

**PennShare**

***Policy, Process and Protocol Manual***

Prepared by:

PennShare PNG Project Governance Team

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**1. Background**

PennShare is an application that creates maps and promotes data sharing to help with visualization and analyzing of data using GIS components. It allows users to see their data on a map and gives them the ability to share and edit that data with others. PennShare is developed out of Esri ArcGIS online (AGOL) which was originally deployed as a result of PennDOT’s participation in an AASHTO TIG initiative to optimize GIS in transportation applications using Arc GIS.com. Other state DOTs participating in this initiative included Utah, Minnesota and North Carolina.

ArcGIS Online is a collaborative, cloud-based platform that lets members of an organization create, share, and access maps, applications, and data, including authoritative basemaps published by Esri. Through AGOL, subscription holders can access Esri's secure cloud, where they can manage, create, store, and access hosted web services. Because ArcGIS Online is an integrated part of the overall Esri ArcGIS system, it can be used to extend the capabilities of ArcGIS for Desktop, ArcGIS applications, and other related ArcGIS products. AGOL also provides access to ready-to-use apps for making maps in Excel, monitoring activities and events through a common operating picture, and creating and sharing maps in the field.

The remainder of this manual provides guidance in the form of policies, processes and protocols for all levels of users of the PennShare application. While this manual does not include training or “how to” materials, references to practical user training and information is provided herein.

**2. Vision and Mission of the PennShare Initiative**

**Vision:** The PennShare/ArcGIS Project Team will strategically utilize online Geospatial Tools to promote modernization, enhance competitiveness and improve information sharing.

**Mission:** The PennShare Project Team will evaluate, operationalize, and deploy an advanced software as a service (SAAS) platform to store and disseminate spatial and related data and deliver content-rich maps that will enhance transparency, promote collaboration, preserve consistence of message, ensure data integrity, improve customer service, and meet the day-to-day business needs of the PennDOT community.

**3. Listing of Terms, Definitions, and Acronyms**

**Administrators (AGOL):** An Administrator is a Publisher with additional capabilities to manage the organization and other users.

**AGOL** means ArcGIS Online for Organizations, the Software as a Service (SaaS) offering available to the Pennsylvania Department of Transportation under the Esri Enterprise Licensing Agreement (ELA). Through an AGOL subscription, organizations can manage all of their geographic content in Esri's secure, cloud‐based environment. In this environment, organizations and their role‐based users can publish their hosted services to AGOL; manage maps, apps, and data; invite members to join the organization in a particular role‐based capacity that can include the ability to share and save information and data within the organization's site; and customize an AGOL home page.

**Basemap** means a map depicting background reference information such as landforms, roads, landmarks, and political boundaries, onto which other thematic information is placed. A basemap is used for locational reference and often includes a geodetic control network as part of its structure.

**BPR** means the Bureau of Planning and Research.

**Business Partner** means persons, organizations, companies, or contractors who may have an official, unofficial, or contractual relationship or partnership with PennDOT in order to further the business goals and objectives of the Department. A business partner may have a legitimate need to access PennShare in order to consume GIS data published by PennDOT or to publish their own GIS data to PennShare for use by PennShare subscribers. There may be some restrictions on sharing PennShare GIS data with business partners.

**Cloud** means hardware, software, or a service offering made available through the Internet. Many cloud offerings provide a very flexible environment where the end user may not know where the offering is hosted from and who is providing it.

**Commonwealth Agency** means any executive, legislative, judicial, or independent department, agency, board, commission or other Commonwealth of Pennsylvania state government organization that is considered a part of the state government and may therefore have a legitimate business need to share GIS information on PennShare to ensure efficient government services. There are very few restrictions sharing commonwealth GIS data on PennShare among commonwealth agencies.

**Data Owner** refers to the Division Chief, Bureau Director or District Executive whose organization has primary responsibility for the management, utilization and security of a particular type of agency data or particular agency database. For the purposes of the PennShare Data Release Authorization protocol (and any similar PennShare protocols), technical or subject matter experts who maintain or work with agency data or systems on a day-to-day basis but who are not assigned at the Division Chief, Bureau Director or District Executive level are not considered to be Data Owners and are not directly authorized to release data for use on PennShare.

**Data Products** refers collectively and generically to the various ways data can be used, shared or represented in AGOL, including feature services, shapefiles, layers, basemaps, web maps, web mapping applications, data sets for direct upload, etc.

**ELA** means Enterprise Licensing Agreement.

**Esri** (deprecated) – used to mean Environmental Systems Research Institute, Inc.

**Extensible Markup Language (XML)** means data formatted with tags, normally delivered as Internet web services.

**Feature Service** means an XML mapping service that streams geospatial data from a web server to a client application. The geospatial data may be derived from an original shapefile or a feature class stored in a database. The Feature Service is used as an operational layer that is usually placed over top of a basemap. Feature services support vector feature querying, visualization, and editing. For example, a feature service might contain information about the street signs in your neighborhood. Each feature (street sign) might include the sign name, date installed, and a website URL for reporting problems to your local street department.

In web applications, feature services are drawn by the browser, and you can change the way features look (for example, change the symbols and configure the pop-up windows) and edit the features. If the service contains a large amount of features, the client may take some time to draw the layer, and all features may not be retrievable due to client or server data transfer limits. The solution is to set scale limits on the layer so that it is drawn only when the user is zoomed in.

Feature services are useful when you need to expose vector data for display, query, and editing on the web. Hosting a feature service on ArcGIS Online is an easy way to share data with an Internet audience if your own GIS server cannot be made public. Web maps, applications, and desktop map viewers can access your services from anywhere on the Internet if you choose to allow it.

You can publish feature services from the ArcGIS.com website (if publishing a shapefile or CSV file) or from ArcGIS 10.1 for Desktop (if publishing an ArcMap document).

**Geocoding** is the process of finding associated [geographic coordinates](http://en.wikipedia.org/wiki/Geographic_coordinates) (often expressed as [latitude](http://en.wikipedia.org/wiki/Latitude) and [longitude](http://en.wikipedia.org/wiki/Longitude)) from other geographic data, such as [street addresses](http://en.wikipedia.org/wiki/Street_address), or [ZIP codes](http://en.wikipedia.org/wiki/ZIP_codes) ([postal codes](http://en.wikipedia.org/wiki/Postal_codes)). With geographic coordinates the features can be mapped and entered into [Geographic Information Systems](http://en.wikipedia.org/wiki/Geographic_information_system), or the coordinates can be embedded into media such as digital photographs via [geotagging](http://en.wikipedia.org/wiki/Geotagging).

**Geoprocessing** is a [GIS](http://en.wikipedia.org/wiki/GIS) operation used to manipulate spatial data. A typical geoprocessing operation takes an input [dataset](http://en.wikipedia.org/wiki/Dataset), performs an operation on that dataset, and returns the result of the operation as an output dataset. Common geoprocessing operations include geographic feature overlay, feature selection and analysis, [topology](http://en.wikipedia.org/wiki/Topology) processing, [raster](http://en.wikipedia.org/wiki/Raster_graphics) processing, and data conversion. Geoprocessing allows for definition, management, and analysis of information used to form decisions

**GIS** means Geographic Information System (older) or Geospatial Information System (newer).

**Group (AGOL)** - means a grouping of users focused on a particular collection of information, data or other items; usually related to a specific area of interest. Any Publisher or Administrator can create Groups as a way to organize their items. Group creators can: (i) set the visibility of the Group for particular role-based access, (ii) configure the Group to enable other users to request to join the Group, and (iii) identify who can contribute content to the Group

**Layer** means the visual representation of a geographic dataset in any digital map environment. Conceptually, a layer is a slice or stratum of the geographic reality in a particular area, and is more or less equivalent to a legend item on a paper map. On a road map, for example, roads, national parks, political boundaries, and rivers might be considered different layers.

**Licensee (AGOL)** means a State agency that participates in the ELA as a Licensee, and which has entered into an Interagency Agreement with PennDOT related to such participation.

**PennDOT** means the Pennsylvania Department of Transportation.

**PennShare** or site means the PennDOT AGOL website based upon a single, AGOL subscription based license for PennDOT, which BPR administers on behalf of licensees and their users.

