Coal Mining Operations, Coal Pillar Location Mining, Coal Pillar Location Oil and Gas, Commercial Hazardous Waste Operations, Encroachment Location, Encroachment Locations Oil Gas, Erosion and Sediment Control Facilities, Industrial Mineral Mining Operations, Integrated List Attaining, Mine Drain Treat Land Recycling Project Locations, Municipal Waste Operations, Oil Gas Locations, Oil Gas Water Pollution Control Facilities, Radiation Facilities, Residual Waste Operations, Storage Tank Locations, Total Maximum Daily Load, Total Maximum Daily Load Lakes, Unpaved Roads, Water Pollution Control Facilities, Water Resources, Conservation Wells, Conservation Wells Plugged, Stormwater 167, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale
- Updated data from PennDOT: Bonded Roads, Posted Roads, Facilities Locations, Intermodal, Pennsylvania Roads with Posted Weight Restrictions, Pennsylvania congressional boundaries (Act 34), Pennsylvania county boundaries, Pennsylvania engineering district boundaries, Pennsylvania Interstate Highway Exits, Pennsylvania Interstate Mile Markers, Pennsylvania local roads, Pennsylvania municipality boundaries, Pennsylvania school districts, Pennsylvania senatorial boundaries, Pennsylvania state boundary, Pennsylvania state house district boundaries, Pennsylvania state roads, Pennsylvania state roads administrative, Bridges, Pennsylvania traffic counts, Pennsylvania

Turnpike, Pennsylvania urban area boundary, Planning Agencies Boundaries (MPO/RPO), Rail Lines

- Updated data from Delaware Valley Regional Planning Commission (DVRPC):

This data replaces the update in February. Issues were identified with the imagery that requires all of it to be replaced. Data to be updated: 4-band (natural color & color IR), 1' pixel resolution, 8-bit imagery for the PA portion of the project area), Orthotile formats – GeoTIFF and MrSID (MG4 format, 10:1 compression ratio), Individual MrSID county mosaics for the 9-county DVRPC region (Bucks, Chester, Delaware, Montgomery & Philadelphia in PA)

May 2016

- Allegheny County Parcels, street centerlines and address points, building footprints.
- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated data from the City of Philadelphia: 2015 imagery, LIDAR, DEMs

June 2016

- Updated data from PA DEP California Office:
 - 1) DEP_California-Active: 41 Archive Tiffs, 41 Ungeoreferenced Sids, and 35 new Georeferenced Sids (plus existing ones).
 - 2) DEP_California-Abandoned: 123 Archive Tiffs, 133 Ungeoreferenced Sids, and 113 Georeferenced Sids.
 - 3) DEP_NewStanton: 1586 Archive Tiffs, 1701 Ungeoreferenced Sids, and 216 Georeferenced Sids.
 - 4) DEP_WilkesBarre: 264 Archive Tiffs, and 265 Ungeoreferenced Sids.
 - 5) DCNR_Middletown: 3 Archive Tiffs, and 3 Ungeoreferenced Sids.
 - 6) DCNR_Penfield: 10 Georeferenced Sids.
 - 7) Other_Collections\CONSOL_Hardbacks: 84 Archive Tiffs, 106 Ungeoreferenced Sids, and 11 Georeferenced Sids.
 - 8) Other_Collections\Blue_Coal: 205 Archive Tiffs, 205 Ungeoreferenced Sids, and 116 Georeferenced Sids.
 - 9) Other_Collections\Larson_Design_Group: 40 Georeferenced Sids.
 - 10) Other_Collections\Pristine_Resources: 373 Georeferenced Sids.

11) Other_Collections\Rochester_Pittsburgh: 1 Georeferenced Sid.

12) Updated PASDA Index Shapefile for the Atlas(dated 5/16/2016).

13) Updated Master Index Shapefile for the FTP(dated 5/16/2016).

