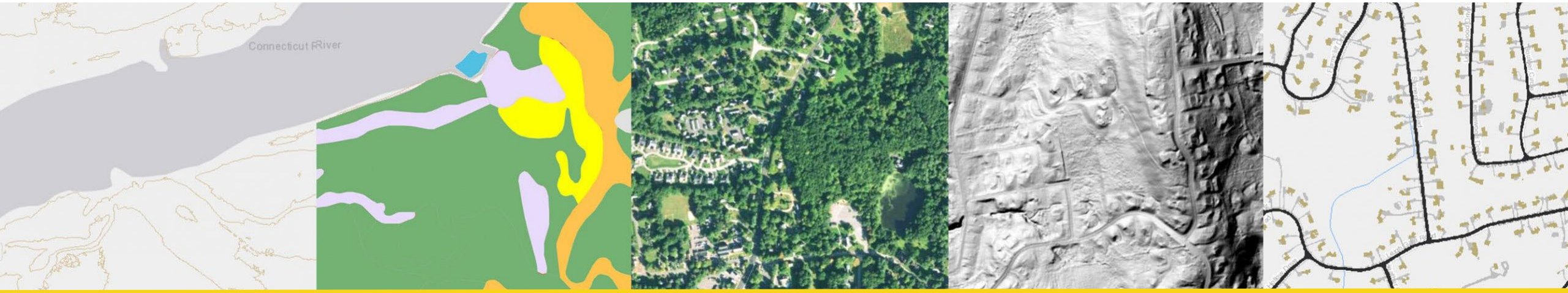
Continuing with CT ECO Map Viewers

Emily H. Wilson, Geospatial Educator

University of Connecticut, Extension, CLEAR



Outline

- Intro and background
- Key GIS datasets
  - Parcels
  - Elevation
  - Aerial imagery
- CT GIS Office
- CT ECO
  - Intro
  - Demo
- Questions

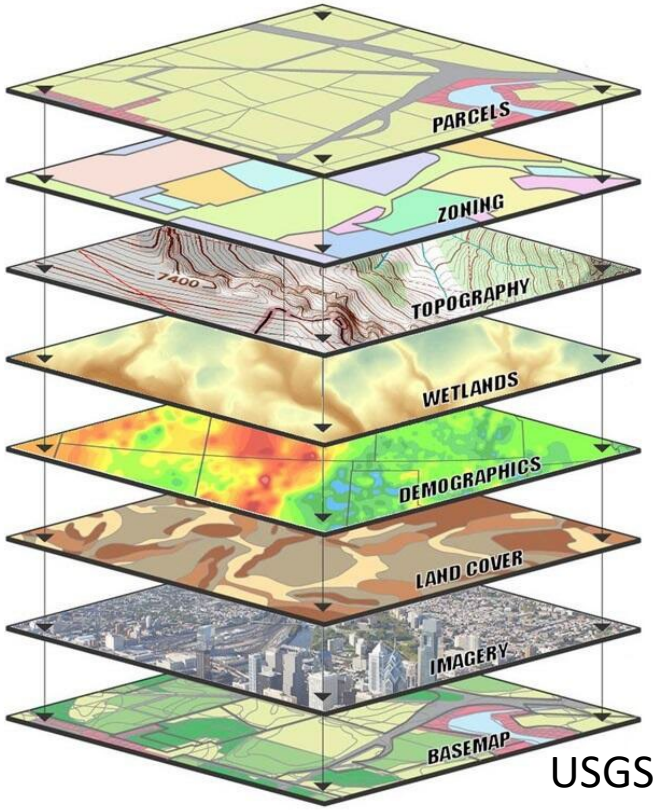
GIS = Geographic Information System

- How we work with digital geographic data using software on a computer
- GIS is also a tool
- And a profession

Coordinates!

and

Layers!



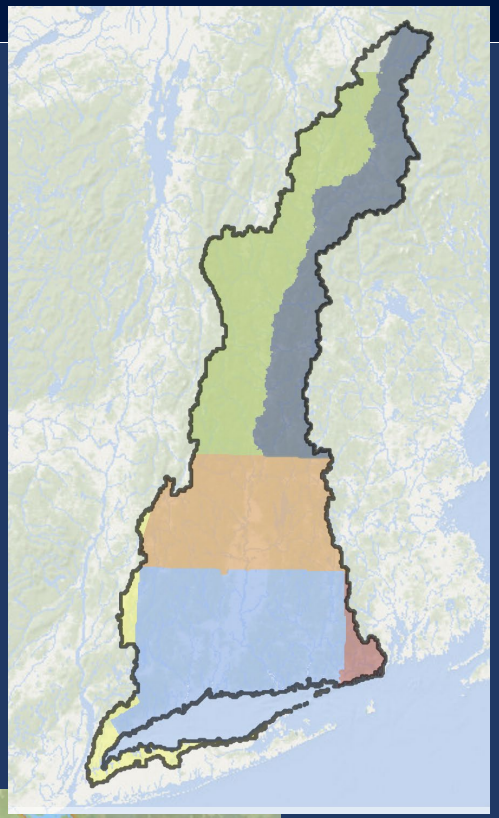
USGS

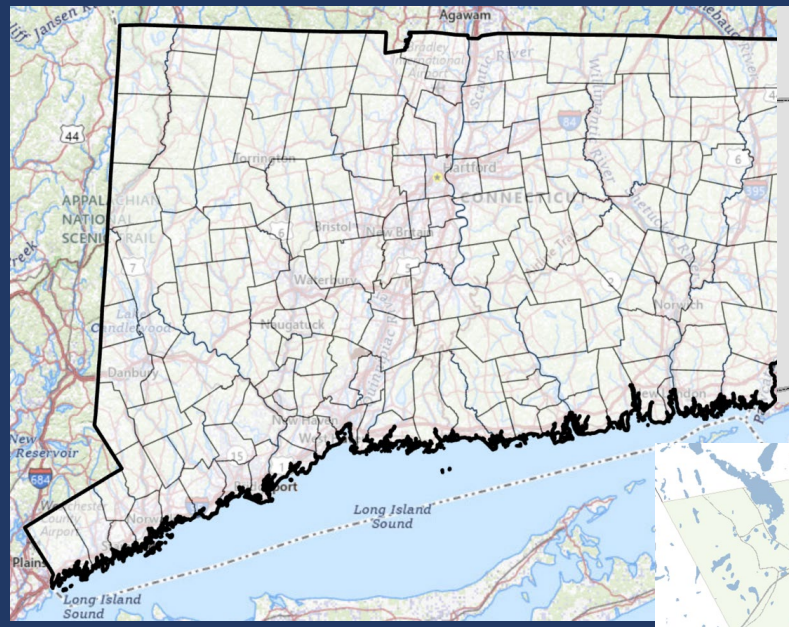
“Georeference”

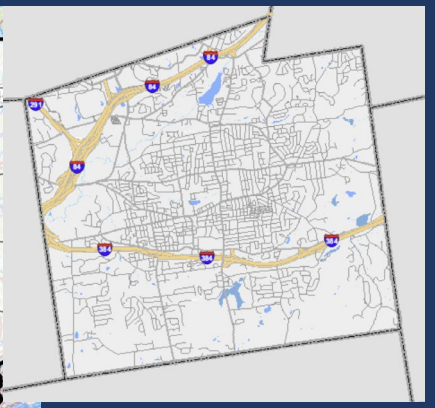
Method to assign coordinates so a dataset can be used with other layers.

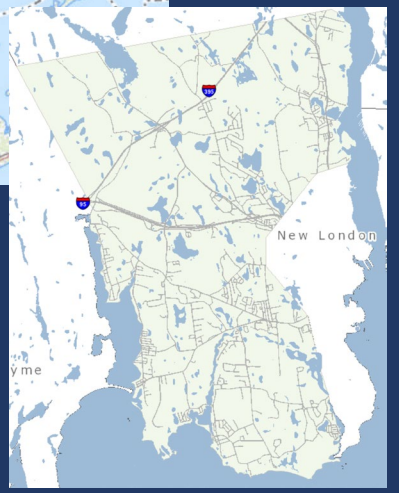
Site Plan

1. Scan (must be digital)
2. Find ground control points, or tie points
3. Assess warping etc.
4. Save

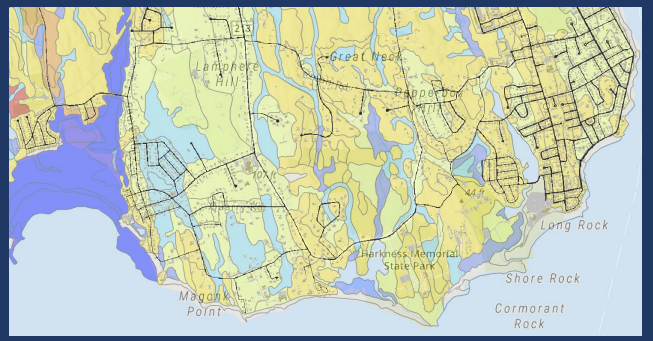



Agawam
Long Island Sound
Long Island Sound




New London


ROCKY MOUNTAINS
UNITED STATES
5529


Great Neck
Long Rock
Harkness Memorial State Park
Shore Rock
Cormorant Rock

Scrutinize!

