Slide 1

PASDA

2026 SURVEYORS' Conference

Open GIS Data Access for the Commonwealth of Pennsylvania

Pasda.psu.edu

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Slide 2

Session Overview

Introduction & Overview	PASDA Background, Historical Context, The PASDA Model
Data	Data Updates & Future Data
Services	Website, Applications, Tools, & Services
Collaboration	Statewide Initiatives
Vision & Wrap Up	Where do we go next? What do you need from us?

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Slide 3

YOUR ROLE IN TODAY'S SESSION

You are being asked to provide feedback during the presentation.

Please ask questions.

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Slide 4

WHAT IS PASDA?

Pennsylvania Spatial Data Access (PASDA) is Pennsylvania's public access geospatial information clearinghouse.

PASDA was developed in 1995 by the Pennsylvania State University and has served as the GIS data portal for Pennsylvania for over 30 years.

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.

Penn State provides significant contributions to PASDA including system administration support and infrastructure from the Institute for Computational and Data Sciences and the College of Earth and Mineral Sciences.

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Slide 5

PASDA Staff

Maurie Kelly

↓

James Spayd

↓

Ryan Baxter

↓

Bernd Haupt

↓

Approximately 2.75 staff manage PASDA

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Slide 6

Historical Context

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### Who is it? Hint: Not the one from the musical

7

Historical Context

James Madison, 4th president of the United States and a man who is often called the Father of the Constitution, framed this idea when he stated:

• *"A popular government without popular information, or the means of acquiring it, is but a prologue to a farce, or a tragedy, or perhaps both."*

• *"Knowledge will forever govern ignorance; and a people who mean to be their own governors must arm themselves with the power which knowledge gives."*
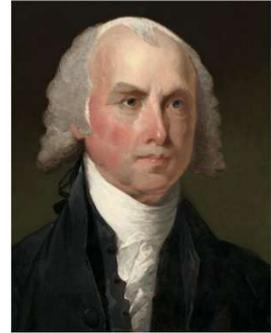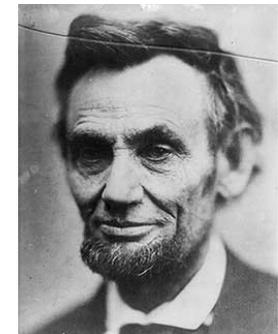

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Lincoln
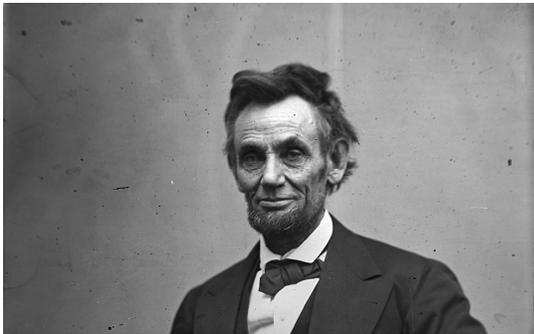
9

Historical Context

• Madison wasn't the last of our Presidents to discuss the power of access to information. In an 1859 address in Jackson Illinois, Abraham Lincoln said:

"To emancipate the mind is the great task which printing came into the world to perform. Discoveries, inventions, and improvements, followed rapidly and have been increasing their rapidity ever since."
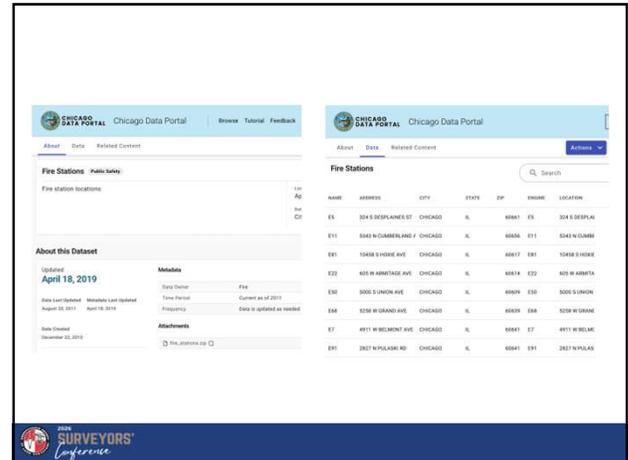

10

My Story

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Background

• Penn State Library
• University of Illinois at Chicago

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Events

Events started to shape the data sharing environment.

In Chicago, a heatwave in the summer of 1995 led to more than 700 heat related deaths.

Agencies that had been unwilling before to share information, gave in due to calls for more transparency, access to data.

The refrain "I didn't know" was everywhere. "I didn't know where to go to get cool", "I didn't know where vulnerable people lived", "I didn't know so many people didn't have air conditioning".

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My Scientific Methodology

Power of Social Proof or Logic of Appropriateness. If others are doing it, then it is the right thing to do.	Normalizing the Process. There may be some bumps on the road to sharing data, but that is normal, and we will get through it.	Donuts. Food always helps put people at ease.
Beer. Some afterhours drinks allow people to build trust.	If those approached didn't work, I tried donuts and beer at the same time. This was a particularly effective approach, and you wouldn't believe how much data is available today because of that noble combination.	

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PASDA

🏛 In 1997 I came to Penn State. PASDA had been in operation for a couple of years.

👤 The Pennsylvania Department of Environmental Protection was the first data provider and original funder for PASDA.

🐟 Then agencies like PennDOT, PA Department of Conservation and Natural Resources, the Game Commission, Fish and Boat Commission and others joined in.

❄ Lancaster County jumped on board.