- Updated Data Sets from DEP: Integrated List Attaining, Oil Gas Locations, Mined Out Areas, Longwall Mining Panels, Underground Mining Permit, Public Water Supplier's (PWS) Service Areas, Water Management Plans (WMP) - Marcellus Shale, Oil and Gas wells conventional, Oil and gas wells unconventional, Attaining Non Attaining Lakes
- Updated data from FEMA Flood: Armstrong, Beaver, Berks, Blair, Bradford, Bucks, Chester, Delaware, Lancaster, Lebanon, Luzerne, Lycoming, Monroe, Montgomery, Philadelphia, Tioga, Washington, Westmoreland, York Counties
- FEMA Flood Data: State of Pennsylvania (statewide dataset)
- National Land Cover Data: nlcd_2011_impervious_2011_edition_2014_10_10, nlcd_2011_landcover_2011_edition_2014_10_10,, nlcd2011_usfs_treecanopy_cartographic2014
- Updated data from Philadelphia: Airport Amenities, Art, Airport Parking, Airport Rental, Airport Roadway, Airport Runway, Airport Terminals, Vendors, Business Service Market Areas, Storefront Improvements, Fire Department Facilities, Playgrounds, Art Monuments, Parks and Recreation Assets, Boat Launches, Parks and Recreation Districts, Fountains, Golf, Historic Houses, Ice Rinks, Older Adult Centers, Parks and Rec Parking Areas, Parks, Pools, Recreational Facilities, City Facilities, 2015 Contours, Rail, Air Monitoring Stations, Collisions 2011-2014, Crime Incidents, Diabetes Prevention Programs, Health Centers, Healthy Corner Stores, Healthy Start, Heart Healthy Screening Sites, Hospitals, Historic Streets, Evacuation Route, Leaf Collection, Choice Neighborhoods, Philly Rising, City Limits, Commercial Corridors, Sanitation, Streets, 2016 Council Districts, Existing Trails, Land Use, Neighborhoods, Promise Zones, Planning Districts, Political Divisions, Political Wards, Schools, Zoning

PASDA Outreach & Meetings

Finally, PASDA has continued to give back to the GIS community. As in past years, PASDA staff have participated in numerous meetings including PA GIS Day planning meetings, the PA GIS conference planning meetings (for both of which PASDA developed sessions, obtained speakers, and also presented), PAView meetings, Northwest PA GIS conference, Pennsylvania Land Surveyors Association. PASDA has also provided support and guidance for counties and local governments, regional entities, other states and federal agencies in particular supporting the USGS Hydrology Survey and the FGDC/Library of Congress Historical Data Users Group.

Presentation at Academy of Sciences
Data Day

PA Geospatial Advisory Board
Governance Task Force
Services Delivery Task Force
Data Task Force
Weekly status meetings
Weekly CMR meetings
Weekly PASDA staff meetings
Monthly meetings with system administration staff including HPC and EMS
Monthly conference calls for the GIS conference
Monthly conference calls for GIS Day
Presented and exhibited at Pennsylvania GIS Day
Exhibited and presented at the PA GIS Conference
Exhibited and presented at the Northwest PA GIS Conference
Invited Speaker PA Association of Land Surveyors Annual Conference
Invited Speaker, National Academy of Sciences/CENDI summit on data commons.
Monthly WebEx Library of Congress/FGDC Geospatial Data Preservation Group

User Support & Assistance

Assistance provided to the Following (some examples): PA One Call, Centre County, CoreLogic, USGS, Hanover Engineering, Lancaster County, McCormick Taylor, AE 7, Range Resources, City of Philadelphia, Lambert Surveying, RK&K, City of Philadelphia, Henkels and McCoy Inc, Allegheny County, DEP, US Army National Guard, Lancaster County Planning Commission, University of Kentucky, Van Cleef Engineering Associates, Erdman Anthony Inc, Keystone Powdered Metal, Shippensburg University, PennDOT Engineering District 3, Christine Davis Consultants, US Army Corps Baltimore, Fagan Engineers and Land Surveyors, Penn State Erie, Ted Oman and Assoc., PA One Call, City of Philadelphia, Woodrow and Associates, RunTitle, Drexel University, BDC Surveying, Southwest PA Commission, Hilling Land Surveying, GeoSearch, Trimble Surveyors, Rex Energy, Professional Services Industries Inc, Natural Lands Trust, University of Pennsylvania, McMillen Engineering, Harvard University, PennDOT District 4-0, Syneron, Cornerstone Environmental. Southwest PA Commission, Cornerstone Environmental, PA DEP, PennDOT, McMillen Engineering, PennDOT District 4, USGS, Natural Lands Trust, Allegheny County, PA General Energy, US Army Corps Pittsburgh, AECOM, Juan Francisco Architecture, Carnegie Mellon University, Phila Parks and Rec, PA LDPC, Whitman, Requardt and Assoc, Chesapeake Energy, National Weather Service (State College Office), Ohio State University, SEPTA, Temple University, Moore Design Assoc, Oman Surveying, Redzone Robotics, Pittsburgh Post Gazette, Dawood Engineering, Municipal Authority of Westmoreland County, Urban Science, PennDOT, Drilling Info Assoc, EB Walsh Associates, University of Calgary, Pennsylvania General Energy, West Virginia University, Bison Land Surveying, Dawood Engineering, Alpha Geoscience, Mercer County, AECOM, DEP Southeast regional office, Woodrow and Associates, DoGoia Ray Assoc, Johnston & Assoc, American Geotechnical and Environmental Services, DEP Moshanon District Mining Office, Uber, Alfred Benesch and Company, GAI consultants, Range Resources, Clarion County,): GAI Consultants, ALK Technologies, Drilling Info, Siemens,