- Appropriateness
  - Different layers for different geographies
  - Detail (or lack of)
- Where did it come from?
- Who is providing?
- When was it created/collected?

GIS Dataset: Parcels

Vector dataset

lines, points, polygons

Parcels

A piece or unit of land, defined by a series of measured straight or curved lines that connect to form a polygon

- Parcels: 2 pieces
  - Parcel geometry – the polygons that make up the parcel shapes
  - CAMA (assessor's computer-assisted mass appraisal) database –information about the parcel. Aka the table attributes.
- Management of digital parcels varies - GIS staff, COGs, consultants
- Pursuant to Section 7-100l of the Connecticut General Statutes, each municipality is required to submit a digital parcel file and an accompanying CAMA file to its COG.
- 2023: the CT GIS Office started annual aggregation of the parcel and CAMA data into a singular, unified dataset.

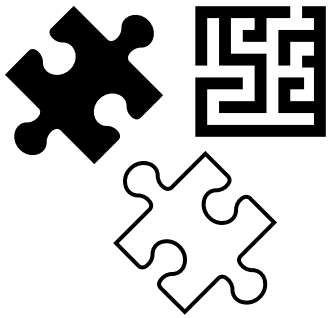
Parcels

A piece or unit of land, defined by a series of measured straight or curved lines that connect to form a polygon