📊 Then the City of Philadelphia decided to openly share its data with PASDA.

🌐 That was a big day. My donut budget for that one was pretty high!

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September 11th

Then September 11th happened.

On that terrible day, so many lives were lost, and we were changed forever. It also changed our understanding of the value of sharing data.

The primary emergency operations center for New York City was in the basement of World Trade Center 7.

When the building collapsed the center was destroyed, and along with it, all the geospatial data used for operations and emergency response.

A new emergency data center had to be created.

This was only possible because of the work of another group that hosted NYCMAP in another location.

The data was created and shared with others.
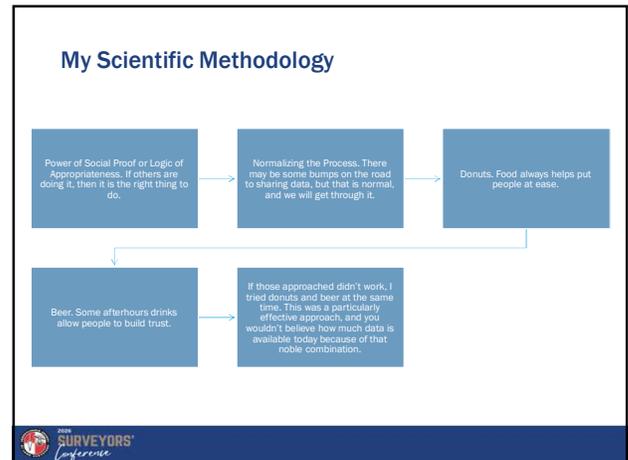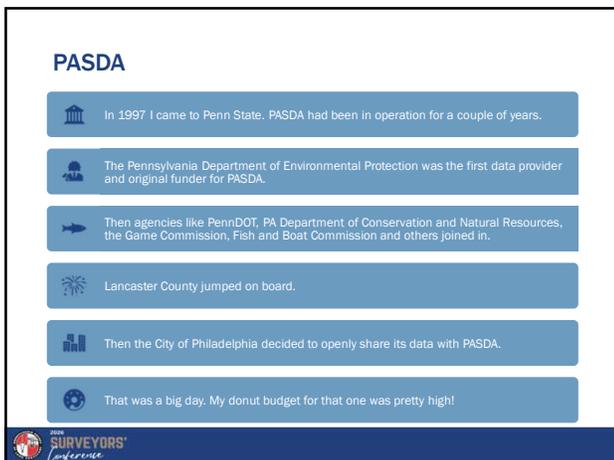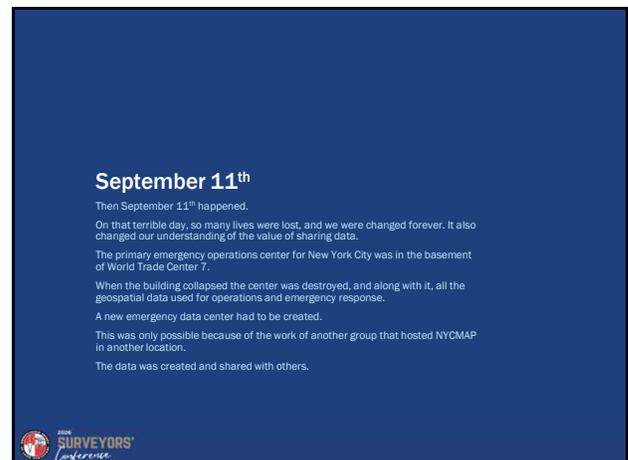
18

PIVOTAL MOMENT

- That was a pivotal moment for all open access data portals and PASDA was no exception.
- We had real discussions about whether we should take all the data down and stop sharing—at least for a while.
- Other states did.
- But in Pennsylvania, we saw the value in continuing to serve the public and it became clear that access to data was still vital.
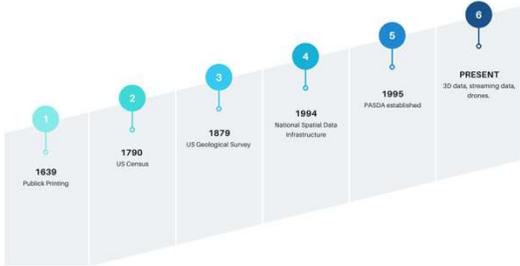- So PASDA stayed online.

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Building Trust

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Building Trust...and having swag.

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Information Development Access Timeline

1 — 1639 Publick Printing
2 — 1790 US Census
3 — 1879 US Geological Survey
4 — 1994 National Spatial Data Infrastructure
5 — 1995 PASDA established
6 — PRESENT 3D data, streaming data, drones.

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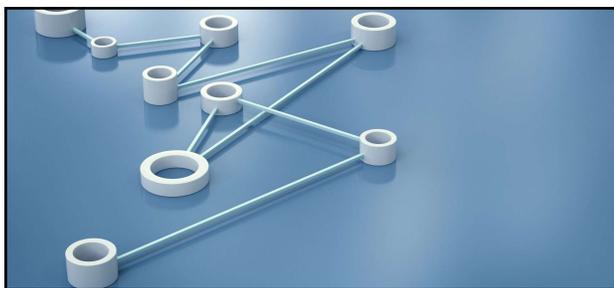
Why is PASDA Important to the Commonwealth?

