

State Geospatial Data Coordination Procedure

Pennsylvania

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FEMA

State Geospatial Data Coordination Procedure

Pennsylvania

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State Geospatial Data Coordination Procedure

Purpose of the Procedure

Flood Insurance Studies search for geospatial data during Discovery tasks. If needed data are not available, studies might fund the collection of new data and would like to know about other organizations that might share in these costs. Detailed information about the role geospatial data coordination plays in studies is in the Geospatial Data Coordination portal, which is available at http://pm.riskmapcds.com/riskmap_usergroups/GeoCoord/default.aspx (password required).

Resources developed through FEMA's geospatial data coordination activities provide information about data and contacts for organizations that have geospatial data that cover large areas (like states) in which many studies are interested. Studies can avoid wasting time with dead-end searches and cold calls by starting with these proven sources of information.

One resource is this Geospatial Data Coordination Procedure. It outlines sources of geospatial data and contact information, preferences for base map data and state geospatial participation in flood insurance studies, information for the project Discovery stage, and other useful information for the State.

If you have questions about this procedure or other geospatial data coordination resources, contact the geospatial data coordination lead in your Regional Support Center (RSC):

Cody Gierhart, Geospatial Data Coordination Lead
Compass Regional Support Center 3
(614) 408-1555
cgierhart@tandmassociates.com

Default Flood Hazard Base Map for the State

The default base map for flood hazard maps for the State is either an image (orthophoto) or vector (road centerline) base map. Orthophotography is the preferred base map. The choice of orthophotography depends on the individual county being studied, and is selected on a case-by-case basis.

There is a complete statewide orthophotography base currently available for use in the FEMA mapping effort; all counties in the State have high resolution orthophotography available through PAMAP. Check the Pennsylvania Geospatial Data Clearinghouse - Pennsylvania Spatial Data Access (PASDA) at <http://www.pasda.psu.edu> to find high resolution orthophotography that is the most current for the project area you are working in. Different parts of the State have newer orthophotography than what was produced when the original orthophotography fly overs for the PAMAP program concluded in 2008. The most recent data are from 2009 and 2010. When no orthophotography is available that

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meets FEMA standards, or at the preference of the county or communities, vector base map layers are used.

Geospatial Data Coverage

Find below information about and links to statewide (and Federal agencies' national) geospatial datasets. The list is provided to save time during Discovery activities when building a list of candidate geospatial datasets available for the study; it is not a prescription of datasets that must be used in a Flood Insurance Study.

Major State Holdings

Orthophotos

Dataset name: PAMAP Program High Resolution Color Orthophotography and Other Local or Regional Data available on PASDA

Data currentness: Maintained on a 3 year cycle when and where funding is available. There is not dedicated State funding source for the PAMAP Program. It's likely that only the Lehigh Valley Planning Commission and Delaware Valley Regional Planning Commission will produce ongoing orthophotography updates for the counties they serve (Lehigh, Northampton, Chester, Bucks, Montgomery, Delaware, and Philadelphia).

Accuracy/Scale: For 2004-2008 images, 1-foot pixel resolution, 1:2400 scale. ± 5 ft horizontally at the 95% confidence level for true 1 ft resolution. The horizontal accuracy standard follows the NSSDA-1998 standard. For 2003 images, 2-foot pixel resolution, 1:2,400 scale.

Ground sample resolution: 1 foot

Horizontal datum: NAD 83

Fee associated? No

Available for redistribution? Yes

Dataset source: PASDA, Land Water Building, University Park, PA, 16802,

<http://www.pasda.psu.edu>

Dataset contact: PAMAP Program, PA Department of Conservation and Natural Resources, Pennsylvania Geological Survey, (717) 702-2017.

Notes: County mosaics of orthophotography exist and are downloadable from PASDA. Depending on when and where the county mosaics were compiled, it could eliminate the need to download orthophotography on a tile by tile basis and create an image catalog.

Transportation (roads, railroads, and airports)

Dataset name: Pennsylvania Department of Transportation (PennDOT) - Pennsylvania State Roads

Data currentness: January 2015

Accuracy/Scale: Digitized from sources conforming to National Mapping Accuracy Standards for 1:24,000 scale maps. Estimated accuracy is +/- 100 Feet.

Horizontal datum: NAD 83

Fee associated? No

Are road names part of the dataset? Yes.

