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Guidance on Publishing GIS Data on the CT Geodata Portal

Connecticut GIS Office

CONNECTICUT Policy and Management

Document Version History

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1.0	June 24, 2025	Initial publication

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1 INTRODUCTION

The purpose of this document is to provide guidelines for GIS professionals at Connecticut state agencies and trusted partners (hereinafter referred to as "agencies") who are sharing data with the CT Geodata Portal. It will cover important steps to connect to the Geodata Portal and to make sure data is prepared and published in a way that adheres to universal and state-specific standards.

2 STATE GIS CLEARINGHOUSE

2.1 Overview of the GIS Clearinghouse

The CT GIS Clearinghouse, named the CT Geodata Portal[1], serves as Connecticut's platform for publishing and federating high quality geospatial data across various agencies in the state. The Geodata Portal is built on Esri's ArcGIS Hub, which is a cloud platform that organizes people, data, and tools. The CT Geodata Portal has the ability to allow the GIS Office to publish to the portal directly, as well as aggregate and display datasets being published from other CT agencies that publish geospatial data. For more information about the guiding principles for the CT GIS Clearinghouse, refer to the recommendations document[2] produced by the GIS Advisory Council Workgroup.

2.2 Participating in the CT Geodata Portal

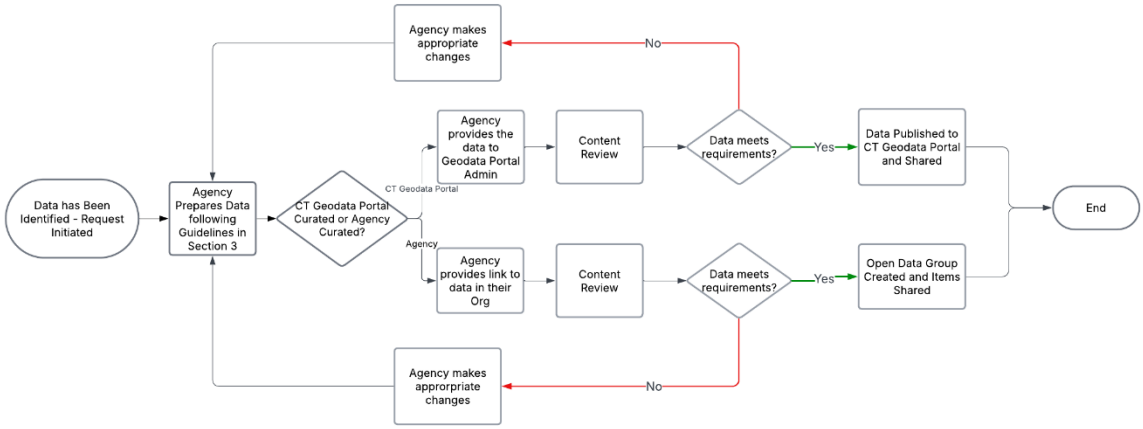
The first step in participating in the CT Geodata Portal is identifying the data to be shared and determining the method for sharing the identified data. Please refer to the Connecticut Open Data Handbook[3] for guidance on identifying data to publish.

There are two methods to share your data with the CT Geodata Portal:

[1] https://geodata.ct.gov/
[2] [CT Clearinghouse Document link coming soon]
[3] https://ctopendata.github.io/open-data-handbook

1. An agency may provide data directly to Geodata Portal Administrators who will publish the data to the Geodata Portal directly (GIS Office Curated).
2. An agency with an existing ArcGIS Online organization may share data using an Open Data Group (Agency Curated).

Once the datasets have been identified, the high-level process for participating in the CT Geodata Portal is as follows:



Both options for contributing content will require the agency to prepare the data to meet the requirements detailed in section 3 – Data Preparation. This includes ensuring data quality, meeting minimum metadata requirements, verifying spatial references, and adhering to the specified data format. For Agency Curated data, the Open Data capability must be turned on, a group must be created to use for this purpose, and the user sharing the data will need the appropriate permissions to share to the group. Groups can be joined via request or invitation, depending on the settings configured by the Agency.

3 DATA PREPARATION

Preparing data ahead of sharing to the CT Geodata Portal improves and ensures the data's trustworthiness, completeness, and discoverability. It is important to have a good understanding of data quality and metadata prior to sharing, and that all data is documented, shared in the appropriate coordinate system, and uses recommended naming conventions, tags, and categories.