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Why PASDA Matters

Maintaining PASDA as a coordinated and comprehensive open data portal:

- Eliminates the creation of **Data Silos** that can frustrate users.
- Fosters **coordination and cooperation**.
- Streamlines **easy access** to a **broad range** of data from many providers.
- Enables data management throughout the **data life cycle**.
- Closes the loop by **archiving and preserving** data for the **long term**.
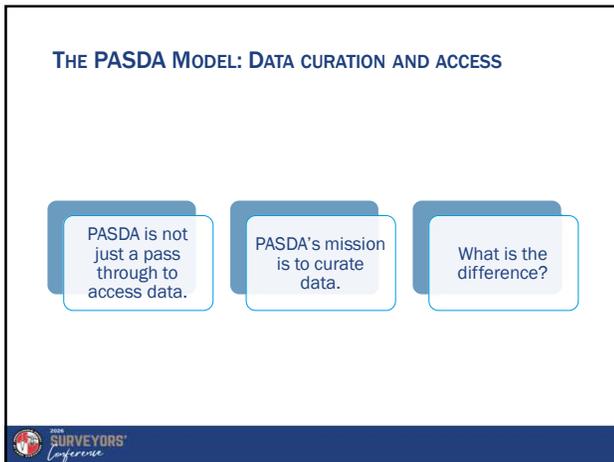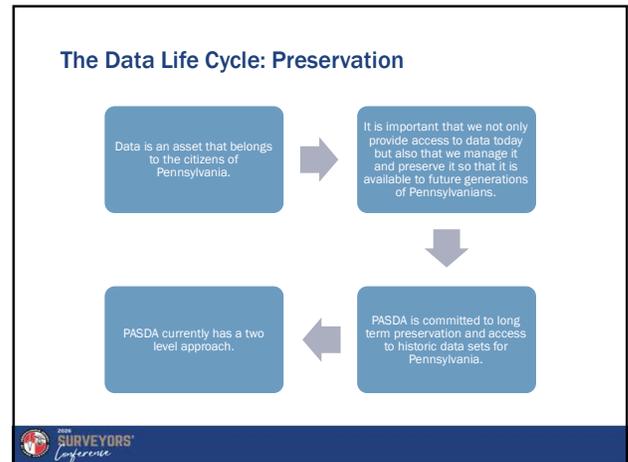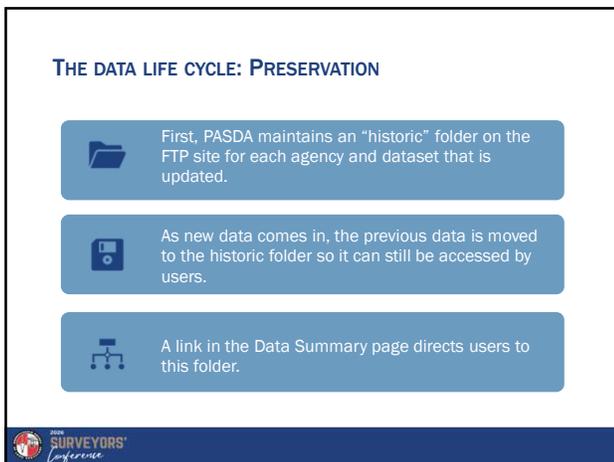- Provides a point of contact for users and providers.

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THE PASDA MODEL

- **Authoritative Data** - Any authoritative data provider can share data via PASDA.
- **Data Life Cycle** - Data is curated over its lifetime and preserved for future data users.
- **Widespread Integration** - Data on PASDA is integrated across external platforms.
- **User Support** - PASDA provides direct point of contact support for users.
- **Engagement** - PASDA is engaged with partners across the commonwealth.

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The PASDA Model: Open to All Authoritative Data

Any state, local, regional, federal government, nongovernmental organization, or academic institution can freely share its geospatial data through PASDA.

Why?

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THE PASDA MODEL: DATA CURATION AND ACCESS

PASDA is not just a pass through to access data.

PASDA's mission is to curate data.

What is the difference?

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The Data Life Cycle: Preservation

Data is an asset that belongs to the citizens of Pennsylvania.

It is important that we not only provide access to data today but also that we manage it and preserve it so that it is available to future generations of Pennsylvanians.

PASDA currently has a two level approach.

PASDA is committed to long term preservation and access to historic data sets for Pennsylvania.

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THE DATA LIFE CYCLE: PRESERVATION

First, PASDA maintains an "historic" folder on the FTP site for each agency and dataset that is updated.

As new data comes in, the previous data is moved to the historic folder so it can still be accessed by users.

A link in the Data Summary page directs users to this folder.

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The Data Life Cycle: Preservation

Second, PASDA is addressing the long-term archiving of data.

This approach combined with access to current data ensures that citizens of the Commonwealth have access to data today and in the future.

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THE PASDA MODEL: DATA CURATION AND ACCESS

Data curation is the management of **data** throughout its lifecycle from initial publication and storage to the time when it is archived for posterity.

We ensure that data is available today and tomorrow so that the value of the data is maintained over time, and the data remains available for use, reuse, and preservation.

We ensure that data from multiple sources are integrated into a coordinated, searchable, authoritative system that will provide access for the long term.

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THE PASDA MODEL: DATA CURATION AND ACCESS
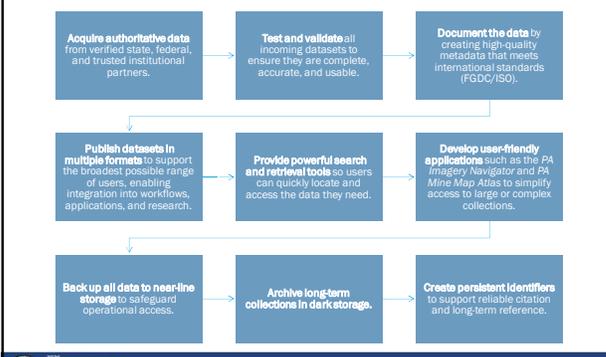
Acquire authoritative data from verified state, federal, and trusted institutional partners.