Susquehanna River Basin Commission, USGS, City of Philadelphia, University of Kentucky, PennDOT engineering district 4, Southwest PA Commission, Dep Moshannon District, HDR, Crossroads Group, Temple University, Trimble Corp, University of Pittsburgh, Skytruth, Rowan University, US Army Corps Hanover NH, Ted Oman Associates, Delaware River Watershed Initiative, PA DEP, Natural Lands Trust, Kutztown University, Gannett Fleming, Continental Conservation, Ted Oman and Associates, North Penn Water Authority, Wildlands Conservancy, HDR Inc, PennDOT Engineering District 3, University of Vermont, Nittany Engineering Associates, PA Fish and Boat Commission, PA DCNR, Lackawanna County, PAView Program, USGS, Penn State University Library, Allegheny County, Western Pennsylvania Conservancy, PA DCNR, Nittany Engineering, Amec/Foster/Wheeler, Natural Lands Trust, Dawood Engineering, McClane Associates, Coastal Resources Inc, University of Vermont, Bucknell University, University of Maryland Center for Environmental Sciences, TeamAg Inc, PA DEP Moshannon District Office, Keller Engineers, York County, Delaware River Watershed Initiative, Pennsylvania General Energy, US Geological Survey Eastern Center, FEMA Atlantic Corps, Keima Technologies, Philadelphia Airport, Allegheny County, Duquesne Light, DEP Moshannon District, Rutgers University, Chester County, Natural Lands Trust, DVRPC, York County, University of Vermont, ESRI, University of Wisconsin, US Naval Facilities Engineering Command, Register Associates, Millersville University, Ursinus College, The Trust for Public Land, Barry Isett & Associates, Kappa Map, DEP Geospatial Data Services Center, DCNR, Upper Susquehanna Coalition, Center for Rural PA, Lycoming County, Susquehanna River Basin Commission, World Map Source, Historical Society of PA, Lake Engineering, Villanova University, DVRPC, SSM Group, D'Annucci Associates, Seneca Resources, Historical Society of Pennsylvania, FEMA Region 3, Kansas State University, Precision Hawk, City of Philadelphia, Allegheny County, Tetra Tech, Hartman and Associates, GeoSearch, DEP Wilkes Barre Office, JHA Companies, CNA, DMVA, North Central PA Regional Planning Commission, Geodecisions, St Vincent College, Center for Rural PA, University of Pittsburgh, ASPRS, PSEA, HACC, Phila Port Authority, US Army Corps Pittsburgh, Michael Baker Inc, Carnegie Mellon University, Lycoming, Shippensburg University, Delaware Valley Regional Planning Commission, Centre County, Philadelphia University, Lockard Surveying,): HACC, University of Pittsburgh, Lycoming County, PSEA, Crews Surveying, City of Philadelphia, US Army Corps Pittsburgh, Wrightstone Energy Consulting, PennDOT Engineering District 3-0, Historical Society of PA, Dept of Military and Veterans Affairs, Streamline Engineering, Natural Lands Trust, Villanova University, PA DCNR, PennDOT Design District 4-0, Brier and Brier Law firm, California University of PA, PA Utilities Commission, CH2M, Hershey Surveying, Hess & Fisher Engineers, PA DEP California Office, Philadelphia Regional Port Authority, Riparia, USGS National Geospatial Program, Planned Parenthood Federation of America, University of Vermont, Shippensburg University, Miltech Energy, Cumberland County, PennDOT Engineering District 1-0, PA Fish and Boat Commission, Uber Advanced Technology Center, Dubois Environmental Consultants, Chesapeake Energy Corporation, Washington County, Center for Rural Pennsylvania,): CTEC, Franklin and Marshall College, University of Vermont, PA DEP Knox District Office, University of Pittsburgh, Natural Lands Trust, Environmental Protection Agency Region 3, University of Pennsylvania, Fish and Boat Commission