3.1 Data Quality

As defined by the International Organization for Standardization (ISO)[4], the components of data quality include:

- Completeness
- Logical Consistency
- Spatial Accuracy
- Thematic Accuracy
- Temporal Quality
- Data Usability

Data quality and integrity are important components of GIS data management, directly impacting the accuracy, reliability, and usability of the data. Ensuring high standards of data quality is key before publishing to the state's GIS clearinghouse. Assess and ensure data quality using the following key considerations and best practices.

1. **Data completeness:** make sure the dataset fully covers the intended geographic area and time frame, includes all necessary features and attributes, and addresses any missing values while documenting known gaps.
2. Design your data using good design practices to help prevent quality issues and ensure **logical consistency**. Some available functionality in the geodatabase includes domains and subtypes, attribute rules, and default values. Whenever possible, datasets should be simplified to the extent that they are easily

[4] https://www.iso.org/

consumable by their intended users. For example, remove extraneous geometries that are not relevant to the data.
3. Evaluate **spatial accuracy** to ensure that the geographic coordinates and positioning of features are precise.
4. Verify **attribute (thematic) accuracy** to confirm that all associated data values correctly represent the features they describe.
5. **Temporal Quality**: Ensure the data is as up to date as possible and document the last updated information.
6. Ensure **data usability** through documentation of the dataset's purpose

Prior to publication, conduct a thorough **data and validation review** based on the considerations. Utilize GIS software tools, such as ArcGIS Pro data reviewer, to identify and correct common errors such as topology issues, missing attributes, or incorrect projections. In addition, utilize a manual inspection to detect any anomalies, ensuring the dataset meets the required quality standards before publication. If known issues exist within the dataset, be sure that these are documented as part of the Item Details for the item when published to the Portal. This documentation not only aids in transparency and future data use but also helps other users understand the dataset's context and any potential constraints on its application.

3.2 Metadata

Metadata is information that provides details about the content and context of other data. It is important in effective data management, providing essential details about the content, quality, condition, and other characteristics of a dataset. It is a tool that ensures data is not only well-documented but also easily discoverable and understandable by users.

Two types of metadata make up data shared via the CT Geodata Portal, standard metadata and ArcGIS Online item details. Metadata of both types should be filled out to the extent possible and should be reviewed ahead of publishing to the CT Geodata Portal. The CT GIS Office will conduct an annual metadata audit to ensure that published datasets are meeting metadata standards outlined here.

1 Standard Metadata

This is detailed metadata that adheres to a standardized format such as the ISO Geospatial Metadata Standard[5] or the Federal Geographic Data Committee's (FGDC) Content Standard for Digital Spatial Metadata (CSDGM)[6]. Agencies that have standardized metadata requirements should adhere to them.

2 Item Details

In ArcGIS Online, item details refer to the descriptive information associated with a content item (such as title, summary, description, tags, credits, and usage terms) that help users understand its content and purpose. These details represent the minimum metadata required for an item to be shared through the Geodata Portal.

The following section outlines the minimum information required in the Item Details (see Appendix B for a template).

Title: Use a title that is succinct yet informative. The title should accurately reflect the content of the dataset and make it easily identifiable. Avoid overly generic titles, acronyms, and include key terms that users might search for.

Summary: Provide an overview in several sentences that cover the key elements of the item. This summary should encapsulate the main points of the dataset, including its scope, significance, and any notable features.

Description: Write a clear and informative description, as it will be shown on content views and in search results. The description should include key details about the dataset, such as its purpose, geographic coverage, and any specific methodologies used. This section is often the first point of contact for users, so it should effectively communicate the significance of the data. In addition to the business use of the dataset, consider the following information:

Geographic Extent

- Bounding coordinates of Connecticut in WGS84:

[5] https://www.fgdc.gov/metadata/iso-standards
[6] https://www.fgdc.gov/metadata/csdgm

-73.727775, 40.980144, -71.786994, 42.050587

Field Names:

- [Table outlining each data field name along with a description of its contents.]