**PennShare Community and PennShare Community members** mean the community of role‐based users able to access information and data on PennDOT’s AGOL. The primary users of PennShare are Licensees. Licensees may sponsor their staff as Users (“PennDOT Staff”). They may also sponsor as Users, persons from organizations that are not Licensees (“State Associates”). In descending order of role‐based privileges, the PennShare Community Members include Administrators, Publishers, Users, and Viewers.

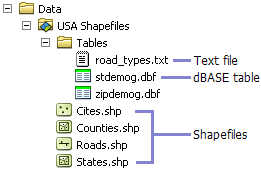
**Public** means citizens of the commonwealth; or any outside person or organization that is not considered a commonwealth agency or a PennDOT business partner. The Public *could* have access to “publicly shared” GIS information on PennShare if the Department determined that it was necessary or advantageous and the information had been fully vetted and approved for publication in accordance with PennDOT policies and PennShare data release approval protocols. There are many restrictions on sharing PennShare GIS data with the public.

**Publishers (AGOL):** A Publisher is a User with additional privileges to publish hosted services from feature or tiled map data and perform analysis.

**SaaS** means Software as a Service, software provided from the Cloud, usually under a subscription model.

**Shapefile** means a simple, nontopological format for storing the geometric location and attribute information of geographic features. Geographic features in a shapefile can be represented by points, lines, or polygons (areas). The workspace containing shapefiles may also contain dBASE tables, which can store additional attributes that can be joined to a shapefile's features.

Below is an example of how shapefiles appear in ArcCatalog. You can also see the dBASE file (that may be associated with a shapefile).



All files that have the file extensions .txt, .asc, .csv, or .tab appear in ArcCatalog as text files by default. However, on the ***Options*** dialog box, you can choose which of these file types should be represented as text files and which should not be shown in the Catalog tree. When text files contain comma- and tab-delimited values, you can see their contents in the ArcCatalog table view and join them to geographic features. Text files can be deleted, but their contents are read-only in ArcCatalog.

You can join attributes stored in a dBASE table or text file to the features in a shapefile in a layer's Properties dialog box on the **Joins & Relates** tab. If a table contains information describing spatial locations, such as x,y,z coordinates or street addresses, you can create a shapefile representing those locations with tools available in ArcCatalog.

**Users (AGOL):** A User can view, create, modify, share, save and otherwise manipulate all PennShare information and data. Also referred to in some documentation as “**Subscribed User**” and these terms are interchangeable.

**Viewers (AGOL):** Entities that can view but not create, modify, share, save or otherwise manipulate PennShare information and data.

**Web Map (AGOL)** means an interactive display of geographic information that you can use to tell stories and answer questions. For example, you may find or create a map that addresses the question, “How many people in the United States live within a reasonable walk or drive to a supermarket?” This map has layers showing which neighborhoods are within a 10-minute drive or 1-mile walk to a supermarket, and for context, the map has a topographic basemap that includes cities, roads, and buildings overlaid on land cover and shaded relief imagery.

Web maps contain a basemap; layers; an extent; a legend; and navigation tools such as zoom, pan, place finders, and bookmarks. Many web maps also contain interactive elements such as a basemap gallery that lets you switch between maps like imagery and streets, plus measure tools, pop-up windows that display attributes about a specific feature, and buttons for playing data over time. They are constructed using data layers from services and files to communicate a specific message or provide specific map-based capabilities. In general, the web maps reference layers shared in Esri's cloud. However, web maps can also contain layers added directly to the map or layers referenced externally. Some web maps contain a series of annotated slides, each showing a specific view into the map with associated text and graphics. These are known as presentations.

Web maps can be opened in standard web browsers, mobile devices, and desktop map viewers. They can be shared through links, embedded in websites, and used to create browser-based and device-based applications. For creating web mapping applications, ArcGIS includes configurable templates, configurable viewer applications, web APIs, mobile APIs, and options for hosting your application in the Esri cloud.

Web maps can be authored in three basic steps: choose an area, decide what to show, then save and share your work. You can start from a new map or work with an existing one. When you open an existing map, you can change the extent, locate places, view a legend, see information about features, and more. With either approach, you can select a basemap from the basemap gallery, add layers, configure pop-up windows, include bookmarks to specific places, include a description of the map, then save it and share it with others through links or by embedding it in a website or application.

**Web Mapping Applications (AGOL)** mean web applications that include one or more web maps. You can use web mapping templates to create applications and publish them directly to the Esri cloud. You can also download template ZIP files to configure applications and host them on your own web server. For a more customized experience, you can create your own application templates that your organization can use for publishing web applications. These templates can include configurable parameters that let members customize elements of their application.

**4. Access Management**

**a. PennShare Roles**

**Administrator** is responsible for the administration of PennShare and the day to day management of the data.

1. Public Interface - Responsible for publishing and maintaining the Web page and applications.
2. Data management – Responsible for management and review of all data that is published and shared.
3. Administration - Responsible for management of licenses, group security and credit usage. Oversees publishing of web applications, map services, feature servers and shapefiles. Work with System Administration to create services using ArcServer, Oracle, etc.

**Publisher** will identify shared services/data that the GIS Unit should publish and coordinate publishing of data shared by multiple business units or groups with bureaus, districts, planning partners, CWOPA agencies, etc. among which data is to be shared. The publisher will coordinate with GID/PDD, Data Owners, and the Press Office to publish web applications, subject to the Protocol for Product Requests and Approvals for Data Release detailed later in this Manual. Publishers may also initiate Product Request and Approval for Data Release processes, as needed.

**(Subscribed) User** will have the ability to create maps and share the maps with their group. Users may also initiate Product Request and Approval for Data Release processes, as needed.

* District roles and access
* Planning partner roles and access
* Others roles and access

**Viewers (Public Access)** will have the ability to view and/or utilize any data products made available to the public on PennShare, as determined by AGOL public capabilities and subject to any restrictions imposed by Administrator, Publishers or Users from within the AGOL system.

PennShare (ARC GIS) Roles and Responsibility Matrix

|  | **Administrator** | **Districts** | **Central Office** | **Planning Partners** |
| --- | --- | --- | --- | --- |
| **General** | Responsible for the administration of ARC GIS and PennShare and the day to day management of the data.  (1 Administrator) | Responsible for establishing and creating their own maps and administering the application within their districts.  (1 Publisher and 2 users) | Responsible for establishing and creating their own maps and administering the application within their bureau.  (1 Publisher and 2 users) | Responsible for establishing and creating their own maps and administering the application within their region.  (1 Publisher and 2 users) |
| **Public Interface** | Responsible for publishing and maintaining the Web page and applications. | Responsible for sharing maps and apps within their own group. Ability to send the request to make public website. | Responsible for sharing maps and apps within their own group. Ability to send the request to make a public website. They also will review any relative web application before it gets released to the public. | Responsible for sharing maps and apps within their own group. Ability to send the request to make public website. If the Planning Partner uses its own data, we will give them the ability to publish their web applications. |
| **Data Management** | Responsible for management and review of all data that is published and shared. | Responsible for own data and creation and maintenance of metadata. | Responsible for own data and creation and maintenance of metadata. | Responsible for own data and creation and maintenance of metadata. |
| **Administration** | Responsible for management of licenses and credit usage. In charge of publishing web applications, map services, feature servers and shapefiles. Work with System Administration to create services using ArcServer, Oracle, etc. |  |  |  |
| **Training** | Responsible for statewide training and updates | Responsible for training within their group | Responsible for training within their group | Responsible for training within their group |

**b. Criteria to Issue Subscriptions**

The Administrator should consider the following criteria when acting on a request to grant a User subscription to PennShare:

1. Commitment and time available to work on PennShare initiatives
2. Availability for training and meetings
3. Experience and understanding of geographic or spatial relationship of data or past experience as a GIS operator
4. Familiarity with PennDOT data or their agency data
5. One subscription should be offered to the GIS operator and/or their back-up for each organization (District, Bureau, etc.)
6. Provide for representation from each PennDOT District and Bureaus identified as having needs to access/utilize PennShare
7. Maintaining representation from various areas of expertise (design, planning, maintenance, construction, etc.) among the User community

**c. Group Management**

PennDOT will establish groups and accompanying protocols for bureaus, divisions, sections, districts, planning partners and/or other agencies allocated license(s) for User and/or Publisher roles in PennShare.