biologist, PA Game Commission, AECOM, Encentiv Energy, PUC, Keystone Consultants, PA DEP Bureau of Clean Water, SQCivil, LR Kimball Inc, Langan Assoc, Erie County, PA Horticultural Society, City of Philadelphia, Open Data initiative, Bohler Engineering, Silver Co, National Geospatial Program, Department of Pediatrics University of Pittsburgh Medicine, Hunt & Associates, CT Consultants, Chester County, Geodecisions, ESRI.

Appendix A: PASDA Service Provider Profile

Service Provider Profile:

Pennsylvania Spatial Data Access (PASDA)

Service	Description	Purpose	Stakeholder
Data Storage	<p>PASDA provides data storage to all data providers free of charge.</p> <p>The data stored by PASDA is free and publicly accessible.</p> <p>Data to be stored is acquired from the data originator directly. The original source data is stored and can be downloaded directly from an FTP site by users.</p> <p>In addition, PASDA stores historic versions of all data enabling users to have direct access to multiple time periods of data if needed.</p> <p>Data storage is provided via the Penn State High Performance Computing Center/Advanced Cyber Infrastructure and the Earth and Mineral Sciences High Performance Computing Group.</p> <p>There are multiple layers of data storage services provided by PASDA. This storage is for ongoing, very rapid access to data.</p> <p>For additional types of storage provided, see additional services below.</p>	<p>The purpose of this activity is to encourage the sharing of data throughout the Commonwealth.</p> <p>It provides for an integrated one stop shop that delivers trusted, consistent, authoritative data and services.</p> <p>In addition, the existence of an official repository to store data for Commonwealth agencies eliminates redundancy and the development of information silos.</p>	<p>This activity benefits multiple stakeholders including the original data provider and citizens of the Commonwealth.</p>

Data Management & Curation

PASDA manages a significant amount of data. Data is an asset, a driver of economic development, a vital decision making tool, and an historical record and is therefore valuable to the citizens of the Commonwealth. All data needs to be managed and curated.

Data management and curation enables data discovery and retrieval, maintains source data quality and authentication, adds value, and provides for ongoing use over time.

PASDA has developed processes and procedures for managing incoming and existing data.

Data can be updated at any interval depending on the needs of the data provider.

All data provided to PASDA is opened and reviewed for completeness. Once the data is reviewed, the PASDA database specialist will take the data through the remaining steps that result in public access.

These steps include:

- Creating or updating of metadata to meet ISO standards and inclusion of distribution information and use constraints.
- Creating or updating keyword search terms and ISO themes.
- Placing source data on FTP site.
- Creating map services and APIs--WMS, REST, feature, image. NOTE: WMS services are open format map

The purpose of this activity is to:

- Ensure data integrity, longevity, and consistency.
- Provide ISO standard metadata.
- Provide access to data for all levels of users.
- Provide for a feedback loop for data providers and stakeholders.
- Ensure that users are accessing complete datasets.
- Provide access to datasets from multiple time periods as well as the most recent data received.

The stakeholders benefitting from this service are users of the PASDA site and the data providers.

	<p>services; Feature services are services which provide the user with the ability to customize the service, query the service, etc.</p> <ul style="list-style-type: none"> • Creating a KML that allows users to view the data in Google Earth. • Adding the data to applications such as the Pennsylvania Atlas, Mine Map Atlas, or Imagery Navigator where applicable. • Adding to Data Preview option. • Previous versions of the data are moved to the historic data folder for that data set (where applicable) so they continue to be accessible to users who want to see earlier versions. • Notifying data provider of availability. <p>If PASDA finds any problems or errors are reported with the data, we notify the data provider and if necessary either remove or replace the file with an updated data set.</p> <p>PASDA also provides statistical reports of data use to our data partners.</p>		
<p>Data Backup</p>	<p>Data backup is the first level of additional storage and supports overall data management and the disaster recovery program for PASDA.</p> <p>This is near line storage.</p> <p>Data stored at PASDA is backed up every night.</p> <p>Data backup is provided via the Penn State High Performance Computing Center/Advanced</p>	<p>The purpose of this first level is to provide for easy restoration of data, applications, and services should there be a system failure. This activity ensures that no data and value are lost in case of a disaster.</p>	<p>The stakeholders are PASDA, data providers, and citizens of the Commonwealth.</p>