Classifications:

- Authoritativeness: [Authoritative, Non-Authoritative, Unknown]
- Sensitivity: [Public, Internal-Only, Sensitive, Confidential, Unknown]
- Usage: [Individual Use, Project Use, Agency Use, Public Use, Unknown]
- Quality: [High Quality, Low Quality, Unknown]
- Known Quality Issues: [None, Incomplete, Missing Data, Duplicates, Inaccurate, Misspelling, Precision, Formatting, Mismatches, Outdated]

Currency (time):

- Created Date: [unknown, day/month/year] (Note: The automatically generated "Date Created" and "Date Updated" fields in ArcGIS Online refer only to the item's metadata on ArcGIS Online, not the actual creation or update date of the underlying data.)
- Update Frequency (estimated): [annually, monthly, weekly, daily, hourly, minute, second, unknown]
- Last Updated: [unknown, day/month/year]

Lineage:

- Originated: [Agency]
- Notable Changes to the Data (e.g., ongoing daily field edits)
- Product Traceability/Notable destinations of the data

Credits:

- Data Owner: Jane Doe
- Data Steward: Jane Doe

Thumbnail: The thumbnail image is displayed on layout cards and content views. Choose or create an image that visually represents the dataset, making it easily

recognizable at a glance. If the publishing agency has standards for thumbnails, the image should comply with these standards.

Tags: Include tags appropriate for the themes of the content, as well as the agency name and acronym. See Appendix C for a list of required tags that should be used based on the publishing agency.

Categories: Assign categories to help organize items and facilitate their discovery and use. Choose from the available categories, multiple can be selected: Imagery, Elevation, Land Cover, Broadband, Transportation, Boundaries, Habitat, Soils and Geography, Hydrology, Demographics, Historical Map Data, or Infrastructure. See Appendix C for more details on each of the categories.

3.2.1 Presentation and Usability in ArcGIS Online

In addition to ensuring high-quality data and complete metadata, it's important to configure how the item is presented in ArcGIS Online to support clarity and ease of use. Before publishing, take the time to adjust the default symbology so that it reflects the intent of the dataset. Popups should be configured with clear and relevant information, using field name aliases where appropriate to improve readability. Be specific with labels, and make sure the pop-up title aligns with the item title users will see when hovering over the layer in the Portal. These presentation settings help ensure that datasets are both visually intuitive and immediately useful to their intended audience.

3.3 Coordinate Systems

The choice of coordinate systems and projections is important in GIS data management, as it affects the spatial accuracy and interoperability of the dataset. For data to be effectively utilized within the state's GIS infrastructure, it must adhere to specific coordinate system requirements.

Selecting the correct projection ensures the effectiveness and accuracy of mapping efforts in Connecticut, facilitating better decision-making and planning while being aware of the limitations associated with each projection.

Publishers should use the coordinate system currently approved by the Connecticut Department of Transportation (DOT) per Conn. Gen. Stat. § 13a-255[7]. As of 2025, this is the 2011 NAD 83 State Plane Coordinate System (SPCS), Connecticut Zone (FIPS 0600). However, this may change as new coordinate systems are adopted. If you are not using this coordinate system, you must document the metadata and item description, the reasons for this choice, and specify the projection being used.

In Connecticut, the choice of projection largely depends on the specific needs of the project. For example:

- **Use SPCS** for precise local surveying and land management but be mindful of its regional limitations.
- **Use Unprojected NAD 83 (2011)** for a project that spans large areas but still requires precision, keeping in mind potential distortions for broader analyses.
- **Use Web Mercator** for accessible online mapping but be cautious of its inaccuracies and potential for uncertainty in representing spatial relationships.

Keep in mind that if you are incorporating State Plane data into a Web Mercator basemap, or vice versa, they cannot coexist. The data must be pre-converted to match the projection of the basemap, as it will not reproject on the fly.

See Appendix D for more details on the three projections listed based on application needs, highlighting the benefits, limitations, accuracy, and accessibility of each of the coordinate systems discussed.

3.4 File Format and Size Considerations

Data published to the CT Geodata Portal will be hosted in the ArcGIS Hub cloud environment. Any of the following formats can be published and used to create a hosted feature layer:

- Geodatabase feature classes (including .gdb feature classes, which are recommended for publishing)

[7] https://www.cga.ct.gov/2023/pub/chap_241.htm#sec_13a-255

- Comma-separated values (CSV) files
- Microsoft Excel files (.xlsx or .xls)
- Shapefiles (zipped)
- GeoJSON
- Feature collections
- File geodatabases (zipped)
- Open Geospatial Consortium (OGC) GeoPackage files
- Templates or existing feature layers

For more details on publishing these file types, refer to Esri's Publish Hosted Feature Layers[8] documentation. Additional file types that can be added directly to ArcGIS Online as items are listed in Esri's Items Supported in ArcGIS Online[9] documentation.