We will have four types of groups set up in PennShare.

1. Working Group
2. Organization Group
3. Public Group
4. Web Services Group

Working Group

The working group will be a group where all current working projects and maps will reside. We will organize the projects by title and product log #. Sample

\*District 4 P3 product # 0001\*

We will then provide access to that group for all required users. Once the project is done and approvals are signed off we will then move it to the Organization Group.

Organizational Group

The Organizational Group will be a group that has the published maps or products that user and can search and belong to.

We will organize the groups as followed:

1. Districts
2. BOMO
3. BHSTE
4. BPD
5. BPR
6. CPDM
7. Other Bureaus
8. Planning Partners
9. Bridge

Any additional organizational group can be created if needed by CPDM or GIS.

Public Group

The Public Group will be the group that has all public maps and application in it.

Web Services Group

This group will be a public interfacing group that will have all of our public rest services.

**5. Protocols and Security for PennShare**

**a. General Guidelines for Using PennShare**

PennShare is a cloud-based solution from Esri that can be utilized to share data, services, maps, and applications. These guidelines have been developed for PennDOT staff to facilitate the use of PennShare within PennDOT and to make it easier for information to be found by users inside and outside of state government.

1. Use of PennShare is subject to full compliance, as applicable, with the PennShare Terms of Use. A copy of the current Terms of Use document is provided in Section 5c of this Manual, for reference.
2. Content placed in the public domain of PennShare may be used to develop third party applications and/or content unknown to the original publisher. These applications and/or content could be misinterpreted as being official PennDOT information. For this reason, it is important that the guidelines and protocols set forth in this Manual be followed, especially for public-facing maps and applications.
3. When permissible, a published entry for each map on PennShare is recommended to facilitate people inside and outside PennDOT finding each map.
4. When considering data for publication or upload to PennShare, consider the sensitivity of the data as well as the frequency of updates and need for maintenance of that data.
   1. These factors may have impacts to service credits and/or affect how the data can be used or shared on PennShare (if at all).
   2. The protocol for requesting and authorizing public release of data for use on PennShare is detailed in the next section of this Manual.
   3. PennDOT policies regarding sensitive data and information and records retention are detailed in Sections 6c and 6d of this Manual.
   4. The Geographic Information Division of the Bureau of Planning and Research will serve as the primary contact for assistance in handling sensitive data and data to be used by ArcGIS Desktop agency users, as well as for management of regular data updates and data accessed through the PennDOT ArcGIS server.
   5. Agency GIS coordinators can also assist with information related to publishing of GIS data to PennShare.
5. When permissible, publishing your content to the PennShare site is suggested when you wish to facilitate viewing and use of the data that has been approved for release by people inside and outside of state government. In addition, this may be the primary method to share content with Planning Partners, both MPO’s and RPO’s.
6. Select the Share button in PennShare then select “Featured Content”
7. If your map is to be made available to another ArcGIS Online site (e.g., DVRPC, DCNR, etc.), it is recommended to use “https” in the URL of the services that you use in your map to avoid users receiving warning messages.
8. Service credits are a means for metering usage of certain PennShare functions. Service credits can quickly be consumed using AGOL functions such as creation of tile caches and geocoding.
   1. Credit usage is addressed in more detail in Section 7 of this Manual.
   2. PennDOT GID will periodically review service credit usage and work directly with Subscribed Users and Publishers as needed to ensure efficient use of service credits.
9. Management of PennShare accounts is a critical function of the PennShare Administrator and most account management functions will be carried out by the Administrator directly. Publishers and Subscribed Users can assist with account management by:
   1. Ensuring that passwords of proper strength are used.
   2. Maintaining complete, up-to-date user profile information, including contact information and agency information. Consider including a photo or avatar.
   3. Informing the Administrator when their agency roles change so that accounts can be treated properly as users take new positions or leave the agency.

**b. Standard Disclaimers**

**Standard PennDOT GIS Data Sharing Disclaimer:** PennDOT employees providing data for use by partners, other agencies, local governments, or other authorized outside use MUST accompany data files with a disclaimer comparable to the following:

The Pennsylvania Department of Transportation has compiled this data according to conventional cartographic standards, using what is thought to be the most reliable information available. This data is intended to make results of research available at the earliest possible date, but is not intended to constitute final or formal publication. The Pennsylvania Department of Transportation makes every effort to provide virus-free files but does not guarantee uncorrupted files. The Pennsylvania Department of Transportation does not guarantee this data to be free from errors, inaccuracies, or viruses, and disclaims any responsibility or liability for interpretations or decisions based on this data.

**Source Data Disclaimer**: PennShare users who access PennShareData Products for use in their Applications that operate on different Websites MUST display on those Websites, as necessary and appropriate, a disclaimer comparable to the following:

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. The information and data is subject to change as modifications and updates are completed. All who use or otherwise access such information and data do so at their own risk. Users of this information and data should review or consult the primary data and information sources to ascertain the usability of the information. Any information and data made available here that has been modified for use from the Pennsylvania Department of Transportation is subject to the following disclaimer: THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION MAKES NO REPRESENTATIONS OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, TIMELINESS, OR CONTENT OF ANY INFORMATION AND DATA MADE AVAILABLE THROUGH THIS SITE. THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION EXPRESSLY DISCLAIMS ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

**c. Protocol for Product Requests and Approvals for Data Release**

A single, unified workflow has been established for requesting data products (feature services, shapefiles, layers, basemaps, web maps, etc.) for use on PennShare. This process has been automated via a SharePoint application which can be accessed using the following web link: [product request form link]. A printable copy of the product request and approval document used as a template for the SharePoint version is provided in Section 5d of this Manual, for reference.

**Product Request Process**

1. The person requesting that a new Data Product be made available on PennShare must submit the following information (to the best of his/her ability) via the PennShare Product Request and Data Release Authorization Form, accessed on SharePoint through the link provided above:
   1. Complete contact information, as specified
   2. Type of request (map, service, etc.)
   3. General description and specifications for the product being requested
   4. Purpose of the product/data requested (what is to be conveyed, how it is to be used, etc.)
   5. How the product is intended to be shared
   6. Tables and/or data fields you needed
   7. Priority of this product to the requesting organization
2. After the requestor of the new Data Product submits the PennShare Product Request and Data Release Authorization Form, the request will workflow automatically to an assigned technical expert within the Geographic Information Division or Program Development Division. This person will complete the following:
   1. Administrative information, as specified
   2. Identification of data products that currently exist on PennShare which are required to fulfill this request
   3. Identification of data products that will need to be added to PennShare in order to fulfill this request and suitable sources for the required data
      1. Whenever possible, REST Services or similar sources created specifically for PennShare should be used
   4. Data integrity information:
      1. Ensure metadata is complete
      2. Ensure data has been thoroughly tested for correct formatting, suitability to the intended use, etc.
      3. Ensure security requirements/issues are identified and properly addressed, per applicable PennDOT policies and procedures
   5. Identification of Data Owner(s) for all data to be used in fulfilling this request (see the Listing of Terms, Definitions, and Acronyms in this Manual for more information on Data Owners)
3. Completion of the Data Product Request process by the assigned GID or PDD staff will then cause the form to workflow automatically into the Data Release Authorization process.