Test and validate all incoming datasets to ensure they are complete, accurate, and usable.

Document the data by creating high-quality metadata that meets international standards (FGDC/ISO).

Publish datasets in multiple formats to support the broadest possible range of users, enabling integration into workflows, applications, and research.

Provide powerful search and retrieval tools so users can quickly locate and access the data they need.

Develop user-friendly applications such as the *PA Imagery Navigator* and *PA Mine Map Atlas* to simplify access to large or complex collections.

Back up all data to near-line storage to safeguard operational access.

Archive long-term collections in dark storage.

Create persistent identifiers to support reliable citation and long-term reference.

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The PASDA Model: User Support

PASDA staff are available to respond to a wide array of questions--from how to use data to data creation methodologies to how to use the site.

PASDA staff are on-hand to provide a direct point-of-contact and timely response to communications from users.

User support includes responding to inquiries from users via email, phone and in person.

PASDA responds to thousands of user requests per year.

We are always there for our providers and our users.

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The PASDA Model: Widespread Integration

PASDA allows other data portals to "harvest" metadata allowing the data holdings on PASDA to be published in other data portals such as the National States Geographic Information Council (NSGIC) GIS Data Inventory, Data.gov, the Big 10 Geospatial Portal, and via ArcGIS Online where PASDA has maintained its organizational presence since 2000 (with the development of the forerunner of AGOL, The Geography Network).

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PASDA MODEL: ENGAGEMENT

- Central PA GIS Day
- NW PA GIS Conference
- PA GIS Conference
- PA GeoBoard
- PSLS
- PAFPM

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PASDA MODEL: ENGAGEMENT

- PASDA works across organizations from government agencies to non profits.
- PASDA supports/participates in the PA Geospatial Coordinating Board, multiple PA GIS Day events and conferences.
- Works with state agencies such as PEMA, PA DEP, PA DCNR, PA Dept of Health, PA Game Commission, PA Fish and Boat Commission, State Police, Dept of Insurance; Federal agencies such as FEMA, National Weather Service, USGS, Army Corps of Engineers, EPA; regional governments such as the Delaware Valley Regional Planning Commission and river basin commissions; local governments; non profit organizations such as WeConservePA, Audubon Society; and academic institutions.

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PASDA Architecture

PASDA stores almost a petabyte of data and provides access to more than 450,000 data sets.

(Note: This does not include the statewide imagery cache (this data is only available for use via a map service or for viewing via the PA Imagery Navigator) which consists of more than1.2 million images.

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PASDA Architecture

Institute for Computational and Data Sciences (ICDS) provides a High-Performance Storage Archive capability for PASDA.

The ACI-HPSA infrastructure includes clustered file systems that interconnect across high-speed Ethernet, Infiniband, and Fibre Channel network fabrics.

They provide active storage, near-line storage pools that provide a long-term data storage and back up and an archive storage repository.

They also provide system administration and support for PASDA.

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PASDA Users

- PA Governments: State, County, Municipal, Regional
- Federal Government Agencies: EPA, FEMA, US Army Corps, Homeland Security, National Weather Service, Army Corps, Transportation.
- Emergency Responders, Police Departments, Flood Plain Managers
- Non-Profit Organizations: Conservancies, Watershed Organizations, Social Service Support Organizations, Food Banks, Shelters
- Conservation Districts

- Surveyors
- K-12 Schools, Vocational Education, Higher Education
- Business and Industry: Engineering, Utilities, Architects, Developers, Environmental Management, Real Estate, Transportation, Marketing and Advertising, GIS Consulting Firms, Architects, Hospitals, News Outlets, Waste Management, Energy Providers, Oil and Gas Industry, Mining/Critical Minerals Firms, Airports
- Pennsylvania citizens

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PASDA SERVICES

- 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
  - Lidar Navigator
  - PA Atlas
  - PA Mine Map Atlas
  - PA Flood Risk Assessment Tool
  - PennPilot
- User Support
- Offline Data Access
- Integration with Additional Resources