Choose the appropriate format for the data to ensure it is suitable for the type of data being published, monitored, and backed up. **If the agency is hosting data in their own environment, consider file size carefully, as storing large files may require additional measures for performance optimization and resource management.**

3.5 Personally Identifiable Information

If the dataset has one or more of the following identifiers, your agency should consider modifying it to ensure that the privacy of the individuals represented in the data is protected:

- Unique identifiers (e.g., name, SSN) which can identify individuals with relative ease;
- Quasi-identifiers (e.g., birth date, ZIP code, gender/sex, race, ethnicity, age) which can identify people when taken in combination with other available data, or when the sample size is small enough; and

[8] https://enterprise.arcgis.com/en/portal/11.1/use/publish-features.htm
[9] https://doc.arcgis.com/en/arcgis-online/reference/supported-items.htm

- Sensitive attributes (e.g., protected health or financial information) which could prove harmful and/or stigmatizing if the individuals they refer to were re-identified.

Possible forms of modification include aggregating the data or, if the identifiers add little to no value to the dataset, removing the identifiers entirely before publication.

Most of the time, datasets that contain unique identifiers cannot be made public in their raw form because of privacy laws and protections. There are some exceptions to this rule, including the State Licenses and Credentials dataset provided by the Department of Consumer Protection, which includes individuals with state-issued licenses or credentials. This dataset would not be useful in a modified form, and it serves a clear public good, so it may be published on the portal.

For more information on sensitive data, refer to **section 5 - Legal and Ethical Considerations**.

3.6 Accessibility

All data and applications published to the CT Geodata Portal must comply with accessibility standards to ensure equal access to information and services for all individuals, including those with disabilities. The State of Connecticut has adopted the Web Content Accessibility Guidelines 2.1 W3C Recommendation 5-June-2018 (WCAG)[10] as the primary standard for meeting the objectives of the Universal Accessibility for State Websites[11] policy. These guidelines should be implemented whenever possible, for example, using accessible color schemes, providing descriptive text, and ensuring web applications are fully keyboard navigable.

Key accessibility considerations when publishing data to the CT Geodata Portal:

- **Default symbology**
    - Use colorblind-friendly palettes
    - Avoid using color alone to convey meaning

[10] https://www.w3.org/TR/WCAG21/

[11] https://portal.ct.gov/opm/fin-general/policies/universal-website-accessibility-policy

- **High quality metadata**
    - Include complete, clear metadata (see section **3.2 Metadata**)
- **Plain language descriptions**
    - Write in clear, non-technical language for map titles, descriptions, and field names
- **Accessible web & mapping applications**
    - Experience Builder and Instant Apps, which have built-in WCAG compliance features
    - Design with accessible layout and navigation
    - Ensure mobile compatibility
    - Choose high-contrast themes for readability
    - Test applications using tools like WAVE, screen readers (NVDA, VoiceOver), and keyboard-only navigation

Resources for guidance and information on accessibility:

- CT Universal Website Accessibility Policy for State Websites[12]
- NSGIC Accessibility resources page[13]
- Colorado GIS Accessibility Guidelines[14]
- Web Content Accessibility Guidelines (WCAG) 2.1[15]
- Minnesota IT Services (MNIT) Map Accessibility[16]

[12] https://portal.ct.gov/opm/fin-general/policies/universal-website-accessibility-policy
[13] https://nsgic.org/initiatives/accessibility/
[14] https://gis.colorado.gov/accessibility/
[15] https://www.w3.org/TR/WCAG21/
[16] https://mn.gov/mnit/about-mnit/accessibility/maps/

4 UPDATES AND MAINTENANCE

4.1 Updates

Once data has been shared with the CT Geodata Portal, it should be kept up to date according to the update frequency/currency in the Item Description/Metadata.

For data that is curated by the GIS Office, an updated procedure and timeline should be established with the agency at the time of publication. The agency is responsible for providing new versions of the data on a schedule that adheres to the item details/metadata documentation. The dataset can be overwritten, or new data can be appended. The following factors will impact that decision:

- Frequency of updates
- Number of changes
- Ability to isolate changes
- Schema updates

When data is updated, the item details should be updated to indicate the date of the last data update.

