

GIS Mapping Glossary¹:

- **Geographic Information System (GIS):** a system that helps us process, analyze, and map geographic data. It allows us to understand relationships and patterns in the real world by organizing and visualizing information on maps. See Introduction section for more information.
- **Geospatial:** a word that refers to anything that is related to or involves the location, position, or coordinates on the Earth's surface used often in the context of GIS and spatial data analysis.

Mapping Software

- **ArcGIS Online (AGOL):** ArcGIS Online is a web-based mapping platform provided by ESRI. It allows users to create, share, and access maps and geographic data through a web browser. It provides various tools for data visualization, analysis, and collaboration.
- **ESRI:** ESRI is the company that develops and provides ArcGIS software, which includes ArcGIS Online, ArcGIS Pro, and other geospatial tools. ESRI is a leading provider of GIS software and solutions worldwide.
- **ArcGIS Pro:** ArcGIS Pro is a desktop GIS application by ESRI. It offers advanced capabilities for creating, editing, analyzing, and sharing geographic data. It provides a user-friendly interface and powerful tools for geospatial analysis.
- **Python:** Python is a popular programming language widely used in the GIS field for geospatial data analysis, automation, and scripting. Python provides powerful libraries and modules such as *arcpy* (for ESRI ArcGIS), *PyQGIS* (for QGIS), and *geopandas* that enable geospatial data manipulation, spatial analysis, and integration with other GIS software. Python's simplicity, readability, and extensive libraries make it a preferred language for GIS professionals and developers.

Mapping Components & Products

- **Map layers:** Map layers are individual sets of geographic data that can be overlaid on a map. Each layer contains specific information, such as roads, rivers, buildings, or boundaries, which can be displayed and analyzed separately or in combination with other layers.
- **Attribute Table:** An attribute table is a tabular representation of the underlying, non-spatial data associated with a map layer. It lists the properties of the features in the layer and allows you to view, edit, and analyze the tabular data associated with the geographic features. Attribute tables provide a way to store and manage non-spatial information about the map features.
 - **For example:** You have a map layer of all states in the United States. Included in this layer is numeric data showing how many licensed child care slots are recorded for each state. You could find a table of this data for all states by opening the Attribute Table.
- **Web Map:** A web map is an interactive map that is displayed and accessed through the internet. It allows users to view, explore, and interact with geographic data using a web browser. Web maps can contain multiple layers, provide tools for data exploration, and support various map functionalities.

¹ Definitions generated by OpenAI's ChatGPT at the CCAoA research staff's careful prompting. All definitions reviewed and edited where necessary by the CCAoA mapping staff.

- **Story Map:** A Story Map is a web-based tool that allows users to create interactive and engaging narratives using maps, images, text, and multimedia. It enables the effective communication of geographic information and stories in an interactive format.
- **Map Dashboard:** A Map Dashboard is a customizable and dynamic interface that displays real-time or near-real-time data on a map. It provides visualizations, charts, and indicators that help monitor and analyze data for specific locations or themes.

Geospatial Analysis

- **Network Analysis:** Network analysis involves studying and modeling transportation or utility networks, such as roads, railways, or water distribution systems. It helps optimize routes, calculate travel distances, identify service areas, and solve complex network-related problems.
- **Geocoding:** Geocoding is the process of converting addresses or place names into geographic coordinates (latitude and longitude). It allows us to pinpoint locations on a map based on their addresses, enabling spatial analysis and visualization.
- **Geoprocessing:** Geoprocessing refers to the analysis and manipulation of geographic data. It involves a variety of operations such as buffering, overlaying, clipping, and spatial analysis (see [here](#) for more). Geoprocessing allows you to extract meaningful insights from spatial data and perform complex operations on map layers.

Datasets

- **CSV:** CSV (Comma-Separated Values) is a simple file format used to store tabular data, where each value is separated by a comma. It is commonly used to store attribute data, such as a list of addresses or non-spatial attributes associated with geographic features.
- **Shapefile:** A Shapefile is a popular geospatial vector data format that stores both geometry (points, lines, polygons) and attribute data. It consists of multiple file types (.shp, .shx, .dbf, etc.) and is widely supported by GIS software. Shapefiles are commonly used to represent and exchange geographic features and their associated attributes.
- **GeoJSON:** GeoJSON is a file format used to store geospatial data in JSON (JavaScript Object Notation) format. It allows for the representation of various types of geographic features, such as points, lines, and polygons, along with their associated attributes. GeoJSON is a popular format for exchanging and sharing geospatial data due to its simplicity, human-readable structure, and wide support across GIS software and web applications.
- **Raster:** Raster data represents spatial information as a grid of cells or pixels. Each cell contains a value representing a specific attribute or measurement. Raster data is commonly used to represent continuous phenomena such as satellite imagery, elevation data, or climate data. It is stored in formats such as GeoTIFF, JPEG, or GRID.