	<p>Cyber Infrastructure and the Earth and Mineral Sciences High Performance Computing Group.</p>		
<p>Metadata Development</p>	<p>Metadata development is one of the most important elements of providing access to data.</p> <p>All data available through PASDA must have metadata. Metadata is the backbone of the PASDA search capability. It provides increased value to the underlying data when developed based on quality and consistency standards.</p> <p>Metadata on PASDA is developed according to the International Organization for Standardization (ISO) standard: ISO 19115: Geographic information – Metadata. This standard has been harmonized with the Federal Geographic Data Committee (FGDC) standard. The ISO standard is an international standard followed by government agencies and geospatial data repositories around the world.</p> <p>If data providers do not have metadata or have limited metadata for their data, PASDA will further develop the metadata to meet the standard.</p>	<p>Metadata describes the purpose, methodology, accuracy, geographic extent, attributes, spatial reference information, etc. of a data set.</p> <p>Metadata lets users know what they are using—what is the resolution, what is the accuracy, what is the coverage, how did the data originator make the data and more. It is the Who, What, When, Where, How of the data.</p> <p>Quality standard metadata support data management, curation and archiving as well as serving as the foundation for data search engines.</p> <p>In addition to developing standard metadata, PASDA adds distribution information and use constraints to all metadata.</p>	<p>The stakeholders for this activity are the data providers and users of the data.</p>
<p>Metadata Training</p>	<p>PASDA provides metadata training for organizations around the Commonwealth.</p> <p>Metadata training is done using a metadata editor and participants are trained in the ISO standard for metadata.</p>	<p>The purpose of metadata training is to support data development, management, and curation.</p> <p>In addition, better metadata makes it much easier for users to understand data</p>	<p>The stakeholders in this activity are data providers, PASDA, users of PASDA, GIS data managers/developers across the Commonwealth.</p>

	<p>PASDA trains both data providers (PASDA partners) and other data creators in the Commonwealth.</p>	<p>and use data wisely and effectively.</p>	
<p>Data Search Engines</p>	<p>PASDA has multiple types of search engines for data, services, and applications on the PASDA site. These interfaces include simple keyword search engines and a search by data provider. Applications also provide a search by address, county, and simple pan/zoom.</p> <p>In addition, users can search for data via ISO standard themes which are included in the metadata. These themes are represented graphically through icons for Imagery, LIDAR and Elevation, Biota, etc., in the Data Shortcuts section of the homepage.</p> <p>PASDA also created specific themes and icons that represent specific categories of providers such as local governments and NGOs/Academic institutions.</p> <p>The keyword search function is a search of the metadata including title, abstract, themes, and keywords.</p> <p>All of the information to support the search engines is located in the PASDA User Centered Interface (UCI) relational database.</p>	<p>PASDA develops data search engines/ interfaces to support easy user access to data.</p> <p>The development of these interfaces has been driven by user feedback over time.</p>	<p>The primary stakeholders for this activity are PASDA users.</p>

<p>Data Download</p>	<p>There are multiple data download services available via PASDA.</p> <p>Experienced users will often go directly to the PASDA FTP site and navigate the directories to find the data they need. This is facilitated by a “Browse FTP Site” icon on the home page.</p> <p>In addition, PASDA users can directly download multiple formats of the data from the Data Summary page. These options include the original source data, KMLs, GeoJSON, and CSVs.</p> <p>Data may also be downloaded directly from the PA Imagery Navigator, PA Atlas, and PA Mine Map Atlas.</p>	<p>Data download is a primary purpose of PASDA. Users have access to the original source data directly, as well as options for alternative formats derived from the original source data.</p>	<p>The stakeholders in this activity are PASDA users and data providers.</p>
<p>Map Service/API Resources</p>	<p>Map Services are streaming services that can be consumed by PASDA users without having to download the data (which would include the need for FTP, unzipping, and storing locally).</p> <p>Map services are accessible with a click of a button on the PASDA interface and can be pulled into software on the user’s desktop.</p> <p>PASDA offers multiple types of consumable services:</p> <ul style="list-style-type: none"> • Web Map Service • Rest Service • Feature Service • Image Service • KML 	<p>The purpose of these services is to facilitate ease of use of data. Services are easy to consume, and reduce the need for resources on the user side—no need to download and store data locally. In addition, developers can utilize these services to create their own applications.</p>	<p>Stakeholders for these services include data providers (data providers often consume services of their own data via PASDA), and users of the PASDA site.</p>
<p>Digital Object Identifiers</p>	<p>The DOI system was designed to provide a form of persistent identification.</p>	<p>PASDA is currently working on creating DOIs for data.</p>	<p>Stakeholders for service are data providers, data users,</p>