**Data Release Authorization Process**

1. Data Products which already exist on PennShare AND for which there is a valid Data Release Authorization on file may be used by members of the PennShare Community as appropriate based on protocols, processes and procedures set forth in this Manual and/or the release authorization information on file.
2. Authorization to release Data Products not previously available on PennShare begins with workflow to the Data Owner (Bureau Director, District Executive or Division Chief). There are four possible outcomes:
   1. **The Data Owner verifies via electronic signature that the data product being requested is suitable for public release on PennShare** and the data product will be made available on PennShare in an appropriate form by GID/PDD staff and used accordingly.
   2. **The Data Owner verifies via electronic signature that the data product being requested is NOT suitable for public release on PennShare but is needed for use with partners or similar organizations** and the data will be sent by GID/PDD staff to a secure ArcGIS area managed by GID with appropriate safeguards in place to ensure access controls and related data security and integrity are maintained.
   3. **The Data Owner verifies via electronic signature that the data product being requested is NOT suitable for public release on PennShare but wishes the data to be cleared for public release** and the request workflows automatically to Part 3 below.
   4. **The Data Owner verifies via electronic signature that the data product being requested is NOT suitable for the purpose requested** and the request is rejected, with notification sent to GID/PDD staff and the requestor.
3. Authorization requests which workflow from Step 2c (above) will workflow to the Deputy Secretary (or his/her designate) supervising the Bureau/District controlling the requested data. There are four possible outcomes:
   1. **The Deputy Secretary (or his/her designate) verifies via electronic signature that the data product being requested is suitable for public release on PennShare**, the Data Owner and GID/PDD staff are notified, and the data product will be made available on PennShare in an appropriate form by GID/PDD staff and used accordingly.
   2. **The Deputy Secretary (or his/her designate) verifies via electronic signature that the data product being requested is NOT suitable for public release on PennShare but is needed for use with partners or similar organizations**, the Data Owner and GID/PDD staff are notified, and the data will be sent by GID/PDD staff to a secure ArcGIS area managed by GID with appropriate safeguards in place to ensure access controls and related data security and integrity are maintained.
   3. **The Deputy Secretary (or his/her designate) verifies via electronic signature that the data product being requested is NOT suitable for public release on PennShare but wishes the data to be cleared for public release** and the request workflows automatically to Part 4 below.
   4. **The Deputy Secretary (or his/her designate) verifies via electronic signature that the data product being requested is NOT suitable for the purpose requested** and the request is rejected, with notification sent to Data Owner, GID/PDD staff, and the requestor.
4. Authorization requests which workflow from Step 3c (above) will workflow to the Press Office for review and moved on, as appropriate, for additional review or further action. This process would proceed outside of the automated workflow and could involve the Office of the Secretary of Transportation, Office of Chief Counsel, Office of Administration, or other organizations, as appropriate.

**d. ArcGIS Online for PennDOT (“PennShare”)**

***User Agreement and Terms of Use***

This User Agreement and Terms of Use document (the “User Agreement”) includes the following:

1. Defined Terms
2. PennShare Data Use Disclaimer
3. PennShare Data Standards
4. PennShare Member Responsibilities; and
5. PennShare Intellectual Property

PennShare is an online repository for PennDOT GIS maps, data, applications, and tools that will allow users to create, organize and share maps.

1. **Defined Terms**

When capitalized, the following terms have the listed meanings. When not capitalized, the terms have their general meanings.

* 1. **AGOL** means ArcGIS Online for Organizations, the SaaS offering available to the Pennsylvania Department of Transportation (Department). Through an AGOL subscription, organizations can manage all of their geographic content in Esri's secure, cloud‐based environment. In this environment, organizations and their role‐based users can publish their hosted services to AGOL; manage maps, apps, and data; invite members to join the organization in a particular role‐based capacity that can include the ability to share and save information and data within the organization's site; and customize an AGOL home page.
  2. **Esri** means Environmental Systems Research Institute, Inc.
  3. **BPR** means the Department’s Bureau of Planning and Research
  4. **GIS** means Geographic Information System
  5. **Group** means a grouping of users focused on a particular collection of information, data or other items; usually related to a specific area of interest. Any Publisher or Administrator can create Groups as a way to organize their items. Group creators can: (i) set the visibility of the Group for particular role-based access, (ii) configure the Group to enable other users to request to join the Group, and (iii) identify who can contribute content to the Group
  6. **PennShare** or site means the Department’s website based upon a single, AGOL subscription based license for PennDOT the BPR administers on behalf of their users.
  7. **PennShare Community** and PennShare Community members mean the community of role‐based users able to access information and data on PennShare. In ascending order of role‐based privileges, the PennShare Community Members include:

1. **Viewers**: Entities that can view but not create, modify, share, save or otherwise manipulate PennShare information and data (i.e. Public).
2. **Users**: A User can view, create, modify, share, save and otherwise manipulate all PennShare information and data.
3. **Publishers**: A Publisher is a User with additional privileges to publish hosted services from feature or tiled map data.
4. **Administrators**: An Administrator is a Publisher with additional capabilities to manage the organization and other users.
   1. **SaaS** means Software as a Service
5. **PennShare Data Use Disclaimer**
6. **Acceptance of Terms and Conditions**. By using or otherwise accessing information and data made available through AGOL, members of the PennShare Community, accept and agree to all conditions stated in this Data Use Disclaimer
7. **The PennShare Community assumes the risk of their use and reliance on Site Information and Data**. The Department makes no representations or warranties as to the completeness, accuracy, timeliness, or content of any information and data made available through the Site. The Department expressly *DISCLAIMS ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE*.
8. **Limited Modification**. The owners of Site information and data will infrequently change data format and schemas related to their content for necessary modifications, e.g., updates, addenda or deletions.
9. **Information Sharing**. To foster information sharing between Agencies, public‐facing content must be shared with either or both of the following public‐facing Groups: a) “*PennShare GIS Community Maps, Services, and Applications”,* a Group established for all PennShare Community Members, or b) any and all such Groups created by a Bureau or District.
10. **Source Data**. Site users who access PennShareinformation and data for use in their Applications that operate on different Websites MUST display on those Websites, as necessary and appropriate, a disclaimer comparable to the following:

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. The information and data is subject to change as modifications and updates are completed. All who use or otherwise access such information and data do so at their own risk. Users of this information and data should review or consult the primary data and information sources to ascertain the usability of the information. Any information and data made available here that has been modified for use from the Pennsylvania Department of Transportation is subject to the following disclaimer: THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION MAKES NO REPRESENTATIONS OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, TIMELINESS, OR CONTENT OF ANY INFORMATION AND DATA MADE AVAILABLE THROUGH THIS SITE. THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION EXPRESSLY DISCLAIMS ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

1. **Right to Modify or Discontinue Feeds; Site Access**.
2. The Department and the BPR reserve the right to compel modification or deletion, at any time and without prior notice, of any or all of the content registered in PennShare.
3. The Department and the BPR also reserve the right to terminate any and all PennShare generated displays, applications and distribution of data; or otherwise block or discontinue the feed of any or all of the information and data on the Site for any reason; including, without limitation, an individual's violation of any of the provisions of these Terms of Use.
4. Finally, the Department and the BPR reserve the right to terminate, at any time and without prior notice, a User’s continued access to PennShare for violations that in the Department and the BPR’s opinion jeopardize the subject AGOL License or subject the State to the possibility of adverse action, or both.
5. **Logo Usage.** PennShare members interested in utilizing the PennDOT logo for any purpose must first gain approval from the PennDOT Press Office.
6. **PennShare Data Standards**
7. PennShare members using the site shall NOT create, publish/register, retain or otherwise distribute or share content and comments that contain or otherwise include information or data derived from or related to an unlawful, otherwise prohibited, inappropriate, or offensive activity:
8. Comments not topically related to the particular content;
9. Profane language or tone;
10. Harassing language or tone;
11. Content that promotes, fosters or perpetuates discrimination on the basis of race, creed, color, age, religion, gender, marital status, status with regard to public assistance, national origin, physical or mental disability or sexual orientation;
12. Sexual content or links to sexual content;
13. Solicitations of commerce;
14. Conduct or encouragement of illegal activity;
15. Information that either could, or that does compromise the safety or security of the public or public systems;
16. Content that violates an ownership interest of any other party;
17. Promotion or opposition of any person campaigning for election to a political office, or promoting or opposing any ballot proposition unless specifically authorized by the agency director; and
18. Disclosure of confidential or sensitive information, i.e., information that by operation of law, administrative rule or policy an agency and its employees must keep confidential.

Only information and data that comply with these standards shall receive approval from an administrator for posting on PennShare. PennDOT regards all noncomplying information and data as "unacceptable". Publishers and Administrators responsible for monitoring Site content or comments shall coordinate with BPR to edit, revise or remove the “unacceptable” information and data from the Site.