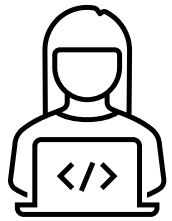
Municipality
managing GIS

managing CAMA

COG

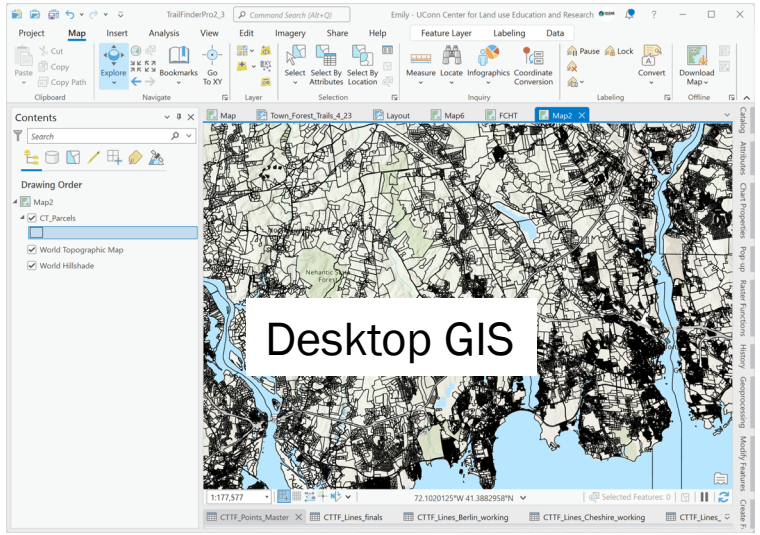


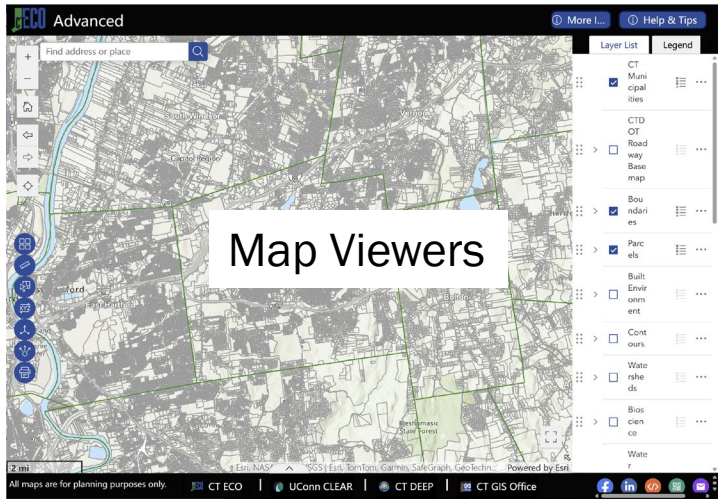
CT GIS Office

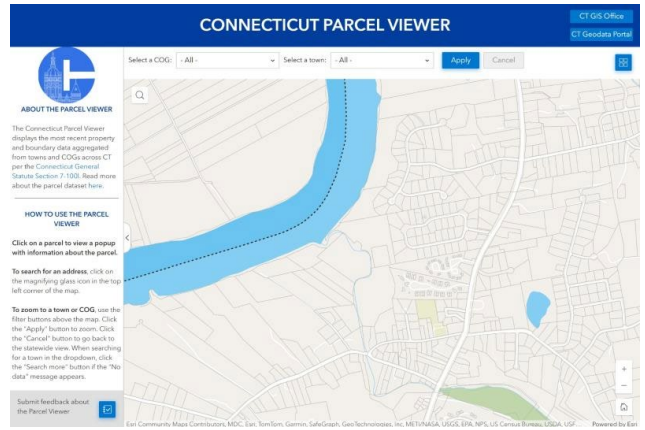


CT GIS Office Geodata Portal

Online service of parcel map data



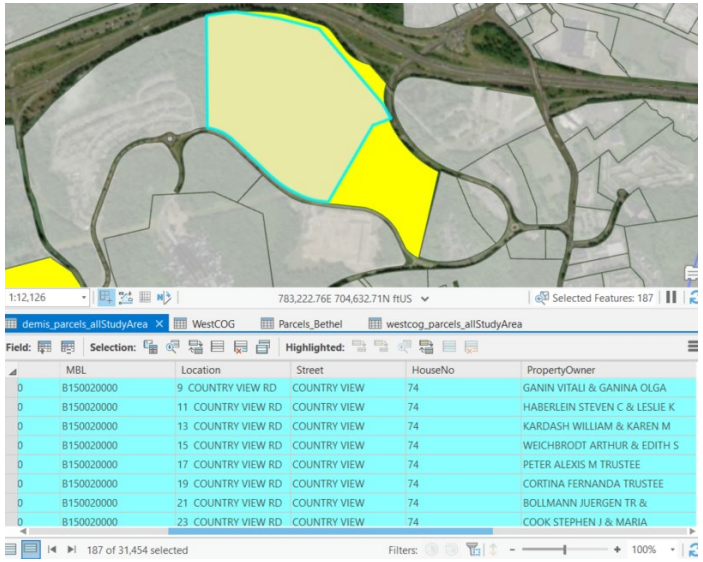




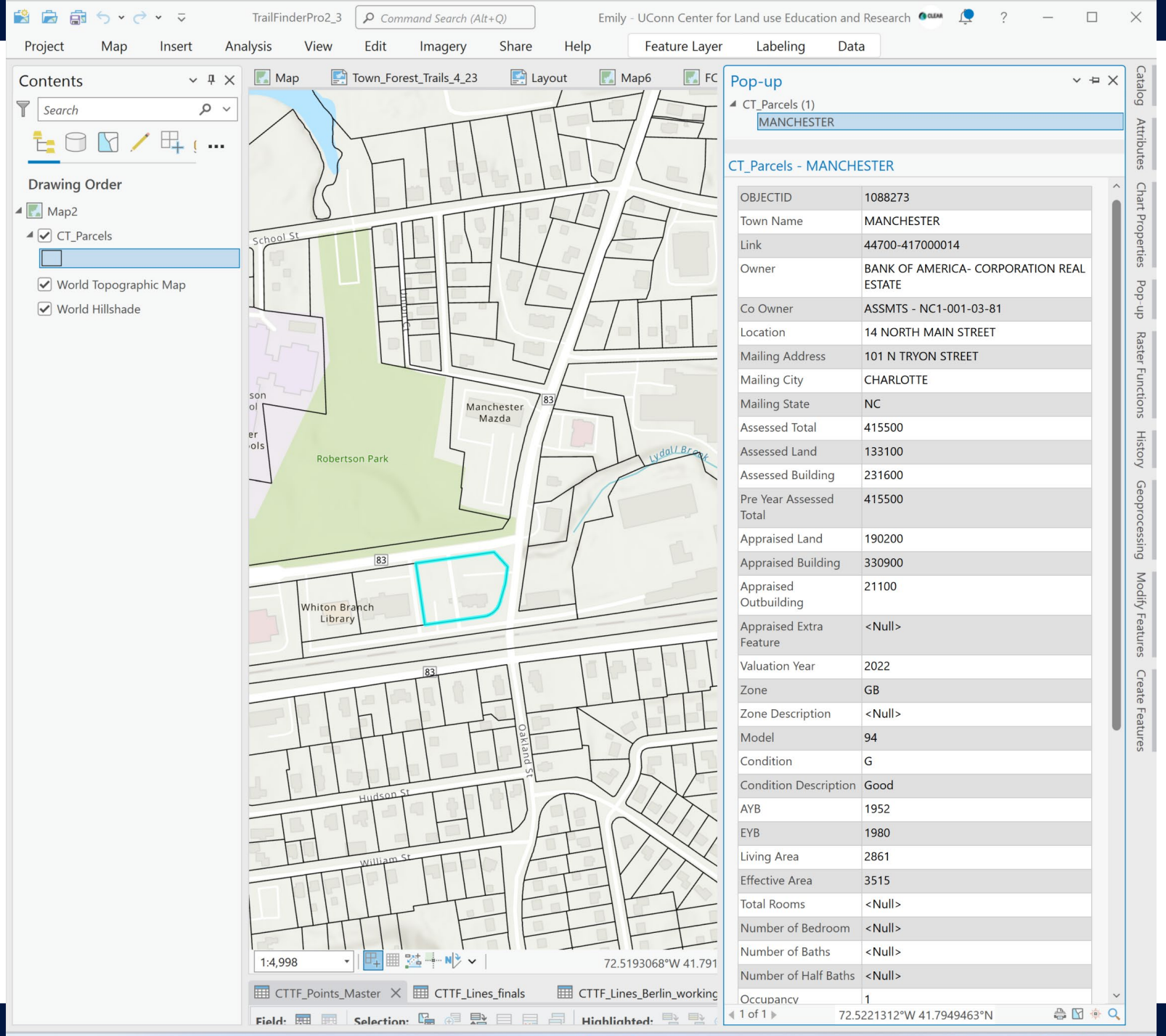
Parcels

A piece or unit of land, defined by a series of measured straight or curved lines that connect to form a polygon

- Statewide annual aggregation improving every year
- It's not perfect
  - Puzzle pieces don't fit (town boundary issue)
  - Towns handle polygons differently (parcel drafting standards in process)
  - CAMA data stored differently (improving!)



Parcels in statewide dataset only as good is maintained and submitted from each municipality


TrailFinderPro2_3
Command Search (Alt+Q)
Emily - UConn Center for Land use Education and Research
Project
Map
Insert
Analysis
View
Edit
Imagery
Share
Help
Feature Layer
Labeling
Data
Contents
Search
Drawing Order
Map2
CT_Parcels
World Topographic Map
World Hillshade
Map
Town_Forest_Trails_4_23
Layout
Map6
School St
Manchester Mazda
Robertson Park
Lydall Brook
Whiton Branch Library
Oakland St
Hudson St
William St
83
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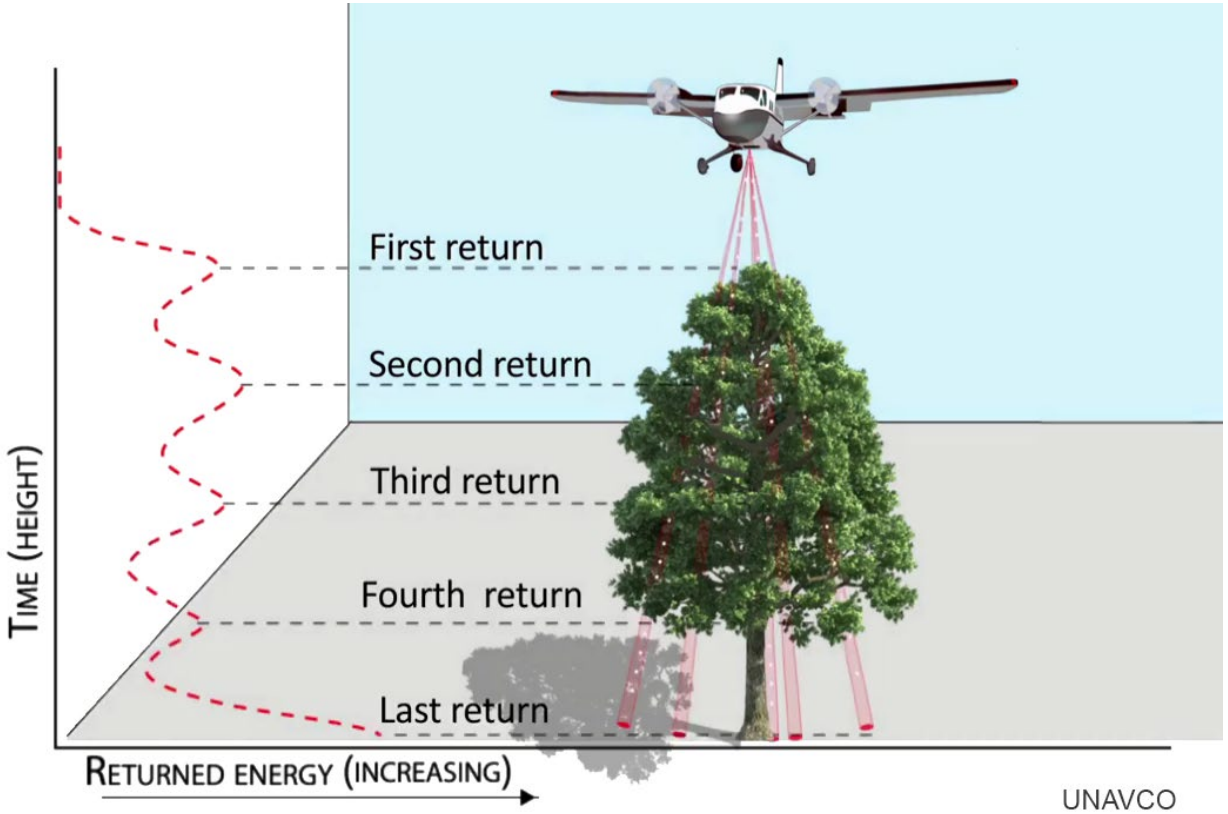
CTTF_Points_Master
CTTF_Lines_finals
CTTF_Lines_Berlin_working
Pop-up
CT_Parcels (1)
MANCHESTER
CT_Parcels - MANCHESTER
OBJECTID 1088273
Town Name MANCHESTER
Link 44700-417000014
Owner BANK OF AMERICA- CORPORATION REAL ESTATE
Co Owner ASSMTS - NC1-001-03-81
Location 14 NORTH MAIN STREET
Mailing Address 101 N TRYON STREET
Mailing City CHARLOTTE
Mailing State NC
Assessed Total 415500
Assessed Land 133100
Assessed Building 231600
Pre Year Assessed Total 415500
Appraised Land 190200
Appraised Building 330900
Appraised Outbuilding 21100
Appraised Extra Feature <Null>
Valuation Year 2022
Zone GB
Zone Description <Null>
Model 94
Condition G
Condition Description Good
AYB 1952
EYB 1980
Living Area 2861
Effective Area 3515
Total Rooms <Null>
Number of Bedroom <Null>
Number of Baths <Null>
Number of Half Baths <Null>
Occupancy 1
1 of 1
72.5221312°W 41.7949463°N
Catalog
Attributes
Chart Properties
Pop-up
Raster Functions
History
Geoprocessing
Modify Features
Create Features