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The year *in numbers*
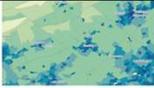
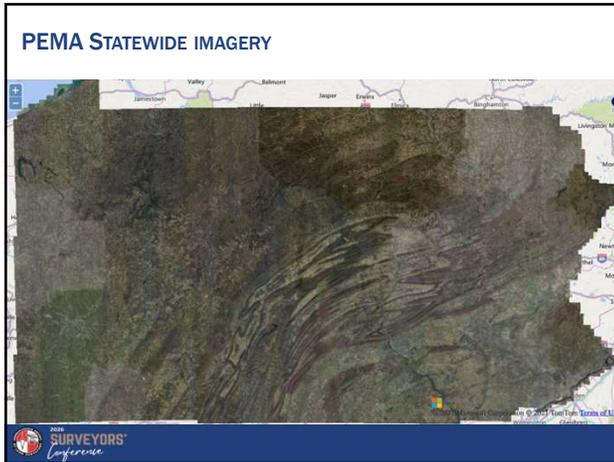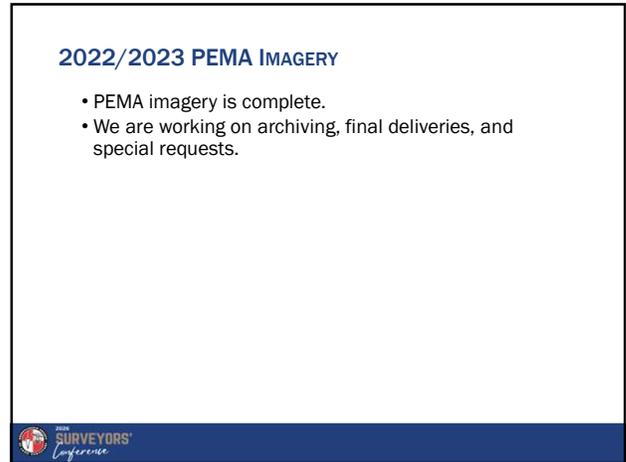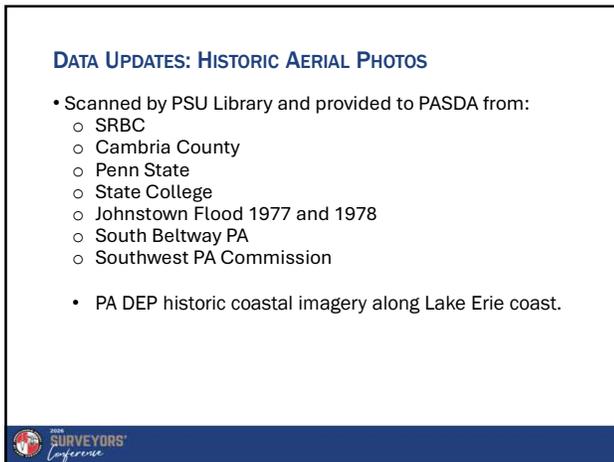| 3.5 Million | 556 Million | 10 Million |
Datasets Downloaded	Site Visits	Visitors
11.6 Million	16 Million	256 Million
Uses of the PA Imagery Navigator	Views on PennPilot	Map Services Accessed
62 Million	96 Million	6 Million
Uses of PEMA State-wide imagery	Views of PA State Agency Map Services	Uses of PA Underground Mine Map Atlas

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Data

42

PEMA Statewide imagery

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2022/2023 PEMA Imagery

- PEMA imagery is complete.
- We are working on archiving, final deliveries, and special requests.

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Data Updates: Historic Aerial Photos

- Scanned by PSU Library and provided to PASDA from:
  - SRBC
  - Cambria County
  - Penn State
  - State College
  - Johnstown Flood 1977 and 1978
  - South Beltway PA
  - Southwest PA Commission

- PA DEP historic coastal imagery along Lake Erie coast.

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Data Updates: Lidar data

- Lake Erie coastline Lidar—project should begin in the spring.

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Data Updates: PA DEP/Penn State

- Pennsylvania 3m lidar digital elevation models 2019
- Pennsylvania 3m lidar slope maps 2019
- Pennsylvania 3m lidar flow accumulation 2019
- Pennsylvania 3m lidar geomorphon landforms 2019
- Pennsylvania Stream Polygons 2019
- Pennsylvania Stream Valley Intersections 2019
- Pennsylvania Valley Segment Statistics 2019
- Pennsylvania Valley Bottom Polygons 2019

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Recent Data Updates State, County, NGO

- PennDOT
- PA DEP
- PA DCNR
- PA Dept of Health
- PA DEP Mine
- PA Fish and Boat Commission
- PA DCNR
- PA Game Commission
- PA Bureau of Topographic and Geologic Survey
- PA State Police
- PEMA

- Adams
- Allegheny
- Bedford
- Bradford
- Carbon
- Erie
- Franklin
- Lancaster
- Lycoming
- Mifflin
- Montgomery
- WeConservePA

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RECENT DATA UPDATES: RETURN ON ENVIRONMENT

- Berks County, Lebanon County, Monroe County, Swatara Creek data Packages contain:
  - Study Area– The study area which encompasses all portions of area.
  - ROE Parcels – Parcels in the project study area with attribute values
  - Riparian Buffers – Riparian buffer areas adjacent to surface water features
  - ROE Values by Acre –Return on Environment Findings
  - Green Ribbon Landscapes – Conservation buffer areas
  - ROE Recommended Actions – Areas designated for priority conservation consideration
  - Forest Size – Forested areas classified by size
  - ROE Findings raster - The project also contains a raster dataset version of the ROE Values by Acre used to assist in online rendering.

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DATA UPDATES: FEDERAL DATA

- NOAA/NWS Historic Data 1950-2024
- NWS Storm Reports
- NIDIS Data: Historic Drought Data for PA 2000-2025
- NFHL Statewide
- US Forest Service
- USDA 2024 NAIP
- PA NLCD 2023
- PA NASS

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Data Updates: Federal Data

- Local Law Enforcement Locations
- Prison Boundaries
- Fire and EMS Stations
- Structures PA
- Mobile Home Parks
- Local EOCs
- EPA Facility Registry Service
- Wastewater Treatment Plants
- Nuclear Facilities Current Status
- NPP Distance Range Rings
- Power Plants
- Hydrocarbon Gas Liquid Pipelines
- Paging Transmission Towers
- Cellular Towers New Land
- Mobile Private Transmission
- Microwave Service Towers
- Land Mobile Broadcast Towers
- Land Mobile Commercial Transmission Towers
- Antenna Structure Registration
- Broadband Radio Service (and Educational Broadband Service Transmitters
- NTAD Aviation Facilities
- Runways
- Port Status
- Hospitals
- Nursing Homes
- Pharmacies
- Dialysis Centers
- Private Schools
- Public Schools
- Colleges and Universities Campuses
- Child Care Centers
- And more...280+ data sets