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Are road names in TIGER format? No, this dataset cannot be used for Flood Insurance Rate Maps (FIRMs) that are using the 2013 FIRM Database schema without authorization by the FEMA Project Officer and conversion of its attributes to the 2013 FEMA schema. Available for redistribution? Yes

Dataset source: Pennsylvania Department of Transportation, Bureau of Planning and Research, Geographic Information Division. Available through <http://www.pasda.psu.edu/>.

Dataset contact: PASDA, Land Water Building, University Park, PA, 16802, pasda@psu.edu

Notes: The State does not have an authoritative road names database, or an authoritative road centerline spatial dataset. Transportation features will be obtained on a case by case basis from the best available source. Many Pennsylvania Counties have GIS programs that have produced and maintain a road centerline file that may or may not adhere to TIGER format. PennDOT road layers do not spatially overlay the PAMAP orthophotography base very well, and as such are not spatially accurate enough to be used as vector base layers on FEMA FIRMs.

Hydrography (rivers, streams, lakes, and shorelines)

Dataset name: Networked Streams of Pennsylvania.

Data currentness: 1998

Accuracy/Scale: Conforms to National Mapping Program Geospatial Data Standards. Attribute accuracy has been checked by visual comparison against source materials and peer review at Environmental Resources Research Institute (ERRI).

Horizontal datum: NAD 83

Fee associated? No

Available for redistribution? Yes

Are hydrography names part of the dataset? Yes

Dataset source: ERRI, available through <http://www.pasda.psu.edu/>.

Dataset contact: Pennsylvania Spatial Data Access (PASDA), Land Water Building, University Park, PA, 16802, pasda@psu.edu; Joseph A. Bishop (814)-863-0291

Notes: Hydrographic features will be obtained on a case by case basis from the best available source. Many Pennsylvania Counties have GIS programs that have produced a hydrographic dataset that might include stream lines and waterbody boundaries.

Statewide layers currently at PASDA may or may not be spatially accurate enough to be used as vector base layers on FEMA FIRMs. The PAMAP orthophotography should be used when comparing vector features for accuracy, with the goal of little or no spatial variance from the PAMAP base.

Political boundaries (county, municipal)

Dataset name: Pennsylvania County and Municipal Boundaries.

Data currentness: January 2015

Accuracy/Scale: Digitized from sources conforming to National Mapping Accuracy Standards for 1:24,000 scale maps. Estimated accuracy is +/- 100 Feet.

Horizontal datum: NAD 83

Fee associated? No

Available for redistribution? Yes

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Dataset source: Pennsylvania Department of Transportation, Bureau of Planning and Research, Cartographic Information Division. Available through <http://www.pasda.psu.edu/>.

Dataset contact: PASDA, Land Water Building, University Park, PA, 16802, pasda@psu.edu

Notes: There is no definitive county or municipal boundary file for the State of Pennsylvania that is acceptable to all stakeholders. PennDOT municipal boundary spatial data are not meant to be used at scales higher than 1:24,000, so this dataset is generally not suitable for use in FEMA FIRMs. Political boundaries will be obtained on a case by case basis from the best available source, usually the individual county or regional planning agency.

Publicly owned lands (national, state, and local parks, forests, etc)

No single statewide coverage available.

Notes: No single statewide publicly owned lands dataset exists for the Commonwealth of Pennsylvania. Various specific datasets exist at PASDA and other sources, which would need to be projected, compiled and validated before use in FEMA FIRM projects.

Cadastral (parcels)

No coverage available.

Notes: Parcel datasets exist for most counties in the Commonwealth of Pennsylvania, a few of which are available at PASDA.

Terrain (elevation)

Dataset name: PAMAP Program 2006-2008 LiDAR, DTM, DEM and 2 ft. Contours

Data currentness: 2006-2008

Accuracy/Scale: The data have a 1.4 meter average point spacing (2 meter maximum) with a bare earth surface vertical accuracy of 18.5 centimeters RMSE. The data were used to produce 2-foot contour datasets.

Vertical datum: NAVD 88

Fee associated? No

Available for redistribution? Yes

Dataset source: <http://www.pasda.psu.edu/>

Dataset contact: PAMAP Program, PA Department of Conservation and Natural Resources, Pennsylvania Geological Survey, (717) 702-2017.

Notes: Pennsylvania acquired statewide LiDAR data in 2006-2008.