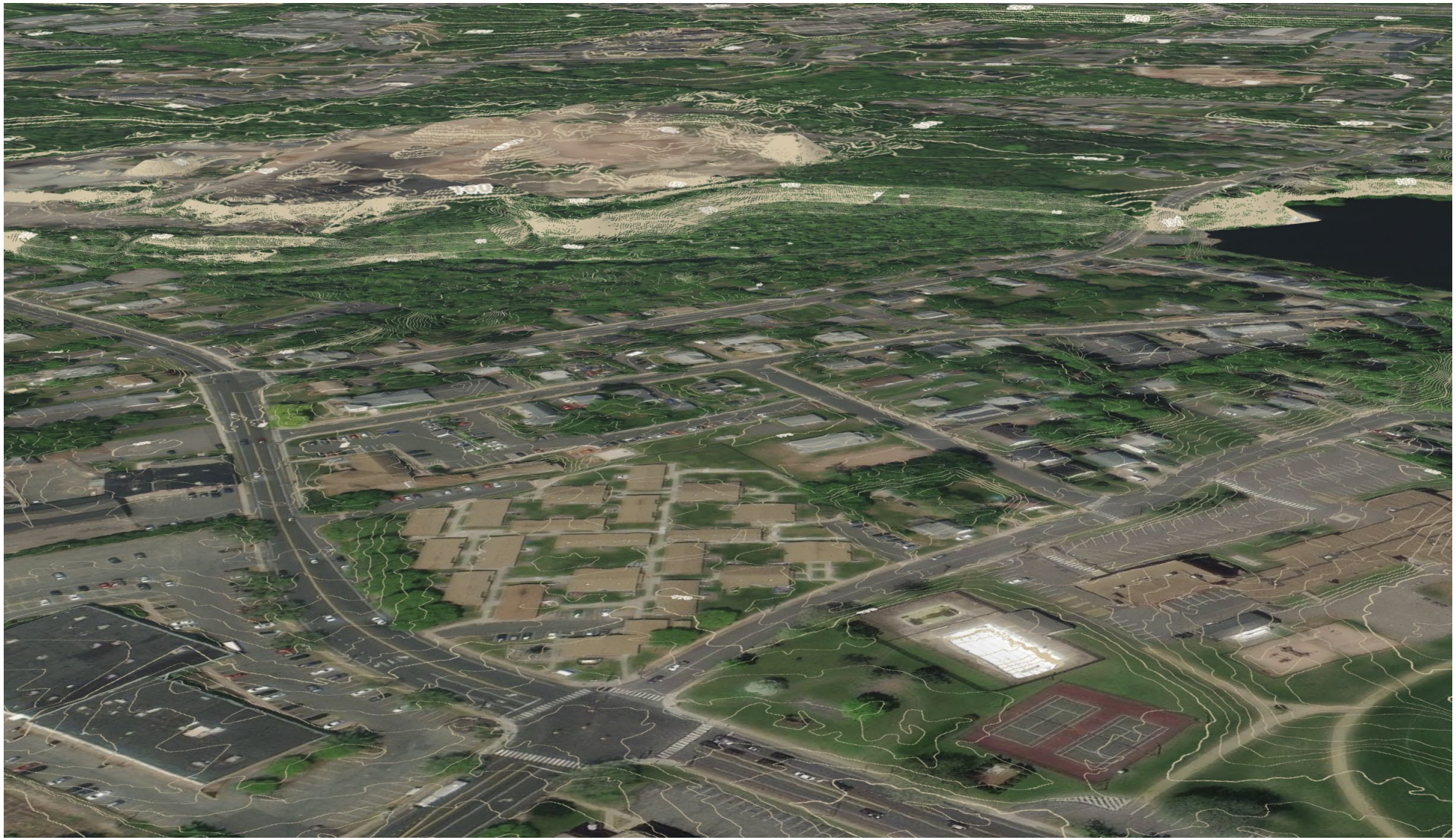
GIS Dataset: Elevation

Elevation: Lidar (Light detection and ranging)

The foundation of elevation datasets

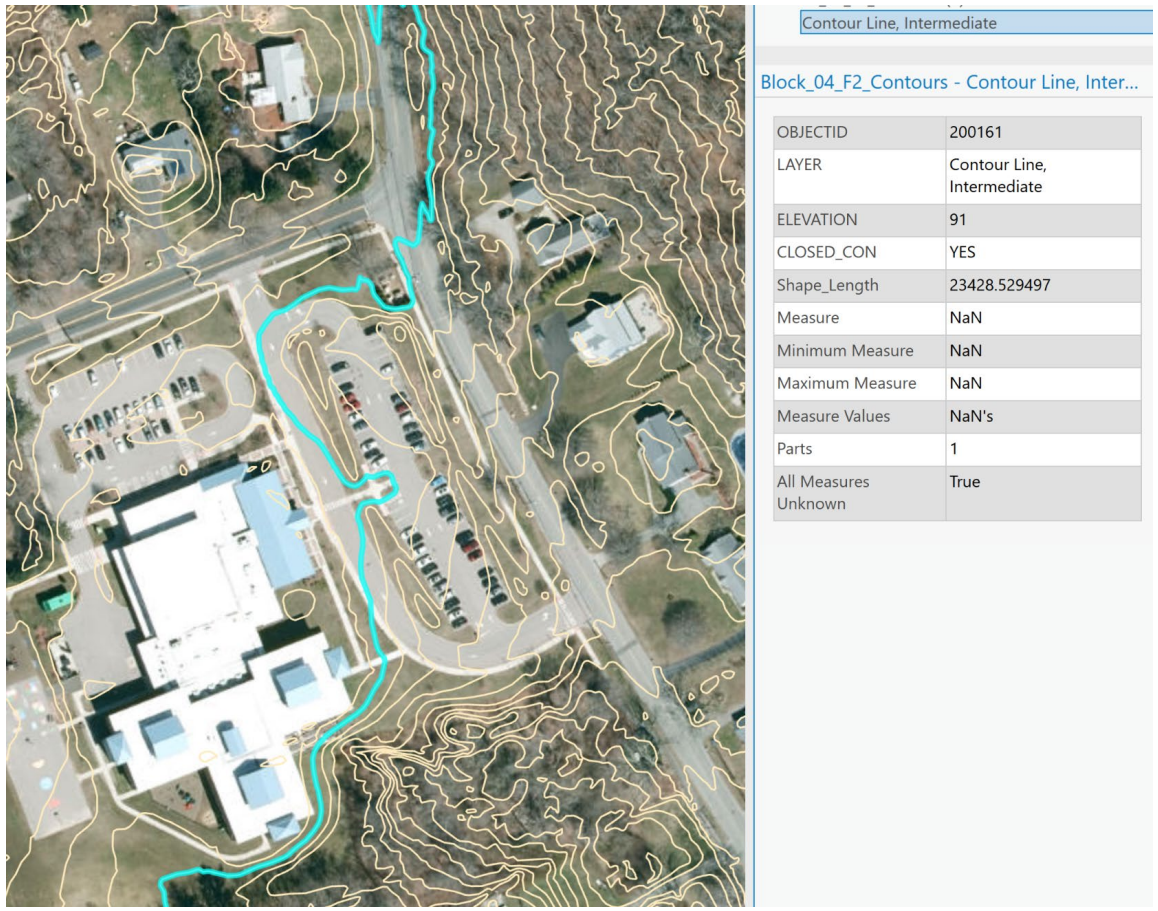
- Laser sensor on an aircraft
- Measures two-way travel time of laser pulse to determine distance
- Result is a point cloud
  - First return = surface
  - Last return = ground





Elevation: Contours

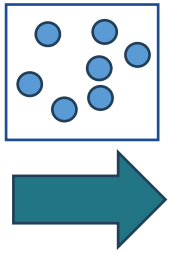
- 1 foot contours from 2016 lidar and 2023 lidar



Elevation: DEM/DTM

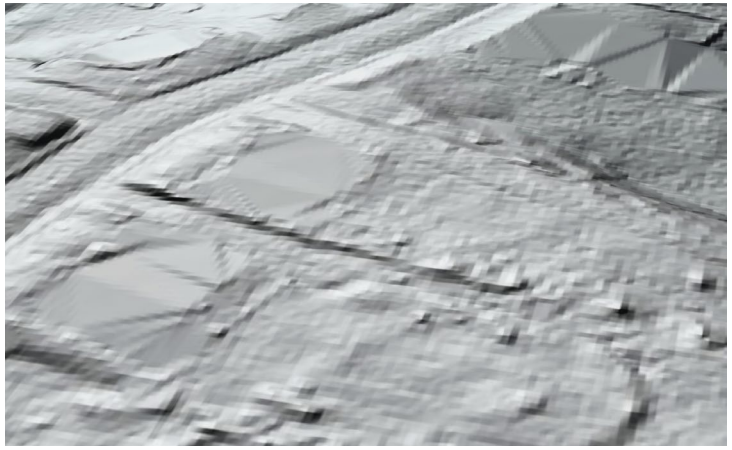
- Digital Elevation Model (DEM), Digital Terrain Model (DTM)
- Bare earth elevation = underneath trees, buildings removed