(DOI)	<p>The DOI system is an international standard developed by the International Organization for Standardization (ISO) in its technical committee on identification and description.</p> <p>An example of a DOI looks like this: doi:10.10.1038/nphys1170</p>	<p>Each DOI permanently identifies the object to which it is associated. It also associates metadata with objects, allowing it to provide users with relevant pieces of information about the objects and their relationships.</p> <p>This system will enable users to know exactly where a data set is even if PASDA has to move the data to a new server or URL.</p> <p>This also benefits those organizations or data portals that access data via PASDA.</p> <p>If something changes on the PASDA side, the portals do not have to change their pointers to data.</p>	<p>journals/publications, researchers, data portals.</p>
Archiving	<p>PASDA is not only a data portal and repository, it also serves as an archive for data created by, for, or about the Commonwealth of Pennsylvania.</p> <p>Data archiving is key to managing data so that it can be accessed in the future. Data archiving (which is not the same as providing access to historic versions of data sets) is for long term preservation of data.</p> <p>In recent years, digital data has become significantly more transient. Without active management, data can decay and/or disappear. In addition, as GIS professionals move in and out of their positions as data creators, it is extremely common for data to be lost, erased, or overwritten. Since data is an asset of value to the</p>	<p>PASDA has worked with data providers in the Commonwealth for over 20 years to provide access to and archive data.</p> <p>PASDA is a member of the Federal Geographic Data Committee and Library of Congress Historical Data Working Group which focuses on the preservation of Geospatial Data.</p> <p>PASDA works with this group to identify data of scientific and historical value to the Commonwealth and the NSDI and to identify data of scientific and historic value. In addition, identification of long term preservation formats is a part of the archiving process.</p>	<p>Stakeholders for this service are data providers, users, citizens of the Commonwealth.</p>

	<p>citizens of the Commonwealth, it is vital to ensure that data is available for future generations.</p> <p>Data archiving is done in collaboration with the Penn State University Libraries utilizing a process developed by the AP Trust.</p>		
<p>Application: Imagery Navigator</p>	<p>The Pennsylvania Imagery Navigator is a mapping application that provides easy, integrated access to all available imagery, lidar, and elevation data hosted by PASDA.</p> <p>The Imagery Navigator provides access to imagery and lidar and elevation data from state and federal agencies and local and regional governments for multiple years and at multiple resolutions.</p>	<p>The Imagery Navigator was created to facilitate access to data from multiple providers from multiple years.</p> <p>It is a one stop shop for this type of data for the Commonwealth.</p>	<p>Stakeholders for this service include data providers and data users.</p>
<p>Application: PA Mine Map Atlas</p>	<p>The Pennsylvania Mine Map Atlas provides access to more than 40,000 scanned and georeferenced underground mine maps for the Commonwealth. Residents and stakeholders can view detailed underground mine maps that were once only available in hard copy. It enables users and specifically homeowners to view mine maps and their home's proximity to the nearest underground mine.</p> <p>In addition, the web map atlas is integrated with the Pennsylvania Historic Underground Mine Map Inventory System (PHUMMIS) which is managed at the PA Department of Environmental Protection.</p>	<p>The purpose of this application is to support the DEP goal of educating the public and providing information about the Mine Subsidence Insurance Program (MSI) program for citizens of the Commonwealth.</p> <p>In addition, this project will preserve and provide long term access to valuable data.</p>	<p>Stakeholders for this service include citizens of the Commonwealth and the PA DEP.</p>