1. Communications made through PennShare shall not constitute, for any purpose, legally binding or official notice to the State, its agencies, or any official or employee of the State.
2. Any use of PennShare constitutes acceptance of the applicable PennShare Terms of Use. Any information posted on the Site is public information and may be subject to monitoring, moderation or disclosure to third parties.
3. Use of PennShare that does not comply with applicable Site Terms of Use may result in denial of continued Site use for the offending individual and organization participants. The BPR Site Administrator reserves the right to revoke Site Community Member access rights for noncompliance with the Site Terms of Use in accordance with Section II.6(c) of these Site Terms of Use.
4. **PennShare Member Responsibilities**
5. The following roles are recognized for PennShare Members:
6. Viewers (Public),
7. Users,
8. Publishers, and
9. Administrators.
10. All Community Members must adhere to the PennShare Terms of Use, and:
11. Create a PennShare user account and profile that at a minimum includes name and contact information and Business Area (i.e. Bureau or District).
12. As applicable to their use of PennShare, follow guidelines, policies and rules set by their respective organizations.
13. Refrain from sharing PennShare log‐in credentials with other persons.
14. Users, Publishers and Administrators must also:
15. Report each instance of PennShare Web Maps that they embed on other Websites.
16. Refrain from personal use of their PennShare access.
17. Refrain from use of PennShare Geocode services if they are otherwise able to access geocoding through BPR’s Geocoding service with ArcGIS Desktop.
18. Refrain from use of PennShare Geocode services for large Geocoding processes, i.e., >1,000 addresses, without prior permission from the BPR PennShare Administrator.
19. Publishers must also:
20. Refrain from publishing tile caches as hosted services on the Site without prior approval from the BPR PennShare Administrator.
21. Refrain from publishing hosted feature services on the Site if such services already exist on the Site, or are accessible elsewhere off the Site; e.g., on BPR’s GIS Server.
22. Ensure that published maps include:
    1. Complete descriptions of the map, as well as its related layers and sources;
    2. Complete access and use constraints; and
    3. Links in the map’s description to any existing formal metadata.
23. Use appropriate tags for each map.
24. Refrain from using the default thumbnail for each map. Instead, Publishers shall create a 200 x 133 pixel thumbnail that is representative of the map.
25. Administrators must also:
26. Create a primary Group and invite all Users to join the created Group. Group members shall comply with their respective role‐based rules (i.e. Users. Publishers, Administrators).
27. Manage only their Group members. Group member management includes activities such as inviting or removing Users, or altering Groups in which a User is a member.
28. Manage only the content related to their respective group. Content management includes activity such as altering, moving, or deleting content from hosted services, web maps, applications, and so on.
29. **PennShare Intellectual Property**
30. Works developed by Employees
    1. Any and all work product, maps or data sets created by a User that is a Commonwealth of Pennsylvania or Department employee are the sole and exclusive property of the Commonwealth and Department and shall be considered "works made for hire" under the United States Copyright Act of 1976, as amended, 17 United States Code (collectively, the “Developed Works”). In the event that the Developed Works do not fall within the specifically enumerated works that constitute works made for hire under the United States copyright laws, User agrees to assign and, upon their authorship or creation, expressly and automatically assigns all copyright interests, proprietary rights, trade secrets, and other right, title, and interest in and to such Developed Works to Commonwealth.
31. Works developed by Others
    1. Any User that is not a Commonwealth of Pennsylvania or Department employee warrants that its work product, including but not limited to any and all maps or data sets (collectively, the “Developed Works”), is original and does not infringe on any copyright, patent, trademark, or other intellectual property right of any third party and is in conformance with the intellectual property laws of the United States. User hereby grants a perpetual, worldwide, irrevocable, royalty-free, paid-up, nonexclusive, nontransferable, nonassignable license in the Developed Works, of which it is the exclusive or joint owner, to the Commonwealth of Pennsylvania and Department for its unfettered use. This license shall include the right to sublicense Developed Works to third parties or other entities engaged in transportation research and planning endeavors.

I have received, had an opportunity to read, and agree to the terms of use and conditions set forth in this ArcGIS Online for PennDOT (“PennShare”) user agreement. For Commonwealth of Pennsylvania and Department employees, I understand that violations of this User Agreement may lead to disciplinary actions up to, and including, discharge from employment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Print Name |  | Bureau/District/Agency/Other |  | Org Code |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Signature |  | Date |

**e. PennShare Product Request and Data Release Authorization Form**

[to be incorporated when complete and tested]

**6. Data Management**

**a. Metadata**

**PennDOT Geospatial Metadata Policy**

**Abstract:**

This PennDOT document establishes departmental policy for the development of geospatial metadata to accompany geospatial data sets that are created or published by the Department.

The goal of this policy is to ensure that geospatial metadata is created and maintained by PennDOT staff and partners in conjunction with the creation, sharing, and publishing of geospatial data both for internal and external use.

This policy does not apply to temporary geospatial data that is generated by users or data that is not intended to be reused or shared.

The PennDOT Geographic Information Division (GID) in the Bureau of Planning and Research (BPR) shall maintain a centralized repository of geospatial metadata for the Department. A shared folder for internal access to the metadata repository should be maintained and a copy of the metadata should also be maintained in the geospatial database servers where the data is stored.

**Intended Audience:**

The primary audience for this document includes the PennDOT Geographic Information System (GIS) users, geospatial data creators/stewards, geospatial data owners and users, developers and managers of major geospatial investments, and any person involved in geospatial operations in PennDOT programs, or transferring or exchanging geospatial data with PennDOT programs, including contractors and grantees operating on behalf of PennDOT.

**Policy:**

This policy establishes standards for the development and maintenance of geospatial metadata.

PennDOT has adopted the policy, consistent with Presidential Executive Order #12906, that all geospatial data generated or collected using federal or state funds, submitted to PennDOT, shared among PennDOT organizations, published by PennDOT for use by other organizations, or published as mapping services on the Internet, shall be accompanied by geospatial metadata files (descriptive information about the data, often referred to as documentation), that conforms to the Federal ISO 19139 Specification requirements for metadata. Please see Appendix C for how to create and update ISO 19139 GIS metadata using ArcCatalog Version 10.1.

There are two parts to this policy. The first applies to new geospatial data that is generated which requires the creation of new metadata files and the second applies to the maintenance of geospatial metadata. When data from an external organization is used by PennDOT, manipulated, or republished by PennDOT, the metadata from the external organization should be captured and updated by PennDOT to indicate the processing steps that have been taken to modify the original data.

New metadata that is generated or metadata that is updated shall be provided to the GID. Current metadata must be provided to GID prior to geospatial data being added to the Department’s GIS database or used in an application.

Note that there may be different levels of detail in the geospatial metadata files. The abstract descriptions may be lengthy and detailed for Roadway Management System (RMS) datasets and may be simple and short for stockpile locations.

For PennDOT geospatial data that is shared, manipulated, or published by external organizations, the PennDOT geospatial metadata should be maintained with the data and updated by the external party as appropriate to indicate any manipulations and reprocessing.

**Geospatial Metadata for Data Created by PennDOT:**

This section applies to all geospatial data collected by PennDOT headquarters, districts, contractors, and partners supported by PennDOT funding.

1. For data contributing to a pre-existing data set, update the existing metadata record to include additional information required by the PennDOT technical specification during the data acquisition and collection phase or as appropriate to the record management schedule.
2. For pre-existing data sets where there is existing FGDC compliant metadata and no changes to the dataset, the existing metadata record should be updated to the PennDOT technical specification in accordance with the record management schedule, or the future review date specified in that metadata record.

**Updating of Metadata Records to Reflect Processing**

This section applies to all geodata that has been through any type of geoprocessing, conversion, or other manipulation. PennDOT geospatial data stewards are responsible for updating the metadata record to reflect data updates, manipulations, and processing steps.

**Data Maintenance and Data Retirement Phase**

This section applies to all PennDOT organizations and personnel or agents of PennDOT, who design, develop, compile, operate, or maintain PennDOT’s geospatial information developed to support program and administrative operations.