Data Distribution Process for State Data

As mentioned above, Pennsylvania has a centralized data distribution process for GIS data through PASDA. Data are available via FTP or via HTTP at

<http://www.pasda.psu.edu/uci/SearchPage.aspx>

PASDA services are provided free of charge to all users. The data on PASDA are provided by Federal, State, local and regional government agencies, non-profit organizations, and academic institutions throughout the region.

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Data licensing is dealt with on a dataset by dataset basis. Use is permitted only after agreeing to a terms of use and warranty disclaimer.

Useful Risk MAP Discovery Data Sources

Preliminary information on Discovery data sources is provided in this document to reduce the level of effort needed on each subsequent Discovery data collection effort.

Coordination with local community sponsors for additional local data still remains an integral part of Discovery and local data should be used where appropriate.

The *National Discovery Data Coordination Procedure* document contains information on data resources available from other Federal agencies (OFAs), including those that FEMA maintains at the national level, and should be used in conjunction with this *State Geospatial Data Coordination Procedure* document. In addition, FEMA and its contractors have created a geospatial Discovery Data Repository to host data that are not readily accessible through direct sources such as Web sites or subscription services and/or are not updated on a frequent basis. Instructions on accessing the Discovery Data Repository are given in the *National Discovery Data Coordination Procedure* document.

Table 1 identifies data resources that are available at the regional and State levels, and also if there are no data available other than the national datasets. Resources in this table have been identified as appropriate for Discovery projects and may not represent the best data sources for FIRM production (please see the Preferred Base Map Sources section of this document for geospatial data that meet FIRM production requirements).

Table 1. Discovery Data Resources

| Data | Data Source | Location |
|---------------------------|--|---|
| Watershed boundaries | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Jurisdictional boundaries | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Tribal land boundaries | National | See <i>National Discovery Data Coordination Procedure</i> |
| State lands | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| Federal lands | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Major roads | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| | National | See <i>National Discovery Data Coordination Procedure</i> |

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| Data | Data Source | Location |
|--|---|--|
| Streams | Pennsylvania Geospatial Data Clearinghouse National | http://www.pasda.psu.edu/ See <i>National Discovery Data Coordination Procedure</i> |
| Coastal Barrier Resource Areas | N/A | N/A |
| Coordinated Needs Management Strategy | National | See <i>National Discovery Data Coordination Procedure</i> |
| Topographic/ bathymetric data | Pennsylvania Geospatial Data Clearinghouse National | http://www.pasda.psu.edu/ See <i>National Discovery Data Coordination Procedure</i> |
| AAL data from Hazus | RSC National | Use of AAL data from Hazus should be coordinated with RSC 3. See <i>National Discovery Data Coordination Procedure</i> |
| Coverage areas for known community and Tribal risk assessment data | Local | Local |
| Status of Hazard Mitigation Plans | Pennsylvania Emergency Management Agency National | http://www.pema.state.pa.us/portal/server.pt/community/pema_home/4463 See <i>National Discovery Data Coordination Procedure</i> |
| Flood control structure data | Pennsylvania Department of Environmental Protection National | http://www.depweb.state.pa.us/ See <i>National Discovery Data Coordination Procedure</i> |
| Locations of stream gages | National | See <i>National Discovery Data Coordination Procedure</i> |
| Locations of past flood claims and repetitive loss properties | National | See <i>National Discovery Data Coordination Procedure</i> |
| Locations of clusters of Letters of Map Change | National | See <i>National Discovery Data Coordination Procedure</i> |
| Known flooding issues not represented on effective FIRMs or listed in Coordinated Needs Management Strategy database | Local | Local |
| Areas of planned development | Local | Local |

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| Data | Data Source | Location |
|--|--|--|
| Areas of land use change datasets | Local | Local |
| Locations of ongoing projects or updated stream studies (e.g., highway improvements) | Local | Local |
| Locations of wave and tide gages | N/A | N/A |
| Locations of wind gages | N/A | N/A |
| Proposed inland limit of the Primary Frontal Dune, if present | N/A | N/A |
| Locations of any beach nourishment or dune restoration projects | N/A | N/A |
| Comparison of preliminary stillwater elevations with effective stillwater elevations | N/A | N/A |
| Available effective study data | National | See <i>National Discovery Data Coordination Procedure</i> |
| Orthophotography | Pennsylvania Geospatial Data Clearinghouse National | http://www.pasda.psu.edu/ See <i>National Discovery Data Coordination Procedure</i> |
| Proposed discussion areas, problem areas, areas of proposed mitigation projects | Local | Local |
| Land use and soil information | Pennsylvania Geospatial Data | http://www.pasda.psu.edu/ |
| Reference points to locate areas with flooding issues | Local | Local |
| Hydraulic structures | Pennsylvania Geospatial Data Clearinghouse National | http://www.pasda.psu.edu/ See <i>National Discovery Data Coordination Procedure</i> |