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USGS Data Updates
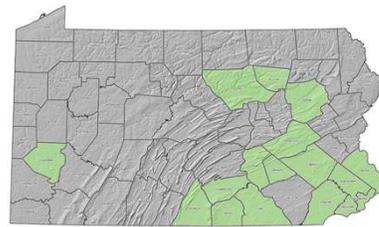
- Description: 10,872 square miles Quality Level 1 (QL1) Funded by NRCS and USGS
- June 30, 2026 – Final accepted data estimated to be available

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USGS Data Updates
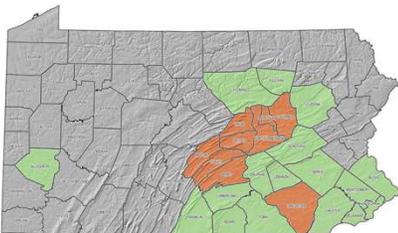
- Description: Shown in orange.
- 4,125 square miles Quality Level 1 (QL1) Funded by NRCS and USGS
- Spring 2025 – Data acquisition began with the project currently 16% acquired (all in Lancaster County)
- Fall 2025 – Data acquisition will resume during leaf-off conditions
- June 30, 2027 – Final accepted data estimated to be available
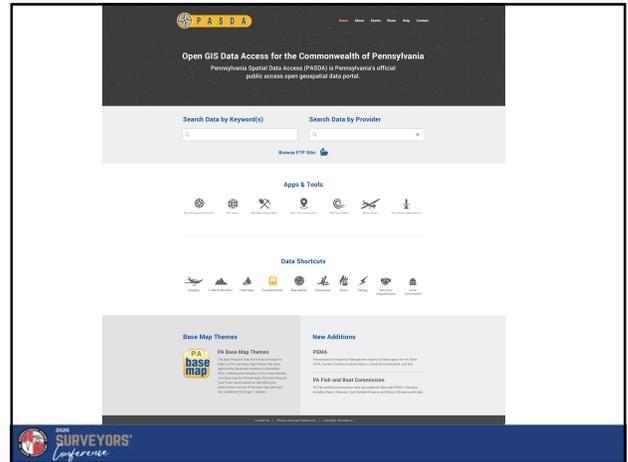
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Questions?

- What data are you looking for?
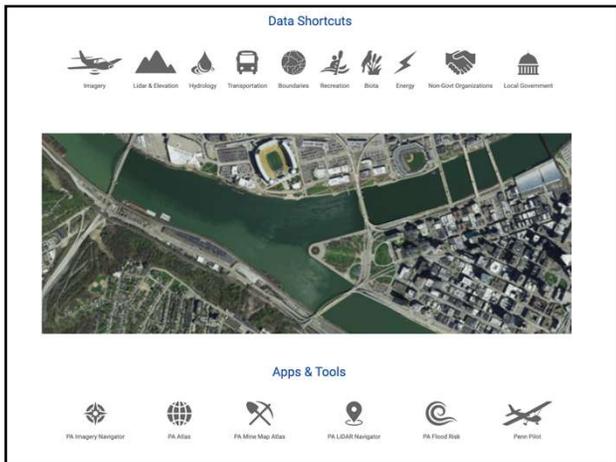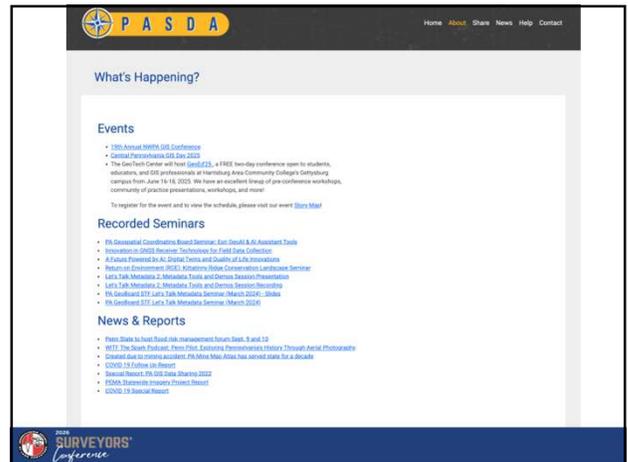- What formats are you looking for?

?

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Website & Apps

55

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Data Shortcuts

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PA IMAGERY NAVIGATOR

59

PA LIDAR NAVIGATOR

60

PENNPILOT

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Questions?

- Are there other tools you would like to have?
- What works/what doesn't?

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PILOT PROJECT: 3D DATA SERVICES

- Penn State purchased Skyline 3D software.
- Partnering with Cambria County to create 3D visualization options for flood risk.