**Metadata Maintenance**

Maintenance responsibility for geospatial data, and associated metadata, falls on the geospatial data owner or geospatial data steward of the program office or division that originally collected the data. Maintenance of the data is solely their responsibility. This will ensure that data is up-to-date and as accurate as possible. All geospatial data sets, and associated metadata, must be developed in accordance with PennDOT data life cycles and have a regular maintenance schedule implemented and recorded in the procedures of the project/program.

**Geospatial Metadata and Records**

Geospatial data, and associated metadata, is a Department record if it is created or received in the course of doing PennDOT business, and it provides evidence of the Department’s actions, programs, operations and other activities. The geospatial data owner or geospatial data steward in the program or office sponsoring the data is responsible for maintenance and disposition of records in accordance with applicable Department records schedules.

**Metadata Retirement / Disposition**

The geospatial data owner or geospatial data steward must dispose of geospatial data and associated metadata, identified as an Agency record and no longer required for conducting Department business, in accordance with the Department’s records management policies and procedures. This includes closing the records when they become inactive, storing them on- or off-site for the length of time mandated in the applicable records schedule, and destroying.

**Geospatial Metadata for Data Not Created by PennDOT:**

This section applies to metadata records for geospatial data sets from external sources that are required to meet the requirements of the PennDOT Metadata Technical Specification.

1. Acquire available metadata for the data set. Geospatial data stewards are responsible for ensuring metadata supplied by the data provider fulfills the minimum requirements of the PennDOT metadata technical specification.
2. If applicable metadata elements cannot be supplied by the data provider, Geospatial data stewards are responsible for determining whether or not the data, and metadata, is suitable for serving program needs.
3. Geospatial data stewards must create or update the metadata record for the acquired data set to meet the minimum requirements of the PennDOT Metadata Technical Specification in the collection and acquisition phase.
4. Geospatial data stewards must determine and document the sensitivity of the data based on the PennDOT Information Security Manual.

**Roles and Responsibilities**

This section details the roles and responsibilities of PennDOT officials, staff positions, committees, and workgroups with respect to geospatial metadata management.

**PennDOT Geospatial Data Roles and Responsibilities**

**Geospatial Information Officer (GIO)**

The GID Manager is the Geospatial Information Officer for the Department and the chair of the PennDOT GIS Workgroup Steering Committee and has the following responsibilities with respect to geospatial metadata management:

1. Approve standard operating procedures for geospatial metadata management on the PennDOT server as developed by the GIS Workgroup.
2. Prepare necessary reports, decision papers, and documentation on PennDOT geospatial metadata management for the review of the CIO.
3. Recommend the Procedure for Geospatial Metadata Management and all subsequent updates or revisions for approval by the GIO.

**Geospatial Data Stewards**

Geospatial data stewards are appointed by program offices, regional offices, or laboratories. Every geospatial data asset, and all digital geospatial information collected by PennDOT for inclusion in Department databases, must be under the control of a geospatial data steward whose identity must be referenced in the metadata record for that database or geospatial data asset. Geospatial data steward responsibilities for managing Department geospatial metadata include:

* Provide guidance, support, coordination, review, and public release of geospatial metadata for their organization related to ongoing program geographic data collection activities for business activities such as permitting, ambient monitoring, source monitoring, or pollution dispersion or migration modeling. This includes local determinations of data sets for contribution, overseeing metadata creation, overseeing data updates, and reporting to central geospatial data stewards, if such stewards exist for a particular data asset.
* Ensure FIPS 199 keyword categorizations are accurately reflected in the metadata record.

**PennDOT Program Area Metadata Roles and Responsibilities:**

There are 3 primary roles defined for the creation and maintenance of PennDOT GIS Metadata.

1. PennDOT Program Area GIS Data Creators
2. PennDOT Program Areas that Utilize Data from Outside Agencies
3. PennDOT Bureau of Planning and Research (BPR) Geographic Information Division (GID) and the GID Metadata Manager
4. PennDOT program areas that create GIS data are responsible for creating and maintaining the GIS metadata to accompany the GIS data that is created. The initial metadata should be delivered to the GID Metadata Manager. When structural changes (data field deletions, additions, data type changes, new lookup values) are made to the GIS data, the program area is responsible for updating the metadata and providing it to the GID Metadata Manager so that it is replaced in the metadata repository.
5. PennDOT program areas that utilize GIS data from other outside organizations are responsible for creating and maintaining the GIS metadata if it is not provided by the outside organization when the data was delivered/downloaded. If metadata is provided by the outside agency, then the program area is responsible for making any necessary updates and converting the data to PennDOT’s adopted ISO 19139 specification.

Any original metadata information provided by the external agency should be kept intact. Any geoprocessing or changes to the data that PennDOT makes should be added and well documented in the updated metadata. PennDOT contact information should be added.

Once completed, the program area is responsible for providing the metadata to the GID metadata manager.

1. The Geographic Information Division has the organization responsibility to build and maintain the PennDOT GIS Metadata repository and to ensure that PennDOT GIS Metadata is available along with any shared PennDOT GIS data.

Metadata validation should be run against any program area provided GIS metadata to ensure that it complies with PennDOT standards and the ISO 19139 specification.

**Refresh Schedule:**

All standards identified in this Policy are subject to periodic review and possible revision.

**Exemption from This Policy:**

In the event that an individual or a program chooses to seek an exemption, for reasons a request for waiver may be submitted to the Geographic Information Division manager.

* **Waiver Process.** The Geographic Information Division manager may grant waivers to selected provisions of this Procedure for sufficient cause. The CIO may re-delegate this authority.
* **Notification.** The Geographic Information Division manager will notify the requesting office in writing of the disposition of the waiver within 60 days of receipt.

**Questions:**

Questions regarding this policy are to be directed to the Geographic Information Division manager.

**Policy Supplements (published separately):**

* **POL GIS – A1:** Appendix 1 – ISO Topic Category Name, ISO Topic Category Code
* **POL GIS – A2:** Appendix 2 – Metadata Purpose and Background
* **POL GIS – A3:** Appendix 3 – Guide to the Creation of Metadata using Esri ArcGIS for Desktop 10.1

**Metadata Creation and Maintenance Checklist**

**Purpose**

This document provides a checklist for the creation and dissemination of geospatial metadata for PennDOT.

**Required Items**

**Identification**

**Abstract** - A brief description of the data.

* Questions to answer:
  + Description of how the data was generated, what geographic area is covered, other information related to the data source or process used to create the data, or a description of any modifications made to the original source data if the data set has been modified and republished.

**Purpose** - A summary of why the data were collected.

* Questions to answer:
  + Reason for the data, why it was originally created, how the data should be used, uses of the data by the organization, high level description of the data contents.

**Access Constraints** - Restrictions and legal prerequisites for accessing the data.

**Use Constraints** - Restrictions and legal prerequisites for using the data, once access has been given.

**Contact** - Name of organization and, optionally, a person in the organization considered to be the best contact for question concerning the data.

**Contact Voice Telephone** - The phone number of the organization or person in the organization who would answer questions concerning the data.

**Contact Email Address** - The email address of the organization or person in the organization who would answer questions concerning the data.

**Title** - The common name of the dataset.

**Originator(s)** - The name(s) of the organization(s) or individual(s) that developed the dataset.

**Publication Date** - The date on which the data were published or updated.

**Time Period** - Either ground condition (generally referring to aerial photography) or publication date.

**Progress** - The state of the data (Complete, in process, etc.).

**Update Frequency** - How often the data are updated – Never, infrequently, annually, quarterly, monthly, weekly, daily.

**Bounding Coordinates** - The extent of the data in decimal degrees – lower left and upper right corners.

**Theme Keyword** – Choose at least one of the following keywords from the [ISO 19115 Topic Category](http://gcmd.nasa.gov/User/difguide/iso_topics.html).

farming

biota

boundaries

climatologyMeteorology

atmosphere

economy

elevation

environment

geoscientificInformation

health

imageryBaseMapsEarthCover

intelligenceMilitary

inlandWaters

location

oceans

planningCadastre

society

structure

transportation

utilitiesCommunication

**Theme Thesaurus** - ISO 19115 Topic Category.

**Security Classification** - Security classification of the data.

**Spatial Reference**

**Horizontal Coordinate System** - Projection of the data (e.g. geographic (lat/long), PennDOT polyconic, etc.).

**Distribution**

**Resource Description** - Is the data “Downloadable Data,” an on-line dataset, or other form of resource.

**Primary Contact** - Name of organization, and optionally, a person in the organization considered to be the best contact for question concerning the distribution of the data.

