

## GIS OPEN DATA SOURCES

by Samuel Wachsmuth, Environmental Scientist/GIS II, Cedarville Engineering Group

Open data is the practice of publishing data for free, public use. Typically managed through varying levels of government, open data requires that data be:

1. Available and easily accessible to all members of the public.
2. Provided under terms that permit the end user to re-use and redistribute the data, sometimes intermixed with other data sets.
3. Available for universal participation. Data sets must be available for all applications, i.e. restricting data for “non-commercial use” or “educational use only” violates open data agreements.

Thus, most open data sources are maintained through county, state, or federal governing offices in conjunction with universities, professional groups, or colleges. Open data sources provide data for you to utilize in any manner you desire; professionally or personally.

A common question most users have is “Is public data the same as open data?” Surprisingly, no. Public data infers that the information is available to the public; it does not however guarantee that the end user will be able to easily find it or utilize it. Open data guarantees information is easily and readily available for all applications.

In Pennsylvania, there are several great open data sources. Below are a few examples:

**Open data is free for public use and is easily and readily available for all applications. Pennsylvania features several open data sources, such as PennDOT and Pennsylvania DEP.**



400 North Street, 6th Floor  
Harrisburg, PA 17120  
1-800-FOR-LTAP • FAX (717) 783-9152  
ltap@pa.gov  
<https://gis.pennndot.pa.gov/ltap/>



- **PA GeoData:** The commonwealth’s geospatial data hub for exploring, accessing, and utilizing state government geospatial data and mapping services. It is a cooperative project coordinated by the Bureau of Geospatial Services (OA GIS) in collaboration with state agency partners. <https://pa-geo-data-pennmap.hub.arcgis.com/>
- **Pennsylvania Spatial Data Access (PASDA):** Hosted by Pennsylvania State University, PASDA is Pennsylvania’s official public access open data portal. Most data from other providers can be found through searching PASDA. Primarily this site excels at sourcing current imagery and elevation data. The site provides intuitive browsing through key word searches or an imagery navigator. <https://www.pasda.psu.edu/>
- **Federal Emergency Management Agency (FEMA):** FEMA privately hosts flood hazard data through its map service center. There flood hazard data is easily found and downloaded through searching an address or coordinates. <https://www.fema.gov/flood-maps/national-flood-hazard-layer>
- **Natural Resources Conservation Service (NRCS):** NRCS provides more soil data than anyone could ever want. Soil data is viewed and searched through the websoil survey and data can be downloaded for incorporation into locally hosted maps. <https://websoilsurvey.nrcs.usda.gov/app/>
- **Pennsylvania Department of Transportation (PennDOT):** PennDOT hosts open data pertaining to roadways, bridges, traffic, accidents, and capital-improvement projects. <https://data-pennshare.opendata.arcgis.com/>
- **Pennsylvania Department of Environmental Protection (DEP):** DEP’s open data portal provides access to all publicly published, non-sensitive GIS data, which includes over

300 data layers relative to abandoned mine lands, air quality, water pollution control, coal mining, hazardous waste, operations, oil & gas, streams and lakes, industrial minerals mining, municipal waste, radiation, stormwater, water resources and more. <https://newdata-padep-1.opendata.arcgis.com/>

- **Pennsylvania Department of Conservation and Natural Resources (DCNR):** DCNR's open data portal provides access to the agency's published GIS data, which includes over 140 datasets relative to state parks, state forests, geology, recreational opportunities, and more. <https://newdata-dcnr.opendata.arcgis.com/>
- **United States Geological Survey (USGS):** USGS hosts Lidar data as well as USGS 7.5-minute topographic maps. It provides a platform to easily find current historical mapping. <https://www.usgs.gov/products/maps>
- **United States Fish and Wildlife Service (USFWS):** USFWS provides the interactive national wetland inventory which can be downloaded from its website. Other data sets include bald eagle nesting areas as well as other endangered species applications. <https://www.fws.gov/program/geospatial-data-services>
- **County Data:** Maintained by individual counties and shared via their respective data hubs, typical data includes parcel information and road information. It's important to note that not all counties offer open data portals.
- **Regional Rural and Metropolitan Planning Organizations (RPO/MPO):** Planning organizations typically host logistical data beyond the state and municipal roads. They can be a good place to look for



**GIS has become an increasingly valuable tool for many government agencies. GIS data can be used for general mapping and monitoring of valuable infrastructure.**

more specific niche data such as trail systems, bike lanes, or even social equity analysis.

It is important to understand the difference between in-house data and open data. In-house data includes all data that is created, updated, and managed by you and your organization. Your in-house data can be published as public data or open data at your discretion.

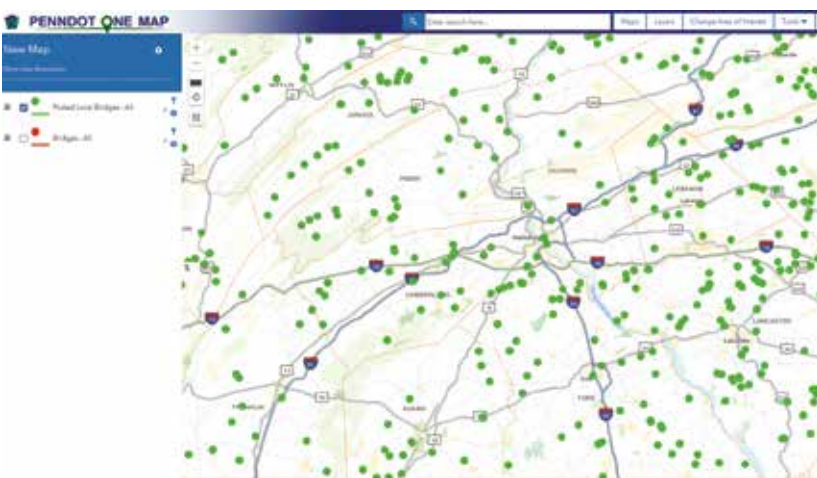
### How Do We Use This Open Data?

Open data can be used in conjunction with your existing, in-house data. There are various software options that this data can be used utilizing necessary hardware listed below:

- Computer/Laptop
- iPad/Tablet and/or Smartphone with Data Plan and/or Hot Spot
- Field case
- Charger

### Software Options:

- Google Earth <https://earth.google.com/web/> (free-viewer only)
- QGIS <https://qgis.org/en/site/> (free- no online platform)
- PennDOT One Map <https://gis.penndot.gov/onemap/> (free)
- Proprietary Software (subscription fees)
- ESRI/ArcGIS Online <https://arcgis.com/index.html> (subscription fees)
  - Desktop License
  - AGOL License (Level I- Editor)
  - AGOL License (Level II- Viewer)
  - Apps (free to download on phone or tablet but need subscription to use):



**PennDOT One Map can refine a search by clicking the “Layers” tab. Here, posted local bridges in the Harrisburg region are shown.**