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| Data | Data Source | Location |
|---|-------------|---|
| Coastal structures, including flood protection structures, shoreline structures, manmade embankments, surge conveyance pathways, and shoreline change data | N/A | N/A |
| Local structure and topographic data from the existing hazard mitigation plans | Local | Local |
| Historic inundation areas and high water marks | Regional | Discovery Data Repository |
| Clusters or locations of Individual Assistance/Public Assistance grants and locations of grant projects completed, planned, or underway | National | See <i>National Discovery Data Coordination Procedure</i> |
| Locations of projects and structures completed or planned for FEMA Hazard Mitigation Assistance grant programs or mitigation funds from other agencies or entities, such as the Small Business Administration | National | See <i>National Discovery Data Coordination Procedure</i> |
| Other information on FEMA grants | Local | Local |
| Any data deficiencies identified in hazard mitigation plans | Local | Local |
| Information from FloodSmart on market penetration | National | See <i>National Discovery Data Coordination Procedure</i> |
| Community Assistance Visits / Community Assistance Contacts | National | See <i>National Discovery Data Coordination Procedure</i> |
| Community Rating System class information | National | See <i>National Discovery Data Coordination Procedure</i> |
| Information from other Federal agencies | National | See <i>National Discovery Data Coordination Procedure</i> |

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| Data | Data Source | Location |
|---|--|---|
| Information from State agencies, non-profit organizations, universities, etc. | Pennsylvania Emergency Management Agency | http://www.pema.state.pa.us/portal/server.pt/community/pema_home/4463 |
| | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| Current community plans, ordinances, or programs to alleviate flooding or manage stormwater | Pennsylvania Emergency Management Agency | http://www.pema.state.pa.us/portal/server.pt/community/pema_home/4463 |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Other known hazards with geographical boundaries (e.g., earthquake faults) | Pennsylvania Emergency Management Agency | http://www.pema.state.pa.us/portal/server.pt/community/pema_home/4463 |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Information on active disasters | Pennsylvania Emergency Management Agency | http://www.pema.state.pa.us/portal/server.pt/community/pema_home/4463 |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Campgrounds, recreational areas, emergency access routes, etc. | Pennsylvania Geospatial Data Clearinghouse | http://www.pasda.psu.edu/ |
| | National | See <i>National Discovery Data Coordination Procedure</i> |
| Any other data that might be appropriate | Local | Local |

Federal Nationwide Geospatial Data Holdings

Information about nationwide holdings and programs of Federal agencies is available from the Mapping Information Platform web site at <https://hazards.fema.gov/femaportal/docs/ProgFacts1.pdf>.

Finding and Accessing Other Existing Geospatial Data

Find below information about and links to ways of searching for additional geospatial data available for the State. These capabilities can be useful for finding geospatial data other than the statewide and Federal data listed above, including those of special governments, counties and parishes, municipalities, tribes, universities, and other organizations.

Clearinghouses and Inventories for the State

There is a statewide repository of Pennsylvania base layers which is hosted by PASDA. PASDA is known as the official geospatial data clearinghouse for the Commonwealth of Pennsylvania and serves as Pennsylvania's node on the National Spatial Data

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Infrastructure (NSDI), and Geospatial One-Stop. PASDA is a publicly accessible web site (<http://www.pasda.psu.edu>).

The State has an existing inventory of geospatial products which was prepared by the Pennsylvania Mapping and Geospatial Information Consortium (PaMAGIC) in 2004. The information is static and is based on a survey of counties that was performed in 2003.

National Digital Orthophoto Program (NDOP) and National Digital Elevation Program (NDEP) Tracking Systems

These systems allow the search of orthophoto and elevation project information entered by Federal and other organizations. To access the NDOP system, go to the NDOP web site at <http://www.ndop.gov> and follow the link “Project Tracking.” For the NDEP system, go to the NDEP web site at <http://www.ndep.gov> and follow the link “Project Tracking.”