**Contact Voice Telephone** - The phone number of the Primary Contact.

**Contact Email Address** - The email address of the Primary Contact.

**Metadata**

**Metadata Date** - The date the metadata record was completed.

**Contact** - Name of organization, and optionally, a person in the organization considered to be the best contact for question concerning the metadata.

**Contact Voice Telephone** - The phone number of the metadata Contact.

**Contact Email Address** - The email address of the metadata Contact.

**Optional, but Important Metadata Items**

**Entity Attribute**

**Attribute Domain Values** – Column descriptions, including meanings of codes and other information found in the data attribute table either as part of metadata record or as a reference to an external definition table.

**b. Data Tagging**

Tags are words or short phrases that describe an item in AGOL. Tags are important since they determine if a group, service, map, etc. shows up in the search results when someone enters a keyword that matches one of the associated tags.

**General Information About AGOL Tags**

1. Creating and using tags
   1. Separate tags with commas. *Federal land* is considered one tag, while *Federal, land* is considered two tags.
   2. **TAG LIST Box Selection Limitation:** The tag list is a personal tag list. Each AGOL subscriber has their own set of tags stored for future use/selection. There is currently no way to set up a master list of tags for all PennShare subscribers to use to help standardize this practice.
   3. **Tag Limitations:** information in ArcGIS.com help is not consistent, but a consensus of the information provided suggests:
      1. 250 is the maximum number of characters supported.
      2. Group tags are limited to 180 text characters
      3. There is a 180 character limit in summary field in groups and item details
   4. When searching, type tags directly or click the **Choose from your tags** link to open the list of tags you've used.
2. Esri uses a stemming model for keyword searches, but results are weighted, effectively, by popularity. Following are some examples of how stemming models work:
   1. A stemmer should identify the string "cats" (and possibly "catlike", "catty", etc.) as based on the root "cat", and "stemmer", "stemming", "stemmed" as based on "stem".
   2. A stemming algorithm reduces the words "fishing", "fished", and "fisher" to the root word, "fish".
   3. On the other hand, "argue", "argued", "argues", "arguing", and "argus" reduce to the stem "argu" (illustrating the case where the stem is not itself a word or root) but "argument" and "arguments" reduce to the stem "argument".
3. At this time, it appears tags and descriptions from existing GIS Metadata for uploaded GIS data are ignored by AGOL.

**Tagging Protocol for PennShare**

All PennShare data tags must include the following:

1. PA
2. Pennsylvania
3. Agency in {“USGS”, “USFW”, “NRCS”, “PennDOT”, “DCNR”, “DEP”, “PGC”, “PFBC”, “DVRPC”, “NCPRPDC”, …}
4. Agency Type in {“Federal”, “Commonwealth”, “Planning Partner”, “County”, “Other”}
5. Core Data Type in {“Transportation”, “Hydrography”, “Soils”, “Land Records”, “Other”, …}
6. Data Descriptor in {“Roads”, “Bridges”, “Streams”, “Soils”, …}
7. System Name in {“RMS”, “BMS2”, “MPMS”, …} – If Applicable, otherwise not included
8. Feature name in source system {RMSADMIN, RMSSEG, BMSBridge, …} – If Applicable, otherwise not included
9. Descriptive information tags about the data

Sample PennShare Tag:

“PA, Pennsylvania, PennDOT, Commonwealth, Transportation, Roads, RMS, RSMADMIN, State Highway Administrative Segments, State Highway, Centerline”

**c. Data Security and Integrity**

**PennSHARE services**

To effectively organize PennDOT GIS data through web services, I propose the following be examined and evaluated to ensure that data can be easily shared, viewed, and administered. This is designed to allow PennDOT staff to easily manage content and also provide customers a “one stop” location for GIS layers to be used in an online environment.

* Recommend a new schema (PennShare) or utilize GISCOM schema. Only registered layers with geometry will be added. Tables will not be included but may be addressed in the future.
* These layers will be “as is” meaning no additional geoprocessing will occur i.e. joins, calculations, summaries, …
* Meta data will be created on PennShare using Description and Domain information can utilize .xml / .pdf format.
* Single .mxd will be used divided into 3 groups (Feature Layers, Functional Layers, and LPN Layers)
* Feature layers will utilize Feature Access to enable data export capabilities
* Modification to the attribute table (some fields may need to be turned off) should be done when added to the schema.
* Symbolization of Functional Layers represent the PennDOT Standards (Red for Poor IRI, ….)

**Feature Layers**

RMSSEG

RMSADMIN

RMSTRAFFIC

RMSPIPE

RMSINTERSECTION

RMSGRDRAIL

RMSHPMSMP

MPMSPROJECTSVIEW

MPMSPROJECTVIEW

MPMSPHASEVIEW

BMS2\_BRIDGE\_V (Points)

COUNTY

DISTRICT

HOUSE

SENATE

CONGRESS

PLANNING PARTNER

FACILITIES

**Functional Layers (these are symbolized using the Feature Layers)**

Functional Class

Maintenance Functional Class

NHS

NHPP

BPN

Posted Roads

Bonded Roads

SD / FO Bridges

Posted Bridges

IRI

Planned Maintenance

Actual Maintenance

OPI

Draft TIP

Current TIP

State Bridges

Local Bridges

**LPN Layers**

Water Trails

Ch. 93 EU Trout Stocking

Class A Streams

Wilderness Trout Streams

Trout Natural Reproduction

Existing Use HQ/EV

Designated Use HQ/EV

Stafford Act Properties

Act 167 Plans

Wetlands

NWI Wetlands

Hydric Soils

Commercial Waste Operations

EPA Waste Sites

Land Recycling Cleanup

Municipal Waste

Storage Tanks

Captive Hazardous Waste

Historic Resources

100-year Floodplain

LWCF Grants

LWCF Acquisitions

Trails

Protected Federal Lands

State Forests

State Parks

State Gamelands

Soils of Local Importance

Prime Farmland Soils

Soils of Statewide Importance

Ag\_Easement

USACE Navigable Waters

**d. Legal Requirements**

**Information That Is Not Public**

If you receive a request for a record that contains any of the information listed below, please forward the request immediately to PENNDOT-RightToKnow@pa.gov (which is displayed in Outlook as PD, PENNDOT Right To Know) to be processed as a RTKL request.

* 1. Social Security Number (including last 4 digits)
  2. Employee ID Number (Operator Number on Crew Daily Project Time Sheets “maintenance payrolls”)
  3. Driver’s License Number (Mechanic Number or Technician Number in vehicle inspection documents)
  4. Marital status
  5. Dependent information (including number of exemptions)
  6. Child support payment/garnishment
  7. Name of a child age 17 or younger
  8. Birthdate
  9. Home address
  10. Home phone number
  11. Cell phone or mobile number
  12. Non-business e-mail addresses
  13. Bank account number
  14. Bank routing number
  15. Letter of credit number
  16. Credit card number (including three digit card security code)
  17. From bridge inspection reports:

a. Names or initials of bridge inspectors

b. Load rating

c. Utility location information

d. Fracture critical indicator

**Records That Are Not Public**

If you receive a request for any of the types of records listed below, please forward the request immediately to PENNDOT-RightToKnow@pa.gov (which is displayed in Outlook as PD, PENNDOT Right To Know) to be processed as a RTKL request.