<p>Application: PA Atlas</p>	<p>The Pennsylvania Atlas is a web mapping application that allows users to view and download data via a map interface. It provides access to multiple statewide layers including recreation, conservation, hydrology, transportation, and more.</p>	<p>The purpose of this application is to facilitate visualization and use of data for citizens of the Commonwealth who are not GIS experts but have a need to view data.</p>	<p>The stakeholders for this service are PASDA users.</p>
<p>Data Preview</p>	<p>The Data Preview option on PASDA is a service that allows users to view a single data layer and attributes without having to download the data.</p>	<p>The purpose of the Data Preview service is for users to see data before they download it and for users who do not have GIS expertise or software to have the ability to use and view data via PASDA.</p>	<p>The stakeholders for this service are PASDA users.</p>
<p>User Support</p>	<p>User support includes responding to inquiries from users via email, phone and in person. PASDA responds to more than 5,000 user requests per year.</p> <p>All PASDA staff are engaged in user support as support needs can vary widely.</p> <p>PASDA staff are on-hand to provide a direct point-of-contact and timely response to communications from users.</p> <p>Types of support include questions about data, questions about applications and services, technical questions about software and data integration, troubleshooting, etc.</p> <p>PASDA also created and maintains tutorials on the following: Using the PASDA site; using map services; Using ArcGIS; and GIS basics.</p>	<p>The purpose of this service is to ensure that PASDA is providing users with the information they need to utilize the data and services provided.</p>	<p>Stakeholders for this service include data providers, data users, and citizens of the Commonwealth.</p>

	In addition, PASDA provides support for our data partners on issues such as metadata and data management.		
Offline Data Access	<p>PASDA provides access to data via offline media such as external hard drives and DVDs.</p> <p>Users can send an external hard drive to PASDA with a return label and PASDA will put data on the drive and return it.</p>	<p>The purpose of this service is to facilitate the use of data such as imagery and LIDAR that would normally require significant time to download at a statewide level.</p> <p>For example, PASDA provides copies of all imagery and lidar to state agencies on request.</p>	<p>The stakeholders for this service are citizens, state, local, and federal agencies.</p>
Integration with Additional Resources	<p>PASDA links to additional resources for viewing and utilizing data.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Mapping Application Integration: PASDA hosts data from PA Fish and Boat Commission. The data summary page for datasets from the Fish and Boat Commission includes links to mapping applications hosted by the PFBC that contain that same data. • Commonwealth Database Integration: PA Mine Map Atlas is integrated with the DEP PHUMMIS database. PHUMMIS is a live database updated daily. 	<p>The purpose of this service is to provide multiple options for viewing and accessing the data to the public.</p>	<p>The stakeholders for this service are data users and citizens of the Commonwealth of Pennsylvania.</p>

Outreach

PASDA provides significant outreach that benefits the geospatial community in Pennsylvania.

Examples include:

- PASDA is a member of the PA GIS Conference Committee and presents and exhibits each year.
- PASDA is a member of the PA GIS Day committee and presents and exhibits each year at multiple GIS Day events.
- PASDA presents and exhibits at the Northwest PA GIS Conference each year.
- PASDA presents at the PA Society of Land Surveyors Conference.
- PASDA has presented at the EnerGIS conference, the Western PA GIS Conference.
- PASDA meets with state agencies, local, and regional governments, schools, and other institutions to provide guidance and information on managing geospatial data and metadata.
- PASDA is a member of the Federal Geographic Data Committee and Library of Congress Historical Data Working Group which focuses on the preservation of Geospatial Data.
- PASDA is a member of the Pennsylvania Geospatial Coordinating Board.

The purpose of this service is to ensure that PASDA is providing support for organizations within the Commonwealth.

Stakeholders for this service include state and local government agencies, educational institutions, nonprofits, and citizens of the Commonwealth.

	<ul style="list-style-type: none"> PASDA is a member of PennsylvaniaView and ChesapeakeView. These efforts are multi institution programs that seek to support education and outreach related to GIS and remotely sensed data. 		
Data Integration & Harvesting	<p>PASDA is part of the National Spatial Data Infrastructure (NSDI). The NSDI has become a critical vehicle for facilitating seamless data development, information sharing, and collaborative decision making across multiple sectors of the economy.</p>	<p>Providing other data portals such as Data.gov and the National States Geographic Information Council (NSGIC) with a mechanism to harvest data from PASDA so that the information is represented in data portals at all levels of collaboration.</p>	<p>The stakeholders of this service are data portals, data providers, state and federal government agencies, and data users.</p>