If any changes were made to the schema or the processing methodology for the data, these should be documented in the Item details along with a date for the change.

4.2 Retiring Data

When a dataset is no longer current or relevant, the dataset can be flagged for retirement. An agency can request that an item be removed from the Portal, or the GIS Office can identify the item as potentially deprecated and contact the Agency to confirm.

The GIS Office will follow its data deprecation procedures, as outlined in *the Data Retirement* section of the Connecticut Open Data Handbook[3], to remove this dataset from the Portal.

5 LEGAL AND ETHICAL CONSIDERATIONS

5.1 Data Privacy

When publishing data on the Geodata Portal, it is important to ensure that sensitive or restricted data is handled appropriately. Data publishers must comply with all applicable state laws and regulations, including the Connecticut Data Privacy Act (CTDPA)[17], which governs the protection of personal and sensitive information.

Before sharing data, users should assess whether it contains personally identifiable information (PII), confidential records, or other restricted content. If necessary, data should be anonymized or withheld to align with legal and ethical requirements.

5.2 Terms of Use

All data published on the Geodata Portal is subject to the Terms of Use, which outline important legal and ethical considerations. These terms specify that data is provided on an "as is" basis without warranties regarding accuracy, completeness, or suitability for a particular purpose. Users should be aware of their responsibility for interpreting and applying the data, as well as potential limitations or changes in availability. For full details, please refer to the Connecticut Geodata Portal Terms of Use[18].

[17] https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00015-R00SB-00006-PA.PDF
[18] https://geodata.ct.gov/pages/terms-of-use

6 RESOURCES AND SUPPORT

For more information from the CT GIS Office about best practices when publishing geospatial data, see the *Spatial Data Publishing Best Practices*[19] document.

For more support, contact the CT GIS Office at opm.giso@ct.gov.

[19] [Link to *Spatial Data Publishing Best Practices* document coming soon]

7 APPENDICES

Appendix A: Glossary of Terms
Appendix B: Item Details Template
Appendix C: Tags and Categories
Appendix D: Recommended Used Cases for Projections

Appendix A: Glossary of Terms

ArcGIS Hub	A cloud-based platform by Esri used to share and organize geospatial data and tools.
ArcGIS Online	Esri's cloud-based mapping and analysis solution used for hosting, sharing, and managing spatial data and applications.
CSDGM	Content Standard for Digital Geospatial Metadata: A metadata standard developed by the Federal Geographic Data Committee (FGDC).
CSV	Comma-Separated Values. File format for tabular data.
CT Geodata Portal	The Connecticut geospatial data clearinghouse.
CTDPA	Connecticut Data Privacy Act: State law governing the collection, use, and protection of personal and sensitive data.
DOT	Connecticut Department of Transportation
Esri	A geographic information system (GIS) software company that provides ArcGIS tools and platforms, including ArcGIS Online and ArcGIS Hub.
Experience Builder	An Esri tool for creating custom web mapping experiences with little or no coding.
Feature Class	A vector layer stored inside a geodatabase.
Feature Collections	A type of feature layer that contains features with the same geometry type and shared attributes.
FGDC	Federal Geographic Data Committee: U.S. organization that promotes standards for geospatial metadata and data sharing.
File Geodatabase	A file-based system for storing spatial and nonspatial data, used by Esri software.
Geodatabase Feature Classes	Collections of geographic features (points, lines, polygons) stored in a file geodatabase with shared geometry and attributes.
GeoJSON	A format for encoding geographic data structures, often used in web mapping.
GIS Clearinghouse	A central repository for collecting, sharing, and distributing geospatial data.
Instant App	An Esri platform for quickly building and sharing interactive web mapping applications.

ISO	International Organization for Standardization: Global body that develops international standards, including those for geospatial data.
Metadata	Information describing a dataset's content, quality, source, and other attributes to support discoverability and usability.
NVDA	Open-source screen reader for Windows used for accessibility.
OGC	Open Geospatial Consortium: An international organization that develops open standards for geospatial content and services.
PII	Personally Identifiable Information: Data that can identify an individual, such as names, addresses, or social security numbers.
Schema	The structure that defines how geospatial data is organized, including the names, types, and relationships of attributes and spatial features within a dataset.
Shapefile	A vector data format for storing the location, shape, and attributes of geographic features.
SoR	System of Record: The authoritative data source for a given dataset or system.
SPCS	State Plane Coordinate System: A set of coordinate systems designed for specific U.S. states to ensure spatial accuracy.
Topology	Rules that define how spatial features share geometry and maintain relationships (e.g., adjacency, connectivity).
WCAG	Web Content Accessibility Guidelines: Standards for ensuring digital content is accessible to people with disabilities.