* 1. Bridge structure plans
  2. Photos or plans of utility systems/structures or photos showing location of utilities on bridges
  3. Records related to or resulting in a criminal or noncriminal investigation
  4. Complaints (as part of an investigation)
  5. Driving history
  6. Image of a driver’s license
  7. Police crash reports
  8. Safety/traffic engineering studies
  9. Bids or proposals prior to award of a contract or purchase order
  10. Financial information of a private company (bid proposals)
  11. Evaluation committee scoring sheets (bid proposals)
  12. Real estate appraisals (before signed agreement of sale or filing of condemnation)
  13. Construction plans showing property to be acquired through right-of-way (before acquisition has begun)
  14. Records showing location of an endangered species or archeological site
  15. Applications for approval of a company as a Disadvantaged Business Enterprise
  16. Contractor’s Financial Statement, Part 1 of the Contractor Pre-Qualification Package
  17. Communications between PennDOT and the Department of General Services Bureau of Risk Management or PennDOT’s Risk Management Office
  18. Communications with Office of Chief Counsel or Office of General Counsel
  19. Communications that identify a constituent requesting constituent services
  20. Employee medical record including result of drug tests
  21. Employee performance review
  22. Employee letter of reference or recommendation
  23. Results of a Civil Service test
  24. Employment application of an individual who is not hired
  25. SEAP-related records
  26. Written criticism of an employee
  27. Grievance material
  28. Information regarding employee discipline, demotion or discharge
  29. Academic transcripts
  30. Records related to labor relations or collective bargaining
  31. Drafts of policy or regulation
  32. Internal communications reflecting the predecisional deliberations of agency staff
  33. Records of a trade secret or confidential proprietary information
  34. 911 recordings or transmissions
  35. Autopsy records

**Records Retention and Disposition**

Retention and disposition of PennDOT records are governed by the [Records Retention and Disposition Schedule](file:///P:/penndot%20shared/RECORDS%20MANAGEMENT/Records%20Management/Records%20Retention%20Schedules/PennDOT%20Records%20Retention%20Schedule.pdf) administered by the Forms, Pubs and Records Unit of the Bureau of Office Services. In general, data and information made available on PennShare will be treated as records falling under the general Information Technology category. Any questions regarding the treatment of specific data products placed on PennShare should be directed to the Forms, Pubs and Records Unit.

**7. Credit Usage**

1. What is geo processing and geocoding??
2. When do you use a credit??
3. Credit usage breakdown

Service Credits Overview:

ArcGIS Online is based on an annual subscription with flexible plans you can choose from. Each plan includes a number of named users and service credits. Service credits are the currency for ArcGIS Online and are used in exchange for any of the hosted services an ArcGIS Online subscriber uses.

**What Uses Service Credits? *(Revised: 12/31/2013 for AGOL Version: XXXX)***

| **Service** | **Service Credits Used** |
| --- | --- |
| Map Tile Generation | 1 credit per 1,000 tiles generated |
| Feature Services | 2.4 credits per 10 MB stored per month |
| Tile and Data Storage | 1.2 credits per 1 GB stored per month |
| Geocoding | 40 credits per 1,000 geocodes |
| Simple Routes | 0.04 credits per simple route |
| Optimized Routes | 0.5 credits per optimized route |
| Drive-Times (Service Areas) | 0.5 credits per drive-time |
| Closest Facilities | 0.5 credits per closest facilities route |
| Multi-Vehicle Routes (VRP) | 1 credit per route |
| Demographic and Lifestyle Maps | 10 credits per 1,000 map requests |
| Data Enrichment | 10 credits per 1,000 data variables (attributes) |
| Infographics | 10 credits per 1,000 views |
| Reports | 10 credits per report |
| Spatial Analysis | 1 credit per 1,000 features |

**Map Tile Generation**Find out how many service credits you might use when you [create map tile services for various geographies](http://www.arcgis.com/features/plans/map-tiles.html).

**Geocoding**Find out how many service credits you might use when you [perform geocoding](http://www.arcgis.com/features/plans/geocoding.html).

**GeoEnrichment**Find out how many service credits you might use when you [use GeoEnrichment](http://www.arcgis.com/features/plans/geo-enrichment.html).

**Spatial Analysis**Find out how many service credits you might use when you [perform spatial analysis](http://www.arcgis.com/features/plans/spatial-analysis.html).

**Network Analysis**Find out how many service credits you might use when you [create routes or drive times](http://www.arcgis.com/features/plans/network-analysis.html).

Service credits that are included with a subscription expire at the end of the subscription term (12 months). Any additionally purchased service credits expire after 24 months, starting from the date of purchase.

**What Doesn't Use Service Credits?**

1. Leveraging ArcGIS for Server capabilities to host and publish map services
2. Use of ArcGIS Online basemaps
3. Use of World Traffic service as a layer in a web map
4. Data transfer
5. Tile loading
6. Geosearch (single address search)

**How Can I Estimate How Many Service Credits I Need?**

Use the interactive service credits estimator to estimate how many service credits you might use: <http://www.esri.com/software/arcgis/arcgisonline/credits/estimator>

**8. Quality Assurance Plan**

**9. Recommended Training**

**ArcGIS Training Offerings from Esri:**

These classes can also be accessed at: <http://training.esri.com/gateway/index.cfm?fa=main.arcgisonlinetraining>

Full course descriptions can be found in the online course catalog: <http://www.esri.com/coursecatalog>

**ArcGIS Online for Users**

[Making and Sharing Maps with ArcGIS Online](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2055) (Training seminar, 60 min)

[Esri Maps for Microsoft Office, SharePoint and IBM Cognos](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2494) (Training seminar, 60 min)

[Smartphone GIS: Capturing Data with Collector for ArcGIS](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2653) (Training seminar, 60 min)

[Authoring Web Maps Using ArcGIS Online](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2519) (Training seminar, 30 min)

**ArcGIS Online for Publishers**

[ArcGIS Online Subscriptions: Mapping and GIS for Organizations](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2498) (Training seminar, 60 min)

[Making and Sharing Maps with ArcGIS Online](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2055) (Training seminar, 60 min)

[Increase the Value of ArcGIS Services with ArcGIS Online](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2612) (Training seminar, 60 min)

[Creating Web Applications Using ArcGIS Online](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2652) (Web course, 30 min)

[Smartphone GIS: Capturing Data with Collector for ArcGIS](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2653) (Training seminar, 60 min)

[Monitoring Data Using Operations Dashboard for ArcGIS](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2607) (Training seminar, 60 min)

[Sharing GIS Content Using an ArcGIS Online Subscription](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2502) (Web course, 40 min)

[Creating Hosted Map Services with ArcGIS Online](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2563) (Training seminar, 60 min)

**ArcGIS Online for Administrators**

[ArcGIS Online Subscriptions: Mapping and GIS for Organizations](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2498) (Training seminar, 60 min)

[Configuring and Administering an ArcGIS Online Subscription](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2509) (Training seminar, 40 min)

[Preparing to Implement an ArcGIS Online Subscription](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2580) (Web course, 2 hours)

[Monitoring Data Using Operations Dashboard for ArcGIS](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2607) (Training seminar, 60 min)

[Sharing GIS Content Using an ArcGIS Online Subscription](http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2502) (Web course, 40 min)

**10. List of Resources**

**ArcGIS Online Web Help**

<http://resources.arcgis.com/en/help/arcgisonline/>

**ArcGIS Online Video Tutorials** (brief video tutorials on common AGOL workflows): <http://resources.arcgis.com/en/help/arcgisonline/#/Videos/010q00000003000000/>

**ArcGIS Online Blog (r**esource for common workflows, tips and tricks and documentation on what’s new): <http://blogs.esri.com/esri/arcgis/category/arcgis-online/>

**Other ArcGIS Online links currently available:**

Getting Started with ArcGIS Online Video:

<http://video.esri.com/watch/2252/getting-started-with-arcgis-online>

About ArcGIS: <http://www.arcgis.com/about/index.html>

About ArcGIS Plans: <http://www.arcgis.com/about/pricing.html>

Service Credits Overview: <http://www.arcgis.com/about/credits-overview.html>

Service Credits Estimator: <http://www.esri.com/software/arcgis/arcgisonline/credits/estimator>

ArcGIS Resources: <http://resources.arcgis.com/en/home/>

AGOL for Developers:  <http://www.esri.com/software/arcgis/arcgisonline/for-developers>

ArcGIS Mobile: <http://www.esri.com/software/arcgis/smartphones/develop>

ArcGIS for Local Government:

<http://www.esri.com/industries/localgov/arcgis-for-local-government>

**Other Resources:**

Link to PennShare: <https://pennshare.maps.arcgis.com/home/>

AASHTO TIG home page: [http://tig.transportation.org](http://tig.transportation.org/)

Link to UPlan: <http://tig.transportation.org/Pages/UPlan.aspx>