Lidar points – select bare earth



Average of all points within pixel

Pixels (2ft) with bare earth elevation

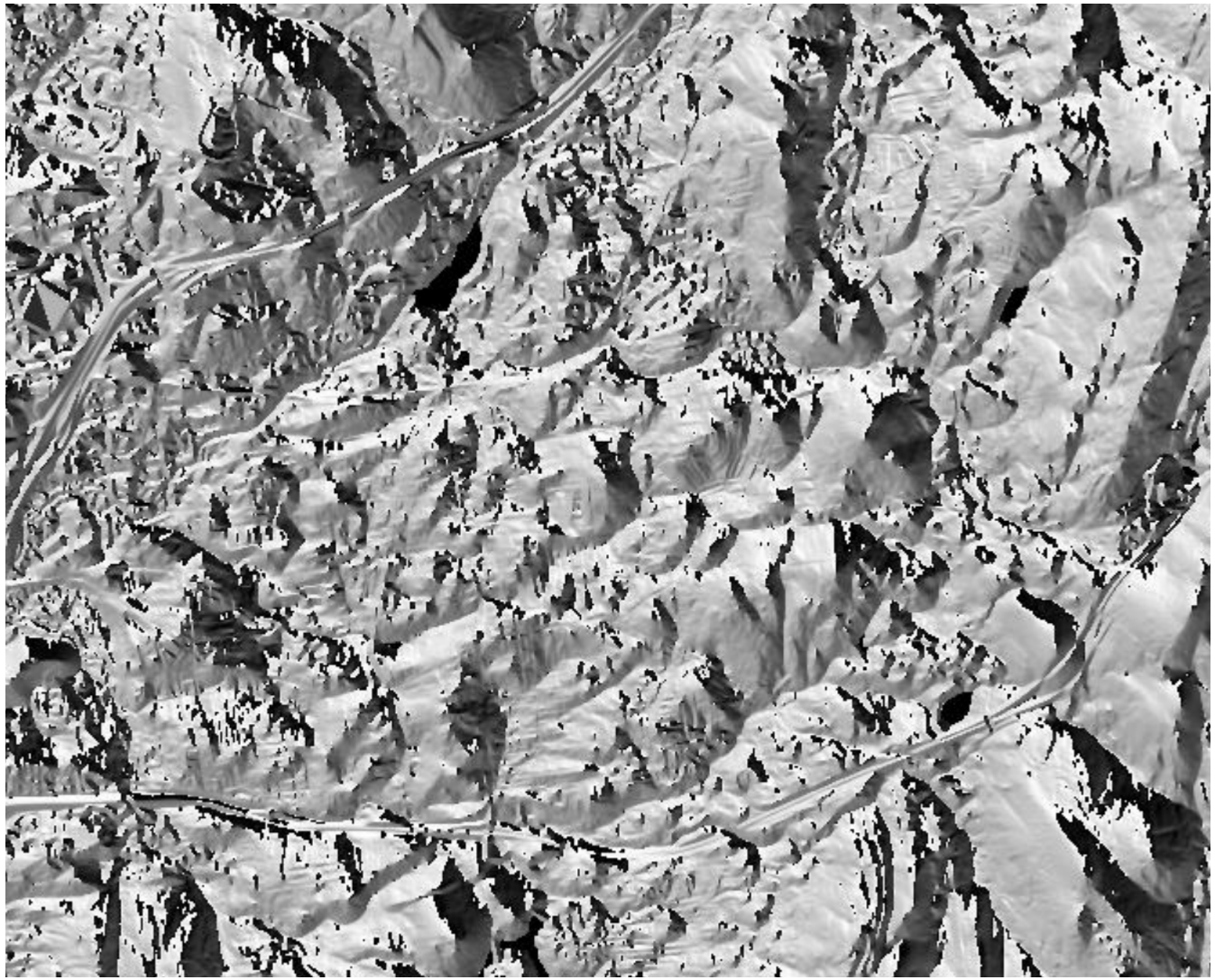


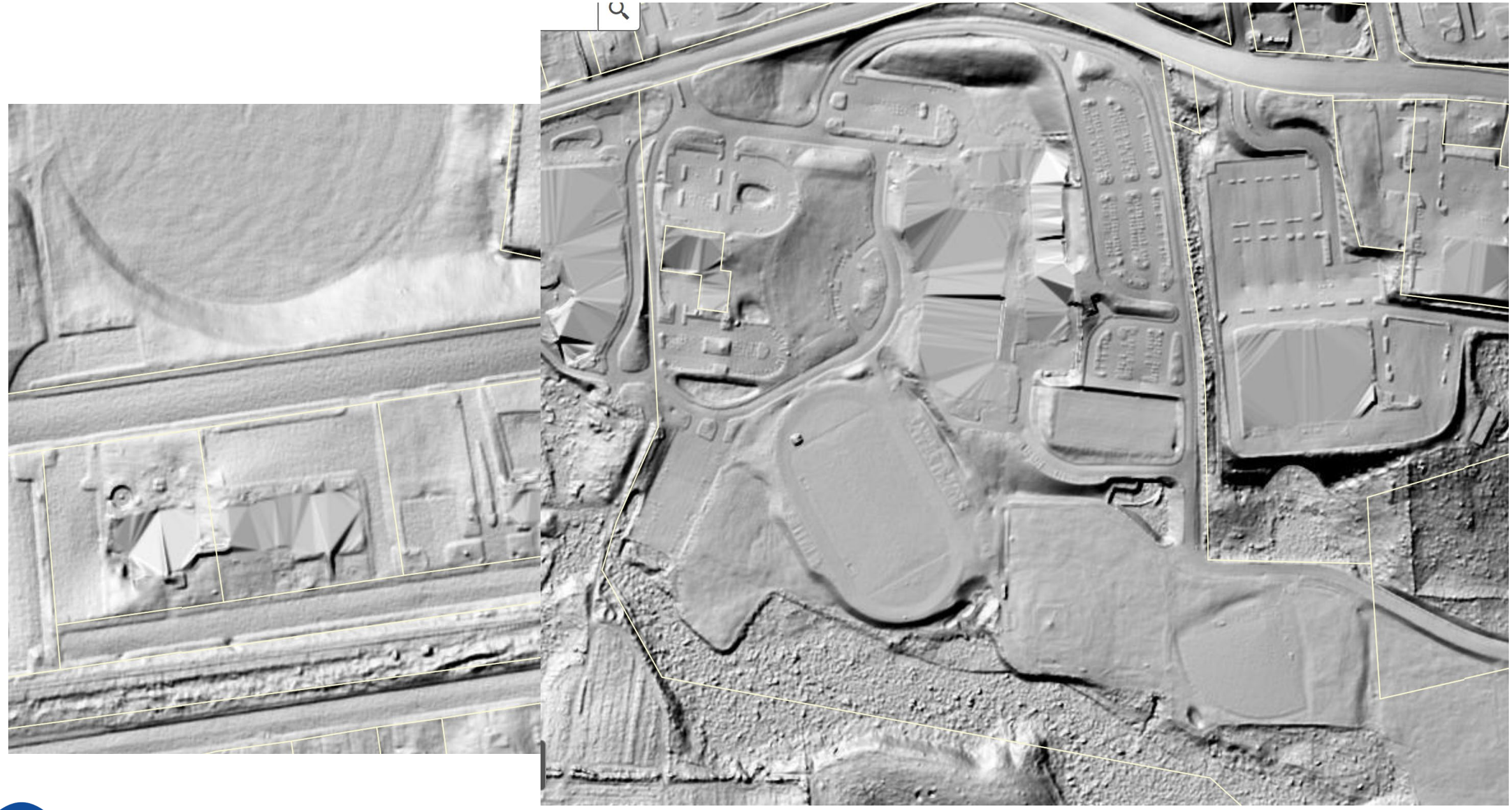
Lidar Specs
2016: minimum of 2 points/sq. meter
2023: minimum of 15 points/sq. meter

Elevation: DEM/DTM

Look for

- Elevation
- Hillshade
- Hillshade SE illumination
- Shaded Relief
- Slope
- Aspect