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SKYLINE

- Flood View

64

SKYLINE

- Flood View

65

SKYLINE
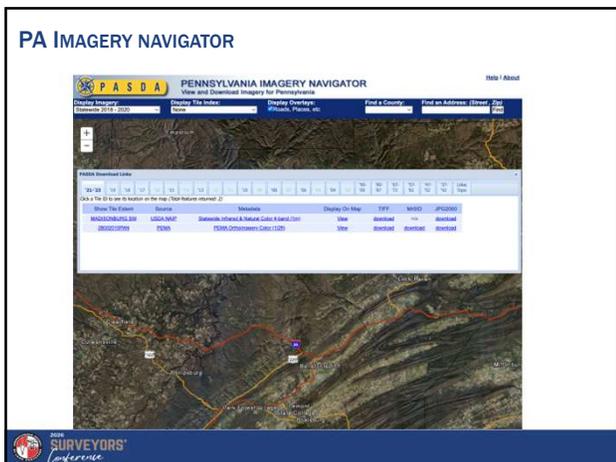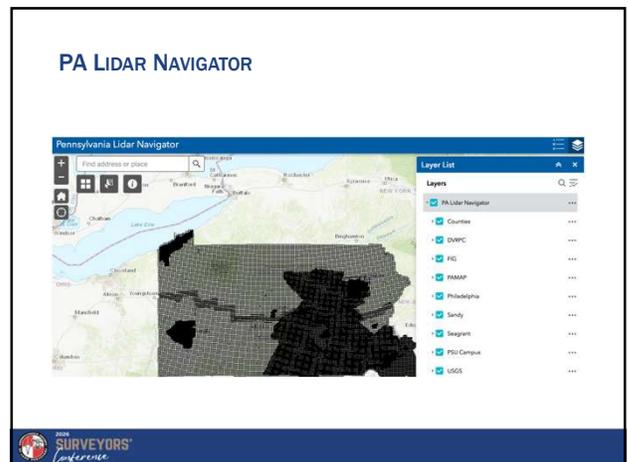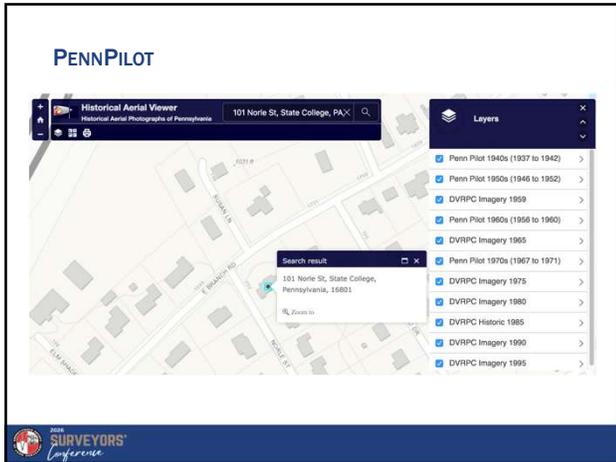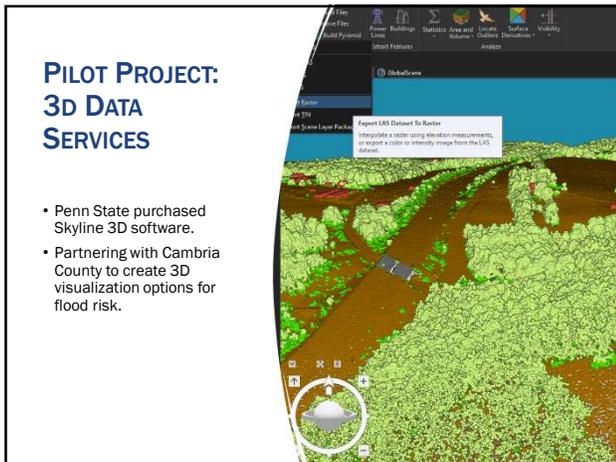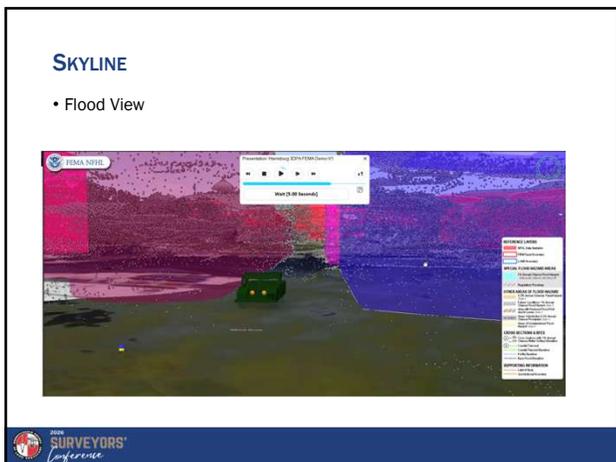
- Flood View

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3D Flood Visualization Experience

Funded by FEMA Region 3 through a Cooperative Technical Partnership Grant

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Purpose

To demonstrate to stakeholders the reality of flood risk in a 3D environment and to expand the capabilities of the PA Flood Risk Assessment Tool.

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3D FLOOD VISUALIZATION EXPERIENCE
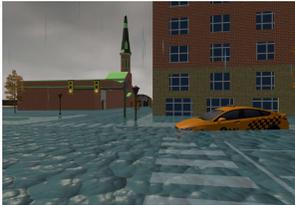
- Flood View
- App View
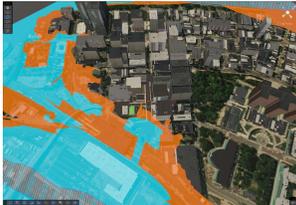
69

PA FLOOD RISK ASSESSMENT TOOL

How it Works

The Pennsylvania Flood Risk Assessment Tool provides access to the best available flood data from PEMA and other authoritative sources. It includes other data layers including roads, aerial photos, and, where available, parcel data. The PA Flood Risk Tool can be used from a desktop computer and a cell phone.

Your Risk Report

Once you have located your property, you can use the PA Flood Risk Tool to create a report. This report includes a map, information on your flood zone, risk type, address, watershed stream, county, municipality, and parcel (if available).

Remember: if in doubt, it's not out!