Appendix B: Item Details Template

This documentation template follows the structure of the ArcGIS Item Description documentation. So, the elements below can be copy/pasted into the GIS Portal (aka GIS Data Catalog) when the data is published and cataloged.

Title <title of the data>

Summary

<summarize the purpose of the data>.

Description

<description of the data>

Classifications:

- Agency [DEEP, DOT, DPH, etc.]
- Authoritativeness: [Authoritative (SoR), Authoritative, Non-Authoritative, Unknown]
- Sensitivity: [Public, Internal-Only, Sensitive, Confidential, Unknown]
- Usage: [Individual Use, Project Use, Agency Use, Organization Use, Public Use, Unknown]
- Quality: [High Quality, Low Quality, Unknown]
- Known Quality Issues: [None, Incomplete, Missing Data, Duplicates, Inaccurate, Misspelling, Precision, Formatting, Mismatches, Outdated]

Currency (time):

- Created Data: [unknown, day/month/year]
- Update Frequency (estimated): [annually, monthly, weekly, daily, hourly, minute, second, unknown]
- Last Updated: [unknown, day/month/year]
- Notes:

Lineage:

- Originated: (Where did this dataset originate? agency, 3rd Party etc.)
- Notable Changes to the Data (e.g., ongoing daily field edits)
- Product Traceability/Notable destinations of the data (maps or apps of importance using the data)

Credits

- Data Owner: Jane Doe
- Data Steward: Jane Doe

Storage Location (if file based and stored on file or object server)

Terms of Use

- <user responsibility, content usage, prohibited activities, acceptance of terms, etc.>
- https://geodata.ct.gov/pages/terms-of-use

Tags

- (See Appendix C)

Scale Range

- ☐ Globe (1:150,000,000)
- ☐ Continent (1:50,000,000)
- ☐ Country (1:20,000,000)
- ☐ State (1:5,000,000)
- ☐ County (1:500,000)
- ☐ City (1:50,000)
- ☐ Buildings (1:5,000)

Bounding Box

West:
East:
South:
North:

(Connecticut: -73.727775, 40.980144, -71.786994, 42.050587)

Appendix C: Tags and Categories

1 Tags

Tags are a useful way to improve search results and help users find specific content on the Geodata Portal. At a minimum, each published item should include:

- General Required Tags
- Agency-Specific Tags

In addition to these required tags, data publishers should use relevant keywords to describe the item, such as the spatial region, content type, and other defining characteristics. Tags should also align with any applicable agency standards. For more information about tags in the Esri environment, see this article on Using Tags Effectively[20].

[20] https://www.esri.com/arcgis-blog/products/arcgis-online/mapping/using-tags-effectively

General Required Tags *(these should be included on all items)*

connecticut, ct

Agency-Specific Required Tags *(need to include full agency name and acronym)*:

Agency Name	**Agency Acronym**	**Subagency Names**	**Subagency Acronyms**
Department of Energy and Environmental Protection	deep		
Office of Policy and Management	opm	GIS Office	giso
Department of Transportation	dot		
Department of Economic and Community Development	decd	State Historic Preservation Office	shpo
University of Connecticut	uconn	Connecticut Environmental Conditions Online	cteco
Department of Public Health	dph		
Department of Veteran Affairs	dva		

Example Usage:

- An item from the CT GIS Office would include at least the following tags: *connecticut, ct, office of policy and management, opm, gis office, giso*

2 Categories

On the ArcGIS Hub platform, categories can be used to organize content across the organization into groups that make it easier for users to discover content. Below are the categories available for data published to the CT Geodata Portal. Data publishers should select at least one category for their data, though multiple categories can be chosen.

Category definitions:

Imagery – High-resolution satellite or aerial photos capturing detailed visual information about the Earth's surface.

Elevation – Digital representations of the Earth's terrain, including heights, slopes, and contours, often used in topographic mapping.

Land Cover – Data that categorizes the physical material on the Earth's surface, such as forests, urban areas, water bodies, and agricultural lands.