GIS Dataset: Aerial Imagery

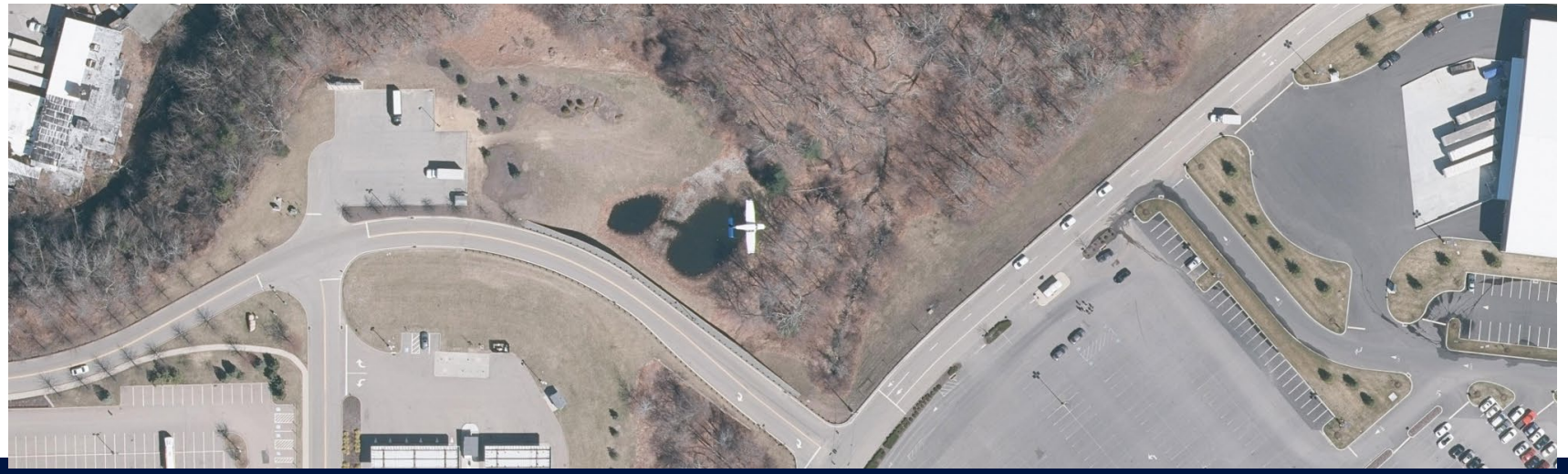
Raster dataset

pixels

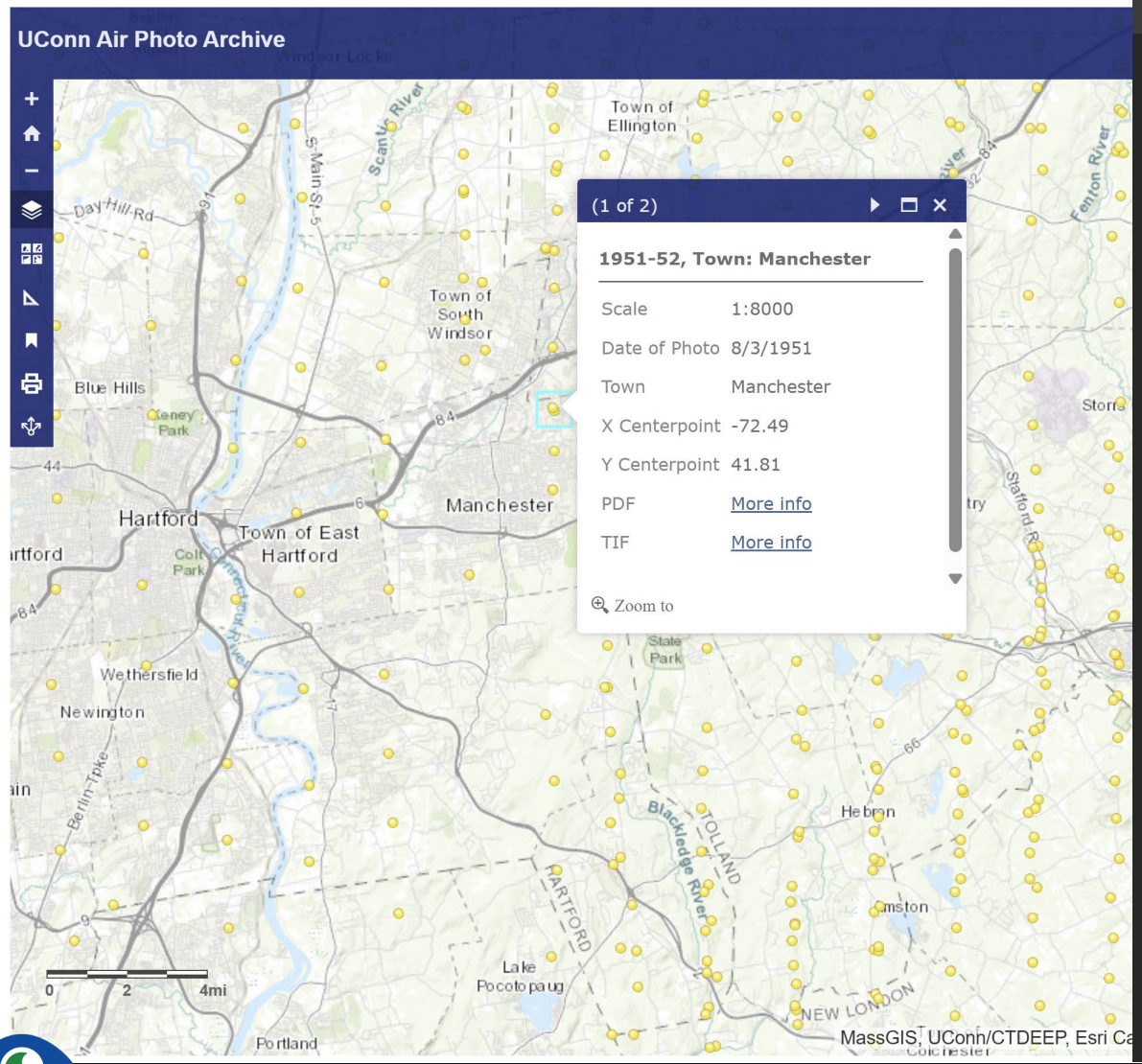
Aerial Imagery Considerations

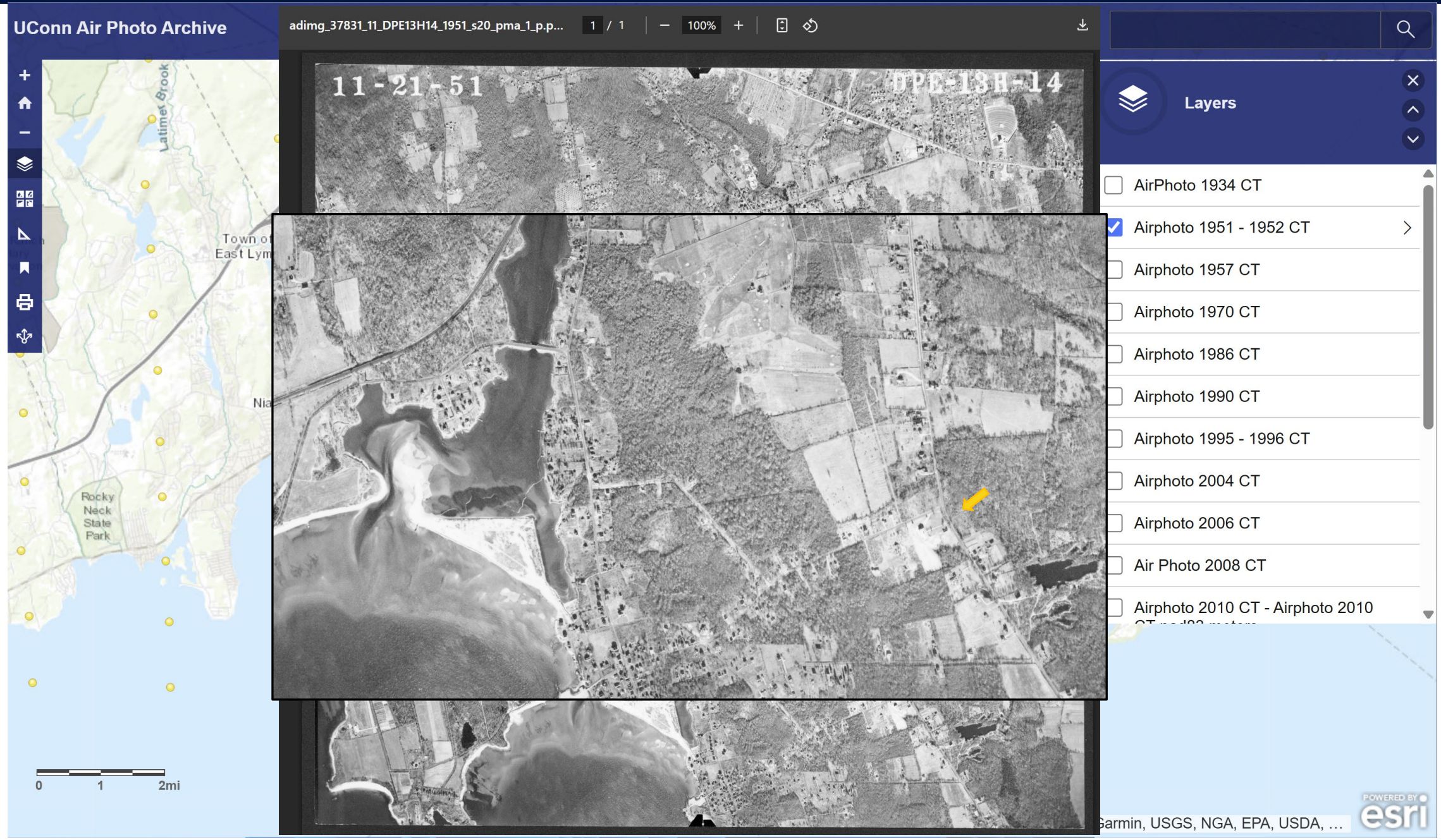
Ortho = corrected for topography so that it can be used for accurate measurements

- Area - statewide, coastal, regional, municipal
- Year captured
- Season - spring (no leaves) or summer (leaves)
- Pixel size - 3 inch, 6 inch, 2 foot, 1 meter, … (smaller pixels = more detail)
- must have coordinates to be in GIS



Aerial Imagery: must have coordinates to be in GIS




UConn Air Photo Archive
adimg_37831_11_DPE13H14_1951_s20_pma_1_p.p...
1 / 1
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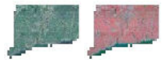
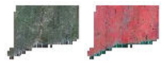
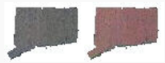
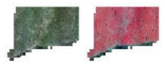
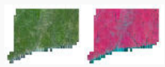
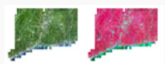
11-21-51
DPE-13H-14
Layers
AirPhoto 1934 CT
Airphoto 1951 - 1952 CT
Airphoto 1957 CT
Airphoto 1970 CT
Airphoto 1986 CT
Airphoto 1990 CT
Airphoto 1995 - 1996 CT
Airphoto 2004 CT
Airphoto 2006 CT
Air Photo 2008 CT
Airphoto 2010 CT - Airphoto 2010
Latimer Brook
Rocky Neck State Park
0
1
2mi
Garmin, USGS, NGA, EPA, USDA, …
POWERED BY esri