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DASHBOARD: NO RISK

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DASHBOARD: RISK

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Enhanced PA Mine Map Atlas

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Collaboration & Statewide Initiatives

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PA GeoData

- PA has the PA Geodata site that provides access to information and apps from PA agencies.
- Scottie Wall is the PA GIS Information Officer.
- Access to the quarterly Geospatial Focus Newsletter which highlights activities, new data, and the PA geospatial community.
- Return on Investment for Lidar and Imagery on the PA GeoData site that includes a timeline of both lidar and imagery acquisitions throughout the last 25 years. OA is working toward a 5 year imagery acquisition cycle.
- Hydrography page highlighting initiatives, data, and hydrography working group.

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PA Enterprise Initiatives

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PA GeoData Imagery & Lidar Program

Proposed 5-Year LIDAR/Imagery Collection Cycle

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PA Geospatial Coordinating Board

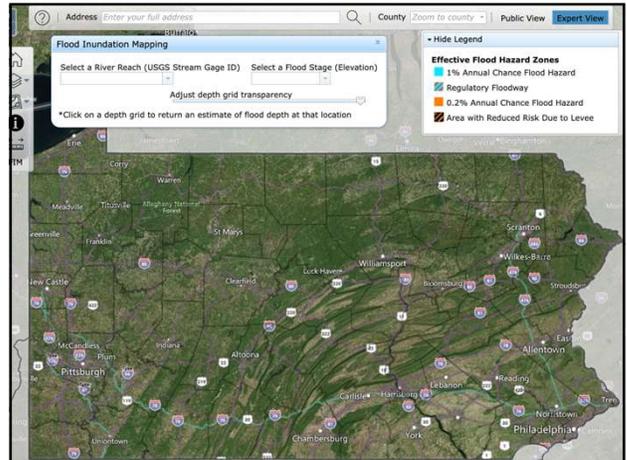|	
PASDA is a member of the PA GeoBoard.	The GeoBoard works to help bring together the GIS community in PA.
Initiatives include: PA Data Sharing Agreement, PA Basemap 2030, Seminar speaker series	Scott Drzyzga is the Executive Director

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Slide 85
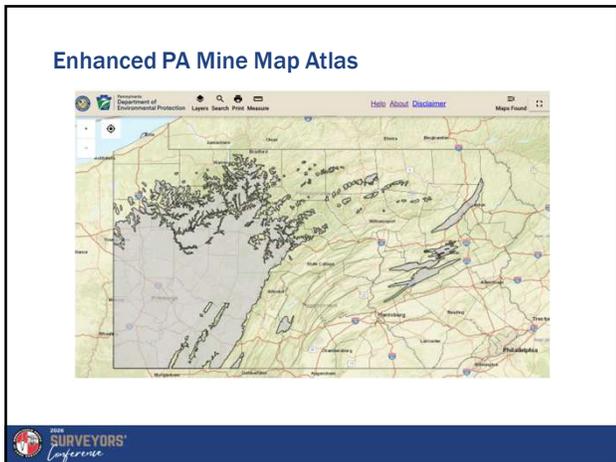
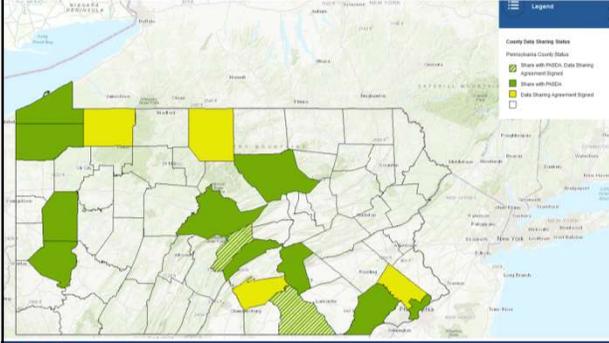### PA Geoboard data sharing initiative

- PA GeoBoard created a data sharing agreement and engaged in outreach to counties.
- 59 Counties have signed the agreement
- 1 planning commission SRBC
- 43 counties are currently sharing data
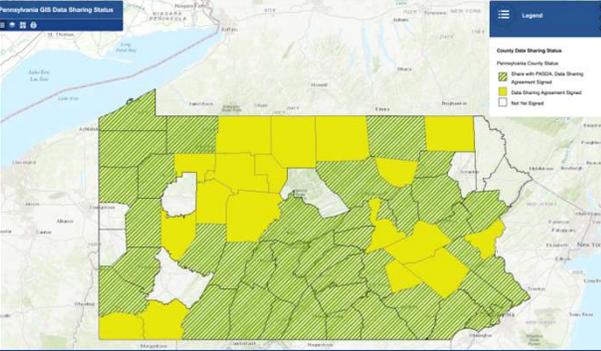- For more information about the PA Geoboard, go to https://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

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Data Sharing 2019

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Data Sharing 2026

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Barriers to Data Sharing

- It is easy to share data via PASDA.
- However, there are barriers to sharing data in general.
- Barriers include: liability concerns, funding and support—GIS data can generate income, control

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Services Delivery task Force Seminars

January 30th at 10am via Zoom
Andrew Schroeder, Crisis Ready

March
TBD exact date: Flood Risk Dave Curtis West Consultants (on Texas flood), Allegheny County (still working on details), PEMA

TBD exact date: Pa Geological Survey, Allegheny County/Pittsburgh Landslides

February

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PASDA is 30!
PASDA is celebrated its 30th anniversary in 2025.

Where do we go next?
What do you need?

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THANK YOU!

QUESTIONS?
PASDA@PSU.EDU

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Session Evaluation

HTTPS://WWW.SURVEYMONKEY.COM/R/PSLS2026EVAL

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