Broadband – Geographic data showing the availability and coverage of internet and communication networks across different regions.

Transportation – Maps and datasets representing the layout and network of roads, railways, airports, and other modes of transportation.

Boundaries – Spatial data defining the extents of political, administrative, or property divisions like country borders, municipalities, and zoning areas.

Habitat – Geospatial information on the natural environments of different species, often used for conservation and ecological studies.

Soils and Geography – Data detailing the distribution, composition, and properties of soil types, along with physical geographic features.

Hydrology – Datasets focusing on the distribution and movement of water bodies, including rivers, lakes, watersheds, and aquifers.

Demographics – Spatial data representing the distribution, characteristics, and population statistics of human communities.

Historical Map Data – Archived geospatial data and maps depicting landscapes and features as they existed in the past.

Infrastructure – Data representing man-made structures and facilities like buildings, utilities, and public works essential for community services.

Appendix D: Recommended Use Cases for Projections

The following section outlines the recommended use cases for specific projections based on application needs, highlighting their benefits, limitations, accuracy, and accessibility.

1 State Plane Coordinate System (SPCS)

- **This is the default projection that data should be published in. If using a projection besides this, provide reasoning in the metadata.**
- **Recommended Use**: Detailed local surveys, engineering projects, parcel mapping, zoning, infrastructure development, land use planning, and other mapping applications that benefit from or require high accuracy.
- **Details**: Connecticut uses the NAD 83 State Plane Coordinate System (SPCS), specifically the Connecticut Zone (FIPS 0600). This projection minimizes distortion for the state's geographic area.
- **Benefits**:
    - High accuracy for property boundaries, construction, and statewide analysis.
    - Suitable for applications requiring local detail, such as urban planning and resource management.
- **Drawbacks**:
    - Limited to Connecticut or specific regions, making it unsuitable for broader geographic analyses that could span multiple states.
    - In ArcGIS Online (AGOL), not all basemaps are compatible with this coordinate system, decreasing the range of compatibility.
- **Accuracy**: *Very High Accuracy.* Tailored for specific regions, minimizing distortion for local applications.
- **Accessibility:** *Moderate Accessibility.* Primarily used by surveyors and professionals in specific regions. Not as easily accessible for general users without GIS software

2 Unprojected NAD 83 (2011)

- **Recommended Use**: General mapping, geographic information system (GIS) applications, data creation, and editing in situations where the geographic extent goes beyond the Connecticut state borders. Broader uses include Environmental modeling, land use studies, and regional planning across state lines.
- **Details**: Unprojected NAD 83 provides a consistent framework for geographic data across North America. It's useful for applications that include large geographic areas.
- **Benefits**:
    - Good accuracy for statewide and interstate analyses.
    - Compatible with various data sources and mapping tools, including GIS software and online platforms. In AGOL, all basemaps are available for use with this projection.
- **Drawbacks**:
    - While it provides a good balance of accuracy, distortion may still occur, particularly for large-scale projects, when compared to more localized projections like SPCS.
    - May require conversions when integrating with other data formats or projections.
- **Accuracy:** *High Accuracy.* Provides a very accurate reference system for positioning across North America.
- **Accessibility:** *Moderate to High Accessibility.* Provides a very accessible reference system for positioning across North America. Not as commonly used as state plane or web Mercator.

3 Web Mercator

- **Recommended Use**: For interactive web mapping and applications where user-friendliness and maximum compatibility are essential. For web-based

GIS applications, interactive maps, and general mapping tasks, where user-friendliness and accessibility are prioritized over high accuracy. Ideal for public-facing GIS projects, like mapping visualizations and online mapping platforms

- **Details**: Web Mercator is commonly used in online mapping applications like Google Maps and ArcGIS Online. It is sufficient for general navigation and quick visualizations.
- **Benefits**:
    - Highly accessible and user-friendly for the public.
    - Ideal for creating interactive maps and visualizations without the need for specialized knowledge.
- **Drawbacks**:
    - Introduces significant distortion, particularly in areas far from the equator, which can misrepresent sizes and distances.
    - Not suitable for precision work or detailed analyses, as the inaccuracies can lead to misleading conclusions.
- **Accuracy:** *Moderate Accuracy.* Good for general mapping and navigation, but distorts size and shape, especially in higher latitudes.
- **Accessible.** *Highly Accessible.* Widely used in online mapping platforms, making it easy for anyone to access and use.