CT ECO Imagery

- All of Connecticut's statewide digital aerial imagery
- 15 datasets and counting

Aerial Imagery Viewer

Advanced Viewer and more

DATASET		BANDS*	SEASON	PIXEL SIZE	ORIGINATORS	Map Catalog	Aerial Imagery Viewer	Image Service	
1990		1	spring	3.28 ft	USGS	✓	✓	✓	metadata
2004		1	spring	0.8 ft	CT (DEP, DOT, DPS)	✓	✓	✓	metadata
2006		3	summer	3.28 ft (1 m)	USDA (NAIP)	✓	✓	✓	metadata
2008		4	summer	3.28 ft (1 m)	USDA (NAIP)	✓	✓	✓	metadata
2010		4	summer	3.28 ft (1 m)	USDA (NAIP)	✓	✓	✓	metadata
2012		4	summer	3.28 ft (1m)	USDA (NAIP)	✓	✓	✓	~~metadata~~
2012		4	spring	1 ft	CT (DOT, DPS)	✓	✓	✓	metadata
2014		4	summer	3.28 ft (1 m)	USDA (NAIP)		✓	✓	metadata
2016		4	summer	0.6 m (~2 ft)	USDA (NAIP)		✓	✓	metadata
2016		4	spring	0.25 ft (3 in)	CT (CRCOG, OPM)		✓	✓	metadata
2018		4	summer	0.6 m (~2 ft)	USDA (NAIP)		✓	✓	metadata
2019		4	spring	0.5 ft (6 in)	USGS, NRCS, DOT, DESPP, DEEP		✓	✓	metadata
2021		4	summer	0.6 m (~2 ft)	USDA (NAIP)		✓	✓	metadata
2023		4	spring	0.25 ft (3 in)	OPM (GIS Office)			✓	metadata
2023		4	summer	0.3 m (~1ft)	USDA (NAIP)		✓	✓	metadata

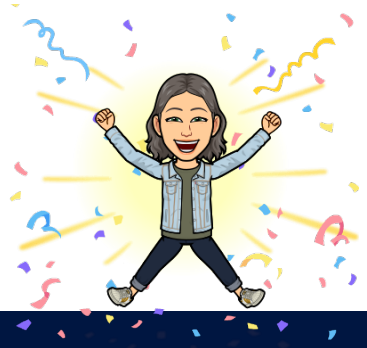
Other GIS Datasets

Newish! CT GIS Office

- Long-time need for centralized GIS capacity, management, and policy
- Scattered resources, different specs, redundancies and gaps
- Leading to increased costs, decreased services, inefficiency, and a sub-par toolset for economic development, environmental protection, public

Fast forward

- June 2021, GIS Office established via legislation



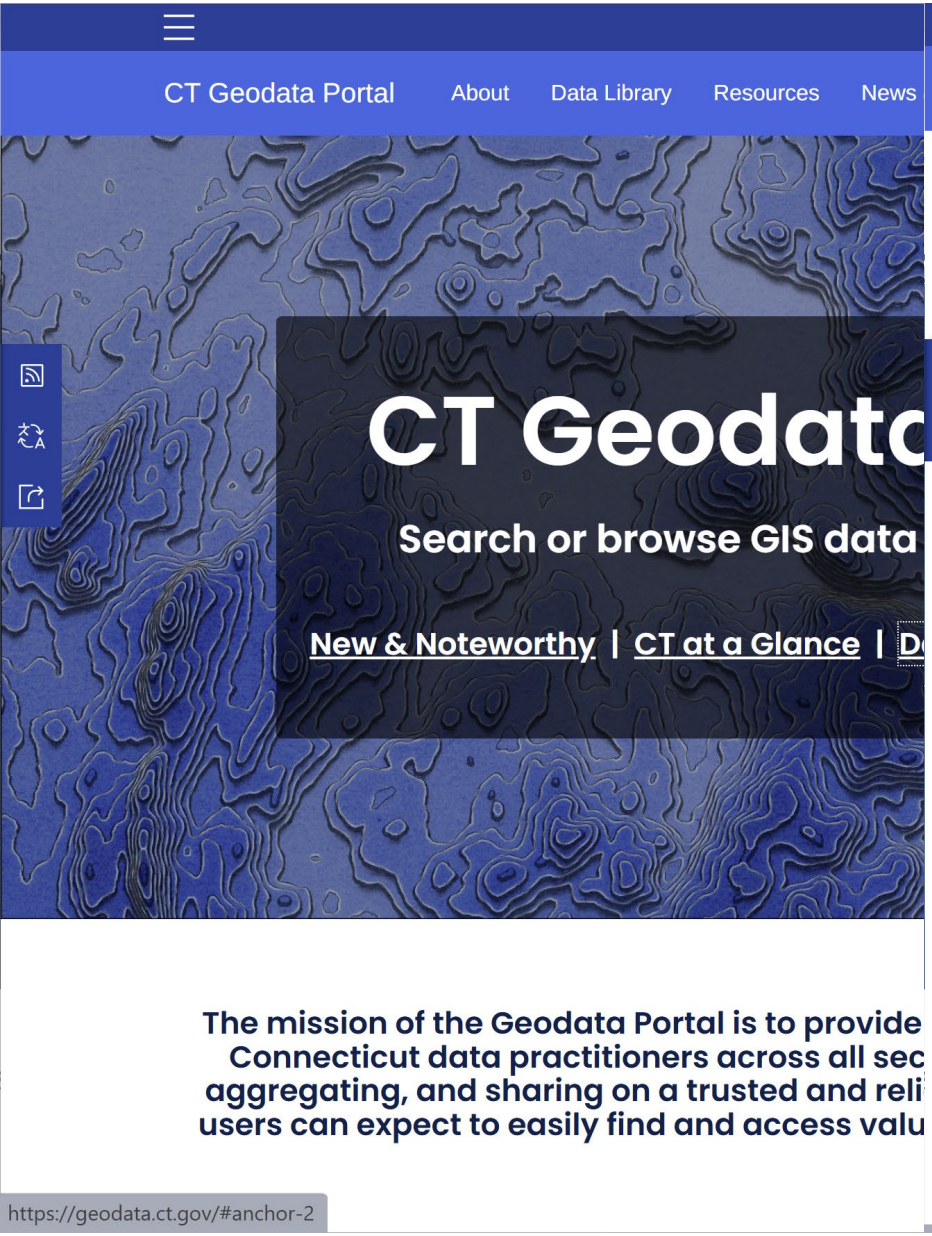
The Legislation! (short version)

Section 78a. Establish a **Geographic Information Systems Office** within **OPM** and designate a **Geographic Information Officer.**

Section 78b. The Geographic Information Office shall be responsible for

- Coordinating the collection, compilation and dissemination of geographic information systems data across the state;
- managing a **geospatial data clearinghouse for public access**;
- administering the creation and acquisition of geospatial data, including aerial imagery and elevation and parcel information;
- adopting geospatial data standards, guidelines and procedures; and
- performing technical data processing.