Geospatial One-Stop

Geospatial One-Stop, available at <http://www.data.gov>, provides access to geospatial data from many sources. Two parts of the site that should be investigated are the “data categories” for existing data and the “marketplace” for data that are planned or in-work and for potential partners for new data collection activities.

Working with People

Useful State and Federal Contacts

The main contacts for the State’s geospatial activities and Federal agencies’ representatives in the State are available on the Mapping Information Platform web site at <https://hazards.fema.gov/contacts/StateContacts/contacts.asp?page=PA>.

Involving the State’s Geospatial Coordinator in Flood Studies

The State Contact is kept informed of FEMA Risk MAP issues at bi-annual State floodplain management conferences, through coordination with the RSC Geospatial Coordination Lead, FEMA Region III, and the PA NFIP coordinator.

State Coordination Process for Building Geospatial Partnerships

The Pennsylvania Geospatial Technologies Operations Office (GTOO) through the Geospatial Technologies Council is the lead GIS Council in the State. Stacey White is the current Director of Geospatial Technologies. The GTOO website is located at: <http://www.gis.state.pa.us/>.

In 2005, the Bureau of Topographic and Geologic Survey (BTGS) within Pennsylvania’s Department of Conservation and Natural Resources (DCNR) began a collaborative mapping initiative, PAMAP (<http://www.dcnr.state.pa.us/topogeo/pamap/index.aspx>).

PAMAP, an electronic map of Pennsylvania, is being created as a seamless, consistent, high-resolution set of digital, geospatial data products. The map is compiled from new

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high-resolution aerial photography and elevation data, and from existing digital map resources developed by State and Federal agencies, counties, regional agencies, and municipalities.

PAMAP's digital files are available for downloading or as web-services through PASDA with no user fee charged. Tools for viewing and downloading PAMAP data are available at <http://www.pamap.dcnr.state.pa.us/pamap/>. GIS users will want to download files for use on their computers or link to web services. Users without GIS capability can view imagery or a LiDAR hillshade with the viewer tool and can zoom to an area of interest and save a view for use in other applications. PAMAP is part of an ambitious program of the Federal government called The National Map, an effort coordinated by the United States Geological Survey (USGS) to provide publicly available mapping.

PAMAP is a collaborative effort of many Commonwealth organizations – State agencies, counties, local governments, and regional agencies. The collaborative approach is based on the fact that most local governments in Pennsylvania are already mapping within their jurisdictions for their own purposes. The detailed mapping scales used by local governments, combined with the frequency with which they update their maps to accommodate new land development and other changes, can support the map needs of most State and Federal government agencies. The state and Federal agencies can also provide additional information to the locally-derived maps from their own land and infrastructure management activities.

Finding Local Geospatial Contacts

Local contacts, including those from special government districts (for example, a regional planning commission); counties, parishes, or equivalent governments; tribes, municipal governments; and other organizations (for example, local universities) also have geospatial data that can help a Flood Insurance Study. Contact information is available from the FEMA archive and web searches at government link portals such as <http://www.statelocalgov.net>.

The State also maintains information about local geospatial contacts for counties in a database available from Jim Knudson (jknudson@state.pa.us) of the Pennsylvania Geospatial Technologies Office (<http://www.gis.state.pa.us/>).

The State does not have strong county governments. Most land use authority is in the hands of local municipalities. The State has numerous water boards, river authorities, regional planning councils, councils of government, and major universities that have GIS data holdings. Examples include the Delaware River Basin Commission (DRBC), Delaware Valley Regional Planning Commission (DVRPC), SEDA Council of Governments (SEDA-COG), Pennsylvania State University through PASDA, Lehigh Valley Planning Commission, and others.

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Provide Feedback on This Procedure

When you find information in this Procedure or in other FEMA or State resources that are outdated, please tell the geospatial data coordination lead in the RSC what was wrong and the correct information (if you know it). Use the contact information for the lead listed in the section Purpose of the Procedure.

The lead will use your feedback to update this Procedure and will notify the State geospatial coordinator of changes. Changes will also be distributed at Pennsylvania-specific FEMA Risk MAP conferences each year. A current FIRM status map and list of FEMA priorities for elevation and base layers will be sent to key partners before each conference.

Other Useful Information

FEMA Region III Elevation Data Updates

The RSC maintains an inventory of best available topographic datasets throughout FEMA Region III. These datasets may be of significantly higher resolution than the aforementioned statewide elevation datasets that are available.