Section79a. Create a Geographic Information Systems **Advisory Council**


CT Geodata Portal
About
Data Library
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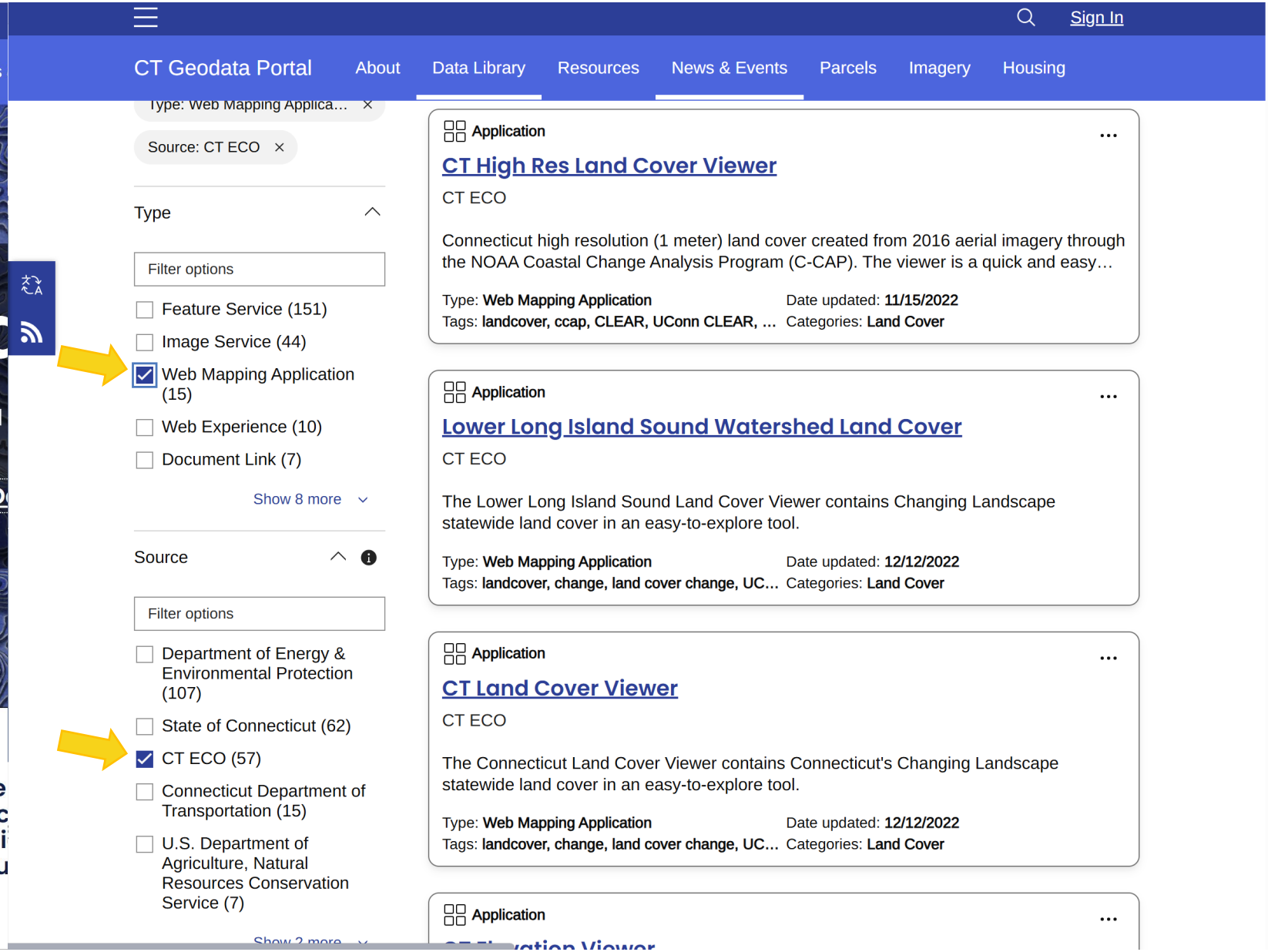
CT Geodata
Search or browse GIS data
New & Noteworthy | CT at a Glance | D
The mission of the Geodata Portal is to provide
Connecticut data practitioners across all sec
aggregating, and sharing on a trusted and reli
users can expect to easily find and access valu
https://geodata.ct.gov/#anchor-2


CT Geodata Portal
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Parcels
Imagery
Housing
Sign In
Type: Web Mapping Applica...
Source: CT ECO
Type
Filter options
Feature Service (151)
Image Service (44)
Web Mapping Application (15)
Web Experience (10)
Document Link (7)
Show 8 more
Source
Filter options
Department of Energy & Environmental Protection (107)
State of Connecticut (62)
CT ECO (57)
Connecticut Department of Transportation (15)
U.S. Department of Agriculture, Natural Resources Conservation Service (7)
Application
CT High Res Land Cover Viewer
CT ECO
Connecticut high resolution (1 meter) land cover created from 2016 aerial imagery through the NOAA Coastal Change Analysis Program (C-CAP). The viewer is a quick and easy…
Type: Web Mapping Application
Date updated: 11/15/2022
Tags: landcover, ccap, CLEAR, UConn CLEAR, …
Categories: Land Cover
Application
Lower Long Island Sound Watershed Land Cover
CT ECO
The Lower Long Island Sound Land Cover Viewer contains Changing Landscape statewide land cover in an easy-to-explore tool.
Type: Web Mapping Application
Date updated: 12/12/2022
Tags: landcover, change, land cover change, UC…
Categories: Land Cover
Application
CT Land Cover Viewer
CT ECO
The Connecticut Land Cover Viewer contains Connecticut's Changing Landscape statewide land cover in an easy-to-explore tool.
Type: Web Mapping Application
Date updated: 12/12/2022
Tags: landcover, change, land cover change, UC…
Categories: Land Cover
Application

Connecticut GIS Office

CTECO

CTDOT

CONNECTICUT ENERGY & ENVIRONMENT

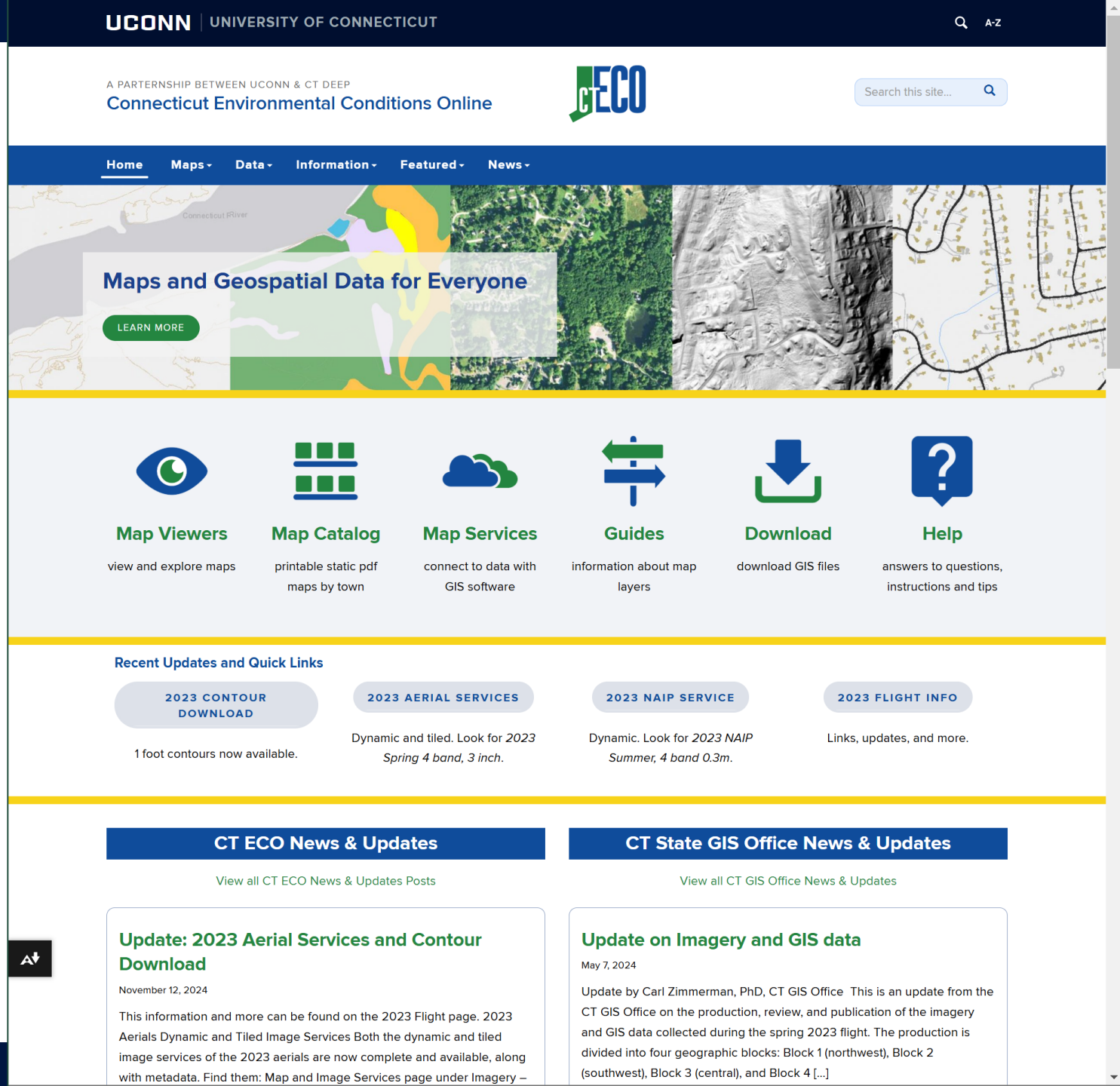
CT ECO

CT ECO is a website that provides a variety of online maps and tools for viewing and accessing natural resources data, aerial imagery, elevation, and land cover.

CONNECTICUT ENERGY & ENVIRONMENT

UCONN EXTENSION

CLEAR Center for Land Use Education & Research



CT ECO Viewers

- 17 and counting
- Different formats

Today!

- Advanced Viewer v2

https://maps.cteco.uconn.edu/viewers/

CT ECO Viewers

Demo!

https://cteco.uconn.edu/

Thank you!
Questions?

Emily H. Wilson
emily.wilson@uconn.edu

https://cteco.uconn.edu